



N E V A D A

AGENDA
Regular Meeting
City Council

Wednesday, August 20, 2025 • 5:00 PM

Mayor

Neal E. McIntyre

City Council

Ward 1 - Ryan Hanan

Ward 2 - Felicity Zoberski

Ward 3 - Stan Lau

Ward 4 - Albert Torres

Ward 5 - Joe Mendoza

City Manager

Fernley City Council Chambers, 595 Silver Lace Boulevard, Fernley, NV 89408

Zoom information:

Please click the following link to join the webinar: <https://us02web.zoom.us/j/82966343247>, or one tap mobile: 12532158782, Dial: 669 900 9128, Webinar ID: 829 6634 3247

Public Notice: This agenda has been physically posted in compliance with 241.020 at Fernley City Hall, 595 Silver Lace Blvd. In addition, this agenda has been electronically posted in compliance with NRS 241.020(3) at www.cityoffernley.org and NRS 232.2175 at <https://notice.nv.gov/>. To obtain further documentation regarding posting, please contact the City Clerk's Office at (775) 784-9830 or cityclerk@cityoffernley.org

Public Comment: Those wishing to address the City Council may submit public comment through the [online public comment form](#), or by sending an email to cityclerk@cityoffernley.org. Comments received prior to 4:00 pm the day of the meeting will be provided to City Council and added to the record but will not be read during the live meeting. Public comments received after 4 pm the day of the meeting will be included in the record but may not reach council members before action is taken. Public comment, whether on action items or public comment, is limited to three (3) minutes per person. Unused time may not be reserved by the speaker, nor allocated to another speaker. The public may comment on any matter that is not specifically included on an agenda as an action item or comment on a specific agenda item. Items not included on the agenda cannot be acted upon other than to place them on a future agenda. Additionally, if you wish you can comment in person at the meeting or use the Raise your Hand feature in Zoom (*9 if you are participating via phone).

Accommodations: City Council and staff will make reasonable efforts to assist and accommodate individuals with disabilities desiring to attend the meeting. Please contact the City Clerk's Office at (775) 784-9830 in advance so that arrangements can be made.

Supporting Material: Staff reports and supporting material for the meeting are available at the City Clerk's Office, and on the City's website at www.cityoffernley.org. Pursuant to NRS 241.020(6), supporting material is made available to the general public at the same time it is provided to the City Council.

Order of Business: The presiding officer shall determine the order of the agenda. The Fernley City Council may combine two or more agenda items for consideration; remove an item from the agenda; or delay discussion relating to an item on the agenda at any time. All items are action items unless otherwise noted. Items scheduled to be heard at a specific time will be heard no earlier than the stated time but may be heard later.

1. INTRODUCTORY ITEMS

- 1.1. Pledge of Allegiance**
- 1.2. Roll Call**
- 1.3. Public Forum**
- 1.4. (For Possible Action) Approval of Agenda**

2. CONSENT AGENDA

(PLEASE NOTE: ALL MATTERS LISTED UNDER THE CONSENT AGENDA ARE CONSIDERED ROUTINE, AND MAY BE ACTED UPON BY THE COUNCIL MEMBERS IN ONE MOTION, AND WITHOUT AN EXTENSIVE HEARING. ANY MEMBER OF THE COUNCIL MAY REQUEST THAT AN ITEM BE TAKEN FROM THE CONSENT AGENDA, DISCUSSED, AND ACTED UPON SEPARATELY DURING THIS MEETING.)

- 2.1. (Possible Action) Approval of Voucher Report**
- 2.2. (Possible Action) Approval of Minutes**
- 2.3. (Possible Approval) Approval of Business Licenses**
- 2.4. Possible action to approve a contract for on-call inspection services and engineering support services with NCE.**
- 2.5. Possible Action to approve the Alvogen, Amneal, Apotex, Hikma, Indivior, Mylan, Sun and Zydus Opioid Settlement**
- 2.6. For Possible Action to purchase one (1) 3/4-ton, four-wheel drive pickup truck with an animal transportation body for the City of Fernley's Animal Control Department for an amount not to exceed \$100,000.**
- 2.7. Discussion and possible action to approve the scope of work and contract for the East Lift Station Improvements Project.**

3. REPORTS - THIS ITEM IS FOR VARIOUS PUBLIC ENTITY REPRESENTATIVES TO PROVIDE GENERAL INFORMATION TO THE COUNCIL AND PUBLIC. NO ACTION WILL BE TAKEN.

- 3.1. Reports by City Staff, City Council, and the Mayor, including but not limited to monthly statistical reports by city departments.**

4. PROCLAMATIONS BY THE MAYOR

5. PUBLIC HEARINGS

- 5.1. (For Possible Action) Second reading, discussion, and possible action on Bill #361 (associated with CA25001) to revise Section 32.03.040(b) (Comprehensive Master Plan Amendment) of the City of Fernley Development Code to better reflect the requirements found in NRS 278.210 for amending the Master Plan.**

6. STAFF REPORTS

- 6.1. Discussion and Possible Action to revise the offer letter for the City Attorney.**
- 6.2. Discussion and possible action to approve the extension of the professional services contract with Stantec for the Highway 50 Loop Design project.**
- 6.3. Discussion and possible action to approve a lease agreement between the Boys & Girls Club of Truckee Meadows and the City of Fernley for the lease of the Community Response & Resource Center.**
- 6.4. Possible Action: Authorization to Proceed with Design, Planning, and Prioritization of Recommended Improvements for the Fernley East Wastewater Treatment Plant (EWWTP) for a total cost of \$27.4 million (Phase 1,(2026): \$10.3 million, Phase 2 (2031): \$17.1 million) and accepting the presentation of Preliminary Engineering Report by Lumos & Associates.**

6.5. Possible Action and Discussion to accept the Preliminary Engineering Report for Design, Planning, and Prioritization of Recommended Improvements for the Fernley Water Treatment Plant (WTP), with a presentation by CDM Smith.

6.6. Discussion and possible action to direct staff to pursue federal and state grants to offset costs for the pre-construction, design and engineering on the East Wastewater Treatment Plant.

7. RESOLUTIONS

7.1. Discussion and possible action to approve Resolution 25-014 to implement negotiations with the Boys & Girls Club of Truckee Meadows for design and construction of the Early Learning Center.

8. PUBLIC FORUM

9. ADJOURNMENT

Next Meeting: September 3rd @ 5pm

Report Criteria:

Detail report.

Invoice detail records above \$0 included.

Paid and unpaid invoices included.

Vendor.Vendor Number = {<>} 2201

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
ALLDATA LLC								
8930	ALLDATA LLC	INVC05983793	ALL DATA AUTOMOTIVE SERVICES	08/13/2025	361.60		100-480-342 Tech Services-Other	825
Total 8930:					361.60			
ALTITUDE SIGNAL, LLC								
8680	ALTITUDE SIGNAL, LLC	1004150	Traffic Signal Diagnostics/Time change	07/31/2025	1,000.00	08/08/2025	100-475-422 Outside Serv-Traf Light Maint	725
Total 8680:					1,000.00			
AQUA BACKFLOW, INC								
8934	AQUA BACKFLOW, INC	2025-0230	Backflow Prevention Program Management	08/05/2025	342.00	08/08/2025	510-810-320 Prof Serv-Engineering	825
Total 8934:					342.00			
ARAMARK (VESTIS)								
1895	ARAMARK (VESTIS)	5980311053	SHIRT CONTRACT	07/29/2025	84.49	08/08/2025	100-480-420 Outside Services	725
1895	ARAMARK (VESTIS)	5980311054	Clothing/Floor Mats	07/29/2025	83.77	08/08/2025	100-475-420 Outside Services	725
1895	ARAMARK (VESTIS)	5980311055	floor mat service	07/29/2025	32.85	08/08/2025	510-810-420 Outside Services	725
1895	ARAMARK (VESTIS)	5980312686	PS shop supplies	08/05/2025	154.11	08/08/2025	510-840-420 Outside Services	825
1895	ARAMARK (VESTIS)	5980312693	SHIRT CONTRACT	08/05/2025	83.43	08/08/2025	100-480-420 Outside Services	825
1895	ARAMARK (VESTIS)	5980312694	SHOP MAT SERVICE	08/05/2025	97.56	08/08/2025	100-475-420 Outside Services	825
1895	ARAMARK (VESTIS)	5980312695	Clothing/Floor mats	08/05/2025	83.77	08/08/2025	100-475-420 Outside Services	825
1895	ARAMARK (VESTIS)	5980312696	floor mat service	08/05/2025	32.85		510-810-420 Outside Services	825
1895	ARAMARK (VESTIS)	5980312698	Floor Mats	08/05/2025	199.26	08/08/2025	100-417-420 Outside Services	825
Total 1895:					852.09			
ARC GENERATOR SERVICE, LLC								
8984	ARC GENERATOR SERVICE, LLC	2571	Meadows Lift Station ATS repair	08/06/2025	1,503.79	08/08/2025	520-810-428 Outside Serv-Electrical	825
Total 8984:					1,503.79			
AT&T								
13	AT&T	2344945017	07048 WTP Ethernet JULY 7/1-7/30	08/01/2025	2,575.28		100-417-530 Communications	825
13	AT&T	53740 JUL 25	775-575-5455 374 0	07/26/2025	2,605.33	08/19/2025	100-417-530 Communications	725
13	AT&T	53740 JUL 25	775-575-7187 436 8	07/26/2025	666.14	08/19/2025	100-417-530 Communications	725
13	AT&T	53740 JUL 25	775-835-8598 165 0	07/26/2025	2,140.15	08/19/2025	100-417-530 Communications	725

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
13	AT&T	53740 JUL 25	775-575-9058 536 7	07/26/2025	666.14	08/19/2025	100-417-530 Communications	725
13	AT&T	96145 AUG 25	131 252-8129 614 5	08/02/2025	230.00	08/25/2025	100-417-530 Communications	825
13	AT&T	96145 AUG 25	131 252-7192 857 4	08/02/2025	308.16	08/25/2025	100-417-530 Communications	825
Total 13:					9,191.20			
AT&T LONG DISTANCE								
448	AT&T LONG DISTANCE	80425	81551934 3AUG - 2025	08/04/2025	1,414.09		100-417-530 Communications	825
Total 448:					1,414.09			
AUTO & TRUCK ELECTRIC, INC								
8868	AUTO & TRUCK ELECTRIC, INC	48841	BATTERY FOR FLEET	07/31/2025	165.00	08/08/2025	100-480-610 Automotive Supplies	725
Total 8868:					165.00			
B & L BACKFLOW TESTING SPECIALISTS								
1419	B & L BACKFLOW TESTING SPECIALISTS	110725TW-REFRESHER	8HR CROSS CONNECTION REFRESHER COURSE FOR T.	08/01/2025	200.00	08/08/2025	510-810-580 Training	825
Total 1419:					200.00			
BIG R OF FERNLEY								
20	BIG R OF FERNLEY	22470/5	Microfiber towels	07/29/2025	12.99	08/08/2025	100-417-614 Shop Supplies	725
20	BIG R OF FERNLEY	22493/5	Trailer plug/sheers	08/01/2025	42.94	08/08/2025	100-575-600 General Supplies	825
20	BIG R OF FERNLEY	22509/5	Yearly Work boot - N. McIntyre	08/04/2025	135.96	08/08/2025	520-810-616 Safety Supplies	825
20	BIG R OF FERNLEY	22511/5	Roach Killer/Grabber stick	08/04/2025	31.98	08/08/2025	100-417-600 General Supplies	825
20	BIG R OF FERNLEY	22516/5	water	08/04/2025	8.58	08/08/2025	100-575-600 General Supplies	825
20	BIG R OF FERNLEY	22516/5	Gloves	08/04/2025	24.95	08/08/2025	100-575-616 Safety Supplies	825
20	BIG R OF FERNLEY	22519/5	Tie wire	08/04/2025	21.98	08/08/2025	100-575-600 General Supplies	825
20	BIG R OF FERNLEY	22524/5	Flag	08/05/2025	13.99	08/08/2025	100-575-600 General Supplies	825
20	BIG R OF FERNLEY	22527/5	Clorox Wipes	08/05/2025	4.49	08/08/2025	100-417-612 Building Maint Supplies	825
20	BIG R OF FERNLEY	22531/5	Clorox Wipes	08/06/2025	13.47	08/08/2025	100-417-612 Building Maint Supplies	825
20	BIG R OF FERNLEY	22532/5	Rake	08/06/2025	52.99	08/08/2025	100-575-605 Minor Equipment	825
20	BIG R OF FERNLEY	22533/5	Safety Vests	08/06/2025	29.90	08/08/2025	100-575-616 Safety Supplies	825
20	BIG R OF FERNLEY	22536/5	BOLTS FOR FLEET	08/07/2025	19.39	08/08/2025	100-480-610 Automotive Supplies	825
20	BIG R OF FERNLEY	22541/5	PVC Art Park Water Line	08/07/2025	62.93		220-480-684 Main Street Beautification	825
20	BIG R OF FERNLEY	22546/5	Rope/Hose/Lock	08/07/2025	111.86		100-575-600 General Supplies	825
20	BIG R OF FERNLEY	22550/5	PVC Fittings	08/08/2025	23.96		100-575-600 General Supplies	825
20	BIG R OF FERNLEY	22555/5	Yearly water proof boots for Dillon v.	08/08/2025	148.76		510-810-616 Safety Supplies	825
20	BIG R OF FERNLEY	22556/5	shop supplies	08/08/2025	61.92		510-810-614 Shop Supplies	825
20	BIG R OF FERNLEY	22580/5	PVC Fittings/Spray Nozzle	08/12/2025	22.05		100-575-600 General Supplies	825
Total 20:					845.09			

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
BRADY INDUSTRIES OF NEVADA LLC								
8837	BRADY INDUSTRIES OF NEVADA LLC	10432460	Toilet paper/trash bags	08/01/2025	588.49	08/08/2025	100-417-612 Building Maint Supplies	825
Total 8837:					588.49			
CARE FLIGHT								
7204	CARE FLIGHT	MEM-155	HEALTH INSURANCE/CARE FLIGHT G. GOTHAN	08/11/2025	1.81		100-575-240 Group Insurance	825
7204	CARE FLIGHT	MEM-155	HEALTH INSURANCE/CARE FLIGHT G. HALL	08/11/2025	3.00		100-605-240 Group Insurance	825
7204	CARE FLIGHT	MEM-155	HEALTH INSURANCE/CARE FLIGHT G. GOTHAN	08/11/2025	1.19		100-417-240 Group Insurance	825
7204	CARE FLIGHT	MEM-155	HEALTH INSURANCE/CARE FLIGHT E. HARRIS	08/11/2025	3.00		100-475-240 Group Insurance	825
7204	CARE FLIGHT	MEM-155	HEALTH INSURANCE/CARE FLIGHT K. PETERSON	08/11/2025	1.19		100-417-240 Group Insurance	825
7204	CARE FLIGHT	MEM-155	HEALTH INSURANCE/CARE FLIGHT K. PETERSON	08/11/2025	1.81		100-575-240 Group Insurance	825
Total 7204:					12.00			
CDM SMITH								
8576	CDM SMITH	90240887	Surface Water Treatment Integration at WTP and new tank	06/29/2025	205.00	08/08/2025	510-166100 Construction In Progress	625
Total 8576:					205.00			
CHARTER COMMUNICATIONS								
4479	CHARTER COMMUNICATIONS	175969701080125	69701 595 Silver Lace Aug 25 08/01-08/30	08/01/2025	1,336.57		100-417-530 Communications	825
4479	CHARTER COMMUNICATIONS	175970201080125	7020 355 Cottonwood 8/1-8/30	08/01/2025	386.57		100-417-530 Communications	825
Total 4479:					1,723.14			
CHASE								
8748	CHASE	INV-480	2020 SERIES BOND PAYMENT-WATER INTEREST	08/01/2025	13,421.48	08/01/2025	510-800-860 Interest Expense	825
8748	CHASE	INV-480	2020 SERIES BOND PAYMENT-SEWER INTEREST	08/01/2025	1,503.22	08/01/2025	520-800-860 Interest Expense	825
Total 8748:					14,924.70			
CHASE PAYMENTECH MERCHANT SERVICES								
8637	CHASE PAYMENTECH MERCHANT SERVICES	7/2025	FINANCE-CREDIT CARD PROCESSING FEES 6291058	07/31/2025	92.46	08/10/2025	100-415-609 Credit Card Fees	725
8637	CHASE PAYMENTECH MERCHANT SERVICES	7/2025	SEWER-CREDIT CARD PROCESSING FEES 6181757	07/31/2025	3,864.60	08/10/2025	520-810-609 Credit Card Fees	725
8637	CHASE PAYMENTECH MERCHANT SERVICES	7/2025	FINANCE-CREDIT CARD PROCESSING FEES 6291057	07/31/2025	1,031.60	08/10/2025	100-415-609 Credit Card Fees	725
8637	CHASE PAYMENTECH MERCHANT SERVICES	7/2025	WATER-CREDIT CARD PROCESSING FEES 6181757	07/31/2025	3,864.60	08/10/2025	510-810-609 Credit Card Fees	725
Total 8637:					8,853.26			
CITY OF FERNLEY								
32	CITY OF FERNLEY	30.7838.17 AUG 25	NEW TREATED WATER RESERVOIR WTP	08/01/2025	107.74		510-166100 Construction In Progress	825

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
Total 32:					107.74			
CIVIC PLUS								
3028	CIVIC PLUS	344294	Municode On-line	10/01/2025	577.50	08/08/2025	100-416-322 Prof Serv-Other	1025
Total 3028:					577.50			
COURTVIEW JUSTICE SOLUTIONS INC								
7341	COURTVIEW JUSTICE SOLUTIONS INC	NEVADAOC9431	AOC Grant for Global Justice Clean Up	06/30/2025	5,375.00		100-425-322 Prof Serv-Other	625
Total 7341:					5,375.00			
CSG FORTE PAYMENTS, INC								
8996	CSG FORTE PAYMENTS, INC	0014014498	FORTE CC MONTHLY STMT AND PROCESS FEES	07/31/2025	7.19	08/10/2025	100-417-420 Outside Services	725
8996	CSG FORTE PAYMENTS, INC	0014014498	FORTE CC MONTHLY STMT AND PROCESS FEES	07/31/2025	7.19	08/10/2025	100-575-420 Outside Services	725
8996	CSG FORTE PAYMENTS, INC	0014014547	FORTE CC MONTHLY STMT AND PROCESS FEES	07/31/2025	5.00	08/10/2025	100-605-420 Outside Services	725
8996	CSG FORTE PAYMENTS, INC	0014014645	FORTE CC MONTHLY STMT AND PROCESS FEES	07/31/2025	9.01	08/10/2025	100-417-420 Outside Services	725
8996	CSG FORTE PAYMENTS, INC	0014014645	FORTE CC MONTHLY STMT AND PROCESS FEES	07/31/2025	9.01	08/10/2025	100-575-420 Outside Services	725
8996	CSG FORTE PAYMENTS, INC	0014014790	FORTE CC MONTHLY STMT AND PROCESS FEES	07/30/2025	5.00	08/10/2025	100-605-420 Outside Services	725
Total 8996:					42.40			
DOWL, LLC								
8931	DOWL, LLC	19	FSM Shadow Hills Map Review	08/08/2025	462.50		100-610-322 Prof Serv-Other	825
8931	DOWL, LLC	7363.30292.03-1	GIS Support - DOWL	08/08/2025	1,813.75		100-529-320 Prof Serv-Engineering	825
8931	DOWL, LLC	7363.30583.01-3	90% Plan Review of Pond4A and 4B Liner	08/08/2025	1,164.25		520-810-320 Prof Serv-Engineering	825
Total 8931:					3,440.50			
EASY ROOTER								
2386	EASY ROOTER	274819	Sewer line repair services - Chamber of Commerce Building	07/23/2025	925.00	08/08/2025	100-417-420 Outside Services	725
Total 2386:					925.00			
EMPLOYEES, CITY OF FERNLEY								
8639	EMPLOYEES, CITY OF FERNLEY	MO0731	NNO KID GIVE AWAYS- AMAZON SQUIRT GUNS	08/05/2025	40.69	08/08/2025	100-412-650 Community Support	825
Total 8639:					40.69			
EVERON, LLC								
8979	EVERON, LLC	159338102	PS security system service agreement	07/30/2025	76.19	08/08/2025	510-840-420 Outside Services	725

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
Total 8979:					76.19			
FASTENAL COMPANY								
4860	FASTENAL COMPANY	NVFER53425	5/8 Bolts	08/06/2025	31.60		520-810-430 Outside Serv-Repair & Maint	825
Total 4860:					31.60			
FERNLEY REPAIR LLC								
9071	FERNLEY REPAIR LLC	7552	Diagnostic for break room fridge.	07/31/2025	79.44		100-417-430 Outside Serv-Repair & Maint	725
Total 9071:					79.44			
FLYERS ENERGY, LLC								
18	FLYERS ENERGY, LLC	CFS-4327981	GASOLINE-PARKS	07/31/2025	528.68	08/08/2025	100-575-626 Gasoline	725
18	FLYERS ENERGY, LLC	CFS-4327981	GASOLINE-WW	07/31/2025	1,125.94	08/08/2025	520-810-626 Gasoline	725
18	FLYERS ENERGY, LLC	CFS-4327981	GASOLINE-ANIMAL CONTROL	07/31/2025	155.47	08/08/2025	100-525-626 Gasoline	725
18	FLYERS ENERGY, LLC	CFS-4327981	GASOLINE-WTP	07/31/2025	256.46	08/08/2025	510-840-626 Gasoline	725
18	FLYERS ENERGY, LLC	CFS-4327981	GASOLINE-COURT	07/31/2025	93.42	08/08/2025	100-425-626 Gasoline	725
18	FLYERS ENERGY, LLC	CFS-4327981	GASOLINE-ENG	07/31/2025	251.00	08/08/2025	100-529-626 Gasoline	725
18	FLYERS ENERGY, LLC	CFS-4327981	GASOLINE-WD	07/31/2025	1,133.40	08/08/2025	510-810-626 Gasoline	725
18	FLYERS ENERGY, LLC	CFS-4327981	GASOLINE-FLEET	07/31/2025	169.99	08/08/2025	100-480-626 Gasoline	725
18	FLYERS ENERGY, LLC	CFS-4327981	GASOLINE-FACILITIES	07/31/2025	531.85	08/08/2025	100-417-626 Gasoline	725
18	FLYERS ENERGY, LLC	CFS-4327981	GASOLINE-VECTOR	07/31/2025	165.64	08/08/2025	100-528-626 Gasoline	725
18	FLYERS ENERGY, LLC	CFS-4327981	GASOLINE-STREETS	07/31/2025	1,735.80	08/08/2025	100-475-626 Gasoline	725
18	FLYERS ENERGY, LLC	CFS-4327981	GASOLINE-BUILDING	07/31/2025	149.45	08/08/2025	100-605-626 Gasoline	725
Total 18:					6,297.10			
FLYNN GIUDICI GOVERNMENT AFFAIRS LLC								
8869	FLYNN GIUDICI GOVERNMENT AFFAIRS LLC	INV-0597	Lobbyist Contract AUG 25	08/01/2025	5,800.00	08/08/2025	100-413-322 Prof Serv-Other	825
Total 8869:					5,800.00			
GOPHER CONSTRUCTION INC								
202	GOPHER CONSTRUCTION INC	35281	PS landscape material	05/29/2025	1,760.00		510-840-614 Shop Supplies	525
Total 202:					1,760.00			
GRAINGER								
252	GRAINGER	9595810863	PS shop supplies	08/04/2025	415.38	08/08/2025	510-840-614 Shop Supplies	825
252	GRAINGER	9595810871	PS safety supplies	08/04/2025	883.05	08/08/2025	510-840-616 Safety Supplies	825
252	GRAINGER	9598848134	PS supplies	08/06/2025	71.33	08/08/2025	510-840-614 Shop Supplies	825
252	GRAINGER	9603102907	asphalt saw blades	08/11/2025	463.72		510-840-614 Shop Supplies	825

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
Total 252:					1,833.48			
GRANITE CONSTRUCTION CO								
64	GRANITE CONSTRUCTION CO	3003213	Hot Mix	07/24/2025	387.40	08/08/2025	100-475-600 General Supplies	725
Total 64:					387.40			
H&H INVESTMENTS & TOOL SUPPLY								
8987	H&H INVESTMENTS & TOOL SUPPLY	68544	TOOL HOLDERS FOR SERVICE TRUCK	07/30/2025	114.88	08/08/2025	100-480-600 General Supplies	725
Total 8987:					114.88			
HACH COMPANY								
406	HACH COMPANY	14603633	PS turbidimeter sensors	07/31/2025	794.20	08/08/2025	510-840-614 Shop Supplies	725
406	HACH COMPANY	14608368	PS Water quality analyzers: pH and Turbidity	08/04/2025	18,310.63		510-840-614 Shop Supplies	825
406	HACH COMPANY	14614536	PS Water Quality Instrumentation training for PS	08/07/2025	817.00		510-840-580 Training	825
406	HACH COMPANY	14618875	PS water quality instrument controllers	08/11/2025	6,574.00		510-840-614 Shop Supplies	825
Total 406:					26,495.83			
HANNEMAN SERVICE								
70	HANNEMAN SERVICE	111923	Misc. Service Labor	07/08/2025	145.00	08/08/2025	100-605-420 Outside Services	725
70	HANNEMAN SERVICE	111926	Misc. Service Labor	07/16/2025	145.00	08/08/2025	100-605-420 Outside Services	725
70	HANNEMAN SERVICE	111929	Misc. Service Labor	07/22/2025	145.00	08/08/2025	100-605-420 Outside Services	725
70	HANNEMAN SERVICE	111930	Misc. Labor	07/25/2025	145.00	08/08/2025	100-605-420 Outside Services	725
70	HANNEMAN SERVICE	111931	Misc. Service Labor	07/22/2025	145.00	08/08/2025	100-605-420 Outside Services	725
70	HANNEMAN SERVICE	14424	2001 Ford Escape 216 T16 430 Bramble	07/08/2025	55.00	08/08/2025	100-605-420 Outside Services	725
70	HANNEMAN SERVICE	14429	White Toyota Prius 1032 Brierwood	07/22/2025	55.00	08/08/2025	100-605-420 Outside Services	725
70	HANNEMAN SERVICE	14434	White Chevy Suburban	07/16/2025	55.00	08/08/2025	100-605-420 Outside Services	725
70	HANNEMAN SERVICE	14440	Maroon GMC Sierra No Plates 565 Sunny Lane	07/25/2025	55.00	08/08/2025	100-605-420 Outside Services	725
70	HANNEMAN SERVICE	14441	Seadoo and Trailer 1040 Aster Lane	07/22/2025	55.00	08/08/2025	100-605-420 Outside Services	725
Total 70:					1,000.00			
HANSFORD ECONOMIC CONSULTING LLC								
6228	HANSFORD ECONOMIC CONSULTING LLC	843	Utility Rate Study	08/04/2025	4,931.25		510-810-420 Outside Services	825
6228	HANSFORD ECONOMIC CONSULTING LLC	843	Utility Rate Study	08/04/2025	4,931.25		520-810-420 Outside Services	825
Total 6228:					9,862.50			
HARRIS INDUSTRIAL GASES								
8630	HARRIS INDUSTRIAL GASES	1988622	WIRE FOR SHOP	08/01/2025	36.08	08/08/2025	100-480-600 General Supplies	825
8630	HARRIS INDUSTRIAL GASES	1988649	WELDING WIRE FOR PARKS	08/04/2025	155.44	08/08/2025	100-575-600 General Supplies	825

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
Total 8630:					191.52			
HISKETT & SONS, LLC								
8487	HISKETT & SONS, LLC	126175	Main St Park - cement	07/14/2025	803.70	08/08/2025	220-480-684 Main Street Beautification	725
Total 8487:					803.70			
IBEW Local 1245								
83	IBEW Local 1245	AUG 2025-1	UNION DUES, ONE HALF OF MONTH	08/08/2025	1,449.27	08/08/2025	100-219900 OTHER PAYROLL PAYABLES	825
Total 83:					1,449.27			
INTERNAL REVENUE SERVICE								
7879	INTERNAL REVENUE SERVICE	AUG 2025-1	FICA TAX PAYABLE, PAYROLL	08/08/2025	396.90	08/08/2025	100-211000 FICA PAYABLE	825
7879	INTERNAL REVENUE SERVICE	AUG 2025-1	W/HOLD TAX PAYABLE, PAYROLL	08/08/2025	29,325.06	08/08/2025	100-212000 FEDERAL WITHHOLDING PAYAB	825
7879	INTERNAL REVENUE SERVICE	AUG 2025-1	MED TAX PAYABLE, PAYROLL	08/08/2025	7,741.22	08/08/2025	100-211000 FICA PAYABLE	825
Total 7879:					37,463.18			
INTERNATIONAL INSTITUTE OF								
8184	INTERNATIONAL INSTITUTE OF	7312025	IIMC Dues Swanson/Gosser	07/10/2025	330.00	08/08/2025	100-416-581 Dues and Memberships	725
Total 8184:					330.00			
INTERSTATE OIL COMPANY								
4329	INTERSTATE OIL COMPANY	881648-IN	OIL FOR FLEET	07/30/2025	929.88	08/08/2025	100-480-610 Automotive Supplies	725
Total 4329:					929.88			
JNA CONSULTING GROUP LLC								
2953	JNA CONSULTING GROUP LLC	2025.040	Debt Management Policy FY26	07/31/2025	787.50	08/08/2025	520-810-322 Prof Serv-Other	725
2953	JNA CONSULTING GROUP LLC	2025.040	Debt Management Policy FY26	07/31/2025	787.50	08/08/2025	510-810-322 Prof Serv-Other	725
Total 2953:					1,575.00			
JOHN ALLEN WOODS								
8994	JOHN ALLEN WOODS	273858	CRRC keys	08/04/2025	35.00	08/08/2025	100-417-420 Outside Services	825
Total 8994:					35.00			
KOCH ELEVATOR CO.								
8751	KOCH ELEVATOR CO.	413868	Elevator Maintenance	08/01/2025	216.80	08/08/2025	100-417-430 Outside Serv-Repair & Maint	825

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
Total 8751:					216.80			
LEHR AUTO								
9074	LEHR AUTO	SI121799	LIGHT BARS FOR FLEET	07/28/2025	3,711.50	08/08/2025	100-480-610 Automotive Supplies	725
Total 9074:					3,711.50			
LICKETY SPLIT EXPRESS WASH, LLC								
9051	LICKETY SPLIT EXPRESS WASH, LLC	#1 PW JUL 25	1 truck wash	07/31/2025	11.00	08/08/2025	100-417-420 Outside Services	725
9051	LICKETY SPLIT EXPRESS WASH, LLC	#3 STREETS JUL 25	1 truck wash	07/31/2025	11.00	08/08/2025	100-475-420 Outside Services	725
9051	LICKETY SPLIT EXPRESS WASH, LLC	#4 FLEET JUL 25	5 Truck washes	07/31/2025	94.00		100-480-420 Outside Services	725
9051	LICKETY SPLIT EXPRESS WASH, LLC	#8 WW JUL 25	1 truck wash	07/31/2025	11.00	08/08/2025	520-810-420 Outside Services	725
9051	LICKETY SPLIT EXPRESS WASH, LLC	#9 WTP JUL 25	1 truck wash	07/31/2025	11.00	08/08/2025	510-840-420 Outside Services	725
Total 9051:					138.00			
LOWES CREDIT SERVICES								
7650	LOWES CREDIT SERVICES	70153	RO SYSTEM FOR THE SHOP	08/08/2025	456.99		100-475-600 General Supplies	825
7650	LOWES CREDIT SERVICES	70761	Top soil for Art Park	08/08/2025	602.02		220-480-684 Main Street Beautification	825
7650	LOWES CREDIT SERVICES	71975	Plants for Picetti	07/25/2025	377.74	08/08/2025	100-575-600 General Supplies	725
7650	LOWES CREDIT SERVICES	78833	WWTP office light bulbs	08/12/2025	94.98		520-810-600 General Supplies	825
7650	LOWES CREDIT SERVICES	79560	Irrigation Supplies	07/29/2025	36.36	08/08/2025	100-575-600 General Supplies	725
7650	LOWES CREDIT SERVICES	81948	Forms for Benches and Art- Art Park Main St Beautification	07/30/2025	65.94	08/08/2025	220-480-684 Main Street Beautification	725
7650	LOWES CREDIT SERVICES	85991	cleaning supplies	08/01/2025	182.41		510-810-600 General Supplies	825
7650	LOWES CREDIT SERVICES	86251	Lumber/hardware/bit set	08/01/2025	90.38	08/08/2025	100-575-600 General Supplies	825
7650	LOWES CREDIT SERVICES	93064	Gloves/Hardhat	08/04/2025	231.16	08/08/2025	100-475-616 Safety Supplies	825
7650	LOWES CREDIT SERVICES	93064	Saw Blades	08/04/2025	327.75	08/08/2025	100-475-600 General Supplies	825
7650	LOWES CREDIT SERVICES	980410	Paint	07/02/2025	45.50		100-417-600 General Supplies	725
7650	LOWES CREDIT SERVICES	980578-PGDMMW	Small Network Switch and Power Strip -work bench it071520	07/15/2025	74.55		100-418-600 General Supplies	725
7650	LOWES CREDIT SERVICES	98111	Replacement Hand Tools	08/07/2025	76.40	08/08/2025	520-810-614 Shop Supplies	825
7650	LOWES CREDIT SERVICES	981840	Tools/Misc woodworking supplies	07/30/2025	94.85		100-417-600 General Supplies	725
7650	LOWES CREDIT SERVICES	992669 -PGXRZM	General Supplies for Wastewater	07/21/2025	34.21		520-810-600 General Supplies	725
7650	LOWES CREDIT SERVICES	993122 -PGXRZO	General Supplies for electrician	07/21/2025	13.16		510-840-600 General Supplies	725
7650	LOWES CREDIT SERVICES	993122 -PGXRZO	General Supplies for electrician	07/21/2025	13.16		510-810-600 General Supplies	725
7650	LOWES CREDIT SERVICES	993122 -PGXRZO	General Supplies for electrician	07/21/2025	26.34		510-840-600 General Supplies	725
7650	LOWES CREDIT SERVICES	999531	Hardware/Satin clear	07/24/2025	43.15		100-417-600 General Supplies	725
Total 7650:					2,887.05			
LP INSURANCE SERVICES, INC								
8746	LP INSURANCE SERVICES, INC	1055434	Policy EB FEE Sept 2025	09/01/2025	2,500.00		100-413-322 Prof Serv-Other	925

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
Total 8746:					2,500.00			
LYON COUNTY CLERK/TREASURER								
106	LYON COUNTY CLERK/TREASURER	TLT Jul 25	Transient Lodging Tax	07/31/2025	3,796.40	08/08/2025	225-227010 TLT Payable to County	725
Total 106:					3,796.40			
MadisonAI								
9073	MadisonAI	6866	Annual Licensing	07/03/2025	20,000.00	08/08/2025	100-418-342 Tech Services-Other	725
Total 9073:					20,000.00			
MARSHALL'S SEPTIC CARE								
8509	MARSHALL'S SEPTIC CARE	I26307	Portable Restroom Maintenance	08/01/2025	128.33	08/08/2025	100-575-430 Outside Serv-Repair & Maint	825
8509	MARSHALL'S SEPTIC CARE	I26308	Portable Restroom Maintenance	08/01/2025	128.33	08/08/2025	100-575-430 Outside Serv-Repair & Maint	825
8509	MARSHALL'S SEPTIC CARE	I26309	Portable Restroom Maintenance	08/01/2025	551.65	08/08/2025	100-575-430 Outside Serv-Repair & Maint	825
8509	MARSHALL'S SEPTIC CARE	I26310	Portable Restroom Maintenance	08/01/2025	220.66	08/08/2025	100-575-430 Outside Serv-Repair & Maint	825
8509	MARSHALL'S SEPTIC CARE	I26311	Portable Restroom Maintenance	08/01/2025	220.66	08/08/2025	100-575-430 Outside Serv-Repair & Maint	825
8509	MARSHALL'S SEPTIC CARE	I26312	Portable Restroom Maintenance	08/01/2025	118.33	08/08/2025	100-575-430 Outside Serv-Repair & Maint	825
8509	MARSHALL'S SEPTIC CARE	I26313	Portable Restroom Maintenance	08/01/2025	118.33	08/08/2025	100-417-430 Outside Serv-Repair & Maint	825
Total 8509:					1,486.29			
MISCELLANEOUS ONE TIME VENDOR								
1111	MISCELLANEOUS ONE TIME VENDOR	245884373	OVERPAYMENT- DOG LICENSE "BEAR"	07/31/2025	25.00	08/08/2025	100-320-170 Animal License Fees	725
Total 1111:					25.00			
MME - MUNICIPAL MAINTENANCE EQUIP								
6635	MME - MUNICIPAL MAINTENANCE EQUIP	39833	VAC-CON PARTS	08/08/2025	158.97		100-475-600 General Supplies	825
Total 6635:					158.97			
MSC INDUSTRIAL SUPPLY CO								
115	MSC INDUSTRIAL SUPPLY CO	46209230	Streets Supplies	08/08/2025	35.99		100-475-600 General Supplies	825
Total 115:					35.99			
NAPA AUTO & TRUCK PARTS								
58	NAPA AUTO & TRUCK PARTS	433854	Mower Belt	07/29/2025	16.99	08/08/2025	100-575-600 General Supplies	725
58	NAPA AUTO & TRUCK PARTS	434266	PARTS FOR DUMP TRUCK	08/05/2025	16.08	08/08/2025	100-480-610 Automotive Supplies	825
58	NAPA AUTO & TRUCK PARTS	434375	SWITCHES FOR FLEET	08/07/2025	153.06	08/08/2025	100-480-610 Automotive Supplies	825
58	NAPA AUTO & TRUCK PARTS	434376	DRILL FOR SHOP	08/07/2025	287.10	08/08/2025	100-480-600 General Supplies	825

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
58	NAPA AUTO & TRUCK PARTS	434381	Latex Gloves	08/07/2025	14.04		100-417-614 Shop Supplies	825
58	NAPA AUTO & TRUCK PARTS	434390	Work Truck seat covers	08/07/2025	416.99	08/08/2025	520-810-610 Automotive Supplies	825
58	NAPA AUTO & TRUCK PARTS	434620	ATF FOR FIRE DEPT.	08/11/2025	11.58		100-126000 Intergovernmental Receivable	825
58	NAPA AUTO & TRUCK PARTS	434710	PS HVAC Belts	08/13/2025	184.64		510-840-614 Shop Supplies	825
Total 58:					1,100.48			
NATIONS MEDICAL								
8502	NATIONS MEDICAL	110977	Medical Cabinet Upgrades	08/11/2025	257.19		100-417-420 Outside Services	825
8502	NATIONS MEDICAL	110992	PS First Aid supplies	07/04/2025	590.97	08/08/2025	510-840-616 Safety Supplies	725
Total 8502:					848.16			
NEVADA DEPARTMENT OF TAXATION								
6378	NEVADA DEPARTMENT OF TAXATION	TLT Jul 25	Transient Lodging Tax	07/31/2025	1,858.69	08/08/2025	225-227015 TLT Payable to State	725
Total 6378:					1,858.69			
NEVADA DEPT PUBLIC SAFETY - DPS								
7405	NEVADA DEPT PUBLIC SAFETY - DPS	72596	REF # 3762761	07/31/2025	9.75	08/08/2025	510-840-322 Prof Serv-Other	725
7405	NEVADA DEPT PUBLIC SAFETY - DPS	72596	REF # 3762761	07/31/2025	9.75	08/08/2025	510-810-322 Prof Serv-Other	725
7405	NEVADA DEPT PUBLIC SAFETY - DPS	72596	REF # 3762761	07/31/2025	19.50	08/08/2025	520-810-322 Prof Serv-Other	725
Total 7405:					39.00			
NEVADA SEAL & PUMP								
4339	NEVADA SEAL & PUMP	NSP6969	PS ACID pump repair parts	08/08/2025	7,495.26		510-840-430 Outside Serv-Repair & Maint	825
Total 4339:					7,495.26			
NSB - BANKCARD CENTER								
8649	NSB - BANKCARD CENTER	JUL 25	DRURY PLAZA HOTEL; CREDIT CHARGE HOTEL STAY IIM	07/31/2025	1,265.29	08/10/2025	100-416-582 Travel	725
8649	NSB - BANKCARD CENTER	JUL 25	NOTARIES.COM; APPLICATION, SUPPLIES, MEMBERSHIP	07/31/2025	245.95	08/10/2025	100-610-580 Training	725
8649	NSB - BANKCARD CENTER	JUL 25	NBI; DPWD AND ADMIN WATER RIGHTS TRAINING PW	07/31/2025	194.50	08/10/2025	100-475-580 Training	725
8649	NSB - BANKCARD CENTER	JUL 25	NDEP; WD GRADE 2 TESTING D. VIERRA	07/31/2025	123.00	08/10/2025	510-810-580 Training	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; DUAL MONTIOR STAND, CALCULATOR, KEYBO	07/31/2025	601.14	08/10/2025	510-840-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	IMAGING SPECTRUM; PHOTO PAPER CCO	07/31/2025	152.00	08/10/2025	100-416-600 General Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	APWA; ANNUAL MEMBERSHIP PW	07/31/2025	153.00	08/10/2025	100-475-581 Dues and Memberships	725
8649	NSB - BANKCARD CENTER	JUL 25	APWA; PUBLIC WORKS EXPO DPWD PW	07/31/2025	246.00	08/10/2025	100-575-580 Training	725
8649	NSB - BANKCARD CENTER	JUL 25	ESRI; RENEWAL FEES ENG	07/31/2025	8,028.77	08/10/2025	100-418-342 Tech Services-Other	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; CM TABLE BUILD SUPPLIES CMO	07/31/2025	70.79	08/10/2025	100-413-600 General Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	MASTERCRAFT HARDWOOD; DESK BUILD SUPPLIES A.	07/31/2025	78.28	08/10/2025	520-810-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	CODALE; FACTORY TALK STUDIO SOFTWARE FOR HMI/I	07/31/2025	644.63	08/10/2025	510-810-342 Tech Services-Other	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; CM TABLE BUILD SUPPLIES CM RE-ORDER	07/31/2025	70.79	08/10/2025	100-413-600 General Supplies	725

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; ELECTRICAL JUNCTION BOX COVER AC	07/31/2025	61.74	08/10/2025	100-525-600 General Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	WINN MARION; WTF SEQB LEVEL SENSOR SCADA/WTP	07/31/2025	2,366.59	08/10/2025	510-840-614 Shop Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	ZOOM; FMC SUBSCRIPTION	07/31/2025	100.00	08/10/2025	100-425-322 Prof Serv-Other	725
8649	NSB - BANKCARD CENTER	JUL 25	GRAMMARLY; SUBSCRIPTION A. NAVARO UTDIR	07/31/2025	72.00	08/10/2025	520-810-342 Tech Services-Other	725
8649	NSB - BANKCARD CENTER	JUL 25	DRURY PLAZA HOTEL; CREDIT CHARGE HOTEL STAY IIM	07/31/2025	1,265.29	08/10/2025	100-416-582 Travel	725
8649	NSB - BANKCARD CENTER	JUL 25	STAMPLI; JUN 2025	07/31/2025	1,059.00	08/10/2025	100-418-342 Tech Services-Other	725
8649	NSB - BANKCARD CENTER	JUL 25	NBI; DPWD AND ADMIN WATER RIGHTS TRAINING PW	07/31/2025	194.50	08/10/2025	100-575-580 Training	725
8649	NSB - BANKCARD CENTER	JUL 25	ANIMAL CARE EQUIP; PET POURRI ROOM SPRAY AC	07/31/2025	63.25	08/10/2025	100-525-600 General Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	STAPLES; CHAIR FOR SENIOR PLANNER OFFICE PLN	07/31/2025	281.39	08/10/2025	100-610-600 General Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; OHSА SIGNS, PHONE CLIP, & TRASH BAGS FA	07/31/2025	125.80	08/10/2025	100-417-600 General Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	APWA; ANNUAL MEMBERSHIP PW	07/31/2025	152.50	08/10/2025	100-575-581 Dues and Memberships	725
8649	NSB - BANKCARD CENTER	JUL 25	APWA; PUBLIC WORKS EXPO DPWD PW	07/31/2025	246.00	08/10/2025	100-417-580 Training	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; REFRIGERATOR THERMOMETER & GEL PENS	07/31/2025	43.37	08/10/2025	100-417-600 General Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	ENDRESS+HAUSER.COM; PLC COMMUNICATIONS HARD	07/31/2025	778.20	08/10/2025	520-810-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	MASTERCRAFT HARDWOOD; DESK BUILD SUPPLIES A.	07/31/2025	39.13	08/10/2025	510-810-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	CODE 3 ASSOC; BONDY CONDITION SCORE CLASS AC	07/31/2025	155.00	08/10/2025	100-525-580 Training	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; FILING CABINET GUIDES PW	07/31/2025	34.99	08/10/2025	100-417-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; EQUIPMENT AND SUPPLIES FOR SCADA	07/31/2025	3,206.98	08/10/2025	520-810-600 General Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; WIRELESS MOUSE, ETHERNET SPLITTER, LAP	07/31/2025	55.46	08/10/2025	520-810-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; 64 KEYS ELECTRONIC KEY LOCK BOX WTP	07/31/2025	79.99	08/10/2025	510-840-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	GRAMMARLY; SUBSCRIPTION A. NAVARO UTDIR	07/31/2025	36.00	08/10/2025	510-810-342 Tech Services-Other	725
8649	NSB - BANKCARD CENTER	JUL 25	ARES HOTELS; APWA CONF. O. JOHN PW T-1	07/31/2025	1,291.91	08/10/2025	100-475-582 Travel	725
8649	NSB - BANKCARD CENTER	JUL 25	NBI; DPWD AND ADMIN WATER RIGHTS TRAINING PW	07/31/2025	194.50	08/10/2025	100-417-580 Training	725
8649	NSB - BANKCARD CENTER	JUL 25	APA; MEMBERSHIP A. JOHANSSON PLN	07/31/2025	101.00	08/10/2025	100-610-581 Dues and Memberships	725
8649	NSB - BANKCARD CENTER	JUL 25	MASTERCRAFT HARDWOOD; CM TABLE BUILD GEN SUP	07/31/2025	57.96	08/10/2025	100-413-600 General Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; DUAL MONTIOR STAND, CALCULATOR, KEYBO	07/31/2025	1,202.28	08/10/2025	520-810-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	APWA; ANNUAL MEMBERSHIP PW	07/31/2025	152.50	08/10/2025	100-417-581 Dues and Memberships	725
8649	NSB - BANKCARD CENTER	JUL 25	SHERATON OKLAHOMA; HOTEL STAY, NAGARA CONF. B.	07/31/2025	448.22	08/10/2025	100-416-582 Travel	725
8649	NSB - BANKCARD CENTER	JUL 25	APWA; PUBLIC WORKS EXPO DPWD PW	07/31/2025	246.00	08/10/2025	100-528-580 Training	725
8649	NSB - BANKCARD CENTER	JUL 25	ENDRESS+HAUSER.COM; PLC COMMUNICATIONS HARD	07/31/2025	389.10	08/10/2025	510-810-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	MASTERCRAFT HARDWOOD; DESK BUILD SUPPLIES A.	07/31/2025	39.13	08/10/2025	510-840-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	CODE 3 ASSOC; ANIMAL FIRE TRAINING EVAC. & RESCU	07/31/2025	76.50	08/10/2025	100-525-580 Training	725
8649	NSB - BANKCARD CENTER	JUL 25	NATIONAL ANIMAL CONTROL ASSOC; NACA DUES AC	07/31/2025	25.00	08/10/2025	100-525-581 Dues and Memberships	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; EQUIPMENT AND SUPPLIES FOR SCADA	07/31/2025	1,603.49	08/10/2025	510-810-600 General Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; WIRELESS MOUSE, ETHERNET SPLITTER, LAP	07/31/2025	27.72	08/10/2025	510-810-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; KEYBOARD & MOUSE BLD	07/31/2025	262.48	08/10/2025	100-605-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	GRAMMARLY; SUBSCRIPTION A. NAVARO UTDIR	07/31/2025	36.00	08/10/2025	510-840-342 Tech Services-Other	725
8649	NSB - BANKCARD CENTER	JUL 25	SOUTHWEST AIRLINES; APWA CONF. O. JOHN PW T-1	07/31/2025	580.97	08/10/2025	100-475-582 Travel	725
8649	NSB - BANKCARD CENTER	JUL 25	SOUTHWEST AIRLINES; NAGARA CONF. B. BIRKEL CCO	07/31/2025	456.36	08/10/2025	100-416-582 Travel	725
8649	NSB - BANKCARD CENTER	JUL 25	NBI; DPWD AND ADMIN WATER RIGHTS TRAINING PW	07/31/2025	194.50	08/10/2025	100-528-580 Training	725
8649	NSB - BANKCARD CENTER	JUL 25	MASTERCRAFT HARDWOOD; CM TABLE BUILD GEN SUP	07/31/2025	352.49	08/10/2025	100-413-600 General Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; DUAL MONTIOR STAND, CALCULATOR, KEYBO	07/31/2025	601.14	08/10/2025	510-810-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	APA; JOB AD FOR ASSOCIATE PLANNER PLN	07/31/2025	195.00	08/10/2025	100-610-540 Advertising	725
8649	NSB - BANKCARD CENTER	JUL 25	APWA; ANNUAL MEMBERSHIP ENG	07/31/2025	1,147.50	08/10/2025	100-529-581 Dues and Memberships	725

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
8649	NSB - BANKCARD CENTER	JUL 25	APWA; PUBLIC WORKS EXPO DPWD PW	07/31/2025	246.00	08/10/2025	100-475-580 Training	725
8649	NSB - BANKCARD CENTER	JUL 25	ENDRESS+HAUSER.COM; PLC COMMUNICATIONS HARD	07/31/2025	389.10	08/10/2025	510-840-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; LABEL MAKER TAPE, DRY ERASE ERASERS, D	07/31/2025	47.23	08/10/2025	510-840-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	STATE BAR; CREDIT FOR CONF. CANCELLATION B. JENS	07/31/2025	100.00-	08/10/2025	100-414-580 Training	725
8649	NSB - BANKCARD CENTER	JUL 25	CODALE; FACTORY TALK STUDIO SOFTWARE FOR HMI/I	07/31/2025	644.64	08/10/2025	520-810-342 Tech Services-Other	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; EQUIPMENT AND SUPPLIES FOR SCADA	07/31/2025	1,603.49	08/10/2025	510-840-600 General Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	AMAZON; WIRELESS MOUSE, ETHERNET SPLITTER, LAP	07/31/2025	27.72	08/10/2025	510-840-601 Office Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	ZOOM; CMO MONTHLY SUBSCRIPTION	07/31/2025	217.00	08/10/2025	100-418-342 Tech Services-Other	725
8649	NSB - BANKCARD CENTER	JUL 25	WEBSTaurantSTORE.COM; STAINLESS STEEL SINK FO	07/31/2025	1,676.98	08/10/2025	100-417-600 General Supplies	725
8649	NSB - BANKCARD CENTER	JUL 25	RALEY'S; ALL HANDS SUPPLIES 7/30/25	07/31/2025	43.72	08/10/2025	100-412-586 Employee Recognition	725

Total 8649:

31,707.79

NV ENERGY

167	NV ENERGY	10601 AUG 25	80865908610601 ACH	08/01/2025	37.54	08/19/2025	100-475-622 Electricity	825
167	NV ENERGY	13818 JUL 25	34596405113818 ACH	07/29/2025	37.91	08/14/2025	100-475-622 Electricity	725
167	NV ENERGY	26093 AUG 25	34596402626093 ACH	08/07/2025	2,815.27	08/25/2025	100-575-622 Electricity	825
167	NV ENERGY	26100 AUG 25	34596502626100 ACH	08/07/2025	39,083.18	08/25/2025	510-810-622 Electricity	825
167	NV ENERGY	26100 AUG 25	34596502626100 ACH	08/07/2025	41.69	08/25/2025	520-810-622 Electricity	825
167	NV ENERGY	26445 JUL 25	34596505226445 ACH	07/26/2025	8,556.84	08/13/2025	510-840-622 Electricity	725
167	NV ENERGY	28458 JUL 25	34596505228458 ACH	07/26/2025	18,514.05	08/13/2025	510-840-622 Electricity	725
167	NV ENERGY	29499 AUG 25	1000213677906929499 ACH	07/31/2025	50.20	08/18/2025	100-475-622 Electricity	725
167	NV ENERGY	30672 JUL 25	213677908230672 ACH	07/29/2025	42.83	08/14/2025	100-575-622 Electricity	725
167	NV ENERGY	41110 AUG 25	82190403641110 ACH	08/07/2025	44.12	08/25/2025	520-810-622 Electricity	825
167	NV ENERGY	42683 AUG 25	82190404842683 ACH	08/07/2025	334.71	08/25/2025	510-810-622 Electricity	825
167	NV ENERGY	42683 AUG 25	82190404842683 ACH	08/07/2025	61.29	08/25/2025	100-475-622 Electricity	825
167	NV ENERGY	42683 AUG 25	82190404842683 ACH	08/07/2025	270.45	08/25/2025	100-575-622 Electricity	825
167	NV ENERGY	42683 AUG 25	82190404842683 ACH	08/07/2025	7,947.60	08/25/2025	520-810-622 Electricity	825
167	NV ENERGY	71493 JUL 25	271223607571493 ACH	07/29/2025	42.39	08/14/2025	100-475-622 Electricity	725
167	NV ENERGY	97731 JUL 25	213677908197731 ACH	07/29/2025	45.50	08/14/2025	100-575-622 Electricity	725
167	NV ENERGY	97899 AUG 25	80865904797899 ACH	08/07/2025	10,483.25	08/25/2025	100-475-622 Electricity	825
167	NV ENERGY	98954 AUG 25	82190405098954 ACH	08/07/2025	2,393.31	08/25/2025	520-810-622 Electricity	825

Total 167:

90,802.13

OFFICE DEPOT

133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.55	08/08/2025	100-575-600 General Supplies	825
133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.54	08/08/2025	100-605-600 General Supplies	825
133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.54	08/08/2025	100-416-600 General Supplies	825
133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.54	08/08/2025	510-810-601 Office Supplies	825
133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.55	08/08/2025	100-418-600 General Supplies	825
133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.54	08/08/2025	100-414-600 General Supplies	825
133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.54	08/08/2025	510-840-601 Office Supplies	825
133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.55	08/08/2025	100-415-600 General Supplies	825

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.54	08/08/2025	100-525-600 General Supplies	825
133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.54	08/08/2025	520-810-601 Office Supplies	825
133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.55	08/08/2025	100-413-600 General Supplies	825
133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.54	08/08/2025	100-610-600 General Supplies	825
133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.54	08/08/2025	100-475-600 General Supplies	825
133	OFFICE DEPOT	429054525001	CITY WIDE PAPER	08/04/2025	29.54	08/08/2025	100-529-600 General Supplies	825
133	OFFICE DEPOT	433019690001	Chairs	07/24/2025	1,676.70	08/08/2025	100-417-600 General Supplies	725
133	OFFICE DEPOT	433529651001	Dry erase markers note pads badge holders	07/30/2025	59.28	08/08/2025	100-412-600 General Supplies	725
133	OFFICE DEPOT	434275650001	Credit inv 433019690001, chamber chairs	08/04/2025	476.78-	08/08/2025	100-417-600 General Supplies	825
Total 133:					1,672.80			
O'REILLY AUTO PARTS								
6230	O'REILLY AUTO PARTS	3599-366614	PARTS FOR FLEET	07/28/2025	55.76	08/08/2025	100-480-610 Automotive Supplies	725
Total 6230:					55.76			
PACIFIC OFFICE AUTOMATION								
8929	PACIFIC OFFICE AUTOMATION	7R03056-8	Utilities	08/01/2025	347.94		510-810-550 Printing and Postage	825
8929	PACIFIC OFFICE AUTOMATION	7R03056-8	CAO	08/01/2025	695.88		100-414-550 Printing and Postage	825
8929	PACIFIC OFFICE AUTOMATION	7R03056-8	CMO	08/01/2025	347.94		100-413-550 Printing and Postage	825
8929	PACIFIC OFFICE AUTOMATION	7R03056-8	Main	08/01/2025	695.88		100-417-550 Printing and Postage	825
8929	PACIFIC OFFICE AUTOMATION	7R03056-8	Clerk	08/01/2025	695.88		100-416-550 Printing and Postage	825
8929	PACIFIC OFFICE AUTOMATION	7R03056-8	HR	08/01/2025	347.94		100-419-550 Printing and Postage	825
8929	PACIFIC OFFICE AUTOMATION	7R03056-8	Utilities	08/01/2025	347.94		520-810-550 Printing and Postage	825
8929	PACIFIC OFFICE AUTOMATION	7R03056-8	FMC	08/01/2025	695.88		100-425-550 Printing and Postage	825
Total 8929:					4,175.28			
PITNEY BOWES, INC.								
2840	PITNEY BOWES, INC.	3321025409	LEASE - BUILDING	07/10/2025	37.33	08/26/2025	100-605-550 Printing and Postage	725
2840	PITNEY BOWES, INC.	3321025409	LEASE - CLERK	07/10/2025	37.34	08/26/2025	100-416-550 Printing and Postage	725
2840	PITNEY BOWES, INC.	3321025409	LEASE - MAYOR	07/10/2025	37.33	08/26/2025	100-412-550 Printing and Postage	725
2840	PITNEY BOWES, INC.	3321025409	LEASE - WATER	07/10/2025	37.33	08/26/2025	510-810-550 Printing and Postage	725
2840	PITNEY BOWES, INC.	3321025409	LEASE - JUSTICE COURT	07/10/2025	37.33	08/26/2025	100-126000 Intergovernmental Receivable	725
2840	PITNEY BOWES, INC.	3321025409	LEASE - PARKS	07/10/2025	37.33	08/26/2025	100-575-550 Printing and Postage	725
2840	PITNEY BOWES, INC.	3321025409	LEASE - SEWER	07/10/2025	37.33	08/26/2025	520-810-550 Printing and Postage	725
2840	PITNEY BOWES, INC.	3321025409	LEASE - PLANNING	07/10/2025	37.33	08/26/2025	100-610-550 Printing and Postage	725
2840	PITNEY BOWES, INC.	3321025409	LEASE - CITY MANAGER	07/10/2025	37.33	08/26/2025	100-413-550 Printing and Postage	725
2840	PITNEY BOWES, INC.	3321025409	LEASE - ANIMAL CONTROL	07/10/2025	37.33	08/26/2025	100-525-550 Printing and Postage	725
2840	PITNEY BOWES, INC.	3321025409	LEASE - STREETS	07/10/2025	37.33	08/26/2025	100-475-550 Printing and Postage	725
2840	PITNEY BOWES, INC.	3321025409	LEASE - COURT	07/10/2025	37.33	08/26/2025	100-425-550 Printing and Postage	725
2840	PITNEY BOWES, INC.	3321025409	LEASE - FINANCE	07/10/2025	37.33	08/26/2025	100-415-550 Printing and Postage	725
2840	PITNEY BOWES, INC.	3321025409	LEASE - CITY ATTORNEY	07/10/2025	37.33	08/26/2025	100-414-550 Printing and Postage	725

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
Total 2840:					522.63			
PITTMAN, BETH A								
9063	PITTMAN, BETH A	73125	Scanning & Warrant Entry 7/31/25	07/31/2025	160.00	08/01/2025	100-425-322 Prof Serv-Other	725
9063	PITTMAN, BETH A	73125	Warrant entry & Validations 7/16/25	07/31/2025	160.00	08/01/2025	100-425-322 Prof Serv-Other	725
Total 9063:					320.00			
PRIMO BRANDS								
4688	PRIMO BRANDS	5G8730273253	water service	07/09/2025	47.14		520-810-420 Outside Services	725
4688	PRIMO BRANDS	5G8730273253	water service	07/09/2025	47.14		510-810-420 Outside Services	725
4688	PRIMO BRANDS	5G8730273253	water service	07/09/2025	47.13		100-475-420 Outside Services	725
4688	PRIMO BRANDS	5H8730273253	water service	08/08/2025	169.38		510-810-420 Outside Services	825
4688	PRIMO BRANDS	5H8730273253	water service	08/08/2025	169.38		520-810-420 Outside Services	825
4688	PRIMO BRANDS	5H8730273253	water service	08/08/2025	169.38		100-475-420 Outside Services	825
Total 4688:					649.55			
PUBLIC EMPLOYEES BENEFITS PROG								
143	PUBLIC EMPLOYEES BENEFITS PROG	AUG 2025	Retiree Insurance #819	08/06/2025	450.57		520-219910 OPEB Liability	825
Total 143:					450.57			
PURCELL TIRE CO								
38	PURCELL TIRE CO	26173712	Jeremy's work truck tires	08/04/2025	899.00	08/08/2025	520-810-610 Automotive Supplies	825
Total 38:					899.00			
PYROGUYS, INC								
8845	PYROGUYS, INC	3	Fireworks FY25-26	08/13/2025	30,000.00		225-575-650 Community Support	825
Total 8845:					30,000.00			
RENO GAZETTE JOURNAL								
152	RENO GAZETTE JOURNAL	7234454	Legal ads - July	07/31/2025	761.52	08/08/2025	100-610-540 Advertising	725
Total 152:					761.52			
SILVER STATE ANALYTICAL LABORATORIES								
7856	SILVER STATE ANALYTICAL LABORATORIES	RN332063	quarterly hardness and tds samples from municipal wells	07/28/2025	336.00	08/08/2025	510-810-423 Outside Serv-Analytical	725
7856	SILVER STATE ANALYTICAL LABORATORIES	RN332152	PS compliance samples	07/30/2025	1,238.00	08/08/2025	510-840-423 Outside Serv-Analytical	725
7856	SILVER STATE ANALYTICAL LABORATORIES	RN332153	annual chrome 6 sample	07/30/2025	280.00		510-810-423 Outside Serv-Analytical	725
7856	SILVER STATE ANALYTICAL LABORATORIES	RN332159	WWTP Samples	07/30/2025	188.00	08/08/2025	520-810-423 Outside Serv-Analytical	725

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
7856	SILVER STATE ANALYTICAL LABORATORIES	RN332261	WWTP Samples	07/31/2025	188.00	08/08/2025	520-810-423 Outside Serv-Analytical	725
7856	SILVER STATE ANALYTICAL LABORATORIES	RN332317	Wedge lane main break samples	08/01/2025	88.00		510-810-423 Outside Serv-Analytical	825
7856	SILVER STATE ANALYTICAL LABORATORIES	RN332342	Wedge Lane Main Break Samples	08/04/2025	88.00		510-810-423 Outside Serv-Analytical	825
7856	SILVER STATE ANALYTICAL LABORATORIES	RN332363	BSDW water complaint at 1652 summerwind	08/05/2025	22.00		510-810-423 Outside Serv-Analytical	825
7856	SILVER STATE ANALYTICAL LABORATORIES	RN332364	monthly samples	08/05/2025	286.00		510-810-423 Outside Serv-Analytical	825
7856	SILVER STATE ANALYTICAL LABORATORIES	RN332497	WWTP Samples	08/07/2025	188.00		520-810-423 Outside Serv-Analytical	825
Total 7856:					2,902.00			
SILVER STATE BARRICADE								
170	SILVER STATE BARRICADE	89149	LIGHT BAR FOR FLEET	08/01/2025	388.00	08/08/2025	100-480-610 Automotive Supplies	825
170	SILVER STATE BARRICADE	89170	CITY DECALS FOR FLEET	08/01/2025	766.20	08/08/2025	100-480-610 Automotive Supplies	825
Total 170:					1,154.20			
SOUTHERN TIRE MART LLC								
8964	SOUTHERN TIRE MART LLC	7590049617	TIRES FOR W/D 1010	07/31/2025	1,268.48	08/08/2025	100-480-610 Automotive Supplies	725
Total 8964:					1,268.48			
SOUTHWEST GAS CORP								
204	SOUTHWEST GAS CORP	33096 JUL 25	910001133096 ACH	07/30/2025	30.24	08/18/2025	510-810-621 Natural Gas	725
Total 204:					30.24			
STATE COLLECTION & DISB. UNIT (SCaDU)								
176	STATE COLLECTION & DISB. UNIT (SCaDU)	AUG 2025-1	CHILD SUPPORT	08/08/2025	590.76	08/08/2025	100-219900 OTHER PAYROLL PAYABLES	825
176	STATE COLLECTION & DISB. UNIT (SCaDU)	AUG 2025-1	CHILD SUPPORT	08/08/2025	324.46	08/08/2025	100-219900 OTHER PAYROLL PAYABLES	825
Total 176:					915.22			
SUNRISE ENVIRONMENTAL SCIENTIFIC								
230	SUNRISE ENVIRONMENTAL SCIENTIFIC	155401	Rolling Meadows Odor Control	08/01/2025	2,756.38	08/08/2025	520-810-617 Chemical Supplies	825
Total 230:					2,756.38			
TAGGART & TAGGART LTD								
3275	TAGGART & TAGGART LTD	202	Water Right Contract FY24/25 JULY25	07/31/2025	2,812.50		510-810-698 Water Rights Protection	725
Total 3275:					2,812.50			
THATCHER COMPANY, INC.								
8646	THATCHER COMPANY, INC.	2025250104239	PS Coagulant	07/29/2025	19,554.80		510-840-617 Chemical Supplies	725
8646	THATCHER COMPANY, INC.	2025400103634	WWTP Chlorine	07/25/2025	2,521.30	08/08/2025	520-810-617 Chemical Supplies	725

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
8646	THATCHER COMPANY, INC.	2025400103639	PS disinfectant	08/01/2025	8,240.00	08/08/2025	510-840-617 Chemical Supplies	825
Total 8646:					30,316.10			
THE SPYGLASS GROUP, LLC								
9075	THE SPYGLASS GROUP, LLC	28132	Consulting Fee for Voice/Data services	07/30/2025	3,788.40	08/08/2025	100-415-530 Communications	725
Total 9075:					3,788.40			
UNION PACIFIC RAILROAD COMPANY								
185	UNION PACIFIC RAILROAD COMPANY	90139143	Public Project Eng Svc from 9.30.24	06/30/2025	426.37		100-475-730 Improve Other than Buildings	625
Total 185:					426.37			
UNITED CENTRAL INDUSTRIAL SUPPLY								
8676	UNITED CENTRAL INDUSTRIAL SUPPLY	3008675	Hoses for water truck and sweeper	07/29/2025	392.90	08/08/2025	100-475-600 General Supplies	725
Total 8676:					392.90			
US BANK								
8510	US BANK	2922208	2017 Series Bond Payment - Water Interest	08/01/2025	57,912.50	08/01/2025	510-800-860 Interest Expense	825
8510	US BANK	2922208	2016 Series Bond Payment - Water Interest	08/01/2025	130,275.00	08/01/2025	510-800-860 Interest Expense	825
Total 8510:					188,187.50			
UTILITY DEPOSITS								
2202	UTILITY DEPOSITS	10604516	SEWER DEPOSIT REFUND	08/01/2025	42.03		520-228200 Customer Deposits	825
2202	UTILITY DEPOSITS	13487509	CREDIT REFUND	08/04/2025	77.19		010-115100 Cash Clearing-Utilities	825
2202	UTILITY DEPOSITS	13936202	CREDIT REFUND	08/08/2025	71.97		010-115100 Cash Clearing-Utilities	825
2202	UTILITY DEPOSITS	14386408	CREDIT REFUND	08/05/2025	8.85		010-115100 Cash Clearing-Utilities	825
2202	UTILITY DEPOSITS	16419707	CREDIT REFUND	08/11/2025	66.38		010-115100 Cash Clearing-Utilities	825
2202	UTILITY DEPOSITS	16977901	SEWER DEPOSIT REFUND	07/29/2025	55.89	08/08/2025	520-228200 Customer Deposits	725
2202	UTILITY DEPOSITS	16979301	SEWER DEPOSIT REFUND	07/29/2025	47.85	08/08/2025	520-228200 Customer Deposits	725
2202	UTILITY DEPOSITS	16979501	SEWER DEPOSIT REFUND	08/01/2025	42.03		520-228200 Customer Deposits	825
2202	UTILITY DEPOSITS	16982301	SEWER DEPOSIT REFUND	08/07/2025	18.33		520-228200 Customer Deposits	825
2202	UTILITY DEPOSITS	17941705	WATER DEPOSIT REFUND	08/01/2025	71.72		510-228200 Customer Deposits	825
2202	UTILITY DEPOSITS	17941705	SEWER DEPOSIT REFUND	08/01/2025	80.00		520-228200 Customer Deposits	825
2202	UTILITY DEPOSITS	17950102	SEWER DEPOSIT REFUND	08/01/2025	25.95		520-228200 Customer Deposits	825
2202	UTILITY DEPOSITS	21986001	WATER DEPOSIT REFUND	07/29/2025	75.00	08/08/2025	510-228200 Customer Deposits	725
2202	UTILITY DEPOSITS	21986001	CREDIT REFUND	07/29/2025	92.85	08/08/2025	010-115100 Cash Clearing-Utilities	725
2202	UTILITY DEPOSITS	21986001	SEWER DEPOSIT REFUND	07/29/2025	80.00	08/08/2025	520-228200 Customer Deposits	725
2202	UTILITY DEPOSITS	4171526	SEWER DEPOSIT REFUND	07/30/2025	78.84	08/08/2025	520-228200 Customer Deposits	725
2202	UTILITY DEPOSITS	6844906	SEWER DEPOSIT REFUND	07/31/2025	17.17		520-228200 Customer Deposits	725
2202	UTILITY DEPOSITS	6969701	SEWER DEPOSIT REFUND	08/07/2025	22.35		520-228200 Customer Deposits	825

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
2202	UTILITY DEPOSITS	7685714	SEWER DEPOSIT REFUND	08/01/2025	40.07		520-228200 Customer Deposits	825
2202	UTILITY DEPOSITS	8283917	SEWER DEPOSIT REFUND	08/01/2025	80.00		520-228200 Customer Deposits	825
2202	UTILITY DEPOSITS	8283917	WATER DEPOSIT REFUND	08/01/2025	71.72		510-228200 Customer Deposits	825
Total 2202:					1,166.19			
VERIZON WIRELESS								
8495	VERIZON WIRELESS	6119878180	City Manager	08/01/2025	56.14		100-413-530 Communications	825
8495	VERIZON WIRELESS	6119878180	IT	08/01/2025	194.85		100-418-530 Communications	825
8495	VERIZON WIRELESS	6119878180	Animal Control	08/01/2025	143.99		100-525-530 Communications	825
8495	VERIZON WIRELESS	6119878180	Building	08/01/2025	236.92		100-605-530 Communications	825
8495	VERIZON WIRELESS	6119878180	City Treasurer	08/01/2025	64.09		100-415-530 Communications	825
8495	VERIZON WIRELESS	6119878180	Streets	08/01/2025	51.99		100-475-530 Communications	825
8495	VERIZON WIRELESS	6119878180	Engineering	08/01/2025	103.98		100-529-530 Communications	825
8495	VERIZON WIRELESS	6119878180	WTP	08/01/2025	357.75		510-840-530 Communications	825
8495	VERIZON WIRELESS	6119878180	Mayor/Council	08/01/2025	220.06		100-412-530 Communications	825
8495	VERIZON WIRELESS	6119878180	Facilities	08/01/2025	405.35		100-417-530 Communications	825
8495	VERIZON WIRELESS	6119878180	Fleet	08/01/2025	51.99		100-480-530 Communications	825
8495	VERIZON WIRELESS	6119878180	Parks	08/01/2025	19.96		100-575-530 Communications	825
8495	VERIZON WIRELESS	6119878180	Sewer	08/01/2025	319.89		520-810-530 Communications	825
8495	VERIZON WIRELESS	6119878180	City Attorney	08/01/2025	240.06		100-414-530 Communications	825
8495	VERIZON WIRELESS	6119878180	Municipal Court	08/01/2025	56.14		100-425-530 Communications	825
8495	VERIZON WIRELESS	6119878180	Vector Control	08/01/2025	92.00		100-528-530 Communications	825
8495	VERIZON WIRELESS	6119878180	Water Dist	08/01/2025	302.51		510-810-530 Communications	825
8495	VERIZON WIRELESS	6119967562	52267 July 2- Aug 01 25	08/01/2025	40.01		520-810-530 Communications	825
Total 8495:					2,957.68			
VOYA FINANCIAL								
8591	VOYA FINANCIAL	AUG 2025-1	DEFERRED COMPENSATION, 457	08/08/2025	4,933.43	08/08/2025	100-215000 457 PAYABLE	825
8591	VOYA FINANCIAL	AUG 2025-1	ROTH IRA	08/08/2025	200.00	08/08/2025	100-215000 457 PAYABLE	825
Total 8591:					5,133.43			
WASTE MANAGEMENT								
447	WASTE MANAGEMENT	25001 AUG 25	6-82646-25001	08/01/2025	902.69	08/08/2025	100-475-412 Utility Serv-Refuse	825
447	WASTE MANAGEMENT	33001 AUG 25	11-60772-33001	08/05/2025	148.19	08/08/2025	100-417-412 Utility Serv-Refuse	825
447	WASTE MANAGEMENT	33005 AUG 25	11-60745-33005	08/05/2025	26.22	08/08/2025	510-840-412 Utility Serv-Refuse	825
447	WASTE MANAGEMENT	33009 AUG 25	11-60760-43003	08/05/2025	121.24		510-810-412 Utility Serv-Refuse	825
447	WASTE MANAGEMENT	43003 AUG 2025	11-60774-33009	08/05/2025	60.64		520-810-412 Utility Serv-Refuse	825
447	WASTE MANAGEMENT	53002 AUG 25	4TH OF JULY DUMPSTER	08/05/2025	1,108.15		100-575-412 Utility Serv-Refuse	825
447	WASTE MANAGEMENT	65007 AUG 25	6-82641-65007	08/01/2025	648.54	08/08/2025	100-575-412 Utility Serv-Refuse	825

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
Total 447:					3,015.67			
WEDCO								
3350	WEDCO	S100180669.001	Megger kit for Electrian	07/29/2025	1,775.00	08/08/2025	510-810-605 Minor Equipment	725
3350	WEDCO	S100180669.001	Megger kit for Electrian	07/29/2025	3,550.00	08/08/2025	520-810-605 Minor Equipment	725
3350	WEDCO	S100180669.001	Megger kit for Electrian	07/29/2025	1,775.00	08/08/2025	510-840-605 Minor Equipment	725
3350	WEDCO	S100186476.002	PS Acid Pump electrical supplies	08/11/2025	59.99		510-840-614 Shop Supplies	825
Total 3350:					7,159.99			
WESTERN NEVADA SUPPLY CO.								
195	WESTERN NEVADA SUPPLY CO.	11869756	PS parts	07/31/2025	43.32	08/08/2025	510-840-614 Shop Supplies	725
195	WESTERN NEVADA SUPPLY CO.	11871644	PS parts	07/31/2025	133.66	08/08/2025	510-840-614 Shop Supplies	725
195	WESTERN NEVADA SUPPLY CO.	11873758	Sprinkler Heads	08/01/2025	957.42	08/08/2025	100-575-600 General Supplies	825
195	WESTERN NEVADA SUPPLY CO.	11883038	PS PVC repair parts	08/07/2025	115.60		510-840-614 Shop Supplies	825
Total 195:					1,250.00			
WILD WEST CHEVROLET								
9070	WILD WEST CHEVROLET	NT3073	2025 Chevy Silverado V7759-meter tech	07/31/2025	40,358.25		510-165100 Maintenance Equipment	725
9070	WILD WEST CHEVROLET	NT3094	2025 Chevy Blazer V3202-city eng	07/31/2025	38,129.25		100-529-742 Vehicles	725
Total 9070:					78,487.50			
WOOD RODGERS, INC.								
2454	WOOD RODGERS, INC.	193258	Federal Lands Conveyance 5/2025	05/31/2025	15,214.45	08/08/2025	100-413-322 Prof Serv-Other	525
Total 2454:					15,214.45			
XPRESS BILL PAY LLC								
2468	XPRESS BILL PAY LLC	7/2025	CREDIT CARD PROCESSING FEES- SEWER	07/31/2025	2,815.63	08/10/2025	520-810-609 Credit Card Fees	725
2468	XPRESS BILL PAY LLC	7/2025	CREDIT CARD PROCESSING FEES- WATER	07/31/2025	2,815.63	08/10/2025	510-810-609 Credit Card Fees	725
Total 2468:					5,631.26			
XYLEM WATER SOLUTIONS USA, INC.								
8939	XYLEM WATER SOLUTIONS USA, INC.	3556D84475	Lift Station Floats	07/29/2025	2,144.92	08/08/2025	520-810-614 Shop Supplies	725
Total 8939:					2,144.92			
Grand Totals:					714,632.25			

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Invoice Amount	Date Paid	GL Account and Title	GL Period
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Dated: _____

Mayor: _____

City Treasurer: _____

Report Criteria:
Detail report.
Invoice detail records above \$0 included.
Paid and unpaid invoices included.
Vendor.Vendor Number = {<->} 2201

**MINUTES OF THE
FERNLEY CITY COUNCIL MEETING
AUGUST 6, 2025**

Mayor Pro Tem Felicity Zoberski called the meeting to order at 5:00 pm.

1. INTRODUCTORY ITEMS

1.1. Pledge of Allegiance

1.2. Roll Call

Present: Mayor Pro Tem Councilwoman Felicity Zoberski, Councilman Stan Lau, Councilman Albert Torres, Councilman Ryan Hanan, Councilman Joe Mendoza, Deputy City Manager Lydia Altick, City Attorney Aaron Mouritsen, HR Manager Mitzi Carter, City Clerk Kim Swanson, Administrative Specialist 1 Sandy Harris, City Treasurer Robert Carson, Building Official Charity Birkel, Planning Director Michele Rambo, Public Works Director Barry Williams, Utilities Director Seong Kim, Utilities Engineering Manager Ana Navarro. **Absent:** Mayor McIntyre.

1.3. Public Forum

None at this time.

1.4. (For Possible Action) Approval of Agenda

Motion: I MOVE TO APPROVE THE AGENDA WITH TAKING CONSENT ITEM 2.26 MOVING TO THE REGULAR AGENDA FOR DISCUSSION. **Action:** Approved. **Moved by:** Councilman Albert Torres, **Seconded by:** Councilman Joe Mendoza. **Vote:** Passed, **Summary:** Yes 5. **Yes:** Councilwoman Zoberski, Councilman Lau, Councilman Torres, Councilman Hanan, Councilman Mendoza.

2. CONSENT AGENDA

2.1. (Possible Action) Approval of Voucher Report

2.2. (Possible Action) Approval of Minutes

2.3. (Possible Approval) Approval of Business Licenses

2.4. Possible Action to approve the Purdue Bankruptcy/Sacklers Opioid Litigation Settlement

2.5. Possible Action to authorize the execution of the water rights banking and dedication agreement with Reghetti Investments, LLC, and Brian and Jeanne Bishop-Parise, APN 021-351-04 TCID serial number 1078-2-B in the amount of 10 acre feet.

2.6. Possible Action to approve the job description and wage scale for the Code Enforcement Manager position.

2.7. Possible Action to approve the job description and wage scale for the Code Enforcement Officer position.

2.8. Possible Action to approve a contract with CPS HR Consultants for \$30,000.00 for executive recruitment services for a City Manager.

2.9. Possible Action to approve an Additional Service Request (ASR) 04 with TSK Architects for \$9,800.00 for concept design services for shade structures on the event lawn space at the Community Response and Resource Center.

2.10. Possible Action to adopt an Interlocal Agreement with Carson City Regional Transportation Commission to complete a Safe Routes to School Planning Study.

2.11. Possible Action to approve a contract with Shaw Engineering for on-call engineering services.

- 2.12. Possible Action to approve a contract for building department plan review services with B.C.S (Building Code Solutions)
- 2.13. For Possible Action to purchase one (1) drone for the City of Fernley's Vector Control Department for an amount not to exceed \$65,000.
- 2.14. For Possible Action to purchase one (1) 4,000-gallon water truck for the City of Fernley's Water Distribution Department for an amount not to exceed \$250,000.
- 2.15. For Possible Action to purchase one (1) 1/2-ton four-wheel drive pickup truck for the City of Fernley's Code Enforcement Department for an amount not to exceed \$65,000.
- 2.16. For Possible Action to purchase one (1) mid-size SUV for the City of Fernley's Code Enforcement Department for an amount not to exceed \$65,000.
- 2.17. For Possible Action to purchase one (1) high-reach scissor lift for the City of Fernley's Facilities Department for an amount not to exceed \$25,000.
- 2.18. For Possible Action to purchase one (1) ride-on zero-turn mower for the City of Fernley's Parks Department for an amount not to exceed \$15,000.
- 2.19. For Possible Action to purchase one (1) ultra-low volume (ULV) fogger/sprayer for the City of Fernley's Vector Control Department for an amount not to exceed \$25,000.
- 2.20. For Possible Action to purchase one (1) turf sweeper for the City of Fernley's Parks Department for an amount not to exceed \$25,000.
- 2.21. For Possible Action to purchase one (1) skid steer with rotary brush cutter for the City of Fernley's Streets and Storm Drains Department for an amount not to exceed \$85,000.
- 2.22. For Possible Action to purchase one (1) light tower with an attached generator for the City of Fernley's Streets and Storm Drains Department for an amount not to exceed \$16,000.
- 2.23. For Possible Action: Approval of Change Order in the amount of \$127,680.00 to the existing construction contract with Resource Development Company to remove 2 feet of sediment and vegetation from the existing overflow and infiltration basin at the Water Treatment Plant.
- 2.24. Possible action to purchase 16 new floating surface aerators and they will give us 1 surface aerator to make a total of 17 to be replaced in FY 2026, per Nevada Division of Environmental Protection (NDEP) requirement for the East Wastewater Treatment Plant for the amount of \$399,280.00.
- 2.25. For possible action, East Lift Station Improvements - Professional Services Agreement with Lumos & Associates.
- 2.26. Possible Action to approve a Request for Amendment No. 2 for \$37,870 to Cumming Group's current Community Response and Resource Center contract.
- Lydia Altick, Deputy City Manager, explained the reason for the request.
- Councilwoman Felicity Zoberiski asked to be updated at the next Council meeting on where we're at with project management.
- Motion:** I MOVE TO APPROVE THE REQUEST FOR AMENDMENT NO. 2 OF THE CRRC CONTRACT WITH CUMMING GROUP. **Action:** Approved. **Moved by:** Councilman Albert Torreos, **Seconded by:** Councilman Ryan Hanan, **Vote:** Passed, **Summary:** Yes 5. **Yes:** Councilwoman Zoberiski, Councilman Lau, Councilman Torres, Councilman Hanan, Councilman Mendoza.
- Motion:** I MOVE TO APPROVE THE CONSENT AGENDA WITH ITEMS 2.6, 2.7 AND 2.9 PULLED FROM TONIGHT'S AGENDA FOR FURTHER DISCUSSION WITH STAFF AT A LATER TIME. **Action:** Approved, **Moved by:** Councilman Albert Torres, **Seconded by:** Councilman Stan Lau. **Vote:** Passed, **Summary:** Yes 4, No 1. **Yes:** Councilwoman Zoberiski, Councilman Lau, Councilman Torres, Councilman Mendoza, **No:** Councilman Hanan.

3. REPORTS - this item is for various public entity representatives to provide general information to the Council and public. No action will be taken.

Lyon County Sheriff Brad Pope, started off by thanking the entire City of Fernley staff for working with them on the National Night Out. The number one complaint we receive at the sheriff's office is traffic complaints. Year to date, there have been 1,907 traffic stops alone in the Fernley patrol zone. Our command staff that oversee each area have been instructed to begin operating traffic operations more heavily throughout their areas. He also reported that the response times in Fernley are remaining low. Priority 1 response time in Fernley right now is 5 minutes and 45 seconds. There are two School Resource Officers (SROs) assigned to Fernley. Since school's not in, they've been running more operations in the city, so we're getting a little bit of a saturation throughout the summer.

Councilman Stan Lau asked if the number of traffic stops were also Nevada Highway Patrol numbers.

Sheriff Brad Pope stated that they are strictly Lyon County Sheriff's office numbers.

3.1. Reports by City Staff, City Council, and the Mayor, including but not limited to monthly statistical reports by city departments.

Lydia Altick, Deputy City Manager, reported that the Mayor nominated Jessica Murdock to head up the 25th anniversary celebration in July 2026, it also coincides with the nation's 250th anniversary. There will be some community meetings coming up which are posted on the website. They are looking for local organizations to provide representatives and volunteers. Main Street Art Park is moving along. On August 12th, from 8:00 am till 1:00 pm, there will be community planting. Everybody is invited to come out and plant in our new planters out there. She also thanked Twisted Steel for their donation of \$1,200 worth of art for the project and the ACES for their donation of \$2,500. The Ribbon Cutting for the Community Response and Resource Center (CRRC) will be held on Wednesday, August 27th, from 2:00 pm to 4:00 pm. There will be a public community workshop on the Corridor Action Plan on Thursday, at 5:00pm at the Senior Center. The Corridor Action Plan is Farm District Road, 95 from Main Street to the High School, and Main Street from Exit 46 up to Exit 48.

Councilman Albert Torres reported that the Fernley Senior Citizens Advisory Committee (FSCAC) meeting will be Friday, August 8 at 9:00 am.

4. ORDINANCES

4.1. Discussion and Possible Action. First reading of Bill #361 (associated with CA25001) to revise Section 32.03.040(b) (Comprehensive Master Plan Amendment) of the City of Fernley Development Code to better reflect the requirements found in NRS 278.210 for amending the Master Plan.

Michele Rambo, Planning Director, stated that this is the first reading for revision to the Master Plan amendment process that we ran into some issues with when during the Southwest area plan adoption.

5. STAFF REPORTS

5.1. Discussion and Possible Action regarding the Final Preliminary Engineering Report (PER) for the City of Fernley Water Treatment Plant (WTP) Caustic Soda and Compressed Air System Improvements and seek direction to proceed with final design, bidding services, and construction costs.

Ana Navarro, Utilities Engineering Manager, introduced Keller & Associates, who presented the preliminary engineering report for the Caustic Soda and Compressed Air System improvements.

Jeremy Wilson, Keller & Associates, stated that they worked with city staff to put together a preliminary engineering report for the water treatment plant. He gave a brief overview of the project background. The next steps are going to be enrolling into the design development, getting that design approved by NDEP, and then going into the bidding construction process.

Dylan Carey, Keller & Associates, stated his plant has a future surface water intake planned, and is in the preliminary design stages. In advance of this, it will need improvements to the PH adjustment and the reliability of the microfiltration processes. It is the only water treatment plant in the city of Fernley, so it is critical that it remains operational. Caustic soda is a hazardous chemical that is used for PH adjustment. It has a propensity to leak when pipelines reach the end of their lifespan, which can be around the 15-year mark. The treatment plant, as of now, is 16 years old, so it has hit that lifespan. There is a chemical vault in the yard where there is leaking caustic soda that is hazardous to the touch that operation staff has had to work with. In addition to that, the operation of this PH adjustment system has essentially failed with failing pumps, pipelines, leaks and has become unreliable. The other system that was evaluated in this report was the compressed air system. There is no redundant compressor for this system, and without that you can exceed, as you build out for future surface water the demand that these compressors are able to provide, so improvements to this system lack reliability requirements that are needed per Nevada Administrative Code.

Seong Kim, Utilities Director, stated that this was not budget for, because it is an emergency item. We did have a budget for our new water surface water intake program, which is over \$4 million. We can utilize that portion of the budget for this one.

Motion: I MOVE TO APPROVE THE PER WATER TREATMENT PLANT (WTP) CAUSTIC SODA AND COMPRESSED AIR SYSTEM IMPROVEMENTS AND AUTHORIZE STAFF TO MOVE FORWARD WITH DESIGN, PREPARATION OF BID DOCUMENTS, AND COMPLETION OF CONSTRUCTION FOR THE TOTAL COST OF \$807,100. **Action:** Approved, **Moved by:** Councilman Ryan Hanan, **Seconded by:** Councilman Stan Lau. **Vote:** Passed, **Summary:** Yes 5. **Yes:** Councilwoman Zoberski, Councilman Lau, Councilman Torres, Councilman Hanan, Councilman Mendoza.

5.2. Presentation and discussion regarding the City's quarterly financial report.

Robert Carson, City Treasurer, presented the quarterly financial report (unaudited) as of March 31, 2025.

6. PUBLIC FORUM

Cody Wagner stated he has zero issues with continuing that contract to close out the project.

The next City Council meeting will be on August 20, 2025, at 5:00 pm.

7. ADJOURNMENT

There being no further business to come before it, the Fernley City Council meeting adjourned at 5:54 pm.

Approved by the Fernley City Council on August 20, 2025, by vote of:

AYES _____ NAYS: _____ ABSTENTIONS: _____ ABSENT: _____

Mayor Neal E. McIntyre

ATTEST: City Clerk Kim Swanson

Report Criteria:

License.Status = "Active"

Business.Origination date = 8/1/2025-8/13/2025

Business Name	DBA	Name	Location	City	State	Zip	Business Tel	Description	Occupation
Walker's Window Cleaning		Max & Sundae Cart	504 Summer Street	Fernley	NV	89408	775-827-3483	Cleaning Services	Window Cleaning
The SYGMA Network Inc		Sysco Corporation	5550 Blazer Pky #300	Dublin	OH	43017	800-927-9801	Wholesale and/or Reta	Food Service Distriibutor
Taft Stettinius & Hollister		Robert J. Hicks	One Indiana Square, Suite	Indianapolis	IN	46204	775-323-2339	Attorney/Legal Service	Law firm and legal servic
iRy Consulting, LLC	Buddy Boys / Dough Boys	Ryan Ross	192 E. Main St. Ste 6	Fernley	NV	89408	775-846-2220	Restaurant/Fast Food/	Sales of donuts, coffee, s
Casino Accounting Solutions LLC		Cynthia Carter	679 Rose Lane	Fernley	NV	89408	775-671-4082	Accounting/Tax/Bookk	Accounting & compliance
JE Moving Services LLC		Justin R. Estes	5838 Cathedral Peak Dr.	Sparks	NV	89436	775-686-9079	Business Specific Prof	Moving services
MOPASSION, LLC		Michelle Osborn	132 Michelsen Dr.	Fernley	NV	89408	775-376-3506	Wholesale and/or Reta	Bath and body product sa
Creative Recreational Systems, Inc.		Creative Recreation	2377 Gold Meadow Way,	Gold River	Califo	95670	916-638-5375	Contractor	General Engineering Con
Gallagher Electric LLC		Katie Gallagher	4894 Sparks Blvd., Suite 1	Sparks	NV	89436	775-414-9807	Contractor	Electrical Contractor #93
LandArt		Ronald DuHamel	1640 Prater Way	Sparks	NV	89431	775-414-4994	Architect Design/Servi	Landscape architecture
Certified Groove		Glen Samuel Press	6347 Teal Dr	Fallon	NV	89406	775-453-0869	Business Specific Prof	Mobile DJ and Karaoke/P
NVending.com		Lisa Barrett	805 Fremont St.	Fernley	NV	89408	775-741-0169	Wholesale and/or Reta	Vending machine operato
Me-Shells		Michelle Capps	175 E. Cedar St.	Fernley	NV	89408	775-835-1021	Hobby/Crafter, Sewing	Crafter of jewelry and dec
JT Ranch and Farm		Thomas Moxley Jr /	10 Worshaw Ct	Fernley	NV	89408	562-233-5831	Non-Profit Event(Servi	Equine and animal assist
Truckee Meadows Gourmet Express		Dean Hall	2555 Dickerson Rd	Reno	NV	89503	775-338-8943	Wholesale and/or Reta	Sales & delivery of comm
Grand Totals:									
									15

Report Criteria:

License.Status = "Active"

Business.Origination date = 8/1/2025-8/13/2025



CITY OF FERNLEY

City Council AGENDA REPORT

Meeting Date: August 20, 2025

REPORT TO: Mayor and City Council

REPORT FROM: Maria Paz Fernandez, City Engineer

FINANCIAL IMPACT:

Yes:X

No:

CURRENTLY BUDGETED:

Yes:X

No:

FUND/ACCOUNT:

100-529-320

ACTION REQUESTED: Consent

AGENDA ITEM:

Possible action to approve a contract for on-call inspection services and engineering support services with NCE.

AGENDA ITEM BRIEF:

This agenda item will renew a contract with NCE so that the engineering department can continue to utilize its services for on-call quality assurance inspections and other engineering services. The City has contracted with NCE for these on-call inspection services since March of 2017.

RECOMMENDED MOTION:

"I move to approve a contract with NCE for on-call inspection services."

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

City Council could choose to not approve of the contract. The Council could direct staff to advertise a request for qualifications in order to select a new firm to cover the quality assurance inspections or they could elect to not have the inspections performed and direct staff to make the necessary changes to the City of Fernley Design Standards and other documents to reflect the new policies.

BACKGROUND:

This contract will renew a contract with NCE to perform on-call quality assurance inspections on permits that are installing new public infrastructure. The contract will also allow the engineering department to utilize NCE for additional support services such as:

- Assisting the City with inspection on smaller City capital projects
- Assistance with a plan review or a constructability review for a City capital project
- Providing an assessment of a current infrastructure problem like ADA issues, pavement preservation recommendations, or drainage issues.
- Assisting with our ongoing wide crack monitoring program streets in the City
- Reviewing the City's existing standards and providing recommendations and corrections for the City to use to update its design standards

Staff has budgeted \$20,000 for engineering support and related assistance for City projects and issues. This amount is allocated under the "Professional Services – Engineering" line item in the Engineering Department's budget.

Projects involving the construction of new infrastructure to be dedicated to the City, or modifications to existing City infrastructure, require inspection to ensure compliance with applicable local and state regulations. These include, but are not limited to: Nevada Revised Statutes (NRS), Nevada Administrative Code (NAC), Standard Specifications for Public Works Construction, American Water Works Association (AWWA) Standards, Ten State Standards for Wastewater Facilities, and the City of Fernley Design Standards.

With the continued increase in permit submittals and construction activity in Fernley, the limited staffing resources within the Engineering Department have become increasingly strained. As a result, outside support is necessary to meet the demands of development and ensure compliance with the regulations and standards noted above.

NCE has worked with the City on multiple projects, and staff is confident in their experience and familiarity with Fernley's standards and requirements. They are currently providing quality assurance inspection services, and their performance has been consistently strong. These inspections, which result from permit submittals, are billed under "Quality Assurance Inspection Fees" and are a pass-through cost to the applicant, resulting in no fiscal impact to the City's budget.

Ensuring that public infrastructure is constructed according to approved plans and in compliance with all applicable regulations is critical to the City's long-term financial stability. Substandard infrastructure creates a burden on City resources, as it typically requires more frequent repairs and earlier replacement than properly constructed facilities.

BACKGROUND:

Historically, the City contracted with a consultant to perform inspections related to the public infrastructure components of development projects. As development activity continues to rise, the volume and complexity of inspections have increased significantly. These inspections require considerable time and close attention to detail. Having a dedicated individual, whether employed directly by the City or under contract, would provide focused oversight on each project and help ensure that the infrastructure being accepted by the City is

constructed to established standards.

RELEVANT LAWS, STATUTES, AND REGULATIONS:

FINANCIAL IMPLICATIONS:

The fees for inspecting development projects will be paid by developers. Costs for City tasks will be paid out of the Professional Services-Engineering line item of each budget.

ATTACHMENTS:

1. 2025.07.00 FY25-26 NCE On Call Inspection Services Contract
2. City of Fernley On-Call Proposal Letter 2025-2027 Final

CONTRACT

A Contract For On Call Inspection Services

A Contract Between
City of Fernley
595 Silver Lace Blvd
Fernley NV 89408

and

Nichols Consulting Engineers, Chtd (NCE)
300 E 2nd Street, Suite 1210
Reno, NV 89501

WHEREAS, Nevada Revised Statutes ("NRS") chapter 266 authorizes the City of Fernley, Nevada (the "City") to engage services of persons as independent contractors; and

WHEREAS, it is deemed that the services of Nichols Consulting Engineers, Chtd (NCE), (the "Contractor") are both necessary and in the best interests of the City; and

NOW, THEREFORE, in consideration of the aforesaid premises, the parties mutually agree as follows:

1. **REQUIRED APPROVAL.** This Contract for Services of Independent Contractor (this "Contract") is contingent upon Fernley City Council approval.

2. **DEFINITIONS.**

- a. "City" means City of Fernley, County of Lyon, State of Nevada.
- b. "Independent Contractor" means a person or entity that performs services and/or provides goods for the City under the terms and conditions set forth in this Contract.
- c. "Fiscal Year" is defined as the period beginning July 1 and ending June 30 of the following year.

3. **CONTRACT TERM.** This Contract shall be effective from the 1st day of July, 2025, to the 30th day of June, 2026, subject to appropriation.

4. **NOTICE.** All notices or other communications required or permitted to be given under this Contract shall be in writing and shall be deemed to have been duly given if delivered personally in hand, or by telephonic facsimile with simultaneous regular mail, or mailed certified mail, return receipt requested, postage prepaid on the date posted, and addressed to the other party at the address specified above.

Notice for the City shall be sent to:

CONTRACT

A Contract For On Call Inspection Services

City of Fernley
Engineering Department
595 Silverlace Blvd.
Fernley, NV 89408

Notice for the Contractor shall be sent to:

Nichols Consulting Engineers, Chtd (NCE)
Angie Hueftle
300 E 2nd Street, Suite 1210
Reno, NV 89501

5. **SCOPE OF WORK:** Scope of Work shall be set forth in Attachment A.
6. **CONSIDERATION.** The parties agree that Contractor will provide the services specified in paragraph (5) at a Fee Schedule outlined in Attachment A.
7. **ATTACHMENTS:** This Contract also incorporates the following attachments (the "Attachments"):
ATTACHMENT B: N/A
ATTACHMENT C: N/A

Should a conflict arise between the terms of the attachment(s) and this contract, the contract term(s) prevails unless specifically addressed in a document separate from the contract and attachments and signed by all parties.

8. **TIMELINESS OF BILLING SUBMISSION.** The parties agree that timeliness of billing is of the essence to this Contract and recognize that the City is on a fiscal year. All billings for dates of service prior to July 1 must be submitted to the City no later than the first Friday in August of the same year.

9. **INSPECTION & AUDIT.**

- a. **Books and Records.** Contractor agrees to keep and maintain under general accepted accounting principles (GAAP) full, true and complete records, contracts, books, and documents as are necessary to fully disclose to the City, the State of Nevada or the United States Government, or their authorized representatives, upon audits or reviews, sufficient information to determine compliance with all state and federal regulations and statutes. Contractor agrees to provide a copy of the file within a reasonable time upon being requested by the City.
- b. **Inspection & Audit.** Contractor agrees that the relevant books, records (written, electronic, computer related or otherwise), including, without limitation, relevant accounting procedures and practices of Contractor or its

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subcontractors, financial statements and supporting documentation, and documentation related to the work product shall be subject, at any reasonable time, to inspection, examination, review, audit, and copying at any office or location of Contractor where such records may be found, with or without notice by the City, and with regard to any federal funding, the relevant federal agency, the Comptroller General, the General Accounting Office, the Office of the Inspector General, or any of their authorized representatives. All subcontracts shall reflect the requirements of this paragraph.

- c. **Period of Retention.** All books, records, reports, and statements relevant to this Contract must be retained a minimum three years and for five years if any federal funds are used under this Contract. The retention period runs from the date of payment for the relevant goods or services by the City, or from the date of termination of this Contract, whichever is later. Retention time shall be extended when an audit is scheduled or in progress for a period reasonably necessary to complete an audit and/or to complete any administrative and judicial litigation which may ensue.

10. CONTRACT TERMINATION.

- a. **Termination Without Cause.** Any discretionary or vested right of renewal notwithstanding, this Contract may be terminated without cause by (1) written mutual consent of both parties, or (2) unilateral termination by either party after service of formal Thirty Day (30) written notice as specified in paragraph (4).
- b. **Termination for Non-Appropriation.** The continuation of this Contract beyond the current fiscal year is subject to and contingent upon sufficient funds being appropriated, budgeted, and otherwise made available by the City. The City may terminate this Contract, and Contractor waives any and all claim(s) for damages, effective immediately upon receipt of written notice (or any date specified therein) if for any reason the City's funding from State and/or federal sources is not appropriated or is withdrawn, limited, or impaired.
- c. **Default or Breach.** A default or breach may be declared with or without termination. The following shall constitute a default or breach:
- i. If Contractor fails to provide or satisfactorily perform any of the conditions, work, deliverables, goods, or services called for by this Contract within the time requirements specified in this Contract or within any granted extension of those time requirements; or
 - ii. If any state, county, city or federal license, authorization, waiver, permit, qualification or certification required by statute, ordinance, law, or regulation to be held by Contractor to provide the goods or services required by this Contract is for any reason denied, revoked, debarred, excluded, terminated, suspended, lapsed, or not renewed; or
 - iii. If Contractor becomes insolvent, subject to receivership, or becomes voluntarily or involuntarily subject to the jurisdiction of the bankruptcy court; or

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- iv. For any other good or sufficient reason, including, but not limited to, dishonesty, fraud, ethical violations, bribery, or other similar acts.
- d. **For Cause Termination and Time to Correct.** This Contract may be terminated by the non-defaulting party upon a declared default or breach only after service of formal written notice as specified in paragraph (4), and the subsequent failure of the defaulting party within 15 calendar days of receipt of that notice to provide evidence, satisfactory to the non-defaulting party, showing that the declared default or breach has been corrected.
- e. **Winding Up Affairs Upon Termination.** In the event that this Contract is terminated for any reason, the parties agree that the provisions of this paragraph survive termination:
 - i. The parties shall account for and properly present to each other all claims for fees and expenses and pay those which are undisputed and otherwise not subject to set off under this Contract. Neither party may withhold performance of winding up provisions solely based on nonpayment of fees or expenses accrued up to the time of termination;
 - ii. Contractor shall satisfactorily complete work in progress at the agreed rate (or a pro rata basis if necessary) if so requested by the City;
 - iii. Contractor shall execute any documents and take any actions necessary to effectuate an assignment of this Contract if so requested by the City; and
 - iv. Contractor shall preserve, protect and promptly deliver possession to the City of all proprietary information in accordance with paragraph (21).
 - v. In the event that dispute(s) arise during the winding up of affairs upon termination, the parties agree to meet and negotiate in good faith to resolve any such dispute(s).

11. REMEDIES. Except as otherwise provided for by law or this Contract, the rights and remedies of the parties shall not be exclusive and are in addition to any other rights and remedies provided by law or equity, including, without limitation, actual damages exclusive of lost profits.

12. ATTORNEYS' FEES, COSTS, AND EXPENSES. Unless otherwise stated herein, the Parties will bear their own attorneys' fees, costs, and expenses in connection with the negotiation, execution, and performance of this Agreement.

13. LIMITED LIABILITY. Contract liability of both parties shall not be subject to punitive damages. Liquidated damages shall not apply unless otherwise specified in the Attachments. Damages for any default or breach by the City shall never exceed the amount of funds appropriated for payment under this Contract, but not yet paid to Contractor, for the fiscal year budget in existence at the time of the default or breach.

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14. FORCE MAJEURE. Neither party shall be deemed to be in violation of this Contract if it is prevented from performing any of its obligations hereunder due to strikes, failure of public transportation, civil or military authority, act of public enemy, accidents, fires, explosions, or acts of God, including, without limitation, earthquakes, floods, winds, or storms. In such an event the intervening cause must not be through the fault of the party asserting such an excuse, and the excused party is obligated to promptly perform in accordance with the terms of this Contract after the intervening cause ceases.

15. INDEMNIFICATION.

A. As respects negligent acts, errors or omissions in the performance of professional services, the Contractor agrees to indemnify and hold harmless the City, including their elected officials, officers, employees, and agents from and against reasonable defense costs, including reasonable attorney fees, liability or claims arising directly out of the Contractor's negligent acts, errors or omissions in the performance of its work under the terms of this Agreement, to the extent the liabilities are determined to have been proximately caused by the negligent acts, errors or omissions of the Contractor, its Sub-CONTRACTORS or Sub-Contractors (hereafter "Subs"), their employees, agents, or representatives. City shall provide notice to Contractor of the City's receipt of a written demand/claim or lawsuit arising from Contractor's work.

B. The CONTRACTOR agrees to hold harmless, indemnify, and defend the City, including their elected officials, officers, employees, and agents from loss or liability resulting from any claim, demand, suit, action, or cause of action based on bodily injury, including death, or property damage, caused by any negligent or intentional acts, errors or omissions, either direct or passive, on the part of the Contractor, its Subs, their employees, agents, or representatives, arising from the performance of work under this Agreement. The collective group to be indemnified shall hereinafter be referred to as "Indemnitees." If an "Indemnitees" is found to be liable in the proceeding, then Contractor's obligation here under shall be limited to the proportional share of the liability attributed to the Contractor.

16. INDEPENDENT CONTRACTOR. Contractor is associated with the City only for the purposes and to the extent specified in this Contract, and in respect to performance of the contracted services pursuant to this Contract, Contractor is and shall be an independent contractor and, subject only to the terms of this Contract, shall have the sole right to supervise, manage, operate, control, and direct performance of the details incident to its duties under this Contract. Nothing contained in this Contract shall be deemed or construed to create a partnership or joint venture, to create relationships of an employer-employee or principal-agent, or to otherwise create any liability for the City whatsoever with respect to the indebtedness, liabilities, and obligations of Contractor or any other party. Contractor shall be solely responsible for, and the City shall have no obligation with respect to: (1) withholding of income taxes, FICA or any other taxes or fees; (2) industrial insurance coverage; (3) participation in any group insurance plans available to

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employees of the City; (4) participation or contributions by either Contractor or the Public Employees Retirement System; (5) accumulation of vacation leave or sick leave; or (6) unemployment compensation coverage provided by the City. Contractor shall indemnify and hold the City harmless from, and defend the City against, any and all losses, damages, claims, costs, penalties, liabilities, and expenses arising or incurred because of, incident to, or otherwise with respect to any such taxes or fees. Neither Contractor nor its employees, agents, or representatives shall be considered employees, agents, or representatives of the City.

17. INSURANCE Unless expressly waived in writing by the City, Contractor, as an independent contractor and not an employee of the City, must carry those policies of insurance which have been agreed to by the parties as evidenced by the parties initials in the signature spaces provided in the amounts specified below and pay all taxes and fees incident hereunto. The City shall have no liability except as specifically provided in this Contract. Contractor shall not commence work before:

- a. Contractor has provided the required evidence of insurance to the City, and
- b. The City has approved the insurance policies provided by Contractor. Prior approval of the insurance policies by the City shall be a condition precedent to any payment of consideration under this Contract and the City's approval of any changes to insurance coverage during the course of performance shall constitute an ongoing condition subsequent this Contract. Any failure of the City to timely approve the insurance policies or any changes to the insurance coverage shall not constitute a waiver of the condition.

Insurance Coverage: Contractor shall, at Contractor's sole expense, procure, maintain and keep in force for the duration of this Contract the following insurance conforming to the minimum requirements specified below. Unless specified herein or otherwise agreed to by the City, the required insurance shall be in effect prior to the commencement of work by Contractor and shall continue in force as appropriate until the latter of:

- 1) Final acceptance by the City of the completion of this Contract;
or
- 2) Such time as the insurance is no longer required by the City
under the terms of this Contract.

Any insurance or self-insurance available to the City shall be in excess of, and non-contributing with, any insurance required from Contractor. Contractor's insurance policies shall apply on a primary basis. Until such time as the insurance is no longer required by the City, Contractor shall provide the City with renewal or replacement evidence of insurance no less than thirty (30) days before the expiration or replacement of the required insurance. If at any time during the period when insurance is required by this Contract, an insurer or surety shall fail to comply with the requirements of this Contract, as soon as Contractor has knowledge of any such failure, Contractor shall immediately notify the City and immediately replace such insurance or bond with an insurer meeting the requirements.

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Workers' Compensation and Employer's Liability Insurance:

INDUSTRIAL INSURANCE. Contractor further agrees, as a precondition to the performance of any work under this Contract and as a precondition to any obligation of the City to make payment under this Contract, to provide the City with a work certificate issued by a qualified insurer in accordance with NRS 616B.627. Contractor agrees, prior to commencing any work under this Contract, to complete and to provide the following written request to the qualified insurer:

Nichols Consulting Engineers, Chtd (NCE) has entered into a contract with Owner to perform work from July 1, 2025 to June 30, 2026 and requests that an industrial insurance provider qualified and licensed to offer such insurance within the State of Nevada, provide to The City of Fernley, Nevada 1) a certificate of coverage issued pursuant to NRS 616B.627 and 2) notice of any lapse in coverage or nonpayment of coverage that Contractor is required to maintain. The certificate and notice should be mailed to:

City of Fernley
595 Silver Lace Blvd
Fernley, NV 89408

Contractor agrees to maintain required workers compensation coverage throughout the entire term of this Contract. If Contractor does not maintain coverage throughout the entire term of this Contract, Contractor agrees that the City may, at any time the coverage is not maintained by Contractor, order Contractor stop work, suspend this Contract, or terminate this Contract.

Contractor may, in lieu of furnishing a certificate of an insurer, provide an affidavit indicating that Contractor is a sole proprietor and that:

- 1) In accordance with the provisions of NRS 616B.659, Contractor has not elected to be included within the terms, conditions, and provisions of NRS chapters 616A to 616D, inclusive; and
- 2) Contractor is otherwise in compliance with those terms, conditions and provisions.

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Commercial General Liability Insurance:

- 1) Minimum Limits required:
 - \$1,000,000** General Aggregate
 - \$1,000,000** Products & Completed Operations Aggregate
 - \$1,000,000** Personal and Advertising Injury
 - \$1,000,000** Each Occurrence
- 2) Coverage shall be on an occurrence basis and shall be at least as broad as ISO 1996 form CG 00 01 (or a substitute form providing equivalent coverage); and shall cover liability arising from premises, operations, independent contractors, completed

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operations, personal injury, products, civil lawsuits, and liability assumed under an insured contract (including the tort liability of another assumed in a business contract).

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Business Automobile Liability Insurance:

Minimum Limit required: **\$100,000** Each Occurrence for bodily injury and property damage. Coverage shall be for "any auto" (including owned, non-owned and hired vehicles).

The policy shall be written on ISO form CA 00 01 or a substitute providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage.

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Professional Liability Insurance:

- 3) Minimum Limit required: \$1,000,000 Each Claim, \$2,000,000 Aggregate.
- 4) Retroactive date: Prior to commencement of the performance of this Contract
- 5) Discovery period: Three (3) years after the termination date of this Contract.
- 6) A certified copy of this policy may be required.

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Umbrella or Excess Liability Insurance:

- 1) May be used to achieve the above minimum liability limits.
- 2) Shall be endorsed to state it is "As Broad as Primary Policy"

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CTR

Commercial Crime Insurance:

- 1) Minimum Limit required: **\$10,000** Per Loss for Employee Dishonesty
- 2) This insurance shall be underwritten on a blanket form amending the definition of "employee" to include all employees of the Vendor regardless of position or category.

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Performance Security:

- 1) Amount required: **\$ 0**
- 2) Security may be in the form of surety bond, Certificate of Deposit or Treasury Note payable to the City only.
- 3) The security shall be deposited with the City no later than ten (10) working days following award of this Contract to Contractor.
- 4) Upon successful completion of this Contract, the security and all interest earned, if any, shall be returned to Contractor.

General Requirements:

- 1) Additional Insured: By endorsement to the general liability insurance policy evidenced by Contractor, ***The City of Fernley, its officers, employees***

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and immune contractors shall be named as additional insureds for all liability arising from this Contract.

- 2) Waiver of Subrogation: Each liability insurance policy shall provide for a waiver of subrogation as to additional insureds.
- 3) Cross-Liability: All required liability policies shall provide cross-liability coverage as would be achieved under the standard ISO separation of insureds clause.
- 4) Deductibles and Self-Insured Retentions: Insurance maintained by Contractor shall apply on a first dollar basis without application of a deductible or self-insured retention unless otherwise specifically agreed to by the City. Such approval shall not relieve Contractor from the obligation to pay any deductible or self-insured retention. Any deductible or self-insured retention shall not exceed \$50,000 for professional liability losses per occurrence, unless otherwise approved by the City.
- 5) Policy Cancellation: Except for ten days notice for non-payment of premium, each insurance policy shall be endorsed to state that; without thirty (30) days prior written notice to the City, the policy shall not be canceled, non-renewed, and shall provide that notices required by this paragraph shall be sent by certified mail to the address shown below.
- 6) Approved Insurer: Each insurance policy shall be:
 - a. Issued by insurance companies authorized to do business in the State of Nevada or eligible surplus lines insurers acceptable to the City and having agents in the State of Nevada upon whom service of process may be made, and
 - b. Currently rated by A.M. Best as "A- VII" or better.

Evidence of Insurance: Prior to the start of any work, Contractor must provide the following documents to the City:

- 1) Certificate of Insurance: The Acord 25 Certificate of Insurance form or a form substantially similar must be submitted to the City to evidence the insurance policies and coverages required of Contractor.
- 2) Additional Insured Endorsement: An Additional Insured Endorsement (CG20 10 or C20 26), signed by an authorized insurance company representative, **must** be submitted to the City to evidence the endorsement of the City as an additional insured per General Requirements, Subsection 1) above.
- 3) Schedule of Underlying Insurance Policies: If an Umbrella or Excess insurance policy is evidenced to comply with minimum limits, a copy of the Underlying Schedule from the Umbrella or Excess insurance policy may be required.

Review and Approval: Documents specified above must be submitted for review and approval by the City prior to the commencement of work by Contractor. Neither approval by the City nor failure to disapprove the insurance furnished by Contractor shall relieve Contractor of Contractor's full responsibility to provide the insurance required by this Contract. Compliance with the insurance requirements of this Contract shall not limit the liability of Contractor or its sub-contractors, employees or agents to the City or others,

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and shall be in addition to and not in lieu of any other remedy available to the City under this Contract or otherwise. The City reserves the right to request and review a copy of any required insurance policy or endorsement to assure compliance with these requirements.

Required Mailing: Contractor will mail all required insurance documents to the City at the address identified in section 4 of this Contract.

18. COMPLIANCE WITH LEGAL OBLIGATIONS. Contractor shall procure and maintain for the duration of this Contract any state, county, city or federal license, authorization, waiver, permit, qualification or certification required by statute, ordinance, law, or regulation to be held by Contractor to provide the goods or services required by this Contract. Contractor will be responsible to pay all taxes, assessments, fees, premiums, permits, and licenses required by law. Real property and personal property taxes are the responsibility of Contractor in accordance with NRS 361.157 and 361.159. Contractor agrees to be responsible for payment of any such government obligations not paid by its subcontractors during performance of this Contract.

19. WAIVER OF BREACH. Failure to declare a breach or the actual waiver of any particular breach of this Contract or its material or nonmaterial terms by either party shall not operate as a waiver by such party of any of its rights or remedies as to any other default or breach.

20. SEVERABILITY OF PARTS. If any portion, provision, or part of this Agreement is held, determined, or adjudicated by any court of competent jurisdiction to be invalid, unenforceable, or void for any reason whatsoever, each such portion, provision, or part shall be severed from the remaining portions, provisions, or parts of this Agreement, and such determination or adjudication shall not affect the validity or enforceability of such remaining portions, provisions, or parts.

21. ASSIGNMENT/DELEGATION. To the extent that any assignment of any right under this Contract changes the duty of either party, increases the burden or risk involved, impairs the chances of obtaining the performance of this Contract, attempts to operate as a novation, or includes a waiver or abrogation of any defense to payment by the City, such offending portion of the assignment shall be void, and shall be a breach of this Contract. Contractor shall neither assign, transfer nor delegate any rights, obligations or duties under this Contract without the prior written consent of the City.

22. CITY OWNERSHIP OF PROPRIETARY INFORMATION. Any reports, histories, studies, tests, manuals, instructions, photographs, negatives, blue prints, plans, maps, data, system designs, computer code (which is intended to be consideration under this Contract), or any other documents or drawings, prepared or in the course of preparation by Contractor (or its subcontractors) in performance of its obligations under this Contract shall be the exclusive property of the City and all such materials shall be delivered into

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the possession of the City by Contractor upon completion, termination, or cancellation of this Contract. Contractor shall not use, willingly allow, or cause to have such materials used for any purpose other than performance of Contractor's obligations under this Contract without the prior written consent of the City. Notwithstanding the foregoing, the City shall have no proprietary interest in any materials licensed for use by the City that are subject to patent, trademark or copyright protection.

23. PUBLIC RECORDS. Pursuant to NRS 239.010, information or documents received from Contractor may be open to public inspection and copying. The City will have the duty to disclose unless a particular record is made confidential by law or a common law balancing of interests. Contractor may label specific parts of an individual document as a "trade secret" or "confidential," provided that Contractor thereby agrees to indemnify and defend the City for honoring such a designation. The failure to so label any document that is released by the City shall constitute a complete waiver of any and all claims for damages caused by any release of the records.

24. FEDERAL FUNDING. In the event federal funds are used for payment of all or part of this Contract:

- a. Contractor certifies, by signing this Contract, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency. This certification is made pursuant to the regulations implementing Executive Order 12549, Debarment and Suspension, 28 C.F.R. pt. 67, § 67.510, as published as pt. VII of the May 26, 1988, Federal Register (pp. 19160-19211), and any relevant program-specific regulations. This provision shall be required of every subcontractor receiving any payment in whole or in part from federal funds.
- b. Contractor and its subcontractors shall comply with all terms, conditions, and requirements of the Americans with Disabilities Act of 1990 (P.L. 101-136), 42 U.S.C. 12101, as amended, and regulations adopted thereunder contained in 28 C.F.R. 26.101-36.999, inclusive, and any relevant program-specific regulations.
- c. Contractor and its subcontractors shall comply with the requirements of the Civil Rights Act of 1964, as amended, the Rehabilitation Act of 1973, P.L. 93-112, as amended, and any relevant program-specific regulations, and shall not discriminate against any employee or offeror for employment because of race, national origin, creed, color, sex, religion, age, disability or handicap condition (including AIDS and AIDS-related conditions.)

25. LOBBYING. The parties agree, whether expressly prohibited by federal, state or local law, or otherwise, that no funding associated with this contract will be used for any purpose associated with or related to lobbying or influencing or attempting to lobby or influence for any purpose the following:

Any federal, state, county or local agency, legislature, commission, counsel or board;

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Any federal, state, county or local legislator, commission member, counsel member, board member, or other elected official; or

Any officer or employee of any federal, state, county or local agency; legislature, commission, counsel or board.

26. GENERAL WARRANTY: Contractor warrants that all services, deliverables, and/or work product under this Contract shall be completed in a workmanlike manner consistent with standards in the trade, profession, or industry; shall conform to or exceed the specifications set forth in the incorporated attachments; and shall be fit for ordinary use, of good quality, with no material defects.

27. PROPER AUTHORITY. The parties hereto represent and warrant that the person executing this Contract on behalf of each party has full power and authority to enter into this Contract. Contractor acknowledges that as required by statute or regulation this Contract is effective upon signing and only for the period of time specified in this Contract. Any services performed by Contractor before this Contract is effective or after it ceases to be effective are performed at the sole risk of Contractor.

28. GOVERNING LAW; VENUE. This Agreement will be interpreted, and the rights and liabilities of the Parties determined, in accordance with the laws of the State of Nevada, excluding its conflict of laws rules. In any action or proceeding arising under this Agreement, each Party to this Agreement hereby (a) consents to the jurisdiction of Nevada Courts, and of the pertinent appellate courts, and consents to the venue of such action or proceeding in Lyon County, Nevada courts, (b) irrevocably agrees that all actions or proceedings arising out of or relating to this Agreement shall be litigated in such courts, and (c) consents to personal jurisdiction within Lyon County, Nevada. Each Party to this Agreement accepts for itself, generally and unconditionally, the exclusive jurisdiction and venue of the aforesaid courts and waives any defense of lack of personal jurisdiction, improper venue or inconvenient forum or any similar defense, and irrevocably agrees to be bound by any non-appealable judgment rendered thereby in connection with this Agreement.

29. INTEGRATED AGREEMENT. This Agreement contains the entire agreement and understanding among the Parties regarding the matters set forth herein and supersedes all previous negotiations, discussions, and understandings regarding such matters. The Parties acknowledge and represent that they have not relied on any promise, inducement, representation, or other statement made in connection with this Agreement that is not expressly contained herein. The terms of this Agreement are contractual and not a mere recital.

30. COUNTERPARTS. This Agreement may be executed in multiple counterparts, each of which shall be deemed an original, and all of such counterparts together shall constitute one and the same instrument.

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31. ADVICE OF COUNSEL. Each Party hereto represents and agrees that it has had the opportunity to seek and has sought from attorneys any such advice as it deems appropriate with respect to signing this Agreement or the meaning of it. Each party has undertaken such independent investigation and evaluation as it deems appropriate and is entering into this Agreement in reliance on that and not in reliance on any advice, disclosure, representation or information provided by or expected from any other Party or Party's attorneys. This is an agreement of settlement and compromise, made in recognition that the Parties may have different, disputed or incorrect understandings, information and contentions, as to facts and law, and with each Party compromising and settling any potential correctness or incorrectness of its understandings, information and contentions as to the facts, law, claims, duties, disclosures and conduct occurring before or during the entry into this Agreement. No conduct, failure, misunderstanding or misinformation and no claim of fraud or fraudulent inducement occurring prior to or in connection with the execution hereof shall be a ground for rescission hereof or for recovery of damages, except as otherwise expressly provided herein.

32. MODIFICATION; NO WAIVER. The provisions of this Agreement, including this paragraph, may be modified or waived only in writing signed by all Parties. No waiver with respect to any portion of this Agreement shall apply to any other portion of the Agreement, and a waiver on one occasion shall not be deemed to be a waiver of the same or any other breach on a future occasion. No course of dealing by any Party, and no failure, omission, delay, or forbearance by any Party in exercising such Party's rights or remedies shall be deemed a waiver of any such rights or remedies or a modification of this Agreement.

33. INTERPRETATION OF AGREEMENT. This Agreement shall be construed without regard to the Party or Parties responsible for its preparation, and shall be deemed to have been prepared collectively by the Parties. Any ambiguity or uncertainty arising herein shall not be interpreted or construed against any Party hereto on the basis that a Party prepared or drafted a particular provision of this Agreement.

34. COOPERATION OF PARTIES. The Parties agree to cooperate to accomplish the purpose of this Agreement and to execute any and all supplementary documents and to take all additional actions not inconsistent with the terms set forth in this Agreement that are necessary and appropriate to give full force and effect to the terms and intent of this Agreement.

35. NON-DISCRIMINATION. In connection with the performance of work under this contract, the contractor agrees not to discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, sexual orientation, gender identity or expression, or age, including, without limitation, with regard to employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including, without limitation, apprenticeship. The contractor further agrees to insert this

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provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials.

36. ACKNOWLEDGMENT AND EXECUTION. In witness whereof, the parties hereto have caused this Contract to be signed and intend to be legally bound thereby:

CITY MANAGER

City of Fernley

Telephone: 775-784-9900

City Manager

DATED: _____.

CITY ATTORNEY

City of Fernley

Aaron Mouritsen, Esq.

Telephone: 775-784-9861

Fax: 775-784-9868

I have reviewed this Contract and approve as to its legal form.

AARON MOURITSEN, City Attorney

DATED: _____.

CITY'S ORIGINATING DEPARTMENT:

City of Fernley Department: Engineering Department

MARIA PAZ FERNANDEZ, City Engineer

DATED: _____.

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CONTRACT ACCEPTANCE AND EXECUTION:

The City Council of Fernley, Nevada, at their publicly noticed meeting of August 20, 2025, approved the acceptance of this Contract. Further, the City Council authorizes the Mayor of Fernley, Nevada to set his hand to this document and record his signature for the execution of this Contract in accordance with the action taken.

FERNLEY:

NEAL E. MCINTYRE, MAYOR

DATED: _____.

ATTEST:

KIM SWANSON, CITY CLERK

DATED: _____.

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_____, being first duly sworn, deposes and says: That
_____ is the Contractor; that _____ has read the foregoing
Contract; and that _____ understands the terms, conditions, and
requirements thereof.

CONTRACTOR

BY: _____

TITLE: _____

FIRM: _____

BUSINESS LICENSE #: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone: _____

E-mail Address: _____

(Signature of Contractor)

DATED: _____.

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ATTACHMENT A

July 24, 2025

Maria Paz Fernandez, P.E., M.S., MBA
City Engineer
City of Fernley Public Works
595 Silver Lace Blvd.
Fernley, NV 89408

Subject: City of Fernley On-Call Inspection and Support Services

Dear Ms. Paz Fernandez:

NCE is pleased to submit this proposal to provide miscellaneous inspection and engineering support services to the City of Fernley.

Project Understanding: The City of Fernley is interested in having NCE provide miscellaneous inspection and engineering support services for fiscal year 2025-2027.

Pursuant to our discussions, it is our understanding we will have two main tasks under one contract. One task will be for construction inspection and field support. The second task will be for staff augmentation, engineering and office support.

We understand your needs may include, but are not limited to: providing quality assurance inspection (QAI) services including office and field support for Development and Capital Improvement Projects as well as other field or construction inspection support requested by the City.

Primary Task - Construction Inspections and Field Support: Services including inspections typically conducted by the engineering division for various projects including new and existing sub-divisions, new development, including but not limited to the installation of water distribution improvements, sewer infrastructure improvements, street and public right-of way excavation, roadway construction, surface treatments, drainage improvements, driveway, sidewalk and curb ramp improvements, preconstruction and construction meetings and other miscellaneous office and field support services requested by the City.

Secondary Task - Staff Augmentation, Engineering and Office Support: Services including review of plans, specifications and submittals, third party constructability plan review, attend meetings for proposed projects within the public right-of-way, engineering and AutoCAD support, GIS support, providing cost effective recommendations for improving existing conditions of the City's infrastructure, including drainage issues and surface improvements, and other miscellaneous office support requested by the City.

Proposed Schedule: NCE will work with the City on the schedule for each project and can generally respond within twenty-four (24) hours of a request from the City.

Compensation: NCE proposes to provide our services on a time and expense basis in accordance with our Schedule of Charges, included as Attachment 1. All services will be on-call per request by the City. The City can

300 E. 2nd Street, Suite 1210
Reno, NV 89501
(775) 329-4955

choose to redefine tasks as needed in this proposal. It is also understood that funds can be moved between tasks if requested by the City.

The primary task will be funded through development fees collected by the City. Compensation amounts will vary and will be determined based on the type of project. Individual task order authorizations will be provided by the City for each Project. NCE will designate each task with the same number as the City assigned project number to clearly and efficiently track costs. The City will also assign a general task number for miscellaneous projects that do not have a specific project number.

Miscellaneous expenses such as vehicles, mileage, supplies, and photocopies are included in the standard hourly rate and no additional fees for these expenses will be charged.

The secondary task will be funded by either a separate not-to-exceed contract or through a task order authorization issued by the City to be allocated between tasks or sub-tasks as determined by the City.

We appreciate the opportunity to submit this proposal and look forward to continuing to work with the City. If you have any questions about this proposal or would like additional information, please feel free to call the undersigned at 775.329.4955.

Sincerely,

A handwritten signature in blue ink, appearing to read "Dick Minto".

Dick Minto
Senior Construction Manager

A handwritten signature in black ink, appearing to read "Angela Hueftle".

Angela Hueftle, PE
Principal Engineer

Attachment 1 – NCE FY 2025 Schedule of Charges



ATTACHMENT 1

CITY OF FERNLEY SCHEDULE OF CHARGES 2025

PROFESSIONAL SERVICES

Principal	\$350/hour
Associate.....	\$280/hour
Senior II	\$235/hour
Senior I	\$225/hour
Project II	\$215/hour
Project I	\$200/hour
Staff II	\$190/hour
Staff I	\$175/hour

TECHNICAL SERVICES

Senior Construction Manager*	\$196/(\$221-PW)/hour
Construction Inspector*	\$176/(\$201-PW)/hour
Senior Designer.....	\$190/hour
CADD Designer.....	\$170/hour
CADD/GIS Technician.....	\$140/hour
Senior Field Scientist.....	\$150/hour
Field Scientist.....	\$130/hour
Senior Technician*.....	\$176/(\$201-PW)/hour
Field/Engineering Technician*	\$146/(\$171-PW)/hour
Project Administrator	\$135/hour
Technical Editor	\$120/hour
Clerical	\$120/hour

CONTRACT LABOR

From time to time, NCE retains outside professional and technical labor on a temporary basis to meet peak workload demands. Such contract labor will be charged at regular Schedule charges.

LITIGATION SUPPORT

Engineer/Scientist.....	\$435/hour
Court Appearances & Depositions.....	\$605/hour

EQUIPMENT

Falling Weight Deflectometer Testing	\$5,000/Day
Coring	\$6,000/Day
Environmental Equipment.....	(separate fee schedule)

OUTSIDE SERVICES

Rental of equipment not ordinarily furnished by NCE and all other costs such as special printing, photographic work, travel by common carrier, subsistence, subcontractors, etc. cost + 15%

TERMS

Billings are payable upon presentation and are past due 30 days from invoice date. A finance charge of 1.5% per month, or the maximum amount allowable by law, will be charged on past-due accounts. NCE makes no warranty, either expressed or implied, as to its findings, recommendations, specifications, or professional advice except that they are prepared and issued in accordance with generally accepted professional practice.

*A surcharge of \$25/hour applied for technicians and construction inspectors to comply with Prevailing Wage (PW) per requirements of California Department of Industrial Relations.



CITY OF FERNLEY

City Council AGENDA REPORT

Meeting Date: August 20, 2025

REPORT TO: Mayor and City Council

REPORT FROM: Aaron Mouritsen, City Attorney

FINANCIAL IMPACT:

Yes: No: X

CURRENTLY BUDGETED:

Yes: No: X

FUND/ACCOUNT:

N/A

ACTION REQUESTED: Consent

AGENDA ITEM:

Possible Action to approve the Alvogen, Amneal, Apotex, Hikma, Indivior, Mylan, Sun and Zydus Opioid Settlement

AGENDA ITEM BRIEF:

The State of Nevada and numerous local governments, including the City of Fernley, are separately suing certain entities for the misconduct relating to the unlawful manufacture, marketing, promotion, or dispensing of prescription opioids in the State of Nevada. Staff is recommending approval of the proposed Alvogen, Amneal, Apotex, Hikma, Indivior, Mylan, Sun and Zydus Opioid Settlement

RECOMMENDED MOTION:

I move to approve the Alvogen, Amneal, Apotex, Hikma, Indivior, Mylan, Sun and Zydus Opioid Settlement re: the Opioid Litigation.

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

BACKGROUND:

N/A

RELEVANT LAWS, STATUTES, AND REGULATIONS:

N/A

FINANCIAL IMPLICATIONS:

There are none.

ATTACHMENTS:

1. Alvogen Estimated Allocation
2. Alvogen Exhibit K
3. Amneal Estimated Allocation
4. Amneal Exhibit K
5. Apotex Estimated Allocation
6. Apotex Exhibit K
7. Hikma Estimated Allocation
8. Hikma Exhibit K
9. Indivior Estimated Allocation
10. Indivior Exhibit K
11. Mylan Estimated Allocation
12. Mylan Exhibit K
13. Sun Estimated Allocations
14. Sun Exhibit K
15. Zydus Estimated Allocation
16. Zydus Exhibit K

ALVOGEN (ESTIMATED TOTAL) - SINGLE YEAR
OPIOID LITIGATION SETTLEMENT CALCULATOR

NEVADA RECOVERY	\$ 228,981.61
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LEAD LITIGATOR COSTS ESTIMATE	
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FEDERAL GOVERNMENT CMS MEDICAID COSTS (22.52%)	
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ALLOCATION AMOUNT ESTIMATE	\$ 228,981.61
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GOVERNMENT ENTITY	GROSS ALLOCATION	ATTORNEY FEES	NET ALLOCATION
STATE OF NEVADA	\$ 100,431.33	\$ 21,592.74	\$ 78,838.59
CARSON CITY	\$ 2,332.67	\$ 583.17	\$ 1,749.50
CHURCHILL COUNTY	\$ 901.53	\$ 225.38	\$ 676.15
CLARK COUNTY	\$ 86,032.02	\$ 21,508.01	\$ 64,524.01
DOUGLAS COUNTY	\$ 2,134.12	\$ 533.53	\$ 1,600.59
ELKO COUNTY	\$ 1,391.65	\$ -	\$ 1,391.65
ESMERALDA COUNTY	\$ 63.93	\$ 15.98	\$ 47.95
EUREKA COUNTY	\$ 132.87	\$ -	\$ 132.87
HUMBOLDT COUNTY	\$ 1,310.28	\$ 327.57	\$ 982.71
LANDER COUNTY	\$ 466.31	\$ -	\$ 466.31
LINCOLN COUNTY	\$ 305.09	\$ 76.27	\$ 228.82
LYON COUNTY	\$ 2,020.99	\$ 505.25	\$ 1,515.74
MINERAL COUNTY	\$ 770.39	\$ 192.60	\$ 577.79
NYE COUNTY	\$ 2,058.97	\$ 514.74	\$ 1,544.23
PERSHING COUNTY	\$ 465.93	\$ -	\$ 465.93
STOREY COUNTY	\$ 162.48	\$ -	\$ 162.48
WASHOE COUNTY	\$ 11,716.01	\$ 2,929.00	\$ 8,787.01
WHITE PINE COUNTY	\$ 1,344.45	\$ 336.11	\$ 1,008.34
BOULDER CITY	\$ 190.08	\$ 47.52	\$ 142.56
ELY CITY	\$ 8.51	\$ 2.13	\$ 6.38
FERNLEY CITY	\$ 18.58	\$ 4.65	\$ 13.93
HENDERSON CITY	\$ 2,959.31	\$ 739.83	\$ 2,219.48
LAS VEGAS CITY	\$ 6,068.47	\$ 1,517.12	\$ 4,551.35
MESQUITE CITY	\$ 188.34	\$ 47.09	\$ 141.25
NORTH LAS VEGAS CITY	\$ 3,118.48	\$ 779.62	\$ 2,338.86
RENO CITY	\$ 1,743.51	\$ 435.88	\$ 1,307.63
SPARKS CITY	\$ 546.75	\$ 136.69	\$ 410.06
WEST WENDOVER CITY	\$ 72.50	\$ 18.13	\$ 54.37
CENTRAL LYON FIRE PROTECTION DISTRICT	\$ 19.40	\$ 4.85	\$ 14.55
NORTH LYON FIRE PROTECTION DISTRICT	\$ 6.66	\$ 1.67	\$ 4.99
TOTAL:	\$ 228,981.61	\$ 53,075.53	\$ 175,906.08

EXHIBIT K

Subdivision Participation and Release Form

Governmental Entity: City of Fernley	State:
Authorized Official: Mayor Neal McIntyre	
Address 1: 595 Silver Lace Blvd.	
Address 2:	
City, State, Zip: Fernley, NV 89408	
Phone: 775-784-9864	
Email: nemcintyre@cityoffernley.org	

The governmental entity identified above (“*Governmental Entity*”), in order to obtain and in consideration for the benefits provided to the Governmental Entity pursuant to the Settlement Agreement dated April 4, 2025 (“*Alvogen Settlement*”), and acting through the undersigned authorized official, hereby elects to participate in the Alvogen Settlement, release all Released Claims against all Released Entities, and agrees as follows.

1. The Governmental Entity is aware of and has reviewed the Alvogen Settlement, understands that all terms in this Participation and Release Form have the meanings defined therein, and agrees that by executing this Participation and Release Form, the Governmental Entity elects to participate in the Alvogen Settlement and become a Participating Subdivision as provided therein.
2. The Governmental Entity shall promptly, and in any event no later than 14 days after the Reference Date and prior to the filing of the Consent Judgment, dismiss with prejudice any Released Claims that it has filed. With respect to any Released Claims pending in *In re National Prescription Opiate Litigation*, MDL No. 2804, the Governmental Entity authorizes the Plaintiffs’ Executive Committee to execute and file on behalf of the Governmental Entity a Stipulation of Dismissal with Prejudice substantially in the form found at <https://nationalopioidsettlement.com/>.
3. The Governmental Entity agrees to the terms of the Alvogen Settlement pertaining to Participating Subdivisions as defined therein.
4. By agreeing to the terms of the Alvogen Settlement and becoming a Releasor, the Governmental Entity is entitled to the benefits provided therein, including, if applicable, monetary payments beginning after the Effective Date.
5. The Governmental Entity agrees to use any monies it receives through the Alvogen Settlement solely for the purposes provided therein.
6. The Governmental Entity submits to the jurisdiction of the court in the Governmental Entity’s state where the Consent Judgment is filed for purposes limited to that court’s role as provided in, and for resolving disputes to the extent provided in, the Alvogen Settlement. The Governmental Entity likewise agrees to arbitrate before the National Arbitration Panel

as provided in, and for resolving disputes to the extent otherwise provided in, the Alvogen Settlement.

7. The Governmental Entity has the right to enforce the Alvogen Settlement as provided therein.
8. The Governmental Entity, as a Participating Subdivision, hereby becomes a Releasor for all purposes in the Alvogen Settlement, including without limitation all provisions of Section XI (Release), and along with all departments, agencies, divisions, boards, commissions, districts, instrumentalities of any kind and attorneys, and any person in his or her official capacity whether elected or appointed to serve any of the foregoing and any agency, person, or other entity claiming by or through any of the foregoing, and any other entity identified in the definition of Releasor, provides for a release to the fullest extent of its authority. As a Releasor, the Governmental Entity hereby absolutely, unconditionally, and irrevocably covenants not to bring, file, or claim, or to cause, assist or permit to be brought, filed, or claimed, or to otherwise seek to establish liability for any Released Claims against any Released Entity in any forum whatsoever. The releases provided for in the Alvogen Settlement are intended by the Parties to be broad and shall be interpreted so as to give the Released Entities the broadest possible bar against any liability relating in any way to Released Claims and extend to the full extent of the power of the Governmental Entity to release claims. The Alvogen Settlement shall be a complete bar to any Released Claim.
9. The Governmental Entity hereby takes on all rights and obligations of a Participating Subdivision as set forth in the Alvogen Settlement.
10. In connection with the releases provided for in the Alvogen Settlement, each Governmental Entity expressly waives, releases, and forever discharges any and all provisions, rights, and benefits conferred by any law of any state or territory of the United States or other jurisdiction, or principle of common law, which is similar, comparable, or equivalent to § 1542 of the California Civil Code, which reads:

General Release; extent. A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release that, if known by him or her would have materially affected his or her settlement with the debtor or released party.

A Releasor may hereafter discover facts other than or different from those which it knows, believes, or assumes to be true with respect to the Released Claims, but each Governmental Entity hereby expressly waives and fully, finally, and forever settles, releases and discharges, upon the Effective Date, any and all Released Claims that may exist as of such date but which Releasors do not know or suspect to exist, whether through ignorance, oversight, error, negligence or through no fault whatsoever, and which, if known, would materially affect the Governmental Entities' decision to participate in the Alvogen Settlement.

11. Nothing herein is intended to modify in any way the terms of the Alvogen Settlement, to which Governmental Entity hereby agrees. To the extent this Participation and Release Form is interpreted differently from the Alvogen Settlement in any respect, the Alvogen Settlement controls.

I have all necessary power and authorization to execute this Participation and Release Form on behalf of the Governmental Entity.

Signature:	_____
Name:	<u>Neal McIntyre</u>
Title:	<u>Mayor</u>
Date:	_____

AMNEAL (ESTIMATED TOTAL) - PAYMENTS OVER 10 YEARS
OPIOID LITIGATION SETTLEMENT CALCULATOR

NEVADA RECOVERY	\$ 1,532,740.47
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LEAD LITIGATOR COSTS ESTIMATE	
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FEDERAL GOVERNMENT CMS MEDICAID COSTS (22.52%)	
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ALLOCATION AMOUNT ESTIMATE	\$ 1,532,740.47
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GOVERNMENT ENTITY	GROSS ALLOCATION	ATTORNEY FEES	NET ALLOCATION
STATE OF NEVADA	\$ 672,259.97	\$ 144,535.89	\$ 527,724.08
CARSON CITY	\$ 15,614.29	\$ 3,903.57	\$ 11,710.72
CHURCHILL COUNTY	\$ 6,034.59	\$ 1,508.65	\$ 4,525.94
CLARK COUNTY	\$ 575,874.88	\$ 143,968.72	\$ 431,906.16
DOUGLAS COUNTY	\$ 14,285.23	\$ 3,571.31	\$ 10,713.92
ELKO COUNTY	\$ 9,315.34	\$ -	\$ 9,315.34
ESMERALDA COUNTY	\$ 427.91	\$ 106.98	\$ 320.93
EUREKA COUNTY	\$ 889.37	\$ -	\$ 889.37
HUMBOLDT COUNTY	\$ 8,770.64	\$ 2,192.66	\$ 6,577.98
LANDER COUNTY	\$ 3,121.34	\$ -	\$ 3,121.34
LINCOLN COUNTY	\$ 2,042.16	\$ 510.54	\$ 1,531.62
LYON COUNTY	\$ 13,527.96	\$ 3,381.99	\$ 10,145.97
MINERAL COUNTY	\$ 5,156.80	\$ 1,289.20	\$ 3,867.60
NYE COUNTY	\$ 13,782.18	\$ 3,445.55	\$ 10,336.63
PERSHING COUNTY	\$ 3,118.81	\$ -	\$ 3,118.81
STOREY COUNTY	\$ 1,087.57	\$ -	\$ 1,087.57
WASHOE COUNTY	\$ 78,423.75	\$ 19,605.94	\$ 58,817.81
WHITE PINE COUNTY	\$ 8,999.40	\$ 2,249.85	\$ 6,749.55
BOULDER CITY	\$ 1,272.36	\$ 318.09	\$ 954.27
ELY CITY	\$ 56.94	\$ 14.24	\$ 42.70
FERNLEY CITY	\$ 124.35	\$ 31.09	\$ 93.26
HENDERSON CITY	\$ 19,808.82	\$ 4,952.21	\$ 14,856.61
LAS VEGAS CITY	\$ 40,620.68	\$ 10,155.17	\$ 30,465.51
MESQUITE CITY	\$ 1,260.66	\$ 315.17	\$ 945.49
NORTH LAS VEGAS CITY	\$ 20,874.28	\$ 5,218.57	\$ 15,655.71
RENO CITY	\$ 11,670.58	\$ 2,917.65	\$ 8,752.93
SPARKS CITY	\$ 3,659.82	\$ 914.96	\$ 2,744.86
WEST WENDOVER CITY	\$ 485.32	\$ 121.33	\$ 363.99
CENTRAL LYON FIRE PROTECTION DISTRICT	\$ 129.87	\$ 32.47	\$ 97.40
NORTH LYON FIRE PROTECTION DISTRICT	\$ 44.60	\$ 11.15	\$ 33.45
TOTAL:	\$ 1,532,740.47	\$ 355,272.95	\$ 1,177,467.52

EXHIBIT K

Subdivision Participation and Release Form

Governmental Entity: City of Fernley	State: Nevada
Authorized Official: Mayor Neal McIntyre	
Address 1: 595 Silver Lace Blvd.	
Address 2:	
City, State, Zip: Fernley, NV 89408	
Phone: 775-784-9864	
Email: nemcintyre@cityoffernley.org	

The governmental entity identified above (“*Governmental Entity*”), in order to obtain and in consideration for the benefits provided to the Governmental Entity pursuant to the Settlement Agreement dated April 4, 2025 (“*Amneal Settlement*”), and acting through the undersigned authorized official, hereby elects to participate in the Amneal Settlement, release all Released Claims against all Released Entities, and agrees as follows.

1. The Governmental Entity is aware of and has reviewed the Amneal Settlement, understands that all terms in this Participation and Release Form have the meanings defined therein, and agrees that by executing this Participation and Release Form, the Governmental Entity elects to participate in the Amneal Settlement and become a Participating Subdivision as provided therein.
2. The Governmental Entity shall promptly, and in any event no later than 14 days after the Reference Date and prior to the filing of the Consent Judgment, dismiss with prejudice any Released Claims that it has filed. With respect to any Released Claims pending in *In re National Prescription Opiate Litigation*, MDL No. 2804, the Governmental Entity authorizes the Plaintiffs’ Executive Committee to execute and file on behalf of the Governmental Entity a Stipulation of Dismissal with Prejudice substantially in the form found at <https://nationalopiodsettlement.com/>.
3. The Governmental Entity agrees to the terms of the Amneal Settlement pertaining to Participating Subdivisions as defined therein.
4. By agreeing to the terms of the Amneal Settlement and becoming a Releasor, the Governmental Entity is entitled to the benefits provided therein, including, if applicable, monetary payments beginning after the Effective Date.
5. The Governmental Entity agrees to use any monies it receives through the Amneal Settlement solely for the purposes provided therein.
6. The Governmental Entity submits to the jurisdiction of the court in the Governmental Entity’s state where the Consent Judgment is filed for purposes limited to that court’s role as provided in, and for resolving disputes to the extent provided in, the Amneal Settlement.

The Governmental Entity likewise agrees to arbitrate before the National Arbitration Panel as provided in, and for resolving disputes to the extent otherwise provided in, the Amneal Settlement.

7. The Governmental Entity has the right to enforce the Amneal Settlement as provided therein.
8. The Governmental Entity, as a Participating Subdivision, hereby becomes a Releasor for all purposes in the Amneal Settlement, including without limitation all provisions of Section X (Release), and along with all departments, agencies, divisions, boards, commissions, districts, instrumentalities of any kind and attorneys, and any person in his or her official capacity whether elected or appointed to serve any of the foregoing and any agency, person, or other entity claiming by or through any of the foregoing, and any other entity identified in the definition of Releasor, provides for a release to the fullest extent of its authority. As a Releasor, the Governmental Entity hereby absolutely, unconditionally, and irrevocably covenants not to bring, file, or claim, or to cause, assist or permit to be brought, filed, or claimed, or to otherwise seek to establish liability for any Released Claims against any Released Entity in any forum whatsoever. The releases provided for in the Amneal Settlement are intended by the Parties to be broad and shall be interpreted so as to give the Released Entities the broadest possible bar against any liability relating in any way to Released Claims and extend to the full extent of the power of the Governmental Entity to release claims. The Amneal Settlement shall be a complete bar to any Released Claim.
9. The Governmental Entity hereby takes on all rights and obligations of a Participating Subdivision as set forth in the Amneal Settlement.
10. In connection with the releases provided for in the Amneal Settlement, each Governmental Entity expressly waives, releases, and forever discharges any and all provisions, rights, and benefits conferred by any law of any state or territory of the United States or other jurisdiction, or principle of common law, which is similar, comparable, or equivalent to § 1542 of the California Civil Code, which reads:

General Release; extent. A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release that, if known by him or her would have materially affected his or her settlement with the debtor or released party.

A Releasor may hereafter discover facts other than or different from those which it knows, believes, or assumes to be true with respect to the Released Claims, but each Governmental Entity hereby expressly waives and fully, finally, and forever settles, releases and discharges, upon the Effective Date, any and all Released Claims that may exist as of such date but which Releasors do not know or suspect to exist, whether through ignorance, oversight, error, negligence or through no fault whatsoever, and which, if known, would

materially affect the Governmental Entities' decision to participate in the Amneal Settlement.

11. Nothing herein is intended to modify in any way the terms of the Amneal Settlement, to which Governmental Entity hereby agrees. To the extent this Participation and Release Form is interpreted differently from the Amneal Settlement in any respect, the Amneal Settlement controls.

I have all necessary power and authorization to execute this Participation and Release Form on behalf of the Governmental Entity.

Signature:	_____
Name:	<u>Neal McIntyre</u>
Title:	<u>Mayor</u>
Date:	_____

APOTEX (ESTIMATED TOTAL) - SINGLE YEAR
OPIOID LITIGATION SETTLEMENT CALCULATOR

NEVADA RECOVERY	\$ 780,619.14
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LEAD LITIGATOR COSTS ESTIMATE	
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FEDERAL GOVERNMENT CMS MEDICAID COSTS (22.52%)	
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ALLOCATION AMOUNT ESTIMATE	\$ 780,619.14
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GOVERNMENT ENTITY	GROSS ALLOCATION	ATTORNEY FEES	NET ALLOCATION
STATE OF NEVADA	\$ 342,379.56	\$ 73,611.61	\$ 268,767.95
CARSON CITY	\$ 7,952.30	\$ 1,988.08	\$ 5,964.22
CHURCHILL COUNTY	\$ 3,073.40	\$ 768.35	\$ 2,305.05
CLARK COUNTY	\$ 293,290.98	\$ 73,322.75	\$ 219,968.23
DOUGLAS COUNTY	\$ 7,275.42	\$ 1,818.86	\$ 5,456.56
ELKO COUNTY	\$ 4,744.27	\$ -	\$ 4,744.27
ESMERALDA COUNTY	\$ 217.93	\$ 54.48	\$ 163.45
EUREKA COUNTY	\$ 452.95	\$ -	\$ 452.95
HUMBOLDT COUNTY	\$ 4,466.86	\$ 1,116.72	\$ 3,350.14
LANDER COUNTY	\$ 1,589.69	\$ -	\$ 1,589.69
LINCOLN COUNTY	\$ 1,040.07	\$ 260.02	\$ 780.05
LYON COUNTY	\$ 6,889.74	\$ 1,722.44	\$ 5,167.30
MINERAL COUNTY	\$ 2,626.34	\$ 656.59	\$ 1,969.75
NYE COUNTY	\$ 7,019.21	\$ 1,754.80	\$ 5,264.41
PERSHING COUNTY	\$ 1,588.40	\$ -	\$ 1,588.40
STOREY COUNTY	\$ 553.89	\$ -	\$ 553.89
WASHOE COUNTY	\$ 39,940.93	\$ 9,985.23	\$ 29,955.70
WHITE PINE COUNTY	\$ 4,583.36	\$ 1,145.84	\$ 3,437.52
BOULDER CITY	\$ 648.01	\$ 162.00	\$ 486.01
ELY CITY	\$ 29.00	\$ 7.25	\$ 21.75
FERNLEY CITY	\$ 63.33	\$ 15.83	\$ 47.50
HENDERSON CITY	\$ 10,088.56	\$ 2,522.14	\$ 7,566.42
LAS VEGAS CITY	\$ 20,687.96	\$ 5,171.99	\$ 15,515.97
MESQUITE CITY	\$ 642.05	\$ 160.51	\$ 481.54
NORTH LAS VEGAS CITY	\$ 10,631.20	\$ 2,657.80	\$ 7,973.40
RENO CITY	\$ 5,943.78	\$ 1,485.95	\$ 4,457.83
SPARKS CITY	\$ 1,863.93	\$ 465.98	\$ 1,397.95
WEST WENDOVER CITY	\$ 247.17	\$ 61.79	\$ 185.38
CENTRAL LYON FIRE PROTECTION DISTRICT	\$ 66.14	\$ 16.54	\$ 49.60
NORTH LYON FIRE PROTECTION DISTRICT	\$ 22.71	\$ 5.68	\$ 17.03
TOTAL:	\$ 780,619.14	\$ 180,939.23	\$ 599,679.91

EXHIBIT K

Subdivision Participation and Release Form

Governmental Entity: City of Fernley	State: Nevada
Authorized Official: Mayor Neal McIntyre	
Address 1: 595 Silver Lace Blvd.	
Address 2:	
City, State, Zip: Fernley, NV 89408	
Phone: 775-784-9864	
Email: nemcintyre@cityoffernley.org	

The governmental entity identified above (“*Governmental Entity*”), in order to obtain and in consideration for the benefits provided to the Governmental Entity pursuant to the Settlement Agreement dated April 4, 2025 (“*Apotex Settlement*”), and acting through the undersigned authorized official, hereby elects to participate in the Apotex Settlement, release all Released Claims against all Released Entities, and agrees as follows.

1. The Governmental Entity is aware of and has reviewed the Apotex Settlement, understands that all terms in this Participation and Release Form have the meanings defined therein, and agrees that by executing this Participation and Release Form, the Governmental Entity elects to participate in the Apotex Settlement and become a Participating Subdivision as provided therein.
2. The Governmental Entity shall promptly, and in any event no later than 14 days after the Reference Date and prior to the filing of the Consent Judgment, dismiss with prejudice any Released Claims that it has filed. With respect to any Released Claims pending in *In re National Prescription Opiate Litigation*, MDL No. 2804, the Governmental Entity authorizes the Plaintiffs’ Executive Committee to execute and file on behalf of the Governmental Entity a Stipulation of Dismissal with Prejudice substantially in the form found at <https://nationalopioidsettlement.com/>.
3. The Governmental Entity agrees to the terms of the Apotex Settlement pertaining to Participating Subdivisions as defined therein.
4. By agreeing to the terms of the Apotex Settlement and becoming a Releasor, the Governmental Entity is entitled to the benefits provided therein, including, if applicable, monetary payments beginning after the Effective Date.
5. The Governmental Entity agrees to use any monies it receives through the Apotex Settlement solely for the purposes provided therein.
6. The Governmental Entity submits to the jurisdiction of the court in the Governmental Entity’s state where the Consent Judgment is filed for purposes limited to that court’s role as provided in, and for resolving disputes to the extent provided in, the Apotex Settlement. The Governmental Entity likewise agrees to arbitrate before the National Arbitration Panel

as provided in, and for resolving disputes to the extent otherwise provided in, the Apotex Settlement.

7. The Governmental Entity has the right to enforce the Apotex Settlement as provided therein.
8. The Governmental Entity, as a Participating Subdivision, hereby becomes a Releasor for all purposes in the Apotex Settlement, including without limitation all provisions of Section XI (Release), and along with all departments, agencies, divisions, boards, commissions, districts, instrumentalities of any kind and attorneys, and any person in his or her official capacity whether elected or appointed to serve any of the foregoing and any agency, person, or other entity claiming by or through any of the foregoing, and any other entity identified in the definition of Releasor, provides for a release to the fullest extent of its authority. As a Releasor, the Governmental Entity hereby absolutely, unconditionally, and irrevocably covenants not to bring, file, or claim, or to cause, assist or permit to be brought, filed, or claimed, or to otherwise seek to establish liability for any Released Claims against any Released Entity in any forum whatsoever. The releases provided for in the Apotex Settlement are intended by the Parties to be broad and shall be interpreted so as to give the Released Entities the broadest possible bar against any liability relating in any way to Released Claims and extend to the full extent of the power of the Governmental Entity to release claims. The Apotex Settlement shall be a complete bar to any Released Claim.
9. The Governmental Entity hereby takes on all rights and obligations of a Participating Subdivision as set forth in the Apotex Settlement.
10. In connection with the releases provided for in the Apotex Settlement, each Governmental Entity expressly waives, releases, and forever discharges any and all provisions, rights, and benefits conferred by any law of any state or territory of the United States or other jurisdiction, or principle of common law, which is similar, comparable, or equivalent to § 1542 of the California Civil Code, which reads:

General Release; extent. A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release that, if known by him or her would have materially affected his or her settlement with the debtor or released party.

A Releasor may hereafter discover facts other than or different from those which it knows, believes, or assumes to be true with respect to the Released Claims, but each Governmental Entity hereby expressly waives and fully, finally, and forever settles, releases and discharges, upon the Effective Date, any and all Released Claims that may exist as of such date but which Releasors do not know or suspect to exist, whether through ignorance, oversight, error, negligence or through no fault whatsoever, and which, if known, would materially affect the Governmental Entities' decision to participate in the Apotex Settlement.

11. Nothing herein is intended to modify in any way the terms of the Apotex Settlement, to which Governmental Entity hereby agrees. To the extent this Participation and Release Form is interpreted differently from the Apotex Settlement in any respect, the Apotex Settlement controls.

I have all necessary power and authorization to execute this Participation and Release Form on behalf of the Governmental Entity.

Signature:	_____
Name:	Neal McIntyre
Title:	Mayor
Date:	_____

HIKMA (ESTIMATED TOTAL) - PAYMENTS OVER 2 YEARS
OPIOID LITIGATION SETTLEMENT CALCULATOR

NEVADA RECOVERY	\$ 1,298,988.31
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LEAD LITIGATOR COSTS ESTIMATE	
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FEDERAL GOVERNMENT CMS MEDICAID COSTS (22.52%)	
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ALLOCATION AMOUNT ESTIMATE	\$ 1,298,988.31
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GOVERNMENT ENTITY	GROSS ALLOCATION	ATTORNEY FEES	NET ALLOCATION
STATE OF NEVADA	\$ 569,736.25	\$ 122,493.29	\$ 447,242.96
CARSON CITY	\$ 13,233.01	\$ 3,308.25	\$ 9,924.76
CHURCHILL COUNTY	\$ 5,114.28	\$ 1,278.57	\$ 3,835.71
CLARK COUNTY	\$ 488,050.49	\$ 122,012.62	\$ 366,037.87
DOUGLAS COUNTY	\$ 12,106.65	\$ 3,026.66	\$ 9,079.99
ELKO COUNTY	\$ 7,894.70	\$ -	\$ 7,894.70
ESMERALDA COUNTY	\$ 362.65	\$ 90.66	\$ 271.99
EUREKA COUNTY	\$ 753.74	\$ -	\$ 753.74
HUMBOLDT COUNTY	\$ 7,433.07	\$ 1,858.27	\$ 5,574.80
LANDER COUNTY	\$ 2,645.32	\$ -	\$ 2,645.32
LINCOLN COUNTY	\$ 1,730.72	\$ 432.68	\$ 1,298.04
LYON COUNTY	\$ 11,464.86	\$ 2,866.22	\$ 8,598.64
MINERAL COUNTY	\$ 4,370.36	\$ 1,092.59	\$ 3,277.77
NYE COUNTY	\$ 11,680.31	\$ 2,920.08	\$ 8,760.23
PERSHING COUNTY	\$ 2,643.17	\$ -	\$ 2,643.17
STOREY COUNTY	\$ 921.71	\$ -	\$ 921.71
WASHOE COUNTY	\$ 66,463.66	\$ 16,615.92	\$ 49,847.74
WHITE PINE COUNTY	\$ 7,626.94	\$ 1,906.74	\$ 5,720.20
BOULDER CITY	\$ 1,078.32	\$ 269.58	\$ 808.74
ELY CITY	\$ 48.26	\$ 12.07	\$ 36.19
FERNLEY CITY	\$ 105.38	\$ 26.35	\$ 79.03
HENDERSON CITY	\$ 16,787.85	\$ 4,196.96	\$ 12,590.89
LAS VEGAS CITY	\$ 34,425.78	\$ 8,606.45	\$ 25,819.33
MESQUITE CITY	\$ 1,068.40	\$ 267.10	\$ 801.30
NORTH LAS VEGAS CITY	\$ 17,690.83	\$ 4,422.71	\$ 13,268.12
RENO CITY	\$ 9,890.75	\$ 2,472.69	\$ 7,418.06
SPARKS CITY	\$ 3,101.68	\$ 775.42	\$ 2,326.26
WEST WENDOVER CITY	\$ 411.31	\$ 102.83	\$ 308.48
CENTRAL LYON FIRE PROTECTION DISTRICT	\$ 110.06	\$ 27.52	\$ 82.54
NORTH LYON FIRE PROTECTION DISTRICT	\$ 37.80	\$ 9.45	\$ 28.35
TOTAL:	\$ 1,298,988.31	\$ 301,091.68	\$ 997,896.63

EXHIBIT K

Subdivision Participation and Release Form

Governmental Entity: City of Fernley	State: Nevada
Authorized Official: Mayor Neal McIntyre	
Address 1: 595 Silver Lace Blvd.	
Address 2:	
City, State, Zip: Fernley, NV 89408	
Phone: 775-784-9864	
Email: nemcintyre@cityoffernley.org	

The governmental entity identified above (“*Governmental Entity*”), in order to obtain and in consideration for the benefits provided to the Governmental Entity pursuant to the Settlement Agreement dated April 4, 2025 (“*Hikma Settlement*”), and acting through the undersigned authorized official, hereby elects to participate in the Hikma Settlement, release all Released Claims against all Released Entities, and agrees as follows.

1. The Governmental Entity is aware of and has reviewed the Hikma Settlement, understands that all terms in this Participation and Release Form have the meanings defined therein, and agrees that by executing this Participation and Release Form, the Governmental Entity elects to participate in the Hikma Settlement and become a Participating Subdivision as provided therein.
2. The Governmental Entity shall promptly, and in any event no later than 14 days after the Reference Date and prior to the filing of the Consent Judgment, dismiss with prejudice any Released Claims that it has filed. With respect to any Released Claims pending in *In re National Prescription Opiate Litigation*, MDL No. 2804, the Governmental Entity authorizes the Plaintiffs’ Executive Committee to execute and file on behalf of the Governmental Entity a Stipulation of Dismissal with Prejudice substantially in the form found at <https://nationalopioidsettlement.com/>.
3. The Governmental Entity agrees to the terms of the Hikma Settlement pertaining to Participating Subdivisions as defined therein.
4. By agreeing to the terms of the Hikma Settlement and becoming a Releasor, the Governmental Entity is entitled to the benefits provided therein, including, if applicable, monetary payments beginning after the Effective Date.
5. The Governmental Entity agrees to use any monies it receives through the Hikma Settlement solely for the purposes provided therein.
6. The Governmental Entity submits to the jurisdiction of the court in the Governmental Entity’s state where the Consent Judgment is filed for purposes limited to that court’s role as provided in, and for resolving disputes to the extent provided in, the Hikma Settlement. The Governmental Entity likewise agrees to arbitrate before the National Arbitration Panel

as provided in, and for resolving disputes to the extent otherwise provided in, the Hikma Settlement.

7. The Governmental Entity has the right to enforce the Hikma Settlement as provided therein.
8. The Governmental Entity, as a Participating Subdivision, hereby becomes a Releasor for all purposes in the Hikma Settlement, including without limitation all provisions of Section X (Release), and along with all departments, agencies, divisions, boards, commissions, districts, instrumentalities of any kind and attorneys, and any person in his or her official capacity whether elected or appointed to serve any of the foregoing and any agency, person, or other entity claiming by or through any of the foregoing, and any other entity identified in the definition of Releasor, provides for a release to the fullest extent of its authority. As a Releasor, the Governmental Entity hereby absolutely, unconditionally, and irrevocably covenants not to bring, file, or claim, or to cause, assist or permit to be brought, filed, or claimed, or to otherwise seek to establish liability for any Released Claims against any Released Entity in any forum whatsoever. The releases provided for in the Hikma Settlement are intended by the Parties to be broad and shall be interpreted so as to give the Released Entities the broadest possible bar against any liability relating in any way to Released Claims and extend to the full extent of the power of the Governmental Entity to release claims. The Hikma Settlement shall be a complete bar to any Released Claim.
9. The Governmental Entity hereby takes on all rights and obligations of a Participating Subdivision as set forth in the Hikma Settlement.
10. In connection with the releases provided for in the Hikma Settlement, each Governmental Entity expressly waives, releases, and forever discharges any and all provisions, rights, and benefits conferred by any law of any state or territory of the United States or other jurisdiction, or principle of common law, which is similar, comparable, or equivalent to § 1542 of the California Civil Code, which reads:

General Release; extent. A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release that, if known by him or her would have materially affected his or her settlement with the debtor or released party.

A Releasor may hereafter discover facts other than or different from those which it knows, believes, or assumes to be true with respect to the Released Claims, but each Governmental Entity hereby expressly waives and fully, finally, and forever settles, releases and discharges, upon the Effective Date, any and all Released Claims that may exist as of such date but which Releasors do not know or suspect to exist, whether through ignorance, oversight, error, negligence or through no fault whatsoever, and which, if known, would materially affect the Governmental Entities' decision to participate in the Hikma Settlement.

11. Nothing herein is intended to modify in any way the terms of the Hikma Settlement, to which Governmental Entity hereby agrees. To the extent this Participation and Release Form is interpreted differently from the Hikma Settlement in any respect, the Hikma Settlement controls.

I have all necessary power and authorization to execute this Participation and Release Form on behalf of the Governmental Entity.

Signature: _____

Name: Neal McIntyre

Title: Mayor

Date: _____

INDIVIOR (ESTIMATED TOTAL) - PAYMENTS OVER 5 YEARS
OPIOID LITIGATION SETTLEMENT CALCULATOR

NEVADA RECOVERY	\$ 895,350.32
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LEAD LITIGATOR COSTS ESTIMATE	
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FEDERAL GOVERNMENT CMS MEDICAID COSTS (22.52%)	
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ALLOCATION AMOUNT ESTIMATE	\$ 895,350.32
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GOVERNMENT ENTITY	GROSS ALLOCATION	ATTORNEY FEES	NET ALLOCATION
STATE OF NEVADA	\$ 392,700.66	\$ 84,430.64	\$ 308,270.02
CARSON CITY	\$ 9,121.08	\$ 2,280.27	\$ 6,840.81
CHURCHILL COUNTY	\$ 3,525.11	\$ 881.28	\$ 2,643.83
CLARK COUNTY	\$ 336,397.30	\$ 84,099.33	\$ 252,297.97
DOUGLAS COUNTY	\$ 8,344.72	\$ 2,086.18	\$ 6,258.54
ELKO COUNTY	\$ 5,441.56	\$ -	\$ 5,441.56
ESMERALDA COUNTY	\$ 249.96	\$ 62.49	\$ 187.47
EUREKA COUNTY	\$ 519.53	\$ -	\$ 519.53
HUMBOLDT COUNTY	\$ 5,123.37	\$ 1,280.84	\$ 3,842.53
LANDER COUNTY	\$ 1,823.33	\$ -	\$ 1,823.33
LINCOLN COUNTY	\$ 1,192.93	\$ 298.23	\$ 894.70
LYON COUNTY	\$ 7,902.36	\$ 1,975.59	\$ 5,926.77
MINERAL COUNTY	\$ 3,012.34	\$ 753.09	\$ 2,259.25
NYE COUNTY	\$ 8,050.86	\$ 2,012.72	\$ 6,038.14
PERSHING COUNTY	\$ 1,821.85	\$ -	\$ 1,821.85
STOREY COUNTY	\$ 635.30	\$ -	\$ 635.30
WASHOE COUNTY	\$ 45,811.23	\$ 11,452.81	\$ 34,358.42
WHITE PINE COUNTY	\$ 5,257.00	\$ 1,314.25	\$ 3,942.75
BOULDER CITY	\$ 743.25	\$ 185.81	\$ 557.44
ELY CITY	\$ 33.26	\$ 8.32	\$ 24.94
FERNLEY CITY	\$ 72.64	\$ 18.16	\$ 54.48
HENDERSON CITY	\$ 11,571.32	\$ 2,892.83	\$ 8,678.49
LAS VEGAS CITY	\$ 23,728.57	\$ 5,932.14	\$ 17,796.43
MESQUITE CITY	\$ 736.42	\$ 184.11	\$ 552.31
NORTH LAS VEGAS CITY	\$ 12,193.71	\$ 3,048.43	\$ 9,145.28
RENO CITY	\$ 6,817.37	\$ 1,704.34	\$ 5,113.03
SPARKS CITY	\$ 2,137.88	\$ 534.47	\$ 1,603.41
WEST WENDOVER CITY	\$ 283.50	\$ 70.88	\$ 212.62
CENTRAL LYON FIRE PROTECTION DISTRICT	\$ 75.86	\$ 18.97	\$ 56.89
NORTH LYON FIRE PROTECTION DISTRICT	\$ 26.05	\$ 6.51	\$ 19.54
TOTAL:	\$ 895,350.32	\$ 207,532.69	\$ 687,817.63

EXHIBIT K

Subdivision Participation and Release Form

Governmental Entity: City of Fernley	State: Nevada
Authorized Official: Mayor Neal McIntyre	
Address 1: 595 Silver Lace Blvd.	
Address 2:	
City, State, Zip: Fernley, NV 89408	
Phone: 775-784-9864	
Email: nemcintyre@cityoffernley.org	

The governmental entity identified above (“*Governmental Entity*”), in order to obtain and in consideration for the benefits provided to the Governmental Entity pursuant to the Settlement Agreement dated April 4, 2025 (“*Indivior Settlement*”), and acting through the undersigned authorized official, hereby elects to participate in the Indivior Settlement, release all Released Claims against all Released Entities, and agrees as follows.

1. The Governmental Entity is aware of and has reviewed the Indivior Settlement, understands that all terms in this Participation and Release Form have the meanings defined therein, and agrees that by executing this Participation and Release Form, the Governmental Entity elects to participate in the Indivior Settlement and become a Participating Subdivision as provided therein.
2. The Governmental Entity shall promptly, and in any event no later than 14 days after the Reference Date and prior to the filing of the Consent Judgment, dismiss with prejudice any Released Claims that it has filed. With respect to any Released Claims pending in *In re National Prescription Opiate Litigation*, MDL No. 2804, the Governmental Entity authorizes the Plaintiffs’ Executive Committee to execute and file on behalf of the Governmental Entity a Stipulation of Dismissal with Prejudice substantially in the form found at <https://nationalopioidsettlement.com/>.
3. The Governmental Entity agrees to the terms of the Indivior Settlement pertaining to Participating Subdivisions as defined therein.
4. By agreeing to the terms of the Indivior Settlement and becoming a Releasor, the Governmental Entity is entitled to the benefits provided therein, including, if applicable, monetary payments beginning after the Effective Date.
5. The Governmental Entity agrees to use any monies it receives through the Indivior Settlement solely for the purposes provided therein.
6. The Governmental Entity submits to the jurisdiction of the court in the Governmental Entity’s state where the Consent Judgment is filed for purposes limited to that court’s role as provided in, and for resolving disputes to the extent provided in, the Indivior Settlement. The Governmental Entity likewise agrees to arbitrate before the National Arbitration Panel

as provided in, and for resolving disputes to the extent otherwise provided in, the Indivior Settlement.

7. The Governmental Entity has the right to enforce the Indivior Settlement as provided therein.
8. The Governmental Entity, as a Participating Subdivision, hereby becomes a Releasor for all purposes in the Indivior Settlement, including without limitation all provisions of Section X (Release), and along with all departments, agencies, divisions, boards, commissions, districts, instrumentalities of any kind and attorneys, and any person in his or her official capacity whether elected or appointed to serve any of the foregoing and any agency, person, or other entity claiming by or through any of the foregoing, and any other entity identified in the definition of Releasor, provides for a release to the fullest extent of its authority. As a Releasor, the Governmental Entity hereby absolutely, unconditionally, and irrevocably covenants not to bring, file, or claim, or to cause, assist or permit to be brought, filed, or claimed, or to otherwise seek to establish liability for any Released Claims against any Released Entity in any forum whatsoever. The releases provided for in the Indivior Settlement are intended by the Parties to be broad and shall be interpreted so as to give the Released Entities the broadest possible bar against any liability relating in any way to Released Claims and extend to the full extent of the power of the Governmental Entity to release claims. The Indivior Settlement shall be a complete bar to any Released Claim.
9. The Governmental Entity hereby takes on all rights and obligations of a Participating Subdivision as set forth in the Indivior Settlement.
10. In connection with the releases provided for in the Indivior Settlement, each Governmental Entity expressly waives, releases, and forever discharges any and all provisions, rights, and benefits conferred by any law of any state or territory of the United States or other jurisdiction, or principle of common law, which is similar, comparable, or equivalent to § 1542 of the California Civil Code, which reads:

General Release; extent. A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release that, if known by him or her would have materially affected his or her settlement with the debtor or released party.

A Releasor may hereafter discover facts other than or different from those which it knows, believes, or assumes to be true with respect to the Released Claims, but each Governmental Entity hereby expressly waives and fully, finally, and forever settles, releases and discharges, upon the Effective Date, any and all Released Claims that may exist as of such date but which Releasors do not know or suspect to exist, whether through ignorance, oversight, error, negligence or through no fault whatsoever, and which, if known, would materially affect the Governmental Entities' decision to participate in the Indivior Settlement.

11. Nothing herein is intended to modify in any way the terms of the Indivior Settlement, to which Governmental Entity hereby agrees. To the extent this Participation and Release Form is interpreted differently from the Indivior Settlement in any respect, the Indivior Settlement controls.

I have all necessary power and authorization to execute this Participation and Release Form on behalf of the Governmental Entity.

Signature:	_____
Name:	<u>Neal McIntyre</u>
Title:	<u>Mayor</u>
Date:	_____

MYLAN (ESTIMATED TOTAL) - PAYMENTS OVER 9 YEARS
OPIOID LITIGATION SETTLEMENT CALCULATOR

NEVADA RECOVERY	\$ 3,622,867.87
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LEAD LITIGATOR COSTS ESTIMATE	
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FEDERAL GOVERNMENT CMS MEDICAID COSTS (22.52%)	
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ALLOCATION AMOUNT ESTIMATE	\$ 3,622,867.87
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GOVERNMENT ENTITY	GROSS ALLOCATION	ATTORNEY FEES	NET ALLOCATION
STATE OF NEVADA	\$ 1,588,989.84	\$ 341,632.82	\$ 1,247,357.02
CARSON CITY	\$ 36,906.77	\$ 9,226.69	\$ 27,680.08
CHURCHILL COUNTY	\$ 14,263.69	\$ 3,565.92	\$ 10,697.77
CLARK COUNTY	\$ 1,361,168.85	\$ 340,292.21	\$ 1,020,876.64
DOUGLAS COUNTY	\$ 33,765.35	\$ 8,441.34	\$ 25,324.01
ELKO COUNTY	\$ 22,018.25	\$ -	\$ 22,018.25
ESMERALDA COUNTY	\$ 1,011.43	\$ 252.86	\$ 758.57
EUREKA COUNTY	\$ 2,102.16	\$ -	\$ 2,102.16
HUMBOLDT COUNTY	\$ 20,730.76	\$ 5,182.69	\$ 15,548.07
LANDER COUNTY	\$ 7,377.77	\$ -	\$ 7,377.77
LINCOLN COUNTY	\$ 4,826.97	\$ 1,206.74	\$ 3,620.23
LYON COUNTY	\$ 31,975.40	\$ 7,993.85	\$ 23,981.55
MINERAL COUNTY	\$ 12,188.89	\$ 3,047.22	\$ 9,141.67
NYE COUNTY	\$ 32,576.30	\$ 8,144.08	\$ 24,432.22
PERSHING COUNTY	\$ 7,371.79	\$ -	\$ 7,371.79
STOREY COUNTY	\$ 2,570.64	\$ -	\$ 2,570.64
WASHOE COUNTY	\$ 185,366.60	\$ 46,341.65	\$ 139,024.95
WHITE PINE COUNTY	\$ 21,271.47	\$ 5,317.87	\$ 15,953.60
BOULDER CITY	\$ 3,007.42	\$ 751.86	\$ 2,255.56
ELY CITY	\$ 134.59	\$ 33.65	\$ 100.94
FERNLEY CITY	\$ 293.91	\$ 73.48	\$ 220.43
HENDERSON CITY	\$ 46,821.18	\$ 11,705.30	\$ 35,115.88
LAS VEGAS CITY	\$ 96,013.22	\$ 24,003.31	\$ 72,009.91
MESQUITE CITY	\$ 2,979.77	\$ 744.94	\$ 2,234.83
NORTH LAS VEGAS CITY	\$ 49,339.58	\$ 12,334.90	\$ 37,004.68
RENO CITY	\$ 27,585.21	\$ 6,896.30	\$ 20,688.91
SPARKS CITY	\$ 8,650.55	\$ 2,162.64	\$ 6,487.91
WEST WENDOVER CITY	\$ 1,147.14	\$ 286.79	\$ 860.35
CENTRAL LYON FIRE PROTECTION DISTRICT	\$ 306.96	\$ 76.74	\$ 230.22
NORTH LYON FIRE PROTECTION DISTRICT	\$ 105.41	\$ 26.35	\$ 79.06
TOTAL:	\$ 3,622,867.87	\$ 839,742.20	\$ 2,783,125.67

EXHIBIT K

Subdivision Participation and Release Form

Governmental Entity: City of Fernley	State: Nevada
Authorized Official: Mayor Neal McIntyre	
Address 1: 595 Silver Lace Blvd.	
Address 2:	
City, State, Zip: Fernley, NV 89408	
Phone: 775-784-9864	
Email: nemcintyre@cityoffernley.org	

The governmental entity identified above (“*Governmental Entity*”), in order to obtain and in consideration for the benefits provided to the Governmental Entity pursuant to the Settlement Agreement dated April 4, 2025 (“*Mylan Settlement*”), and acting through the undersigned authorized official, hereby elects to participate in the Mylan Settlement, release all Released Claims against all Released Entities, and agrees as follows.

1. The Governmental Entity is aware of and has reviewed the Mylan Settlement, understands that all terms in this Participation and Release Form have the meanings defined therein, and agrees that by executing this Participation and Release Form, the Governmental Entity elects to participate in the Mylan Settlement and become a Participating Subdivision as provided therein.
2. The Governmental Entity shall promptly, and in any event no later than 14 days after the Reference Date and prior to the filing of the Consent Judgment, dismiss with prejudice any Released Claims that it has filed. With respect to any Released Claims pending in *In re National Prescription Opiate Litigation*, MDL No. 2804, the Governmental Entity authorizes the Plaintiffs’ Executive Committee to execute and file on behalf of the Governmental Entity a Stipulation of Dismissal with Prejudice substantially in the form found at <https://nationalopioidsettlement.com/>.
3. The Governmental Entity agrees to the terms of the Mylan Settlement pertaining to Participating Subdivisions as defined therein.
4. By agreeing to the terms of the Mylan Settlement and becoming a Releasor, the Governmental Entity is entitled to the benefits provided therein, including, if applicable, monetary payments beginning after the Effective Date.
5. The Governmental Entity agrees to use any monies it receives through the Mylan Settlement solely for the purposes provided therein.
6. The Governmental Entity submits to the jurisdiction of the court in the Governmental Entity’s state where the Consent Judgment is filed for purposes limited to that court’s role as provided in, and for resolving disputes to the extent provided in, the Mylan Settlement. The Governmental Entity likewise agrees to arbitrate before the National Arbitration Panel

as provided in, and for resolving disputes to the extent otherwise provided in, the Mylan Settlement.

7. The Governmental Entity has the right to enforce the Mylan Settlement as provided therein.
8. The Governmental Entity, as a Participating Subdivision, hereby becomes a Releasor for all purposes in the Mylan Settlement, including without limitation all provisions of Section X (Release), and along with all departments, agencies, divisions, boards, commissions, districts, instrumentalities of any kind and attorneys, and any person in his or her official capacity whether elected or appointed to serve any of the foregoing and any agency, person, or other entity claiming by or through any of the foregoing, and any other entity identified in the definition of Releasor, provides for a release to the fullest extent of its authority. As a Releasor, the Governmental Entity hereby absolutely, unconditionally, and irrevocably covenants not to bring, file, or claim, or to cause, assist or permit to be brought, filed, or claimed, or to otherwise seek to establish liability for any Released Claims against any Released Entity in any forum whatsoever. The releases provided for in the Mylan Settlement are intended by the Parties to be broad and shall be interpreted so as to give the Released Entities the broadest possible bar against any liability relating in any way to Released Claims and extend to the full extent of the power of the Governmental Entity to release claims. The Mylan Settlement shall be a complete bar to any Released Claim.
9. The Governmental Entity hereby takes on all rights and obligations of a Participating Subdivision as set forth in the Mylan Settlement.
10. In connection with the releases provided for in the Mylan Settlement, each Governmental Entity expressly waives, releases, and forever discharges any and all provisions, rights, and benefits conferred by any law of any state or territory of the United States or other jurisdiction, or principle of common law, which is similar, comparable, or equivalent to § 1542 of the California Civil Code, which reads:

General Release; extent. A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release that, if known by him or her would have materially affected his or her settlement with the debtor or released party.

A Releasor may hereafter discover facts other than or different from those which it knows, believes, or assumes to be true with respect to the Released Claims, but each Governmental Entity hereby expressly waives and fully, finally, and forever settles, releases and discharges, upon the Effective Date, any and all Released Claims that may exist as of such date but which Releasors do not know or suspect to exist, whether through ignorance, oversight, error, negligence or through no fault whatsoever, and which, if known, would materially affect the Governmental Entities' decision to participate in the Mylan Settlement.

11. Nothing herein is intended to modify in any way the terms of the Mylan Settlement, to which Governmental Entity hereby agrees. To the extent this Participation and Release Form is interpreted differently from the Mylan Settlement in any respect, the Mylan Settlement controls.

I have all necessary power and authorization to execute this Participation and Release Form on behalf of the Governmental Entity.

Signature:	_____
Name:	<u>Neal McIntyre</u>
Title:	<u>Mayor</u>
Date:	_____

SUN (ESTIMATED TOTAL) - SINGLE YEAR
OPIOID LITIGATION SETTLEMENT CALCULATOR

NEVADA RECOVERY	\$ 379,901.33
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LEAD LITIGATOR COSTS ESTIMATE	
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FEDERAL GOVERNMENT CMS MEDICAID COSTS (22.52%)	
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ALLOCATION AMOUNT ESTIMATE	\$ 379,901.33
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GOVERNMENT ENTITY	GROSS ALLOCATION	ATTORNEY FEES	NET ALLOCATION
STATE OF NEVADA	\$ 166,624.73	\$ 35,824.32	\$ 130,800.41
CARSON CITY	\$ 3,870.12	\$ 967.53	\$ 2,902.59
CHURCHILL COUNTY	\$ 1,495.72	\$ 373.93	\$ 1,121.79
CLARK COUNTY	\$ 142,734.95	\$ 35,683.74	\$ 107,051.21
DOUGLAS COUNTY	\$ 3,540.70	\$ 885.18	\$ 2,655.52
ELKO COUNTY	\$ 2,308.88	\$ -	\$ 2,308.88
ESMERALDA COUNTY	\$ 106.06	\$ 26.52	\$ 79.54
EUREKA COUNTY	\$ 220.44	\$ -	\$ 220.44
HUMBOLDT COUNTY	\$ 2,173.87	\$ 543.47	\$ 1,630.40
LANDER COUNTY	\$ 773.65	\$ -	\$ 773.65
LINCOLN COUNTY	\$ 506.17	\$ 126.54	\$ 379.63
LYON COUNTY	\$ 3,353.01	\$ 838.25	\$ 2,514.76
MINERAL COUNTY	\$ 1,278.15	\$ 319.54	\$ 958.61
NYE COUNTY	\$ 3,416.02	\$ 854.01	\$ 2,562.01
PERSHING COUNTY	\$ 773.02	\$ -	\$ 773.02
STOREY COUNTY	\$ 269.56	\$ -	\$ 269.56
WASHOE COUNTY	\$ 19,437.92	\$ 4,859.48	\$ 14,578.44
WHITE PINE COUNTY	\$ 2,230.57	\$ 557.64	\$ 1,672.93
BOULDER CITY	\$ 315.36	\$ 78.84	\$ 236.52
ELY CITY	\$ 14.11	\$ 3.53	\$ 10.58
FERNLEY CITY	\$ 30.82	\$ 7.71	\$ 23.11
HENDERSON CITY	\$ 4,909.76	\$ 1,227.44	\$ 3,682.32
LAS VEGAS CITY	\$ 10,068.14	\$ 2,517.04	\$ 7,551.10
MESQUITE CITY	\$ 312.47	\$ 78.12	\$ 234.35
NORTH LAS VEGAS CITY	\$ 5,173.85	\$ 1,293.46	\$ 3,880.39
RENO CITY	\$ 2,892.64	\$ 723.16	\$ 2,169.48
SPARKS CITY	\$ 907.11	\$ 226.78	\$ 680.33
WEST WENDOVER CITY	\$ 120.29	\$ 30.07	\$ 90.22
CENTRAL LYON FIRE PROTECTION DISTRICT	\$ 32.19	\$ 8.05	\$ 24.14
NORTH LYON FIRE PROTECTION DISTRICT	\$ 11.05	\$ 2.76	\$ 8.29
TOTAL:	\$ 379,901.33	\$ 88,057.11	\$ 291,844.22

EXHIBIT K

Subdivision Participation and Release Form

Governmental Entity: City of Fernley	State: Nevada
Authorized Official: Mayor Neal McIntyre	
Address 1: 595 Silver Lace Blvd.	
Address 2:	
City, State, Zip: Fernley, NV 89408	
Phone: 775-784-9864	
Email: nemcintyre@cityoffernley.org	

The governmental entity identified above (“*Governmental Entity*”), in order to obtain and in consideration for the benefits provided to the Governmental Entity pursuant to the Settlement Agreement dated April 4, 2025 (“*Sun Settlement*”), and acting through the undersigned authorized official, hereby elects to participate in the Sun Settlement, release all Released Claims against all Released Entities, and agrees as follows.

1. The Governmental Entity is aware of and has reviewed the Sun Settlement, understands that all terms in this Participation and Release Form have the meanings defined therein, and agrees that by executing this Participation and Release Form, the Governmental Entity elects to participate in the Sun Settlement and become a Participating Subdivision as provided therein.
2. The Governmental Entity shall promptly, and in any event no later than 14 days after the Reference Date and prior to the filing of the Consent Judgment, dismiss with prejudice any Released Claims that it has filed. With respect to any Released Claims pending in *In re National Prescription Opiate Litigation*, MDL No. 2804, the Governmental Entity authorizes the Plaintiffs’ Executive Committee to execute and file on behalf of the Governmental Entity a Stipulation of Dismissal with Prejudice substantially in the form found at <https://nationalopioidsettlement.com/>.
3. The Governmental Entity agrees to the terms of the Sun Settlement pertaining to Participating Subdivisions as defined therein.
4. By agreeing to the terms of the Sun Settlement and becoming a Releasor, the Governmental Entity is entitled to the benefits provided therein, including, if applicable, monetary payments beginning after the Effective Date.
5. The Governmental Entity agrees to use any monies it receives through the Sun Settlement solely for the purposes provided therein.
6. The Governmental Entity submits to the jurisdiction of the court in the Governmental Entity’s state where the Consent Judgment is filed for purposes limited to that court’s role as provided in, and for resolving disputes to the extent provided in, the Sun Settlement. The Governmental Entity likewise agrees to arbitrate before the National Arbitration Panel

as provided in, and for resolving disputes to the extent otherwise provided in, the Sun Settlement.

7. The Governmental Entity has the right to enforce the Sun Settlement as provided therein.
8. The Governmental Entity, as a Participating Subdivision, hereby becomes a Releasor for all purposes in the Sun Settlement, including without limitation all provisions of Section X (Release), and along with all departments, agencies, divisions, boards, commissions, districts, instrumentalities of any kind and attorneys, and any person in his or her official capacity whether elected or appointed to serve any of the foregoing and any agency, person, or other entity claiming by or through any of the foregoing, and any other entity identified in the definition of Releasor, provides for a release to the fullest extent of its authority. As a Releasor, the Governmental Entity hereby absolutely, unconditionally, and irrevocably covenants not to bring, file, or claim, or to cause, assist or permit to be brought, filed, or claimed, or to otherwise seek to establish liability for any Released Claims against any Released Entity in any forum whatsoever. The releases provided for in the Sun Settlement are intended by the Parties to be broad and shall be interpreted so as to give the Released Entities the broadest possible bar against any liability relating in any way to Released Claims and extend to the full extent of the power of the Governmental Entity to release claims. The Sun Settlement shall be a complete bar to any Released Claim.
9. The Governmental Entity hereby takes on all rights and obligations of a Participating Subdivision as set forth in the Sun Settlement.
10. In connection with the releases provided for in the Sun Settlement, each Governmental Entity expressly waives, releases, and forever discharges any and all provisions, rights, and benefits conferred by any law of any state or territory of the United States or other jurisdiction, or principle of common law, which is similar, comparable, or equivalent to § 1542 of the California Civil Code, which reads:

General Release; extent. A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release that, if known by him or her would have materially affected his or her settlement with the debtor or released party.

A Releasor may hereafter discover facts other than or different from those which it knows, believes, or assumes to be true with respect to the Released Claims, but each Governmental Entity hereby expressly waives and fully, finally, and forever settles, releases and discharges, upon the Effective Date, any and all Released Claims that may exist as of such date but which Releasors do not know or suspect to exist, whether through ignorance, oversight, error, negligence or through no fault whatsoever, and which, if known, would materially affect the Governmental Entities' decision to participate in the Sun Settlement.

11. Nothing herein is intended to modify in any way the terms of the Sun Settlement, to which Governmental Entity hereby agrees. To the extent this Participation and Release Form is interpreted differently from the Sun Settlement in any respect, the Sun Settlement controls.

I have all necessary power and authorization to execute this Participation and Release Form on behalf of the Governmental Entity.

Signature:	_____
Name:	<u>Neal McIntyre</u>
Title:	<u>Mayor</u>
Date:	_____

ZYDUS (ESTIMATED TOTAL) - SINGLE YEAR
OPIOID LITIGATION SETTLEMENT CALCULATOR

NEVADA RECOVERY	\$ 182,144.47
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LEAD LITIGATOR COSTS ESTIMATE	
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FEDERAL GOVERNMENT CMS MEDICAID COSTS (22.52%)	
--	--

ALLOCATION AMOUNT ESTIMATE	\$ 182,144.47
----------------------------	---------------

GOVERNMENT ENTITY	GROSS ALLOCATION	ATTORNEY FEES	NET ALLOCATION
STATE OF NEVADA	\$ 79,888.55	\$ 17,176.04	\$ 62,712.51
CARSON CITY	\$ 1,855.54	\$ 463.89	\$ 1,391.65
CHURCHILL COUNTY	\$ 717.13	\$ 179.28	\$ 537.85
CLARK COUNTY	\$ 68,434.56	\$ 17,108.64	\$ 51,325.92
DOUGLAS COUNTY	\$ 1,697.60	\$ 424.40	\$ 1,273.20
ELKO COUNTY	\$ 1,107.00	\$ -	\$ 1,107.00
ESMERALDA COUNTY	\$ 50.85	\$ 12.71	\$ 38.14
EUREKA COUNTY	\$ 105.69	\$ -	\$ 105.69
HUMBOLDT COUNTY	\$ 1,042.27	\$ 260.57	\$ 781.70
LANDER COUNTY	\$ 370.93	\$ -	\$ 370.93
LINCOLN COUNTY	\$ 242.68	\$ 60.67	\$ 182.01
LYON COUNTY	\$ 1,607.61	\$ 401.90	\$ 1,205.71
MINERAL COUNTY	\$ 612.81	\$ 153.20	\$ 459.61
NYE COUNTY	\$ 1,637.82	\$ 409.46	\$ 1,228.36
PERSHING COUNTY	\$ 370.63	\$ -	\$ 370.63
STOREY COUNTY	\$ 129.24	\$ -	\$ 129.24
WASHOE COUNTY	\$ 9,319.55	\$ 2,329.89	\$ 6,989.66
WHITE PINE COUNTY	\$ 1,069.45	\$ 267.36	\$ 802.09
BOULDER CITY	\$ 151.20	\$ 37.80	\$ 113.40
ELY CITY	\$ 6.77	\$ 1.69	\$ 5.08
FERNLEY CITY	\$ 14.78	\$ 3.70	\$ 11.08
HENDERSON CITY	\$ 2,354.00	\$ 588.50	\$ 1,765.50
LAS VEGAS CITY	\$ 4,827.19	\$ 1,206.80	\$ 3,620.39
MESQUITE CITY	\$ 149.81	\$ 37.45	\$ 112.36
NORTH LAS VEGAS CITY	\$ 2,480.61	\$ 620.15	\$ 1,860.46
RENO CITY	\$ 1,386.88	\$ 346.72	\$ 1,040.16
SPARKS CITY	\$ 434.92	\$ 108.73	\$ 326.19
WEST WENDOVER CITY	\$ 57.67	\$ 14.42	\$ 43.25
CENTRAL LYON FIRE PROTECTION DISTRICT	\$ 15.43	\$ 3.86	\$ 11.57
NORTH LYON FIRE PROTECTION DISTRICT	\$ 5.30	\$ 1.33	\$ 3.97
TOTAL:	\$ 182,144.47	\$ 42,219.16	\$ 139,925.31

EXHIBIT K

Subdivision Participation and Release Form

Governmental Entity: City of Fernley	State: Nevada
Authorized Official: Mayor Neal McIntyre	
Address 1: 595 Silver Lace Blvd.	
Address 2:	
City, State, Zip: Fernley, NV 89408	
Phone: 775-784-9864	
Email: nemcintyre@cityoffernley.org	

The governmental entity identified above (“*Governmental Entity*”), in order to obtain and in consideration for the benefits provided to the Governmental Entity pursuant to the Settlement Agreement dated April 4, 2025 (“*Zydus Settlement*”), and acting through the undersigned authorized official, hereby elects to participate in the Zydus Settlement, release all Released Claims against all Released Entities, and agrees as follows.

1. The Governmental Entity is aware of and has reviewed the Zydus Settlement, understands that all terms in this Participation and Release Form have the meanings defined therein, and agrees that by executing this Participation and Release Form, the Governmental Entity elects to participate in the Zydus Settlement and become a Participating Subdivision as provided therein.
2. The Governmental Entity shall promptly, and in any event no later than 14 days after the Reference Date and prior to the filing of the Consent Judgment, dismiss with prejudice any Released Claims that it has filed. With respect to any Released Claims pending in *In re National Prescription Opiate Litigation*, MDL No. 2804, the Governmental Entity authorizes the Plaintiffs’ Executive Committee to execute and file on behalf of the Governmental Entity a Stipulation of Dismissal with Prejudice substantially in the form found at <https://nationalopioidsettlement.com/>.
3. The Governmental Entity agrees to the terms of the Zydus Settlement pertaining to Participating Subdivisions as defined therein.
4. By agreeing to the terms of the Zydus Settlement and becoming a Releasor, the Governmental Entity is entitled to the benefits provided therein, including, if applicable, monetary payments beginning after the Effective Date.
5. The Governmental Entity agrees to use any monies it receives through the Zydus Settlement solely for the purposes provided therein.
6. The Governmental Entity submits to the jurisdiction of the court in the Governmental Entity’s state where the Consent Judgment is filed for purposes limited to that court’s role as provided in, and for resolving disputes to the extent provided in, the Zydus Settlement. The Governmental Entity likewise agrees to arbitrate before the National Arbitration Panel

as provided in, and for resolving disputes to the extent otherwise provided in, the Zydus Settlement.

7. The Governmental Entity has the right to enforce the Zydus Settlement as provided therein.
8. The Governmental Entity, as a Participating Subdivision, hereby becomes a Releasor for all purposes in the Zydus Settlement, including without limitation all provisions of Section X (Release), and along with all departments, agencies, divisions, boards, commissions, districts, instrumentalities of any kind and attorneys, and any person in his or her official capacity whether elected or appointed to serve any of the foregoing and any agency, person, or other entity claiming by or through any of the foregoing, and any other entity identified in the definition of Releasor, provides for a release to the fullest extent of its authority. As a Releasor, the Governmental Entity hereby absolutely, unconditionally, and irrevocably covenants not to bring, file, or claim, or to cause, assist or permit to be brought, filed, or claimed, or to otherwise seek to establish liability for any Released Claims against any Released Entity in any forum whatsoever. The releases provided for in the Zydus Settlement are intended by the Parties to be broad and shall be interpreted so as to give the Released Entities the broadest possible bar against any liability relating in any way to Released Claims and extend to the full extent of the power of the Governmental Entity to release claims. The Zydus Settlement shall be a complete bar to any Released Claim.
9. The Governmental Entity hereby takes on all rights and obligations of a Participating Subdivision as set forth in the Zydus Settlement.
10. In connection with the releases provided for in the Zydus Settlement, each Governmental Entity expressly waives, releases, and forever discharges any and all provisions, rights, and benefits conferred by any law of any state or territory of the United States or other jurisdiction, or principle of common law, which is similar, comparable, or equivalent to § 1542 of the California Civil Code, which reads:

General Release; extent. A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release that, if known by him or her would have materially affected his or her settlement with the debtor or released party.

A Releasor may hereafter discover facts other than or different from those which it knows, believes, or assumes to be true with respect to the Released Claims, but each Governmental Entity hereby expressly waives and fully, finally, and forever settles, releases and discharges, upon the Effective Date, any and all Released Claims that may exist as of such date but which Releasors do not know or suspect to exist, whether through ignorance, oversight, error, negligence or through no fault whatsoever, and which, if known, would materially affect the Governmental Entities' decision to participate in the Zydus Settlement.

11. Nothing herein is intended to modify in any way the terms of the Zydus Settlement, to which Governmental Entity hereby agrees. To the extent this Participation and Release Form is interpreted differently from the Zydus Settlement in any respect, the Zydus Settlement controls.

I have all necessary power and authorization to execute this Participation and Release Form on behalf of the Governmental Entity.

Signature:	_____
Name:	<u>Neal E. McIntyre</u>
Title:	<u>Mayor</u>
Date:	_____



CITY OF FERNLEY

City Council AGENDA REPORT

Meeting Date: August 20, 2025

REPORT TO: Mayor and City Council

REPORT FROM: Olivia John, Deputy Public Works Director

FINANCIAL IMPACT:

Yes:X

No:

CURRENTLY BUDGETED:

Yes:X

No:

FUND/ACCOUNT:

General Fund

ACTION REQUESTED: Consent

AGENDA ITEM:

For Possible Action to purchase one (1) 3/4-ton, four-wheel drive pickup truck with an animal transportation body for the City of Fernley's Animal Control Department for an amount not to exceed \$100,000.

AGENDA ITEM BRIEF:

The City of Fernley's Animal Control Department is requesting to purchase one (1) 3/4-ton, four-wheel drive pickup truck with an animal transportation body to replace one (1) animal transportation pickup truck that is currently assigned to the department.

RECOMMENDED MOTION:

"I move to Approve the purchase of one (1) 3/4-ton, four-wheel drive pickup truck with an animal transportation body for the City of Fernley's Animal Control Department for an amount not to exceed \$100,000."

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

The Council may deny this purchase and provide staff with further direction.

BACKGROUND:

The City of Fernley's Animal Control Department is requesting to purchase one (1) 3/4-ton, four-wheel drive pickup truck with an animal transportation body to replace one (1) animal transportation pickup truck that is currently assigned to the department. The current truck is beyond the service miles and age recommended for vehicle replacement per the City of Fernley Fleet Management Program (FMP) Policy, Table 4.1 Appendix 8, Replacement Standard. If approved, City Staff will dispose of the current assets per the FMP Policy.

Every fiscal year, the State accepts bids from dealerships around Nevada for assorted makes and models of work trucks, cars and light and heavy equipment for purchase by local government agencies. Using the results of the State's competitive bid process is standard practice for municipalities because it saves time and money. The municipality does not have to assemble bid documents, advertise, and rank bidders with the intention of making a purchase.

RELEVANT LAWS, STATUTES, AND REGULATIONS:

NRS 332.063

FINANCIAL IMPLICATIONS:

This purchase will be made using the General Fund portion of the FY 25-26 Budget.

ATTACHMENTS:

1. CITY OF FERNLEY F250 XL SUPER CAB BED DELETE 2026
2. Est_14430_from_Jackson_Creek_Manufacturing_Inc._16412



Corwin | Ford
RENO

3600 KIETZKE LANE
RENO, NV 89502

P.O. BOX 12970
RENO, NV 89510

775-829-3206 Direct

Invoice # 07/21/2025

Sales • Service • Used Cars & Trucks

Customer #CITY OF FERNLEY

Sold to:

Address:

City, State &
Zip Code

VIN	Year	Make	Model
	2026	Ford	F250
Salesperson	Deal #		PO #
Dennis Tagliarino			

2026 F250 XL 4X4 SUPER CAB BED DELETE

OXFORD WHITE EXTERIOR/ SLATE VINYL INT

600A EQUIPMENT GROUP

6.8 V8 GAS/ 10 SPEED TRANS

ALL SEASON TIRES

BACK UP CAMERA

UPFITTER SWITCHES

TOTAL COST \$50,828 AND \$28.25 TITLE FEE

***Thank you for your
business!***

Jackson Creek Manufacturing Inc.

Quote

P.O. Box 37
318 Klopman Mill Rd.
Denton, NC 27239-7795

Date	Quote #
7/14/2025	14430

Name / Address
City of Fernley Animal Control 595 Silverlace Blvd Fernley, NV 89408

Ship To
City of Fernley Animal Control 595 Silverlace Blvd Fernley, NV 89408

Terms	Rep	Project
Net 30	WB	

Item	Description	Qty	Cost	Total
SSCMD17	Stainless Steel Chassis Mount Deluxe Animal Control Truck Body; All aluminum framework prevents rusting and reduces weight; Insulation on roof, floor, end wall and divider walls; stainless steel interior and exterior; Side compartment lift allows large animals to be ground loaded reducing the need for physical lifting; Exterior doors have heavy duty locking stainless steel slam latches keyed alike with gas struts to hold door open and operable louver panels; Interior safety door with catch-pole slot; 12-volt high output exhaust fan; AC/Heat (ties in to truck system, requires R134A system) with controls in cab of truck; Storage compartment on each side at rear of unit (includes carpeted shelves); Rear Lift Gate with large storage area; All compartments have floor drains, all animal compartments have removable heavy rubber floor mats; rear bumper built into unit; side skirts to bottom of body line with clear lights; stainless steel hinges and latches; All lights are LED lights; lighting includes interior lights in all animal compartments, all DOT required lighting, rear scene lights, rear directional arrow bar light, top rear strobe light; roof rack; interior temperature monitor with digital read-out in truck cab ***Requires Factory Rear Camera to meet Federal Standards***	1	42,735.00	42,735.00T
Shipping	Deliver of Body Only to Fernley, NV	1	6,050.00	6,050.00T
			Total	

Jackson Creek Manufacturing Inc.

P.O. Box 37
318 Klopman Mill Rd.
Denton, NC 27239-7795

Quote

Date	Quote #
7/14/2025	14430

Name / Address
City of Fernley Animal Control 595 Silverlace Blvd Fernley, NV 89408

Ship To
City of Fernley Animal Control 595 Silverlace Blvd Fernley, NV 89408

Terms	Rep	Project
Net 30	WB	

Item	Description	Qty	Cost	Total
	Quote is Valid for 30 (Thirty) Days ***Estimated Completion Six to Seven Months ARO*** Jackson Creek Mfg., Inc. P.O. Box 37 Denton, NC 27239 PH# 888.221.7823 Contact: Warren Brown, wbrown@jacksoncreekmfg.com *****Jackson Creek Mfg., Inc. is a NATM certified trailer manufacturer***** *****All Truck Body Installations Meet FMVSS 111 Requirements***** Out-of-state sale, exempt from sales tax		0.00%	0.00
Total				\$48,785.00



CITY OF FERNLEY

City Council AGENDA REPORT

Meeting Date: August 20, 2025

REPORT TO: Mayor and City Council

REPORT FROM: Filiga Farmer

FINANCIAL IMPACT:

Yes:x

No:

CURRENTLY BUDGETED:

Yes:

No: x

FUND/ACCOUNT:

520-810-320

ACTION REQUESTED: Motion

AGENDA ITEM:

Discussion and possible action to approve the scope of work and contract for the East Lift Station Improvements Project.

AGENDA ITEM BRIEF:

The City Council is being asked to approve the contract and associated scope of work with Lumos & Associates for engineering design services related to the East Lift Station Improvements Project, at a cost of \$49,900, plus \$14,300 for odor control services, for a total of \$64,200.

RECOMMENDED MOTION:

"I move to direct staff to pursue federal and state grants to offset the costs of pre-construction, design, and engineering for the East Wastewater Treatment Plant, and to approve the initiation of the East Lift Station Improvements design agreement in the amount of \$64,200."

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

1. Approve the recommendation to proceed and fund the project.
2. Do not approve and provide alternative direction to staff.

BACKGROUND:

The East Lift Station has been designated as a critical infrastructure improvement priority due to ongoing operational and structural concerns. In collaboration with Lumos & Associates, Inc., City staff developed a comprehensive scope of work that includes:

- (1) installation of a temporary air gap system to ensure uninterrupted service;
- (2) design and construction of a permanent air gap and waterline realignment; and
- (3) a structural assessment with recommendations for long-term improvements.

The proposed contract for this scope is \$49,900.

Additionally, as a continuation of the East Lift Station Improvements, the City of Fernley has contracted Lumos & Associates to provide professional engineering services for odor control improvements at the Farm District and Rolling Meadows lift stations, both of which have been the subject of multiple resident complaints.

This effort focuses on evaluating interim chemical odor control solutions and recommending infrastructure upgrades to reduce emissions. Services include wastewater sampling and testing, analysis of contributing factors, coordination with a subconsultant for field testing, and preparation of a technical memorandum with solution recommendations and cost estimates. The cost for this important task is \$14,300, for a project grand total of \$64,200.

RELEVANT LAWS, STATUTES, AND REGULATIONS:

FINANCIAL IMPLICATIONS:

The total cost associated with the East Lift Station Improvements and Odor Control Solutions is **\$64,200**, which includes **\$49,900** for design and engineering services related to the air gap system, waterline realignment, and structural evaluation, and **\$14,300** for odor control analysis and recommendations at the Farm District and Rolling Meadows lift stations. Both scopes of work will be funded from the City's utility capital improvement budget. The engineering services will be billed on a time and materials basis, and any additional services outside the defined scope will require a formal amendment. These improvements are essential to ensuring reliable operation, minimizing service disruptions, and addressing resident complaints regarding odor emissions.

ATTACHMENTS:

1. Lumos Proposal
2. 2025-0~1



Boise • Carson City • El Dorado Hills • Fallon • Lake Tahoe • Reno www.LumosInc.com

El Dorado Hills

3840 El Dorado Hills Blvd., Suite 301
El Dorado Hills, California 95762
916.980.8228

June 6, 2025

LA25.455

Seong Kim, P.E.
Utilities Director
595 Silver Lace Blvd
Fernley, NV 89408
775-784-9931

Re: Proposal for Professional Services – East Lift Station Improvements

Dear Mr. Kim:

Lumos & Associates, Inc. is pleased to provide you with this proposal and scope of work for the East Lift Station Improvements.

Project Understanding

The City of Fernley (City) owns and operates the East Lift Station, which collects sewer flows from the eastern portion of the service area. On May 6, 2025, Lumos & Associates (Lumos) was contacted by the City and invited to a meeting to discuss various operational needs of the lift station. During the field visit, the following issues were observed:

- The pumps conveying flow from the wet well to the wastewater treatment plant were out of service
- Portions of the screen shaft were in need of replacement
- There was no air gap between the water distribution system and the washer compactor, which comes into contact with sewage
- The existing waterline currently shares a vault with the sewer line and must be rerouted to connect to the new air gap tank location while ensuring the required separation between the water and sewer lines is maintained

Since the site visit, the pumps have been replaced, and the replacement part for the bar screen has been ordered. The remaining issue involves the lack of an air gap and the need to reroute the existing waterline. The City is evaluating both short-term and long-term solutions to resolve this issue, ensuring continued lift station operations while permanent improvements are planned and implemented.

In addition to water improvements, we understand that the City of Fernley is interested in structural services for required modifications at the Lift Station Building, including the following:

- A structural condition survey of the existing intermediate wood floor and existing structural steel hoist beam system at the lower level currently used to position the pumps for accessibility to be lifted to the main level hoist system out of the existing pump area.

- Once the structural condition survey is performed, we will identify non-conforming code issues for the repair/replacement of the intermediate floor system and existing hoist system.
- It is also our understanding that the City would like to have a new hoist system at the lower level to eliminate the existing steel columns that are currently posing egress restrictions.
- In addition, it is desirable to have an opening at the intermediate level and the main floor level to accommodate the emergency removal of a person on a stretcher from the lower level to the main level.
- Code compliant railing around the intermediate floor and main floor openings will be designed.

Task 1 – Short-term Solutions

As part of this task, Lumos will design a temporary connection to an above-ground tank that will serve as a short-term solution to create an air gap between the water distribution and wastewater systems.

The scope includes a summary memo of the key issues currently affecting the East Lift Station—specifically, the lack of an air gap between the potable water system and equipment exposed to sewage, as well as problems with the existing waterline alignment. Lumos will present both short-term and long-term solutions to address these concerns, along with an anticipated implementation timeline.

An exhibit will be provided illustrating the proposed temporary air gap solution, using an above-ground tank. The exhibit will clearly demonstrate how the configuration achieves proper separation between the potable and wastewater systems. Additionally, Lumos will provide technical sheet specifications for the air gap tank, including capacity, construction materials, inlet and outlet sizes, valve types, and applicable design and regulatory standards (e.g., UPC, AWWA, NSF).

Deliverables:

- Summary memo of issues and proposed solutions with timeline
- Exhibit of the air gap solution
- Sheet specifications of the air gap tank

Assumptions:

- The exhibit will be developed using available as-built drawings and documentation. No new field survey data will be collected for this task.

Schedule:

- The initial review and recommendation for the short-term solution will be completed within two (2) weeks of notice to proceed
- One (1) one-hour virtual meeting will be scheduled with the City to discuss the preliminary design of the short-term air gap solution

Payment:

- The services for this task will be billed on a Time and Materials basis.

Task 2 – Long Term Solutions

Under this task, Lumos will consider two (2) different waterline alignment alternatives and will develop an exhibit for each alternative considered for the City to review. Once the City has decided on a preferred alternative, Lumos will prepare improvement plans for the waterline realignment and the permanent air gap solution.

Deliverables:

- Two (2) exhibits illustrating alternative alignments for the waterline for the City's review and input
- 100% design plans and sheet specifications for the selected alignment and permanent air gap solution

Assumptions:

- The final plan set will be developed based on the City's selected alternative
- The plan set will be developed using available as-built drawings and documentation. No new field survey data will be collected for this task
- One (1) one-hour virtual meeting will be held with the City to review and discuss the waterline realignment alternatives and permanent air gap solution

Schedule:

- This task will be performed concurrently with Task 1. The due date for this task will be completed within 4 weeks of notice to proceed

Payment:

- The services for this task will be billed on a Time and Materials basis.

Task 3 – Structural Improvements

The following tasks will be performed:

- The first task would be a site visit to document the existing conditions as part of the structural condition survey. Because of the complexity of the current structural components and process piping systems, we feel that the best option would be to perform a digitized scan of the interior of the well and main level to accurately reflect the current conditions. This will allow us to coordinate the constructability logistics of bringing new structural members into the space while avoiding the existing process piping, pumps, etc.
- Once we have documented the current conditions, we will work closely with the City with respect to determining all new openings in the new intermediate floor design and its extents, as well as the new hoist structure requirements. We will also coordinate the new egress openings to accommodate the emergency removal of personnel.

- We will design the new structural elements for the intermediate floor, hoist system, and railing, as well as the design of the enlarged opening(s) required in the existing 12" thick concrete main floor slab. The design will be based on the current Churchill County requirements using the 2018 International Building Code (IBC) requirements. If the 2024 IBC is adopted at the time of the construction document submittal, we will make any necessary changes.
- Construction Administration Services, if required, will include answers to bidders' questions pertaining to the structural drawings and specifications, and we will provide addenda as necessary. Also included is the review of shop drawings and the review of structural submittals. We will also respond to structurally related Requests for Information as generated by the contractor.

Deliverables:

- 100% design plans and sheet specifications consisting of the new intermediate floor, the new hoist system, the new slab openings, and the railing, along with associated detailing of the new structural components will be provided for construction
- Specifications pertaining to structural items will be provided in the form of sheet notes.
- The drawings will be produced using Revit (BIM), 2024 version

Assumptions:

- Construction Administrative Services is not included in the total cost for this task and will be billed on a Time and Materials basis.
- The drawings and structural design calculations will be sealed by a professional engineer from Lumos for submittal to the building department. Any plan review comments that might be issued by the building department will be addressed
- Two (2) one-hour virtual meetings will be held with the City to review and discuss the findings of the site visit and the preliminary design

Schedule:

- This task will be performed concurrently with Tasks 1 and 2.

Payment:

- The services for this task will be billed on a Time and Materials basis.

Fees

- The tasks described in the Scope of Work will be completed for the following fees:

Task	Description	Fee
Task 1	Short Term	\$8,800
Task 2	Long Term	\$12,200
Task 3	Structural Improvements	\$28,900
Total		\$49,900

If this proposal is acceptable, please execute the attached contract and provisions and return the same to our office. Any additional services requested but not covered by this scope of work can be provided by an amendment to this proposal. The attached Standard Provisions of Agreement are a part of this proposal.

Lumos will send monthly progress billings on this project. The amount of these billings will be based upon the percentage of work completed. The terms are 'Due Upon Receipt' and accounts are past due after 30 days. Accounts over 30 days old will be subject to interest at the rate of 1 ½% per month and such collection action as may be necessary to collect the account. In addition, a "Stop Work Order" may be issued on past due accounts. In this case, no further work will be performed until the account is brought current.

Thank you again for allowing Lumos & Associates to provide you with this proposal. Please do not hesitate to call me if you have questions.

Sincerely,



Jonathan Lesperance, P.E.
Group Manager – Engineering Division



Kristi Thompson, E.I.
Senior Project Coordinator



Reno
950 Sandhill Road, Suite 100
Reno, Nevada 89521
775.827.6111

July 31, 2025

LA25.674

Seong Kim, P.E.
Utilities Director
595 Silver Lace Blvd
Fernley, NV 89408
775-784-9931

Re: Proposal for Professional Services – Lift Station Odor Control Improvements – Amendment to East Lift Station Improvements

Dear Mr. Kim:

Lumos & Associates, Inc. is pleased to provide you with this proposal and scope of work for the Lift Station Odor Control Improvements. This proposal is an extension of the East Lift Station Improvements project Tasks 1 through 3.

Project Understanding

The City of Fernley (City) owns and operates the Farm District Lift Station and Rolling Meadows Lift Station, which serve the central portion of the sewer service area, collecting flows primarily from residential neighborhoods and a school.

Both lift stations are located within residential areas and have been the subject of multiple odor complaints. On July 16, 2025, Lumos & Associates (Lumos) conducted a site visit to investigate the source of the reported odors. Odors were confirmed at both lift stations during the visit. Lumos will evaluate and propose potential odor control solutions for each site.

We understand that Rolling Meadows is scheduled for redesign; therefore, we are currently considering chemical odor control as a temporary solution. Permanent odor control measures should be evaluated at a later stage as part of the redesign. At Farm District, the existing odor control system appears to be functioning properly, and the odors are likely caused by a poorly sealed lid and frame combined with odorous flow contributed by Rolling Meadows. We will present options for a new properly sealing lid and frame to address this issue.

Task 4 – Odor Control Solutions

Under this task, Lumos will evaluate chemical-based odor control options. For the Farm District Lift Station, Lumos will also evaluate and provide recommendations for a new vault seal to minimize odor emissions from the wet well hatch.

Lumos will subcontract with an odor control vendor to obtain grab samples of wastewater for analysis in order to develop an appropriately sized odor control solution. Specifically, our subconsultant will collect grab samples to be tested for temperature, pH, sulfides, and nitrates at the following locations:

- Farm District Lift Station wet well
- Jenny Lane and Farm District Road gravity line into Farm District Lift Station

- Force main out of Farm District Lift Station
- Rolling Meadows force main discharge manhole into Farm District Lift Station
- Rolling Meadows Lift Station wet well
- Upstream gravity sewer connected to the Rolling Meadows Lift Station

Following collection and analysis of the grab samples, Lumos will coordinate with our subconsultant on viable chemical options for odor control. Lumos will then prepare a technical memorandum summarizing the proposed solution along with an opinion of probable construction cost (OPCC) for the hatch sealing and odor control solution.

Deliverables:

- Technical memorandum to summarize the proposed odor control solution
- Opinion of probable construction cost of improvements
- Exhibit for sealing/replacing Farm District Road lift station hatch

Assumptions:

- One (1) one-hour in-person meeting to discuss the odor control options
- The City will oversee the installation of the new vault lid and/or lid sealing
- A subconsultant will perform the grab sampling and testing. The process is expected to take up to one hour per sampling location and will include liquid sampling and onsite testing, with results available immediately. City staff support will be required for access to the sampling points.
- For sampling locations within the public right-of-way, the City will provide access and temporary traffic control as needed.

Schedule:

- Grab sampling will be completed within three (3) weeks of receiving the Notice to Proceed
- An initial review and recommendation, including an OPCC, will be completed within four (4) weeks following sample collection

Payment:

- The services for this task will be billed on a Time and Materials basis.

Fees

- The tasks described in the Scope of Work will be completed for the following fees:

Task	Description	Fee
Task 4	Odor Control Solutions	\$14,300

If this proposal is acceptable, please execute the attached contract and provisions and return the same to our office. Any additional services requested but not covered by this scope of work can be

provided by an amendment to this proposal. The attached Standard Provisions of Agreement are a part of this proposal.

Lumos will send monthly progress billings on this project. The amount of these billings will be based upon the percentage of work completed. The terms are 'Due Upon Receipt' and accounts are past due after 30 days. Accounts over 30 days old will be subject to interest at the rate of 1 ½% per month and such collection action as may be necessary to collect the account. In addition, a "Stop Work Order" may be issued on past due accounts. In this case, no further work will be performed until the account is brought current.

Thank you again for allowing Lumos & Associates to provide you with this proposal. Please do not hesitate to call me if you have questions.

Sincerely,

 for

Jonathan Lesperance, P.E.
Group Manager – Engineering Division



Mara Quiroga P.E.
Project Manager



CITY OF FERNLEY

City Council AGENDA REPORT

Meeting Date: August 20, 2025

REPORT TO: Mayor and City Council

REPORT FROM: Michele Rambo, Planning Director

FINANCIAL IMPACT:

Yes: No: X

CURRENTLY BUDGETED:

Yes: No: X

FUND/ACCOUNT:

N/A

ACTION REQUESTED: Motion
Ordinance

AGENDA ITEM:

(For Possible Action) Second reading, discussion, and possible action on Bill #361 (associated with CA25001) to revise Section 32.03.040(b) (Comprehensive Master Plan Amendment) of the City of Fernley Development Code to better reflect the requirements found in NRS 278.210 for amending the Master Plan.

AGENDA ITEM BRIEF:

During the processing of a recent Master Plan Amendment, it was discovered that the Development Code section outlining the process for Master Plan Amendments appeared to be contradictory to NRS. Therefore, this amendment to the Development Code has been prepared to clarify the process and ensure compliance with NRS 278.210.

The Planning Commission considered this Code Amendment at their meeting on July 9, 2025 and recommended approval of Bill #361. The City Council conducted the First Reading of Bill #361 on August 6, 2025.

RECOMMENDED MOTION:

I move to approve Bill #361 as presented by staff.

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

I move to deny Bill #361 because the following finding cannot be met: _____.

I move to approve Bill #361 with the following changes: _____.

BACKGROUND:

During the recent approval process for the Southwest Area Plan, there was some confusion regarding Section 32.03.040(b) and the appropriate steps required to approve a Master Plan Amendment. After review from the City's outside Land Use Attorney, it was determined that the existing code section wasn't clear and could be interpreted differently than the rules of procedure outlined in NRS 278.210. His recommendation was that a Code Amendment be done to ensure that the Development Code procedure clearly matched that in NRS.

Most of the changes shown in the attached redline version of the Code are capitalization and punctuation changes. The content changes are all contained in subsection 7, where new language has been added explaining:

- An amendment can not move forward to City Council until after it receives a supermajority approval from the Planning Commission.
- Any changes or modifications to a Master Plan Amendment by the City Council must go back to the Planning Commission for their approval.
- Failure of the Planning Commission to consider the changes proposed by the City Council within 40 days constitutes automatic approval of the change.

Findings:

In order to be approved, the following findings must be met:

1. The code amendment is consistent with the city's Master Plan and is otherwise consistent with state and federal law.

The Master Plan does not discuss the process to amend itself except to say that it will be reviewed every 5 to 7 years to keep it up to date. Therefore, there is no consistency issue with the proposed amendment. In addition, this amendment was initiated to bring the Development Code into clearer compliance with NRS, which makes the amendment consistent with state law.

2. Public notice was given, and a public hearing held per the requirements of the Development Code and Nevada Revised Statutes.

Public notices were given and public hearings will be held at both the Planning Commission and City Council meetings.

RELEVANT LAWS, STATUTES, AND REGULATIONS:

Fernley Development Code Section 32.03.040(b)

FINANCIAL IMPLICATIONS:

None

ATTACHMENTS:

None



CITY OF FERNLEY

City Council AGENDA REPORT

Meeting Date: August 20, 2025

REPORT TO: Mayor and City Council

REPORT FROM:

FINANCIAL IMPACT:

Yes:

No:

CURRENTLY BUDGETED:

Yes:

No:

FUND/ACCOUNT:

ACTION REQUESTED:

AGENDA ITEM:

Discussion and Possible Action to revise the offer letter for the City Attorney.

AGENDA ITEM BRIEF:

RECOMMENDED MOTION:

BUSINESS IMPACT (per NRS Chapter 237):

See attached report for background, analysis, alternatives.

ALTERNATIVES:

BACKGROUND:

RELEVANT LAWS, STATUTES, AND REGULATIONS:

FINANCIAL IMPLICATIONS:

ATTACHMENTS:

1. 2025.07.22 Mouritsen Addendum Offer Letter Final



**City of Fernley
CITY MANAGER'S
OFFICE**

Administration
Human Resources
Budgeting
Risk Management
& Contracts

FORMAL ADDENDUM TO JOB OFFER LETTER

July 22, 2025

Aaron Mouritsen, Esq.
Fernley, NV 89408

Dear Mr. Mouritsen:

Below is a formal addendum to the negotiated Job Offer Letter, dated June 22, 2023.

Addendum to this Offer Letter is as follows:

- Per agreement, you will receive six (6) months of severance pay in the event that you are terminated for reasons other than misconduct or other violation of the City of Fernley's Personnel Policies and Procedures.

All previously negotiated agreements and terms will remain the same and/or as noted in the original offer letter, with the salary adjusted to the current salary:

Based on City Council's agreement, I am pleased to promote you to the position as City Attorney with the City of Fernley. In this capacity, you will still be working for Mayor Neal McIntyre at the current salary of \$137,841.60 per year. This position is an exempt, full-time position effective July 9, 2023, and your new annual anniversary date will be July 9, 2024.

The terms and conditions of this employment offer are contained in the following paragraphs:

The City of Fernley provides individuals with disabilities reasonable accommodation necessary for successful job performance. If you believe that you require reasonable accommodation to perform the duties of this position now or at any time during your employment, please contact Mitzi Carter, Human Resources, at (775) 784-9863.

You will still be eligible for all the benefits that you currently maintain to include PERS, holidays and various Leaves as outlined in the Personnel Policy which is still applicable to your position. Please be aware that the types and levels of benefits provided to you may change from time to time by action of the governing board.

Per mutual agreement, you will still be allowed to have a flex schedule as long as an 80-hour biweekly work schedule is maintained.

The current job description for your position is also attached. Your specific job assignment may be changed from time to time at the discretion of the City of Fernley. All changes in your status and/or rights and benefits as a City of Fernley employee will be made in writing.

If you have any questions, please feel free to call me.

Sincerely,

Neal E. McIntyre
Mayor, City of Fernley

I hereby acknowledge that I have received a copy of this letter and I accept the terms and conditions contained herein.

Signature _____

Date _____



CITY OF FERNLEY

City Council AGENDA REPORT

Meeting Date: August 20, 2025

REPORT TO: Mayor and City Council

REPORT FROM: Filiga Farmer

FINANCIAL IMPACT:

Yes: No: X

CURRENTLY BUDGETED:

Yes: X No:

FUND/ACCOUNT:

510-166100

ACTION REQUESTED: Consent

AGENDA ITEM:

Discussion and possible action to approve the extension of the professional services contract with Stantec for the Highway 50 Loop Design project.

AGENDA ITEM BRIEF:

This item seeks Council approval to renew the professional services agreement with Stantec for the Highway 50 Water Loop Design project. The existing contract, previously approved with a total value of \$471,294 (including the Wedge Extension change order), has expired. This renewal will extend the contract term to allow Stantec to continue design services and maintain project continuity. No additional funding is being requested at this time.

RECOMMENDED MOTION:

Staff recommends the City Council approve a contract extension with Stantec for continued design services related to the Highway 50 Water Loop project.

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

The Council may decide not to approve the extension of the professional services contract with Stantec and provide direction to staff on how to proceed.

BACKGROUND:

The Hwy 50 Loop project is a vital infrastructure improvement that will increase water system reliability, fire flow, and service capacity along Highway 50. The City entered into a professional services agreement with Stantec to complete design work for this project.

As of June 30th, 2025, approximately 36% of the contract has been invoiced. Stantec has delivered the 30% Design Plans and received comments, and they are currently progressing toward the 60% design milestone, with submittal anticipated by August 8th. An amendment (Wedge Extension) has been executed to include additional funds and time to support the continued design effort.

This renewal ensures the City can maintain project momentum and complete the remaining design phases without delay.

RELEVANT LAWS, STATUTES, AND REGULATIONS:**FINANCIAL IMPLICATIONS:****ATTACHMENTS:**

1. 2025.04.17 Signed CO Wedge Extension_Change_Order_PSA_20250310_gfr (003)
2. Contract to be executed upon approval

Change Order # 001 Date 10 March 2025

Stantec Consulting Services, Inc.

Project # 181301876

6111 South Buffalo Drive Suite 200, Las Vegas NV 89113-2328

Ph: (702) 821-4337

email: meghan.lehto@stantec.com

CLIENT

CITY OF FERNLEY

595 Silver Lace Boulevard, Fernley, Nevada 89408

Ph: (775) 784-9866

email: kweitzel@cityoffernley.org

Project Name and Location: Highway 50 Water Main Looping Project, Fernley, NV

In accordance with the original Professional Services Agreement dated 18 December 2024 and Change Orders thereto, the Agreement changes as detailed below are hereby authorized.

An additional connection will be made at Wedge Lane, which is approximately 3,500 LF east of the original tie-in location at Julia Lane. This extension will include:

- Up to five (5) additional plan and profile sheets as well as associated detail.
 - Additional project management, coordination, and quality review time will be required
- Extension of topographic survey limits and utility investigations to Wedge Ln (see attached Bowman change order proposal).
 - Additional coordination hours will be required.
 - It is assumed that no additional utility potholes will be necessary.
- One (1) additional ten-foot-deep geotechnical bore at Wedge Ln (see attached CME change order proposal).
 - Additional coordination hours will be required.
 - It is assumed that the connection at Wedge Ln is located on the north side of Highway 50, and that a trenchless crossing will not be necessary at this location.

<u>Task Description</u>	<u>Estimated Budget</u>
Project Management	\$1,848.00
Wedge Extension	\$40,249.00
Additional Sub Costs and Coordination	\$16,268.00
Total fees of this Change Order	\$58,365.00
Original Agreement amount	\$412,929.00
Total Agreement	\$ 471,294

Effect on Schedule: See revised schedule attached

Payments shall be made in accordance with the original agreement terms. All other items and conditions of the original Agreement shall remain in full force and effect.

STANTEC CONSULTING SERVICES, INC.**CITY OF FERNLEY**

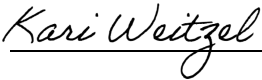
Guy Roundy, Project Manager
Print Name and Title

Kari Weitzel, Project Manager

Signature



Signature



Date Signed:

March 10, 2025

Date Signed: 4/17/2025 approved at FCC 4/16/2025

181301876 - Highway 50 Main Looping Project

Client:	City of Ferley, NV
PM:	Lehto, Meghan (GFR)
PTL:	Tordella, Ryan

Note: Week ending date is a Friday. Working Days: Monday, Tuesday, Wednesday, Thursday, Friday

[illegible]



CHANGE ORDER

Date: 2025-02-26

Bowman Consulting Group Ltd. 1150 Corporate Blvd Reno, NV 89502 Phone: 775-856-1150 Email: deane.easdon@bowman.com	Stantec 410 17th Street, Suite 1400 Denver, CO 80202 Phone: 720-471-3422 Email: ryan.tordella@stantec.com
Project Name: City of Fernley Water Main-Highway 50 Change Order #: 01	Bowman Job #: 420427-01-001 Proposal #: 2025-0053-CO

SCOPE OF SERVICES COVERED BY CHANGE ORDER

Boundary & Topographic Mapping (SC-01)

Bowman will include the additional design-level topographic survey along approximately 3,000 ft +/- of US 50-Alt from Julia Lane to just east of Wedge Lane. Changing the total length of the project to approximately 3.30 miles.

FEE: \$6,000.00 Lump Sum

Underground Utility Locate (SC-12)

Nason Scanning to perform additional utility locating services including penetrating radar and Radio Detection equipment along approximately 3,000 ft +/- of US 50-Alt from Julia Lane to just east of Wedge Lane. Changing the total length of the project to approximately 3.30 miles.

FEE: \$1,200.00 Lump Sum

Description (SC)	Total	Fee Type
Boundary & Topographic Mapping (SC-01)	\$6,000.00	Lump Sum
Underground Utility Locate (SC-12)	\$1,200.00	Lump Sum

Total Contract Value \$7,200.00

The individual signing this Change Order states that he or she has the authority to sign on behalf of the Client. Execution of this Change Order by an authorized representative of the Client constitutes authorization to proceed.



Agreed and accepted by:

Bowman Consulting Group Ltd.

Deane Easdon

02 / 26 / 2025

Deane Easdon
Survey Assistant Project Manager

Stantec

Ryan Tordella



300 Sierra Manor Drive, Suite 1
Reno NV 89511
Tel: 775-851-8205
Fax: 775- 851-8593

EXTRA WORK ORDER AUTHORIZATION

Signature on this form is an agreement between Client and CME to amend the Master Contract.

Project Name	Highway 50 Water Main Looping Project	CME Project Number	3742
Date:	2/20/25	Extra Work Order No:	REV. No 1
Bill To:	Ryan Tordella, PE Stantec 410 17th Street, Suite 1400 Denver, CO 80202		

The Interested Parties Agree to the following changes, additions, and amendments to the scope of work outlined in the original agreement (dated 1/15/2025)

Presented herein is our proposed scope of work to perform additional subsurface exploration for the Highway 50 Water Main Looping Project at the request of Stantec. Our understanding of the proposed additional scope of work and an estimate of our fees are detailed below.

It is assumed this boring will be completed during the same mobilization (2/25-26/2025) as the other 8 borings; if the NDOT permit or USA North are not completed in time for this to occur, additional costs will be required (due to additional mobilization, another USA North, permitting time, coordination time, etc.).

1.1 ADDITIONAL VERTICAL BORING

Per the request of the client, an additional vertical boring will be drilled along with the eight (8) vertical borings proposed in the original scope of work. The additional scope of work will include:

- Drilling of one (1) vertical test boring to a depth of 10 feet below ground surface or to practical refusal, whichever occurs first. The boring will be drilling using a rubber-tired, two-wheel drive drill rig equipped with solid-stem and hollow stem augers drilled on the north side of Highway 50, north of Wedge Lane. Soil sample intervals will generally be at 2.5-foot intervals. The boring will be backfilled with bentonite chips where groundwater is encountered, tamped soil cuttings where groundwater is not encountered, and capped using lean cement grout.
- A CME field representative will log soils encountered in the test boring and visually classify soils in general accordance with the Unified Soils Classification System. Samples of the underlying soil will be collected and brought back to our laboratory for testing. The groundwater surface will be measured if encountered. Representative samples will be returned to our laboratory for testing.
- Prior to mobilizing the drill rig, CME will mark the site for USANorth 811. Standard precautions will be taken by CME to minimize the risk of damaging underground structures. However, it's important to note that underground exploration carries inherent risks, as precise location of all underground structures may not be possible. Our fee does not encompass compensation for any damage or disruption of services, or for repair costs resulting from insufficient or incorrect data. In cases where damage to underground structures occurs due to insufficient or incorrect data, the client will be responsible for the cost of repair.
- Laboratory testing of soil samples may include testing for index properties such as moisture content, grain size distribution and plasticity

Table 1: Estimated Fees	
Tasks	Fees Per Task
USA North	\$435.00
Subsurface Exploration	\$3,600.00
Laboratory Testing	\$480.00
Engineering Analysis & Report Preparation	\$290.00
Net Increase Fees:	\$4,805.00
Original Contract Amount:	\$34,590.00
Total Adjusted Contract Amount:	\$39,395.00
ACCEPTED BY: (Signature of Authorized Representative)	Date

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CONTRACT

A Contract for Design Professional Services

THIS CONTRACT is made and entered into this ____ day of _____, _____, by and between the CITY OF FERNLEY, a municipal corporation within the State of Nevada whose address is 595 Silver Lace Blvd, Fernley, Nevada 89408 (the "City"), and Stantec Consulting Services INC. whose address is: 5390 Kietzke Lane, Reno Nevada 89511 ("Contractor").

WHEREAS, Nevada Revised Statutes ("NRS") Chapter 266 authorizes the City to engage the services of independent contractors; and

WHEREAS, the services of Contractor are deemed to be both necessary and in the best interests of the City; and

WHEREAS, the City desires to retain the services of Contractor on the terms and conditions set forth in this Contract;

NOW, THEREFORE, in consideration of the aforesaid premises, the parties mutually agree as follows:

1. **CONTRACT TERM:** This Contract shall be effective from the day it is approved by the City Council (which date shall be inserted into the introductory paragraph of this Contract) and, subject to appropriation, shall remain in full force and effect until the services are completed unless terminated earlier pursuant to Section 6.

2. **CONTRACTOR'S SERVICES:**

a. **Description of Services.**

i. **Attachments:**

1. **Attachment A.** Scope of Work. Contractor hereby agrees to provide the services set forth in the Scope of Work attached hereto as Attachment _____ and incorporated herein by this reference.

ii. **Standard Of Care.** Notwithstanding anything to the contrary in this agreement or in any other contract document relating to the project, in performing its work under this agreement Contractor shall perform its services to the standard of care of a reasonable professional that is performing the same or similar work, at the same time and locality and under the same or similar conditions faced by Contractor Cooperation with City. Contractor agrees that its officers, associates,

CONTRACT

A Contract for Design Professional Services

employees and subcontractors will cooperate with the City in providing the services under this Contract and will be, with advance notice, available for consultation with the City at such reasonable times as to not conflict with the City's other responsibilities.

- iii. **General Warranty.** Contractor warrants that all services, deliverables, and/or work product under this Contract shall be completed in a workmanlike manner consistent with standards in the trade, profession, or industry; shall conform to or exceed the specifications set forth in the incorporated attachments; and shall be fit for ordinary use, of good quality, with no material defects.

3. REQUIRED APPROVAL COMPENSATION AND TERMS OF PAYMENT:

- a. **Compensation.** The City agrees to pay Contractor for the services set forth in the Scope of Work either a lump sum fee or an hourly fee based on the Fee Schedule attached hereto as Attachment and incorporated herein by this reference.
- b. **Reimbursable Expenses.** Contractor agrees that all of its direct and indirect expenses are included in the lump sum or hourly fee set forth in the Fee Schedule, unless the Fee Schedule specifically provides otherwise.
- c. **Payment Invoicing.** Contractor shall submit an invoice for payment for the services provided by Contractor based on the manner or method of payment set forth in Attachment A (Scope of Work) and Attachment B (Fee Schedule).
- d. **Timeliness of Billing.** Contractor acknowledges and agrees that timeliness of billing is of the essence to this Contract and recognizes that the City is on a fiscal year ending on June 30. All invoices for services rendered prior to July 1 must be submitted to the City no later than 30 days after the end of the fiscal year.

- 4. **NOTICE:** All notices or other communications required or permitted to be given hereunder shall be deemed delivered: (i) when written notice is received by the party to whom it is directed, if delivered personally, or by email; or (ii) three (3) days after deposit with the United States Post Office, if mailed by certified mail, return receipt requested, postage prepaid and addressed to the party to be notified. Notices shall be addressed as follows:

If to the City: City Manager
 City of Fernley
 595 Silverlace Blvd.

CONTRACT

A Contract for Design Professional Services

Fernley, NV 89408

If to Contractor:

5. INSPECTION & AUDIT:

- a. **Books and Records.** Contractor agrees to keep and maintain under general accepted accounting principles (GAAP) full, true and complete records, contracts, books, and documents as are necessary to fully disclose to the City, the State of Nevada or the United States Government, or their authorized representatives, upon audits or reviews, sufficient information to determine compliance with all state and federal regulations and statutes.
- b. **Inspection & Audit.** Contractor agrees that the relevant books, records (written, electronic, computer related or otherwise), including, without limitation, relevant accounting procedures and practices of Contractor or its subcontractors, financial statements and supporting documentation, and documentation related to the performance of this Contract shall be subject, at any reasonable time, to inspection, examination, review, audit, and copying at any office or location of Contractor where such records may be found, with or without notice by the City, and with regard to any federal funding, the relevant federal agency, the Comptroller General, the General Accounting Office, the Office of the Inspector General, or any of their authorized representatives. All subcontracts shall reflect the requirements of this paragraph.
- c. **Period of Retention.** All books, records, reports, and statements relevant to this Contract must be retained a minimum three years and for five years if any federal funds are used under this Contract. The retention period runs from the date of payment for the relevant services by the City, or from the date of termination of this Contract, whichever is later. Retention time shall be extended when an audit is scheduled or in progress for a period reasonably necessary to complete an audit and/or to complete any administrative and judicial litigation which may ensue.

6. TERMINATION OR SUSPENSION:

- a. **Suspension.** The City may suspend, without cause, the performance by Contractor under this Contract for such period of time as the City, in its sole discretion, may prescribe by providing written notice to Contractor. The suspension shall be effective as of the date set forth in the written notice.

____ Contractor's Initial

____ CoF Representative

CONTRACT

A Contract for Design Professional Services

With such suspension, the City agrees to pay Contractor the amount of compensation earned as of the effective date of the suspension.

- b. **Termination Without Cause.** The City reserves the right to terminate this Contract without cause or default on the part of Contractor with ten (10) days' prior written notice to Contractor. In the event of termination, without cause or default, the City agrees to pay Contractor for the services performed before the date that notice of termination is received by Contractor.
- c. **Termination for Non-Appropriation.** Contractor acknowledges that the City is a governmental entity and the Contract's validity is based upon the availability of public funding under its authority. The City reserves the right to reduce estimated or actual quantities, in whatever amount necessary, without prejudice or liability to the City, if funding is not available or if legal restrictions are placed upon the expenditure of monies for the services required under this Contract. In addition, without prejudice or liability to the City, if funding is not appropriated or otherwise made available to support the continuation of this Contract in any fiscal year succeeding the first fiscal year, this Contract will be deemed to have been terminated automatically when appropriated funds expire and are not available.
- d. **Default or Breach.** A default or breach (an "Event of Default") may be declared with or without termination. Each of the following shall constitute an Event of Default:
 - i. If Contractor fails, in the judgment of the City, to provide or satisfactorily perform any of the conditions, work, deliverables, goods, or services called for by this Contract, and such failure continues for more than fifteen (15) days after written notice is delivered to Contractor provided that if the nature of such breach is such that although curable, the breach cannot reasonably be cured within a fifteen (15) day period, an Event of Default shall not exist if Contractor shall commence to cure such breach and thereafter rectifies and cures such breach with due diligence, but in no event later than sixty (60) days after the written notice;
 - ii. If any state, county, city or federal license, authorization, waiver, permit, qualification or certification required by statute, ordinance, law, or regulation to be held by Contractor to provide the goods or services required by this Contract is for any reason denied, revoked, debarred, excluded, terminated, suspended, lapsed, or not renewed; or
 - iii. If Contractor: (i) becomes insolvent, subject to receivership, or voluntarily or involuntarily subject to the jurisdiction of the bankruptcy

CONTRACT

A Contract for Design Professional Services

court; (ii) makes a general assignment for the benefit of creditors; (iii) admits in writing to the inability to pay its debts as they become due; or (iv) takes any action for the purpose of effecting any of the foregoing.

- e. **For Cause Termination and Time to Correct. For Cause Termination and Time to Correct.** This Contract may be terminated by the non-defaulting party upon a declared default or breach only after service of formal written notice as specified in paragraph (4), and the subsequent failure of the defaulting party within a reasonable time of receipt of that notice to provide evidence, satisfactory to the non-defaulting party, showing that the declared default or breach has been corrected or is being corrected as expeditiously as is prudent and practicable.
- f. **Winding Up Affairs upon Termination.** If this Contract is terminated for any reason, the parties agree that the provisions of this paragraph survive termination:
- i. The parties shall account for and properly present to each other all claims for fees and expenses and pay those which are undisputed and otherwise not subject to set off under this Contract. Neither party may withhold performance of winding up provisions solely based on nonpayment of fees or expenses accrued up to the time of termination.
 - ii. Contractor shall satisfactorily complete work in progress at the agreed rate (or a pro rata basis if necessary) if requested by the City.
 - iii. Contractor shall execute any documents and take any actions necessary to effectuate an assignment of this Contract if requested by the City; and
 - iv. Contractor shall preserve, protect, and promptly deliver possession to the City of all proprietary information in accordance with Section 18.
 - v. If dispute(s) arise during the winding up of affairs upon termination, the parties agree to meet and negotiate in good faith to resolve any such disputes(s).

7. **REMEDIES:** Except as otherwise provided for by law or this Contract, the rights and remedies of the parties shall not be exclusive and are in addition to any other rights and remedies provided by law or equity, including, without limitation, actual damages exclusive of lost profits.

CONTRACT

A Contract for Design Professional Services

8. **ATTORNEYS' FEES, COSTS, AND EXPENSES:** Unless otherwise stated herein, the parties will bear their own attorneys' fees, costs, and expenses in connection with the negotiation, execution, and performance of this Contract.
9. **LIMITED LIABILITY:** Contract liability of both parties shall not be subject to punitive damages. Liquidated damages shall not apply unless otherwise specified in the Attachments. Damages for any default or breach by the City shall never exceed the amount of funds appropriated for payment under this Contract, but not yet paid to Contractor, for the fiscal year budget in existence at the time of the default or breach.
10. **FORCE MAJEURE:** Neither party shall be deemed to be in violation of this Contract if it is prevented from performing any of its obligations hereunder due to strikes, failure of public transportation, civil or military authority, act of public enemy, accidents, fires, explosions, or acts of God, including, without limitation, earthquakes, floods, winds, or storms. In such an event the intervening cause must not be through the fault of the party asserting such an excuse, and the excused party is obligated to promptly perform in accordance with the terms of this Contract after the intervening cause ceases.
11. **INDEMNIFICATION:** Contractor shall indemnify, defend, and hold harmless the City, its elected officials, officers, employees, agents, and consultants (collectively, the "City party") from and against any and all claims, liabilities, damages, losses, suits, actions, decrees, arbitration awards, judgments, and any other costs or expenses, including reasonable attorney fees (collectively, "Liabilities"), which may be recovered from or sought against the City party as a result of, by reason of, or as a consequence of: (i) any act or omission, negligent or otherwise, on the part of Contractor, its officers, employees, independent contractors, sub-contractors, vendors, suppliers, consultants, or agents; or (ii) any default in the performance of any obligation of Contractor to be performed under the terms of this Contract, regardless of whether such default is an Event of Default hereunder. In no event shall the language of this Section constitute or be construed as a waiver or limitation of the City's rights or defenses with regard to sovereign immunity, governmental immunity, or other official immunities and protections provided by the Federal and State constitutions or by law. It is expressly agreed that Contractor shall defend the City party at Contractor's expense, by legal counsel reasonably satisfactory to the City, against the Liabilities and in the event that Contractor fails to do so, the City shall have the right, but not the obligation, to defend the same and to charge all direct and incidental costs, including attorney's fees and court costs, to Contractor. Contractor's indemnity obligations herein are not intended to nor shall they relieve any insurance carrier of its obligations under policies required to be carried by Contractor pursuant to the provisions of this Contract. Contractor's obligations under this Section 11 shall survive any termination of this Contract.
12. **INDEPENDENT CONTRACTOR:** Contractor is associated with the City only for the purposes and to the extent specified in this Contract, and in respect to performance

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A Contract for Design Professional Services

of the contracted services pursuant to this Contract, Contractor is and shall be an independent contractor and, subject only to the terms of this Contract, shall have the sole right to supervise, manage, operate, control, and direct performance of the details incident to its duties under this Contract. Nothing contained in this Contract shall be deemed or construed to create a partnership or joint venture, to create relationships of an employer-employee or principal-agent, or to otherwise create any liability for the City whatsoever with respect to the indebtedness, liabilities, and obligations of Contractor or any other party. Contractor shall be solely responsible for, and the City shall have no obligation with respect to: (1) withholding of income taxes, FICA or any other taxes or fees; (2) industrial insurance coverage; (3) participation in any group insurance plans available to employees of the City; (4) participation or contributions by either Contractor or the Public Employees Retirement System; (5) accumulation of vacation leave or sick leave; or (6) unemployment compensation coverage provided by the City. Contractor shall indemnify and hold the City harmless from, and defend the City against, any and all losses, damages, claims, costs, penalties, liabilities, and expenses arising or incurred because of, incident to, or otherwise with respect to any such taxes or fees. Neither Contractor nor its employees, agents, or representatives shall be considered employees, agents, or representatives of the City.

- 13. INSURANCE:** Unless expressly waived in writing by the City, Contractor shall, at Contractor's sole expense, procure, maintain and keep in force during the entire term of this Contract those policies of insurance which have been agreed to by the parties as evidenced by the parties initials in the signature spaces provided below. The City shall have no liability except as specifically provided in this Contract. Contractor shall not commence work before Contractor has provided the required evidence of insurance to the City. Any insurance or self-insurance available to the City shall be in excess of, and non-contributing with, any insurance required from Contractor. Contractor's insurance policies shall apply on a primary basis. Until such time as the insurance is no longer required by the City, Contractor shall provide the City with renewal or replacement evidence of insurance no less than thirty (30) days before the expiration or replacement of the required insurance. If at any time during the period when insurance is required by this Contract, an insurer or surety shall fail to comply with the requirements of this Contract, as soon as Contractor has knowledge of any such failure, Contractor shall immediately notify the City and immediately replace such insurance or bond with an insurer meeting the requirements.

COF

CTR

- a. **Workers' Compensation and Employer's Liability Insurance.** Industrial insurance protecting Contractor and the City from potential employee claims based upon job-related sickness, injury, or accident, during the performance of this Contract. Contractor shall provide a work certificate issued by a qualified insurer in accordance with NRS 616B.627. Prior to commencing any work, Contractor shall complete and provide the following written request to a qualified insurer:

____ Contractor's Initial

____ CoF Representative

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CONTACTOR NAME has entered into a contract with Owner to perform work from THE ____ DAY OF _____, 20__ to THE ____ DAY OF _____, 20__ and requests that an industrial insurance provider qualified and licensed to offer such insurance within the State of Nevada, provide to The City of Fernley, Nevada 1) a certificate of coverage issued pursuant to NRS 616B.627 and 2) notice of any lapse in coverage or nonpayment of coverage that Contractor is required to maintain. The certificate and notice should be mailed to:

City of Fernley
595 Silver Lace Blvd
Fernley, NV 89408

Contractor may, in lieu of furnishing a certificate of an insurer, provide an affidavit indicating that Contractor is a sole proprietor and that: (1) In accordance with the provisions of NRS 616B.659, Contractor has not elected to be included within the terms, conditions, and provisions of NRS chapters 616A to 616D, inclusive; and (2) Contractor is otherwise in compliance with those terms, conditions and provisions.

COF

CTR

b. **Professional Liability Insurance.**

- i. Minimum Coverage Limit required (not deductible amount): \$1,000,000 Each Claim, \$2,000,000 Aggregate.
- ii. Retroactive date: Prior to commencement of the performance of this Contract
- iii. Discovery period: Three (3) years after the termination date of this Contract.

c. **General Requirements.**

- i. Additional Insured: By endorsement to the general liability insurance policy evidenced by Contractor, ***the City of Fernley, its officers, employees, and immune contractors*** shall be named as additional insureds for all liability arising from this Contract.
- ii. Waiver of Subrogation: Each insurance policy shall provide for a waiver of subrogation in favor of the City.

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A Contract for Design Professional Services

- iii. Cross-Liability: All required liability policies shall provide cross-liability coverage as would be achieved under the standard ISO separation of insureds clause.
 - iv. Deductibles and Self-Insured Retentions: Insurance maintained by Contractor shall apply on a first dollar basis without application of a deductible or self-insured retention unless otherwise specifically agreed to by the City. Such approval shall not relieve Contractor from the obligation to pay any deductible or self-insured retention. Any deductible or self-insured retention shall not exceed \$5,000 per occurrence, unless otherwise approved by the City.
 - v. Policy Cancellation: Except for ten days' notice for non-payment of premium, each insurance policy shall be endorsed to state that; without thirty (30) days prior written notice to the City, the policy shall not be canceled, non-renewed or coverage and/or limits reduced or materially altered, and shall provide that notices required by this paragraph shall be sent by certified mail to the address shown below.
 - vi. Approved Insurer: Each insurance policy shall be issued by insurance companies: (a) authorized to do business in the State of Nevada or eligible surplus lines insurers acceptable to the City and having agents in the State of Nevada upon whom service of process may be made; and (b) currently rated by A.M. Best as "A-VII" or better.
- d. **Evidence of Insurance.** Prior to the start of any work, Contractor must provide the following documents to the City:
- i. Certificate of Insurance: The Acord 25 Certificate of Insurance form or a form substantially similar must be submitted to the City to evidence the insurance policies and coverages required of Contractor.
 - ii. Additional Insured Endorsement: An Additional Insured Endorsement (CG20 10 or C20 26), signed by an authorized insurance company representative, **must** be submitted to the City to evidence the endorsement of the City as an additional insured per General Requirements, Subsection 1) above.
 - iii. Schedule of Underlying Insurance Policies: If an Umbrella or Excess insurance policy is evidenced to comply with minimum limits, a copy of the underlying schedule from the Umbrella or Excess insurance policy may be required.
 - iv. Review and Approval: Documents specified above must be submitted for review and approval by the City prior to the commencement of work by Contractor. Neither approval by the City nor failure to disapprove the

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A Contract for Design Professional Services

insurance furnished by Contractor shall relieve Contractor of Contractor's full responsibility to provide the insurance required by this Contract. Compliance with the insurance requirements of this Contract shall not limit the liability of Contractor or its sub-contractors, employees or agents to the City or others, and shall be in addition to and not in lieu of any other remedy available to the City under this Contract or otherwise. The City reserves the right to request and review a copy of any required insurance policy or endorsement to assure compliance with these requirements. Contractor will mail all required insurance documents to the City at the address identified in section 4 of this Contract.

- e. **Failure to Maintain Required Coverages.** If Contractor fails to carry the required insurance, the City may: (i) order Contractor to stop further performance of the Contract, and declare contractor in breach, terminate the Contract if such breach is not remedied; or (ii) purchase replacement insurance and withhold the costs or premium payments made from the payments due to Contractor or charge the replacement insurance costs back to Contractor.

- 14. **COMPLIANCE WITH LEGAL OBLIGATIONS:** Contractor shall procure and maintain for the duration of this Contract any state, county, city or federal license, authorization, waiver, permit, qualification or certification required by statute, ordinance, law, or regulation to be held by Contractor to provide the goods or services required by this Contract. Contractor will be responsible to pay all taxes, assessments, fees, premiums, permits, and licenses required by law. Real property and personal property taxes are the responsibility of Contractor in accordance with NRS 361.157 and 361.159. Contractor agrees to be responsible for payment of any such government obligations not paid by its subcontractors during performance of this Contract.
- 15. **WAIVER OF BREACH:** Failure to declare a breach or the actual waiver of any particular breach of this Contract or its material or nonmaterial terms by either party shall not operate as a waiver by such party of any of its rights or remedies as to any other default or breach.
- 16. **SEVERABILITY:** If any portion, provision, or part of this Contract is held, determined, or adjudicated by any court of competent jurisdiction to be invalid, unenforceable, or void for any reason whatsoever, each such portion, provision, or part shall be severed from the remaining portions, provisions, or parts of this Contract, and such determination or adjudication shall not affect the validity or enforceability of such remaining portions, provisions, or parts.
- 17. **ASSIGNMENT/DELEGATION:** To the extent that any assignment of any right under this Contract changes the duty of either party, increases the burden or risk involved, impairs the chances of obtaining the performance of this Contract, attempts to

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A Contract for Design Professional Services

operate as a novation, or includes a waiver or abrogation of any defense to payment by the City, such offending portion of the assignment shall be void, and shall be a breach of this Contract. Contractor shall neither assign, transfer nor delegate any rights, obligations, or duties under this Contract without the prior written consent of the City.

- 18. PROPRIETARY INFORMATION:** Any reports, histories, studies, tests, manuals, instructions, photographs, negatives, blue prints, plans, maps, data, system designs, computer code (which is intended to be consideration under this Contract), or any other documents or drawings, prepared or in the course of preparation by Contractor (or its subcontractors) in performance of its obligations under this Contract shall be the exclusive property of the City and all such materials shall be delivered into the possession of the City by Contractor upon completion, termination, or cancellation of this Contract. Contractor shall not use, willingly allow, or cause to have such materials used for any purpose other than performance of Contractor's obligations under this Contract without the prior written consent of the City. Notwithstanding the foregoing, the City shall have no proprietary interest in any materials licensed for use by the City that are subject to patent, trademark, or copyright protection.
- 19. PUBLIC RECORDS:** Pursuant to NRS 239.010, information or documents received from Contractor may be open to public inspection and copying. The City will have the duty to disclose unless a particular record is made confidential by law or a common law balancing of interests. Contractor may label specific parts of an individual document as a "trade secret" or "confidential," provided that Contractor thereby agrees to indemnify and defend the City for honoring such a designation. The failure to so label any document that is released by the City shall constitute a complete waiver of any and all claims for damages caused by any release of the records.
- 20. FEDERAL FUNDING:** In the event federal funds are used for payment of all or part of this Contract:
- a. Contractor certifies, by signing this Contract, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency. This certification is made pursuant to the regulations implementing Executive Order 12549, Debarment and Suspension, 28 C.F.R. pt. 67, § 67.510, as published as pt. VII of the May 26, 1988, Federal Register (pp. 19160-19211), and any relevant program-specific regulations. This provision shall be required of every subcontractor receiving any payment in whole or in part from federal funds.
 - b. Contractor and its subcontractors shall comply with all terms, conditions, and requirements of the Americans with Disabilities Act of 1990 (P.L. 101-136), 42

CONTRACT

A Contract for Design Professional Services

U.S.C. 12101, as amended, and regulations adopted thereunder contained in 28 C.F.R. 26.101-36.999, inclusive, and any relevant program-specific regulations.

- c. Contractor and its subcontractors shall comply with the requirements of the Civil Rights Act of 1964, as amended, the Rehabilitation Act of 1973, P.L. 93-112, as amended, and any relevant program-specific regulations, and shall not discriminate against any employee or offeror for employment because of race, national origin, creed, color, sex, religion, age, disability or handicap condition (including AIDS and AIDS-related conditions.)

21. LOBBYING: The parties agree, whether expressly prohibited by federal, state or local law, or otherwise, that no funding associated with this Contract will be used for any purpose associated with or related to lobbying or influencing or attempting to lobby or influence any of the following: (a) any federal, state, county or local agency, legislature, commission, council or board; (b) any federal, state, county or local legislator, commission member, council member, board member, or other elected official; or (c) any officer or employee of any federal, state, county or local agency; legislature, commission, council or board.

22. CERTIFICATION REQUIRED BY NEVADA SENATE BILL 26 (2017): By signing this Agreement, the CONSULTANT provides a written certification, as a material part of this Agreement, that the CONSULTANT is not currently engaged in, and during the Term shall not engage in, a boycott of Israel. The term "boycott of Israel" has the meaning ascribed to that term in Section 3 of Nevada Senate Bill 26 (2017). The CONSULTANT shall be responsible for fines, penalties, and repayment of any State of Nevada or federal funds that may arise (including those that the CITY pays, becomes liable to pay, or becomes liable to repay) as a direct result of the CONSULTANT's non-compliance with this Section. If, at any time during the formation or duration of this Agreement, CONSUTLANT is engaged or engages in a boycott of Israel, it will constitute a material breach of this Agreement.

23. PROPER AUTHORITY: Contractor represents and warrants Contractor has full power and authority to enter into this Contract. Any services performed by Contractor before this Contract is effective or after it ceases to be effective are performed at the sole risk of Contractor.

24. GOVERNING LAW; VENUE: This Contract will be interpreted, and the rights and liabilities of the parties determined, in accordance with the laws of the State of Nevada, excluding its conflict of laws rules. In any action or proceeding arising under this Contract, each party (a) consents to the jurisdiction of Nevada Courts, and of the pertinent appellate courts, and consents to the venue of such action or proceeding in Lyon County, Nevada courts, (b) irrevocably agrees that all actions or proceedings arising out of or relating to this Contract shall be litigated in such courts, and (c) consents to personal jurisdiction within Lyon County, Nevada. Each party accepts for itself, generally and unconditionally, the exclusive jurisdiction and venue of the aforesaid courts and waives any defense of lack of personal jurisdiction, improper

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venue, inconvenient forum or any similar defense, and irrevocably agrees to be bound by any non-appealable judgment rendered thereby in connection with this Contract.

- 25. INTEGRATED CONTRACT:** This Contract (including any addenda, exhibits, or attachments incorporated into and made a part of this contract) constitutes the entire agreement and understanding among the parties regarding the matters set forth herein and supersedes all previous negotiations, discussions, and understandings regarding such matters. The parties acknowledge and represent that they have not relied on any promise, inducement, representation, or other statement made in connection with this Contract that is not expressly contained herein. The terms of this Contract are contractual and not a mere recital.
- 26. COUNTERPARTS:** This Contract may be executed in multiple counterparts, each of which shall be deemed an original, and all of such counterparts together shall constitute one and the same instrument.
- 27. ADVICE OF COUNSEL:** Each party hereto represents and agrees that it has had the opportunity to seek and has sought from attorneys any such advice as it deems appropriate with respect to signing this Contract or the meaning of it. Each party has undertaken such independent investigation and evaluation as it deems appropriate and is entering into this Contract in reliance on that and not in reliance on any advice, disclosure, representation or information provided by or expected from any other party or such party's attorneys. This is an agreement of settlement and compromise, made in recognition that the parties may have different, disputed or incorrect understandings, information and contentions, as to facts and law, and with each party compromising and settling any potential correctness or incorrectness of its understandings, information and contentions as to the facts, law, claims, duties, disclosures and conduct occurring before or during the entry into this Contract. No conduct, failure, misunderstanding or misinformation and no claim of fraud or fraudulent inducement occurring prior to or in connection with the execution hereof shall be a ground for rescission hereof or for recovery of damages, except as otherwise expressly provided herein.
- 28. MODIFICATION; NO WAIVER:** The provisions of this Contract, including this paragraph, may be modified or waived only in writing signed by both parties. No waiver with respect to any portion of this Contract shall apply to any other portion of the Contract, and a waiver on one occasion shall not be deemed to be a waiver of the same or any other breach on a future occasion. No course of dealing by any party, and no failure, omission, delay, or forbearance by any party in exercising such party's rights or remedies shall be deemed a waiver of any such rights or remedies or a modification of this Contract.
- 29. INTERPRETATION OF AGREEMENT:** This Contract shall be construed without regard to the party or parties responsible for its preparation and shall be deemed to have been prepared collectively by the parties. Any ambiguity or uncertainty arising

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A Contract for Design Professional Services

herein shall not be interpreted or construed against any party hereto on the basis that a party prepared or drafted a particular provision of this Contract.

30. **COOPERATION OF PARTIES**: The parties agree to cooperate to accomplish the purpose of this Contract and to execute any and all supplementary documents and to take all additional actions not inconsistent with the terms set forth in this Contract that are necessary and appropriate to give full force and effect to the terms and intent of this Contract.
31. **NON-DISCRIMINATION**: In connection with the performance of work under this Contract, Contractor agrees not to discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, sexual orientation, gender identity or expression, or age, including, without limitation, with regard to employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including, without limitation, apprenticeship. Contractor further agrees to insert this provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials.

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CONTRACT

A Contract for Design Professional Services

In witness whereof, the parties hereto have caused this Contract to be signed and intend to be legally bound thereby:

CITY OF FERNLEY

Mayor, City of Fernley Date

City Clerk, City of Fernley Date

Approved as to form:

City Attorney, City of Fernley Date

Originating Department:

Department Head Date

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CONTRACTOR, being first duly sworn, deposes and says: That CONTRACTOR. is the Contractor; that NAME OF PERSON REPRESENTING CONTRACTOR has read the foregoing Contract; and that he understands the terms, conditions, and requirements thereof.

CONTRACTOR

BY:

TITLE:

FIRM:

BUSINESS LICENSE #:

Address:

City: State: Zip Code:

Telephone: Fax #:

E-mail Address:

(Signature of Contractor)

DATE SIGNED this ____ day of _____, 20____.



CITY OF FERNLEY

City Council AGENDA REPORT

Meeting Date: August 20, 2025

REPORT TO: Mayor and City Council

REPORT FROM: Lydia Altick, Deputy City Manager

FINANCIAL IMPACT:

Yes: No: X

CURRENTLY BUDGETED:

Yes: X No:

FUND/ACCOUNT:

N/A

ACTION REQUESTED: Motion

AGENDA ITEM:

Discussion and possible action to approve a lease agreement between the Boys & Girls Club of Truckee Meadows and the City of Fernley for the lease of the Community Response & Resource Center.

AGENDA ITEM BRIEF:

The City of Fernley wishes to enter into a lease agreement with the Boys & Girls Club of Truckee Meadows (B&GC) for the lease and operations of the Community Response & Resource Center. The B&GC will occupy the CRRC and house all its Fernley operations from the location. The B&GC will oversee subletting the premises and the common area to the public on an at-will basis.

RECOMMENDED MOTION:

I move to approve the lease agreement with the Boys & Girls Club of Truckee Meadows for the lease of the Community Response & Resource Center.

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

The City Council may not approve a lease with the Boys & Girls Club.

BACKGROUND:

On August 6, 2025, City Council approved a contract amendment no.2 with Cumming Group for the extension of project management services to September 30, 2025. Services will cover managing the CRRC closeout and reconciliation, as well as the Boys & Girls Club playground.

On July 3, 2024, City Council approved directing staff to apply for an EDA grant of \$3,600,000.00 to fund the construction of the ELC at the CRRC campus. However, EDA did not approve the ELC for a grant.

On December 6, 2023, City Council approved the construction manager at risk (CMAR) contract with CORE Construction and revised the Guaranteed Maximum Price of \$17,765,798.00 for the construction of CRRC's Base Bid.

On November 15, 2023, City Council approved the Guaranteed Maximum Price not to exceed \$17,935,872.00 for the construction of CRRC's Base Bid.

On September 6, 2023, City Council approved the reallocation of \$3,577,592.80 in remaining ARPA funds to construct the CRRC's Base Bid.

On April 19, 2023, City Council approved the 50% Construction Documents for the Base Bid, Phase 1 (Alt A), and Phase 2 (Alt B) and voted to move forward with developing 100% Construction Documents for the CRRC's Base Bid.

On April 6, 2023, City Council approved Resolution 23-001 to commit a 5% local match for the Nevada Department of Transportation 2023 Transportation Alternatives Program Grant application for Multi-modal transportation improvements required for the CRRC project. Council also approved Resolution 23-002 to commit unassigned fund balance that is in excess of 8.3% of General Fund expenditures less capital outlay to fund construction of the CRRC.

On April 5, 2023, City Council directed staff to remove/relocate the Old School House building from the Fernley Depot property to make room for the CRRC project.

On March 15, 2023, City Council approved committing \$4,000,000.00 in City funds to construct CRRC's Base Bid.

On February 15, 2023, City council approved completion of Design Development and directed staff to progress Base Bid, Phase 1 (Alt A), and Phase 2 (Alt B) to 50% Construction Documents.

On October 5, 2022, City Council approved the contract between the City of Fernley and Resource Concepts, Inc. for environmental consulting services for the project.

On July 6, 2022, the City Council approved the CRRC's final schematic design and cost estimate.

On June 15, 2022, City Council approved the Lyon County and City of Fernley Subrecipient ARPA Agreement in the amount of \$300,000 for the construction of the Community Response & Resource Center. On April 14, 2022, at the Lyon County Board of Commissioners meeting, the CRRC Workgroup presented the project and requested ARPA funding. The Lyon County Board of Commissioners graciously awarded ARPA funds to the City of Fernley in the amount of \$350,000 for the CRRC project.

On May 23, 2021, the Lyon County Board of Commissioners revisited their ARPA allocations and reduced the amount to \$300,000 for the CRRC project. The City is currently in the process of approving the funding

agreement.

On June 15, 2022, City Council approved the Letter of Intent to a lease agreement between the Boys & Girls Club of Truckee Meadows to operate and maintain sections of the Community Response & Resource Center once constructed. This is in part due to the leadership, and the Boys & Girls Club experience of operating and maintaining facilities and programs, including five Boys & Girls Club afterschool and summer programs, thirteen school sites, four early learning centers, and seven teen centers. Under this agreement, the Boys and Girls Club would operate the day-care, afterschool programming, kitchen, cafeteria, gym, and meeting rooms. The letter of intent is critical to a funding source, the Nevada ARPA Child Care Extension Grant for the construction of the Community Response & Resource Center.

On February 16, 2022, City Council approved the contract for the Owners Representative Construction Manager as Agent contract with Cumming Management Group. This contract is to ensure there is a person/company who represents the City and focuses on evaluating the project from the City's perspective beginning at the earliest stages of planning and continuing through occupancy. At the same meeting, the Council also approved staff to enter into contract negotiations with the selected CMAR for reconstruction services for the CRRC.

City Council approved the programming and services that will be in the CRRC on January 19, 2022. The programming and services in the CRRC must be ARPA eligible because the City is using ARPA monies to fund the project. Staff identified the following ARPA eligible services and programs needed in our community in response to the public health crisis that will be in the Community Response & Resource Center: COVID-19 testing and vaccination site, workforce development services/programming, education assistance services, afterschool programming, and early childhood education.

On October 20, 2021, City Council approved the contract with TSK Architects for the architectural engineering services of the Community Response & Resource Center. The scope of work, among other items, included the Pre-Design Services/Concepts Update to determine the programming and services that will be housed in the CRRC and the completion of the final schematic design.

On August 4, 2021, Fernley City Council approved the American Rescue Plan Act spending plan which included \$12,000,000 for the development of a Community Response & Resource Center.

RELEVANT LAWS, STATUTES, AND REGULATIONS:

NRS 268.053, NRS 268.055, and NRS 82.02

FINANCIAL IMPLICATIONS:

The lease agreement is a "triple net lease," meaning the Boys and Girls Club would be responsible for operating, maintaining, and all utilities for the CRRC building. If the lease becomes voided, the City has allocated at least 60% of the revenue earned through the Transient Lodging Tax to the operations and maintenance of the CRRC. For fiscal year 2025-2026, the total amount allocated in the budget is \$333,600.

ATTACHMENTS:

None



CITY OF FERNLEY

City Council AGENDA REPORT

Meeting Date: August 20, 2025

REPORT TO: Mayor and City Council

REPORT FROM: Ana Navarro

FINANCIAL IMPACT:

Yes:x

No:

CURRENTLY BUDGETED:

Yes:

No: x

FUND/ACCOUNT:

NA

ACTION REQUESTED: Motion

AGENDA ITEM:

Possible Action: Authorization to Proceed with Design, Planning, and Prioritization of Recommended Improvements for the Fernley East Wastewater Treatment Plant (EWWTP) for a total cost of \$27.4 million (Phase 1,(2026): \$10.3 million, Phase 2 (2031): \$17.1 million) and accepting the presentation of Preliminary Engineering Report by Lumos & Associates.

AGENDA ITEM BRIEF:

The City of Fernley's East Wastewater Treatment Plant (EWWTP) requires critical upgrades to address aging infrastructure, improve system reliability, and ensure compliance with future regulatory requirements. Based on the findings of the April 2025 Preliminary Engineering Report (PER), the Utilities Department staff is requesting City Council authorization to proceed with planning and design of the recommended improvements, totaling \$27.4 million. The project will be completed in two phases: Phase 1 (\$10.3 million) will be completed in fiscal year 2026. The Utilities Department staff will return to the Council to request the additional \$17.1 million to complete Phase 2 during fiscal year 2027. Staff is also requesting acceptance of the final PER report.

RECOMMENDED MOTION:

"I accept the presentation and I move to approve authorization for the Utilities Department to proceed with the design, planning, and prioritization of recommended improvements for the Fernley East Wastewater Treatment Plant as outlined in the April 2025 Preliminary Engineering Report for a total cost of \$10.3 million in fiscal year 2026."

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

1. Approve staff's recommendation.
2. Decline to approve and provide alternative direction to staff.

BACKGROUND:

The Fernley East Wastewater Treatment Plant receives flow from over 125 miles of sewer lines and nine lift stations (two discharging directly). It includes lagoons, disinfection, aeration, RIBs, drying beds, and associated infrastructure. While the plant is in fair condition and meets current demand, it is expected to reach its capacity within 10 to 15 years. Operational concerns include declining aeration performance affecting ammonia removal, high chlorine use for disinfection, and the lack of a denitrification system, which may become a future regulatory requirement.

This Capital Improvement Project (CIP) was not included in the current fiscal year budget. However, after further review of system needs and project interdependencies, we have reorganized the CIP priorities. This project has been moved to the top of the list due to its critical importance to system reliability, operational efficiency, and alignment with regulatory requirement and infrastructure improvement goals. Prioritizing it now will help prevent more costly issues in the near future and support the long-term performance of the utility system.

RELEVANT LAWS, STATUTES, AND REGULATIONS:

- Nevada Administrative Code (NAC) Chapter 445A – Water Pollution Control
- Nevada Revised Statutes (NRS) Chapter 540A – Regional Water Planning
- Federal Clean Water Act (CWA)
- EPA Guidelines for Wastewater Infrastructure
- NDEP Discharge and Reuse Permit Requirements

FINANCIAL IMPLICATIONS:

The estimated total capital cost for the recommended improvements is approximately \$27.4 million spread over two fiscal years. Utilities Department staff will return to the Council for funding approval before the start of each project phase.

ATTACHMENTS:

1. 2025-03-20_Fernley EWWTP PER_Final
2. 8.1 Fernley EWWTP PER Presentation

City of Fernley

East Wastewater Treatment Plant

Preliminary Engineering Report

April 2025

Prepared For:



City of Fernley Public Works Department
595 Silver Lace Blvd.
Fernley, NV 89408

Prepared By:



308 N. Curry Street, Suite 200
Carson City, NV 89703
775 / 883-7077

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Certification

The technical material and data contained in the document were prepared under the supervision and direction of the undersigned professional engineer. The opinions contained in this document reflect Lumos & Associates' professional judgment in context with the scope of work and contract. The presented opinions are based on the conditions, information, and data provided to Lumos & Associates at the time the document was published and may be subject to change based on changing conditions, information, and data. Lumos & Associates did not verify independent information, conditions, and opinions supplied by others. There is no written or implied warranty or guarantee for any damages that occur from third-party use of this document.



06/19/25

Prepared under the Responsible Charge of
Jonathan Lesperance, P.E.

Authorization

The contract scope of work is summarized as follows:

- Task 1 – Preliminary Engineering Report

This document is the Preliminary Engineering Report (Task #1) for evaluation of wastewater system upgrade alternative.

List of Abbreviations

AACE	Advancement of Cost Engineering
ADWF	<i>Average Dry Weather Flow</i>
AGS	<i>Aerobic Granular Sludge</i>
AOC	Administrative Order of Consent
AOR	Actual Oxygen Requirement
ARI	Average Recurrence Interval
BOD	Biological Oxygen Demand
BWPC	Bureau of Water Pollution
CBOD	Carbonaceous Biological Oxygen Demand
CIP	Capital Improvement Project
DMR	<i>Discharge Monitoring Report</i>
DO	Dissolved Oxygen
EPA	Environmental Protection Agency
ERC	<i>Equivalent Residential Connections</i>
EWWTWP	East Wastewater Treatment Plant
FWMA	Fernley Wildlife Management Area
FY	Fiscal Year
gpd	gallons per day
GRI	<i>Geosynthetic Research Institute</i>
HRT	Hydraulic Residence Time
I&I	Inflow and Infiltration
I-80	Interstate 80
lb	pound
LCC	Life Cycle Cost
M	<i>million</i>
MGD	million gallons per day
MHI	Median Household Income
MLE	Modified Ludzack-Ettinger
MW	Monitoring Well
N	Nitrogen
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
PER	Preliminary Engineering Report
PH	Peak Hour
PHF	Peak Hour Flow
RIB	Rapid Infiltration Basin
SBR	<i>Sequencing Batch Reactors</i>
SMP	Sewer Master Plan
SSFM	sanitary sewer force main
TSS	Total Suspended Solids
USGS	United States Geological Survey
UV	Ultra Violet
UVT	Ultra Violet Transmittance

EXECUTIVE SUMMARY

The purpose of this Preliminary Engineering Report is to assess the City of Fernley's (City) East Wastewater Treatment Plant (Plant) for any existing or future limitations and make recommendations for projects that will address them, based on different alternatives. This report outlines the need to support future growth, ensure compliance with current effluent permit limits, and proactively plan for potential stricter regulations. It evaluates multiple project alternatives and recommends the most suitable project for the City's Plant, planning to 2040.

Section 1.0 Project Planning

Section 1.0 of this report describes general information about the City and Plant, including its environmental resources and population trends. The City currently serves approximately 6,644 residential and 355 non-residential wastewater customers. Wastewater is treated at the Plant and ultimately discharges to the Fernley Wildlife Management Area. The City has experienced rapid growth over the past two decades and the population is projected to continue growing as more developments are planned for buildout.

Section 2.0 Existing Facilities

Section 2.0 of this report reviews the existing Plant facilities, provides an assessment of their condition, and assesses the Plant's overall capacity. The Plant receives sewage from over 125 miles of collection infrastructure via nine (9) lift stations (only two of which discharge to the Plant directly). The plant is currently operating using an influent flow splitter, various wastewater treatment and equalization lagoons, a mixing weir structure, chlorine disinfection facility, cascade aerator, monitoring wells, Rapid Infiltration Basins), drying beds, and associated utilities and offsite headworks equipment. In general, the existing infrastructure is in fair condition and has adequate capacity to serve existing demand. However, the City is anticipating future growth that would exceed the current plant capacity in 10 to 15 years.

Currently, the Plant sufficiently removes BOD and TSS due to large storage volumes available in the lagoons, despite some aeration challenges. However, nitrification of ammonia has been decreasing. This is likely due to a decrease in aerator delivery of oxygen. The existing disinfection system removes fecal coliforms adequately via chlorination, though the expected efficiencies of operation are low due to high chlorine consumption. The existing Plant is not currently designed to facilitate denitrification, however there has been past regulatory interest in this from the Nevada Division of Environmental Protection.

Section 3.0 Need for Project

This section of the report summarizes findings from the previous sections to clearly state the need to upgrade the Plant. The Plant will require expansion to meet future growth projections expected to occur prior to 2040. Although the City received a new permit that will take effect on December 1, 2025, designing the plant to meet potential future effluent requirements would be prudent to ensure its long-term reliability. Additionally, this provides an opportunity to enhance the Plant's treatment mechanisms to allow it to meet potential future nitrogen limits that could be imposed on the Plant. Finally, the disinfection system will benefit from upgrades that reduce operation and maintenance costs for the City.

Section 4.0 Alternatives Considered

Based on the needs of the Plant, two categories of alternatives were investigated to upgrade the Plant: disinfection and primary/secondary treatment. The alternatives are presented in Table 1 and were evaluated in Section 4.0:

Table 1: Alternatives Evaluated

Disinfection Alternatives	Treatment Alternatives
1B - No Action: Existing Disinfection	1A - No Action: Treatment
2A - On Site Hypo	3A - Mechanical Treatment: Sequencing Batch Reactor
2B - UV Treatment	3B - Mechanical Treatment: Oxidation Ditch
	3C - Mechanical Treatment: Aerobic Granular Sludge
	4A - Lagoon Optimization: MLE
	4B - Lagoon Optimization: Side Stream
	4C - Lagoon Optimization: Extended Aeration
	4D - Lagoon Optimization: Partial Mix Aeration

Section 4.0 describes each project alternative and provides the design criteria, environmental impacts, land requirements, potential construction challenges, sustainability considerations, and a cost estimate for each project alternative.

Section 5.0 Selection of an Alternative

A life cycle analysis and benefit cost analysis were performed in this section of the report to evaluate and rank alternatives based on monetary and non-monetary assessment criteria. The alternatives for disinfection and treatment were evaluated to develop recommendations for each respective category. This assessment determined that installing an on-site sodium hypochlorite generation facility (Alternative 2A) is the preferred alternative for disinfection, and constructing a sequencing batch reactor plant (Alternative 3A) is the preferred alternative for treatment.

Section 6.0 Proposed Project

Based on the results of Section 5.0, this report recommends the construction of an on-site sodium hypochlorite generation facility and a sequencing batch reactor plant. Section 6.0 describes the proposed projects and provides an estimated budgetary cost and schedule. It is recommended that project implementation is phased, beginning with half of the full buildout sequencing batch reactor plant and the on-site hypochlorite facility. The second half of the sequencing batch reactor plant can be built when additional capacity is required for future expansion. Table 2 provides a summary of the recommended alternatives with potential schedule and capital costs.

Table 2: Recommended Projects

Category	Preferred Alternative	Construction Year	Capital Cost (\$)
Disinfection	2A - On-Site Chlorine	2026	\$791,000
Treatment Phase 1	3A - Mechanical Treatment: Sequencing Batch Reactor (half buildout)	2026	\$9,482,500
Treatment Phase 2	3A - Mechanical Treatment: Sequencing Batch Reactor (full buildout)	2031	\$17,068,500

Section 7.0 Conclusion

The existing Plant has historically met the effluent standards of the current discharge permit. However, emerging challenges in maintaining existing Plant equipment have resulted in limitations for achieving effective long-term treatment. The City has been taking appropriate action to maintain treatment effectiveness. However, under consideration of the Plant's ability to accommodate future growth and further permit updates this PER has become a necessary and proactive pursuit to equip the Plant for future needs. This PER recommends constructing an on-site chlorine generation facility and an SBR system at the Plant.

1.0 PROJECT PLANNING

1.1 Introduction

The City of Fernley (City) owns and operates the East Wastewater Treatment Plant (EWWTP or Plant), which is located in the northeastern part of the City. The EWWTP collects wastewater generated across the City via nine (9) lift stations, two (2) of which discharge directly to the Plant. EWWTP treats incoming wastewater to remove the contaminants listed in Table 2.5, prior to discharging the effluent to the Fernley Wildlife Management Area (FWMA). Facilities at the EWWTP currently include an influent flow splitter, various wastewater treatment and equalization lagoons, a mixing weir structure, chlorine disinfection facility, cascade aerator, monitoring wells (MW), Rapid Infiltration Basins (RIB), drying beds, and associated utilities and offsite headworks equipment. Appendix B provides photos of the existing Plant facilities.

In 2015 the Plant received a compliance inspection report from the Nevada Division of Environmental Protection (NDEP) Bureau of Water Pollution Control (BWPC) for their wastewater treatment system. The inspection report identified Nitrogen (N) exceedances in one of the MWs, resulting in an Administrative Order of Consent (AOC) to identify causes and resolutions. This resulted in the development of a Preliminary Engineering Report (PER) to identify Nitrogen mitigation in the MWs. As a result, one of the Plant's ponds was re-lined in 2020, resulting in decreasing Nitrogen levels in the MW's in 2021, and the AOC was closed out in 2022. In a separate report, Lumos & Associates determined that MW's 7 and 9 were misrepresenting the conditions of the aquifer and thus MW's 11, 12, and 13 were drilled. The new MWs show lower contaminant concentrations. Even with these positive steps, the City decided to proceed with the development of a PER for the EWWTP to plan for projected growth, address other Plant challenges, and prepare for potential future Nitrogen limits.

The Plant's discharge permit with NDEP BWPC (provided in Appendix A) expired on April 30, 2018. An updated discharge permit is coming into effect as of December 1, 2025. The updated permit and fact sheet are also provided in Appendix A. This permit proposes generally similar constituent permit limits as the previous permit. However, some constituents have stricter permit limits in the update.

The above factors, including growth, have led to the foundation of this PER. Specific Plant challenges, project needs, and alternatives to improve the Plant are described further in subsequent sections.

1.2 Location

The Plant is located at APN 021-201-24 on East Newlands Road within the City of Fernley, Lyon County, Nevada. As shown in Figure 1.1, the site is situated between Interstate 80 (I-80) and U.S. Route 50 Alternate, north of the FWMA. Wastewater generated through the City's service area is collected at nine (9) lift stations prior to being pumped to the Plant for treatment. The Plant's location with respect to the City's existing sewer system is provided in Appendix C, referenced from the 2024 Sewer Master Plan by Shaw Engineering.

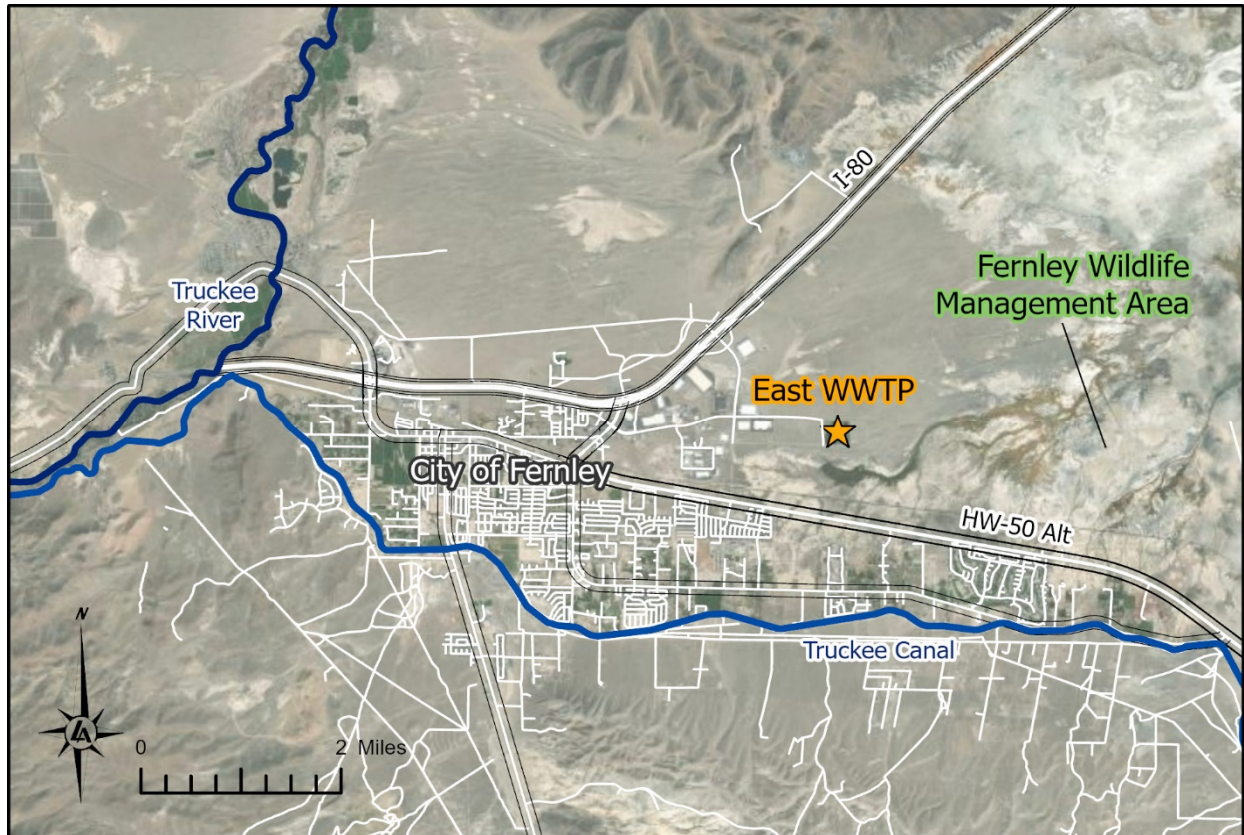


Figure 1.1: Project Area Vicinity Map

1.3 Environmental Resources Present

1.3.1 Surface Water

The EWWTP is located 9,800 feet north of the Truckee Canal, and several miles east of the Truckee River. The primary surface water resource in proximity to the Plant is the FWMA. The FWMA is a 13,000-acre network of wetlands and grassland that receives secondary treated, disinfected effluent from the Plant via permitted surface water discharge. The FWMA is home to various bird species and aquatic life and is open to the public for recreational activities such as hunting. The FWMA is part of the Goosneck-Fernley Sink, an inland terminus for surface water flows in this region [1]. The Plant is within Zone X of the National Flood Insurance Rate Maps, i.e. a zone of minimal flood hazard.

1.3.2 Groundwater

The EWWTP land is hydraulically connected to an aquifer that is situated beneath the aquitard [2]. The aquifer is monitored for contaminants across seven (7) dedicated MWs, however, the screened internals of the four (4) original MWs are located in the aquitard, which is an area of very low permeability that provides a false representation of the true aquifer below the Plant. These were the findings of a groundwater investigation issued by Lumos in 2021 (Appendix D). Three (3) new MWs, shown in Figure 1.2, were drilled deeper into the true aquifer, as verified by core sample lithologies collected during drilling, to more accurately capture the groundwater flow and contaminant trends. Based on MW data for the three (3) new wells, the aquifer flows northwest. On September 10th, 2015, an AOC was opened to investigate elevated Nitrogen levels

potentially linked to the Plant. The new wells, along with relining one of the Plant's ponds, remedied the suspected issues, and the AOC was closed out on November 2nd, 2022. AOC documents are provided in Appendix E. There are no domestic or municipal supply wells located within 300 feet of the Plant.

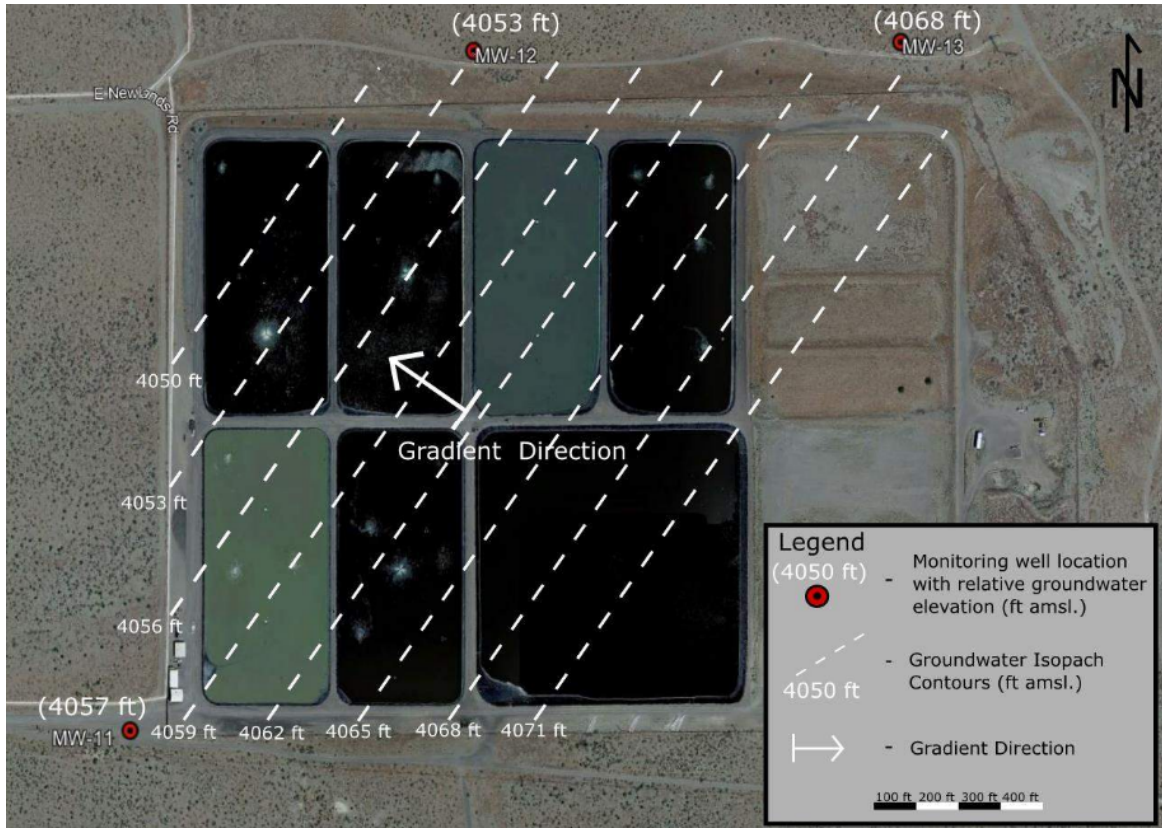
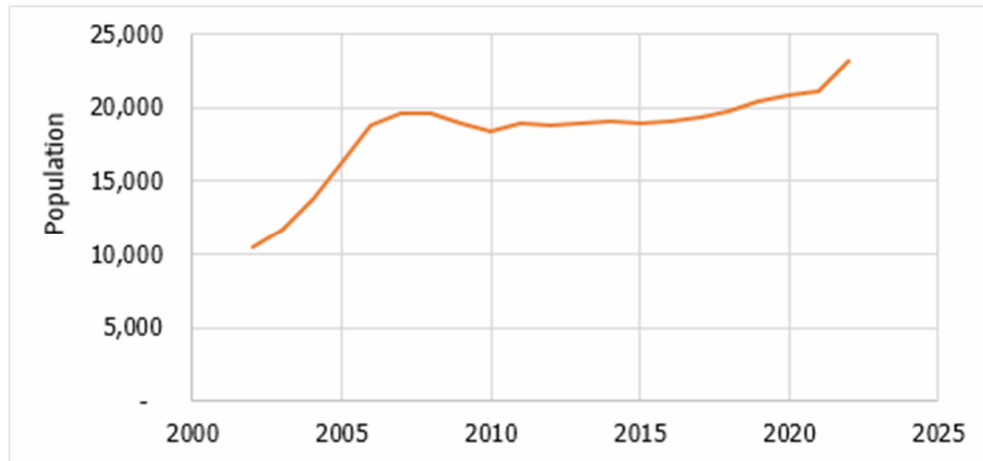


Figure 1.2: Aquifer flow direction [2]

1.4 Population Trends

In 2023, the City had a population of approximately 23,500 people. The City has experienced rapid growth over the past two decades, primarily due to residential growth in the area in the early 2000s, as shown in Figure 1.3. The population is expected to continue an upward trend as more commercial centers are developed in the Fernley area. Refer to Section 3.3 for anticipated population growth and sewage flow projections based on the 2024 Sewer Master Plan [3].

Figure 1.3: City of Fernley Historic Population Trends, 2002 – 2022



1.5 Community Engagement

The City is expected to adjust sewer rates and provide public notice within the community in November 2024. This is the primary form of community engagement the City expects to undertake in relation to this PER until a preferred alternative is selected and pursued through design and construction. Other forms of ongoing community engagement include City collaboration with large developers in the Fernley area. For example, developers that expect to contribute significant sewage flows to the City's wastewater network may be required to dedicate lift stations, screening, funds for treatment expansion, and piping infrastructure to the City's sewer system prior to discharging to the EWWTP.

2.0 EXISTING FACILITIES

2.1 Location Map

The EWWTP is located between I-80 and US 50-Alt in the City of Fernley, as shown in Figure 1.1. The Plant facilities occupy approximately 55 acres of land on a 78.9-acre City-owned parcel (APN 021-201-11). North and adjacent to the Plant is another City-owned parcel (APN 021-201-24), comprised of 81.6 acres of undeveloped land that is available to the Plant if needed. Figure 2.1 provides a schematic layout of the existing site facilities. A detailed map of the existing facilities, including discharge permit monitoring locations, is provided in Appendix F.



Figure 2.1: Schematic Site Layout

2.2 History

The Plant was built in 1986 and originally consisted of two (2) unlined ponds; Ponds 1 and 2. The Plant has undergone various improvements over the course of its serviceable life. These are listed below.

- **1988:** Ponds 1 and 2 were HDPE lined, seven (7) RIBs were constructed, and surface aerators were installed in Pond 1.
- **1997:** Construction of ponds 3A and 3B and surface aerators installed. Construction of influent splitter box and flow meter. Construction of FMWA outfall cascade aerator, piping, and meter. Surface aerators installed in pond 2. RIB's deactivated from service.
- **2005:** Construction and lining of ponds 4A and 4B and surface aerators installed, along with transfer piping and upgrades to outfall piping. Relocation and construction of a new chlorination facility.

- 2009: Pond 1 sludge removal. Re-grading pond 1 to be deeper and split into two (2) ponds (1A and 1B). Pond 1 relined. Grinder pump installed at influent splitter box.
- 2017: Construction of gravity flow filter beds (i.e. sludge drying beds) and associated piping and pumping infrastructure. Decommissioning of three (3) RIBs. Pumping infrastructure was installed to recirculate effluent from Pond 2 to Ponds 1A, 3A, and 4A.
- 2018: Pond 2 HDPE liner replaced and sludge removal.
- 2021: Three (3) new MW's constructed.
- 2024: Two (2) surface aerators replaced since 2023. Plans are underway for relining Pond 4A, depending on the outcome of this PER. The outcomes of this PER will be assessed by the city with Capital Improvement Projects (CIPs) identified to improve the Plant.

Characteristics and conditions of the existing treatment facilities and infrastructure are described further in the following sections.

2.3 Condition of Existing Facilities

2.3.1 Overall System Description

Wastewater generated within the City's service area flows to two (2) localized lift stations and the headworks facilities, undergoing preliminary treatment (grinding and screening) before being pumped to the EWWTP. Influent wastewater is then split equally between three (3) parallel treatment trains. Each treatment train consists of two (2) waste stabilization ponds in series or two 'cells' (i.e. 'A' and 'B'). Each cell is equipped with surface aerators to provide treatment via partial mix aeration. Secondary treated effluent from the ponds then recombines at a mixing weir. Effluent is then disinfected via chlorination before being discharged to the FWMA outfall structure. At the FWMA outfall, beneficial vegetation further removes nutrients like Nitrogen and phosphorus.

The EWWTP, which currently has a Plant Classification of III, is permitted by the BWPC to discharge secondary treated, disinfected effluent to the FWMA through a discharge permit (NS0080011) to support waterfowl propagation and wetland preservation. Alternatively, flow can be discharged to a series of presently inactive Rapid Infiltration Basins, or sludge drying beds. A schematic overview of the Plant's existing process flow is provided in Figure 2.2.

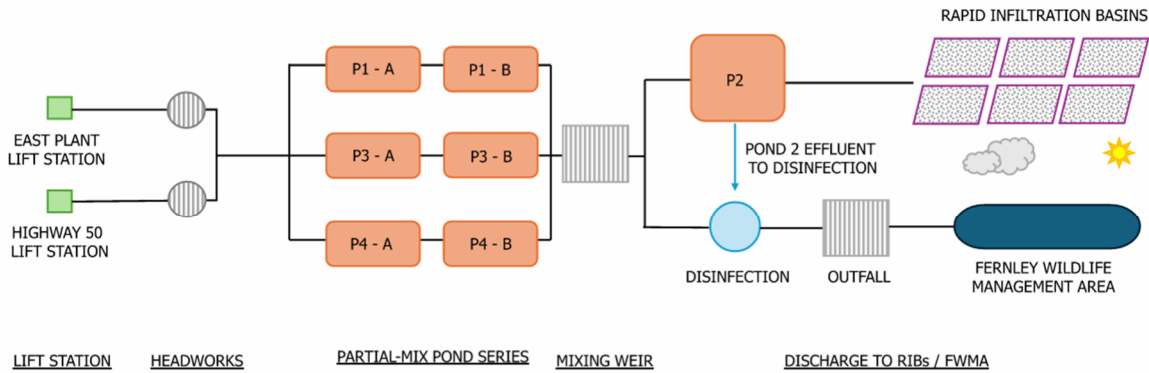


Figure 2.2: EWWTP Schematic Map

2.3.2 Lift Stations and Headworks

The Plant's two (2) contributing lift stations are the East Lift Station and the Highway 50 Lift Station. Each lift station is equipped with its own headworks facility. Wastewater is pumped from each lift station to the EWWTP via a 14-inch sanitary sewer force main (SSFM). The lift stations, headworks, and SSFM upstream of the EWWTP are not included within the scope of this PER, however, their function impacts the wastewater quality received by the Plant. Thus, each is described below.

East Lift Station and Headworks

The Plant receives approximately 80%¹ of its inflow from the East Lift Station. It is located approximately 0.5 miles west of the EWWTP. Preliminary treatment at the East Lift Station includes screening and grit removal. The screening facilities consist of a mechanical bar screen and a screening washer compactor with a grinder. The bar screen operates off differential level control. Grit removal includes a manual grit chamber. Wastewater flows can be bypassed around the screening and grit removal facilities directly into the wet well. The lift station pumps are controlled using level transducers in the wet well with float switches for secondary level control. The flow meter for the East Lift Station is located at the EWWTP site.

Highway 50 Lift Station and Headworks

The Plant receives approximately 20%² of its inflow from the Highway 50 Station. The Highway 50 Lift Station is located approximately 0.8 miles southeast of the EWWTP (north of Highway 50). Preliminary screening at the Highway 50 Lift Station includes the same mechanical bar screen and screening washer compactor as the East Lift Station. A bypass around the bar screen was constructed in 2015. The lift station pumps are controlled using level transducers. The flow meter for the Highway 50 Lift Station is located within the perimeter of the lift station site and a diesel-powered generator is located on-site for emergency power.

¹ As of inflow meter readings from November 2023 for both East Lift Station and Highway 50 Lift Station.

2.3.3 Waste Stabilization Ponds

Pond Characteristics

The EWWTP presently utilizes several waste stabilization ponds to treat City wastewater. The pond system consists of three (3) parallel treatment trains that each receive influent wastewater via a splitter box (Ponds 1, 3, and 4). Each Treatment train has two (2) partial-mix aerated (or aerated facultative) cells in series, Primary cells 'A' and Secondary cells 'B'. Secondary treated effluent from Ponds 1, 3, and 4 is recombined at a mixing weir before routing to disinfection or storage in Pond 2. Existing pond characteristics from Plant Record Drawings are tabulated in Table 2.1.

Table 2.1: Existing Pond Characteristics

Pond	L (ft)	W (ft)	Side Slope	Depth (ft)	Volume (MG)	Surface Area (ac)	No. Aerators	Total Power (hp)
1A	603	301	3:1	7	8.92	4.19	8	95
1B	603	301	3:1	7	8.92	4.19	7	70
2	648.5	622	11:1	5	13.10	8.45	0	0
3A	603	301	3:1	10.5	10.57	3.86	8	95
3B	603	301	3:1	10.5	10.57	3.86	7	70
4A	603	301	3:1	10.5	10.96	3.86	8	95
4B	603	301	3:1	10.5	10.96	3.86	7	70

HDPE Pond Liners:

Each pond is lined with 60 MIL HDPE. The eastern pond slopes are underlain with a 12-inch compacted base and geotextile fabric to prevent erosion from prevailing wind wave action. Liner ages and the latest sludge removal activities are summarized in Table 2.2. Inspection² of the pond liners showed them to be in good condition. A general guide for the design life of HDPE liners adhering to the Geosynthetic Research Institute (GRI) Test Method GM13 is 36 years [4]. Ponds' 3 and 4-liners may have another 10 years of design life before needing replacement.

² Site visit on July 28th, 2023 by Lumos.

Table 2.2: Liner Ages and Sludge Removal Dates.

Ponds	Liner Age (years)	Last Sludge Removal
1A/1B	14	2009
2	6	2018
3A/3B	25	No Record ²
4A/4B	28	Planned ¹
¹ Ponds 4A and 4B are slated for relining in the 2024-25 and 2025-26 financial years respectively, according to meetings with the City on May 9 th , 2024. Pond re-lining plans may be impacted by the outcomes of this PER. ² Pond re-lining plans will be dictated by the outcomes of this PER.		

Control Structures:

Each treatment train receives an equal portion of influent from the Plant's flow-splitter box, identified by NDEP as Outfall 001. The influent is metered upstream of the flow-splitter. Each treatment train can be isolated by boarding the weirs at the splitter box. There are no mechanical valves on the pond inlets. The meter and box are in fair condition but the boards require period replacement.

Effluent from each primary pond (A) is transferred to the respective secondary pond (B) via a gravity pipeline and a concrete structure with internal weir control. Effluent from all secondary ponds is recombined at a concrete mixing weir (identified as Outfall 02 by NDEP). Secondary clarified effluent is then discharged from the mixing weir structure to the disinfection facility. Effluent can also be diverted at the mixing weir to Pond 2 for storage through a hand-wheel-operated sluice gate.

Aeration:

Each treatment pond (ponds 1A/1B, 3A/3B, and 4A/4B) is equipped with seven (7) to eight (8) aspirating or turbo surface aerators. There are approximately 44 surface aerators within ponds 1, 3, and 4 in total. Pond 2 is occasionally equipped with five (5) additional surface aerators when active. The aerators are either manually operated (on/off) or on a timer. Aerator controls are located at the Plant's controls building. Local control boxes are located along the perimeter of the ponds. Electrical supply to the Plant is 3-phase, 460 Volts. Aerator operations are as follows:

- Winter: Under freezing conditions, aerators are run constantly to keep ice from forming in the ponds.
- Summer: Aerators are typically run on a timer for 8-9 hours at night and adjusted as needed based on daily dissolved oxygen (DO) readings in the ponds.
- O&M: Aerators are checked daily for proper operation and bi-annual maintenance includes greasing and lubing.

As of March 2025, only eleven (11) aerator units were in service³. The City is using internal funding to implement an aerator replacement program. Expected costs were quoted to the City up to \$25,000 per aerator unit (see Appendix G). As part of this program, fifteen (15) aerators

³ Per discussion on March 6, 2025 between the City of Fernley and Lumos.

may be replaced every year⁴. Fifteen (15) new units were ordered for the Plant in July 2023. Replacing the remaining 22 units is estimated to take two (2) years under this program.

Pond 2:

At the mixing weir, effluent can be diverted to disinfection or Pond 2 via a hand-wheel-operated sluice gate. Discharge from Pond 2 can be routed via a transfer structure to the RIBs or the disinfection facility. In the past, Pond 2 has previously been aerated or used to provide effluent with additional hydraulic retention time, however, it does not presently contribute to treatment, instead providing emergency or surplus storage. Updates completed in 2017 allow for secondary effluent to be recirculated to the primary ponds from Pond 2.

2.3.4 Disinfection

Disinfection of the EWWTP's effluent is done using chlorination. The chlorination facility (shown in Figure 2.3) receives effluent from Ponds 1, 3, and 4 via the mixing weir and/or from Pond 2. Facilities are described below:

Sodium Hypochlorite:

A 1,500-gallon Sodium hypochlorite (NaClO or chlorine) storage tank is located on a concrete pad in good condition, within a plastic containment tub. A 12.5% NaClO solution is ordered monthly to fill the tank (~15,000 lb). Chlorine is dripped into the outfall metering structure at a constant 2 gal/hr rate prior to discharge to the FWMA, to maintain a 0.5 mg/l residual. Chlorine consumption has seen the Plant using a full tank of solution every month⁵, which has incurred an ongoing financial burden. Disinfection performance is discussed in Section 2.4.5.

Metering Pump:

A single diaphragm-type metering pump is replaced annually as part of the Plant's O&M budget. It is inspected daily and is in good condition. There are no automated controls or alarms for the metering pump. Without an alarm to notify operators, pump failures or operational problems (e.g. pump losing suction) can only be detected during daily rounds. With only one chlorine pump in operation and without any alarms for immediate notification to operators, a pump failure may result in challenges in meeting effluent permit limits at the FMWA outfall.

⁴ According to the City, 9/13/2024

⁵ Based on monthly chlorine purchase orders from April 2023 to April 2024, provided in Appendix G.

Housing Structure:

Disinfection facilities are housed in a ventilated, locked wooden shed and are in good condition. A brick wall surrounds the housing structure and NaOCl tank. The facility is located on a 10 ft by 20 ft concrete slab. The facility is shown in Figure 2.3.



Figure 2.3: Chlorination Facilities

2.3.5 Discharge Outfalls

Cascade Aerator FMWA Outfall:

The EWWTP's main discharge is to the FWMA via a cascade aerator outfall, pictured in Figure 2.4. It is located downstream of the disinfection system, approximately 900 feet south of the ponds (see Appendix F). The FWMA outfall is identified in the discharge permit as Outfall 003, though it is metered upstream at the disinfection facility. From the outfall meter, treated effluent flows by gravity to the FWMA outfall structure via a ~1,000-foot long 14-inch and 18-inch diameter C900 pipeline within a 50-foot wide easement.

The FMWA outfall structure is comprised of a screened, rectangular concrete channel with a walk-over grate, followed by a series of concrete steps to induce turbulent flow for the mixing of effluent (i.e. cascade aerator), and a riprap apron at the downstream discharge. All components of the outfall appear to be in good condition and are functioning well.



a) Cascade Aerator to FMWA



b) Outfall Channel and Screen

Figure 2.4: EWWTP Outfall Structure

Rapid Infiltration Basins:

Four (4) RIBs are located east of the ponds (see Appendix F). The RIBs facilitate the permitted discharge of secondary treated effluent to groundwater as an alternative to the FWMA outfall. The RIBs are identified as Outfall 004 in the discharge permit. Each RIB is approximately 1.45 acres and receives effluent from Pond 2 via a 14-inch diameter pipeline and a series of individually valved laterals. The total RIB footprint is approximately 5.8 acres. Adjacent to the RIBs are a series of drying beds designated for sludge dewatering and drying. The drying beds replaced three (3) of the original RIBs that were decommissioned in 2017.

The RIBs have been inactive since 1998 except for a short period in 2006 during the FWMA outfall reconstruction. They are unmaintained and overgrown. The RIB valves are not routinely exercised which can potentially affect their operability. According to the discharge permit, no discharge monitoring is required for the RIBs unless they become active. RIBs are not critical to the EWWTP's operation. The City's⁶ stance is that the RIB footprint is expendable for potential Plant improvements.

2.3.6 Monitoring Wells

Seven (7) groundwater monitoring wells are monitored quarterly for Nitrogen levels per the NDEP discharge permit. They are identified in the discharge permit as Outfalls 05-11, corresponding to MW #7-13. An investigation into elevated Nitrogen levels detected in MW-7 and MW-9 prompted the opening of an AOC and investigation into the groundwater source. These wells, along with the other two original wells (MW-8 and MW-10) were found to not penetrate the aquifer

⁶ During a meeting on 11/02/2023 between the City of Fernley and Lumos, at the direction of Derek Starkey and Barry Williams.

effectively, instead representing a shallower aquitard where dispersion of groundwater is significantly reduced, according to the Monitoring Well Investigation Report (MW Report) in Appendix D [2]. The MW Report recommended that MW-7 through MW-10 be removed from the discharge permit. No elevated Nitrogen levels have been observed in the three (3) new MWs since their installation in 2021. The MW Report was accepted by NDEP on June 8th, 2021 and the AOC closed out on November 2nd 2022 (Appendix E), though this has not yet been reflected in the update of the discharge permit. No further action regarding the existing system performance is anticipated.

2.4 Plant Performance

2.4.1 System Performance Overview

Below is an overview of the existing waste stabilization ponds' general performance with regard to the variety of observed trends and influencing factors. Specific performance metrics for microbial kinetics, HRT, BOD and TSS removal, nitrification, and disinfection are provided in subsequent sections.

The Plant is currently designed to reduce organic pollutants (measured as biochemical oxygen demand (BOD)) and total suspended solids (TSS) via the six (6) partial mix aerated ponds, facilitated by a total of 48 surface aerator units. Incidental oxidation of ammonia also occurs within these aerated ponds as a result of aeration. Majority of the aerators are currently non-operational or break down due to maintenance challenges. Effective aeration within the ponds decreases as a result, and the ponds' microbes have less oxygen available to consume organics. This finding was corroborated by low calculated microbial activity within the ponds (see Section 2.4.1). Despite this, the ponds still see reasonably good BOD and TSS removal (see Section 2.4.5). It suggests that the ponds function as a facultative system instead of a partial mix aerated system when the aerators are not functioning.

The likely reason for the ponds' sustained BOD removal under a facultative system, is their relatively large theoretical Hydraulic Retention Time (HRT). A larger HRT provides increased contact time between organics and microbes, compensating for the lower microbial activity. It also provides more time for particles to settle out of the wastewater, lowering the effluent TSS. This is discussed further in Section 2.4.1. Should flows be increased to the Plant, however, the HRT will be reduced (assuming the ponds are not modified), and treatment effectiveness will decrease. The City would likely see more BOD permit exceedances occur. The City has proactively embarked on an aggressive aerator replacement program to replenish oxygen supplied to the ponds and re-establish existing partial-mix aerated conditions.

Incidental nitrification has also historically been achieved within the existing aerated ponds. Nitrification is the process by which ammonia (or ammonium) is oxidized in the presence of DO and converted to nitrate. It should be noted that the Plant is not presently designed to remove total nitrogen from the effluent (denitrification). An eventual effluent Nitrogen limit is anticipated by the City for future planning purposes, however is not currently in affect.

Following the trending decrease in aeration due to equipment issues, a steady decrease in nitrification has been observed at the FMWA outfall between 2018 to 2022. As a result, more ammonia is present in the Plant effluent. Ammonia is toxic to aquatic life and can lead to a eutrophic surface water environment. The presence of ammonia also affects chlorination efficacy, incurring a greater chlorine demand, which has been a financial point of significance for the Plant.

Should the ponds continue to not be efficiently aerated, nitrification will continue to decrease and impacts to the FMWA likely will become more evident. The aerator replacement program presently being implemented by the City will assist with maintaining nitrification within the ponds. Significant Plant modifications would need to occur for the system to facilitate denitrification.

2.4.2 Microbial Kinetics

The existing ponds are designed to perform as a partial-mix aerated system. A partial mix aerated system supplies DO to microbes in the ponds via surface aerator units, along with mixing, to support their breakdown of BOD. Despite most of the aerators being non-functional, the system still performs reasonably well with regard to BOD removal (see Section 2.4.5). Lumos assessed the ponds' microbial kinetics to understand the potential treatment mechanisms occurring within the ponds presently that might be contributing to the sustained BOD removal, despite the lack of active aeration. Microbial kinetics can indicate how well the bacteria in treatment ponds are breaking down BOD in the wastewater. The industry-accepted minimum reaction rate constant (k) for microbial activity is 0.276 /d at 20 °C for partial-mix aerated systems [5]. Where the calculated k value is above/below the industry standard, it can be concluded that the microbes are performing/underperforming respectively. The formula below represents microbial kinetics for BOD removal under a partial-mix model, expected to be representative of the Plant's intended design:

$$\frac{C_e}{C_0} = \frac{1}{[1 + (kt/n)]^n}$$

Where,

C_0 = Influent CBOD (mg/L)

C_e = Effluent CBOD (mg/L)

k = partial-mix first-order reaction rate constant at 20°C (/day)

t = total HRT for in-pond series (days)

n = number of ponds in series

For the EWWTP, there are two ponds in series (n) per treatment train. The total HRT for the Plant was calculated in a time series on the 2010-2022 Discharge Monitoring Report (DMR) mean monthly inflow rates and existing pond dimensions from Table 2.1. Influent and effluent Carbonaceous BOD (CBOD) data from the DMRs were also used in a time series for this analysis, to produce a monthly k-value series. Results are summarized below for both 20°C and 6°C⁷ wastewater temperatures and showed deteriorating microbial performance under the partial-mix model. The k-value time series is plotted in Figure 2.5. Calculations are provided in Appendix H. Kinetics were reassessed to account for potential short-circuiting occurring within the ponds, thus a decreased effective volume and lower HRT, but this did not result in significantly better kinetics. No significant seasonal trends were observed under this model.

⁷ Design criteria for winter conditions is 6°C based on EWWTP Record Drawings.

$$\begin{aligned}K_{20} &= 0.071 \text{ /day} \\K_6 &= 0.043 \text{ /day} \\k_{typ} &= 0.276 \text{ /day}\end{aligned}$$

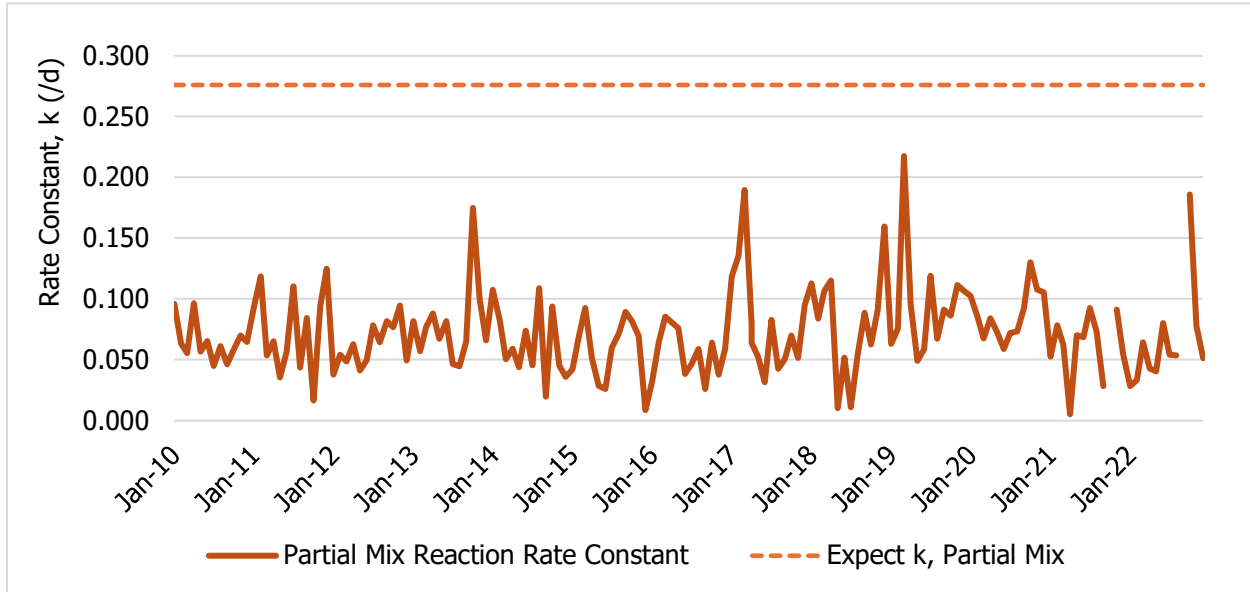


Figure 2.5: Partial Mix Microbial Kinetics

The Plant's BOD and TSS removal is performing well despite the observed microbial kinetics modeled in the ponds. This suggests that, with the aerators inactive, the ponds are functioning more effectively as a facultative system. Facultative ponds are not mechanically mixed but have a naturally occurring aerobic upper zone due to atmospheric contact, and an anaerobic lower zone. The suspected facultative function was modeled using a plug-flow kinetics equation [5]. Calculations followed a similar methodology as the partial-mix k calculation. Calculations are provided in Appendix H along with the plug-flow equation used.

The results are summarized below and plotted in Figure 2.6. As shown, the k_p values under this model are closer to the expected values than a partial-mix model, though the kinetics are still under-performing and the ponds are far from optimized. No significant seasonal trends were observed for the pond's kinetics. There is a very subtle increase in activity during spring and fall months, though this is likely due to influent BOD dilution from precipitation or skewed results from nuisance with individual shallower pond performances. The effects of HRT are discussed in Section 2.4.3.

$$\begin{aligned}K_{p-20} &= 0.134 \text{ /day} \\K_{p-6} &= 0.118 \text{ /day} \\k_{typ} &= 0.045\text{-}0.096 \text{ /day}\end{aligned}$$

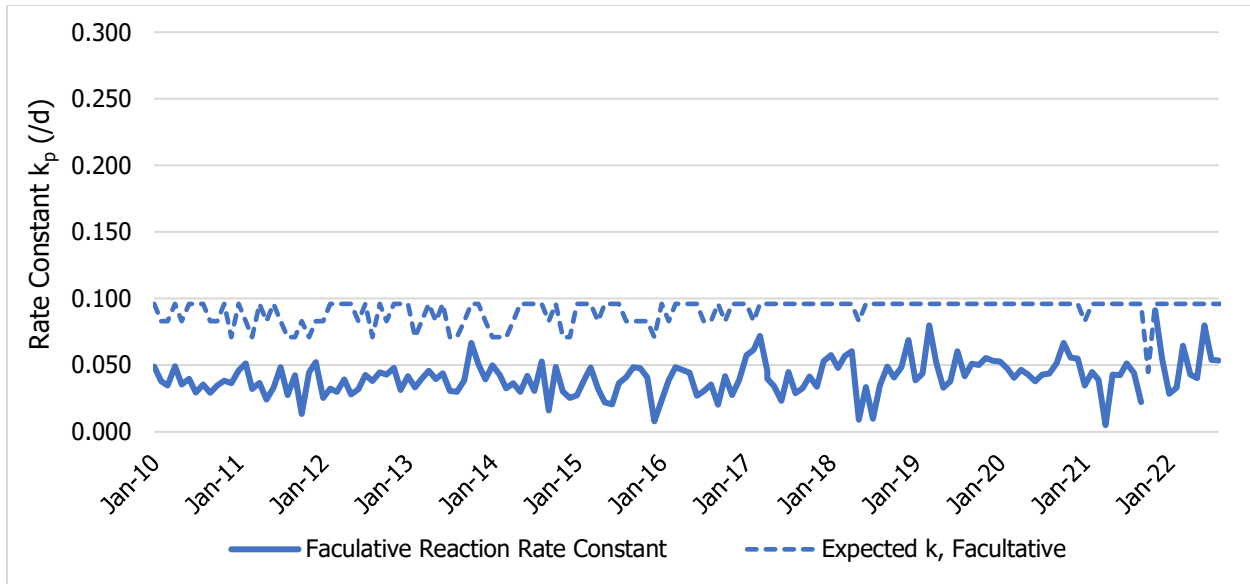


Figure 2.6: Facultative Microbial Kinetics

2.4.3 Hydraulic Retention Time

A likely contribution to the reasonable performance of the ponds is the relatively large theoretical HRT. A larger HRT increases the contact time between organics and microbes. This in turn might compensate for lower microbial activity. The HRT for the system was calculated as a time-series average for each pond based on existing pond volumes and monthly average influent flow data. The ponds within each treatment train are not equally sized but do receive equal inflows, thus their HRTs vary. Calculations and the HRT for each pond are provided in Appendix H. A summary of the results is provided below.

Plant HRT Average:

Individual Pond HRT Average = -24.1 days $\pm$ 3 days
Treatment Train HRT Average = 48.3 days $\pm$ 6 days

Typical Industry Guidance for HRT [6]:

Partial-Mix Aerated HRT = 20-40 days
Facultative HRT = 7-50 days

Should flows be increased to the Plant, the HRT will be reduced (assuming the ponds are not modified), and treatment effectiveness will decrease. The ponds' ability to manage reasonable BOD and TSS removal under a facultative condition (i.e. without aeration) will likely not continue. In addition, the buildup of sludge over time will decrease the ponds' available volume to facilitate this system, further risking the Plant's performance. This system should not be relied on for future BOD and TSS removal performance.

2.4.4 Plant Capacity

Inflow and Infiltration (I&I)

Monthly average precipitation data was extracted from various rain gages in proximity to the City of Fernley to analyze potential I&I. The precipitation data was collated with influent and effluent flow data from the 2010-2022 DMRs. While direct correlations between each time series were weak (0.02 to 0.34), time-averaged monthly data showed stronger correlations.

A strong correlation was found between monthly average effluent flows and precipitation (0.87). This correlation was thought to be indicative of seasonal evaporation occurring at the Plant. This is typical of lagoon systems and does not affect the analysis of the PER Alternatives.

Monthly average inflows correlated somewhat with monthly average precipitation (0.48). This potential relationship could indicate that I&I affects the sewers that discharge to the Plant, but the relationship is not strong enough to be conclusive. Anecdotal evidence⁸ from the City has also indicated that no significant I&I is seen at the Plant. I&I effects on the Plant have therefore been considered nominal with regard to the analysis of the PER Alternatives.

Existing Sewage Flows

Influent DMR flow data from 2010 to 2022 shows a steady increase in flows since 2011. This data is provided in Appendix I. Despite this increasing trend in flows, the Plant is operating well within its currently permitted limit of 3.05 million gallons per day (MGD). During 2022, the Plant's 90th percentile mean monthly flow was 1.45 MGD, and the maximum daily flow was 1.64 MGD.

Mean monthly flow data and maximum daily flow data from the 2018-2022 DMR period are charted in Figure 2.7 alongside the currently permitted Plant limit. As shown, maximum daily flows have only exceeded the Plant's permit limit twice in the last 5 years. Both occurrences were considered outlier data given that no other pond metrics displayed corresponding spikes. There are no significant seasonal trends in the data, though a slight decrease in flows tends to be observed through the summer months. The Plant has more than sufficient capacity to accept existing sewer flows.

⁸ Per meeting with City and Lumos on 11/02/2023

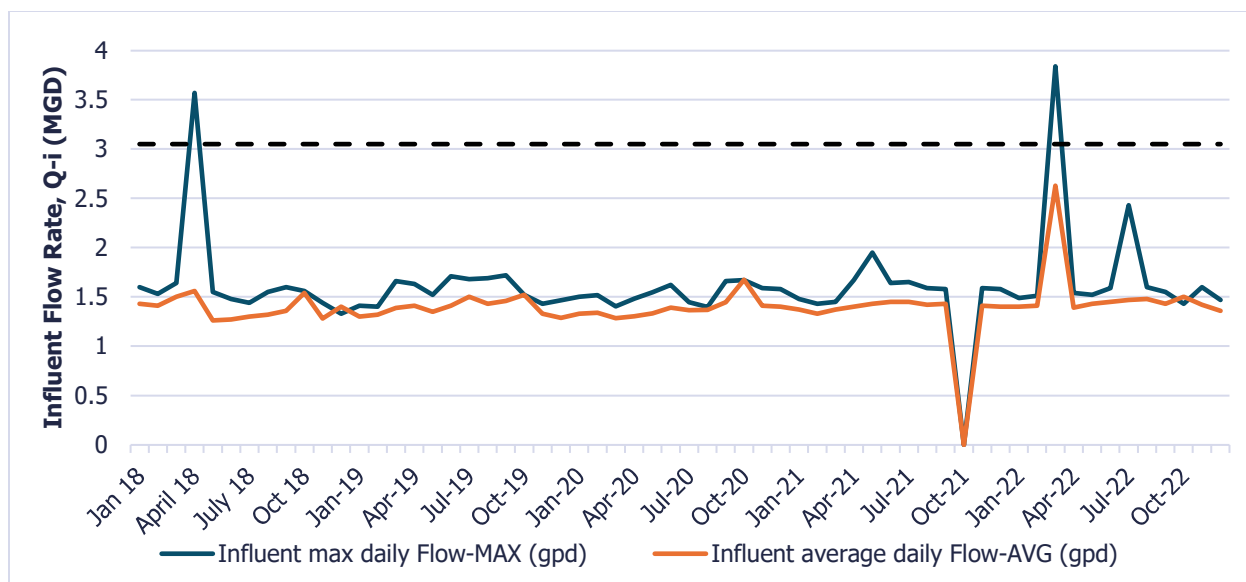


Figure 2.7: Influent Flow Rate, 2018 – 2022 DMR's

Projected Growth in Sewage Generation

The City is projecting significant growth to occur over the next 20-year planning period, according to the Sewer Master Plan (SMP) (Shaw Engineering, 2024) and the City's Comprehensive Master Plan [7]. This will result in increased sewage generation. Sewage generation projections estimated in the SMP are summarized in Table 2.3. The projected flows are based on Equivalent Residential Connections anticipated from various tentative and final map developments. The peak hour is based on a peaking factor of 2.4 (represented by daily flow data analyzed in the SMP.)

Table 2.3: Projected Sewage Generation Summary

Influent Wastewater Flows	Existing¹	Projected²	Unit
Plant Total Avg. Daily Dry Weather Flow (ADWF) ³	1.45	4.40	MGD
Plant Total Peak Hour (PH) Flow ⁴	3.50	10.58	MGD

¹ Based on 2022 DMR Data (with March 2022 outlier removed)
² Based on Sewer Master Plan (Shaw Engineering, 2024)
³ Governs pond treatment criteria
⁴ Governs storage capacity criteria

Given that all wastewater generated in this estimate is assumed to be treated by the City's EWWTP, the **projected ADWF for the Plant is 4.40 MGD**. This will serve as the design criteria for any future improvements and will result in a higher volume of wastewater routed through the lagoons.

Additional Storage Requirements

Three general criteria must be met when assessing the system's storage capacity *above* the prescribed maximum treatment depth/volume, as follows:

1. Peak Hour flow routing:
 - Project PH flows = 10.58 MGD per Table 2.3.

2. Storm runoff routing:

- Lagoons must be able to contain the 24-hour, 25-year average recurrence interval (ARI) storm event without release [5]. The 24-hour, 25-year ARI precipitation total is 1.74 inches (per Appendix H).
- They must also withstand damage from a 24-hour, 100-year ARI event (2.23 inches per Appendix H) such that the pre-storm pond contents are not breached.
- Based on the best available topographic data (1-meter resolution LiDAR from the United States Geological Survey (USGS)) for the Plant's surrounding area, and known berm and drainage features around the site, no existing drainage paths enter the site. The design storm therefore is applied to the pond surface areas only, as there is no upstream catchment runoff.

3. Flood conveyance:

- As discussed in Section 1.3, the site is not within an existing floodplain and therefore does not need to pass or manage floodplain flows.

Excess storage at the Plant is afforded by three (3) feet of freeboard for Ponds 1, 3, and 4 (above the treatment depth). Pond 2 is not included in PH flow routing estimates. The calculations provided in Appendix H demonstrate that each pond has the capacity to accommodate the 25-year and 100-year ARI storms in addition to the PH flow event, within the pond freeboards. Therefore, the existing ponds have sufficient storage capacity.

2.4.5 Key Constituents

Influent Wastewater Characteristics

DMR data from 2018 – 2022 (5-year assessment period) was analyzed to obtain the average and 90th percentile influent wastewater metrics in Table 2.4. This data sets the Plant's design criteria for all Alternatives analyzed in Section 4.0.

Table 2.4: Influent Wastewater Characteristics

Key Influent Constituent ¹	Average	90 th Percentile
TSS (Max Daily) ²	238 mg/l	310 mg/l
CBOD ₅ (Max Daily) ²	226 mg/l	300 mg/l
Fecal Col. (Max Daily) ³	1x10 ⁶ CFU/100mL	1x10 ⁸ CFU/100mL
Nitrogen ⁴	57 mg/l	67 mg/l
¹ 2018 – 2022 DMR 5-year assessment period ² No mean monthly influent data available, max daily DMR data only ³ No influent Coliform data available, assumptions based on Metcalf and Eddy Table 2-25. ⁴ Grab sample data from 2019, 2021, and 2022 DMRs		

Effluent Wastewater Characteristics

The below key constituents were analyzed from DMR data in the January 2018 – December 2022 period. This was intended to be consistent with the BWPC's assessment period and permitted effluent constituents for the updated discharge permit. All raw, formatted DMR data from 2010-2022 is available in Appendix I.

Table 2.5: Key Effluent Constituents

Key Constituents	Existing Discharge Permit		Discharge Permit Update	
	Permit Limit	Permit Exceedances	Future Permit Limit	Theoretical Exceedance
TSS (Max Daily)	90 mg/l	2%	65 mg/l	25%
TSS (Mean Monthly) ¹	N/A	N/A	45 mg/l	N/A
TSS (% Removal)	N/A	N/A	65%	13%
CBOD ₅ (Max Daily)	45 mg/l	19%	60 mg/l	14%
CBOD ₅ (Mean Monthly) ¹	N/A	N/A	40 mg/l	N/A
CBOD ₅ (% Removal)	N/A	N/A	65%	3%
Fecal Col. (Max Daily)	400 (CFU/100mL)	0% ²	240 ³ (CFU/100mL)	5% ²
Fecal Col. (Mean Monthly) ¹	N/A	N/A	23	N/A
Nitrogen* ⁴	N/A	N/A	N/A ⁴	N/A
¹ No existing mean monthly DMR data available for this analysis. Maximum daily data available only. ² Excludes outlier data points (Dec '19, Sept '21, Jan-Feb '22, April '22, Oct '22, Dec '22), due to known operator sampling errors per meeting with City on 03-17-2024. ³ Fecal Coliform permit limits reduced due to upgrade of effluent reuse at FWMA to Category C per NAC 445A.276. ⁴ Not within the updated discharge permit.				

The existing and updated permit limits for the constituents in Table 2.5 are plotted below for the 2018-2022 assessment period. No mean monthly data was available in the DMRs, thus only the maximum daily concentrations were displayed.

CBOD₅

As shown, the maximum daily CBOD₅ permit limit update has been relaxed and concentrations generally remain below the limit, though results are encroaching on it. It is not unreasonable to anticipate that mean monthly CBOD₅ concentrations will also be near the new limit of 40 mg/l. Though no mean monthly data is available to assess this possibility.

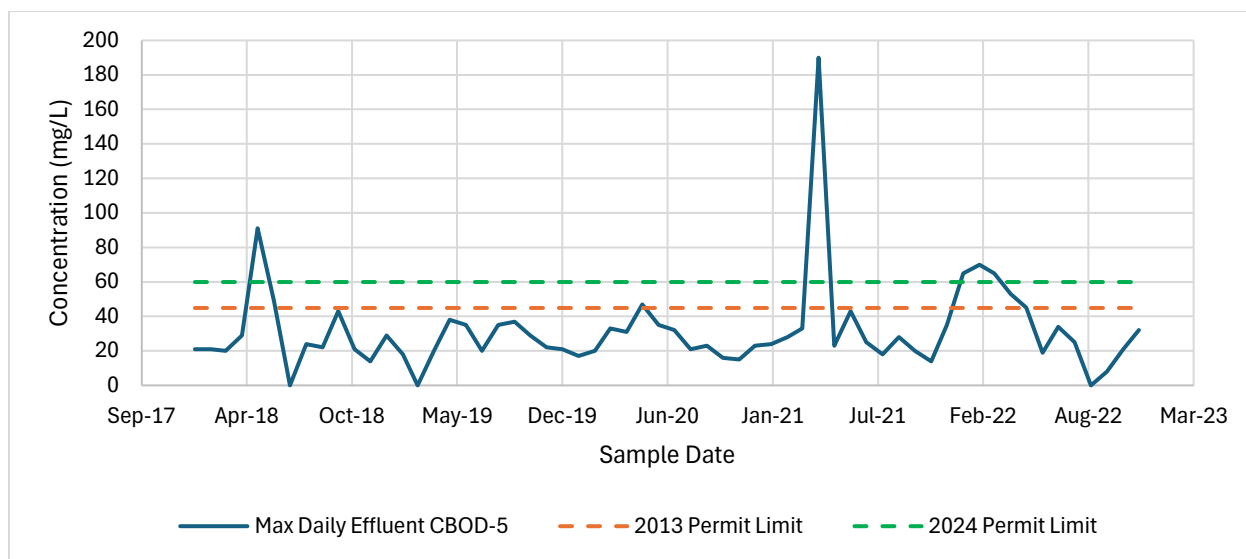


Figure 2.8: CBOD5 Permit Limits

TSS

Maximum daily TSS concentrations often fluctuate above and below the updated permit limit. It is reasonable to expect that mean monthly TSS data may exceed the new permit limit of 45 mg/l, though no mean monthly data is available to assess this possibility.

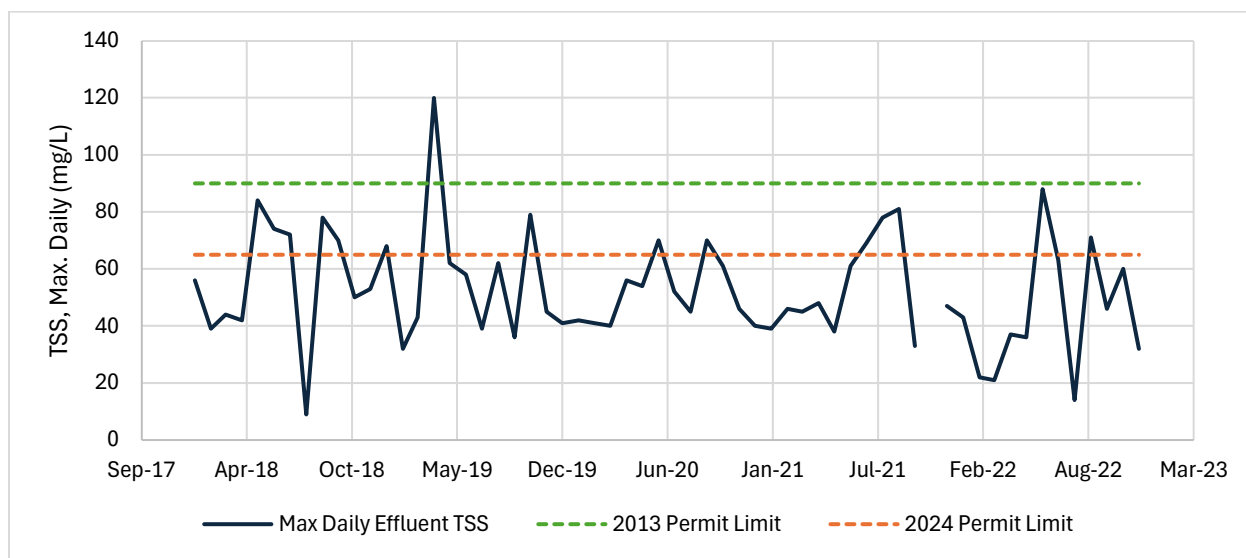


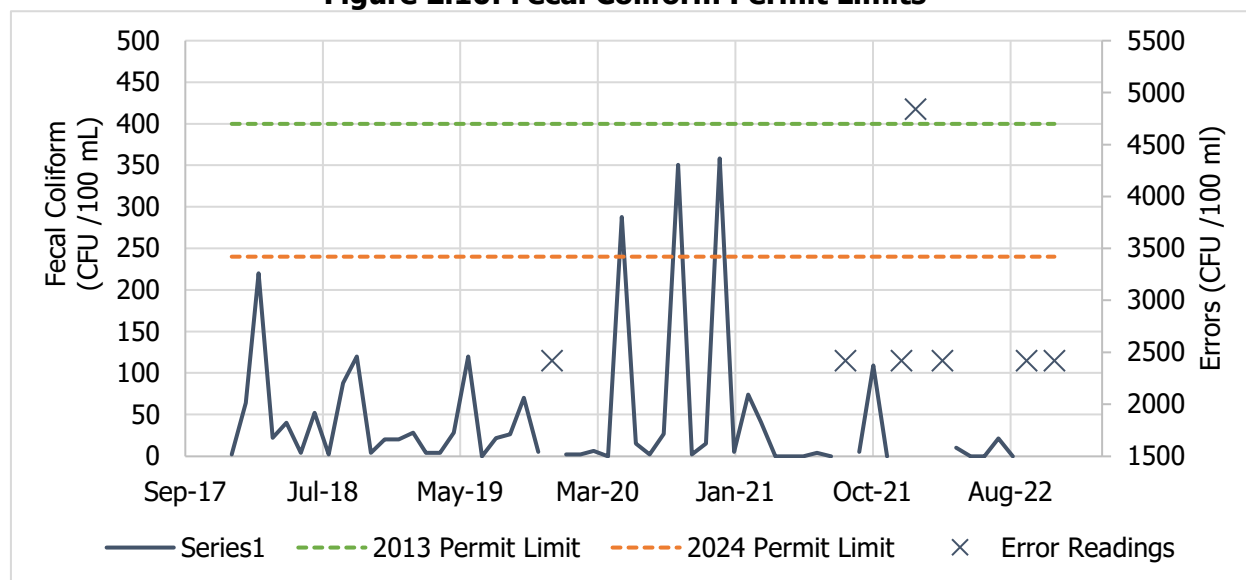
Figure 2.9: TSS Permit Limits

Fecal Coliform

Effluent from the Plant has been elevated to Category C from Category D per NAC 445A.276. This is commensurate with the outfall definition at FWMA being a wetland that humans may encounter. Category C reuse induces a lower permit limit for fecal coliform. During the 2018-2022 period, fecal coliform reading errors known to the Plant operators incurred outlier exceedances in Dec

'19, Sept '21, Jan-Feb '22, April '22, Oct '22, and Dec '22. Outliers were reportedly due to sample contamination. Beyond these outliers, the updated permit limit imposes a greater rate of exceedance. Given the Plant's high chlorinate consumption presents a challenge to the City presently, maintaining the updated coliform limit may become a continued challenge. It should be noted that some of the Plant's high chlorine consumption may be due to the decrease in nitrification of ammonia (see below). The presence of ammonia in effluent can impact the effectiveness of chlorination, thus demanding higher than usual dosing than the Plant anticipated.

Figure 2.10: Fecal Coliform Permit Limits



Nitrogen

No mean monthly influent/effluent Nitrogen data is available from the DMRs, however, effluent Nitrogen panels were obtained from monthly grab samples for nitrate, ammonia, phosphorus, and Nitrogen. The Plant's balance of effluent ammonia and nitrate is displayed in Figure 2.11.

The updated discharge permit does not currently impose an effluent nitrogen limit. However, a limit of 10 mg/l has been contemplated to form viable alternatives for any future introduction of a nitrogen-limit, per ongoing discussions with NDEP (Outfall #003). Conversion of ammonia to nitrate via nitrification is important, as it is toxic to aquatic species that may be present in the FWMA. The current permit does not limit Nitrogen at the outfall but does limit Nitrogen at the monitoring wells to 10 mg/l.

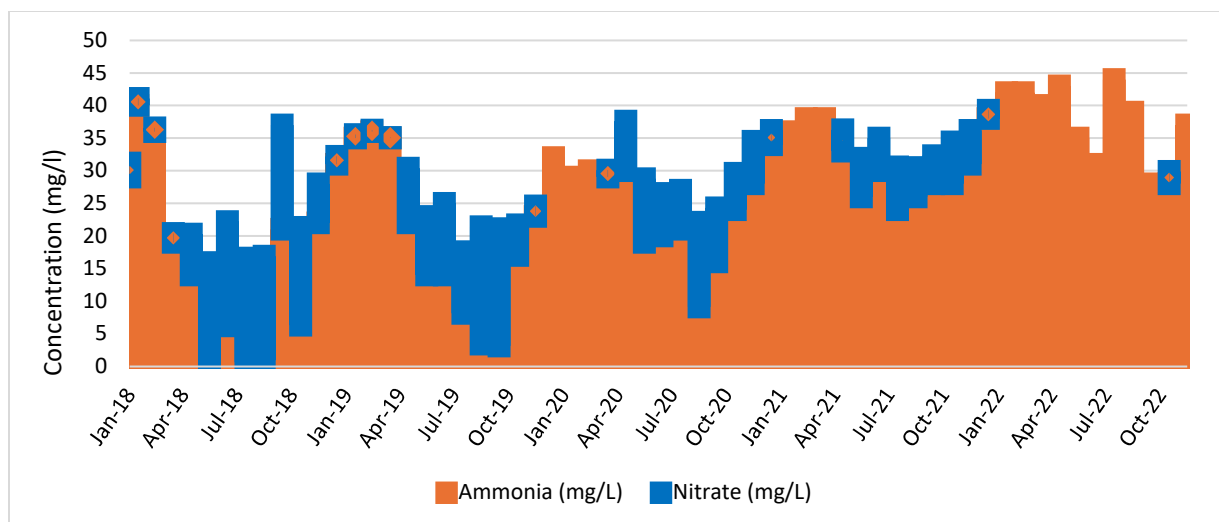


Figure 2.11: Nitrogen Permit Limits

As shown in Figure 2.11, the grab samples did not fall under the future Nitrogen limit of 10 mg/l. For nitrification to occur, ponds need to be aerated to provide sufficient DO to the bacteria that facilitate the process. The bacteria also require temperate conditions in the ponds. During summer months, nitrification therefore increases as temperature increases. Nitrification rates followed expected seasonal trends from 2018-2020, with better nitrification in the summer. However, nitrification dropped off in 2021, with nearly no nitrification occurring in 2022 according to the panels. This trend is seen in Figure 2.12. This sequence of events coincides with known aerator breakdowns. Given that nitrifying bacteria need sufficient DO to perform, the decrease in nitrification is likely due to the breakdown of DO delivered by the aerators. No significant observed denitrification occurs within the ponds presently. Denitrification requires different biological processes that are not presently facilitated by the Plant.

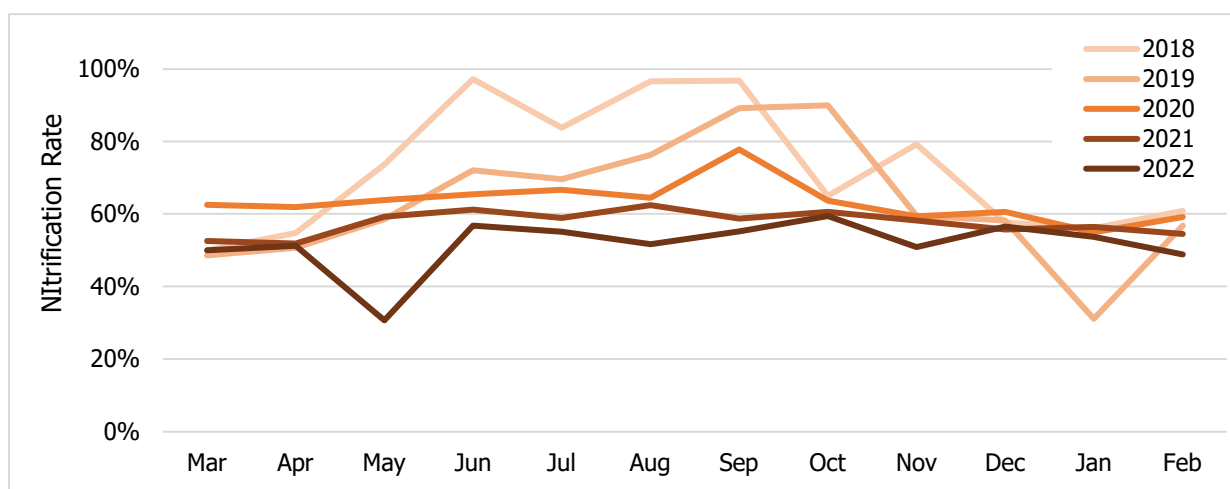


Figure 2.12: Nitrification

2.5 Financial Status of any Existing Facilities

2.5.1 Sewer Connection Rates and Users

The City's most recent wastewater rates study was performed in 2021 [8]. In 2021, the City provided service to approximately 7,000 total sewer connections in the City of Fernley service area [8], the majority of which are residential households. The Median Household Income (MHI) for the City in 2021 was \$77,701 based on the United States Census. A tabulation of sewer connections by user category is provided in Table 2.6. The current sewer rates schedule is provided in Table 2.7.

These wastewater rates were based on projected revenue requirements and anticipated CIP costs. The City is slated to update its sewer rates study in July 2024 and distribute changes to the community in November 2024.

Table 2.6: Sewer Connection Users

Category	Connections ¹
Residential	6,644
Commercial /Industrial	355
Total ¹	6,999
¹ Total connection count is from 2021 [8].	

Table 2.7: Current Sewer Rate Schedule

Land Use	Current
<u>Residential</u>	
Flat Monthly Charge Per Unit	\$39.25
<u>Non-Residential</u>	
Use Charge per 1000 Gallons	\$2.73
Industrial Charge per 1000 Gallons	\$1.74
<u>Flat Monthly Charger by Meter Size</u>	
¾"	\$66.04
1"	\$81.38
1.5"	\$130.90
2"	\$244.03
3"	\$630.78
4"	\$1,018
6"	\$1,627

2.5.2 Annual O&M Costs

The current annual sewer-related O&M costs for the City are presented in Table 2.8. These are from the 2023/2024 fiscal year (FY) report from the Sewer Enterprise Fund. Detailed information on the City's revenue and expenses for the 2023/2024 fiscal year is included in Appendix J.

Table 2.8: Annual O&M Costs

Expense Type	Total
Salaries	\$509,534.66
Employee Benefits	\$238,187.65
Service, Supplies	\$553,679.91
Depreciation Expense	\$-
Total	\$1,301,402.22

Electricity consumption in 2023 was approximately 408,000 kWh. Electrical costs, as part of the O&M costs, totaled approximately \$1,301,402.

2.5.3 Capital Improvement Program

The City includes depreciation in its wastewater rates to pay for the rehabilitation of existing assets and CIP projects. The wastewater rates that came into effect in 2017 were specifically designed to produce operating revenues greater than operating expenses to build up cash reserves for system rehabilitation [8]. This includes upgrades to the EWWTP. According to the 2021 Wastewater Rates Study (Table 21), CIP funding needs were planned for the Plant from 2022 through 2026 at a total of \$11.91 million (M). Projected cashflow in the study accounted for \$7.9M and \$7.4M in CIP expenditure for the City's wastewater network in 2023 and 2024 respectively. The 2024 SMP also prescribed two (2) potential CIP projects for pursuit by the City, pertaining to the outcomes of this PER. These are for general plant expansion, and mechanical treatment upgrades due to upgraded effluent reuse classification. The CIP program, along with the 2017 and 2021 rate studies, has positioned the City to move forward with recommended plant upgrades from this PER at their discretion. The City has also adjusted rates to proactively fund and replace essential Plant components.

2.5.4 Existing Debts

Existing debts are reportedly nominal for the Plant, according to the City⁹. This was confirmed upon review of the City's latest rates study and the Plant's 2023/2024 Fiscal Year (FY) balances. The updated rate study developed in July 2024 will highlight and account for any changes to debt that have not yet been captured in recent analyses.

2.6 Water/Energy/Waste Audits

Audits for water, energy, and waste were not conducted for this project. This section is not applicable.

⁹ Confirmed by the City on April 17th, 2024.

3.0 NEED FOR PROJECT

3.1 Health, Sanitation, and Security

The Plant is currently operating outside of its intended design function due to the majority of the ponds' surface aerators being out of service. New rates to pay for depreciation are now in place to cover the cost of aerator replacements. The lack of aeration in the ponds has led to reliance on their large HRT to reduce BOD and decreased nitrification of ammonia, leading to higher levels of ammonia entering the FWMA. Currently, the system is vulnerable to ineffective treatment performance without continued aeration and poses a risk to the FMWA receiving environment. Ammonia is toxic to aquatic life that is reliant on the FWMA for habitat. In addition, the potential for human contact with the FWMA via fishing and hunting could pass this toxicity on to humans.

The permit has also elevated effluent reuse to Category C from Category D (per NAC 445A.276), representative of a wetland (i.e. FMWA) that may expose humans to the treated effluent. At present, the Plant's configuration may not be able to consistently meet the more stringent Fecal Coliform targets mandated by Category C effluent.

Currently, BOD and TSS removal remain adequate, but the microbial health of the ponds is deteriorating. It is unlikely that effective removal will be maintained, particularly with anticipated Plant growth. (see Section 3.3). Should the Plant's performance drop with respect to BOD and TSS, this will pollute the FMWA with organics and put downstream aquatic life at risk.

3.2 Aging Infrastructure

The HDPE liners for ponds 3A, 3B, 4A, and 4B have not been replaced since their original installation. They are presently 25 to 28 years old (see Table 2.2) and at the end of their design life. The City is presently pursuing funding to replace the pond liners, however, a lining replacement project also involves dewatering and sludge removal, as well as taking the respective ponds offline during construction. If the lining projects go under construction, this is the City's best opportunity to modify and optimize their pond system, to minimize disruption to the Plant and maintain sufficient treatment.

As of November 2023, a majority of the ponds' aerator units were not in service. In January 2024, a program was initiated to replace the aerators, and the City purchased 15 new units in July 2024. Should the City choose to pursue treatment upgrades that no longer favor the use of surface aerators, they may wish to reallocate that program's spending towards other upgrades.

3.3 Reasonable Growth

Reasonable growth is expected to occur through a planning horizon of 2040, according to the 2024 SMP [3]. The SMP projected sewage generation to 2040 based on two methods; analyzing population trends from the City of Fernley Comprehensive Master Plan [9], and future Equivalent Residential Connections (ERCs) from tentative and final map developments. Per the 2024 SMP, infrastructure planning is recommended for 17,155 projected ERCs or an ADWF of 4.40 MGD. A peaking factor of 2.4 was applied to the ADWF to produce the Peak Hour (PH) flow, based on the sewer metering data trends [3]. The PH flow will only need to be accounted for in hydraulic handling, not treatment. The planned growth projections are summarized in Table 3.1.

Table 3.1: SMP Sewage Generation Projections

Flow Estimate	Total Future (MGD)
ADWF	4.40
PH Flow	10.58

The SMP projected growth estimate was verified by Lumos to ensure the Plant's DMR data trends were also represented. Lumos used a natural log-growth relationship to model 5-year rolling average maximum daily flow data from the 2010-2022 DMRs. This relationship was extrapolated to the 2040 planning horizon and one of the City's known major future developments¹⁰ projects sewer flows added, to produce an ADWF 3.9 MGD. Given that the SMP captured an even greater number of known future developments within the City, the SMP results were within the expected range of projected flows.

This projected flow rate for the Plant in 2040 is 4.40 MGD. The current discharge permit for the EWWTP only allow for an influent flow rate of 3.05 MGD. Furthermore, the Plant only sees about a third of this flow rate at present, which has afforded it to maintain a fair level of treatment despite its non-functional aerators. Should the City begin to see this growth in its metered sewer flows with the ponds in their current condition, treatment performance will decline.

¹⁰ Summary of Revisions Memo: Mark IV Sewer Report, issues February 23, 2024

4.0 ALTERNATIVES CONSIDERED

The following subsections describe the alternatives considered for improvements to the EWWTP, which were investigated to accommodate future growth and meet anticipated effluent permit limits. For each alternative, a general description is provided along with conceptual design criteria, budgetary costs, key O&M, and additional considerations. All budgetary costs presented are associated with the Advancement of Cost Engineering (ACE) definition of a Class 5 Estimate, i.e. for concept-level projects with a contingency of $\pm 30\%$. Conceptual design criteria for each alternative are in conformance with the Environmental Protection Agency (EPA), NDEP BWPC, Nevada Administrative Code (NAC), Standard Specifications for Public Works Construction, and standard engineering practice.

Section 5.0 assesses each alternative quantitatively and qualitatively for its suitability for implementation at the Plant. The outcome of this assessment provides an alternative(s) recommended as the proposed project. Section 6.0 further discusses the proposed project.

The alternatives presented in Figure 4.1 were developed for this PER in coordination with the City. The alternatives were designed to address the project needs identified in Section 3.0 for both disinfection and treatment processes. Treatment Alternatives 1A, 3, and 4 are evaluated against each other for the preferred treatment alternative. Alternatives 1B and 2 are evaluated against each other for the preferred disinfection alternative.

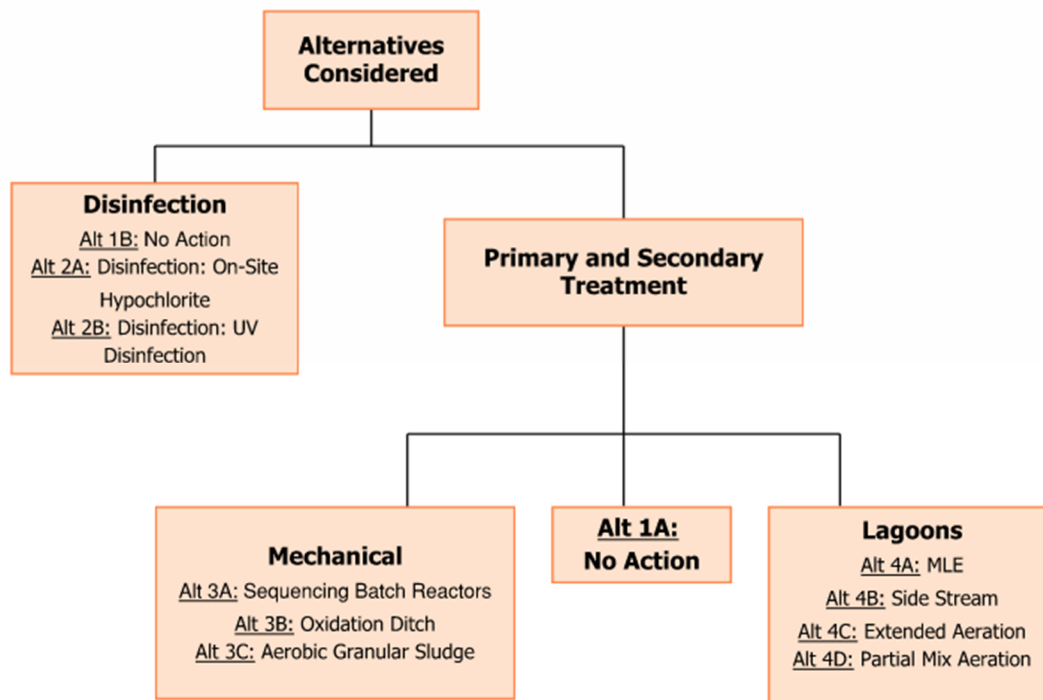


Figure 4.1: Summary of Alternatives

4.1 Alternative 1 – No Action

Alternative 1 presents options to make no alterations to the existing condition and operation of the disinfection and treatment systems, as follows:

- Alternative 1A – No Action: Treatment
- Alternative 1B – No Action: Existing Disinfection

Alternative 1A will be compared with Alternatives 3 and 4, while Alternative 1B will be compared with Alternative 2. The proposed project will consist of a combination of treatment and disinfection recommended alternatives.

4.1.1 Description

Alternative 1A – No Action: Treatment

The No Action Treatment alternative assumes that the EWWTP's pond system will remain in its current condition without additional improvements or modifications. Under this alternative, the City would continue to operate operating with many aerators offline as stated in Section 3.2. Although the ponds presently treat wastewater sufficiently under current flow conditions, projected growth flow conditions will make this alternative unviable (see Section 2.4.1). Increased flows to the Plant would reduce the available HRT that the ponds presently rely on when un-aerated. Treatment effectiveness would decrease as a result, and the ponds' ability to remove BOD and TSS under a facultative condition (i.e. without aeration) would likely not continue. In addition, the buildup of sludge over time will decrease the ponds' available volume to facilitate this system, further risking the Plant's performance. This system should not be relied on for future BOD and TSS removal performance.

Alternative 1B – No Action: Existing Disinfection

The No Action Disinfection alternative will result in the City continuing to import chlorine to the Plant for disinfection purposes. Ongoing bulk import costs were considered with this alternative alongside various projects that the City has slated to maintain the existing system. This includes installing an additional bulk storage tank for redundancy and building a new housing structure for the dosing equipment. Given that the Plant's historic effluent fecal coliform spikes were not system-related, there is no reason to assume that the existing system would not perform sufficiently if it is maintained. However, the City's concerns around the ongoing cost of chlorine import is a reason to investigate other disinfection alternatives in comparison to the existing system.

4.1.2 Design Criteria

Since the No Action alternatives propose no system or operational changes to the existing Plant, there is no requirement for design criteria for implementation.

4.1.3 Environmental Impacts

Impacts on the environment under the No Action alternative are described in Section 3.1. The potential effects of the current levels of BOD and ammonia entering the FWMA receiving environment pose major risks, as ammonia is toxic to aquatic life that is reliant on the FWMA for

habitat. In addition, the potential for human contact with the FWMA via fishing and hunting could pass this toxicity on to humans.

4.1.4 Land Requirements / Map

The existing Plant footprint, including the existing ponds and disinfection facilities, is shown in Appendix F. Since the No Action Alternative proposes no changes to the Plant, there are no land or right-of-way requirements for this alternative.

4.1.5 Potential Construction Issues

Alternative 1A – No Action: Treatment

Since this No Action alternative proposes no changes to the Plant treatment systems, construction is not applicable for this alternative.

Alternative 1B– No Action: Existing Disinfection

The City has several improvements planned to maintain and upgrade the existing disinfection system within the current O&M budget. Construction of an additional storage tank and shelter are slated for 2025, as well as expansion of the existing concrete pad. No construction issues are anticipated for these improvements to the Plant.

4.1.6 Operational Considerations

Alternative 1A – No Action: Treatment

Since this No Action alternative proposes no changes to the treatment system, there are no anticipated changes to operations.

Alternative 1B– No Action: Existing Disinfection

Since this No Action alternative proposes no improvement to the disinfection system, there are no anticipated changes to the Plant's current disinfection operations. Current operations require an ongoing import of chlorine to the Plant. According to invoices provided by the City¹¹ to Lumos, annual expenses for importing chlorine are as follows:

Annual Chlorine Cost¹³ = \$ 52,000 /year (2 significant figures (s.f.))

This is for the existing Plant flow rate at an ADWF = 1.45 MGD. Projecting the cost of imported chlorine out to treat the future anticipated ADWF of 4.40 MGD could triple import costs to approximately \$156,000 /year, however, some economies of scale may reduce this.

4.1.7 Sustainability Considerations

Alternative 1A – No Action: Treatment

¹¹ On April 17th 2024, monthly over the 2023 operating year.

Per Section 4.1.1, the existing pond system does not contemplate growth to the 2040 planning horizon, thus does not have capacity to meet future demands without re-establishing aeration or making other plant modifications. It is therefore not sustainable to rely on the existing pond system to meet future mandatory performance criteria.

Alternative 1B Description – No Action: Existing Disinfection

Continuing to bulk import chlorine to the Plant is a system already familiar to the current operators and requires little additional input to integrate into the disinfection system. It does, however, come with the risk of rising chemical costs that may be imposed in the future, and does not allow for redundancy in the system should chemical provisions become limited or prohibitively costly.

The design life of the various equipment components should also be considered. The metering pump is presently replaced annually.

4.1.8 Cost Estimate

The AACE Class 5 construction budgetary cost estimates for Alternative 1 are summarized in Table 4.1. Costs are strictly conceptual for comparison purposes. Estimated costs may differ significantly from actual construction costs. These costs reflect the engineer's impression of material, equipment, labor, etc. at the time of the estimate based on experience and judgment in applying presently available data. This estimate is based on 2023 dollars, and a 3% per year escalation should be factored in when developing actual project budgets throughout design development.

See Section 5.1 for Life Cycle costs, and Appendix K for a breakdown of construction costs.

Table 4.1: Construction Budgetary Cost Estimate for Alternative 1

Alternative	Budgetary Cost Estimate
1A – No Action: Primary and Secondary Treatment	\$ 0 ¹
1B – No Action: Disinfection	\$381,200
¹ Given that this alternative is not considered viable for the future goals of the Plant, no costs were estimated.	

4.2 Alternative 2 – Disinfection System

Alternative 2 presents options to modify the disinfection process to reduce ongoing O&M costs at the Plant. Alternative 2 includes the following:

- Alternative 2A – On-Site Sodium Hypochlorite (chlorine) Generation
- Alternative 2B – Ultra-Violet (UV) Treatment

These disinfection alternatives will be compared to the existing disinfection system presented as Alternative 1B (Section 4.1). The selected disinfection alternative will become part of the Plant's overall recommended alternative, presented in Section 6.0.

4.2.1 Description

Alternative 2A – Disinfection: On-Site Hypo

Alternative 2A will result in the City continuing to disinfect Plant effluent via chlorination while generating its own chlorine solution instead of continuing to bulk-import it. An on-site sodium hypochlorite generation system produces a chlorine solution by electrolyzing a salt solution. For this alternative, salt (NaCl) would be imported to the Plant and dissolved in water to create a brine, which is then passed through an electrolyzer to form NaOCl and hydrogen gas. The resulting solution is used for disinfection in water treatment, cleaning, or industrial processes. This method is cost-effective, safer, and reduces the need to store or transport hazardous chemicals.

The scope for this option includes the following:

- On-site hypo generation equipment for a ~1% solution
- Two (2) chemical storage tanks at 3,000 gallons each, totaling one (1) week's worth of bulk product storage
- One (1) 400-gallon bulk storage and import of salt at 3.0 lb per lb of chlorine equivalent produced
- Replacement concrete pad estimated at 30 SF x 30 SF
- Replacement housing structure

Alternative 2B – Disinfection: UV Treatment

Alternative 2B will result in the Plant converting to a UV disinfection facility and decommissioning the existing chlorine disinfection facility. UV treatment systems can either be provided in an open channel configuration or in closed, pressurized vessels. Under this alternative, UV treatment for the EWWTP is proposed as a concrete open-channel configuration. This is typical where the footprint is not a limiting consideration and is generally preferred for easier maintenance compared to a closed-vessel system. The general scope for this alternative includes the following:

- UV lamps and associated electrical and controls Concrete cast-in-place channels. One (1) channel for current flows, replicated or retrofitted with additional lamps to accommodate growth
- Housing structure and concrete pad

4.2.2 Design Criteria

Alternative 2A – On-Site Hypo:

On-site chlorine generation systems utilize electrolysis to convert salt and water into a chlorine solution with a typical concentration of 0.8% to 1%. To enable comparison of this alternative to the existing disinfection system, the proposed system demand was assumed to be equal to the Plant's existing demand⁶ for chlorine equivalence, as follows:

- Approximately 1,500 gal/mo bulk 12.5% sodium hypochlorite solution (or ~15,000 lb/mo)
- 188 gal/mo sodium hypochlorite equivalence

The actual chlorine demand will differ if other treatment improvements are implemented at the Plant under Alternatives 3 and 4. Treatment improvements that increase nitrification of ammonia may lower the chlorine demand. Additionally, future growth is projected to increase chlorine demand by approximately triple. For the assessment of this alternative against the existing disinfection system, the existing demand was assumed. The resultant system criteria for this alternative are as follows:

- Approximately 52 lb/day of chlorine equivalence at existing system demands.
- Salt supply = 3 lb/lb of bulk solution produced
- At least one (1) month's supply of salt stored on site (approximately 400 gallons)
- At least two (2) week's supply of 0.8-1.0% bulk solution (end-product) stored on site (approximately 6,000 gallons)

Alternative 2B – UV Treatment:

The effectiveness of UV treatment depends highly on the effluent's Ultra-Violet Transmittance (UVT). The Plant's effluent currently sees about 30% UVT¹² downstream of the mixing weir, before disinfection. This is not unexpected for a lagoon system, though is low with respect to industry norms for implementing UV treatment. UV treatment is typically only implemented for lagoon systems where tertiary media or membrane filtration is included downstream of the lagoon prior to disinfection, or at mechanical treatment plants that offer a higher level of treatment and resulting higher UVT. A minimum UVT can be assumed as 55% for such systems [10]. Given that the disinfection alternatives are being assessed independently of the general treatment alternatives, it is assumed that the Plant's UVT is improved to at least 50% for analysis of UV treatment's viability.

Alternative 2A – On-Site Hypo:

The proposed facility can be accommodated within the same general footprint as the existing chlorine disinfection facility, with some expansion of the concrete pad for an additional storage tank. Under this alternative, the Plant may continue to utilize the existing chlorine dosing system, with the addition of the electrolysis equipment and two (2) additional tanks. Little to no additional modifications would be needed to route effluent from the disinfection facility to the FMWA outfall under this alternative.

Alternative 2B – UV Treatment:

The concrete channel(s) that will accommodate UV treatment is expected to be installed within the same general footprint as the existing chlorine disinfection facility, or adjacent to it. There are no significant footprint limitations if the channel configuration is optimized. Little modification for routing effluent from the disinfection facility to the FMWA outfall will be required. According to the City⁷, the existing RIBs are also sacrificial to any CIPs that result from this PER and could be an alternative area for a UV treatment facility. A conceptual layout is mapped in Appendix M. Preliminary sizing of the concrete channels for UV treatment is as follows:

¹² Data averaged across six (6) discrete samples collected by EWWTP staff in April and May 2024, tested using a calibrated benchtop UVT analyzer.

- UV Channel Footprint: Current ADWF (1.45 MGD)
 - 19 ft long x 3.5 ft wide x 8.5 ft tall
 - = 65 SF
- UV Channel Footprint: Future ADWF (4.40 MGD)
 - 24 ft long x 3.5 ft wide x 8.5 ft tall
 - = 88 SF

4.2.3 Land Requirements / Map

The footprint of all disinfection alternatives is small in comparison to the available land at the Plant. All proposed infrastructure in these alternatives is expected to fit within the general area of the existing disinfection facility. As such, no land acquisition or easements will be required. A conceptual layout of each of the disinfection alternatives is provided in Appendix M

4.2.4 Environmental Impacts

Improving the disinfection process will improve environmental impacts seen at the Plant outfall at the FMWA. New disinfection equipment or facilities would be built over already disturbed land within the EWWTP.

4.2.5 Potential Construction Issues

Alternative 2A – On-Site Hypo:

Alternative 2A proposes to maintain the use of the existing disinfection facility with the addition of two (2) new storage tanks, expansion of the existing concrete pad, potential replacement of the existing shelter structure, and new electrical/controls. There are no construction issues anticipated for this alternative.

Alternative 2B – UV Treatment:

Alternative 2B proposes to replace the existing disinfection facility with an open-channel UV disinfection facility. While the proposed UV facility is similar in size to the current disinfection facility, a plan must be developed to ensure that disinfection continues during the construction phase. Additionally, during design it will be necessary to optimize the concrete channels to maintain gravity flow through the treatment plant to the existing outfall, thus avoiding the need for pumping facilities.

4.2.6 Operational Considerations

Alternative 2A – On-Site Hypo:

Alternative 2A would provide a consistent, on-demand supply of chlorine to the Plant, improving reliability and operational efficiency. A regular bulk supply of salt will be critical to system operations. Operational redundancy can be provided to the system through bulk storage of salt (recommended at minimum one (1) month's supply) and of the finished chlorine solution (recommended at least two (2) weeks supply).

Electrical consumption for this system is estimated at 1.8 kWh / lb of solution produced, or approximately 45,000 kWh annually assuming a 24-hour system operating time.

No additional operator certification is anticipated for this alternative.

Alternative 2B – UV Treatment:

Electrical consumption is one of the greatest considerations for implementing a UV treatment system, especially given the Plant's relatively low UVT. Based on the assumption of improved UVT to 50%, this system is estimated to consume 16 kWh / day, or approximately 140,000 kWh annually assuming a 24-hour system operating time.

Another key consideration is the almost annual (~1.5 yr) replacement of UV lamps required, and regular cleaning (3-6 months) needed to maintain effective light penetration for the system. Finally, it is important to note that UV treatment is considered a tertiary treatment per NAC 445A.289. Operators are required to hold a Classification IV certification to operate tertiary treatment systems, such as a UV facility, for flows between 1.1 to 5.0 MGD [11].

4.2.7 Sustainability Considerations

Alternative 2A – On-Site Hypo:

Alternative 2B provides the ability to generate chlorine on an as-needed basis, minimizing the potential for waste and overproduction. It also reduces the need for transporting and storing hazardous chemicals per the existing bulk-import system, thus lowering carbon emissions and environmental risks.

Alternative 2B – UV Treatment:

Implementing UV treatment would reduce the potential for disinfection byproducts to be released into the FWMA that would otherwise be associated with chlorination. This would benefit the FMWA, considering the large amounts of birds and other wildlife that inhabit the area.

4.2.8 Cost Estimate

The AACE Class 5 construction budgetary cost estimates for Alternative 2 are provided in Table 4.2. Costs are strictly conceptual and are based on equivalent systems to the existing disinfection system, as opposed to future projected demands, for comparison purposes. Estimated costs may differ significantly from actual construction costs. These costs reflect the engineer's impression of material, equipment, labor, etc. at the time of the estimate based on experience and judgment in applying presently available data. This estimate is based on 2023 dollars, and a 3% per year escalation should be factored in when developing actual project budgets.

See Section 5.1 for Life Cycle costs, and Appendix K for a breakdown of construction costs for each of these alternatives. General cost items and assumptions for the disinfection alternatives are also provided below.

- Design and Permitting 10%
- Construction Administration 10%
- Electrical and Controls 20%
- Contingency 35%

Table 4.2: Construction Budgetary Cost Estimate for Alternative 2

Alternative	Budgetary Cost Estimate¹
2A – On-site Hypo	\$791,000
2B – UV Treatment	\$876,000
¹ Costs are for design, supply, and installation of materials specific to each sub-option.	

4.3 Alternative 3 – Mechanical Treatment

Alternative 3 proposes to convert the primary and secondary treatment mechanisms from a lagoon system to a fully mechanical treatment facility. The following potential systems are proposed:

- Alternative 3A– Mechanical Treatment: Sequencing Batch Reactor
- Alternative 3B– Mechanical Treatment: Oxidation Ditch
- Alternative 3C– Mechanical Treatment: Aerobic Granular Sludge

The above systems were chosen based on a preliminary assessment of proposed plant flow rates and discussions with equipment vendors about plant optimization and efficiencies.

4.3.1 Description

The proposed mechanical processes consist of primary and secondary treatment utilizing activated sludge processes. These alternatives all have the capability to reduce BOD and TSS, and can facilitate Activated Sludge to reduce total nitrogen, should this become a requirement in the future. These alternatives will be paired with the recommended alternative for downstream disinfection under the recommended project. Several equipment and system proposals were assessed at a cursory level to determine the most viable basis of design for the construction of concrete reactors and clarifiers, supplementary pumping and piping, and electricity consumption. As a result, the following alternative systems were proposed.

Alternative 3A– Mechanical Treatment: Sequencing Batch Reactor

A Sequencing Batch Reactor (SBR) operates through a series of controlled batch processes within a single reactor tank, incorporating both mechanical and biological treatment stages. The system includes a concrete reactor tank, a mechanical aeration/mixing system, solids handling equipment, integrated piping and pumping, and controls and instrumentation. An SBR operates in distinct phases: fill, react, settle, decant, and return/discharge. During the fill phase, wastewater enters the tank, leading to a reaction where aeration and mixing promote BNR to break down pollutants. The mixed liquor then settles and separates into treated water and accumulated sludge. Finally, the clarified effluent is drawn off for discharge or further disinfection. Sludge is returned to the batch reactor or is wasted externally. No external secondary clarifier is required for an SBR.

Alternative 3B– Mechanical Treatment: Oxidation Ditch

An oxidation ditch is a large, open, oval reactor with internally configured channels that offer extended aeration time and contain different treatment zones and associated equipment. Mechanical aerators or diffusers provide consistent oxygen supply and mixing, facilitating the

breakdown of organic matter by the active microbial population. Wastewater is circulated through the channels where prolonged contact between effluent and microorganisms occurs. Treated effluent discharges from the oxidation ditch into an external secondary clarifier where sludge is settled out of the system and separated, ensuring clarified discharge is sent to disinfection, and providing a concentrated return activated sludge to be pumped back the front to the plant. Additional piping pumping to/from the system will be required, as well as controls and electrical upgrades.

Alternative 3C– Mechanical Treatment: Aerobic Granular Sludge

Aerobic Granular Sludge (AGS) employs specially cultivated granular sludge that is highly efficient for nutrient removal. Unlike conventional activated sludge systems, nutrient removal occurs within the layers of the granules. This reduces the need for extensive aeration and mixing equipment. The granules are formed with a high sludge concentration, allowing for greater solids loading within a smaller space. These granules settle rapidly due to their high density, enabling efficient separation from treated wastewater. Figure 4.2 summarizes this technology below.

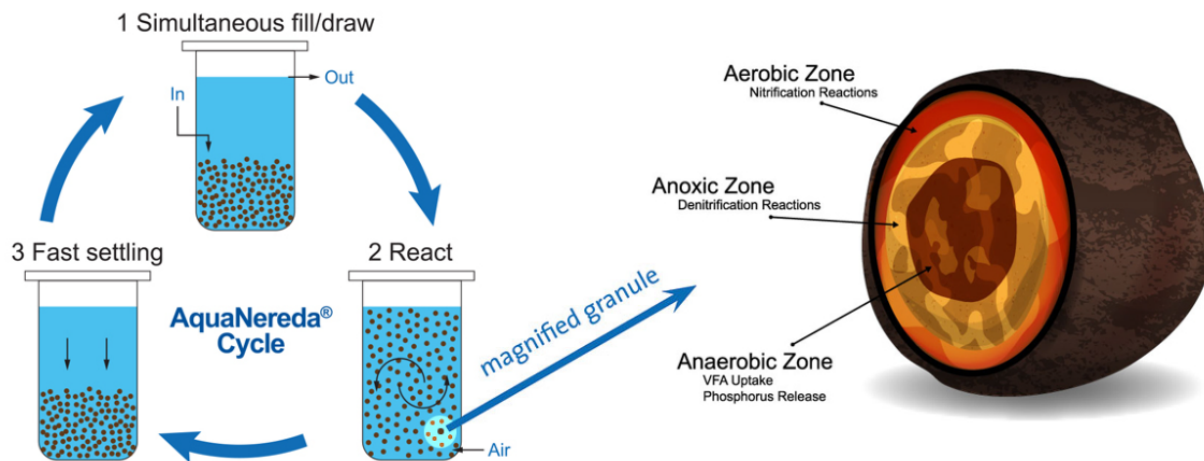


Figure 4.2: AGS Technology Schematic [12]

4.3.2 Design Criteria

Design flow rates for these systems were set to the future projected ADWF of 4.4 MGD and peak hour flow (PHF) of 10.58 MGD. A limit of 10 mg/l has been contemplated to form viable alternatives for any future introduction of a nitrogen limit, per ongoing discussions with NDEP. This potential future limit is an assumption for future adaptability, though is not regulated for Plant effluent under the current discharge permit

To minimize construction costs, the mechanical alternatives consider repurposing the existing ponds for emergency storage or stormwater storage, upstream equalization, and/or waste sludge management.

Alternative 3A– Mechanical Treatment: Sequencing Batch Reactor

Parameters for an SBR designed specifically for the EWWTP are summarized in Table 4.3. This generally includes four (4) x 0.86 MG rectangular concrete reactors operating in parallel, constructed in two phases as growth occurs. Two tanks are included in each phase to allow for system redundancy. Upstream equalization can be achieved using one of the Plant's existing lagoons. This would provide a buffer against peak flows and provide some added primary clarification. Waste sludge can be digested aerobically by also utilizing one of the existing lagoons. No secondary clarifiers are needed under this alternative.

Table 4.3: SBR Design Parameters

Description	Value	Units
Concrete Reactors Quantity	4	each
Tank Length (each)	148	ft
Tank Width (each)	49.3	ft
Maximum Water Depth	18.5	ft
Total Tank Height	20.2	ft
Maximum Liquid Volume (each)	0.86	Mgal
Full Buildout Footprint	17,496	sf
HRT	22.6	hours

Alternative 3B– Mechanical Treatment: Oxidation Ditch

Parameters for an Oxidation Ditch designed specifically for the EWWTP are summarized in Table 4.4 and Table 4.5. This system generally includes two (2) parallel oxidation ditches, built in phases to coincide with anticipated growth. A secondary clarifier for each oxidation ditch is also included. System redundancy during the first phase will be afforded by one of the existing lagoons. System redundancy at full buildout is provided by the two parallel systems. Upstream equalization can be achieved using one of the Plant's existing lagoons. This would provide a buffer against peak flows and provide some added primary clarification. Waste sludge can be digested aerobically by also utilizing one of the existing lagoons.

Table 4.4: Oxidation Ditch Design Parameters

Description	Value	Units
Tank Quantity	2	each
Channel Width	28	ft
Channel Straight Length	98.8	ft
Sidewater Depth	14	ft
Liquid Volume	1.05	Mgal
Total buildout footprint	34,338	ft
Total SRT each	18	days

Table 4.5: Secondary Clarifiers Parameters

Description	Outer Channel	Units
Tank Quantity	2	each
Tank Diameter	85	ft
Overall Footprint	5674.5	sf
Sidewater Depth	15	ft

Alternative 3C– Mechanical Treatment: Aerobic Granular Sludge

Design parameters for an AGS system for the EWWTP are summarized in Table 4.6. This system generally includes four (4) parallel square concrete tanks, constructed in phases to coincide with anticipated growth. Upstream equalization can be achieved using one of the Plant’s existing lagoons or by constructing an additional concrete tank upstream. Waste sludge can be digested aerobically by also utilizing one of the existing lagoons. No secondary clarifiers are required for the AGS system.

Table 4.6: AGS Design Parameters

Description	Value	Units
Concrete Basin Quantity	4	each
Sidewater depth	21	ft
Length of Basin	78	ft
Width of Basin	62	ft
Overall Tank Height	23.5	ft
Total footprint at full buildout	4,836	sf
Tank Volume each	0.76	Mgal
HRT each	0.69	days

4.3.3 Land Requirements / Map

Conceptual layouts for Alternatives 3A, 3B, and 3C are provided in Appendix N. These include the general facility layouts with respect to the overall Plant. Facility layouts are based on vendor proposals that were assessed to be the most viable systems as a basis of design for this PER.

Since all mechanical treatment alternatives will be located on the City’s existing property, no land acquisition requirements will be necessary.

4.3.4 Environmental Impacts

The mechanical alternatives would ultimately improve effluent quality discharged to the FWMA. This would be beneficial to the water quality of the wildlife management area. Additionally, since the proposed mechanical treatment facilities would be placed over previously disturbed land, environmental impacts to flora and fauna would remain minimal. Changing the EWWTP from a pond system to a full mechanical system will increase the Plant’s energy consumption. This is further discussed in Section 4.3.6.

4.3.5 Potential Construction Issues

The potential construction concerns for all mechanical treatment alternatives are primarily due to the reuse of portions of the existing facility. Maintaining pond operations effectively while construction progresses is critical. Varying issues may arise depending on the number of ponds that can be taken offline simultaneously without adversely affecting upstream processes. These concerns necessitate careful planning and coordination to ensure that construction activities do not disrupt plant operations or regulatory compliance.

4.3.6 Operational Considerations

The mechanical treatment alternatives will require differing methods of operation compared to the existing lagoons. Operation of SCADA systems will be the primary operator function, along with attention given to conventional activated sludge system performance indicators, and general system maintenance. Each of the mechanical treatment alternatives considered provides Nitrogen removal via activated sludge and thus requires a minimum Operator III certification per NAC 445A.289.

Alongside operator certification, a key consideration for mechanical treatment systems is energy consumption. The annual electrical consumption for an AGS system is approximately half of that of the other mechanical systems (SBR and oxidation ditch) as summarized below.

Table 4.7: Energy Consumption for Mechanical Treatment Plant Alternatives

Alternative	Electrical Consumption (kW)*	Annual Consumption (kWh)
SBR	447	3,919,400
Oxidation Ditch	361	3,151,650
AGS	163	1,427,150
*Electrical consumption presented in the table is an estimate. Actual consumption may vary.		

4.3.7 Sustainability Considerations

The proposed alternative mechanical treatment facilities are designed to enhance sustainability by improving effluent quality for the FWMA. Advanced treatment technologies will elevate the effluent quality, ensuring it meets environmental standards and reduces ecological impacts. Mechanical plants are relatively adaptable to be retrofitted with tertiary treatment systems that can cater to high effluent reuse classifications if desirable to the City in the future.

4.3.8 Cost Estimate

The AACE Class 5 construction budgetary cost estimates for Alternative 3 are provided in Table 4.8. Costs are strictly conceptual for comparison purposes. Estimated costs may differ significantly from actual construction costs. These costs reflect the engineer's impression of material, equipment, labor, etc. at the time of the estimate based on experience and judgment in applying presently available data. This estimate is based on 2023 dollars, and a 3% per year escalation should be factored in when developing actual project budgets.

See Section 5.1 for Life Cycle costs, and Appendix K for a breakdown of construction costs. General cost items and assumptions for the mechanical plant treatment alternatives are also provided below.

- Design and Permitting 10%
- Construction Administration 10%
- Electrical and Controls 25%
- Contingency 35%

Table 4.8: Construction Budgetary Cost Estimate for Alternative 3

Alternative	Budgetary Cost Estimate ¹
3A – Sequencing Batch Reactor	\$26,551,000
3B – Oxidation Ditch	\$23,853,000
3C – Aerobic Granular Sludge	\$30,118,000
¹ Costs are for design, supply, and install of materials specific to each sub-option.	

4.4 Alternative 4 – Lagoon Optimization

Alternative 4 presents options to meet the Plant's needs through modification of the lagoon system. This was contemplated for both retrofitting the lagoons with activated sludge infrastructure and for continued waste stabilization. The sub-alternatives for Alternative 4 include the following:

- Alternative 4A – MLE
- Alternative 4B – Side Stream
- Alternative 4C – Extended Aeration
- Alternative 4D – Partial Mix Aeration

These lagoon alternatives will be assessed against Alternative 1A (No Action) in Section 4.1.1, and Alternative 4 (the Mechanical Treatment alternatives) in Section 4.3. The selected disinfection alternative will become part of the Plant's overall recommended project, presented in Section 6.0.

4.4.1 Description

Alt 4A – Modified Ludzack-Ettinger System

An MLE system achieves nitrogen removal using the existing basins, with the addition of baffling, new equipment, internal recycle pumping, and activated sludge management. In this process, nitrification and denitrification occur in aerobic and anoxic zones, respectively, created within the existing lagoons. An anoxic zone is formed upstream to utilize influent BOD as a carbon source for bacteria to convert nitrate into nitrogen gas. The process requires mechanical mixing in the absence of aeration. It also yields oxygen and alkalinity to a downstream aerobic zone. The aerobic zone utilizes oxygen supplied by both aeration as well as oxygen that is returned from denitrification and alkalinity in the conversion of ammonia into nitrate. Supplementary alkalinity is required at times, depending on available concentrations in the influent. An internal recycle pumping system up to four (4) times the influent flow rate is required to enable the return of nitrified mixed liquor to the anoxic zone at the head of the reactor to promote denitrification. This process is capable of removing up to 80% of nitrogen from the effluent. Activated sludge wasting and recycling are also required and accomplished via secondary clarification. These alternatives will be paired with the recommended alternative for downstream disinfection under the recommended project.

Alt 4B– Side Stream

A tertiary or side-stream package treatment system can be utilized in conjunction with the existing lagoon system to achieve nitrogen removal. These systems are often highly specialized to suit specific manufacturer system designs. For this reason, the NitrOx+D by Triplepoint was used as a basis of design. This system uses a small membrane bioreactor with the addition of internal recycling but requires only one (1) times the influent flow rate. This system proposes new aeration and mixing equipment in addition to the tertiary nitrogen removal package system. Within this system, wastewater first undergoes nitrification, where ammonia is converted to nitrate utilizing the existing ponds and aeration system. Following this, the process relies on the side stream reactor to undergo denitrification, where anoxic conditions allow denitrifying bacteria to reduce nitrates to Nitrogen gas, which is released into the atmosphere. Secondary clarification is not required for this system, though periodic sludge removal is.

Alt 4C – Extended Aeration

The proposed system under this alternative removes nitrogen from the Plant's effluent by reconfiguring the existing lagoons to accommodate alternating aerobic and anoxic zones. The aerobic and anoxic zones each assist with nitrification and denitrification, the biological processes that reduce total nitrogen in the Plant's effluent. By alternating these zones in series, internal recycling is not needed. Given this type of system is best configured to be specific for differing equipment manufacturers, Biolac by Parkson was used as a basis for design. Biolac combines an alternating zone layout with extended aeration processes. The Biolac system uses aeration chains for mixing and submerged fine bubble diffusers, which are suspended across the entire treatment basin, across all zones, such that the equipment can achieve either mixing or aeration as needed. Secondary clarification is required for this system, though the Biolac system offers clarifiers inclusively.

Alt 4D – Partial Mix Aeration

This alternative proposes continuation of the original partial-mix aerated treatment infrastructure to account for future growth and meet updated permit limits as this growth occurs. This requires replacement of all surface aerator units, including existing units that are non-functional or were recently repaired, as well as new units to meet updated aeration demands where required. The Plant is currently designed to remove BOD and TSS via the six (6) partial mix aerated ponds, facilitated by a total of 48 surface aerator units.

Lumos analyzed the Plant's existing preferred surface aeration equipment within the current pond configuration to determine the number of units needed to meet future demands and updated permit limits. This included aeration to reduce BOD and to facilitate nitrification (see Appendix P for calculations). It was determined that 75 units would be required to meet the design criteria stated in Section 4.4.2. This was based on the Aspiro EcoJet as a basis for design (the Plant's equipment presently utilized in the aeration replacement schedule). Additionally, by upgrading the linings of ponds 1A/1B and 3A/3B, replacing non-operational aerators, and adding new surface aerators, the upgraded pond will achieve the targeted effluent limits through enhanced microbial activity. This approach will transition the current facultative system to a partial mix aeration system.

4.4.2 Design Criteria

The design criteria and construction improvements will conform to an average flow rate of 4.4 MGD and a maximum peak hour flow (PHF) rate of 10.58 MGD in alignment with the Plant's projected growth. See below for design criteria specific to each lagoon-based alternative.

Alt 4A – MLE

The design parameters for the MLE system are summarized in Table 4.9. This alternative generally includes configuring ponds 3A/3B and 4A/4B into two (2) parallel MLE treatment trains, each with an anoxic zone, aerobic zone, internal recycle, and secondary clarifier. The unused ponds 1A/1B can be repurposed for primary clarification/equalization and stormwater overflow. Pond 2 can be repurposed for waste sludge management. This facility can be constructed in phases that coincide with anticipated growth projections.

Table 4.9: MLE Design Parameters *Per Treatment Train*

Description	Value	Units
Inflow rate	2.2	MGD
RAS flow rate	31	%
Recycle flow rate	4Q	-
HRT total	7	days
Additional Oxygen required	4,788	lbO ₂ /day
Additional Carbon Source required	0	-
Additional Alkalinity required	31	mg/L

Table 4.10: Secondary Clarifier Design Parameters

Description	Value	Units
Side Wall depth	13	ft
Liquid volume	800,000	gal
Diameter	100	ft
Footprint	7,854	sf
Surface loading rate	917	gpd/sf
MLSS from Aeration Tank	4,000	mg/L
System SRT	19.63	days

Alt 4B – Side Stream

The design parameters for this alternative are summarized in Table 4.11. The configuration for the side stream facility utilizes existing Basins 3A, 3B, 4A, and 4B for anoxic and aeration basins which lead to basins 1A and 1B for further aeration and subsequently to the new side stream facility. This facility includes six (6) aeration grids (or tanks) that flow into four (4) post-anoxic mixers. After wastewater flows through this facility, the waste flows to Basin 2, and the wastewater flows to disinfection.

Table 4.11: Side Stream Design Parameters

Description	Value	Unit
Number of Treatment Trains Proposed	2	-
Number of Tanks Per Train	3	-
Total Number of Tanks (Aeration grids)	6	-
Length of Each	28.0	ft
Width of Each	28.0	ft
Side Water Depth of Each	20	ft
Tank Height of Each	23	ft
Volume of Each	117,286	gallons
Volume Total	703,718	gallons
Hydraulic Retention Time at Max Month Flow	6.1	hours
Hydraulic Retention Time at Peak Hourly Flow	2.9	hours

Alternative 4C – Extended Aeration

The design parameters for this alternative are summarized in Table 4.12. The configuration of this process will be constructed in existing Basin 1A which will lead to two (2) integral clarifiers. Within Basin 1A, floating aeration chains will be installed to release air from the diffusers to encourage efficient mixing within the basin.

Table 4.12: Extended Aeration Design Parameters

Description	Value	Units
Number of Biolac® Basin(s)	1	each
Footprint at Grade	747,000	sf
Side Slope	1.5:1	-
Side Water Depth	7	ft
Basin Volume	3.55	Mgal
Clarifier Design Hydraulic Loading Rate	374	gpd/sf
Integral Clarifier Size	85 x 35 ea.	ft
Number of Clarifiers per basin	2	-
Estimated SOR	825	lbs O2/hour

Alt 4D – Partial Mix Aeration

The design parameters for this alternative are summarized in Table 4.13. The process of implementing this alternative to account for future growth involves the dewatering of ponds 1A/1B and 3A/3B, relining ponds 1A/1B and 3A/3B with upgraded HDPE Liner, deepening ponds 1A/1B, and updating/replacing aerators based on functionality. Aerator placement was optimized to capture the effects of partial BOD reduction from the primary ponds (A) entering the secondary ponds (B).

Table 4.13: Partial Mix Aeration Design Parameters

Description	Value	Units
AOR to Oxidize BOD	16,243	lb O ₂ /day
AOR to Oxidize Ammonia	8,747	lb O ₂ /day
Aerators Required to Treat BOD	63	EA
Aerators Required to Treat Ammonia	33	EA
Total Aerators Required for Future Flows	96	EA
HDPE Liner	701,316	SF
Earthwork to Deepen Ponds 1A and 1B	10,893	CY

To estimate the Actual Oxygen Requirement (AOR), system efficiency losses were taken into account. The U.S. EPA provides a standard aeration efficiency value of 3 lb O₂/hp-hr [6] and the equipment manufacturer specified an efficiency at 50% of that standard. These conservative assumptions were incorporated to ensure the design remains reliable and effective under real-world operating conditions.

4.4.3 Land Requirements / Map

Alternative 4A – MLE

A conceptual layout for Alternative 4A can be found in Appendix O. Most of the MLE processes will be constructed using the existing basins. Aeration basin 1A will be converted to a primary clarification basin. Aeration basins 3A, 3B, 4A, and 4B would be converted to aerobic and anoxic basins. Two (2) new secondary clarification basins will be constructed along the east side of the basins where wastewater undergoes sedimentation before flowing to disinfection. Aeration basin 1B would be converted to stormwater overflow, while basin 2 would be converted to a sludge digestion basin. Since all lagoon optimization alternatives will be located on the City's existing property, no land acquisition requirements will be necessary.

Alternative 4B - Side Stream

A conceptual layout for Alternative 4B can be found in Appendix O. The process for this alternative will be integrated into the existing setup. Basins 3A, 3B, 4A, and 4B will be converted to anoxic and aeration basins which lead to basins 1A and 1B for further aeration before reaching the new side stream facility. This facility includes aeration grids that flow into post-anoxic mixers. After wastewater flows through this facility, the waste flows to Basin 2, and the wastewater flows to disinfection.

Alternative 4C – Extended Aeration

A conceptual layout for Alternative 4C can be found in Appendix O. This facility would be constructed using existing infrastructure, with Basin 1A designated for the extended aeration system. Integral clarifiers will direct the sludge for digestion within Basin 1B, where it undergoes further biological breakdown and stabilization prior to disposal. After undergoing secondary clarification, the wastewater would flow directly to disinfection. Basins 3a, 3B, 4A, and 4B would become offline basins used for emergency storage while basin 2 would be used for stormwater equalization.

Alt 4D – Partial Mix Aeration

A conceptual layout for Alternative 4D can be found in Appendix O. This alternative will use the existing plant footprint and proposes to deepen ponds 1A/1B by half a foot, thus there are no land or right-of-way requirements for this alternative.

4.4.4 Environmental Impacts

The anticipated environmental impacts for all lagoon optimization alternatives are minimal and primarily related to construction activities, including potential dust production. The lagoon optimization is planned for previously disturbed land, and since the proposed infrastructure will utilize the existing basins, the environmental impact in terms of habitat displacement is expected to remain minimal.

4.4.5 Potential Construction Issues

Any ponds that are included in a proposed lagoon reconfiguration would need to be dewatered, sludge removed, deepened, and the ponds relined. Additionally, the ability to manage pond operations effectively while construction progresses is critical. Varying issues may arise depending on the number of ponds that can be taken offline simultaneously without adversely affecting upstream processes.

4.4.6 Operational Considerations

Alternative 4A - MLE

The MLE system would improve operations by integrating a controlled environment for achieving nitrification and denitrification. The MLE system would require an Operator III certification.

Alternative 4B – Side Stream

The alternative improves operations by combining advanced nitrification and denitrification in a single process. Since NitrOx+D is a tertiary treatment, the EWWTP would require an Operator IV certification.

Alternative 4C – Extended Aeration

This alternative simplifies operations since only one basin will be utilized for aeration. The Biolac system uses extended aeration with fewer mechanical components, which reduces the need for frequent monitoring. The Biolac system would require an Operator III certification.

Alt 4D – Partial Mix Aeration

This alternative proposes no changes to the Plant's treatment mechanism, therefore, there are no anticipated changes to operations. No additional operator certification is anticipated for this alternative.

4.4.7 Sustainability Considerations

All alternatives improve sustainability by reducing the effluent Nitrogen levels in the environment.

4.4.8 Cost Estimate

The AACE Class 5 construction budgetary cost estimates for Alternative 4 are provided in Table 4.14. Costs are strictly conceptual for comparison purposes. Estimated costs may differ significantly from actual construction costs. These costs reflect the engineer's impression of material, equipment, labor, etc. at the time of the estimate based on experience and judgment in applying presently available data. This estimate is based on 2023 dollars, and a 3% per year escalation should be factored in when developing actual project budgets.

See Section 5.1 for Life Cycle costs, and Appendix K for a breakdown of construction costs. General cost items and assumptions for the optimized lagoon treatment alternatives are also provided below.

- Design and Permitting 10%
- Construction Administration 10%
- Electrical and Controls 15%
- Contingency 35%

Table 4.14: Construction Budgetary Cost Estimate for Alternative 4

Alternative	Budgetary Cost Estimate ¹
4A - MLE	\$21,428,000
4B – Side Stream	\$45,484,000
4C – Extended Aeration	\$13,989,000
4D – Partial Mix Aeration	\$16,828,000
¹ Costs are for design, supply, and install of materials specific to each sub-option.	

5.0 SELECTION OF AN ALTERNATIVE

To keep pace with future growth and comply with updated effluent permit limits, the City's proposed project will incorporate both disinfection and treatment alternatives. A summary of the Alternatives is presented in Section 4.0.

Several factors contribute to the overall performance of each Alternative and thus its selection. Costs provided in Section 4.0 are conceptual to provide a basis for comparison of each alternative, however, life cycle costs offer a more comprehensive view. Life Cycle costs are discussed in Section 5.1.

Non-monetary factors that are also critical to this evaluation are discussed in Section 5.2. An Alternative will be chosen based on the outcome of a Benefit Cost Analysis (BCA) that considers both monetary and non-monetary factors. The BCA scores all monetary and non-monetary factors for each alternative against weighted performance criteria. The BCA is provided in Section 5.2 which includes a schematic of the selection process.

5.1 Life Cycle Cost Analysis

A Life Cycle Cost (LCC) analysis was performed to compare the initial capital costs of each alternative with their operation and maintenance expenses over varying timelines. LCCs can include electricity use, equipment replacement, chemical supply, etc. Figure 5.1 and Figure 5.2 summarize the capital costs and present value of each alternative. Since all alternatives have a different useful life, this life cycle cost analysis takes place over a typical 15-year loan term to align with the 2040 planning horizon set in the SMP [3]. All costs are shown in 2024 dollars and will have zero salvage value at the end of this term. All LCCs are for a term of 15 years and utilize a real discount of 2.5%. The Real Discount Rate of 2.5% is based on the Inflation rate of 2.2% and projected Interest Earned rate of 4.7%. The LCCs for each disinfection alternative and treatment alternative are discussed below, respectively.

LCC Analysis: Disinfection Alternatives

As shown in Figure 5.1, Alternative 1B has the lowest capital costs compared to Alternatives 2A and 2B. This is due to the fact that under Alternative 1B, there would be minor infrastructure built such as a larger bulk sodium hypochlorite storage unit, while the other alternatives are proposing entirely new infrastructure. Personnel costs are comparable under all alternatives. Alternative 2A is the most favorable from an O&M standpoint. Since this alternative proposes onsite hypochlorite generation, there would be no additional costs for delivery like Alternative 1B and high electrical requirements like Alternative 2B. From a monetary standpoint, Alternative 2A: Onsite Hypochlorite Generation is the preferred alternative. The BCA recommends the preferred alternative based on additional non-monetary considerations as outlined in Section 5.2.

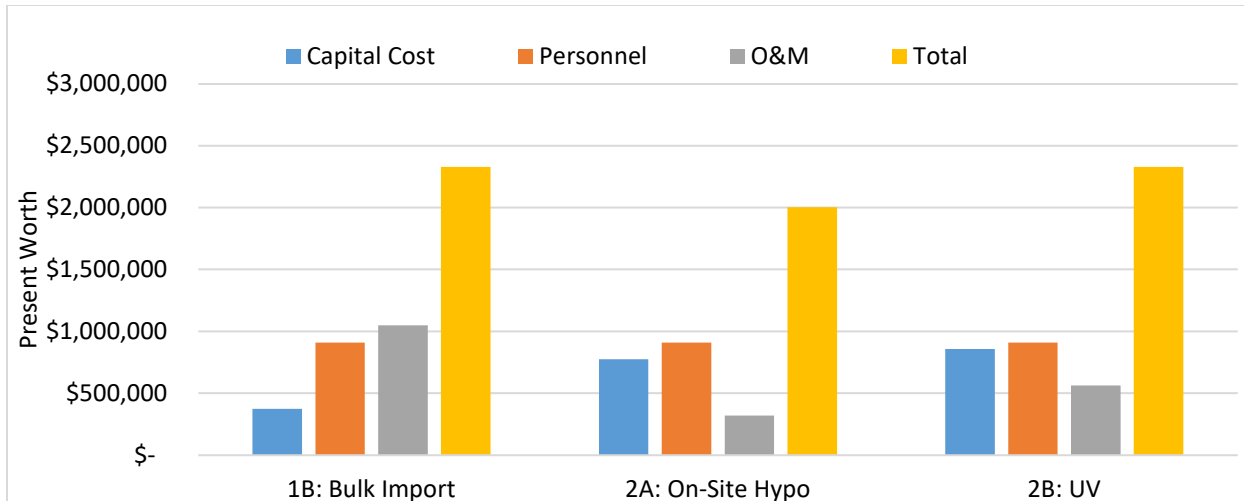


Figure 5.1: Disinfection Alternatives 15-Year Present Worth

LCC Analysis: Treatment Alternatives

As shown in Figure 5.2, the mechanical treatment alternatives (3A, 3B, and 3C) are generally favorable with regard to O&M costs and LCC totals. Alternatives 4C and 4D appear competitive from a total cost perspective due to their low capital cost, though their relatively high O&M costs will reduce this advantage over time. Note that the BCA recommends the preferred alternative based on additional non-monetary considerations, as outlined in Section 5.2.

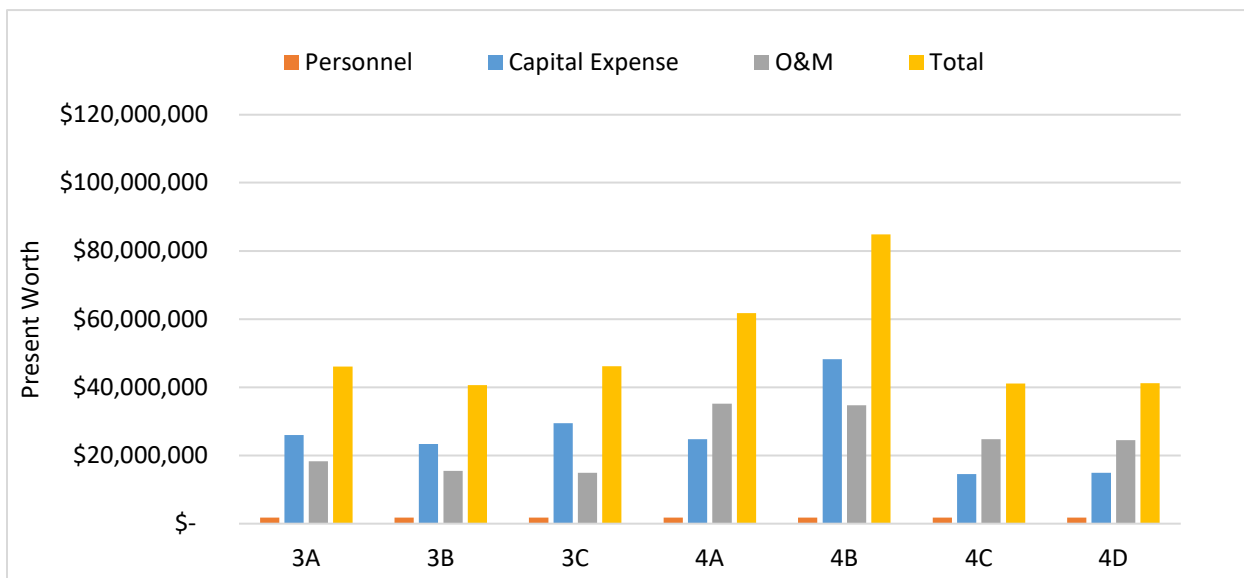


Figure 5.2: Treatment Alternatives 15-Year Present Worth

5.2 Benefits Cost Analysis

Non-Monetary Assessment Criteria:

A BCA looks at capital costs, O&M costs, and non-monetary factors when assessing the suitability of each alternative. Non-monetary factors evaluate the advantages and disadvantages presented by each alternative in the BCA that cannot be captured along with a monetary value. Non-monetary criteria for the BCA are described below. These were chosen based on relevance to this project and their ability to influence how the EWWTP will serve the City over the course of its design life.

- **Reliability:**
Reliability considers the long-term sensitivities of a system to maintenance needs, robustness of infrastructure to perform effectively, and expected design life. An alternative receiving a score of 0 is not reliable and as a result, has significant maintenance needs. A score of 10 represents a highly reliable system and has less frequent maintenance needs to remain operationally effective.
- **Ease of Operation:**
This criterion evaluates necessary routine operational needs as well as the troubleshooting required when the system is not operating optimally. A score of 0 indicates that the alternative is difficult to operate and when the system is not functioning correctly, repairing and troubleshooting the system is difficult, and visa-versa for a score of 10.
- **Permit Compliance:**
Assesses how effectively each alternative can meet both current and anticipated future effluent permit limits. A permit compliance score of 0 indicates the alternative cannot meet these limits, while a score of 10 signifies it exceeds current requirements and prepares the Plant to comply with potentially stricter future regulations.
- **Constructability:**
This criterion evaluates the potential for construction challenges presented by each alternative. Construction challenges may include pouring complex cast-in-place concrete designs, complex controls, and electrical requirements, the ability to keep the Plant online during construction, and the availability of specialty equipment. A constructability score of 0 represents major constructability issues, and a score of 10 represents minimal constructability issues.
- **Future Adaptability:**
Future adaptability evaluates the ability of an alternative to be adapted to accommodate a higher effluent quality beyond the abilities of the plant performance. This could include an elevated reuse classification, should the City choose to pursue this in the future, or a new effluent nitrogen limit, should NDEP impose one in a future permit update. Higher effluent reuse classifications would not be imposed on the Plant by BWPC in the discharge permit unless the City makes this pursuit. This would primarily be driven by public or Council interest in reclaimed water reuse, though it should be noted that this is a highly expensive endeavor with rigorous regulation, design, and permitting involved. A new effluent nitrogen limit has been discussed by NDEP with the City on numerous occasions in the past, and cannot be ruled out of future permit updates, despite it being excluded from the existing permit. A score of 0 indicates that an alternative cannot be easily adapted in future to accommodate an

elevated effluent reuse classification, whereas a score of 10 indicates that an alternative is more adaptable.

Benefit-Cost Analysis

The importance of each monetary and non-monetary assessment criteria was weighed by key stakeholders for input to the BCA. Stakeholders weighed criteria on a scale of 0 to 5, where 0 indicates that the criteria is of least importance and 5 indicates that the criteria is of significant importance. The weighting for each criterion based on stakeholders' input is provided in Table 5.1.

Table 5.1: Importance / Weighting of BCA Assessment Criteria

Criteria	Weighting (Scale: 0 - 5)
Reliability	4.6
Ease of Operation	4.2
Future Adaptability	3.8
Permit Compliance	4.6
Constructability	3.0
Capital Cost	3.8
O&M Cost	4.5

Each alternative was then scored based on how they were expected to perform against the assessment criteria on a scale of 1 to 10. The scores and criteria weightings were then multiplied to provide a total weighted average score, and the results were ranked. Table 5.2 summarizes the results of the BCA for disinfection alternatives while Table 5.3 summarizes the results for the Treatment alternatives.

Table 5.2: Disinfection BCA

Criteria		Long Term Reliability	Ease of Operation	Future Adaptability	Permit Compliance	Constructability	Capital Expense	O&M Costs	TOTAL WEIGHTED SCORE	
Weighting		92%	84%	76%	92%	60%	76%	80%	/100	Rank
Alternatives		Score /10								
1B	Existing Disinfection	7	8	6	10	9	10	2.8	75	2
2A	On-Site Hypo	9	7	6	10	8	5.3	10	80	1
2B	UV Treatment	8	6	9	8	6	4.3	7.7	71	3

As shown in Table 5.2, **Alternative 2A 'On-Site Chlorine Generation'** ranked as the most **favorable** for the Disinfection BCA analysis.

Table 5.3: Treatment BCA

Criteria		Long Term Reliability	Ease of Operation	Future Adaptability	Permit Compliance	Constructability	Capital Expense	O&M Costs	TOTAL WEIGHTED SCORE	
Weighting		92%	84%	76%	92%	60%	76%	90%	/100	Rank
Alternatives		Score /10								
1A	No Action: Treatment	0	5	0	0	10	10.0	10.0	47.0	8
3A	Mechanical Treatment: Sequencing Batch Reactor	8	9	7	10	7	5.2	8.8	79.7	1
3B	Mechanical Treatment: Oxidation Ditch	8	8	7	10	6	5.8	9.6	79.3	2
3C	Mechanical Treatment: Aerobic Granular Sludge	8	7	7	10	7	4.4	9.7	77.3	4
4A	Lagoon Optimization : MLE	4	6	3	9	5	6.3	4.0	53.8	6
4B	Lagoon Optimization : Side Stream	6	7	4	9	5	1.0	4.1	53.0	7
4C	Lagoon Optimization : Extended Aeration	8	9	5	9	9	7.9	6.9	78.3	3
4D	Lagoon Optimization : Partial Mix Aeration	7	9	3	9	8	7.3	6.8	71.9	5

As shown in Table 5.3, the mechanical alternatives overall scored higher than the lagoon alternatives, with **Alternative 3A 'SBR' as the most favorable alternative**. Alternatives 3B and 3C scored closely behind Alternative 3A, but what sets Alternative 3A apart from the other mechanical alternatives is the SBR's ease of operation. SBRs are easier to operate compared to oxidation ditches and aerobic granular sludge systems due to their flexibility and automation. SBRs operate in a single tank with cycles of filling, aeration, settling, and decanting, simplifying

the process control and reducing the need for multiple tanks. The SBR allows for easier adjustment to varying flow and load conditions. Additionally, SBRs have been widely used at other nearby wastewater plants, making it a familiar option that has been tested to be effective in this region, and provides neighboring resources for potential collaboration.

5.3 Recommended Alternative

The BCA evaluated both monetary and non-monetary factors to evaluate which is the recommended alternative. Given that this PER assesses disinfection alternatives as well as general treatment alternatives, there are two alternatives recommended for the Plant. These are presented in Table 5.4.

Table 5.4: Recommended Alternatives

Category	Preferred Alternative	Capital Cost (\$)
Disinfection	2A - On-Site Hypo	\$791,000
Treatment	3A - Mechanical Treatment: SBR	\$26,551,000

6.0 PROPOSED PROJECT (RECOMMENDED ALTERNATIVE)

6.1 Preliminary Project Design

The preliminary project design described below is for the construction of a new on-site chlorine generation facility and a new SBR system. These projects are proposed independently from each other and for this PER has been conceptually designed as such. The City is currently continuing the effort to replace aerators in the existing system. This program will be effective as an interim measure to maintain treatment performance prior to pursuit of a plant conversion, proposed below.

On-Site Chlorine Generation Facility

The on-site chlorine generation facility requires the installation of the electrolysis equipment and associated electrical;/controls, as well as storage and housing. Equipment design and installation shall be according to manufacturer specifications. To implement this design at current chlorine demands, a ProMinent® Chlorinsitu system is recommended for the basis of design, as follows:

- (2) Each 1,250 gallon/hour electrolysis cell with a 100-gallon brine tank
- (3) Each 400 gallon Salt poly processing storage tank (Approx. three (3) months supply)
- (2) Each 3,000-gallon Bulk Solution poly processing storage tank (Approx. two (2) week's supply)
- 900 SF concrete pad expansion
- Controls and electrical (design not included in this PER)
- Replacement shelter structure/equipment housing

Future growth of the Plant should account for increased chlorine demands and consider additional electrolysis cells and storage tanks. The applicable design criteria are covered in Section 4.3.2, but additional consultation with the equipment supplier and manufacturer will be required.

SBR System

The SBR system is recommended to be constructed in two phases, east of the existing lagoons, as shown in Appendix N. Two (2) parallel SBR tanks are proposed in Phase 1 to treat up to 2.2 MGD to meet current plant flows. Phase 2 would replicate this design to treat up to 4.4 MGD to serve buildout flows. Each phase proposed the following conceptual design components and recommends a Fluidyne SBR system for the basis of design:

- (2) Each concrete reactor (common wall)
 - Liquid volume = 0.86 MG
 - Approximate Footprint = 7,300 SF
- Aeration and mixing equipment
- (1) Each lift station and pumping equipment
- 3,000 LF piping and appurtenances
- Controls and electrical (conceptual design not included in this PER)
- (2) Each lagoon conversion for upstream equalization, stormwater handling, and waste activated sludge management (note that waste stream conceptual design is not included in this PER).

The concrete cast-in-place basins would first be constructed, where earthwork is involved to partially bury the tanks and optimize the hydraulic profile. Next, the aeration system, decanters, and control mechanisms would be installed within the tanks per manufacturer recommendations. Interconnecting piping would then be installed to route wastewater from the front of the Plant to the SBRs. Pressure piping and a lift station would also be constructed to route effluent downstream to disinfection. Finally, the system would undergo testing and calibration to ensure all phases operate correctly before the SBR is fully commissioned for use.

6.2 Estimated Project Schedule

The proposed projects can be implemented on different timelines at the City's discretion and phased to accommodate current and projected flows. The dates listed in Table 6.1 represent a proposed project timeline for the recommended alternative (Alternatives 2A and 3A). Based on projected growth rates, the City may need to upgrade its plant to a full buildout starting in 2030.

Table 6.1: Preliminary Project Schedule

Phase	Activity	Construction Year
1	On-site sodium hypochlorite facility and two (2) SBR basins	2026
2	Additional chemical storage and on-site generation equipment, two (2) additional SBR basins, additional pumping equipment, and controls	2031

The schedule assumes a typical duration, shown in Table 6.2 for PER acceptance and permitting. These dates are preliminary and will be refined as the funding allocations are secured and the project proceeds.

Table 6.2: Expected Project Duration

Item	Duration
Planning and Design Phase	
Funding Acquisition	6 Months
Engineering Design	18 Months
Site Permitting	3 Months
Solicit Bids + Award	2 Months
Typical Construction Phase	
Construct Disinfection	9 Months
Construct Treatment Facility per Each	24 Months
Startup and Commissioning Operation	2 Months
Sampling and Testing	1 Months
Training	6 Weeks

6.3 Project Financing

The current understanding is that the project will be internally funded using CIP cash reserves, acquired through rates studies that anticipated future Plant upgrades. Since the projects will be constructed in phases according to projected growth timelines, the City will not need to pay the total project cost (Section 6.5) upfront. Table 6.3 summarizes a tentative, provisional schedule of project costs. Actual expenditure will vary and construction cost estimates will be better developed with less contingency during future design development. If the City uses cash reserves to fund the project, it is recommended to consider the phased projects built out in their next rates study¹³ to evaluate the adequacy of the City's current rates.

Table 6.3: Tentative Project Schedule

Category	Preferred Alternative	Construction Year	Capital Cost (\$)
Disinfection	2A - On-Site Chlorine	2026	\$791,000
Treatment Phase 1	3A - Mechanical Treatment: Sequencing Batch Reactor (half buildout)	2026	\$9,482,500
Treatment Phase 2	3A - Mechanical Treatment: Sequencing Batch Reactor (full buildout)	2031 ¹⁴	\$17,068,500

6.4 Permit Requirements

Prior to bidding, design packages should be submitted to NDEP BWPC for review, approval, and permitting. Permits and approvals anticipated to be required for the project are as follows:

- NDEP Bureau of Water Pollution Control:
 - Approval of final plans and specifications
 - Discharge permit amendment
 - Disturbance Area Permit
 - Approval of updated O&M Manual
- City of Fernley Public Works Department:
 - Plan review at each design stage
 - Building permit

¹³ Per a meeting with the City on April 17th, 2024, the next rates study is being performed in the summer/fall of 2024 and is slated for adoption in November 2024.

¹⁴ Plant inflow projections were derived by analyzing growth data from 2010 to 2022 and extrapolating these trends to 2040, assuming flows could reach up to 4.40 MGD. The projected construction year is for planning purposes only. The City will continue to monitor Plant inflows to ensure sufficient capacity.

6.5 Total Project Cost Estimate (Engineer's Opinion of Probable Cost)

A Class 5 Engineer's opinion of probable costs is presented in Table 6.4 and Table 6.5 for the selected alternatives. The presented Engineer's opinion of probable costs are "whole" project estimates that include construction phase costs, construction engineering services, design, and permitting. It should be noted that the presented opinions of probable costs are strictly conceptual and may differ significantly from actual construction costs. These costs reflect the engineer's impression of material, equipment, labor, etc., at the time of the estimate based on experience and judgment in applying presently available data. The engineer has no control over the cost of labor, materials, equipment, competitive bidding practices, market conditions, tariffs, costs associated with funding packages, inflation, etc. Thus, the engineer cannot warrant that the actual project costs will not vary from the engineer's opinion of probable cost. This estimate is based on 2023 dollars, and a 3% per year escalation should be factored in when developing actual project budgets.

Assuming a 35% contingency and an additional 10% for engineering services during construction, the total project costs (construction and non-construction costs) are estimated at \$791 thousand for the recommended disinfection project and \$26 million for the treatment project. A detailed cost estimate can be found in Appendix L.

Table 6.4: AACE Class 5 EOPCC: On-Site Chlorine Generation

Item	Description	Quantity	Unit	Unit Price	Amount
1	Mob/Demob/Erosion Control/General Conditions	10%	LS	\$37,000	\$38,000
2	Electrical and Controls	10%	LS	\$75,000	\$75,000
3	On-Site Electro-Chlorination Generation Equipment	1	LS	\$142,500	\$143,000
4	3,000-gallon bulk solution storage tank	2	EA	\$37,500	\$75,000
5	400-gallon salt storage tank	3	EA	\$1,050	\$3,000
6	Concrete Pad (8-inch conc. on 12-inch aggregate base)	900	SF	\$60.0	\$54,000
7	Replacement Shelter Structure	1	LS	\$100,000	\$100,000
Construction Cost Subtotal					\$488,000
Contingency (35%)					\$171,000
Construction Total					\$659,000
Engineering Services During Construction (10%)					\$66,000
Total Construction Phase Cost					\$725,000
Design and Permitting (10%)					\$66,000
Total Project Cost					\$791,000

Table 6.5: AACE Class 5 EOPCC: Mechanical SBR Plant

Item	Description	Quantity	Unit	Unit Price	Amount
1	Mob/Demob	10%	LS	\$1,214,000	\$1,214,000
2	Electrical and Controls	25%	LS	\$3,035,000	\$3,035,000
3	Earth Work	809	CY	\$15	\$12,000
4	Basin Concrete	4,401	CY	\$1,200	\$5,281,000
5	SBR Equipment	1	LS	\$5,116,500	\$5,117,000
6	Aerobic Digestion Allowance	1	LS	\$100,000	\$100,000
7	Piping, Valves, and Appurtenances	3,000	LF	\$170	\$510,000
8	Pumping Equipment	1	LS	\$120,000	\$120,000
9	Lift Station	1	LS	\$1,000,000	\$1,000,000
Construction Cost Subtotal					\$16,389,000
Contingency (35%)					\$5,736,000
Construction Total					\$22,125,000
Engineering Services During Construction (10%)					\$2,213,000
Total Construction Phase Cost					\$24,338,000
Design and Permitting (10%)					\$2,213,000
Total Project Cost					\$26,551,000

6.6 Annual Operating Budget

6.6.1 Income

The City has several sources of income to fund program services. Sewer Fees make up the majority of this revenue. Revenues from sewer fees come from the City's 6,999¹⁵ ratepayers, which are predominantly residential customers. Rates charged to customers are dependent on customer class and meter size. A detailed discussion of the rate schedule is outlined in Section 2.5.1.

In 2023, the City sewer sales totaled approximately \$5.1 million. Based on the 2021 data provided by the City, the average residential customer produced 106 gallons per day (gpd) and non-residential customers produced 921 gpd of flows [8].

The City also receives income from interest earnings, connection fees, and other revenues. Table 6.6 provides a list of actual income sources and the amount of money generated from each source in 2023 [13].

¹⁵ Total connection count is from 2021 (Hansford Economic Consulting, LLC, 2021).

Table 6.6: Sources of Income 2023

Income Source	Amount
Sewer Service Fees	\$5,062,281
Interest Earnings	\$384,606
Other Income	\$57,687
Grant Contributions	\$2,620,829
Capital Contribution - Hookups/Connect	\$1,538,546
Capital Contribution - Other	\$497,410
Total	\$10,161,359

6.6.2 Annual O&M Costs

The itemized comparison between the 2024 approved budget and the 2025 projected budget, based on the recommended alternative, is presented in Table 6.7. This expenditure data helps assess the City's current financial position. The 2024 budget, provided by the City, is used in this analysis to illustrate how costs will evolve once Phase 1 of the proposed project is implemented. Since Phase 1 is expected to increase repair, maintenance, and electricity expenses, the 2025 projections have been adjusted accordingly. In 2024, the total estimated expenditures were \$2.6 million, with salaries and wages accounting for the largest portion at approximately \$1.38 million. Due to the project planned for 2025, repair and maintenance costs are anticipated to increase from \$235 thousand to \$544 thousand, and electricity costs are anticipated to rise from \$185 thousand to \$642 thousand, resulting in projected annual expenses of \$3.4 million for Phase 1.

Table 6.7: Approved Annual 2024 Budget and Projected 2025 Budget

Expense	2024 Expenditures	2025 Projection
Salaries and Benefits	\$1,348,491	\$1,348,491
Professional Service – Engineering	\$102,500	\$102,500
Professional Service – Other	\$2,000	\$2,000
Utility Service - Refuse	\$2,500	\$2,500
Contracts	\$9,000	\$9,000
Contract Services - Analytical	\$4,000	\$4,000
Contract Services - HVAC	\$17,500	\$17,500
Contract Services - Cleaning and Inspection	\$5,000	\$5,000
Contract Services - Electrical	\$10,000	\$10,000
Contract Services - SCADA	\$12,500	\$12,500
Service - Repair and Maintenance	\$235,000	\$544,259
Rental	\$15,000	\$15,000
Interfund Cost Alloc. Build	\$144,310	\$144,310
Insurance	\$75,000	\$75,000
Communications	\$6,000	\$6,000
Advertising	\$500	\$500
Printing and Postage	\$35,000	\$35,000
Training	\$5,000	\$5,000
Dues and Membership	\$1,000	\$1,000
Educational Assistance Program	\$500	\$500
General Supplies	\$2,500	\$2,500
Office Supplies	\$6,000	\$6,000
Minor Equipment	\$15,000	\$15,000
Credit Card Fees	\$60,000	\$60,000
Supplies - Automotive	\$18,000	\$18,000
Supplies - Plant/Shop/Maintenance	\$29,000	\$29,000
E-One R&M	\$130,000	\$130,000
Supplies - Safety	\$5,000	\$5,000
Supplies - chemical	\$55,000	\$55,000
Natural Gas	\$400	\$400
Electricity	\$185,000	\$642,434
Propane		
Bulk Diesel	\$6,000	\$6,000
Gasoline	\$32,500	\$32,500
Books and Periodicals	\$1,500	\$1,500
Permits and Licenses	\$20,000	\$20,000
Property Taxes/Assessments/Fees	\$100	\$100
Total	\$2,596,801	\$3,363,494

6.6.3 Debt Repayments and Reserves

The City has existing debt service associated with the 2015 A Refunding, 2018 Refunding, and 2020 Refunding loans. Annual debt service in 2024 was \$532,998.

The City has operating reserves to ensure that 90 days of operating expenses are on hand. The amount of cash in excess of the operating reserve fund is transferred to the Capital Reserve, which would pay for capital projects, and the Capacity fund which is dedicated to pay for growth-related expenses.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The existing Plant has historically met the effluent standards of the current discharge permit. However, to proactively address potential stricter regulations, future growth, and emerging challenges in maintaining existing Plant equipment, this PER has become a necessary and proactive pursuit for the City.

Based on the information presented in Sections 1.0 through 4.0, the recommended alternatives (2A and 3A) in this PER are to convert the existing lagoon treatment system to a mechanical SBR plant and to implement a new on-site sodium hypochlorite generation facility to replace the ongoing bulk-import of solution. These are recommended to the City as the most effective solution to address the updated discharge permit, optimize plant performance, and accommodate projected growth for the Plant. The on-site chlorine generation facility is expected to be simple and affordable to construct and operate and eliminate reliance on chemical supply expenses.

Converting the Plant to an SBR system will allow for greater operational control without significant complexities. This will require an increase in operator certification, but SBR systems are a proven, reliable, commonly used technology, and the EWWTP can benefit from the knowledge of other local Plants nearby with SBRs. In addition, this solution is scalable to allow for simple phasing of construction and is adaptable in the event that Fernley wants to reuse the Plant's effluent for future reclaimed water. The system expenses and capital costs are not unreasonable in the pursuit of introducing nitrogen removal to the Plant.

Additionally, general recommendations in consideration of this PER are as follows, should the City engage in a design contract to develop the recommended projects for eventual construction:

- The design of the SBRs and disinfection facilities should be re-evaluated with equipment manufacturers during each stage of the system design.
- Repurposing existing lagoon(s) for waste sludge management should be further developed at the conceptual level of the system design for optimized use. The decommissioning of any unused remaining ponds should be coordinated with NDEP.
- If the City uses cash reserves to fund the project, it is recommended to conduct a rate sufficiency analysis to evaluate the adequacy of the City's current rates.

8.0 REFERENCES

- [1] United States Geological Survey, *National Hydrography Dataset*, 2023.
- [2] Lumos & Associates, Inc, "Wastewater Treatment Plant New Monitoring Wells Project Report," City of Fernley, 2021.
- [3] Shaw Engineering, "2024 Sewer Master Plan," Reno, 2024.
- [4] T. G. Institute, " GRI White Paper #6 on Geomembrane Lifetime Prediction: Unexposed and Exposed Conditions,,," 2011.
- [5] BWPC, NDEP, *WTS-5 - GUIDANCE DOCUMENT FOR DESIGN OF WASTEWATER TREATMENT PONDS*, CARSON CITY, NEVADA , 2017.
- [6] EPA, *Principles of Design and Operations of Wastewater Treatment Pond Systems for Plant Operators, Engineers, and Managers*, 2011.
- [7] Wood Rogers, Inc., "City of Fernley Comprehensive Master Plan," City of Fernley , 2018.
- [8] Hansford Economic Consulting, LLC, "City of Fernley 2021 Utility Rates Study," City of Fernley , 2021.
- [9] Wood Rodgers, Inc., "City of Fernley Comprehensive Master Plan," Reno, 2018.
- [10] National Water Research Institute, "Ultraviolet Disinfection: Guidelines for Drinking Water and Water Reuse - 3rd Edition," Water Research Foundation, 2012.
- [11] NDEP, "NDEP Wastewater Certification Program," 27 08 2024. [Online]. Available: <https://ndep.nv.gov/water/operator-certification/wastewater>.
- [12] Aqua-Aerobic Systems, Inc., 2024. [Online]. Available: <https://aqua-aerobic.com/biological/aerobic-granular-sludge/>.

[13] C. o. Fernley, "ACFR," 2023.

Appendix A NDEP Discharge Permits



NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**

STATE OF NEVADA
Department of Conservation & Natural Resources

Joe Lombardo, Governor
James A. Settelmeyer, Director
Jennifer L. Carr, Administrator

December 05, 2024

Barry Williams
Public Works Director
City of Fernley
Fernley, NV 89408

Subject: Issuance of Permit NS0080011 –Fernley East Wastewater Treatment Plant, Fernley, Nevada

Dear Mr. Barry Williams:

In accordance with provisions of the Nevada Water Pollution Control Law Chapter 445A, of the Nevada Revised Statutes, the Department of Conservation and Natural Resources, Division of Environmental Protection has reviewed the application for groundwater discharge permit **NS0080011** for Fernley East Wastewater Treatment Plant.

The Notice of Proposed Action was sent to interested persons and governmental agencies on our mailing list and was published to our website. The 30-day period for this Notice of Proposed Action closed on **September 12, 2024** at 5:00 P.M. One comment was received.

The Division of Environmental Protection has issued the enclosed permit for a period of five (5) years. The permit shall take effect on **December 01, 2025**; the permit's expiration date is at midnight on **November 30, 2029**, provided all permit conditions are followed and annual fees paid accordingly. In accordance with the permit conditions, an annual review and services fee to maintain the permit is due on July 1, 2025, and every year thereafter until the permit is terminated.

The first Discharge Monitoring Report (DMR) under the modified permit is due on **January 28, 2025**.

Please contact me at (775) 687-9569 or at mcowles@ndep.nv.gov should you have any questions.

Sincerely,

Mitch Cowles, P.E
Professional Engineer
Bureau of Water Pollution Control

Enclosures: NS0080011 Permit

ECC: BWPC Front Desk Administrative Assistant (w/enclosures)

Permit Type: Groundwater Discharge

Permit No. NS0080011

Nevada Division of Environmental Protection

AUTHORIZATION TO DISCHARGE

In compliance with Chapter 445A of the Nevada Revised Statutes (NRS),

**CITY OF FERNLEY
595 SILVERLACE BLVD
FERNLEY, NV - 89408**

is authorized to discharge from a facility located at:

**EAST WASTEWATER TREATMENT PLANT
500 NEVADA PACIFIC PKWY, FERNLEY, NV - 89408
LATITUDE: 39.59511780, LONGITUDE: -119.19824130
TOWNSHIP: T20N, RANGE: R25E, SECTION: S9**

to receiving waters named:

GROUNDWATER OF THE STATE

in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Sections A, B, and C hereof.

This permit shall become effective on December 01, 2024.

This permit and the authorization to discharge shall expire at midnight, November 30, 2029.

Signed this 27th day of November 2024.

**Mitch Cowles
Staff II Engineer
Bureau of Water Pollution Control**

SECTION A

A.1. INTRODUCTION

A.1.1. The City of Fernley owns and operates the East Wastewater Treatment Plant (EWWTP), a partial-mix pond treatment system, which discharges treated effluent to the Fernley Wildlife Management Area (FWMA). The FWMA consists of six wetland cells and is located three miles ENE from the EWWTP facility's cascade aerator outfall. EWWTP receives domestic, commercial, and industrial wastewater from approximately 19,000 service connections. The facility receives the influent flows from seven lift stations spread throughout the city. Industrial wastewater which does not meet the City or EPA standards is required to be pretreated and monitored through an Industrial Discharge permit with the City of Fernley prior to discharging to the lift stations.

The treatment plant, which is located four miles east of downtown Fernley, includes a gravity interceptor with automated bar screens with a screening compactor and a grit channel (headworks), a lift station, influent splitter box, three timer-controlled aeration ponds separated by a pond transfer structure which the operator controls via adjustable weir settings, a disinfection chamber, three rapid infiltration basins (RIB) with a RIB transfer structure, a cascade aerator, and ten waste drying beds. Discharge Monitoring Report (DMR) data shows the facility's RIB, outfall 004, has not been used during the last five years.

The City of Fernley had an Administrative Order of Consent (AOC) with Nevada's Division of Environmental Protection (NDEP) requiring COF to lower nitrogen levels in the groundwater monitoring wells located on-site. Recent improvements have been made to the facility due to the AOC and general improvements to the facility, the re-lining of Pond 2, the installment of drying beds, and new monitoring wells #11, #12, and #13. The AOC was completed on November 2, 2022.

A.2. EFFLUENT LIMITATIONS

- A.2.1.** There shall be no discharge from the facility property except as authorized by this permit.
- A.2.2.** There shall be no discharge of substances that would cause or contribute to an exceedance of water quality standards.
- A.2.3.** During the period beginning on the effective date of this permit, and lasting until the permit expires, the Permittee is authorized to:

Discharge secondary treated, chlorine disinfected effluent, to groundwater of the State of Nevada via a cascade aerator (to the Fernley Wildlife Management Area), and/or RIB.

Samples and measurements taken in compliance with the monitoring requirements specified below shall be taken at:

Sample Location	Location Type	Location Name
001	Intake Structure	INFLUENT SPLITTER
002	Internal Outfall	MIXING WEIR
003	External Outfall	CASCADE AERATOR
004	External Outfall	RAPID INFILTRATION BASINS
005	Monitoring Well	MW #7
006	Monitoring Well	MW #8

008	Monitoring Well	MW #10
009	Monitoring Well	MW #11
010	Monitoring Well	MW #12
011	Monitoring Well	MW #13
012	Internal Outfall	POND #2

- A.2.4. Water Quality Standards:** There shall be no discharge of substances that would cause the groundwater quality to degrade below drinking water standards.
- A.2.5. Visibility Parameters:** There shall be no discharge of floating solids or visible foam in other than trace amounts.
- A.2.6. Solid Waste Management:** All solid, toxic, or hazardous waste shall be properly handled and disposed of pursuant to applicable laws and regulations. Any sludge generated during this operation shall be characterized and disposed of in accordance with local, State, and Federal regulations.
- A.2.7. Presumption of Possession and Compliance:** Copies of this permit, any subsequent modifications, and the O&M Manual shall be maintained at the permitted facility at all times.
- A.2.8. Records Retention:** All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed and calibration and maintenance of instrumentation, and recordings from continuous monitoring instrumentation, shall be retained for a minimum of five (5) years, or longer if required by the Administrator.
- A.2.9. Prerogative to Reopen:** There shall be no discharge of substances that would cause a violation of water quality standards of the State of Nevada as defined by the permit. The permit may be reopened, and additional limits imposed, if it is determined that the discharge is causing a violation of ambient water quality standards of the State of Nevada.
- A.2.10.** The discharge shall be limited and monitored by the Permittee as specified below. As applicable, exceptions to standard language in this permit are identified and authorized in the Special Approvals / Conditions table.

WWTP Discharge Limitations Table for Sample Location 001 (Influent Splitter) To Be Reported Monthly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	Daily Maximum	≤ 3.05 Million Gallons per Day (Mgal/d)		Raw Sewage Influent	001	Continuous	METER
Flow rate	30 Day Average	M&R Million Gallons per Day (Mgal/d)		Raw Sewage Influent	001	Continuous	METER
BOD, carbonaceous, 05 day, 20 C	30 Day Average ^[1]		M&R Milligrams per Liter (mg/L)	Raw Sewage Influent	001	Weekly	DISCRT
Solids, total suspended	30 Day Average ^[1]		M&R Milligrams per Liter (mg/L)	Raw Sewage Influent	001	Weekly	DISCRT

Notes (WWTP Discharge Limitations Table):

1. Value to be measured for the calculation of percent removal in Outfall 002.

WWTP Discharge Limitations Table for Sample Location 002 (Mixing Weir) To Be Reported Monthly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
BOD, carbonaceous, 05 day, 20 C	Daily Maximum		<= 60 Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Weekly	DISCRT
BOD, carbonaceous, 05 day, 20 C	30 Day Average		<= 40 Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Weekly	DISCRT
BOD, carb-5 day, 20 deg C, percent removal	Monthly Average Minimum		>= 65 Percent (%)	Internal Monitoring Point	002	Weekly	CALCTD ^[1]
pH, minimum	Minimum Value		>= 6 Standard Units (SU)	Internal Monitoring Point	002	Monthly	DISCRT
pH, maximum	Maximum Value		<= 9 Standard Units (SU)	Internal Monitoring Point	002	Monthly	DISCRT
Nitrogen, ammonia total (as N)	Value		M&R Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Monthly	DISCRT
Nitrogen, total	Value		M&R Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Monthly	DISCRT
Phosphorus, total (as P)	Value		M&R Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Monthly	DISCRT
Solids, total suspended	Daily Maximum		<= 65 Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Weekly	DISCRT
Solids, total suspended	30 Day Average		<= 45 Milligrams per Liter (mg/L)	Internal Monitoring Point	002	Weekly	DISCRT
Solids, suspended percent removal	Monthly Average Minimum		>= 65 Percent (%)	Internal Monitoring Point	002	Weekly	CALCTD ^[1]

Notes (WWTP Discharge Limitations Table):

1. Percent removal shall be calculated based off of the measured values from Outfall 001.

WWTP Discharge Limitations Table for Sample Location 003 (Cascade Aerator) To Be Reported Monthly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Coliform, fecal, colony forming units	30 Day Geometric Mean		≤ 23 Colony Forming Units per 100ml T (CFU/100mL)	Receiving Water	003	Monthly	DISCRT
Coliform, fecal, colony forming units	Daily Maximum		≤ 240 Colony Forming Units per 100ml T (CFU/100mL)	Receiving Water	003	Monthly	DISCRT
Flow rate	Daily Maximum	≤ 3.05 Million Gallons per Day (Mgal/d)		Receiving Water	003	Continuous	METER
Flow rate	30 Day Average	M&R Million Gallons per Day (Mgal/d)		Receiving Water	003	Continuous	METER
Chlorine, total residual	30 Day Maximum		M&R Milligrams per Liter (mg/L)	Receiving Water	003	Weekly	DISCRT
Chlorine, total residual	30 Day Average		M&R Milligrams per Liter (mg/L)	Receiving Water	003	Weekly	DISCRT
Nitrogen, total	30 Day Average		M&R Milligrams per Liter (mg/L)	Receiving Water	003	Monthly	DISCRT

WWTP Discharge Limitations Table for Sample Location 003 (Cascade Aerator) To Be Reported Annually^[1]

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Arsenic, total recoverable	Daily Maximum		<= 100 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Beryllium, total recoverable (as Be)	Daily Maximum		<= 100 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Boron, total recoverable	Daily Maximum		<= 750 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Cadmium, total recoverable	Daily Maximum		<= 7.6 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Chromium, total recoverable	Daily Maximum		<= 100 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Copper, total recoverable	Daily Maximum		<= 58 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Cyanide, total (as CN)	Daily Maximum		<= 22 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Fluoride, total (as F)	Daily Maximum		<= 1000 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Iron, total recoverable	Daily Maximum		<= 1000 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Lead, total recoverable	Daily Maximum		<= 321 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Manganese, total recoverable	Daily Maximum		<= 200 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT

WWTP Discharge Limitations Table for Sample Location 003 (Cascade Aerator) To Be Reported Annually^[1]

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Mercury, total recoverable	Daily Maximum		Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Molybdenum, total recoverable	Daily Maximum		<= 6160 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Nickel, total recoverable	Daily Maximum		<= 200 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Selenium, total recoverable	Daily Maximum		<= 20 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Silver total recoverable	Daily Maximum		<= 46 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Sulfide, total (as S)	Daily Maximum		<= 2 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Zinc, total recoverable	Daily Maximum		<= 435 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Acrolein	Daily Maximum		<= 3 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Aldrin	Daily Maximum		<= 3 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Chlordane (tech mix. and metabolites)	Daily Maximum		<= 2.4 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
4,4-DDT	Daily Maximum		<= 1.1 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
			<= .2				

WWTP Discharge Limitations Table for Sample Location 003 (Cascade Aerator) To Be Reported Annually^[1]

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Dieldrin	Daily Maximum		Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Endrin	Daily Maximum		<= .1 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Heptachlor	Daily Maximum		<= .5 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Heptachlor epoxide	Daily Maximum		<= .5 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Pentachlorophenol	Daily Maximum		M&R Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Toxaphene	Daily Maximum		<= .7 Micrograms per Liter (ug/L)	Effluent Gross	003	Annual	DISCRT
Hydrocarbons, total petroleum	Daily Maximum		<= 1 Milligrams per Liter (mg/L)	Effluent Gross	003	Annual	DISCRT
Nitrogen, ammonia total (as N)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Annual	DISCRT
Phosphorus, total (as P)	Daily Maximum		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Annual	DISCRT
1,1-Dichloropropene	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
1,3-Dichloropropene	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
2,4,5-TP(silvex) acids/salts, whole water sample	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
2,4-D SALTS AND ESTERS	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
2,4-D isobutyl ester in	Daily			Effluent			

WWTP Discharge Limitations Table for Sample Location 003 (Cascade Aerator) To Be Reported Annually^[1]

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
2,4-DB	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
2,4-DDD (O,P-DDD)	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
2,4-DDE (O,P-DDE)	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
2,4-Di-tert-pentylphenol, total	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
2,4-Dichlorophenol	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
2,4-Dichlorophenoxyacetic acid	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
2,4-Dimethylphenol	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
2,4-Dinitrophenol	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
2,4-Dinitrophenol, dry weight	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
2,4-Dinitrotoluene	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
2,4-Dinitrotoluene, dry weight	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Azinphos-methyl	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Chlorpyrifos	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
DDT	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Demeton	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Di-2-ethylhexyl phthalate	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Diazinon	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Dibutyl phthalate	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Diethyl phthalate	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Dimethyl phthalate	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Dimethyl phthalate	Daily		M&R	Effluent	003	Annual	DISCRT

WWTP Discharge Limitations Table for Sample Location 003 (Cascade Aerator) To Be Reported Annually^[1]

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Fluoranthene	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Hexachlorocyclopentadiene	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Isophorone	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Lindane	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Malathion	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Methoxychlor	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Mirex	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Monochlorobenzenes	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Nitrobenzene	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Nonylphenol	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Parathion	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Phenol	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Polychlorinated biphenyls (PCBs)	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Silvex	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Tributyltin	Daily Maximum		M&R	Effluent Gross	003	Annual	DISCRT
Flow rate	Rolling Average ^[2]	M&R Million Gallons per Day (Mgal/d)		Effluent Gross	003	Annual ^[3]	CALCTD

Notes (WWTP Discharge Limitations Table):

1. NAC 445A.1236 pollutant list to be reported annually.
2. Rolling annual average.
3. The rolling annual average flow rate shall be calculated using the four (4) most recent reporting periods (quarters).

WWTP Discharge Limitations Table for Sample Location 012 (Pond 2) To Be Reported Quarterly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	Daily Maximum	M&R Million Gallons per Day (Mgal/d)		Effluent Gross	012	Daily When Discharging	METER
Flow rate	30 Day Average	M&R Million Gallons per Day (Mgal/d)		Effluent Gross	012	Daily When Discharging	METER

Groundwater Monitoring Wells Table for Sample Location 005 (Monitoring Well 7) To Be Reported Quarterly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Depth to water level ft below landsurface	Value	M&R Feet (ft)		Groundwater	005	Monthly	INSITU
Chloride (as Cl)	Value		M&R Milligrams per Liter (mg/L)	Groundwater	005	Monthly	DISCRT
Solids, total dissolved	Value		M&R Milligrams per Liter (mg/L)	Groundwater	005	Monthly	DISCRT
Nitrogen, total	Value		<= 10 Milligrams per Liter (mg/L)	Groundwater	005	Monthly	DISCRT

Groundwater Monitoring Wells Table for Sample Location 006 (Monitoring Well 8) To Be Reported Quarterly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Depth to water level ft below landsurface	Value	M&R Feet (ft)		Groundwater	006	Monthly	INSITU
Chloride (as Cl)	Value		M&R Milligrams per Liter (mg/L)	Groundwater	006	Monthly	DISCRT
Solids, total dissolved	Value		M&R Milligrams per Liter (mg/L)	Groundwater	006	Monthly	DISCRT
Nitrogen, total	Value		<= 10 Milligrams per Liter (mg/L)	Groundwater	006	Monthly	DISCRT

Groundwater Monitoring Wells Table for Sample Location 007 (Monitoring Well 9) To Be Reported Quarterly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Depth to water level ft below landsurface	Value	M&R Feet (ft)		Groundwater	007	Monthly	INSITU
Chloride (as Cl)	Value		M&R Milligrams per Liter (mg/L)	Groundwater	007	Monthly	DISCRT
Solids, total dissolved	Value		M&R Milligrams per Liter (mg/L)	Groundwater	007	Monthly	DISCRT
Nitrogen, total	Value		<= 10 Milligrams per Liter (mg/L)	Groundwater	007	Monthly	DISCRT

Groundwater Monitoring Wells Table for Sample Location 008 (Monitoring Well 10) To Be Reported Quarterly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Depth to water level ft below landsurface	Value	M&R Feet (ft)		Groundwater	008	Monthly	INSITU
Chloride (as Cl)	Value		M&R Milligrams per Liter (mg/L)	Groundwater	008	Monthly	DISCRT
Solids, total dissolved	Value		M&R Milligrams per Liter (mg/L)	Groundwater	008	Monthly	DISCRT
Nitrogen, total	Value		<= 10 Milligrams per Liter (mg/L)	Groundwater	008	Monthly	DISCRT

Groundwater Monitoring Wells Table for Sample Location 009 (Monitoring Well 11) To Be Reported Quarterly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Depth to water level ft below landsurface	Value	M&R Feet (ft)		Groundwater	009	Monthly	INSITU
Chloride (as Cl)	Value		M&R Milligrams per Liter (mg/L)	Groundwater	009	Monthly	DISCRT
Solids, total dissolved	Value		M&R Milligrams per Liter (mg/L)	Groundwater	009	Monthly	DISCRT
Nitrogen, total	Value		<= 10 Milligrams per Liter (mg/L)	Groundwater	009	Monthly	DISCRT

Groundwater Monitoring Wells Table for Sample Location 010 (Monitoring Well 12) To Be Reported Quarterly

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Depth to water level ft below landsurface	Value	M&R Feet (ft)		Groundwater	010	Monthly	INSITU
Chloride (as Cl)	Value		M&R Milligrams per Liter (mg/L)	Groundwater	010	Monthly	DISCRT
Solids, total dissolved	Value		M&R Milligrams per Liter (mg/L)	Groundwater	010	Monthly	DISCRT
Nitrogen, total	Value		<= 10 Milligrams per Liter (mg/L)	Groundwater	010	Monthly	DISCRT

Groundwater Monitoring Wells Table for Sample Location 011 (Monitoring Well 13) To Be Reported Quarterly

Discharge Limitations				Monitoring Requirements			
Parameter	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Depth to water level ft below landsurface	Value	M&R Feet (ft)		Groundwater	011	Monthly	INSITU
Chloride (as Cl)	Value		M&R Milligrams per Liter (mg/L)	Groundwater	011	Monthly	DISCRT
Solids, total dissolved	Value		M&R Milligrams per Liter (mg/L)	Groundwater	011	Monthly	DISCRT
Nitrogen, total	Value		≤ 10 Milligrams per Liter (mg/L)	Groundwater	011	Monthly	DISCRT

Ponds / Rapid Infiltration Basins for Sample Location 004 (Rapid Infiltration Basins) To Be Reported Quarterly^{[1][2]}

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	30 Day Maximum	M&R Million Gallons per Day (Mgal/d)		Effluent Gross	004	Continuous	METER
Flow rate	30 Day Average	M&R Million Gallons per Day (Mgal/d)		Effluent Gross	004	Continuous	METER

Notes (Ponds / Rapid Infiltration Basins):

1. If no discharge occurs during the reporting period, enter the no data indicator (NODI) code "C" on the Discharge Monitoring Report for no discharge for that quarter, when entering the reporting values into NetDMR.
2. Discharge monitoring is required for 12 months, or 4 quarters, following active discharge from the rapid infiltration basins. If discharge has not occurred, no monitoring is required for this outfall.

A.3. Schedule of Compliance: The Permittee shall implement and comply with the provisions of the schedule of compliance after approval by the Nevada Division of Environmental Protection (Division), including in said implementation and compliance, any additions or modifications, which the Division may make in approving the schedule of compliance. All compliance deliverables shall be addressed to the attention of the Bureau of Water Pollution Control.

A.3.1. The Permittee shall achieve compliance with the effluent limitations upon issuance of the Permit.

SOC – Schedule of Compliance Table

Item #	Description	Due Date
1	The Permittee shall submit two (2) copies of an updated Operation and Maintenance (O&M) Manual, one hard copy and one electronic copy, for review and approval by the Division. The O&M Manual shall be prepared by a Nevada Registered Professional Engineer or other qualified person. If no updates or revisions are required, the Permittee shall submit a letter by the due date stating that there have been no changes to the previously approved O&M Manual. ^[1]	5/28/2025

Notes (Schedule of Compliance Table):

1. O&M Manuals prepared by Nevada Registered Professional Engineers must be signed and stamped in accordance with NAC 625.610.

SA – Special Approvals / Conditions Table

Item #	Description
1	Treated effluent discharged to the Fernley Wildlife Management Area (FWMA) shall be contained within the FWMA boundaries per the Nevada Department of Wildlife (NDOW) Cooperative Reuse Agreement and the NDOW Effluent Management Plan. Surface discharge beyond the FWMA boundaries is prohibited.
2	If, after one year of reporting sample data for the EWWTP's monitoring wells 7, 8, 9, and 10, there is an increasing trend in total nitrogen levels, as determined by the Division, the Permittee shall, within 60 days, submit to the Division for review and approval either a Groundwater Remediation Plan or a plan to discharge the treated effluent to an off site location.
3	NDEP shall maintain the authority to open and modify this permit at any time until NDEP's Technical Compliance and Enforcement (TCE) Branch closes the AOC with the COF. NDEP will notify the Permittee, of any permit requirements, changes, and additional monitoring wells needed to be added on-site and shall perform these changes via a minor modification to this permit. The Permittee shall perform the changes and installations at a timeline approved by the Division's TCE Branch. All plans and engineering submittals to the Division must be dated, signed, and stamped by a Nevada licensed professional engineer, per NAC 625.611.
4	A minor modification to the permit may be conducted to remove Monitoring Wells 8, and 10, after the permittee provides, to the Bureau of Water Pollution Control (BWPC), (1) documentation from a Nevada certified lab showing the historical groundwater quality, AND (2) total nitrogen levels remain below 7.0 mg/L for no less than 24 consecutive months.

DLV– Deliverable Schedule for Reports, Plans, and Other Submittals

Item #	Description	Interval	First Scheduled Due Date
1	Discharge Monitoring Reports	Quarterly	1/28/2025
2	Annual Reports	Annually	1/28/2025

A.4. Certified Operators

A.4.1. The facility shall be operated by a Nevada Certified Class Operator (or higher) of classification

☐ None, ☒ Level 1, ☐ Level 2, ☐ Level 3, or ☐ Level 4.

A.5. Discharge Monitoring Reports (DMRs)

A.5.1. DMRs must be signed by the facility's highest ranking certified operator. The first DMR submitted under this permit must include the written designation of the certified operator required by Section C, Signatures, Certification Required on Application and Reporting Forms, as the authorized representative to sign the DMRs. If the certified operator in responsible charge changes, a new designation letter must be submitted.

SECTION B

Site specific requirements, which prevail in the case of any inconsistency with the requirements in Section A, are on the following pages:

B.TF. Treatment Facilities / Operations

- B.TF.1.** There shall be no objectionable odors from the collection system or wastewater treatment, disposal and reuse facilities.
- B.TF.2.** There shall be no discharge from the collection system or wastewater treatment, disposal and reuse facilities except as authorized by this permit.
- B.TF.3.** There shall be no discharge of substances that would cause an exceedance of drinking water standards in the groundwater.
- B.TF.4.** The wastewater treatment and disposal facilities shall be adequately posted and properly fenced.
- B.TF.5.** The wastewater collection, treatment, disposal and reuse facilities shall be constructed in conformance with plans approved by the Division. The plans must be approved by the Division prior to the start of construction. All changes to the approved plans must be approved by the Division.
- B.TF.6.** The facility shall be operated in accordance with the Division approved O&M Manual.
- B.TF.7.** An operations logbook, including the name of the operator, date, time, and general condition of the wastewater treatment facility, must be kept and maintained on the site premises. The operator shall inspect the site at the frequency prescribed in the O&M Manual.
- B.TF.8.** Flow Rate Notification: The Permittee shall notify the Administrator, by letter, not later than ninety (90) days after the 30-day average daily influent flow rate first equals or exceeds 85% of the design treatment capacity of the Permittee's facility given in Section A. above. The letter shall include:
 - B.TF.8.1.** The 30-day average daily influent flow rate;
 - B.TF.8.2.** The maximum 24-hour flow rate during the 30-day period reported above and the date the maximum flow occurred;
 - B.TF.8.3.** The Permittee's estimate of when the 30-day average influent flow rate will equal or exceed the design treatment capacity of the Permittee's facility;
 - B.TF.8.4.** A status report on the treatment works which will outline but not be limited to past performance, remaining capacity of the limiting treatment and disposal units or sites, past operational problems and improvements instituted, modifications to the treatment works which are needed to attain the permitted flow rate due to changing site specific conditions or design criteria; and
 - B.TF.8.5.** The Permittee's schedule of compliance to provide additional treatment capacity before the 30-day average daily influent flow rate equals the present design treatment capacity of the Permittee's facility.
- B.TF.9.** Color photograph(s) of the Permitted facilities and operations, labeled and dated, shall be submitted to this office annually as part of the 4th quarter DMR.

B.PB. Ponds and Basins:

B.PB.1. There shall be no objectionable odors emitted from the facility.

B.PB.2. The facility shall be fenced and posted.

B.PB.3. Facility Construction:

B.PB.3.1. All of the facility's industrial process and wastewater disposal systems shall be constructed in conformance with plans approved by the Division. All plans must be approved by the Division prior to the start of construction and must be stamped by a Professional Engineer licensed in the State of Nevada (NV P.E.). Change orders to the approved plans must be stamped by a NV P.E. and submitted to the Division for approval prior to implementation.

B.PB.3.2. Ponds shall be located and constructed so as to:

B.PB.3.2.1. Contain with no discharge the twenty five (25)-year/twenty four (24)-hour storm at said location; and

B.PB.3.2.2. Withstand with no discharge the one hundred (100)-year flood of said location.

B.PB.4. Pond Management:

B.PB.4.1. Inspections and maintenance, including the periodic removal of materials to restore capacity, shall be conducted in accordance with the accepted O&M Manual. Summaries of these activities shall be included in the quarterly reports.

B.PB.4.2. Damaged ponds or liners shall be repaired or the pond taken out of service. The Division shall be notified in writing within one week of discovery of a liner tear or hole, and a repair plan or abandonment plan shall be submitted within fourteen (14) days of discovery.

B.PB.4.3. The Permittee shall maintain a minimum freeboard of three (3) feet for ponds greater than one (1) acre. A freeboard of two (2) feet for ponds less than or equal to one (1) acre may be accepted as approved by the Division and as identified and authorized in the Special Approvals / Conditions table.

B.PB.4.4. Ponds shall have a staff gauge installed to indicate the water level depth. The water level in each pond shall be measured monthly and recorded in the operations logbook maintained at the site.

B.PB.5. When Present, Double Lined Leak Detection Systems:

B.PB.5.1. Leakage rates shall be reported in units of average gallons per day per acre, per pond.

B.PB.5.2. Upon written notification by the Division, any liquids accumulated in leak detection systems shall be sampled and analyzed in accordance with the requirements of Section A, as applicable. All leakage rates shall be reported with the Quarterly Report.

B.PB.5.3. The Leak Collection and Recovery System or LCRS (e.g., collection sump, pumps, collection media, etc.) shall be designed to remove the collected leakage at a rate equal to or greater than the maximum rate collected in the interstitial leak detection sump media

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- B.PB.5.4.** The leak detection metering system must allow for accurate recording of the daily volume of leakage through the primary liner.
- B.PB.5.5.** The maximum allowable leakage rate for the primary liner is 500 gallons/acre-day. The action leakage rates through the primary liner shall be as follows (note: a more restrictive action leakage rate schedule may be required on a case-by-case basis):
- B.PB.5.6.** Leak-detection monitoring wells may be required to assess leakage impacts to the environment.
- B.PB.6. Closure:**
- B.PB.6.1.** Sixty (60) days prior to closing any permitted pond, the Permittee shall submit a closure plan and schedule to the Division for review and approval.
- B.PB.6.2.** Upon approval of the closure plan by the Division, the Permittee shall implement the plan.

B.MW. Monitoring Wells:

- B.MW.1.** Discrete groundwater samples shall be collected to confirm the effective protection of groundwater under the established discharge conditions of this permit.
- B.MW.2.** All wells shall be monitored in accordance with the parameters identified in the Groundwater Monitoring Well Table(s).
- B.MW.3.** Increasing concentrations of total nitrogen as nitrogen (-N) in groundwater samples invoke the following response requirements:
- B.MW.3.1.** If the total nitrogen-N concentration increases to 7.0 mg/L, an alternate method of process wastewater and/or manure storage must be prepared and submitted to the Division for review and approval;
- B.MW.3.2.** If the total nitrogen-N concentration increases to 9.0 mg/L, construction of the approved alternate process wastewater and/or manure storage facility shall begin; and
- B.MW.3.3.** If the total nitrogen-N concentration increases to 10.0 mg/L, discharge to groundwater shall cease unless authorized with written approval from the Division.
- B.MW.4.** To continue discharges under the terms of this permit, the Permittee may submit for review and approval an alternative approach, stamped by a Nevada Registered Professional Engineer, that ensures no further degradation of waters of the State.
- B.MW.5.** Groundwater monitoring and data rendering activities shall be conducted by, or under the supervision of, an Environmental Manager certified in the State of Nevada, or other qualified person approved by the Division
- B.MW.6.** Groundwater monitoring wells shall be conspicuously labeled, capped to prevent migration of surface contaminants to the groundwater, and locked to restrict access.
- B.MW.7. Well Abandonment:** Abandonment of any groundwater monitoring wells shall be conducted under the approval of, and in accordance with the requirements established by, the Division and the Division of Water Resources.

C.1. MONITORING AND REPORTING:

C.1.1. Schedule: Discharge Monitoring Reports (DMRs) shall be received by the 28th day of the month following the third month of each quarter (reporting period). Quarterly and annual reporting periods are based on the standard annual cycle, January 1 through December 31.

C.1.1.1 If required, all Annual, Biosolids Monitoring Report (BMR), Pretreatment, Total Inorganic Nitrogen (TIN), Salinity Control, and Whole Effluent Toxicity Testing (WET) annual reports are due as defined in the Deliverable Table (DLV).

C.1.1.2 An original signed copy of these, and all other reports required herein, shall be submitted to the State at the following address:

**Nevada Division of Environmental Protection
Bureau of Water Pollution Control
901 South Stewart Street, Suite 4001
Carson City, Nevada 89701**

C.1.2. Annual Report: The fourth quarter report shall contain plots of concentration (y-axis) versus date (x-axis) for each analyzed constituent identified in the Monitoring Table. The plots shall include data from the preceding five years, if available. Plotting is not required for any constituent that have routinely been below the detection limit or if less than three data points exist. Any data point from the current year that is greater than the limits identified in the applicable tables and conditions above must be explained by a narrative.

Once reporting through the Nevada NetDMR system has been performed for a continuous five year period annual plots are no longer required.

C.1.3. Reporting: Monitoring results obtained in accordance to the requirements of the permit, supporting laboratory data, and supporting documents shall be submitted through the Nevada NetDMR system.

<https://netdmr.ndep.nv.gov/netdmr/public/home.htm>

C.1.4. Sampling and measurements: Samples and measurements taken when required shall be representative of the volume and nature of the monitored discharge and must comply with any Division approved sampling plan as required by the Schedule of Compliance. Analyses shall be performed by a Nevada certified laboratory. Results from this lab must accompany the DMR. If no discharge occurs during the reporting period, report "no discharge" shall be indicated on the submitted DMR.

C.1.5. Recording the Results: For each measurement or sample taken pursuant to the requirements of this permit, the Permittee shall record the following information:

C.1.5.1. The exact place, date, and time of sampling;

C.1.5.2. The dates the analyses were performed;

C.1.5.3. The person(s) who performed the analyses;

C.1.5.4. The analytical techniques or methods used; and

C.1.5.5. The results of all required analyses.

C.1.6. **Additional Monitoring by Permittee:** If the Permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, and the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form. Such increased frequency shall also be indicated.

C.1.7. **Test Procedures:** Test procedures for the analysis of pollutants shall conform to regulations (40 CFR, Part 136) published pursuant to Section 304(h) of the CWA, under which such procedures may be required unless other procedures are approved by the Division. Other procedures used may be:

C.1.7.1. Selected from SW-846;

C.1.7.2. Selected from 40 CFR 503; or

C.1.7.3. An alternate test procedure approved by the Division, Environmental Laboratory Services.

C.1.7.4. All laboratory analyses conducted in accordance with this discharge permit must have detection at or below the permit limits.

C.1.7.5. All analytical results must be generated by analytical laboratories certified by the Nevada Laboratory Certification Program

C.1.8. **Reporting Limits:** Unless otherwise approved by the Division, the approved method of testing selected for analysis must have reporting limits which are:

C.1.8.1. Half or less of the discharge limit; or, if there is no limit,

C.1.8.2. Half or less of the applicable water quality criteria; or, if there is no limit or criteria,

C.1.8.3. The lowest reasonably attainable using an approved test method.

C.1.8.4. This requirement does not apply if a water quality standard is lowered after the issuance of this permit; however, the Permittee shall review methods used and by letter notify the Division if the reporting limit will exceed the new criterion, and if so the Division may reopen the permit to impose new monitoring requirements.

C.2. **Operations and Maintenance (O&M) Manual:**

C.2.1. An O&M Manual shall be prepared and submitted to the Division for review and approval in accordance with the Division Operations and Maintenance Manual guidance (WTS-2).

C.2.2. The Permittee shall inspect the site at the frequency prescribed in the O&M Manual.

C.2.3. The Permittee shall maintain an operations logbook (hardcopy or electronic) on-site as referenced in the O&M Manual.

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- C.2.3.1.** The logbook shall include the name of the operator, date, time, and general condition of the facility.
- C.3. Planned changes:** The Permittee shall give notice to the Division as soon as possible of any planned physical alterations or additions to the permitted facility and receive approval prior to commencing construction. Notice is required only when the alteration or addition to a permitted facility:
- C.3.1.** May meet one of the criteria for determining whether a facility is a new source (40 CFR 122.29 (b));
- C.3.2.** Could significantly change the nature or increase the quantity of pollutants discharged; or
- C.3.3.** Results in a significant change to the Permittee's sludge management practice or disposal sites.
- C.4. Anticipated non-compliance:** The Permittee shall give advance notice to the Division of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- C.5. Change in Discharge:** All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the Permit. Any anticipated facility expansions or treatment modifications which will result in new, different, or increased discharges of pollutants must be reported by submission of a new application or, if such changes will not violate the effluent limitations specified in this Permit, by notice to the permit issuing authority of such changes. Any changes to the permitted treatment facility must comply with NAC 445A. The Permit may be modified to specify and limit any pollutants not previously limited.
- C.6. Facilities Operation-Proper Operation and Maintenance:** The Permittee shall at all times maintain in good working order and properly operate all treatment and control facilities, collection systems, and pump stations installed or used by the Permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures.
- C.7. Adverse Impact – Duty to Mitigate:** The Permittee shall take all reasonable steps to minimize the impact of releases to the environment resulting from noncompliance with any permit limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge. The Permittee shall carry out such measures, as reasonable, to prevent significant adverse impacts on human health or the environment. If the monitoring program (as required by this permit) identifies exceedances of ambient water quality standards at the boundary of any approved mixing zone, the Permittee shall notify the Division of the exceedances and describe any mitigation measures being implemented as part of the quarterly monitoring report requirements.
- C.8. Noncompliance, Unauthorized Discharge, Bypass and Upset**

permitted facility under the control of the Permittee is prohibited except as authorized by this permit. The Division may take enforcement action for a diversion, bypass, spill, overflow, or discharge of treated or untreated wastewater except as authorized by this permit. In the event the Permittee has knowledge that a diversion, bypass, spill, overflow or discharge not authorized by this permit is probable or has occurred, the Permittee shall notify the Division.

- C.8.2. Notification:** The Permittee is responsible for carrying out notification in the event of a diversion, bypass, spill, overflow or discharge not authorized by this permit with the following schedule;
 - C.8.2.1. Immediately:** Permittee shall be responsible for the timely notification of potentially impacted downstream users for the protection of human health and the environment.
 - C.8.2.2. Spill Hotline:** Notifying the Division through the NDEP Spill Hotline, 1-888-331-6337, as soon as practicable after the dispatch of emergency respondents and mitigating actions and no later than twenty-four (24) hours from the time of discovery.
 - C.8.2.3. 5-Day Report:** A written report shall be submitted to the Division within five (5) days of the discovery of a diversion, bypass, spill, overflow, upset, or discharge detailing the entire incident including;
 - C.8.2.3.1.** Time and date of discharge;
 - C.8.2.3.2.** Exact location and estimated amount of discharge;
 - C.8.2.3.3.** Flow path and any bodies of water which the discharge contacts;
 - C.8.2.3.4.** The specific cause of the discharge; and
 - C.8.2.3.5.** The preventive and/or corrective actions taken.
- C.8.3.** The Permittee shall report all instances of noncompliance not reported under Section C.8. (Noncompliance, Unauthorized Discharge, Bypassing and Upset) at the time monitoring reports are submitted. The reports shall contain the information listed in Section C.8. (Noncompliance, Unauthorized Discharge, Bypassing and Upset).
- C.8.4. Bypass not exceeding limitations:** The Permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of the applicable Section of Section C.8. (Noncompliance, Unauthorized Discharge, Bypassing and Upset including Prohibition of Bypass).
- C.8.5. Anticipated bypass:** If the Permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten days before the date of bypass.
- C.8.6. Prohibition of Bypass:** Bypass is prohibited, and the Division may take enforcement action against a Permittee for bypass, unless:
 - C.8.6.1.** Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

- C.8.6.2.** There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
- C.8.6.3.** The Permittee submitted notices as required under Section C.8. (Noncompliance, Unauthorized Discharge, Bypassing and Upset).
- C.8.7. **Approved Bypass:**** The Division may approve an anticipated bypass, after considering its adverse effects, if the Division determines that it will meet the three conditions listed in Section C.8.6.
- C.8.8. **Effect of an upset:**** An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Section C.8 (Noncompliance, Unauthorized Discharge, Bypassing and Upset: Conditions necessary for a demonstration of an upset) are met.
- C.8.9. **Conditions necessary for a demonstration of an upset:**** A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence, that:
- C.8.9.1.** An upset occurred and that the Permittee can identify the cause(s) of the upset;
- C.8.9.2.** The permitted facility was at the time being properly operated;
- C.8.9.3.** The Permittee submitted notice of the upset as required under this Section; and
- C.8.9.4.** The Permittee complied with any remedial measures required under Section C.8. (Noncompliance, Unauthorized Discharge, Bypassing and Upset).
- C.8.10. **Enforcement:**** In selecting the appropriate enforcement option, the Division shall consider whether or not the noncompliance was the result of an upset. The burden of proof is on the Permittee to establish that an upset occurred.
- C.9. **Removed Substances:**** Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be properly disposed as described in the SWMP.
- C.10. **Right of Entry and Inspection:**** The Permittee shall allow the Administrator and/or his authorized representatives, upon the presentation of credentials, to:
- C.10.1.** Enter at reasonable times upon the Permittee's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit;
- C.10.2.** Have access to and copy any records required to be kept under the terms and conditions of this permit at reasonable times;
- C.10.3.** Inspect at reasonable times any facilities, equipment (including monitoring and control

- C.10.4.** Perform any necessary sampling or monitoring to determine compliance with this permit at any location for any parameter.
- C.11. Transfer of Ownership or Control:** In the event of any change in control or ownership of facilities from which the authorized discharge emanates, the Permittee shall notify the succeeding owner or controller of the existence of this permit, by letter, a copy of which shall be forwarded to the Division. The Division may require modification or revocation and reissuance of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary. The Division shall approve ALL transfers of permits.
- C.12. Availability of Reports:** Except for data determined to be confidential under NRS 445A.665, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of the Division. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in NRS 445A.710.
- C.13. Furnishing False Information and Tampering with Monitoring Devices:** Any person who intentionally or with criminal negligence makes any false statement, representation, or certification in any application, record, report, plan or other document filed or required to be maintained by the provisions of NRS 445A.300 to 445A.730, inclusive, or by any permit, rule, regulation or order issued pursuant thereto, or who falsifies, tampers with or knowingly renders inaccurate any monitoring device or method required to be maintained under the provisions of NRS 445A.300 to 445A.730, inclusive, or by any permit, rule, regulation or order issued pursuant thereto, is guilty of a gross misdemeanor and shall be punished by a fine of not more than \$10,000 or by imprisonment. This penalty is in addition to any other penalties, civil or criminal, provided pursuant to NRS 445A.300 to 445A.730, inclusive.
- C.14. Penalty for Violation of Permit Conditions:** NRS 445A.675 provides that any person who violates a permit condition is subject to administrative and judicial sanctions as outlined in NRS 445A.690 through 445A.705, inclusive.
- C.15. Permit Modification, Suspension or Revocation:** After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:
- C.15.1.** Violation of any terms or conditions of this permit;
 - C.15.2.** Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
 - C.15.3.** A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge;
 - C.15.4.** A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination;
 - C.15.5.** Material and substantial alterations or additions to the permitted facility or activity;
 - C.15.6.** The Division has received new information;
 - C.15.7.** The standards or regulations have changed; or

- C.15.8.** The Division has received notification that the permit will be transferred.
- C.16. Minor Modifications:** With the consent of the Permittee and without public notice, the Division may make minor modifications in a permit to:
- C.16.1.** Correct typographical errors;
 - C.16.2.** Clarify permit language;
 - C.16.3.** Require more frequent monitoring or reporting;
 - C.16.4.** Change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the permit and does not interfere with attainment of the final compliance date;
 - C.16.5.** Allow for change in ownership;
 - C.16.6.** Change the construction schedule for a new discharger provided that all equipment is installed and operational prior to discharge;
 - C.16.7.** Delete an outfall when the discharge from that outfall is terminated and does not result in discharge of pollutants from other outfalls except in accordance with permit limits; or
 - C.16.8.** Reallocate the IWLA as long as the SIWLA does not change.
- C.17. Toxic Pollutants:** Notwithstanding Section C (Permit Modification, Suspension or Revocation), if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the CWA for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition and the Permittee so notified.
- C.18. Liability:** Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable Federal, State or local laws, regulations, or ordinances. However, except for any toxic effluent standards and prohibitions imposed under Section 307 of the CWA or toxic water quality standards set forth in NAC 445A.144, compliance with this permit constitutes compliance with CWA Sections 301, 302, 306, 307, 318, 403, 405(a) and (b), and with NRS 445A.300 through 445A.730, inclusive.
- C.19. Property Rights:** The issuance of this permit does not convey any property rights, in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.
- C.20. Severability:** The provisions of this permit are severable, and if any provision of this permit, or the application of any provisions of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

- C.21. Duty to Comply:** The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the CWA and is grounds for enforcement action; permit termination; revocation and reissuance, or modification; or denial of a permit renewal application.
- C.22. Need to Halt or Reduce Activity Not a Defense:** It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this permit.
- C.23. Duty to Provide Information:** The Permittee shall furnish to the Division, within a reasonable time, any relevant information which the Division may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Division, upon request, copies of records required to be kept by this permit.
- C.24. Other information:** Where the Permittee becomes aware of failure to submit any relevant facts in a permit application or the submittal of incorrect information in a permit application or in any report to the Division, the Permittee shall promptly submit such facts or information.
- C.25. Reapplication:** If the Permittee desires to continue to discharge, he shall reapply not later than 180 days before this permit expires on the application forms then in use. The Permittee shall submit the sludge information listed in 40 CFR 501.15(a)(2) with the renewal application. The renewal application shall be accompanied by the fee required by NAC 445A.232.
- C.26. Signatures, Certification Required on Application and Reporting Forms:** All applications, reports, or information submitted to the Division shall be signed and certified by making the following certification. "I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."
- C.26.1.** All applications, reports or other information submitted to the Division shall be signed by one of the following:
- C.26.2.** A principal executive officer of the corporation (of at least the level of vice president) or his authorized representative who is responsible for the overall operation of the facility from which the discharge described in the application or reporting form originates;
- C.26.3.** A general partner of the partnership;
- C.26.4.** The proprietor of the sole proprietorship; or
- C.26.5.** A principal executive officer, ranking elected official or other authorized employee of the municipal, state or other public facility.
- C.27. Changes to Authorization:** If an authorization under Section C.25 (Signatures, Certification Required on Application and Reporting Forms) is no longer accurate because a different

authorization satisfying the requirements of Section C.25 (Signatures, Certification Required on Application and Reporting Forms) must be submitted to the Division prior to or together with any reports, information, or applications to be signed by an authorized representative.

C.28. Definitions:

25-year, 24-hour storm event means a precipitation event with a probable recurrence interval of once in twenty-five years, as defined by the National Weather Service in Technical Paper No. 40, "Rainfall Frequency Atlas of the United States," May, 1961, or equivalent regional or State rainfall probability information developed from this source.

100-year, 24-hour storm event means a precipitation event with a probable recurrence interval of once in one hundred years, as defined by the National Weather Service in Technical Paper No. 40, "Rainfall Frequency Atlas of the United States," May, 1961, or equivalent regional or State rainfall probability information developed from this source.

Acute Toxicity means the concentration that is lethal to 50 percent of the test organisms within 96 hours.

Agricultural land means land on which a food crop, a feed crop, or a fiber crop is grown. This includes rangeland and land used as pasture.

Agronomic rate means the whole sludge application rate (dry weight basis) designed: To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and to minimize the amount of nitrogen that passes below the root zone of the crop or vegetation grown on the land to the groundwater.

Biosolids are non-hazardous sewage sludge or domestic septage.

Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

Chronic precipitation event means a series of wet weather conditions that precludes reducing the volume of properly designed, constructed, operated, and maintained waste storage and/or treatment facilities and that total a volume in excess of the 25-year, 24-hour storm event.

Composite Sample (for flow-rate measurements) sample means the arithmetic mean of no fewer than six individual measurements taken at equal time intervals for 24 hours, or for the duration of discharge, whichever is shorter.

Discrete sample means any individual sample collected in less than 15 minutes.

Feed crops means crops produced primarily for consumption by animals.

Food crops means crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

Land application means the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.

Land application area means land under the control of the Permittee, whether it is owned

be applied.

Manure means animal excrement and is defined to include bedding, compost, and raw materials or other materials commingled with animal excrement or set aside for disposal.

Process wastewater means water directly or indirectly used in the operation of the facility.

Sewage sludge means solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works.

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not excuse noncompliance to the extent caused by operational error, improperly designed include treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

Vegetated buffer means a permanent strip of dense perennial vegetation established parallel to the contours of and perpendicular to, the dominant slope for the purposes of slowing water runoff, enhancing water infiltration, and minimizing the risk of any potential pollutants leaving being released.

Appendix B Existing Site Photos



Outfall



Chlorination Storage



Pond 1A



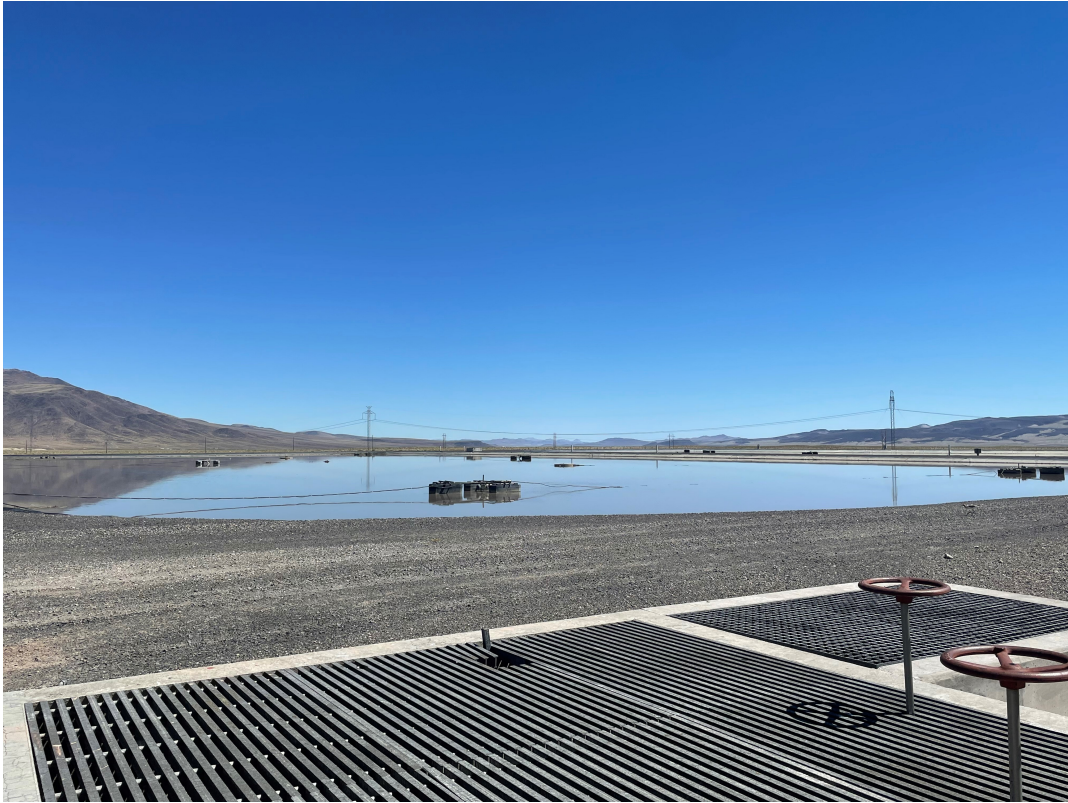
Pond 1B



Pond 2



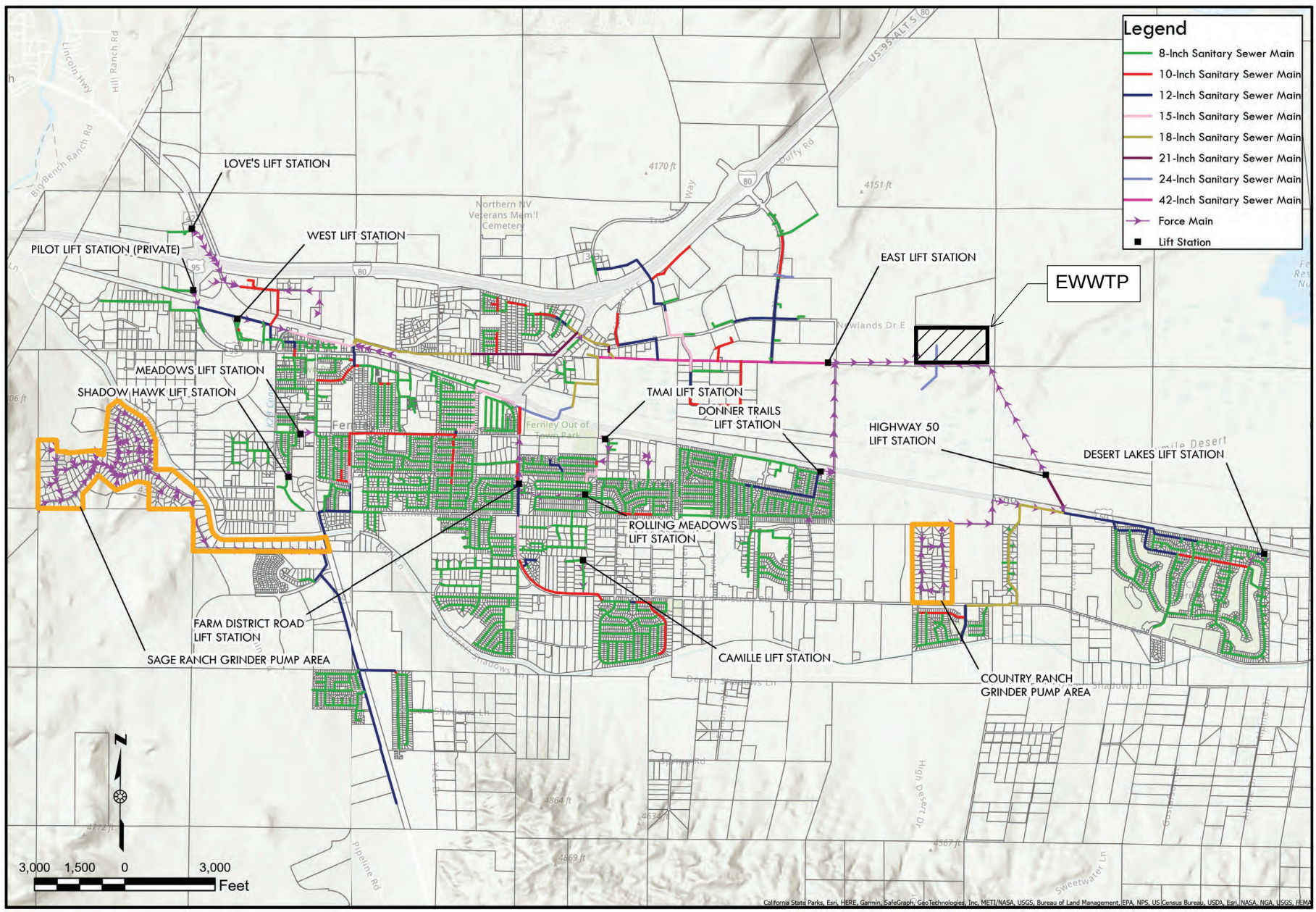
Pond 3A



Pond 3B

Appendix C Overall Sewer Map – City of Fernley

(Ref: Sewer Master Plan, Shaw Engineering, 2024)



Appendix D Monitoring Wells Investigation Report – May 2021



NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**

STATE OF NEVADA
Department of Conservation & Natural Resources
Bradley Crowell, Director
Greg Lovato, Administrator

June 8, 2021

Kristin Tokheim, P.E., Sr. Engineer
Lumos & Associates
308 N. Curry St., Suite 200
Carson City, NV 89703

**RE: Administrative Order on Consent # AOC091015W1 – Monitoring Well Installation Project
Fernley WWTP Discharge Permit # NS0080011**

Dear Ms. Tokheim:

This letter serves as acknowledgment that our office received the Final Report and lithology details for MW-11, MW-12, and MW-13 on May 13, 2021. NDEP had originally approved the 100% plans and specifications for these three, new monitoring wells on August 6, 2020. Thank you for notifying our office of the recent completion of Monitoring Wells #11-13 at the Fernley WWTP.

If you should have any questions, please feel free to contact me at (775) 687-9424.

Sincerely,

Mark A. Kaminski

Mark A. Kaminski, P.E.
Technical, Compliance & Enforcement Branch
Bureau of Water Pollution Control

cc:

Derek Starkey, P.E., City Engineer, City of Fernley, 595 Silver Lace Blvd., Fernley, NV 89408
BWPC Compliance Coordinator

Emailed:

Dave Whalen, P.E., Public Works Director, City of Fernley
Mike Hardy, P.E., P.G., W.R.S., Lumos & Associates
Mitch Cowles, E.I.
Donette Barreto, P.E.
Katura Tullar, E.I.
Katrina Pascual, P.E.
Elizabeth Kingsland, Chief

City of Fernley

Wastewater Treatment Plant

New Monitoring Wells Project

Report

May 2021



Prepared for:



Prepared by:

Lumos & Associates, Inc.
9222 Prototype Drive
Reno, Nevada 89521-8987
775-827-6111



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EXECUTIVE SUMMARY

An Administrative Order of Consent (AOC) was issued to the City of Fernley (City) by the Nevada Division of Environmental Protection (NDEP) as a result of elevated nitrogen readings in Monitoring Well 9 (MW-9) at the City's Wastewater Treatment Plant (WWTP) which exceeded the Maximum Contaminant Level (MCL) of 10 milligrams per liter (mg/L). Total nitrogen readings did not decrease in the 10-month monitoring period outlined in the AOC, which initiated the installation of additional monitoring wells. Lumos & Associates, Inc. (Lumos) was commissioned to design and provide oversight for the drilling, construction, and testing of three new monitoring wells for the City of Fernley WWTP. The main objectives of the Fernley WWTP New Monitoring Wells Project was to (1) characterize the lithologic formations below the WWTP (2) delineate the true aquifer below the WWTP (3) gain a better understanding of the aquifers hydraulic gradient and direction in the area, and (4) collect representative water quality samples to determine the concentration of nitrogen in the true aquifer. This data collected during the drilling and testing of the monitoring wells was used to help characterize the aquifer beneath the WWTP, including ascertaining water quality.

The drilling of the monitoring wells was performed using a sonic drill rig, which provides high quality continuous core samples of lithologies with respect to depth in the well borings and helps to delineate the aquifer below the WWTP. Whenever a favorable soil media with sufficient water was encountered, a discrete depth pumping test (zone sample) was performed. 4-inch monitoring wells were constructed in each boring with variable depth depending on the location of the aquifer encountered.

Following the construction of the monitoring wells, the screen interval in each well was developed with a double-disk swab development tool. After development, a submersible pump assembly was set near the bottom, and a pump test was conducted. At the end of pump testing, a composite water sample was collected.

Water quality analysis from samples collected during zone sampling and pump testing show total nitrogen concentrations slightly above or below the detection limit. The three new monitoring wells drilled at the City of Fernley WWTP revealed that all previous wells never reached the aquifer below the plant. Samples collected from the historic monitoring wells with elevated nitrogen, were sampled from screen intervals located in an aquiclude above the aquifer providing a false representation of the true aquifer. All zone samples and composite samples collected from the true aquifer underlying the City of Fernley's WWTP show nitrogen concentrations well below the MCL of 10 milligrams per liter (mg/L).

SECTION 1.0: INTRODUCTION

1.1 Location

The City of Fernley commissioned Lumos & Associates, Inc. (Lumos) to design and provide oversight for the drilling, construction, and testing of three monitoring wells for the City of Fernley (City) Wastewater Treatment Plant (WWTP). The WWTP is located in the southern half of Section 9, T20N, R25E, in Lyon County. The plant is accessed from a well-maintained gravel road at the end of Nevada Pacific Parkway (Figures 1 and 2).

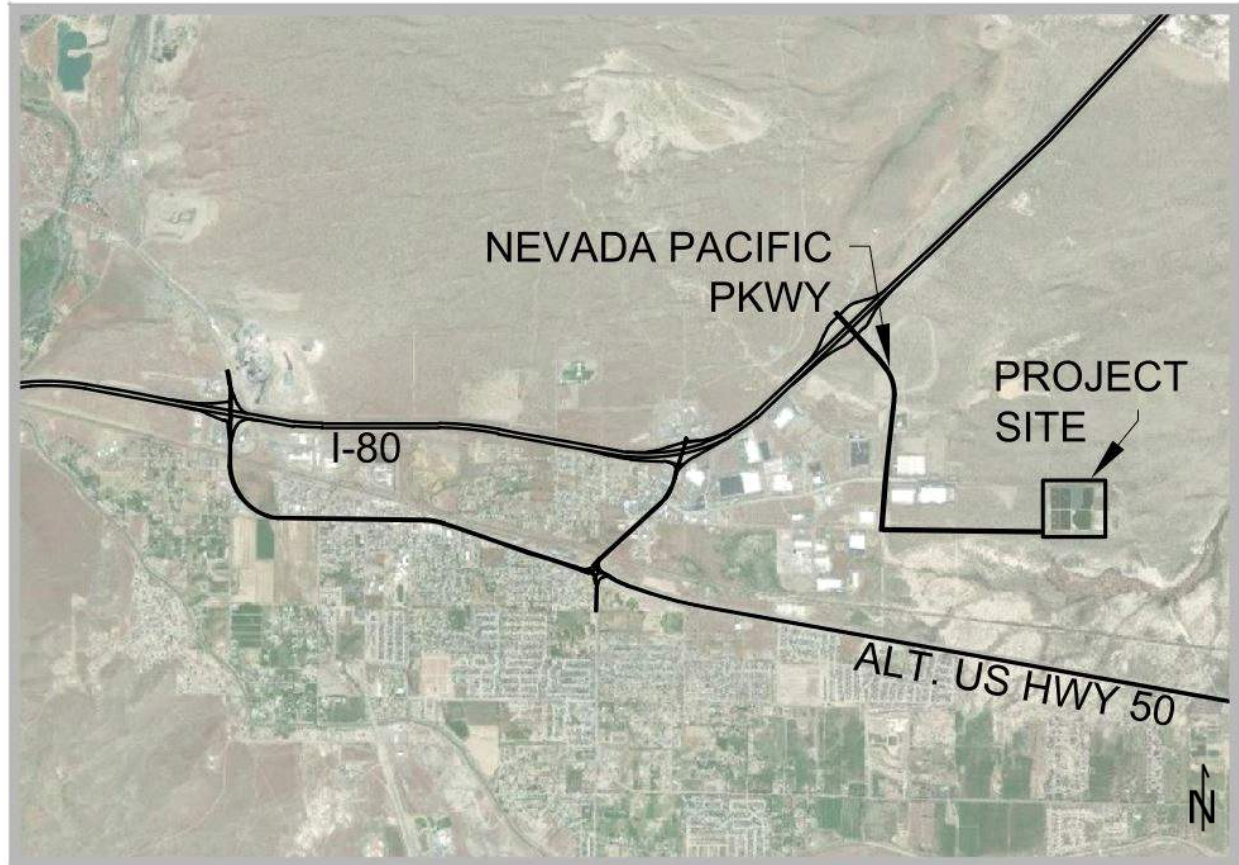


Figure 1. Vicinity Map of Fernley WWTP



Figure 2. Site Map of Fernley WWTP

1.2 Background

An Administrative Order of Consent (AOC) was issued to the City of Fernley by the Nevada Division of Environmental Protection (NDEP) in 2015 (and amended in 2016) as a result of elevated nitrogen readings in Monitoring Well 9 (MW-9) at the WWTP. The elevated nitrogen levels exceeded the Maximum Contaminant Level (MCL) of 10 milligrams per liter (mg/L). As required by the AOC, the City conducted a phased sludge removal and relining project of Pond 2 at the WWTP, which was completed in 2018, and continued to monitor groundwater quality trends with respect to total nitrogen. The monthly monitoring was conducted for a total of 10 months. Because total nitrogen levels did not decline in the 10-month time period, as outlined in the AOC, an additional course of action was needed. A meeting was held with NDEP, the City of Fernley, and Lumos in May of 2019 to discuss options moving forward. During the meeting, the installation of additional monitoring wells was identified as a preferred option by the City of Fernley and Lumos. The meeting concluded with all parties in agreement, including NDEP, to add three additional monitoring wells to determine if the historical monitoring wells truly represented the groundwater aquifer system below the City of Fernley's WWTP.

1.3 Historical Data

A basic chronology of the WWTP operations, water level data, and water quality is provided below based upon available data received from the City of Fernley, NDEP, and a Lumos internal technical memo (Widmer, 2016).

History of WWTP operations:

1. 1988: Plant online with Ponds 1 and 2, rapid infiltration basins (RIBs) in operation
2. 1997: Ponds 3A and 3B built
3. 1997/98: Discharge to Fernley Wildlife Management Area (FWMA) begins
4. 2000: Estimated beginning time of Pond 1 liner leakage
5. 2006: Ponds 4A and 4B built, assume RIBs temporarily used
6. 2007/08: Sludge removed from Ponds 1A and 1B, removed from service
7. 2009: Ponds 1A and 1B re-lined
8. 2017/18: Sludge removed from Pond 2, Pond 2 re-lined

From 1987 to 2013, twelve monitoring wells were drilled on the periphery of the WWTP at five sites (Figure 3). The wells were drilled in three phases, MW 1-3 in 1987, MW 4-6 in 1994, MW 2A, 6A in 2004-2005, and MW 7-10 in 2011 & 2013. Monitoring wells 1 through 6A were relatively shallow wells, ranging in depth from 34.5-46 feet deep. The shallow depth of these historic wells resulted in many of them not reaching the water table or only intersecting approximately 1-2 feet of groundwater. To rectify this issue, MW 7-10 were drilled at or near the existing well sites at a depth of 80 to 85 feet using the mud rotary drilling method. The depths of MW 7-10 were arbitrary with no definitive aquifer detected.

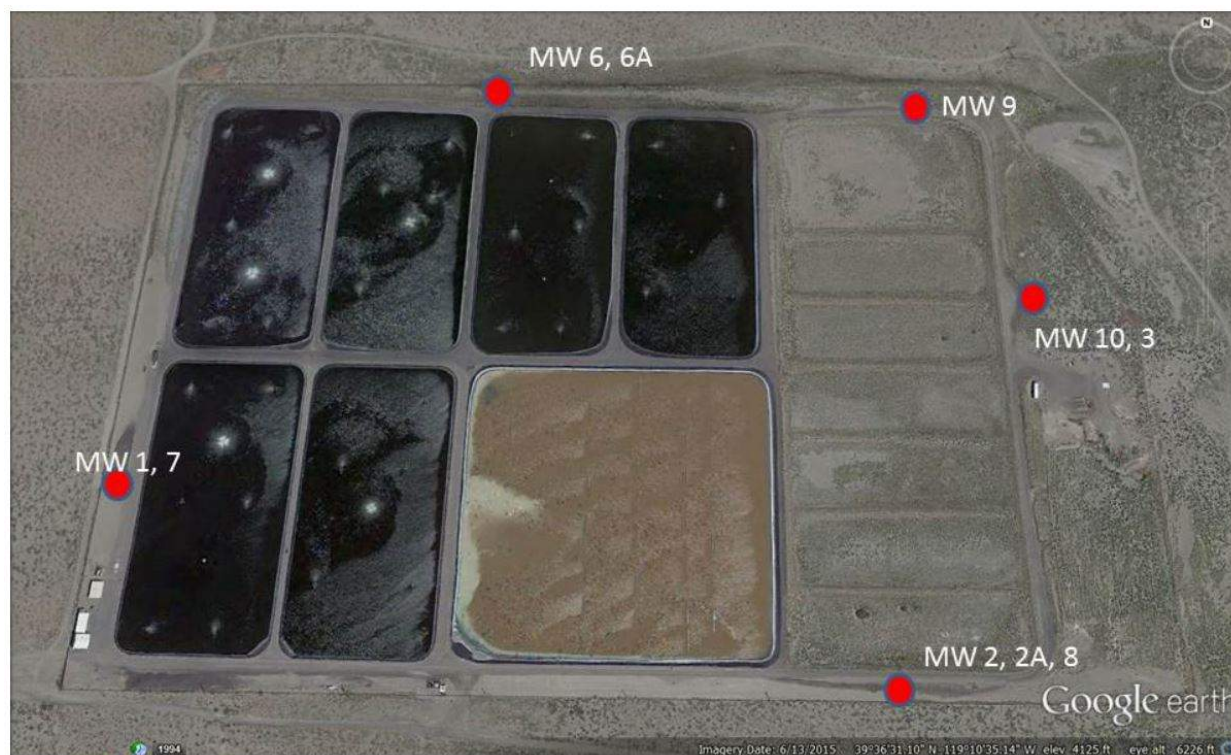


Figure 3. Historic Monitoring Well Locations

The lithologic descriptions available for the historic monitoring wells indicate that sand to silty-sand extends from the surface to approximately 40-50 feet below ground level (bgl). Below the silty-sand, a layer of clay and silty-clay exists which was of unknown thickness as none of the deeper historic wells extended past it. These lithologies establish that the historic wells were situated in a very permeable layer (vadose zone) above a semi-impermeable layer (aquiclude).

The available static water level from 1992 forward shows that the water table increased until 1999, at which point it began to steadily decline from that time until the issuance of the AOC in 2015-2016 (Figure 4). This rise and then fall in water table levels is interpreted as groundwater mounding that developed below the WWTP when it went online and the RIBs were in operation, which began to subside in 1999 following the change in discharge location to the FWMA.

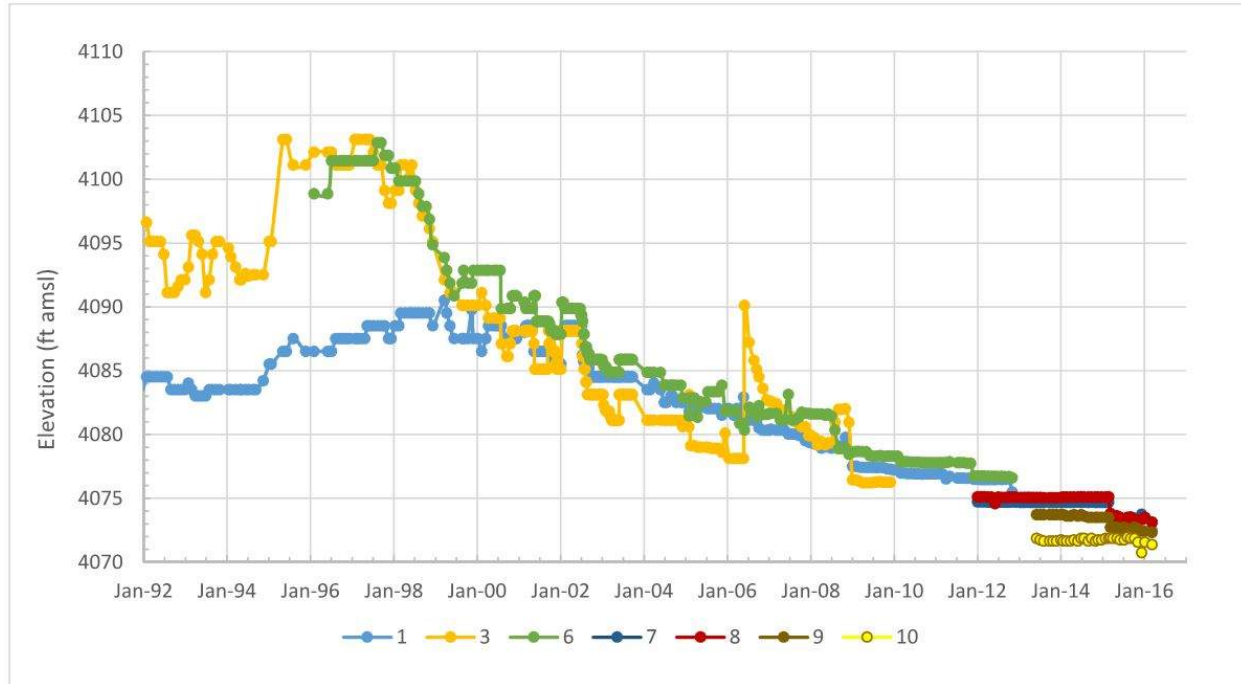


Figure 4. Historic Monitoring Well Groundwater Elevations

Reviewing a comparison of the historic static water data of all the wells reveals a discrepancy in the water levels between adjacent wells at the same locale. These static water differentials are most apparent in MW 7-10, which suggests that rather than different aquifer pressures in each well, they were likely not adequately developed during construction and have some degree of plugging of the screen intervals. Additionally, past data collection methods for static water level readings were of low precision, such as rounding off measurements to the nearest foot. As a result, the direction of the groundwater gradient in the area could not be determined and/or confirmed with the existing monitoring wells.

An analysis of nitrate and total nitrogen data from a representative selection of monitoring wells shows that the nitrate concentrations correlate poorly when compared to other wells (Figure 5). The general trend of the data indicates MW 3 and 6 had elevated nitrate levels from 1993-1997 likely due to RIB discharge, while during the same timeframe MW 1 had nitrogen concentrations largely below detection limits. After RIB operations ended in 1998, MW 1 nitrogen levels sharply increased to 1.5 to 3 times the MCL, whereas this same period saw nitrogen levels in MW 3 plummet to concentrations slightly above detection limits. Nitrogen levels in MW 6 after 1998 show a similar but more muted response as MW 1, but have declined since 2003, whereas the concentrations in MW 1 began to increase again starting in 2008. Of the newer MWs 7-10, drilled in 2011 and 2013, MW 9 has consistently had nitrogen levels greater than 2 times the MCL.

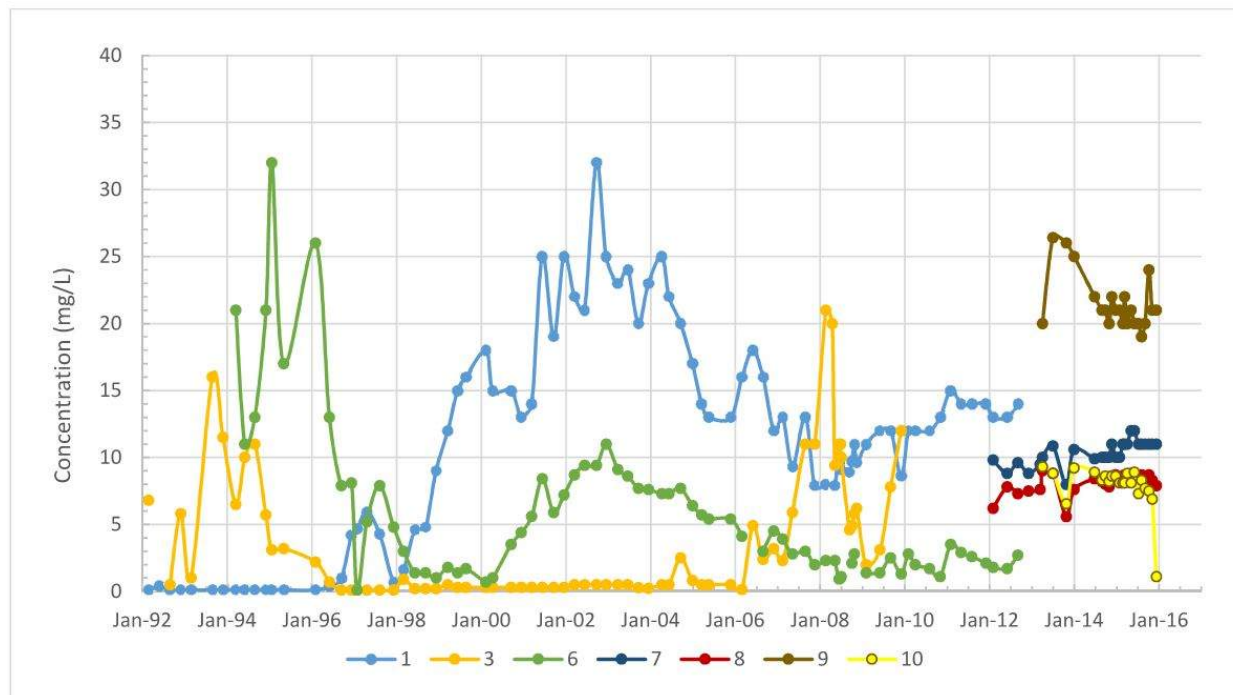


Figure 5. Historic Monitoring Well Total Nitrogen Concentrations

1.4 Project Objectives

The main objectives of the Fernley WWTP New Monitoring Wells Project are to (1) characterize the lithologic formations below the WWTP (2) delineate the true aquifer below the WWTP (3) gain a better understanding of the aquifer's hydraulic gradient and flow path in the area, and (4) collect representative water quality samples to determine the concentration of nitrogen in the aquifer. In order to accomplish these objectives, and to identify characteristics of the aquifer beneath the WWTP, the following tasks were undertaken:

- A. Drilling three additional monitoring wells utilizing a more precise drilling method in order to accurately identify the aquifer.
- B. Conduct discrete interval sampling of each well to collect representative groundwater samples of specific depths.
- C. Fully develop the new monitoring wells before performing pump tests of each well to collect water quality data.
- D. Conduct a hydraulic gradient analysis to determine the true direction of groundwater migration in the aquifer.

SECTION 2.0: HYDROGEOLOGIC SETTING

The City of Fernley's WWTP is located within the western portion of the Great Basin, which has been predominantly controlled by the Basin and Range physiographic Province in Nevada. The Great Basin is characterized by terminal valleys, which drain into topographically closed basins rather than to the sea. The Basin and Range Province is a tectonically active area of extensional faulting and characterized by linear basin and range topography generated by normal faults, which generally trend in a northerly direction. The valleys are commonly flat floored and elongated parallel to the mountain trends (Glancy and Katzer, 1975). The typical hydrologic system for a valley consists of recharge by precipitation near the bordering mountain ranges, seasonal and ephemeral surface-water runoff to the terminal playa lake, groundwater storage in the alluvial valley, and discharge by evaporation and transpiration. The Nevada Division of Water Resources divides the state into 232 individual hydrographic basins based on topography and hydrologic boundaries. The City of Fernley's WWTP is located in the Fernley Area hydrographic basin (Basin 76) which is part of the Truckee River Hydrographic Region.

The project area in the Fernley Area hydrographic basin is bounded by on the north by the Pah Rah Range, and the Virginia Range on the south. The rocks in these ranges are dominantly composed of volcanic rocks of andesite, rhyolite, tuff, and basalt composition. The surrounding mountain ranges have partially filled the basin with alluvial sediments derived from these volcanic ranges. Overlying the alluvial sediments is a sequence of lacustrine (lakebed) sediments deposited from the glacial Lake Lahontan. This Pleistocene Lake once covered 8,000 square miles of northern Nevada and is estimated to have deposited more than 1,000 feet of lacustrine sediment. The lacustrine sediments are composed primarily of silt and clay in the central portion of the basin, with coarser grained sands and gravels on the margins of the basin. (Epstein, et al, 2007).

A review of the lithologic descriptions of the existing monitoring wells by Lumos interprets the upper 40-50 feet of silty sand as deltaic (lacustrine deltas) sediments formed on the margins of Lake Lahontan as lake levels subsided, that overlie older and deeper water silty clays of Lahontan lacustrine deposits.

SECTION 3.0: MONITORING WELLS

Three monitoring wells were drilled in the project area to help verify and delineate lithologic formations and the aquifer beneath the City of Fernley's WWTP. The wells were drilled using the sonic drilling method to a maximum depth of 107 feet. The three wells were installed on the northern and western edge of the WWTP, which enabled the calculation of the groundwater flow direction and hydraulic gradient. After construction the monitoring wells were fully developed, test pumping was conducted to collect well parameters and aquifer data for characterization.

3.1 Methodology

Cascade Drilling, L.P., who specializes in sonic drilling technology, was contracted to drill the three (3) monitoring wells. The sonic drilling system employs simultaneous high frequency vibrations and low speed rotational motion coupled with down-pressure to advance the cutting edge of a circular drill string. The drill rig advances a core barrel for sampling and then a larger diameter casing, which prevents the borehole from collapsing. This action produces a uniform borehole while providing relatively continuous, undisturbed, and accurate core samples of the lithologies. The larger override protective casing eliminates the need for installation of permanent surface casings, and once the boring is complete, well installation can be accomplished inside the override casing.

A sonic drill rig looks and operates very much like any conventional top-drive rotary or auger rig. The main difference is that a sonic drill rig has a specially designed hydraulically powered drill head or oscillator, which generates an adjustable high frequency vibration force. The sonic head is attached directly to the core barrel, sending the high frequency vibrations down through the drill steel to the face of the drill bit. The oscillator uses two eccentric, counter rotating balance weights or rollers, that are timed to direct 100 percent of the vibration to 0° and 180°. There is an air spring system in the oscillator that insulates or separates the vibration from the drill rig itself. The vibration frequency is controlled to suit operating conditions, and to achieve optimum drilling rates.

Several advantages exist when using this method for gathering lithologic samples, water samples, and well construction. Comparatively, the waste generated during sonic drilling is 80% less than conventional methods of drilling. When soil samples are brought to the surface they are in the form of a core, creating a very precise log of lithology at its respective depth. Geologic samples containing media of an aquifer help determine slot sizing for screens and calculating a rough transmissivity for the aquifer. When a potential aquifer is identified at depth, a temporary section of screen is installed and secured in the borehole. A submersible pump lowered into the borehole to a point just above the temporary well screen. This doesn't allow soil or core to be recovered, only groundwater is brought to the surface. This method allows for an accurate data collection that can be used to determine depths to aquifers, potential water production, and water quality. This method causes minimal disturbance to the surrounding borehole wall, resulting in more efficient well development and performance.

3.2 Data Acquisition

Drilling Samples:

The drilling data was gathered using a model 600-T Sonic Drill Rig designed and built by PROSONIC. The rig was very capable of drilling the test holes using the sonic method. Figure 6 depicts a typical setup of the drilling equipment for acquiring the lithologic and water samples from the test hole. Besides the drill rig, a service truck and equipment truck (known as a doghouse) were standard equipment on the job site.

A representative from Lumos was onsite to log the lithologies, conduct zone testing, and collect water samples for analysis. The monitoring wells were drilled ranging in depth from 87-107 feet with lithologic core samples collected in 5- to 20-foot intervals using the drilling systems core barrel assembly. The monitoring well design was based on evaluation of lithologic samples and aquifer zones. Figure 7 is an aerial image of the WWTP depicting the locations of the monitoring wells.



Figure 6. Photo of sonic drill rig and support vehicles

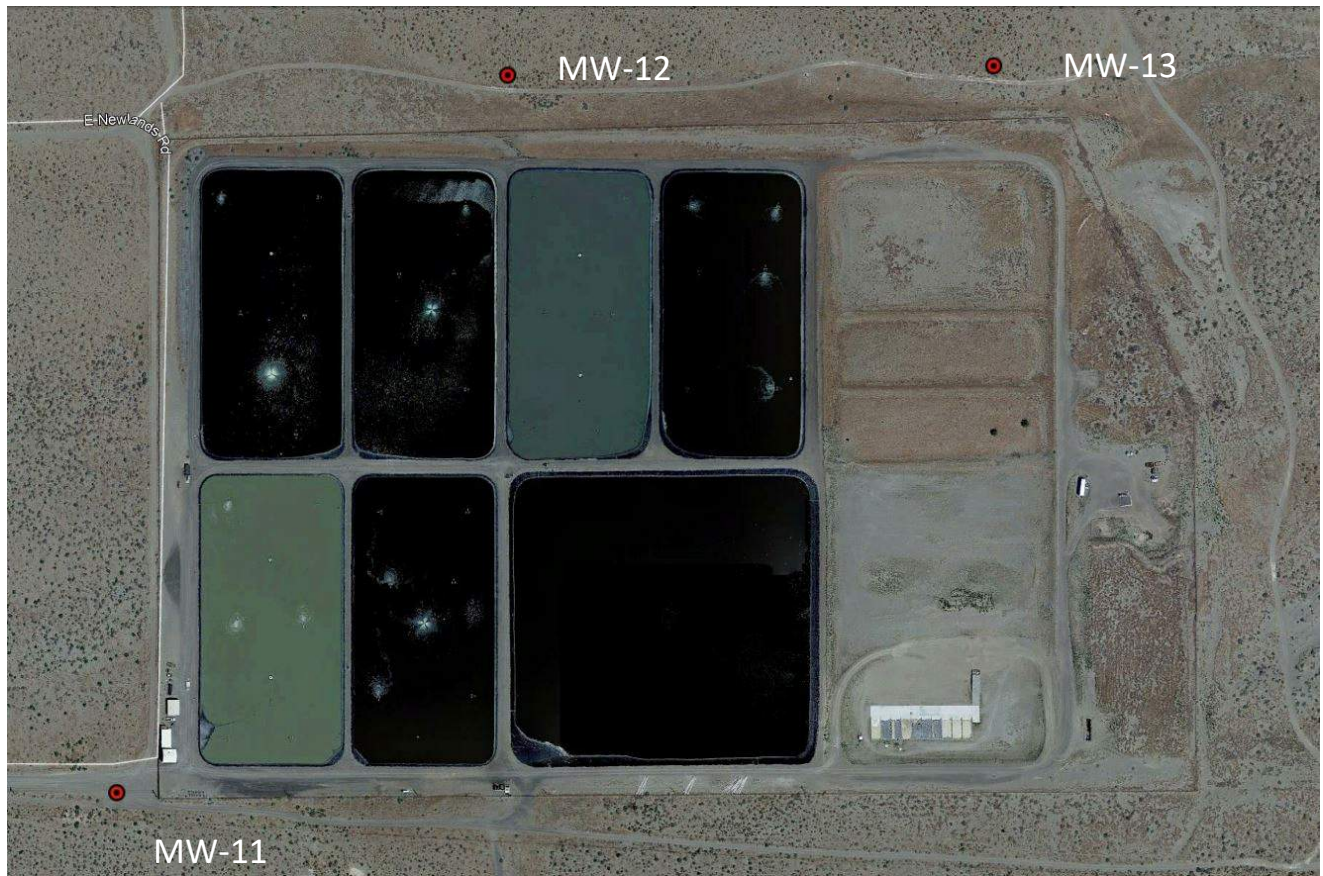


Figure 7. WWTP New Monitoring Well map with Aerial Image

The method of extracting lithologic samples was conducted as follows. A 20-foot core barrel was advanced in 5- to 20-foot intervals down the borehole. Once the core barrel reached the end of its sampling run, the override casing was advanced to the depth of the core barrel to ensure the test hole would not collapse. Then the core barrel was removed. Samples were extruded from the core barrel by sonic vibration action into a plastic sheath in 1- to 2.5-foot sections (Figure 8).



Figure 8. Sonic drill core in wooden storage boxes

The samples predominantly consisted of undisturbed cores showing exact lithologies of the footage represented at depth. This provides a clear picture of the lithologies below the ground surface, which were very useful in determining good zones to test pump. A continuous lithologic log was collected and archived to the total depth of the borehole using this technique.

Drilling of the new monitoring wells began February 16, 2021 and were completed on February 22, 2021. The boreholes were drilled using a 6-inch core barrel that was then advanced past with 9.5-inch override casing to stabilize the borehole. After inspection and lithologic logging of the drill core, cores were boxed in 5-foot length wooden boxes, labeled, assembled on pallets and stored at the WWTP. Logging of the cores was based upon the Unified Soil Classification System (USCS). Attention was paid to color, particle percentage size, moisture content, plasticity and consistency. Table 1 indicates the depths of the borings and other information discussed later.

Table 1. Drilling Results (feet below ground surface)

Site ID	Total Depth	Water Level (below top of casing)	Groundwater Elevation (feet above mean sea level)	Lithologic Horizons	Zone Sample Depth
MW-11	97	53.7	4056.6	Silty Sand: 0-36	92-97
				Silty Clay: 36-87	
				Well Graded Sand: 87-97	
MW-12	107	53.2	4052.5	Silty Sand: 0-32	100-105
				Silty Clay: 32-87.5	
				Well Graded Sand: 87.5-107	
MW-13	85	38.5	4067.9	Silty Sand: 0-40	80-85
				Silty Clay: 40-77.5	
				Well Graded Sand: 77.5-85	

Zone Sampling:

Whenever a favorable soil media with sufficient water was encountered, a discrete depth pumping test (zone sample) was performed. The zone sampling methodology was to install a temporary Schedule 40 threaded 2-inch PVC 5-foot segment of screen below 2-inch PVC blank casing extended to the surface, inside the 9.5-inch override casing. The annulus between the borehole and screen interval was then packed with Cemex #3 gravel and sealed with a 3-foot bentonite seal. The 9.5-inch override casing was then raised to expose the screen to the aquifer media. The temporary well was bailed using a steel flat bottom suction bailer numerous times until the water was deemed clean enough to pump. A 1.5-inch submersible pump and motor were set immediately above the screen interval on flexible ¾-inch plastic tubing and the temporary well was pumped for a duration to equal three casing volumes. When the water quality parameters of pH, temperature, and total dissolved solids (TDS) had stabilized, an unfiltered water sample was collected in both a one liter unpreserved and 500 mL preserved bottles with a sulfuric acid preservative. The samples were stored at ~4°C and transported to Western Environmental Testing Laboratories (WET Lab) in Sparks, NV within 24 hours of collection for total nitrogen, chloride, and TDS analysis. The results for all zone sample analyses can be found in Appendix B.

Well Construction:

After the total depth had been reached and zone sampling was complete, 4-inch Schedule 40 ASTM 480 PVC casing was installed in the boring to create a monitoring well. Each monitoring well consisted of a 30-foot section of threaded Schedule 40 ASTM 480 PVC screen with a five foot section of blank casing (with threaded end cap) at the bottom followed by Schedule 40 ASTM 480 PVC blank casing extending to the surface. The annulus between the borehole and the casing was filled with #8 Cemex gravel pack poured from the surface. A mixture of calcium hypochlorite granules was added to the gravel pack to ensure sterilization of the gravel pack. A 2-foot zone of bentonite pellets were poured from the surface into the annulus on top of the gravel pack approximately 2-feet above the top of the screen interval. The remainder of the annulus was

sealed with neat cement grout to the surface. During the construction of the monitoring wells, the 9.5-inch override casing would be vibrated up to expose the newly installed gravel pack to the borehole. This continued throughout the installation with the installation of the neat cement to the surface. The final well designs with associated lithologies can be found in Figures 9 through 11.

After well construction, the well casing of MW-12 and -13 were cut 2.5 feet above grade, and an 8-inch protective steel casing sleeve with lockable cap that extended 3 feet above grade was cemented around the well. A square concrete monument slab was then centered around the well with bollards cemented in place on each corner of the monitoring wells. In the case of MW-11, the well casing was cut below grade, capped, and an 8-inch protective steel lockable well vault was installed around the well casing that is traffic rated and flush with the road. All monitoring wells were surveyed by Lumos using the same datum as the previous monitoring well surveys, so as to tie in the location of the new wells to the existing wells.

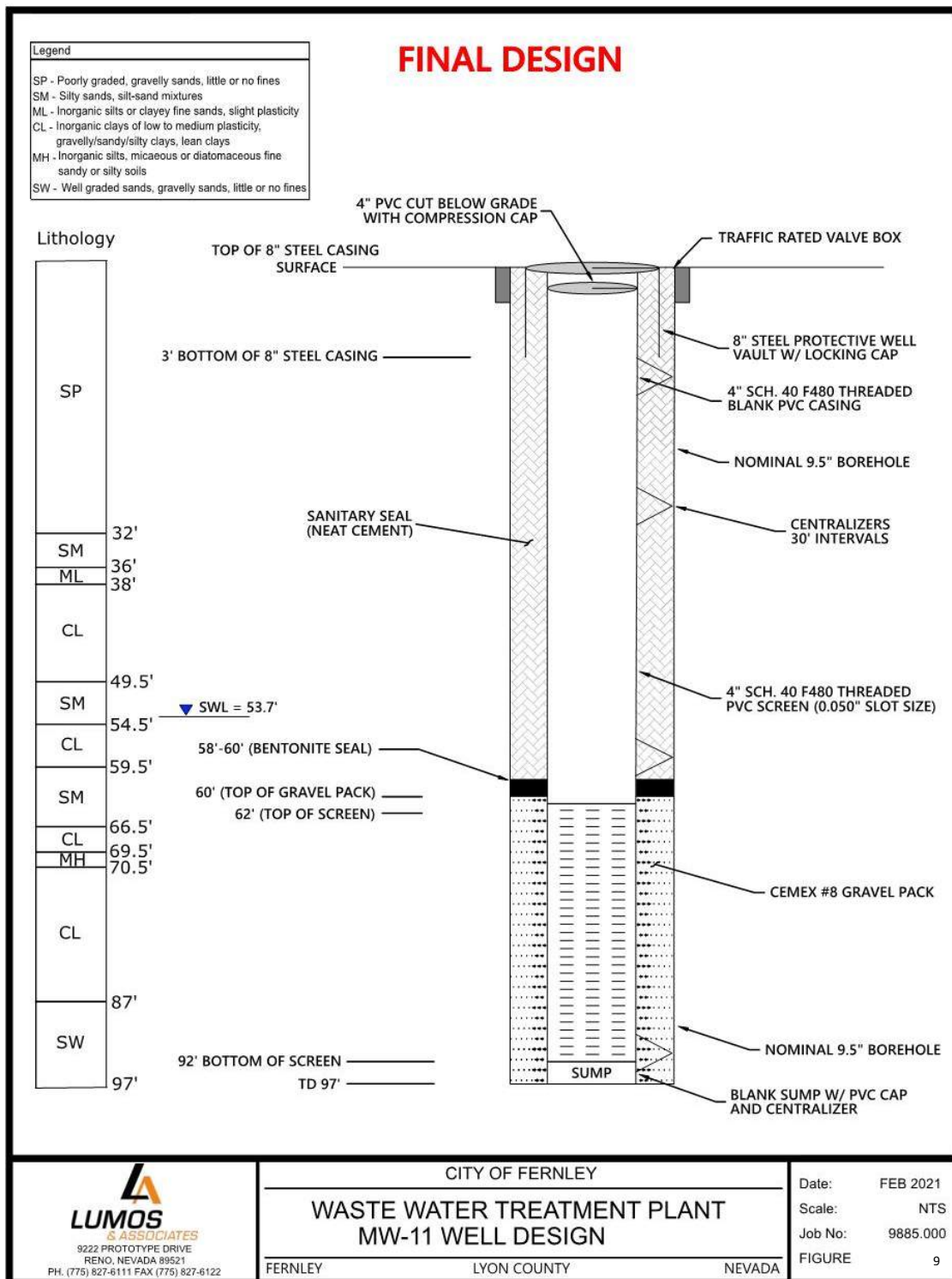


Figure 9. MW-11 Final Well Design with lithology

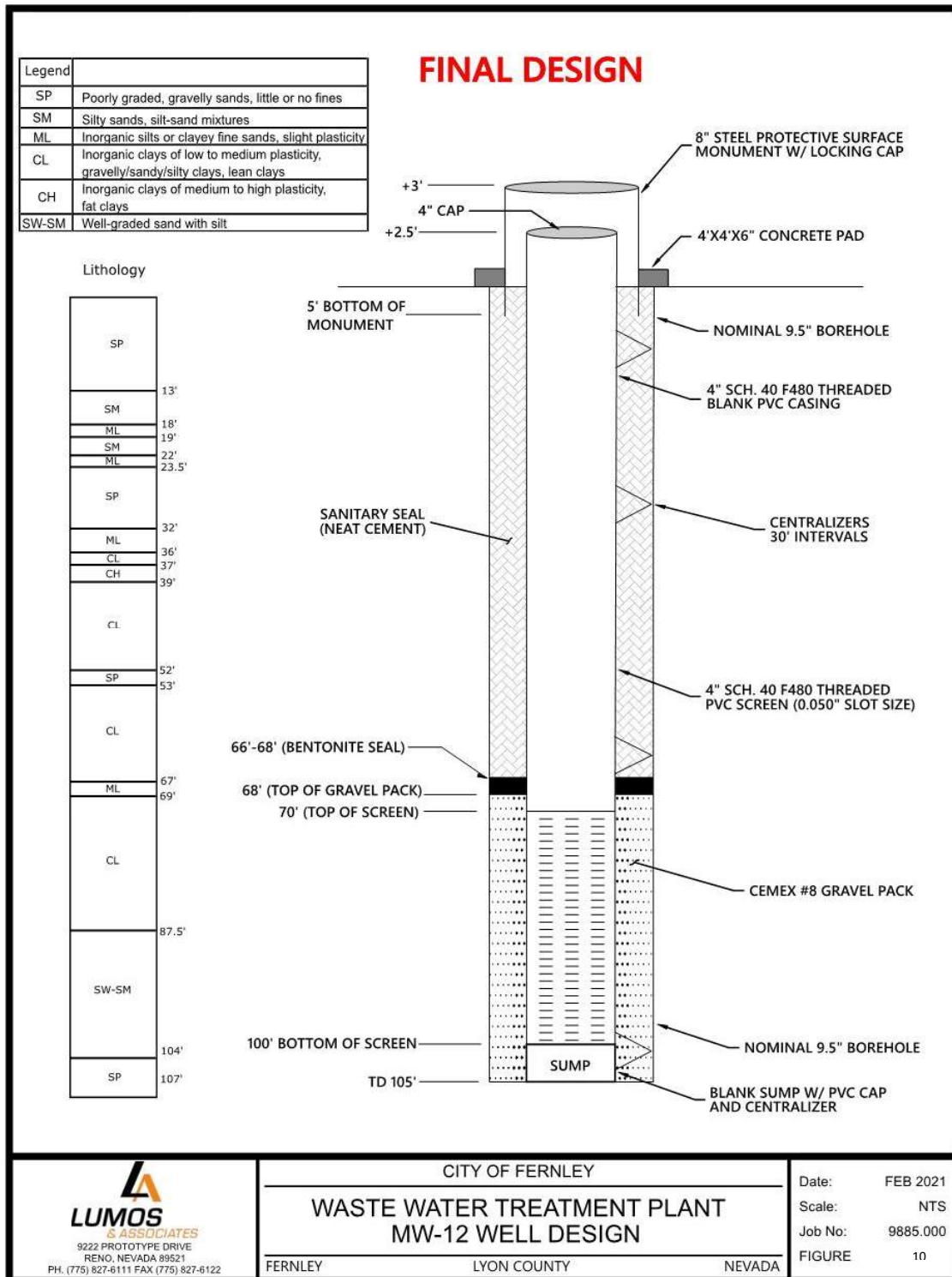


Figure 10. MW-12 Final Well Design with lithology

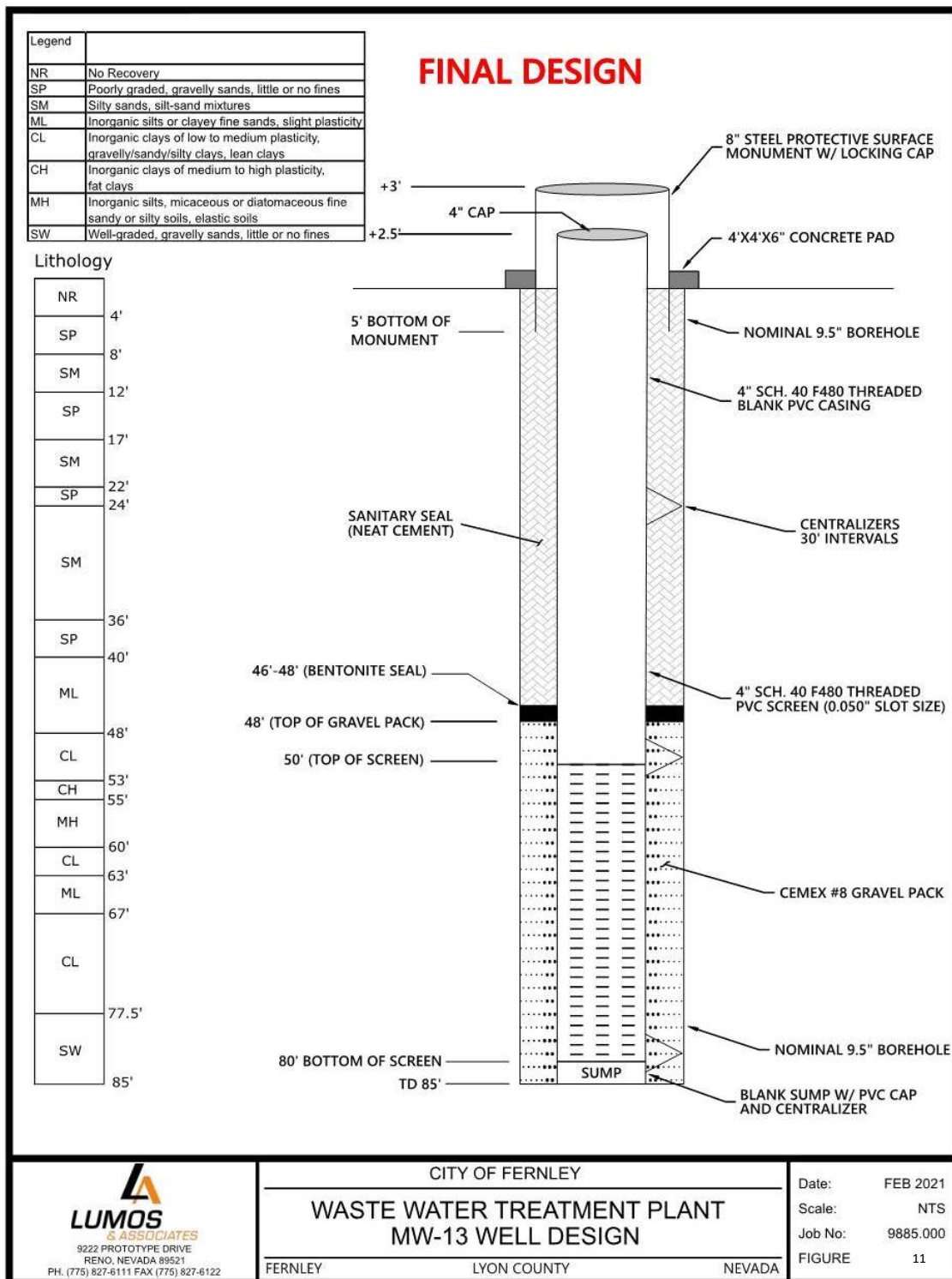


Figure 11. MW-13 Final Well Design with lithology

3.3 Analysis

Lithologies

The core samples collected during the exploration boreholes provided excellent detailed lithologic logs of the subsurface geology. Detailed lithologic logs were kept for each borehole and can be found in Appendix A. General lithologic graphs are displayed with the final monitoring wells designs in Figures 9-11.

MW-11

Drilling commenced on the borehole of MW-11 on February 20, 2021, and construction of the well was completed on February 22, 2021. To control the very loose unconsolidated nature of the upper sands, the core barrel was advanced 10 feet into in situ sediments. The inside of the override casing was flooded with water, and advanced several feet then pulled up to allow the sediments that had been extracted and discharged from the borehole. This process was continued until the override casing reached the depth of the core barrel, at which point the core was removed and sampled. The borehole consisted of unconsolidated to weakly consolidated fine sands with silt to a depth of 36 feet. Below this lithologic section, a sequence of interbedded lean clays and silts were encountered to a depth of 87 feet. The unoxidized silty clays were dense and hard with black very thin interbeds of very fine-grained silty sand with sooty fine-grained sulfides throughout. Due to the lack of good permeability in the clays and silts, the decision was made to advance the borehole deeper to find an aquifer media suitable to screen in the monitoring well. From 87 feet to the total depth of 97 feet, a zone of well graded flowing sands of fine to medium grain size was encountered.

When the core barrel was removed from the borehole, the flowing sands heaved up into the override casing ~7 feet, and the hole began gurgling and expelling gases which had a mild fetid sulfuric odor. After roughly 10 minutes the borehole had ceased discharging gases, and the hole was flooded with fresh water to provide enough hydrostatic pressure to clean out the heaving sands back to the total depth of the borehole to allow construction of the temporary (zone sampled) and permanent well.

MW-12

Drilling commenced on the borehole of MW-12 on February 18, 2021, and construction of the well was completed on February 20, 2021. To control the very loose unconsolidated nature of the upper sands, the core barrel was advanced 10 feet into in situ sediments. The inside of the override casing was then flooded with water and advanced several feet and pulled up to allow sediment that had been extracted to discharge from the borehole. This process was continued until the drive casing reached the depth of the core barrel, at which point the core was removed and sampled. The borehole consisted of unconsolidated to weakly consolidated fine sands with silt interbedded with thinly bedded silty clay to a depth of 32 feet., Below this lithologic section, a sequence of interbedded lean to fat clay and silt were intersected until a depth of 87.5 feet. The dominantly unoxidized silty clays were stiff to soft with black very thin interbeds of very fine-grained silty sand with sooty fine-grained sulfides throughout. Due to the lack of permeability in the clays and silts, the decision was made to advance the bore hole deeper to find an aquifer media suitable to screen for the monitoring well. From 87.5 feet to the total depth of 107 feet a

zone of fine to medium grained well graded silty sands interbedded with poorly graded fine sands was encountered.

When the core barrel was removed from the borehole, the flowing sands heaved up into the override casing ~10 feet. To allow construction of the temporary and permanent well, the hole was flooded with fresh water to provide enough hydrostatic pressure to clean out the heaving sands. Most of the sands were cleaned out, though they continued to heave ~2 feet into the casing, so the decision was made to construct the monitoring well from a depth of 105 feet upwards.

MW-13

Drilling commenced on the borehole of MW-13 on February 16, 2021, and construction of the well was completed on February 18, 2021. This was the first hole drilled, and the drillers had not yet developed a working methodology to control the very loose unconsolidated nature of the upper sands. Once a sample had been obtained, the override casing was advanced with the core barrel pulled out of the borehole, and then cleaned out back to the bottom of the borehole with the core barrel. However, the driller struggled with the sands not packing into the core barrel with the lithologic sample falling out when the core barrel was pulled up to the surface. The driller tried pumping water into the core barrel to get sands to compact with marginal results, and progress was very slow until the soils became naturally damp and compacted better.

The borehole consisted of unconsolidated to weakly consolidated fine sands and silt interbedded with thinly bedded silty clay to a depth of 40 feet. Below this lithologic section, a sequence of interbedded lean to fat clay and silt were intersected until a depth of 77.5 feet. The dominantly unoxidized silty clays were stiff to soft with black very thin interbeds of very fine-grained silty sand with sooty fine-grained sulfides throughout. From 77.5 feet to the total depth of 85 feet, a zone of fine to coarse grained well graded silty sands interbedded with poorly graded fine sands were encountered.

When the core barrel was removed from the borehole, the flowing sands at the bottom of the hole heaved up into the override casing ~5 feet. To allow construction of the temporary and permanent monitoring well, the hole was flooded with fresh water to provide enough hydrostatic pressure to clean out the heaving sands.

Zone Sampling Water Quality

In each of the three boreholes, the only aquifer media suitable for zone sampling was in the well graded sands below the centralized silty clay horizon. One zone sample was collected from each borehole within the lower sandy horizon. The analyses show that all zone samples had total nitrogen concentrations below the MCL, with the samples from MW-12 and MW-13 being below the detection limit. All zone samples had chloride concentrations that exceed the MCL by ~100-200 mg/L, and total dissolved solids (TDS) concentrations ~2-7 times higher than the MCL. Table 2 shows the results of the analyses.

Table 2. Zone Sampling Water Quality Results

Well ID	Zone Depth	Constituent	MCL (mg/L)	Concentration (mg/L)
MW-11	92-97 ft	Total Nitrogen	10	3.1
		Chloride	250	460
		TDS	500	3400
MW-12	100-105 ft	Total Nitrogen	10	Not Detected
		Chloride	250	340
		TDS	500	2200
MW-13	80-85 ft	Total Nitrogen	10	Not Detected
		Chloride	250	390
		TDS	500	1900

SECTION 4.0: DEVELOPMENT AND PUMP TESTING

4.1 Methodology

Carson Pump, LLC was contracted to develop and pump test each monitoring well. The development and pump test of each monitoring well commenced on March 10, 2021 and was completed on March 15, 2021. The screen interval of each well was developed with a double-disk swab development tool attached to a wire line (Figure 12). The development tool was alternately lowered to the bottom of the screen interval than pulled upward past the screen interval in one 30-foot stroke. Each well was developed this way for one hour.



Figure 12. Double disk development tool

After development, a submersible pump and motor was set near the bottom of each monitoring well. The submersible pump was operated using a mobile generator provided by the contractor. While pumping, the water levels were recorded by the contractor using a hand-held water level

meter. Near the end of each pump test, an unfiltered composite water sample was collected and submitted to WET Lab for total nitrogen, chloride, and TDS analysis.

4.2 Data acquisition

MW-11

Before development commenced, the static water level was measured at 52.2 feet, and the top of the fill in the well was measured at 94 feet. The double-disk swab development tool on a winch line was lowered to the bottom of the monitoring well and the entire 30-foot screen interval was swabbed during development. The development tool felt strange to the operator, so he decided to remove it from the monitoring well and inspect it. As the tool was being pulled out of the well, it acted like a syringe and pulled the water column to the surface, with the top disk containing approximately 6-inches of gravel pack on it. The fill at the bottom of the well was then sounded at 92 feet, indicating that 2 additional feet of fill had accumulated in the sump. The decision was made to complete one additional stroke of the screen interval with the development tool and resound the bottom of the monitoring well. After the second stroke, no additional fill was measured, so the well was developed for one hour. After development, the static water level was measured at 61.2 feet and a pump/motor assembly was installed in the monitoring well at 85 ft. The pump was turned on, and a very minor amount water came out before the well ceased pumping. Two additional pumps were installed in the monitoring well with similar results. The static water levels measured between the separate pump installs were erratic ranging from 65 to 35 feet. After the final pump was removed from the well, the operator reported hearing gurgling/burping noises emitting from the well. No additional attempts to pump the well were made at that time, and a video survey of the well was scheduled.

A video survey of MW-11 was completed on March 15, 2021. The video survey revealed that gas bubbles were entering the well around the 86.5-foot level (Figure 13). As well as seeing gases coming through the screen slots, fine sediments were observed flowing through the screen slots. The gases continued to expand in the well and created a frothing above the static water level which sent bits of foam up the casing causing the erratic static water level readings. While ascending the camera out of the well, a good view of the static water level was observed at 62.7 feet. Based on the lithology, water temperature, and zone sampling water quality analysis, it is believed that the central clay zone (located just above the screened well graded sands), was acting as a barrier (aquitard) preventing the dissolved gases from permeating up the formations. When the clay zone was drilled/punctured, exposing the well graded sands, an area of geothermal fluids was intersected. These geothermal fluids are supersaturated with gases, most likely CO₂, that upwelled into the monitoring well. The analyses from the zone sampling shows TDS concentrations of 3500 mg/L and chloride values of 690 mg/L, which is almost twice that of the concentrations in MW-12 and MW-13. Additionally, the water temperature values were elevated in the monitoring well during zone sampling with a temperature around 80 degrees Fahrenheit.

Using the insight of the video survey, the City of Fernley installed a submersible pump below the 86.5-foot level where bubbles were entering the screen, and the well was pumped for a duration equal to three casing volumes. An unfiltered composite water quality sample was collected in unpreserved bottles and bottles with a sulfuric acid preservative, stored at ~4°C, and transported

to WET Lab in Sparks, NV within 24 hours of collection for total nitrogen, chloride, and TDS analysis.



Figure 13. Side View of MW-11 with gases entering screen casing

MW-12

Before development of the monitoring well, the depth of fill in the monitoring well was sounded. The screen interval of the monitoring well was developed using a double-disk swab development tool for one hour. Upon completion, the development tool was removed from the monitoring well and it was noted that a thin layer of fine sands and silts had accumulated on the upper disk. The monitoring well was sounded again and determined that no additional fill had accumulated in the sump.

After development of the screen interval, a submersible pump/motor assembly was installed in the monitoring well with a pump setting depth of 95 feet. The monitoring well was pumped at a rate of 32 gallons per minute (gpm) for 25 minutes with a drawdown of 2.5 feet that quickly stabilized. The pumping rate was increased to 50 gpm which instantaneously resulted in a drawdown of 3.8 feet. After pumping for 3 additional hours at 50 gpm, the drawdown stabilized at 4.0 feet. An unfiltered composite water quality sample was collected and submitted to WET Lab for total nitrogen, chloride, and TDS analysis.

MW-13

Before development of the monitoring well, the depth of fill in the monitoring well was sounded. The screen interval in the monitoring well was developed using a double-disk swab development tool for one hour. Upon completion, the development tool was removed from the monitoring well and it was noted that a thin layer of fine sands and silts had accumulated on the upper disk. The monitoring well was sounded again and determined that no additional fill had accumulated.

After development of the screen interval, a submersible pump/motor assembly was installed in the monitoring well with a pump setting depth of 75 feet. The monitoring well was pumped at a rate of 11 gpm, and after 20 minutes the drawdown of the pumping water level was 10.5 feet. After an hour of pumping the drawdown stabilized to 11 feet. The monitoring well was pumped for a total of three hours, after which time an unfiltered composite water quality sample was collected and submitted to WET Lab for total nitrogen, chloride, and TDS analysis.

4.3 Analysis

Table 3 compares the results of the composite samples to those of the zone samples. The MW-11 composite sample for total nitrogen was 1.4 mg/L, which is over 50% less than the zone sample. While the chloride sample was slightly higher by 110 mg/L, the TDS concentration of 7700 mg/L in the composite sample was over twice as high as the zone sample. This very high TDS concentration is indicative of geothermal water. The zone sample of MW-12 had total nitrogen concentrations below the detection limit, while the composite sample had a concentration of 2.1 mg/L. The chloride and TDS concentrations of the composite sample and zone sample were comparable. Both the zone sample and composite sample of MW-13 had total nitrogen concentrations below the detection limit, while the chloride values for both MW-13 samples were very similar and the TDS of the composite sample was 1000 mg/L higher than that of the zone sample. The results for all composite sample analyses can be found in Appendix C.

Table 3. Composite Sample vs Zone Sample Water Quality Results

Well ID	Constituent	MCL (mg/L)	Zone Sample Concentration (mg/L)	Composite Concentration (mg/L)
MW-11	Total Nitrogen	10	3.1	1.4
	Chloride	250	460	350
	TDS	500	3400	7700
MW-12	Total Nitrogen	10	Not Detected	2.1
	Chloride	250	340	390
	TDS	500	2200	2300
MW-13	Total Nitrogen	10	Not Detected	Not Detected
	Chloride	250	390	410
	TDS	500	1900	2900

SECTION 5.0: HYDRAULIC GRADIENT

The elevations for the static water level measured in the three wells were used to develop a flow path direction and hydraulic gradient for the aquifer. The flow path for the aquifer was determined to be at a northwest azimuth of 305° with a hydraulic gradient of 1.89-feet per 100 linear feet. Figure 14 shows an aerial image of the groundwater elevations above mean sea level (amsl) of each well, the flow path direction, and isopach contours. The calculations and analysis for this flow path direction and hydraulic gradient can be found in Appendix D.

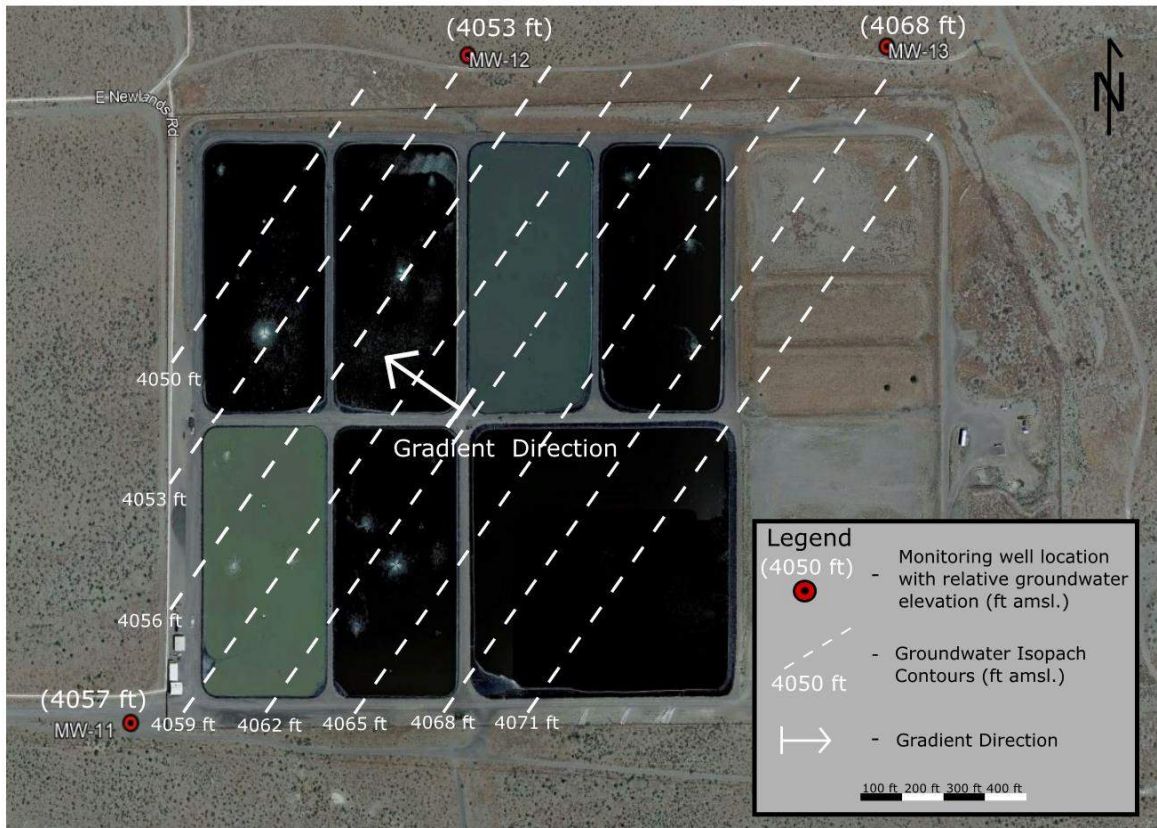


Figure 14. Hydraulic Gradient and Equipotential Lines

SECTION 6.0: CONCLUSIONS

The three new monitoring wells drilled at the City of Fernley WWTP revealed that all previous wells never reached the true aquifer below the ponds. The upper horizon of silty sand is in the vadose zone. While the majority of the central silty clay units are below in the saturated media, the very low permeability of these lithologies form an aquitard, which transmits water very poorly. The first true aquifer below the City of Fernley WWTP occurs within the lower well graded sands below the silty clay aquitard.

An analysis of the depths of the historic monitoring wells indicate that they are all situated in the upper unsaturated silty sand units or screened within the silty clay aquitard. A typical range for the hydraulic conductivity of these silty clays is 10^{-5} to 10^{-7} cm/year. Any existing nitrogen that occurred due to a potential leak from Pond 2 or discharged into the RIB system are effectively trapped within the aquitard. While enough water exists within the aquitard to obtain a sample from the older monitoring wells, the monthly samples collected essentially just analyze the same water repeatedly and are not representative of conditions within the actual aquifer. All zone samples and composite samples taken from the aquifer below the City of Fernley WWTP via the new monitoring wells (MWs 11, 12, and 13) show nitrogen concentrations well below the MCL of 10 mg/L.

SECTION 7.0: LIMITATIONS OF INVESTIGATIONS

This investigation is being performed using the degree of care and skill ordinarily exercised in similar circumstances, by experienced professionals practicing in this or similar locations. No warranty, expressed or implied, is made as to the conclusions and professional advice included in the referenced reports.

The interpretations and conclusions contained in the referenced report are based on our review of the referenced materials and our field investigation described herein. As in most projects, conditions revealed by additional subsurface investigation may be at variance with preliminary findings. If this occurs, an experienced professional must evaluate the changed conditions and design must be adjusted as required or alternate designs and plans recommended.

The findings of this report are valid as of the present date. However, changes in the conditions of the property can and do occur with passage of time, whether they be due to natural processes or the work of people on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of the referenced report may be invalidated wholly or partially by changes outside of our control. Therefore, the referenced report is subject to review and revision as changed conditions are identified.

SECTION 8.0: REFERENCES

Epstein, B., Pohll, G., Bansah, D., Makowski, A., 2007, Regional Groundwater Model Development for the Fernley/Wadsworth Hydrographic Basins, Nevada: DHS Publication No. 41229, p 2-4.

Glancy, P.A., and Katzer, T.L., 1975, Water-resources appraisal of the Carson River Basin, western Nevada, Nevada and California: Nevada Division of Water Resources, Reconnaissance Report 59, 126 p.

Widmer, M., 2016, Fernley WWTP Groundwater Study – Preliminary: Internal Report for Lumos & Associates, Unpublished.

Appendix A: Lithology Logs

Project: Fernely WWTP Monitor Wells			Date Logged: 2/20/21-2/21/21		Sheet 1 of 1	
Job No: 8595			Time Boring Started:			
Client: City of Fernley			Time Boring Ended:		Boring No. MW-11	
Location: Fernley, NV			Drill Rig Type: ProSonic 600-T			
Logged By: Frey - Lumos			Drill Method: Sonic		Site Elevation: 4123 ft	
			Drilling Contractor: Cascade		Total Depth: 97 ft	
			Operators: Nick P, Trevor, Danny		Water Depth: 53.7 ft	
Depth in Ft. From To		Class	Lithological Description and General Project Notes			Well Casing
0	7	SP	Brown fine grained sand with silt and minor gravel sized clasts, soils dry			0-62 ft BLANK CASING
7	17	SP	Brown fine grained sand with minor silt, very well graded/clean, soils dry			
17	32	SP	Brown very fine grained sand, uniform, weakly consolidated, soils becoming damp			
32	36	SM	Brown silty sand with gravels, interbedded very fine grained to fine grained sand lenses and beds of fine grained gravels in silty clay matrix, soil damp			
36	38	ML	Brown silt with very fine grained sand, soft, weakly malleable, soil moist			
38	49.5	CL	Brown stiff clay with silt, very thin interbeds of very fine grained silty sand with planar lamina w/ red-orange iron oxide staining			
49.5	54.5	SM	Brown very fine grained sand with silt, interbedded very thin lenses of silty clay, semi soft, very moist, becoming saturated ~52 ft.			
54.5	59.5	CL	Brown stiff clay with silt, very thin interbeds of SM lenses of very fine grained silty sand w/ red-orange iron oxide staining			62-92 SCREEN CASING W/ 5 FT BLANK SUMP
59.5	66.5	SM	Brown very fine grained sand with silt and abundant mica flakes throughout, interbedded with lenses of silty clay, saturated.			
66.5	69.5	CL	Gradational color change from brown to blue-gray over ~1 ft. Stiff clay with silty interbedded with silty lenses			
69.5	70.5	MH	Blue-gray to dark gray silt with very fine grained sand. Moderately elastic and soft.			
70.5	87	CL	Dark gray hard stiff clay with silt, interbedded with thin lenses of sooty black pyritic very fine grained sands with silt. Irregular lamina with strong soft sediment deformation textures, fetid odor.			
87	97 (TD)	SW	Gray very fine to medium grained sands with silt. Polyolithic, saturated.			
			Site Condition/Notes: Heaving sands from 87-97 ft.			
			Once TD reached, Borehole gurgled and offgased with			
			mild fetid odor for ~10 minutes			

Project: Fernley WWTP Monitor Wells			Date Logged: 2/18/21-2/20/21		Sheet 1 of 1
			Time Boring Started:		
Job No: 8595			Time Boring Ended:		Boring No. MW-12
Client: City of Fernley			Drill Rig Type: ProSonic 600-T		
Location: Fernley, NV			Drill Method: Sonic		Site Elevation: 4109 ft
Logged By: Frey - Lumos			Drilling Contractor: Cascade		Total Depth: 105 ft
			Operators: Nick P, Trevor, Joe		Water Depth: 53.2 ft

Depth in Ft.		Class	Lithological Description and General Project Notes	Time
From	To			
0	13	SP	Brown fine grained sand with silt and local gravel to pebble sized lithics	0-75 ft BLANK CASING
13	18	SM	Brown very fine grained to fine grained sand with silt and local thin silty clay lenses. Weakly consolidated with local red-orange iron oxide stained lamina	
18	19	ML	Brown Silt w/ clay and interbeds of silty sand w/ planar red-orange iron oxide stained lamina	
19	22	SM	Brown very fine grained sand with silt and planar red-orange iron oxide stained lamina	
22	23.5	ML	Brown Silt w/ clay, weakly malleable with interbeds of very fine grained with silt with planar red-orange iron oxide stained lamina, soil becoming damp.	
23.5	32	SP	Brown very fine grained sand with silt, weakly consolidated. Soil damp	
32	36	ML	Brown Silt w/ clay, stiff weakly malleable interbedded with lenses of very fine grained with silt with wavy lamina with soft sediment deformation textures with red-orange iron oxide stained, weakly consolidated. Soil becoming moderately wet.	
36	37	CL	Brown lean clay with silt. Very stiff to waxy.	
37	39	CH	Sharp color transition to medium gray fat clay with minor silt and sooty black pyritic lamina. Soft, sticky, and very malleable.	
39	47.5	CL	Brown lean clay with silt, stiff, weakly malleable with interbedded lean silt with very fine grained sand	
47.5	52	CL	Gray clay with black sooty wavy lamina. Stiff and waxy with local interbeds of soft fat gray clay.	
52	53	SP	Brown very fine grained sand with silt with irregular red-orange iron oxide stained lamina	
53	67	CL	Dark gray stiff clay, weakly malleable to waxy with soft interbeds of gray fat clay. Black sooty very thin irregular lamina throughout.	
67	69	ML	Dark gray silt in clay matrix, soft and moderately malleable.	
69	87.5	CL	Dark gray stiff lean clay with local interbeds of soft silty clay and black sooty pyritic very thin irregular lamina with strong soft sediment deformation textures.	
87.5	104	SW-SM	Brown-Gray fine to coarse grained sands, rounded and polyolithic, in silty clay matrix, with lenses of fine grained SP	75-105 SCREEN CASING
104	107	SP (TD)	Brown fine grained sand with silt	



Site Condition/Notes: Heaving sands from 100-107 ft.

Project: Fernley WWTP Monitor Wells		Date Logged: 2/16/21-2/20/21		Sheet 1 of 1	
Job No: 8595		Time Boring Started:		Time Boring Ended:	
Client: City of Fernley		Drill Rig Type: ProSonic 600-T		Boring No. MW-13	
Location: Fernley, NV		Drill Method: Sonic		Site Elevation: 4105 ft	
Logged By: Frey - Lumos		Drilling Contractor: Cascade		Total Depth: 85 ft	
		Operators: Trevor, Jason, Joe		Water Depth: 38.5 ft	

Depth in Ft.		Class	Lithological Description and General Project Notes	Well Casing
From	To			
0	4	NR	No Recovery (NR) – Loose sands unable to compact in core barrel	0-67 ft BLANK CASING
4	8	SP	Brown fine grained sands with silt, local fine grained lithics, unconsolidated, dry	
8	12	SM	Brown silty sand w/ fine grained sands in silty matrix, unconsolidated, dry	
12	17	SP	Brown fine grained sands with silt and local fine grained lithics. Unconsolidated, dry	
17	22	SM	Brown silty sand with fine grained sands in silty clay matrix, dry	
22	24	SP	Brown fine grained sand with minor silt, dry	
24	26	SM	Brown fine grained sands with silt, dry	
26	30	SM	Brown very fine grained sand with silt. Weakly consolidated, becoming damp	
30	36	SM	Brown very fine grained sand with silt, moderately consolidated, weakly malleable, soil wet to saturated.	
36	40	SP	Brown very fine grained sands with silt, saturated, non malleable	
40	48	ML	Brown silt with fine grained sands in clay matrix, weakly elastic and malleable, lamina w/ red-orange iron oxide staining and soft sediment deformation textures, soil saturated.	
48	53	CL	Brown stiff clay with silt, crumbly	
53	55	CH	Sharp contact with gray clay, fat very malleable clay with minor silty, very soft	
55	60	MH	Brown Elastic clayey silt with very fine grained sand. Moderately elastic with, weakly malleable with mica flakes throughout, and local iron oxide stained lamina.	
60	63	CL	Gray silty clay with local lenses of soft fat gray clay. Weakly malleable, dominantly crumbly with interbedded sandy clay	67-85 SCREEN CASING W/ 5 FT BLANK SUMP
63	67	ML	Gray clayey silt with very fine grained sand. Dominantly crumbly but still weakly elastic with thin interbeds of lean silty clay	
67	77.5	CL	Gray clay with silt, stiff and weakly malleable with very thin lenses of sooty black fine grained sands with silt. Irregular lamina with soft sediment deformation textures	
77.5	85	SW	Gray fine to coarse grained rounded poly lithic sands, dominantly quartzose with minor silt.	
TD				



Site Condition/Notes: Heaving sands from 77.5-85

Appendix B: Zone Sampling Water Quality Analyses



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Specializing in Soil, Hazardous Waste and Water Analysis

3/5/2021

Lumos & Associates, Inc.
9222 Prototype Drive
Reno, NV 89521
Attn: Mike Hardy

OrderID: 21020672

Dear: Mike Hardy

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 2/22/2021. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,

Cory Baker
QA Specialist

Kat Langford
Project Manager

KatL@wetlaboratory.com
(775) 200-9876

Page 1 of 4

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LAS VEGAS

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fax (702) 622-2868
EPA LAB ID: NV00932

Western Environmental Testing Laboratory Report Comments

Lumos & Associates, Inc. - 21020672

Specific Report Comments

Due to the sample matrix it was necessary to analyze the following at a dilution:

21020672-001 Nitrate Nitrogen

21020672-001 Nitrite Nitrogen

The reporting limits have been adjusted accordingly.

Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

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Lumos & Associates, Inc. - 21020672

Western Environmental Testing Laboratory Analytical Report

Lumos & Associates, Inc.

9222 Prototype Drive

Reno, NV 89521

Attn: Mike Hardy

Phone: (775) 827-6111 Fax: (775) 827-6122

PO\Project: WWTP MW-11 / 9885.000

Date Printed: 3/5/2021

OrderID: 21020672

Customer Sample ID: WWTP-MW-11-92

Collect Date/Time: 2/21/2021 14:40

WETLAB Sample ID: 21020672-001

Receive Date: 2/22/2021 11:41

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
General Chemistry							
Total Nitrogen	Calc.	3.1	mg/L	1	1.4	2/26/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	3400	mg/L	1	25	2/22/2021	NV00925
Anions by Ion Chromatography							
Chloride	EPA 300.0	460	mg/L	5	5.0	2/22/2021	NV00925
Nitrate Nitrogen	EPA 300.0	ND	D mg/L	5	0.75	2/22/2021	NV00925
Nitrite Nitrogen	EPA 300.0	ND	D mg/L	5	0.30	2/22/2021	NV00925
Flow Injection Analyses							
Total Kjeldahl Nitrogen	EPA 351.2	3.0	mg/L	1	0.40	2/26/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

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EPA LAB ID: NV00932

Lumos & Associates, Inc. - 21020672

Western Environmental Testing Laboratory QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21020784	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21020833	Blank 1	Chloride	EPA 300.0	ND			mg/L
		Nitrate Nitrogen	EPA 300.0	ND			mg/L
		Nitrite Nitrogen	EPA 300.0	ND			mg/L
QC21021020	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21020784	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	142	150	95	mg/L
QC21020784	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	142	150	95	mg/L
QC21020833	LCS 1	Chloride	EPA 300.0	9.72	10.0	97	mg/L
		Nitrate Nitrogen	EPA 300.0	1.93	2.00	97	mg/L
		Nitrite Nitrogen	EPA 300.0	0.495	0.500	99	mg/L
QC21021020	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	0.936	1.00	94	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC21020784	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	21020639-001	864	846	mg/L	2 %
QC21020784	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21020639-003	822	916	QD mg/L	11 %

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21020833	MS 1	Chloride	EPA 300.0	21020673-001	24.6	49.0	48.8	5	mg/L	98	97	<1
		Nitrate Nitrogen	EPA 300.0	21020673-001	ND	D 10.0	9.98	2	mg/L	100	100	<1
		Nitrite Nitrogen	EPA 300.0	21020673-001	ND	D 2.55	2.54	0.5	mg/L	102	102	<1
QC21021020	MS 1	Total Kjeldahl Nitrogen	EPA 351.2	21020639-001	ND	M 1.12	1.19	1	mg/L	NC	NC	NC
QC21021020	MS 2	Total Kjeldahl Nitrogen	EPA 351.2	21020637-004	ND	M 0.882	0.810	1	mg/L	NC	NC	NC

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 4 of 4

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 WETLAB WESTERN ENVIRONMENTAL TESTING LABORATORY <i>Specializing in Soil, Hazardous Waste and Water Analysis.</i> 475 E. Greg Street #119 Sparks, Nevada 89431 www.WETLaboratory.com tel (775) 355-0202 fax (775) 355-0817 1084 Lamoille Highway Elko, Nevada 89801 tel (775) 777-9933 fax (775) 777-9933 3230 Polaris Ave., Suite 4 Las Vegas, Nevada 89102 tel (702) 475-8899 fax (702) 776-6152		WETLAB Order ID: <u>21020672</u> Sparks Control # _____ Elko Control # _____ LV Control # _____ Report Due Date _____ Page _____ of _____																							
Client <u>Lumos</u> Address <u>9222 Prototype Dr</u> City, State & Zip <u>Reno, NV 89521</u> Contact <u>Mike Hardy</u> Phone <u>(775) 827-6111</u> Fax _____ P.O. Number _____		Turnaround Time Requirements Standard ☒ _____ 5 Day* (25%) _____ 72 Hour* (50%) _____ 48 Hour* (100%) _____ 24 Hour* (200%) _____ *Surcharges Will Apply Samples Collected From Which State? NV ☒ CA _____ Other _____ Compliance Monitoring? Yes ☒ No ☐ Other _____ Report to Regulatory Agency? Yes ☒ No ☐ Standard QC Required? Yes ☒ No ☐																							
Collector's Name <u>Garrett Frey</u> PWS/Project Name <u>WWTP MW-11</u> PWS/Project Number <u>9885.000</u>		Report Results Via ☒ EDD ☐ Other _____ Report to Regulatory Agency? Yes ☒ No ☐ Standard QC Required? Yes ☒ No ☐																							
Email <u>mhardy@lumosinc.com</u> Billing Address (if different than Client Address) Company <u>City of Fernley</u> Address <u>595 Silverlace Blvd</u> City, State & Zip <u>Fernley, NV 89408</u> Contact <u>Dave Whalen</u> Phone <u>775.784.9929</u> Fax _____ Email <u>dwhalen@cityoffernley.org</u>		ANALYSES REQUESTED <table border="1"> <tr> <th>NO. OF CONTAINERS</th> <th>ANALYSES</th> <th>ANALYSES</th> <th>ANALYSES</th> <th>ANALYSES</th> <th>ANALYSES</th> <th>ANALYSES</th> <th>ANALYSES</th> <th>ANALYSES</th> <th>ANALYSES</th> <th>Spl. No.</th> </tr> <tr> <td>1</td> <td>Total Nitrogen (NH₃, NO₂, NO₃)</td> <td>Chloride</td> <td>TDS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		NO. OF CONTAINERS	ANALYSES	ANALYSES	ANALYSES	ANALYSES	ANALYSES	ANALYSES	ANALYSES	ANALYSES	ANALYSES	Spl. No.	1	Total Nitrogen (NH ₃ , NO ₂ , NO ₃)	Chloride	TDS							
NO. OF CONTAINERS	ANALYSES	ANALYSES	ANALYSES	ANALYSES	ANALYSES	ANALYSES	ANALYSES	ANALYSES	ANALYSES	Spl. No.															
1	Total Nitrogen (NH ₃ , NO ₂ , NO ₃)	Chloride	TDS																						
SAMPLE ID/LOCATION <u>WWTP - MW - 11 - 92</u> <u>"</u>		DATE <u>2.21.21</u> <u>"</u>		TIME <u>1440</u> <u>"</u>		PRES TYPE <u>1</u> <u>2</u>		NO. OF CONTAINERS <u>1</u> <u>1</u>		ANALYSES <u>X</u> <u>X</u> <u>X</u>															
Instructions/Comments/Special Requirements:																									
Sample Matrix Key** DW = Drinking Water WW = Wastewater SW = Surface Water MW = Monitoring Well SD = Solid/Sludge SO = Soil HW = Hazardous Waste OTHER:																									
*SAMPLE PRESERVATIVES: 1=Unpreserved 2=H2SO4 3=NaOH 4=HCl 5=HNO3 6=Na2S2O3 7=ZnOAc+NaOH 8=HCl/VOA Vial																									
Temp	Custody Seal	# of Containers	DATE	TIME	Samples Relinquished By			Samples Received By																	
7.0°C	Y N None	2	2-22-21	1141	[Signature]			[Signature]																	
°C	Y N None																								
°C	Y N None																								
°C	Y N None																								

WETLAB'S Standard Terms and Conditions apply unless written agreements specify otherwise. Payment terms are Net 30.

Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636).
 To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted.
 WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee.
 Please contact your Project Manager for details.



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Specializing in Soil, Hazardous Waste and Water Analysis

3/4/2021

Lumos & Associates, Inc.
9222 Prototype Drive
Reno, NV 89521
Attn: Mike Hardy

OrderID: 21020648

Dear: Mike Hardy

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 2/19/2021. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,

Cory Baker
QA Specialist

Kat Langford
Project Manager

KatL@wetlaboratory.com
(775) 200-9876

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fax (702) 622-2868
EPA LAB ID: NV00932

Western Environmental Testing Laboratory Report Comments

Lumos & Associates, Inc. - 21020648

Specific Report Comments

Due to the sample matrix it was necessary to analyze the following at a dilution:

21020648-001 Nitrate Nitrogen

21020648-001 Nitrite Nitrogen

The reporting limits have been adjusted accordingly.

Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

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Lumos & Associates, Inc. - 21020648

Western Environmental Testing Laboratory Analytical Report

Lumos & Associates, Inc.

9222 Prototype Drive

Reno, NV 89521

Attn: Mike Hardy

Phone: (775) 827-6111 Fax: (775) 827-6122

PO\Project: Fernley WWTP MW-12 / 9885.000

Date Printed: 3/4/2021

OrderID: 21020648

Customer Sample ID: WWTP-MW-12-95

Collect Date/Time: 2/19/2021 16:16

WETLAB Sample ID: 21020648-001

Receive Date: 2/19/2021 17:16

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
General Chemistry							
Total Nitrogen	Calc.	ND	mg/L	1	1.4	2/26/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	2200	mg/L	1	25	2/22/2021	NV00925
Anions by Ion Chromatography							
Chloride	EPA 300.0	340	mg/L	5	5.0	2/20/2021	NV00925
Nitrate Nitrogen	EPA 300.0	ND	D mg/L	5	0.75	2/20/2021	NV00925
Nitrite Nitrogen	EPA 300.0	ND	D mg/L	5	0.30	2/20/2021	NV00925
Flow Injection Analyses							
Total Kjeldahl Nitrogen	EPA 351.2	1.2	mg/L	1	0.40	2/26/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

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EPA LAB ID: NV00932

Lumos & Associates, Inc. - 21020648

Western Environmental Testing Laboratory QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21020784	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21020794	Blank 1	Chloride	EPA 300.0	ND			mg/L
		Nitrate Nitrogen	EPA 300.0	ND			mg/L
		Nitrite Nitrogen	EPA 300.0	ND			mg/L
QC21021020	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21020784	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	142	150	95	mg/L
QC21020784	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	142	150	95	mg/L
QC21020794	LCS 1	Chloride	EPA 300.0	10.2	10.0	102	mg/L
		Nitrate Nitrogen	EPA 300.0	2.04	2.00	102	mg/L
		Nitrite Nitrogen	EPA 300.0	0.503	0.500	101	mg/L
QC21021020	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	0.936	1.00	94	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC21020784	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	21020639-001	864	846	mg/L	2 %
QC21020784	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21020639-003	822	916	QD mg/L	11 %

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21020794 MS 1		Chloride	EPA 300.0	21020579-002	40.6	66.8	66.7	5	mg/L	105	104	<1
		Nitrate Nitrogen	EPA 300.0	21020579-002	ND	D 11.1	10.9	2	mg/L	108	107	2
		Nitrite Nitrogen	EPA 300.0	21020579-002	ND	D 2.71	2.70	0.5	mg/L	107	107	<1
QC21020794 MS 2		Chloride	EPA 300.0	21020648-001	344	370	370	5	mg/L	104	101	<1
		Nitrate Nitrogen	EPA 300.0	21020648-001	ND	D 11.2	11.3	2	mg/L	112	113	<1
		Nitrite Nitrogen	EPA 300.0	21020648-001	ND	D 2.58	2.57	0.5	mg/L	103	103	<1
QC21021020 MS 1		Total Kjeldahl Nitrogen	EPA 351.2	21020639-001	ND	M 1.12	1.19	1	mg/L	NC	NC	NC
QC21021020 MS 2		Total Kjeldahl Nitrogen	EPA 351.2	21020637-004	ND	M 0.882	0.810	1	mg/L	NC	NC	NC

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 4 of 4

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fax (702) 622-2868
EPA LAB ID: NV00932

City of
Fernley



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Specializing in Soil, Hazardous Waste and Water Analysis

3/3/2021

Lumos & Associates, Inc.
9222 Prototype Drive
Reno, NV 89521
Attn: Mike Hardy

OrderID: 21020569

Dear: Mike Hardy

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 2/17/2021. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,

Cory Baker
QA Specialist

Hollie Timmons
Project Manager

HollieT@wetlaboratory.com
(775) 200-9870

Page 1 of 4

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Western Environmental Testing Laboratory Report Comments

Lumos & Associates, Inc. - 21020569

Specific Report Comments

None

Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
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- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

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Lumos & Associates, Inc. - 21020569

Western Environmental Testing Laboratory Analytical Report

Lumos & Associates, Inc.

9222 Prototype Drive

Reno, NV 89521

Attn: Mike Hardy

Phone: (775) 827-6111 Fax: (775) 827-6122

PO\Project: Fernly WWTP MWs / 8595.000

Date Printed: 3/3/2021

OrderID: 21020569

Customer Sample ID: WWTP-MW-13-82

Collect Date/Time: 2/17/2021 16:20

WETLAB Sample ID: 21020569-001

Receive Date: 2/17/2021 17:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
General Chemistry							
Total Nitrogen	Calc.	ND	mg/L	1	0.50	2/24/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	1900	mg/L	1	25	2/19/2021	NV00925
Anions by Ion Chromatography							
Chloride	EPA 300.0	390	mg/L	5	5.0	2/19/2021	NV00925
Flow Injection Analyses							
Nitrate + Nitrite Nitrogen	EPA 353.2	ND	mg/L	5	0.10	2/24/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.42	mg/L	1	0.40	2/23/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

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EPA LAB ID: NV00932

Lumos & Associates, Inc. - 21020569

Western Environmental Testing Laboratory QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21020738	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21020794	Blank 1	Chloride	EPA 300.0	ND			mg/L
QC21020861	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L
QC21020905	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21020738	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	156	150	104	mg/L
QC21020738	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	157	150	105	mg/L
QC21020794	LCS 1	Chloride	EPA 300.0	10.2	10.0	102	mg/L
QC21020861	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	1.04	1.00	104	mg/L
QC21020905	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	1.05	1.00	105	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC21020738	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	21020554-001	1004	1022	mg/L	2 %
QC21020738	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21020571-001	938	932	mg/L	1 %

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21020794 MS 1		Chloride	EPA 300.0	21020579-002	40.6	66.8	66.7	5	mg/L	105	104	<1
QC21020794 MS 2		Chloride	EPA 300.0	21020648-001	344	370	370	5	mg/L	104	101	<1
QC21020861 MS 1		Total Kjeldahl Nitrogen	EPA 351.2	21020496-001	ND	M 0.939	0.940	1	mg/L	NC	NC	NC
QC21020861 MS 2		Total Kjeldahl Nitrogen	EPA 351.2	21020525-001	ND	M 0.916	0.897	1	mg/L	NC	NC	NC
QC21020905 MS 1		Nitrate + Nitrite Nitrogen	EPA 353.2	21020496-003	0.108	5.46	5.55	1	mg/L	107	109	2
QC21020905 MS 2		Nitrate + Nitrite Nitrogen	EPA 353.2	21020526-001	11.7	21.5	21.4	1	mg/L	99	97	<1

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

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City of
Fernley

Appendix C: Composite Sampling Water Quality Analyses



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3/3/2021

Lumos & Associates, Inc.
9222 Prototype Drive
Reno, NV 89521
Attn: Mike Hardy

OrderID: 21020569

Dear: Mike Hardy

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

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If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,

Cory Baker
QA Specialist

Hollie Timmons
Project Manager

HollieT@wetlaboratory.com
(775) 200-9870

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tel (702) 475-8899
fax (702) 622-2868
EPA LAB ID: NV00932

Western Environmental Testing Laboratory Report Comments

Lumos & Associates, Inc. - 21020569

Specific Report Comments

None

Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
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- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and Escherichia coli meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

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Lumos & Associates, Inc. - 21020569

Western Environmental Testing Laboratory Analytical Report

Lumos & Associates, Inc.

9222 Prototype Drive

Reno, NV 89521

Attn: Mike Hardy

Phone: (775) 827-6111 Fax: (775) 827-6122

PO\Project: Fernly WWTP MWs / 8595.000

Date Printed: 3/3/2021

OrderID: 21020569

Customer Sample ID: WWTP-MW-13-82

Collect Date/Time: 2/17/2021 16:20

WETLAB Sample ID: 21020569-001

Receive Date: 2/17/2021 17:04

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
General Chemistry							
Total Nitrogen	Calc.	ND	mg/L	1	0.50	2/24/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	1900	mg/L	1	25	2/19/2021	NV00925
Anions by Ion Chromatography							
Chloride	EPA 300.0	390	mg/L	5	5.0	2/19/2021	NV00925
Flow Injection Analyses							
Nitrate + Nitrite Nitrogen	EPA 353.2	ND	mg/L	5	0.10	2/24/2021	NV00925
Total Kjeldahl Nitrogen	EPA 351.2	0.42	mg/L	1	0.40	2/23/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

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Lumos & Associates, Inc. - 21020569

Western Environmental Testing Laboratory QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21020738	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21020794	Blank 1	Chloride	EPA 300.0	ND			mg/L
QC21020861	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L
QC21020905	Blank 1	Nitrate + Nitrite Nitrogen	EPA 353.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21020738	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	156	150	104	mg/L
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QC21020861	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	1.04	1.00	104	mg/L
QC21020905	LCS 1	Nitrate + Nitrite Nitrogen	EPA 353.2	1.05	1.00	105	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC21020738	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	21020554-001	1004	1022	mg/L	2 %
QC21020738	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21020571-001	938	932	mg/L	1 %

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21020794 MS 1		Chloride	EPA 300.0	21020579-002	40.6	66.8	66.7	5	mg/L	105	104	<1
QC21020794 MS 2		Chloride	EPA 300.0	21020648-001	344	370	370	5	mg/L	104	101	<1
QC21020861 MS 1		Total Kjeldahl Nitrogen	EPA 351.2	21020496-001	ND	M 0.939	0.940	1	mg/L	NC	NC	NC
QC21020861 MS 2		Total Kjeldahl Nitrogen	EPA 351.2	21020525-001	ND	M 0.916	0.897	1	mg/L	NC	NC	NC
QC21020905 MS 1		Nitrate + Nitrite Nitrogen	EPA 353.2	21020496-003	0.108	5.46	5.55	1	mg/L	107	109	2
QC21020905 MS 2		Nitrate + Nitrite Nitrogen	EPA 353.2	21020526-001	11.7	21.5	21.4	1	mg/L	99	97	<1

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Specializing in Soil, Hazardous Waste and Water Analysis

3/25/2021

Lumos & Associates, Inc.
9222 Prototype Drive
Reno, NV 89521
Attn: Mike Hardy

OrderID: 21030471

Dear: Mike Hardy

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 3/12/2021. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,

Cory Baker
QA Specialist

Mckenna Oh
Project Manager

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fax (702) 622-2868
EPA LAB ID: NV00932

Western Environmental Testing Laboratory Report Comments

Lumos & Associates, Inc. - 21030471

Specific Report Comments

Due to the sample matrix it was necessary to analyze the following at a dilution:

21030471-001 Nitrate Nitrogen

21030471-001 Nitrite Nitrogen

The reporting limits have been adjusted accordingly.

Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
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- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
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General Lab Comments

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A result of zero (0) indicates absence for both coliform and *Escherichia coli* meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

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Western Environmental Testing Laboratory Analytical Report

Lumos & Associates, Inc.

9222 Prototype Drive

Reno, NV 89521

Attn: Mike Hardy

Phone: (775) 827-6111 Fax: (775) 827-6122

PO/Project: Fernley WWTP MW-12 / 9885.000

Date Printed: 3/25/2021

OrderID: 21030471

Customer Sample ID: MW-12 Pump Test

Collect Date/Time: 3/11/2021 13:15

WETLAB Sample ID: 21030471-001

Receive Date: 3/12/2021 14:01

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
General Chemistry							
Total Nitrogen	Calc.	2.1	mg/L	1	1.4	3/24/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	2300	mg/L	1	25	3/15/2021	NV00925
Anions by Ion Chromatography							
Chloride	EPA 300.0	390	mg/L	5	5.0	3/12/2021	NV00925
Nitrate Nitrogen	EPA 300.0	ND	D mg/L	5	0.75	3/12/2021	NV00925
Nitrite Nitrogen	EPA 300.0	ND	D mg/L	5	0.30	3/12/2021	NV00925
Flow Injection Analyses							
Total Kjeldahl Nitrogen	EPA 351.2	2.1	mg/L	1	0.40	3/24/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 3 of 4

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ELKO

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EPA LAB ID: NV00926

LAS VEGAS

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Las Vegas, Nevada 89102
tel (702) 475-8899
fax (702) 622-2868
EPA LAB ID: NV00932

Lumos & Associates, Inc. - 21030471

Western Environmental Testing Laboratory QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21030511	Blank 1	Chloride	EPA 300.0	ND			mg/L
		Nitrate Nitrogen	EPA 300.0	ND			mg/L
		Nitrite Nitrogen	EPA 300.0	ND			mg/L
QC21030527	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21030859	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21030511	LCS 1	Chloride	EPA 300.0	9.87	10.0	99	mg/L
		Nitrate Nitrogen	EPA 300.0	1.96	2.00	98	mg/L
		Nitrite Nitrogen	EPA 300.0	0.498	0.500	100	mg/L
QC21030527	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	143	150	95	mg/L
QC21030527	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	153	150	102	mg/L
QC21030859	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	0.986	1.00	99	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC21030527	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	21030454-004	1046	1022	mg/L	2 %
QC21030527	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21030458-001	538	488	mg/L	10 %

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21030511 MS 1		Chloride	EPA 300.0	21030305-002	232	SC 247	247	5	mg/L	NC	NC	NC
		Nitrate Nitrogen	EPA 300.0	21030305-002	6.09	HT 16.0	16.0	2	mg/L	99	99	<1
		Nitrite Nitrogen	EPA 300.0	21030305-002	ND	HT, 2.43	2.45	0.5	mg/L	97	98	<1
QC21030511 MS 2		Chloride	EPA 300.0	21030465-001	17.9		22.2	5	mg/L	86	86	<1
		Nitrate Nitrogen	EPA 300.0	21030465-001	2.95		4.95	2	mg/L	101	100	<1
		Nitrite Nitrogen	EPA 300.0	21030465-001	ND	M 0.328	0.322	0.5	mg/L	NC	NC	NC
QC21030859 MS 1		Total Kjeldahl Nitrogen	EPA 351.2	21030471-001	2.09		3.17	1	mg/L	108	106	<1
QC21030859 MS 2		Total Kjeldahl Nitrogen	EPA 351.2	21030498-001	2.10	M 2.81	3.25	1	mg/L	NC	NC	NC

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 4 of 4

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Client/Collector attests to the validity and authenticity of this (these) sample(s) and, is (are) aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636). AS initial

To the maximum extent permitted by law, the Client agrees to limit the liability of WETLAB for the Client's damages to the total compensation received, unless other agreements are made in writing. This limitation shall apply regardless of the cause of action or legal theory pled or asserted. AS initial

WETLAB will dispose of samples 90 days from sample receipt. Client may request a longer sample storage time for an additional fee. 301.2E

Please contact your Project Manager for details. AS initial



www.WETLaboratory.com

Specializing in Soil, Hazardous Waste and Water Analysis

3/29/2021

Lumos & Associates, Inc.
9222 Prototype Drive
Reno, NV 89521
Attn: Mike Hardy

OrderID: 21030498

Dear: Mike Hardy

This is to transmit the attached analytical report. The analytical data and information contained therein was generated using specified or selected methods contained in references, such as Standard Methods for the Examination of Water and Wastewater, online edition, Methods for Determination of Organic Compounds in Drinking Water, EPA-600/4-79-020, and Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods (SW846) Third Edition.

The samples were received by WETLAB-Western Environmental Testing Laboratory in good condition on 3/15/2021. Additional comments are located on page 2 of this report.

If you should have any questions or comments regarding this report, please do not hesitate to call.

Sincerely,

Cory Baker
QA Specialist

Mckenna Oh
Project Manager

MckennaO@wetlaboratory.com
(775) 200-9876

Page 1 of 4

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Western Environmental Testing Laboratory Report Comments

Lumos & Associates, Inc. - 21030498

Specific Report Comments

Due to the sample matrix it was necessary to analyze the following at a dilution:

21030498-001 Nitrate Nitrogen

21030498-001 Nitrite Nitrogen

The reporting limits have been adjusted accordingly.

Report Legend

- B -- Blank contamination; Analyte detected above the method reporting limit in an associated blank
- D -- Due to the sample matrix dilution was required in order to properly detect and report the analyte. The reporting limit has been adjusted accordingly.
- HT -- Sample analyzed beyond the accepted holding time
- J -- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. The reported result should be considered an estimate.
- K -- The TPH Diesel Concentration reported here likely includes some heavier TPH Oil hydrocarbons reported in the TPH Diesel range as per EPA 8015.
- L -- The TPH Oil Concentration reported here likely includes some lighter TPH Diesel hydrocarbons reported in the TPH Oil range as per EPA 8015.
- M -- The matrix spike/matrix spike duplicate (MS/MSD) values for the analysis of this parameter were outside acceptance criteria due to probable matrix interference. The reported result should be considered an estimate.
- N -- There was insufficient sample available to perform a spike and/or duplicate on this analytical batch.
- NC -- Not calculated due to matrix interference
- QD -- The sample duplicate or matrix spike duplicate analysis demonstrated sample imprecision. The reported result should be considered an estimate.
- QL -- The result for the laboratory control sample (LCS) was outside WETLAB acceptance criteria and reanalysis was not possible. The reported data should be considered an estimate.
- S -- Surrogate recovery was outside of laboratory acceptance limits due to matrix interference. The associated blank and LCS surrogate recovery was within acceptance limits
- SC -- Spike recovery not calculated. Sample concentration >4X the spike amount; therefore, the spike could not be adequately recovered
- U -- The analyte was analyzed for, but was not detected above the level of the reported sample reporting/quantitation limit. The reported result should be considered an estimate.

General Lab Comments

Per method recommendation (section 4.4), Samples analyzed by methods EPA 300.0 and EPA 300.1 have been filtered prior to analysis.

The following is an interpretation of the results from EPA method 9223B:

A result of zero (0) indicates absence for both coliform and *Escherichia coli* meaning the water meets the microbiological requirements of the U.S. EPA Safe Drinking Water Act (SDWA). A result of one (1) for either test indicates presence and the water does not meet the SDWA requirements. Waters with positive tests should be disinfected by a certified water treatment operator and retested.

Per federal regulation the holding time for the following parameters in aqueous/water samples is 15 minutes: Residual Chlorine, pH, Dissolved Oxygen, Sulfite.

Page 2 of 4

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Lumos & Associates, Inc. - 21030498

Western Environmental Testing Laboratory Analytical Report

Lumos & Associates, Inc.

9222 Prototype Drive

Reno, NV 89521

Attn: Mike Hardy

Phone: (775) 827-6111 Fax: (775) 827-6122

PO/Project: Fernley WWTP MW13/9885.000

Date Printed: 3/29/2021

OrderID: 21030498

Customer Sample ID: MW-13 Pump Test

Collect Date/Time: 3/15/2021 11:26

WETLAB Sample ID: 21030498-001

Receive Date: 3/15/2021 12:15

Analyte	Method	Results	Units	DF	RL	Analyzed	LabID
General Chemistry							
Total Nitrogen	Calc.	ND	mg/L	1	2.5	3/24/2021	NV00925
Total Dissolved Solids (TDS)	SM 2540C	2900	mg/L	1	25	3/16/2021	NV00925
Anions by Ion Chromatography							
Chloride	EPA 300.0	410	mg/L	10	10	3/16/2021	NV00925
Nitrate Nitrogen	EPA 300.0	ND	D mg/L	10	1.5	3/16/2021	NV00925
Nitrite Nitrogen	EPA 300.0	ND	D mg/L	10	0.60	3/16/2021	NV00925
Flow Injection Analyses							
Total Kjeldahl Nitrogen	EPA 351.2	2.1	M mg/L	1	0.40	3/24/2021	NV00925

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 3 of 4

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Lumos & Associates, Inc. - 21030498

Western Environmental Testing Laboratory QC Report

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21030555	Blank 1	Total Dissolved Solids (TDS)	SM 2540C	ND			mg/L
QC21030604	Blank 1	Chloride	EPA 300.0	ND			mg/L
		Nitrate Nitrogen	EPA 300.0	ND			mg/L
		Nitrite Nitrogen	EPA 300.0	ND			mg/L
QC21030859	Blank 1	Total Kjeldahl Nitrogen	EPA 351.2	ND			mg/L

QCBatchID	QCType	Parameter	Method	Result	Actual	% Rec	Units
QC21030555	LCS 1	Total Dissolved Solids (TDS)	SM 2540C	137	150	91	mg/L
QC21030555	LCS 2	Total Dissolved Solids (TDS)	SM 2540C	138	150	92	mg/L
QC21030604	LCS 1	Chloride	EPA 300.0	10.4	10.0	104	mg/L
		Nitrate Nitrogen	EPA 300.0	2.10	2.00	105	mg/L
		Nitrite Nitrogen	EPA 300.0	0.505	0.500	101	mg/L
QC21030859	LCS 1	Total Kjeldahl Nitrogen	EPA 351.2	0.986	1.00	99	mg/L

QCBatchID	QCType	Parameter	Method	Duplicate Sample	Sample Result	Duplicate Result	Units	RPD
QC21030555	Duplicate 1	Total Dissolved Solids (TDS)	SM 2540C	21030496-001	327	342	mg/L	4 %
QC21030555	Duplicate 2	Total Dissolved Solids (TDS)	SM 2540C	21030519-003	451	386	QD mg/L	16 %

QCBatchID	QCType	Parameter	Method	Spike Sample	Sample Result	MS Result	MSD Result	Spike Value	Units	MS %Rec	MSD %Rec	RPD %
QC21030604 MS 1		Chloride	EPA 300.0	21030489-001	ND	5.47	5.53	5	mg/L	105	106	1
		Nitrate Nitrogen	EPA 300.0	21030489-001	ND	2.16	2.19	2	mg/L	107	109	1
		Nitrite Nitrogen	EPA 300.0	21030489-001	ND	0.547	0.552	0.5	mg/L	109	110	<1
QC21030604 MS 2		Chloride	EPA 300.0	21030496-010	18.3	23.4	23.4	5	mg/L	103	102	<1
		Nitrate Nitrogen	EPA 300.0	21030496-010	3.15	5.28	5.27	2	mg/L	107	106	<1
		Nitrite Nitrogen	EPA 300.0	21030496-010	ND	0.578	0.576	0.5	mg/L	109	109	<1
QC21030859 MS 1		Total Kjeldahl Nitrogen	EPA 351.2	21030471-001	2.09	3.17	3.15	1	mg/L	108	106	<1
QC21030859 MS 2		Total Kjeldahl Nitrogen	EPA 351.2	21030498-001	2.10	M 2.81	3.25	1	mg/L	NC	NC	NC

DF=Dilution Factor, RL = Reporting Limit (minimum 3X the MDL), ND = Not Detected <RL or <MDL (if listed)

Page 4 of 4

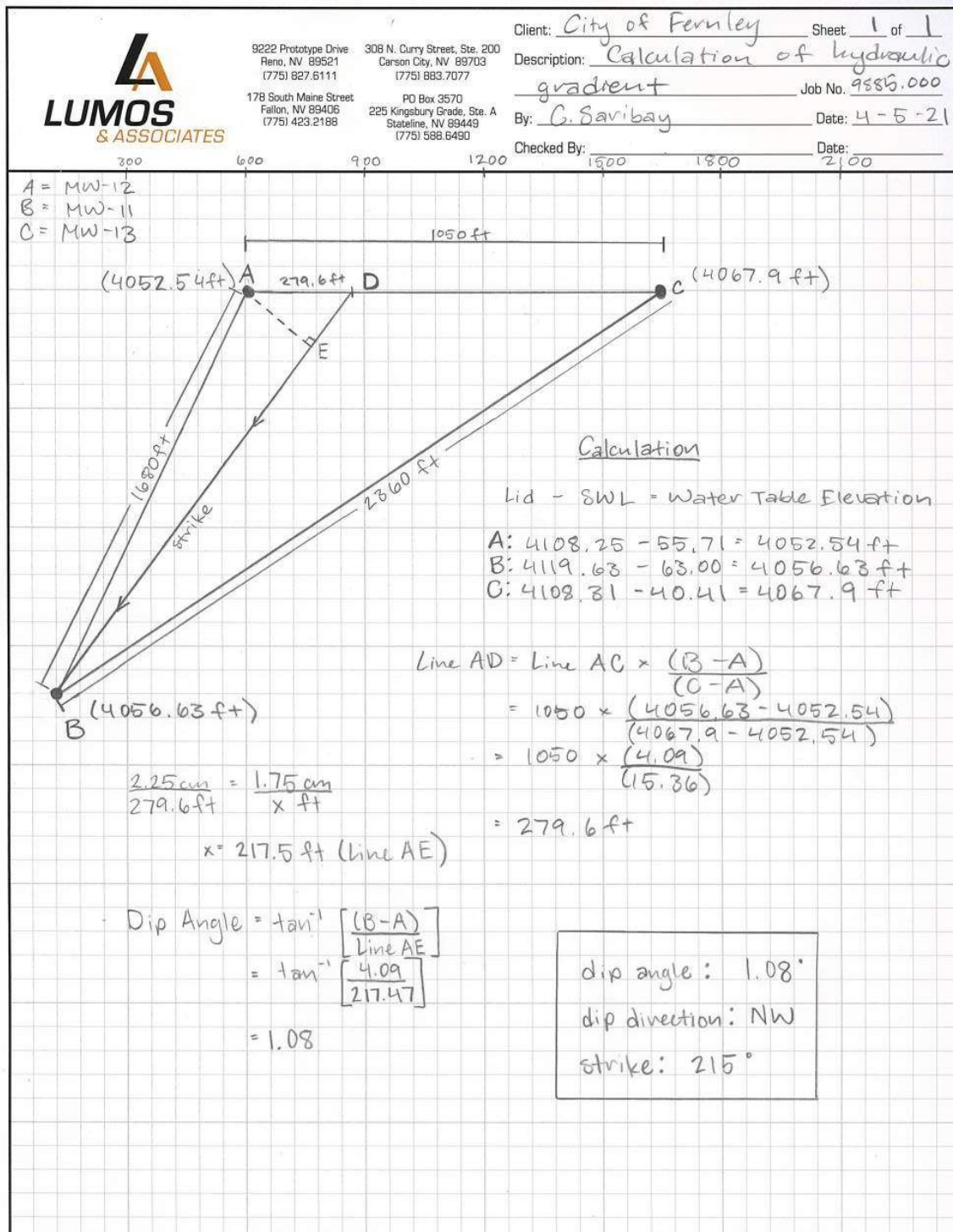
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City of
Fernley

Appendix D: Fernley WWTP calculations and analysis for hydraulic gradient and groundwater flow direction



Appendix E AOC Documentation



NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**

STATE OF NEVADA
Department of Conservation & Natural Resources
Bradley Crowell, Director
Greg Lovato, Administrator

December 17, 2019

Dave Whalen, Public Works Director
City of Fernley Public Works Department
595 Silver Lace Blvd.
Fernley, NV 89408

**RE: Work Plan for New Monitoring Wells at the East Wastewater Treatment Plant (EWTP) -
Discharge Permit # NS0080011**

Dear Mr. Whalen:

The Nevada Division of Environmental Protection (Division) – Bureau of Water Pollution Control received an electronic copy of the following work plan dated November 18, 2019:

- Fernley WWTP – Work Plan for New Monitoring Wells

Upon technical review, the Division has accepted the work plan for the EWTP located in Fernley, NV.

If you should have any questions, please feel free to contact me at (775) 687-9315.

Sincerely,

Katura Tullar, Staff Engineer
Technical, Compliance & Enforcement Branch
Bureau of Water Pollution Control

cc: BWPC Compliance Coordinator

ecc: Dave Whalen, City of Fernley, dwhalen@cityoffernley.org
Derek Starkey, City of Fernley, dstarkey@cityoffernley.org
Kristin Tokheim, P.E., Lumos, ktokheim@lumosinc.com
Mike Hardy, P.E., Lumos, mhardy@lumosinc.com
Katrina Pascual, P.E., Supervisor, NDEP, kpascual@ndep.nv.gov



NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**

STATE OF NEVADA
Department of Conservation & Natural Resources

Bradley Crowell, Director
Greg Lovato, Administrator

August 6, 2020

Kristin Tokheim, P.E., Sr. Engineer
Lumos & Associates
308 N. Curry St., Suite 200
Carson City, NV 89703

RE: P&S Approval for Monitoring Well Project
Permittee: City of Fernley WWTF – Permit # NS0080011

Dear Ms. Tokheim:

The Nevada Division of Environmental Protection – Bureau of Water Pollution Control (NDEP-BWPC) hereby approves the technical specifications for the installation of Monitoring Wells #11, #12 and #13 at the City of Fernley's Wastewater Treatment Facility in Lyon County, NV. Please note the following conditions:

1. Within thirty (30) days of monitoring well installation and completion, the project consultant or licensed well driller shall provide NDEP-BWPC with a copy of the completed well logs for Monitoring Wells #11, #12 and #13.

Review or approval of facilities plans, design drawings, and specifications or other documents by or for the Division is for administrative purposes only and does not relieve the owner of the responsibility to properly plan, design, build and effectively operate and maintain the facility as required under law, regulations, permits, and good management practices. The Division is not responsible for increased costs resulting from defects in design, plans and specifications or other pertinent documents.

A discharge permit must be issued from this Division before construction or modification of any treatment works (per NRS 445A.585). Also, the applicant is responsible for all other permits that may be required, which may include, but not be limited to:

Dam Safety Permits -	Division of Water Resources
Well Permits -	Division of Water Resources
404 Permits -	U.S. Army Corps of Engineers and Division
Air Permits -	NDEP
Health Permits -	Local Government or State Health Division
Local Permits -	Local Government (Special Use Permits, etc.)
Storm Water Permits -	NDEP
Dewatering Permits -	NDEP

The Division must approve all addenda and change orders. A copy of a transmittal form (WTS-13) is included herewith. That form must be completed and sent to the Division with each addendum or change order.

If you have any question with regards to this monitoring well plan approval letter, please feel free to contact me at (775) 687-9424.

Sincerely,



Mark A. Kaminski, P.E.
Technical, Compliance & Enforcement Branch
Bureau of Water Pollution Control
mkaminsk@ndep.nv.gov

Enclosure: WTS-13 Change Order Form

cc (w/o enclosure):

Derek Starkey, P.E., City Engineer, City of Fernley, 595 Silver Lace Blvd., Fernley, NV 89408
BWPC Compliance Coordinator

Emailed:

Dave Whalen, P.E., Public Works Director, City of Fernley
Mike Hardy, P.E., P.G., W.R.S., Lumos & Associates
Katura Tullar
Katrina Pascual, P.E.
Elizabeth Kingsland, Chief

REQUIRED FORM
CHANGE ORDER OR ADDENDUM SUBMITTAL FORM

Note: This Form must be submitted with all Change Orders and addendum for NDEP approval.

TO: Bureau of Water Pollution Control
Nevada Division of Environmental Protection
901 South Stewart Street, Suite 4001
Carson City, NV 89701

FROM: _____ **DATE:** _____

Submitted herewith: Change Order # _____ or Addendum # _____

Project: _____

Owner: _____

Brief Description & Reason for Change _____

If Change Order:	Original Contract \$	_____	Other Change Orders \$	_____
	Contract Time	_____	This Change Order \$	_____
	Approved Time Change	_____	Total	\$
	Completion Date	_____		

Does this addendum / Change Order impact the treatment process or effluent quality? Yes _____
No _____

Name _____

Signature _____

Address _____

Telephone # _____

For NDEP response: The above document is hereby approved by NDEP

Date: _____ **Name:** _____

Signature: _____

**SECOND AMENDMENT TO THE ORIGINAL ADMINISTRATIVE ORDER ON
CONSENT ENTERED INTO ON SEPTEMBER 10, 2015, BETWEEN THE NEVADA
DIVISION OF ENVIRONMENTAL PROTECTION AND THE CITY OF FERNLEY
PUBLIC WORKS DEPARTMENT**

The parties to this Administrative Order on Consent (AOC), the Nevada Division of Environmental Protection (Division) and the City of Fernley Public Works Department (COF), now wish to amend the first amended AOC dated February 18, 2016. Therefore, the outstanding order items under the Background as listed on pages 2 of 13 through 5 of 13 of the original AOC will be appended and the Schedule for Completion as listed on the first amended AOC will be amended as follows:

II.

BACKGROUND

WHEREAS, the Division received the East Wastewater Treatment Plant (EWTP) Work Plan for New Monitoring Wells (MW) from the COF dated November 18, 2019. The work plan includes the installation of one (1) up-gradient, MW #11 and two (2) down-gradient groundwater monitoring wells, MW #12 and #13. These new groundwater monitoring wells are advised because the existing ones, MW #7 and #9, do not give an accurate representation due to the proximity to the current ponds.

VI.

SCHEDULE FOR COMPLETION

PART I – COF shall continue to provide monthly groundwater monitoring data to the Division for MW #7 and #9 through completion of the AOC for observation of trends only.

PART II – COF is to install a total of three (3) new groundwater monitoring wells, one (1) up-gradient, MW #11 and two (2) down-gradient groundwater monitoring wells, MW #12 and #13, within six (6) months of execution of this AOC amendment. The location of these wells can be no further than 250 feet from the EWTP. The new groundwater monitoring wells shall be designed in accordance with the Division's technical guidance WTS-4. Once all three (3) proposed groundwater monitoring wells are installed, COF is to submit an updated permit application to include these new groundwater monitoring wells with quarterly monitoring for approval by the Division. A monthly monitoring schedule shall be initiated for the first twelve (12) months following well installation as part of the monitoring required for this AOC amendment.

PART III – If the total nitrogen levels in the three (3) proposed groundwater monitoring wells, MW #11, #12 and #13, installed at the EWTP do not exhibit a decreasing trend towards 10 mg/L during the twelve (12) month monitoring period after installation, COF shall then provide a Preliminary Engineering Report (PER) to evaluate alternatives for an Effluent Nitrogen Reduction System to the Division within six (6) months of completion of the twelve (12) month monitoring period. Upon approval of the PER by the Division, COF shall submit Design Plans and Specifications by **December 31, 2022** to the Division for the proposed Effluent Nitrogen Reduction System. The Effluent Nitrogen Reduction System, consisting of any method for nitrogen reduction specified by COF, shall be constructed and operated in a manner, which reduces the nitrogen loading into the environment.

PART IV - If the total nitrogen levels in the three (3) proposed groundwater monitoring wells, MW #11, #12 and #13, exhibit a decreasing trend towards 10 mg/L by the end of the twelve (12) month monitoring period, the Division and COF will deem this AOC fully completed and the requirements outlined in Part III above will not be required. The COF can then request the termination of this AOC.

IT IS SO AGREED AND ORDERED. ALL OTHER REQUIREMENTS OF THE AOC (AS AMENDED) REMAIN IN FULL FORCE AND EFFECT.

The STATE OF NEVADA:

By: 

Greg Lovato, Administrator
Nevada Division of Environmental Protection

Date: 9/2/20

The CITY OF FERNLEY:

By: 

Dave Whalen, Public Works Director
City of Fernley

Date: 8/20/2020



NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**

STATE OF NEVADA
Department of Conservation & Natural Resources
Bradley Crowell, Director
Greg Lovato, Administrator

June 8, 2021

Kristin Tokheim, P.E., Sr. Engineer
Lumos & Associates
308 N. Curry St., Suite 200
Carson City, NV 89703

**RE: Administrative Order on Consent # AOC091015W1 – Monitoring Well Installation Project
Fernley WWTP Discharge Permit # NS0080011**

Dear Ms. Tokheim:

This letter serves as acknowledgment that our office received the Final Report and lithology details for MW-11, MW-12, and MW-13 on May 13, 2021. NDEP had originally approved the 100% plans and specifications for these three, new monitoring wells on August 6, 2020. Thank you for notifying our office of the recent completion of Monitoring Wells #11-13 at the Fernley WWTP.

If you should have any questions, please feel free to contact me at (775) 687-9424.

Sincerely,

Mark A. Kaminski

Mark A. Kaminski, P.E.
Technical, Compliance & Enforcement Branch
Bureau of Water Pollution Control

cc:

Derek Starkey, P.E., City Engineer, City of Fernley, 595 Silver Lace Blvd., Fernley, NV 89408
BWPC Compliance Coordinator

Emailed:

Dave Whalen, P.E., Public Works Director, City of Fernley
Mike Hardy, P.E., P.G., W.R.S., Lumos & Associates
Mitch Cowles, E.I.
Donette Barreto, P.E.
Katura Tullar, E.I.
Katrina Pascual, P.E.
Elizabeth Kingsland, Chief



NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**

STATE OF NEVADA
Department of Conservation & Natural Resources

Steve Sisolak, Governor
Jim Lawrence, Acting Director
Greg Lovato, Administrator

November 2, 2022

CERTIFIED MAIL #9171 9690 0935 0239 9992 33

Dave Whalen, P.E., CEM, Public Works Director
City of Fernley
595 Silver Lace Blvd.
Fernley, NV 89408

**Re: Close Out of Administrative Order on Consent (AOC091015W1) for the East
Wastewater Treatment Plant - Discharge Permit #NS0080011**

Dear Mr. Whalen:

The Nevada Division of Environmental Protection (Division) received the City of Fernley Wastewater Treatment Plant New Monitoring Wells Project Report on September 15, 2022. The Administrative Order on Consent (AOC) was officially issued on September 2, 2020, to address monitoring well nitrogen exceedances at the City of Fernley's East Wastewater Treatment Plant. The final project report summarized the total nitrogen levels in the three (3) proposed groundwater monitoring wells, MW #11, #12, and #13, exhibiting a decreasing trend towards 10 mg/L by the end of the 12-month monitoring period. This project report was the final requirement stated in Part IV of the AOC. Therefore, all conditions of this AOC have been satisfied and the Division deems the AOC as fully complete. This letter closes AOC091015W1.

If you have any questions, please contact me at (775) 687-9315 or ktullar@ndep.nv.gov.

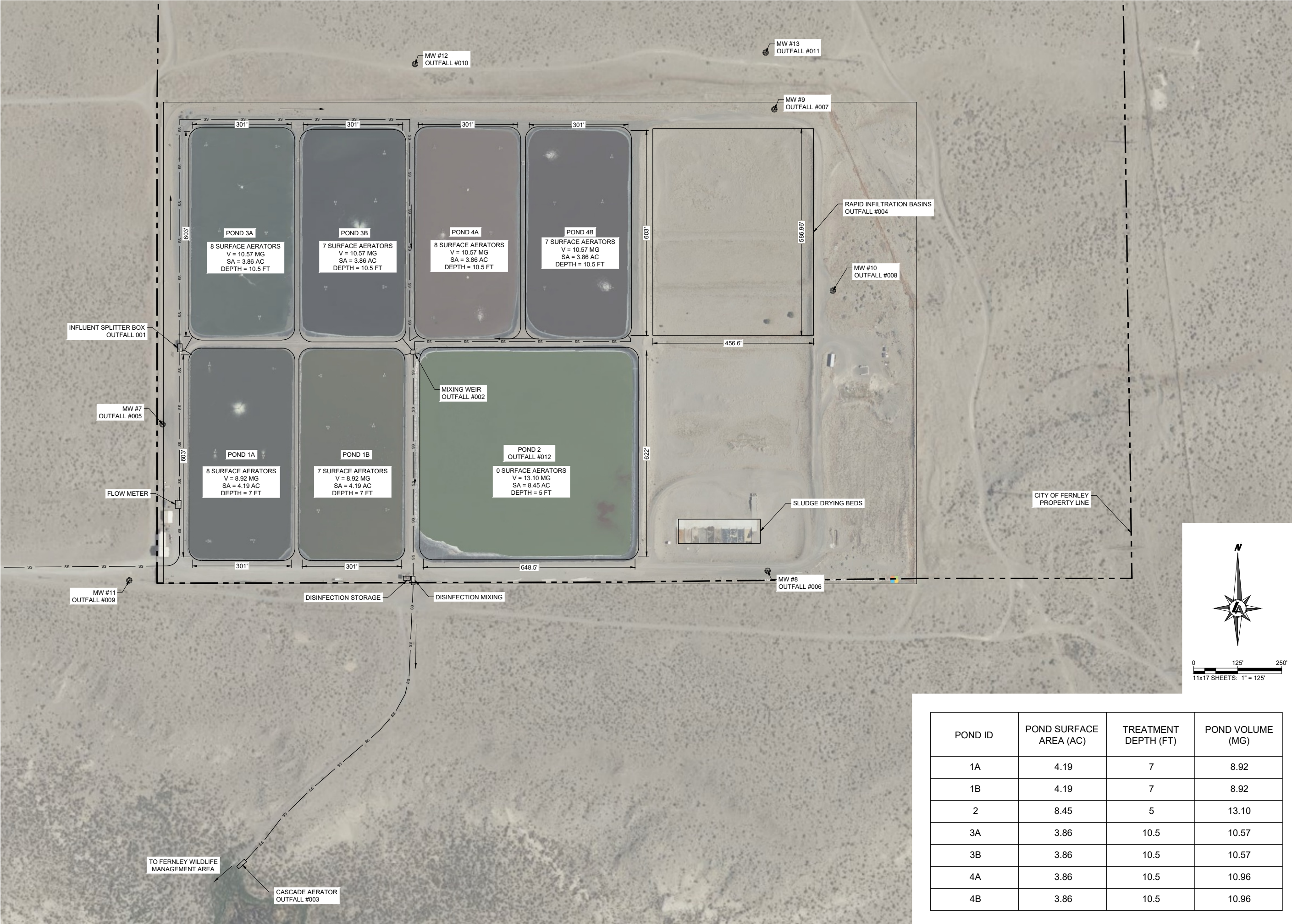
Sincerely,

Katura Tullar, E.I.
Technical Services, Compliance, and Enforcement Branch
Bureau of Water Pollution Control
Nevada Division of Environmental Protection

ECC: Dave Whalen, City of Fernley, dwhalen@cityoffernley.org
Derek Starkey, City of Fernley, dstarkey@cityoffernley.org
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Mike Hardy, P.E., Lumos, mhardy@lumosinc.com
Katrina Pascual, P.E., NDEP, kpascual@ndep.nv.gov
Andrew Dixon, Chief, NDEP, andrew.dixon@ndep.nv.gov
Jennifer Carr, P.E., Deputy Administrator, NDEP, jcarr@ndep.nv.gov
Greg Lovato, P.E., Administrator, NDEP, glavato@ndep.nv.gov

Appendix F Existing Site Map

\\lumosengineering.net\Shared\APro\10939.000 - Wastewater Treatment Plant PER\3-Design\DWG\Civil\Existing Infrastructure - Appendix F.dwg EXISTING SYSTEM MAP, 08/26/2024 12:08 pm lbusher



POND ID	POND SURFACE AREA (AC)	TREATMENT DEPTH (FT)	POND VOLUME (MG)
1A	4.19	7	8.92
1B	4.19	7	8.92
2	8.45	5	13.10
3A	3.86	10.5	10.57
3B	3.86	10.5	10.57
4A	3.86	10.5	10.96
4B	3.86	10.5	10.96



950 SANDHILL ROAD, SUITE 100
RENO, NV 89521
TEL: 775.827.6111
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CITY OF FERNLEY
PRELIMINARY ENGINEERING REPORT
EAST WASTE WATER TREATMENT PLANT
EXISTING SITE FACILITIES
FERNLEY
LYON COUNTY
NEVADA

REV	DATE	DESCRIPTION

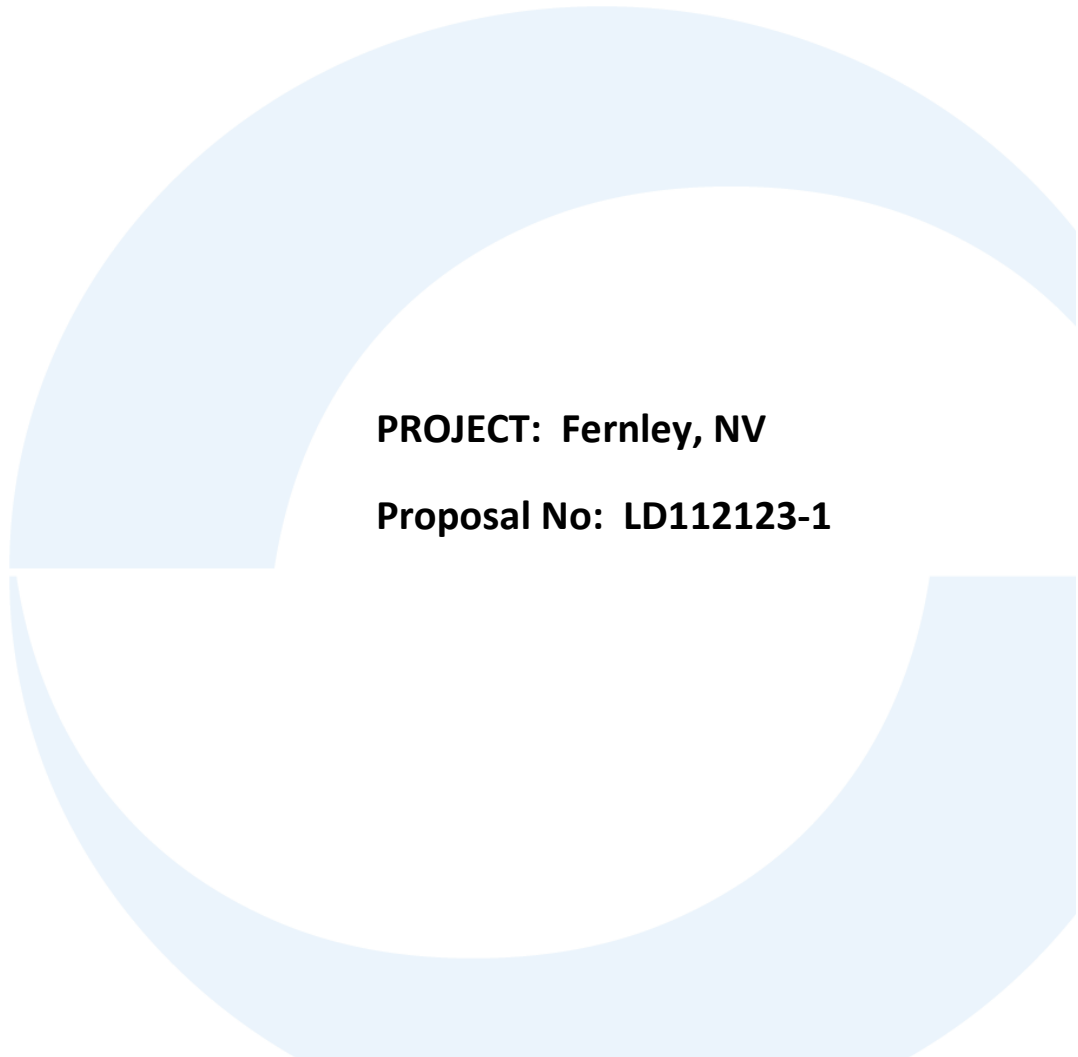
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY
EXHIBIT
DRAWN BY: ---
DESIGNED BY: ---
CHECKED BY: ---
JOB NO.: 10939.000

Appendix G Surface Aerator Purchase Orders

EcoJet™ High Speed Aerators

&

ASPIRO Aspirators



PROJECT: Fernley, NV

Proposal No: LD112123-1

**Contact: Lenka Dixon, LDixon@AeratorSolutions.com
PH: 815-623-5111, FAX: 815-623-7111**

November 21, 2023

QUOTATION NUMBER: LD112123-1

PROJECT: City of Fernley, Nevada

Attn: Mr. Nathan McIntyre
595 Silverlace Blvd, NV 89408
Phone: (775) 302-1020, Email: nmcintyre@cityoffernley.org

Aerator Solutions is pleased to submit the following proposal for the equipment described in the following pages, subject to the terms and conditions stated herein.

Two (2) – Model A25-SSS High Speed Aerators, 25 HP, 460 Volts, 3 Phase, 60 Hertz, 1200 RPM with the following materials of construction:

- Motor – 25 HP, 460 V, 3 PH, 60 Hz, 1200 RPM
- Motor Shaft – One-piece 17-4 PH stainless steel
- Discharge cone – 304 stainless steel, monolithic casting
- Volute – 304L stainless steel
- Intake Cone – 304L stainless steel
- Propeller –Stainless steel, dynamically balanced
- Float – 14-gauge, 304L stainless steel shell, filled with closed-cell polyurethane foam (84" diameter, 14" deep)

PRICE: \$45,000.00 (\$22,500.00 EA)

Shipment: 1 - 2 weeks after receipt of the purchase order

Six (6) – ASPIRO Aspirator floating surface aerators

Model ASPIRO **AQ1-7.5-60-F3** with the following materials of construction:

- Main Drive 7.5 HP TEFC Motor, IP56, 460 Volt, 3PH, 60 Hz
- Motor shaft - 45 deg shaft down operation
- Propeller - 316 stainless steel
- Aerator constructed in stainless steel (wetted 316, unwetted 304)
- **Three (3) float flotation assembly - frame in stainless steel 304, floats in UV inhibited rotomoulded polyethylene & filled with closed cell foam**

PRICE: \$144,000.00 (\$24,000.00 EA)

Shipment: 16 – 18 weeks after receipt of the purchase order

NOTE: PRICING DOES NOT INCLUDE ANY POWER CABLE, MOORING CABLE OR ANY ACCESSORIES TO INSTALL THE UNITS.

Validity: Pricing is good for 45 days from date of proposal, with submittal approval within 45 days of PO

Terms: Net 30 days from the date of shipment, no retainage allowed

Freight: **NOT INCLUDED. PRE-PAY and ADD to the invoice.**

Startup: NOT included and shall be provided by OTHERS

Taxes: Not included. Please send your tax exemption certificate.

PROPOSAL NOTES:

1. The EcoJet™ Aerator will be shipped as dynamically balanced assembled unit.
2. Materials and/or services not specifically listed in this proposal are not included and are to be supplied by others.
3. Mooring cable, power cable, control panel, anchors, eyebolts and junction box are not included and are to be supplied by OTHERS.

4. Aerator Solutions will provide our standard vibration tests, submittal drawings, and Operations & Maintenance manuals.
5. Materials and/or services not specifically listed in this proposal are not included and are to be supplied by others.
6. Offloading and installation is the responsibility of the customer.
7. Goods quoted above will be sold subject to the terms and conditions set forth on the face hereof and the "Terms and Conditions" on the attached page. Any different or additional terms are hereby objected to.
8. **If a deferred delivery is required (longer than 12 months from PO date), pricing will need to be reviewed and adjusted.**
9. Aerator Solutions' scope of supply does not include any process or performance guarantees or warranties or process or performance testing.
10. Warning Clause: The aerator supplied has a very high hydraulic flow directly beneath the unit. In addition, horizontal surface velocities persist for some distance from the units. These flow patterns may cause damage to the basin bottom or walls creating leaking potential. In earthen or lined basins, Aerator Solutions recommends the use of a concrete pad directly beneath the unit. If concrete is known to be nonresistant to the wastewater, other materials should be investigated. Riprapping or similar means of bank protection can protect the basin walls. If the basin contains any toxic wastes, the end user should obtain engineering advice as to the basin design and construction that is necessary to prevent any potential erosion and leakage potential. Aerator Solutions assumes no liability for any damage to the basin bottoms or walls or for any injuries or damages resulting therefrom.

Signature below indicates the acceptance of this quotation, including the Terms and Conditions attached:

Accepted by the Buyer:

Company Name

By: _____

Date: _____

Accepted by the Seller:

Aerator Solutions

By: _____

Date: _____

Final acceptance of this proposal must be given to Aerator Solutions at their office in Roscoe, Illinois. Please acknowledge by signing above and returning to Aerator Solutions.

AERATOR SOLUTIONS

TERMS AND CONDITIONS OF AERATOR SOLUTIONS

This offer and all of the goods and sales of Aerator Solutions are subject only to the following terms and conditions. The acceptance of any order resulting from this proposal is based on the express condition that the Buyer agrees to all the terms and conditions herein contained. Any terms and conditions in any order, which are in addition to or inconsistent with the following, shall not be binding upon Aerator Solutions. This proposal and any contract resulting therefrom, shall be governed by, and construed in accordance with the laws of the State of Illinois, without regard to conflicts of laws principles.

PAYMENT

Unless specifically stated otherwise, quoted terms are Net 30 Days from shipping date. Past-due charges are 1.5% per month and will apply only on any past-due balance. Aerator Solutions does not allow retainage of any invoice amount, unless authorized in writing by an authorized representative at our Roscoe, Illinois office.

DURATION OF QUOTATION

This proposal of Aerator Solutions shall in no event be effective more than 30 days from date thereof, unless specifically stated otherwise, and is subject to change at any time prior to acceptance.

SHIPMENT

Shipping dates are not a guarantee of a particular day of shipment and are approximate, being based upon present production information, and are subject to change per the production schedules existing at time of receipt of purchase order. Aerator Solutions shall not be responsible for any delay in shipment for causes beyond its control including, but not limited to, war, riots, strikes, labor trouble causing interruption of work, fires, other casualties, transportation delays, modification of order, any act of governmental authorities or acts of God. Quoted shipment dates in this proposal are approximate dates goods will be shipped and, unless agreed to in writing by Aerator Solutions, Buyer may not postpone or delay the dates of shipment of goods from our plant or from our supplier's plants beyond the dates set forth in this proposal.

TITLE AND RISK OF LOSS

All prices and all shipments of goods are F.O.B. Aerator Solutions plant at Roscoe, Illinois unless specifically stated otherwise. Delivery of the goods sold hereunder to the carrier shall be deemed delivery to the Buyer, and upon such delivery, title to such goods and risk of loss or damage shall be upon Buyer.

TAXES

Prices quoted do not include any taxes, customs duties, or import fees. Buyer shall pay any and all use, sales, privilege or other tax or customs duties or import fees levied by any governmental authority with respect to the sale or transportation of any goods covered hereby. If Aerator Solutions is required by any taxing authority to collect or to pay any such tax, duty or fee, the Buyer shall be separately billed at such time for the amounts Aerator Solutions is required to pay.

INSURANCE

Unless the goods are sold on a CIF basis, the Buyer shall provide marine insurance for all risks, including war and general coverage.

SECURITY

If at any time the financial responsibility of the Buyer becomes unsatisfactory to Aerator Solutions or Aerator Solutions otherwise deems itself insecure as to receipt of full payment of the purchase price from Buyer hereunder, Aerator Solutions reserves the right to require payment in advance or security or guarantee satisfactory to Aerator Solutions of payment in full of the purchase price.

LIMITATION OF ACTION

No action shall be brought against Aerator Solutions for any breach of its contract of sale more than two years after the accrual of the cause of action thereof, and, in no event, unless the Buyer shall first have given written notice to Aerator Solutions of any claim of breach of contract within 30 days after the discovery thereof.

CANCELLATION CLAUSE

No acceptance of this proposal, by purchase order or otherwise, may be modified except by written consent of Aerator Solutions nor may it be cancelled except by prior payment to Aerator Solutions the following sums as liquidated damages; 1) If cancellation is prior to commencement of production and prior to the assumption of any obligations by Aerator Solutions for any materials or component parts, a sum equal to 15% of the total purchase price; 2) If cancellation is after the commencement of production or after the assumption of any obligations by Aerator Solutions for any materials or component parts, a sum equal to the total of the direct out of pocket expenses incurred

to the date of cancellation for labor, machine time, materials and any charges made to us by suppliers for cancellation, plus 30% of the total purchase price. All charges and expenses shall be as determined by Aerator Solutions. In the event any items are used by Aerator Solutions, to fill a subsequent order, then upon receipt of payment for such order, Aerator Solutions shall pay the Buyer a sum equal to the direct out-of-pocket expenses previously charged and received from Buyer.

PROPRIETARY INFORMATION

This proposal, including all descriptive data, drawings, material, information, and know-how disclosed by Aerator Solutions to Buyer in relation hereto is confidential information intended solely for the confidential use of Buyer shall remain the property of Aerator Solutions and shall not be disclosed or otherwise used to the disadvantage or detriment of Aerator Solutions in any manner.

QUALIFIED ACCEPTANCE AND INDEMNITY

In the event the acceptance of this proposal by Buyer either is contingent upon or subject to the approval by any third party such as, but not limited to, a consulting engineer, with respect to goods, parts, materials, descriptive data, drawings, calculations, or any other matter, then upon such approval by any third party, Aerator Solutions shall have no liability to Buyer or to any third party so long as the goods sold and delivered by Aerator Solutions conform to this Proposal. In the event any such third party requires modifications in the proposal prior to the approval thereof, Aerator Solutions may at its sole option and without liability to any party elect to cancel this proposal or return the purchase order to Buyer. In the event Aerator Solutions elects to modify this proposal to conform to the requirements for approval by any third party, Aerator Solutions in such event shall have no liability to Buyer or to any third party so long as the goods sold and delivered by Aerator Solutions conform to this proposal as modified.

Buyer agrees to indemnify and save harmless Aerator Solutions from and against all costs and expenses and liability of any kind whatsoever arising out of or in connection with claims by third parties so long as the goods sold hereunder conform to the requirements of this proposal as approved by any third party.

WARRANTY; LIMITATION OF LIABILITY; AND DISCLAIMER

In return for purchase and full payment for Aerator Solutions goods, we warrant new goods provided by us to be free from defects in materials and workmanship under normal condition and use for a period of one year from the date the goods are put into service, or eighteen months from date of shipment (whichever first occurs).

OUR OBLIGATION UNDER THIS WARRANTY IS EXPRESSLY AND EXCLUSIVELY LIMITED to replacing or repairing (at our factory at Roscoe, Illinois) any part or parts returned to our factory with transportation charges prepaid, and which our examination shall show to have been defective. Prior to return of any goods or its parts to our factory, Buyer shall notify Aerator Solutions of claimed defect, and Aerator Solutions shall have the privilege of examining the goods at Buyer's place of business at or where the goods have otherwise been placed in service. In the event this examination discloses no defect, Buyer shall have no authority to return the goods or parts to our factory for the further examination or repair. All goods or parts shall be returned to Buyer, F.O.B. Roscoe, Illinois. This warranty shall not apply to any goods or part which has been repaired or altered outside our factory, or applied, operated, or installed contrary to our instruction, or subjected to misuse, chemical attack/degradation, negligence, or accident. Our warranty on accessories and component parts not manufactured by us is expressly limited to that of the manufacturer thereof.

In general, all minor repairs of electric motors will be performed in the field by an authorized local service shop. Major repairs involving electric motors will be performed by local authorized electrical repair shops at their facilities. The responsibility for removing parts or equipment from the system and transporting them to the local repair shop is the customers. Re-installation of the equipment is the responsibility of the customer. Any warranty claims involving parts other than the electric motor, if serious, will probably be handled by replacing the defective parts. This may, or may not, involve shipment of the unit (or a part of it) back to the factory. **IN NO CASE SHOULD YOU SHIP THE UNIT BACK TO THE FACTORY WITHOUT AUTHORIZATION FROM AERATOR SOLUTIONS.**

THE FOREGOING WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND OF ALL OTHER LIABILITIES AND OBLIGATIONS ON OUR PART, INCLUDING ANY LIABILITY FOR NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE; AND ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY DISCLAIMED; AND WE EXPRESSLY DENY THE RIGHT OF ANY OTHER PERSON TO INCUR OR ASSUME FOR US ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ANY GOODS PROVIDED BY US. THERE ARE NO WARRANTIES OR GUARANTEES OF PERFORMANCE UNLESS SPECIFICALLY STATED OTHERWISE.

UNDER NO CIRCUMSTANCES, INCLUDING ANY CLAIM OF NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE, SHALL AERATOR SOLUTIONS BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, COSTS OF CONNECTING, DISCONNECTING, OR ANY LOSS OR DAMAGE RESULTING FROM A DEFECT IN THE GOODS. LIMIT OF LIABILITY: AERATOR SOLUTIONS TOTAL LIABILITY UNDER THE ABOVE WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF ANY DEFECTIVE PART. THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE, AND OUR LIABILITY WITH RESPECT TO ANY CONTRACT OR SALE, OR ANYTHING DONE IN CONNECTION THEREWITH, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY, OR OTHERWISE, SHALL NOT, IN ANY CASE, EXCEED THE PRICE OF THE GOODS UPON WHICH SUCH LIABILITY IS BASED.

Final acceptance of this proposal must be given to Aerator Solutions at their office in Roscoe, Illinois. Please acknowledge acceptance by signing the proposal and returning it to Aerator Solutions.

Accepted By:

Offer Respectfully Submitted,

By:

Date:

Aerator Solutions By:

Appendix H Existing System Performance Calculations

PONDS EXCESS STORAGE CAPACITY
FERNLEY EWWTP PER
CITY OF FERNLEY

10939.000
16-Apr-24



Rainfall Data	Intensity (in/h)	Depth (in)	Notes
25 yr 24 hours	0.072	1.74	NOAA Atlas 14
100 yr 24 hours	0.082	2.23	NOAA Atlas 14

Peak Hour Flows	Value	Unit	Notes
Peak Hour Q	10.58	MGD	2024 SMP (Shaw Engineering)
Peak Hour t	3	hours	Estimate
Peak Hour V	1.32	MG	

Existing Pond Volumes

Pond	Treatment Volume (MG)	Treatment Water Depth (FT)	Freeboard (FT)	Total Pond Volume (MG)	Excess Storage Volume (MG)
Pond 1A	8.92	7.0	2.5	10.5	1.62
Pond 1B	8.92	7.0	2.5	10.5	1.62
Pond 2	13.10	5.00	3.3	22.5	9.44
Pond 3A	10.57	10.5	3.0	16.4	5.79
Pond 3B	10.57	10.5	3.0	16.4	5.83
Pond 4A	10.96	10.5	2.5	14.4	3.46
Pond 4B	10.96	10.5	2.5	14.4	3.46
Total	74.0			105.2	31.22

Existing Excess Storage Capacity

Pond	Pond Surface Area (ac)	25 yr Storm Storm Vol (ac-ft)	Additional Vol. Storm Vol (MG)	100 yr Storm Storm Vol (ac-ft)	Additional Vol. Storm Vol (MG)	Peak Hour Addt'l Vol (MG)	Total Addt'l Storage Required (MG)	Capacity OK?
Pond 1A	4.19	0.61	0.21	0.78	0.27	0.22	0.43	OK
Pond 1B	4.19	0.61	0.21	0.78	0.27	0.22	0.43	OK
Pond 2	8.45	1.23	0.42	1.57	0.54	0.00	0.42	OK
Pond 3A	3.86	0.56	0.19	0.72	0.24	0.22	0.41	OK
Pond 3B	3.86	0.56	0.19	0.72	0.24	0.22	0.41	OK
Pond 4A	3.86	0.56	0.19	0.72	0.24	0.22	0.41	OK
Pond 4B	3.86	0.56	0.19	0.72	0.24	0.22	0.41	OK
Total	32.27	4.68	1.60	6.00	2.05	1.32	2.92	

Summary Excess Storage Capacity

Excess Storage Capacity	31.22 MG
Peak Hour Additional Volume	-1.32 MG
Storm Additional Volume	-2.05 MG
Excess Storage Balance	27.85 MG

Existing Pond Data from As-Built Drawings

Existing Treatment Ponds	Treatment Volume (MG)	Treatment Surface Area (ac)	Treatment Depth (ft)
Pond Series 1	17.84	8.38	7.0
Pond 1A	8.92	4.19	7.0
Pond 1B	8.92	4.19	7.0
Pond Series 3	21.14	7.72	10.5
Pond 3A	10.57	3.86	10.5
Pond 3B	10.57	3.86	10.5
Pond Series 4	21.92	7.72	10.5
Pond 4A	10.96	3.86	10.5
Pond 4B	10.96	3.86	10.5
Pond 2 (Storage)	13.10	8.45	5.0
Primary Ponds Total	30.45	11.91	N/A
Secondary Ponds Total	30.45	11.91	N/A
Treatment Total (1,3,4)	60.90	23.82	N/A
Plant Total (1,2,3,4)	74.00	32.27	N/A

Existing System Summary	Value	Unit
No. Parallel Treatment Trains	3 treatment trains	
No. Cells in Series, n	2 cells	
Min. Individual Pond Vol. (Pond 1A/B)	8.92 MG	
Min. Series Vol. (Pond 1)	17.8 MG	

Existing HRT Performance Metrics	Prescribed Treatment Function	Existing Theoretical HRT (days)	Unit
Pond Series 1	Partial Mix Aerated	42.4	days
Pond 1A	Partial Mix Aerated	21.2	days
Pond 1B	Partial Mix Aerated	21.2	days
Pond Series 3	Partial Mix Aerated	50.3	days
Pond 3A	Partial Mix Aerated	25.1	days
Pond 3B	Partial Mix Aerated	25.1	days
Pond Series 4	Partial Mix Aerated	52.1	days
Pond 4A	Partial Mix Aerated	26.1	days
Pond 4B	Partial Mix Aerated	26.1	days
Primary Pond HRT Average	Partial Mix Aerated	24.1	days
Secondary Pond HRT Average	Partial Mix Aerated	24.1	days
Treatment Train HRT Average	Partial Mix Aerated	48.3	days

Existing BOD Loading Metrics	Average	90th Percentile	Unit
Plant Influent BOD Concentration	226.1	300.0 mg/l	
Plant Influent Meanth Monthly Flow 2022	1.43	1.45 MGD	
Plant Influent Max Daily Flow 2022	1.61	1.64 MGD	
Treatment Train Influent BOD Loading	805.6	1127.5 lb/d	
Plant Influent BOD Loading	2,417	3,382 lb/d	
Plant BOD Removal	83%	92%	
Plant Surface Aereal Loading	101.5	142.0 lb/ac-d	
Plant Effluent BOD Concentration	37.1	63.5 mg/l	

*Based on NDEP BWPC Draft Discharge Permit, As-Built Design Criteria, recommended guidelines set out in Metcalf and Eddy and NDEP WTS-5, and Sewer Master Plan.

Microbial Kinetics Equation for First Order Reaction: Plug Flow Model

$C_e/C_o = e^{-K_p t}$	Variation of Kp with loading	
	<u>Loading (lbs/ac-d)</u>	<u>Kp (20°C)</u>
Ce=effluent BOD ₅ (mg/l)	19.6	0.045
Co=influent BOD ₅ (mg/l)	40.15	0.071
Kp=reaction rate, day ⁻¹	59.8	0.083
t = hydraulic detention time (days)	80.3	0.096

Existing Pond Data from As-Built Drawings

Existing	Vol (MG)	Surface Area (ac)	BOD Treatment?
Pond 1A	8.92	4.19	Yes
Pond 1B	8.92	4.19	Yes
Pond 3A	10.57	3.86	Yes
Pond 3B	10.57	3.86	Yes
Pond 4A	10.96	3.86	Yes
Pond 4B	10.96	3.86	Yes
Pond 2	13.10	8.45	No

System Criteria	Value	Unit	Notes
Number of Cells in :	2	cells	
Min. Individual Pon	8.92	MG	
Min. Series Volume	17.84	MG	
No. Parallel Series	3		
Seasonal Cold Tem	42.8	°F	
Seasonal Cold Tem	6	°C	
Temp Adjusted Kpr	0.037	/day	From As-Built Design Criteria
Existign System Av	0.042	/day	

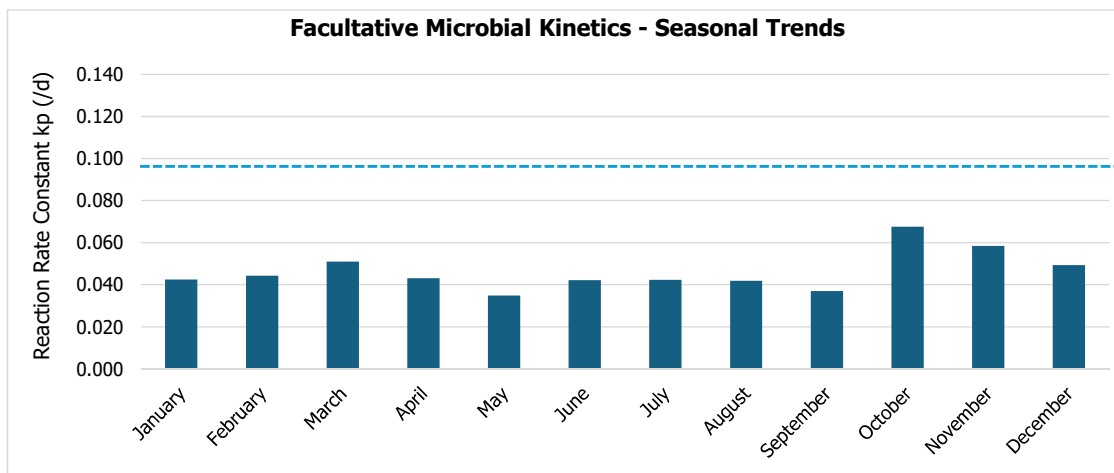
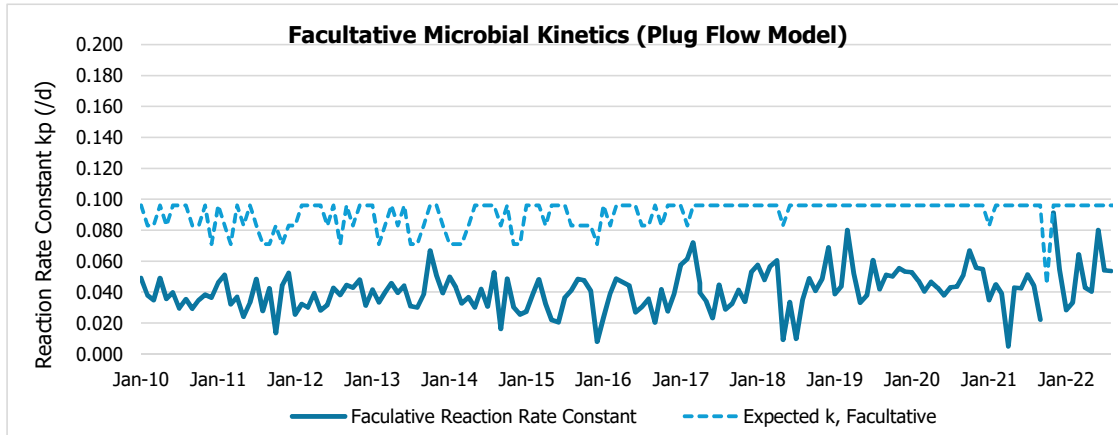
Row Labels	Average of Calculated kp (/d)
January	0.042
February	0.044
March	0.051
April	0.043
May	0.035
June	0.042
July	0.042
August	0.042
September	0.037
October	0.068
November	0.059
December	0.049
Grand Total	0.046

Reaction Rate - Temperatue Adjustment:

Variation of Kp with Temp.

$$K_p(\text{temp}) = K_{p20^\circ\text{C}}(1.09)^{T-20}$$

T= temperature in Celsius



Microbial Kinetics Equation for First Order Reaction: Partial Mix Model

$$\frac{C_e}{C_o} = \frac{1}{[1 + (kt/n)]^n} \quad (3-3)$$

Where:

C_n = effluent BOD₅ concentration in cell n , mg/L
 C_o = influent BOD₅ concentration, mg/L
 k = first order reaction rate constant /d
= 0.276 day⁻¹ at 20° C (assumed to be constant in all cells)
 t = total hydraulic residence time in pond system, d
 n = number of cells in the series

Existing Pond Data from As-Built Drawings

..\\Background Info\\As-Built\\Fernley Sewer Ponds - 1986.pdf

Existing Individual Ponds	Vol (MG)	BOD Treatment?
Pond 1A	8.92	Yes
Pond 1B	8.92	Yes
Pond 3A	10.57	Yes
Pond 3B	10.57	Yes
Pond 4A	10.96	Yes
Pond 4B	10.96	Yes
Pond 2 (non-treatment)	13.10	No

System Criteria	Value	Unit	Notes
Number of Cells in Series, n	2	cells	
Min. Individual Pond Volume	8.92	MG	
Min. Series Volume	17.84	MG	
No. Parallel Series	3		
Seasonal Cold Temps	42.8	°F	
Seasonal Cold Temps	6	°C	
Temp Adjusted Kpm	0.043	/day	From As-Built Design Criteria
Existign System Average, k	0.071	/day	
Design Rate Constant, k	0.276	/day at 20°C	

Row Labels	Average of k (/d)
January	0.067
February	0.070
March	0.082
April	0.063
May	0.045
June	0.052
July	0.060
August	0.057
September	0.058
October	0.083
November	0.073
December	0.068
Grand Total	0.065

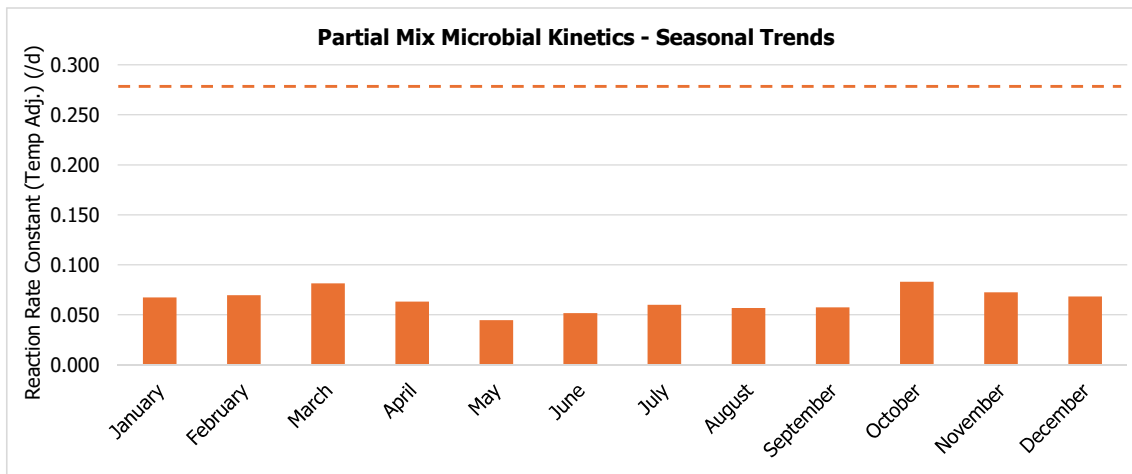
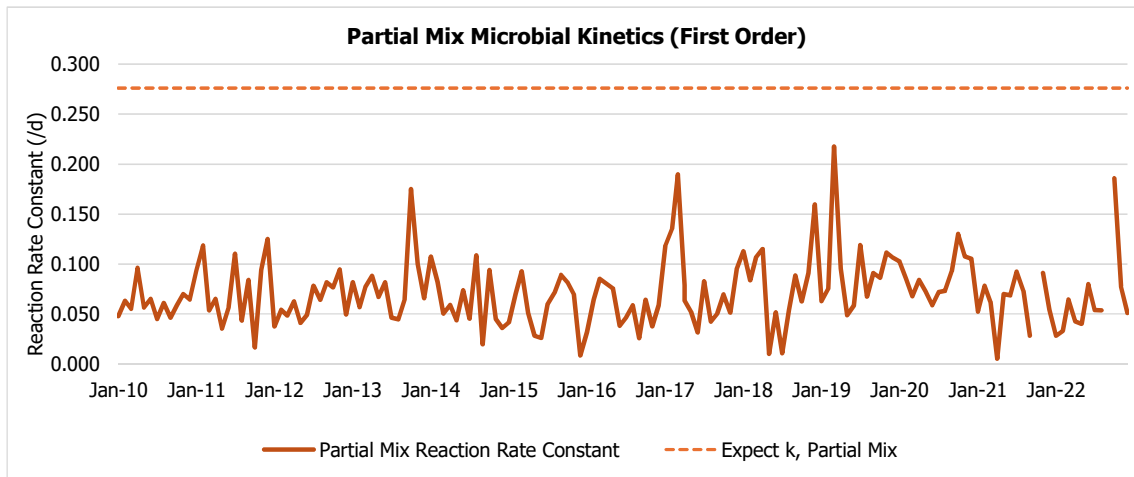
Reaction Rate - Temperatue Adjustment:

Variation of Kpm w\ Temp.

$$Kpm(temp) = Kpm20^{\circ}C (1.036)^{T-20}$$

T= temperature in Celsius

NOTE: Use Kpm20°C (0.276 d⁻¹) as a cold temp design maximum.



EXISTING MICROBIAL KINETICS ANALYSIS
FERNLEY EWWTP PER
CITY OF FERNLEY

10939.000
15-Apr-24



Existing System Summary	Value	Unit
No. Parallel Treatment Trains	3	-
No. Cells in Series, n	2	-

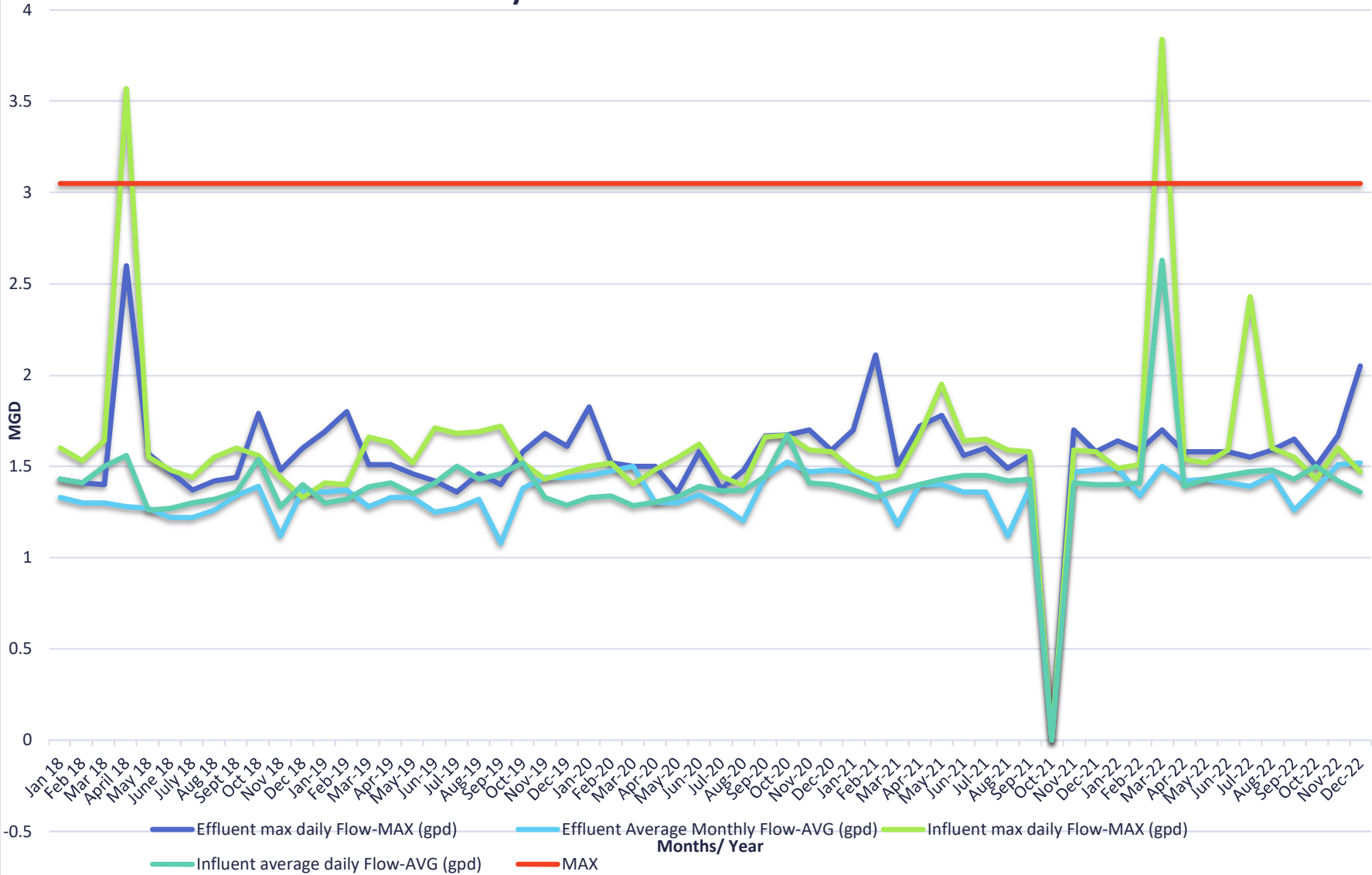
Influent Wastewater Flows	Existing ¹	Projected ²	Unit	Notes
Plant Total Average Daily Flow (ADF)	1.45	4.40	MGD	Governs treatment criteria
Treatment Train ADF (3 Trains)	0.48	1.47	MGD	
Plant Total Peak Hour (PH) Flow	N/A	10.58	MGD	Governs storage/hydraulic capacity
Treatment Train PH (3 Trains)	N/A	3.53	MGD	
¹ Based on 2022 DMR Data				
² Based on Sewer Master Plan (Shaw Engineering, 2024)				

Existing Treatment Ponds	Treatment Volume (MG)	Theoretical HRT (days)	
		Existing Average*	Projected Growth
Pond Series 1	17.84	42.4	12.2
Pond 1A	8.92	21.2	6.1
Pond 1B	8.92	21.2	6.1
Pond Series 3	21.14	50.3	14.4
Pond 3A	10.57	25.1	7.2
Pond 3B	10.57	25.1	7.2
Pond Series 4	21.92	52.1	14.9
Pond 4A	10.96	26.1	7.5
Pond 4B	10.96	26.1	7.5
Pond 2 (Storage)	13.10	N/A	8.9

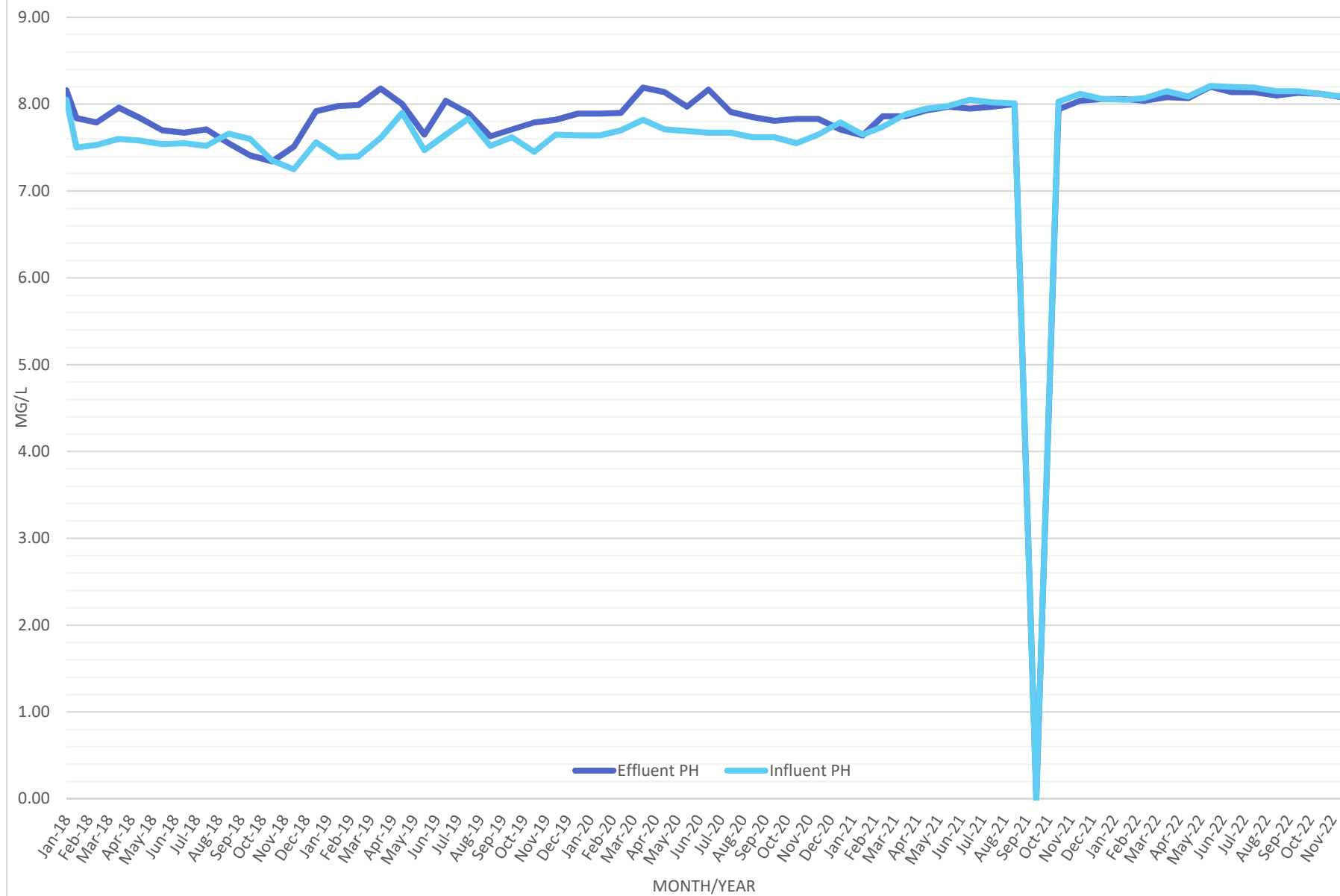
* Averaged from time series DMR data 2010-2022

Appendix I DMR Data Charts

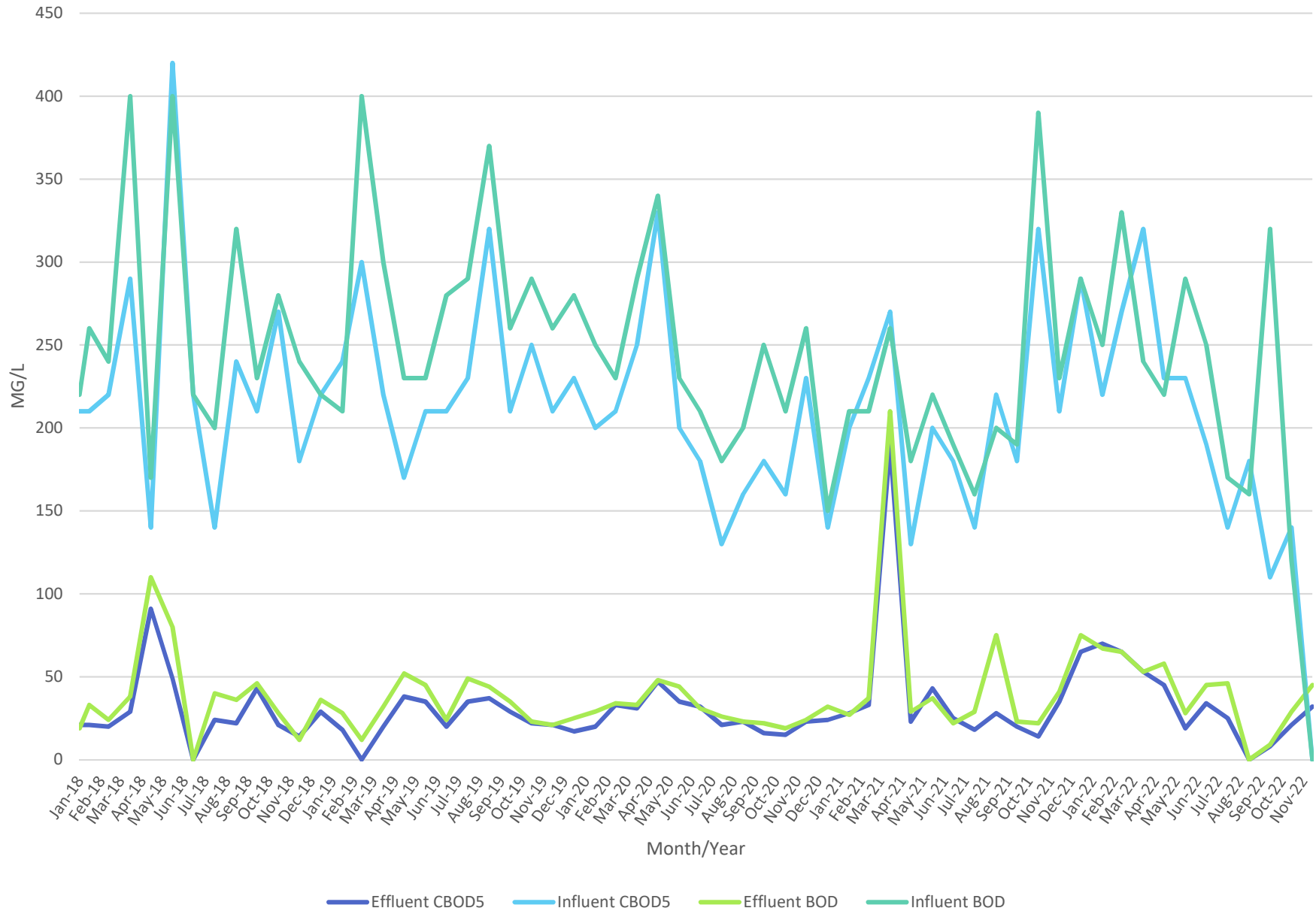
Fernley EWWTP Effluent Flow - 2022 PG 1



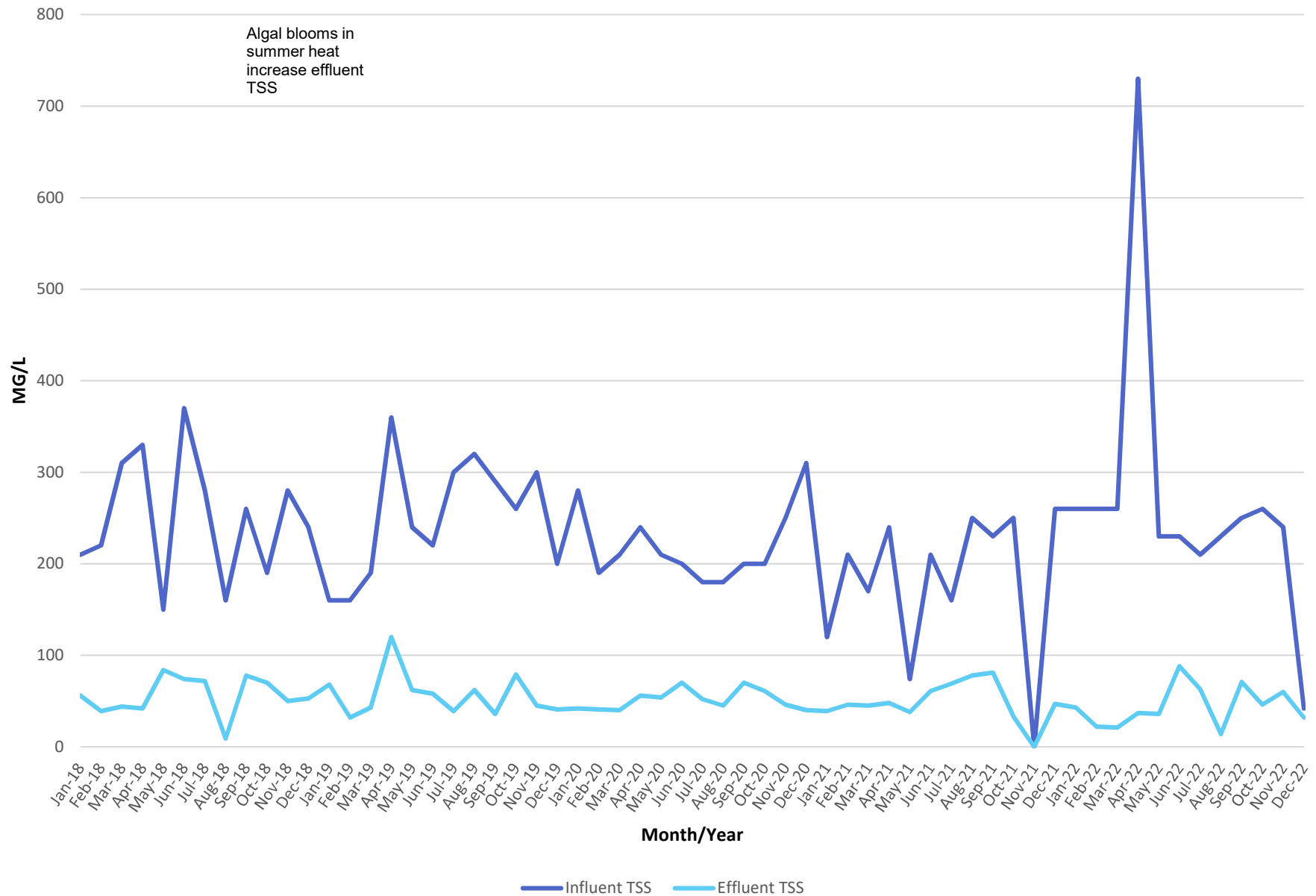
FERNLEY EWWTP-PH 2020 PG 2



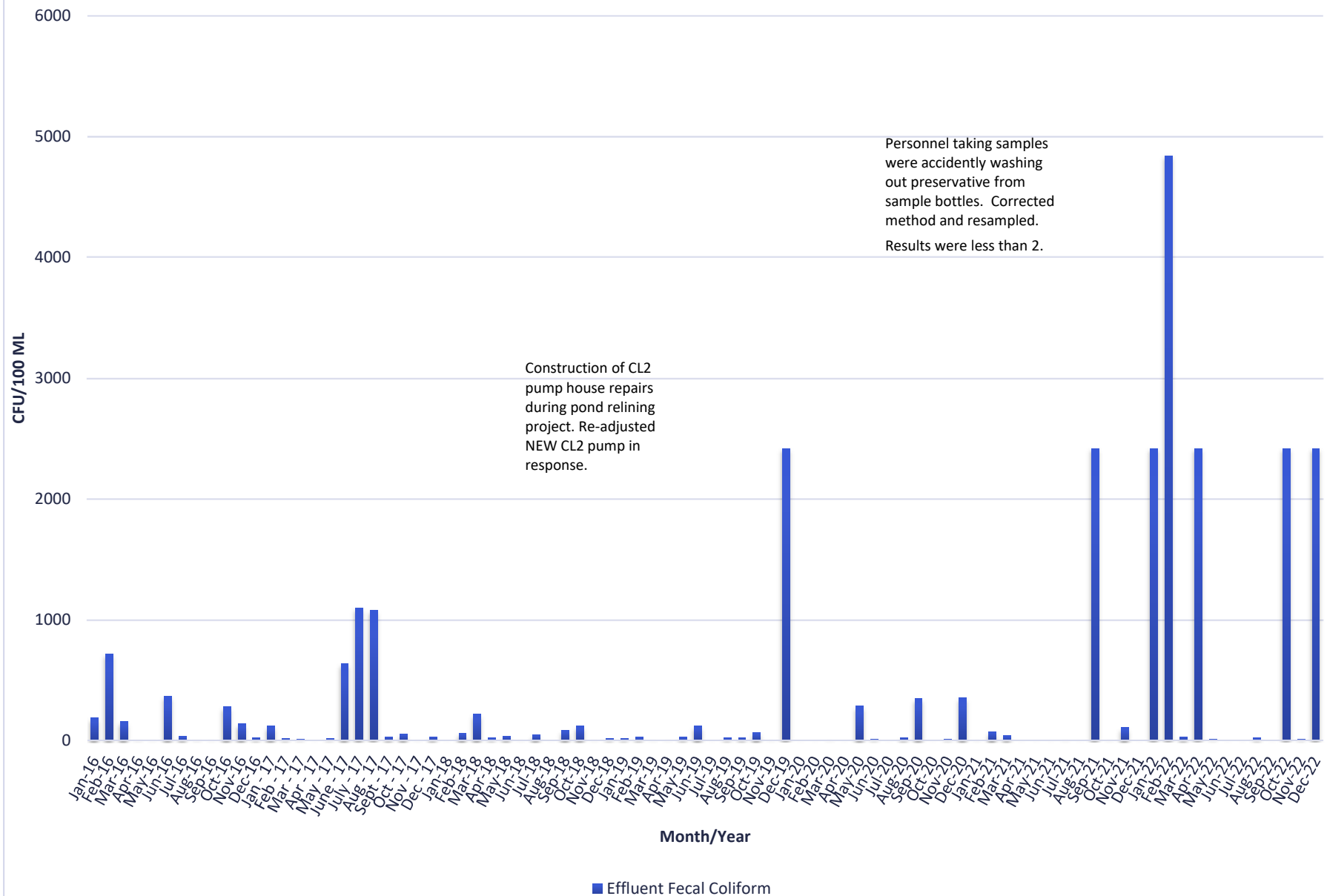
Fernley EWWTP CBOD-BOD - 2022 PG 3



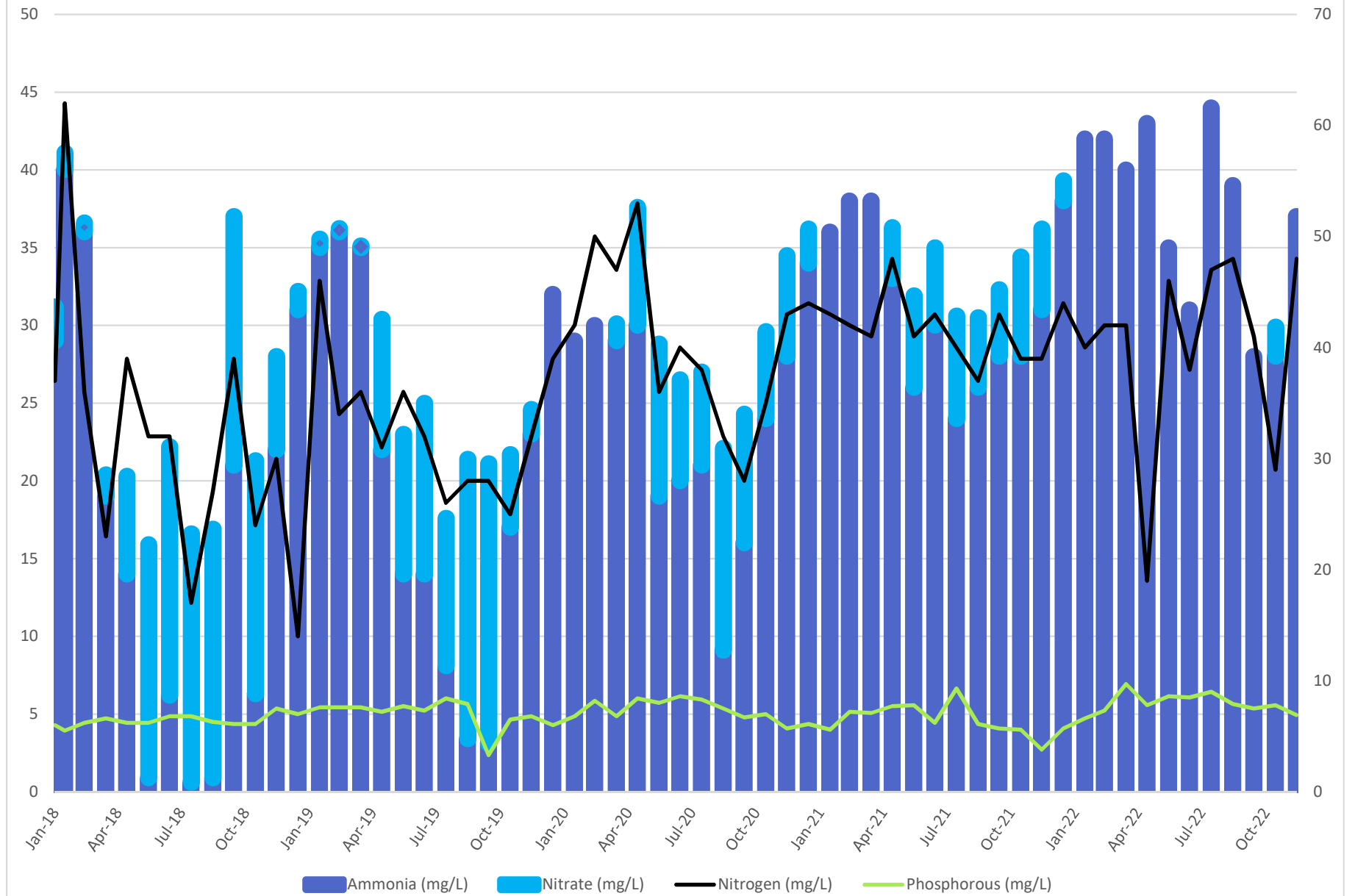
Fernley EWWTP-TSS - 2022 PG 4



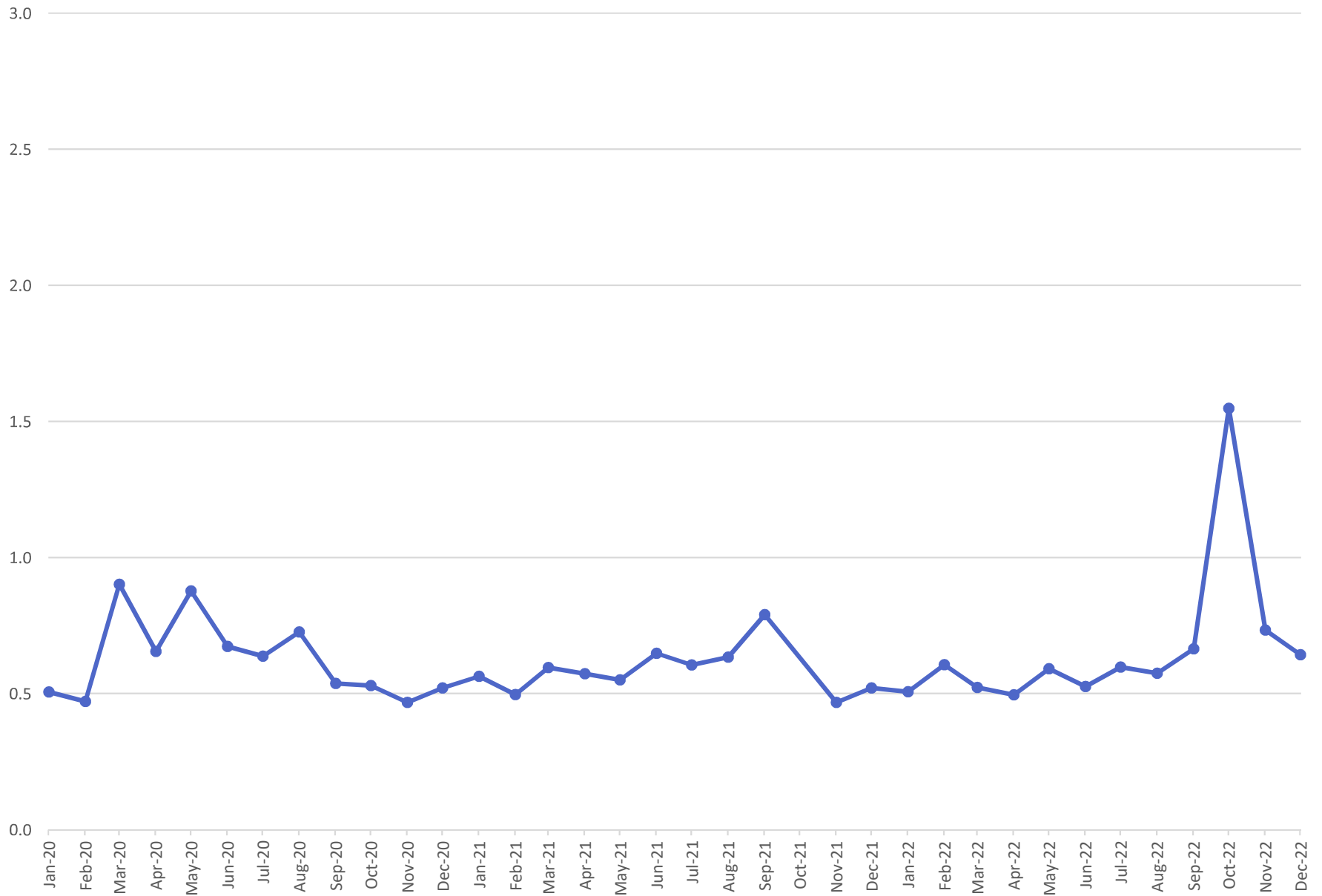
FERNLEY EWWTP FECAL COLIFORM - 2022 PG 5



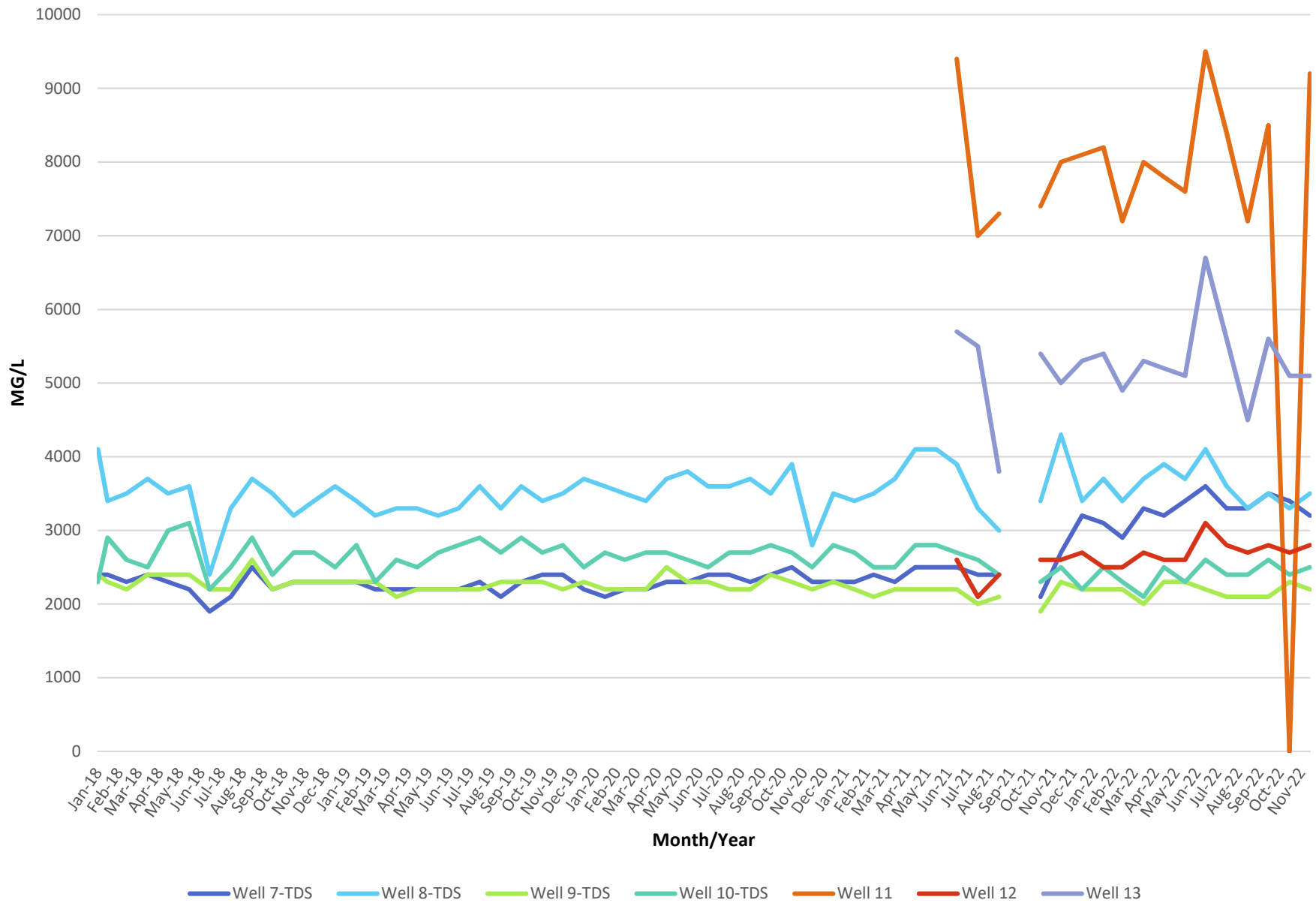
FERNLEY EWWTP NITROGEN PANEL - 2022 PG 6



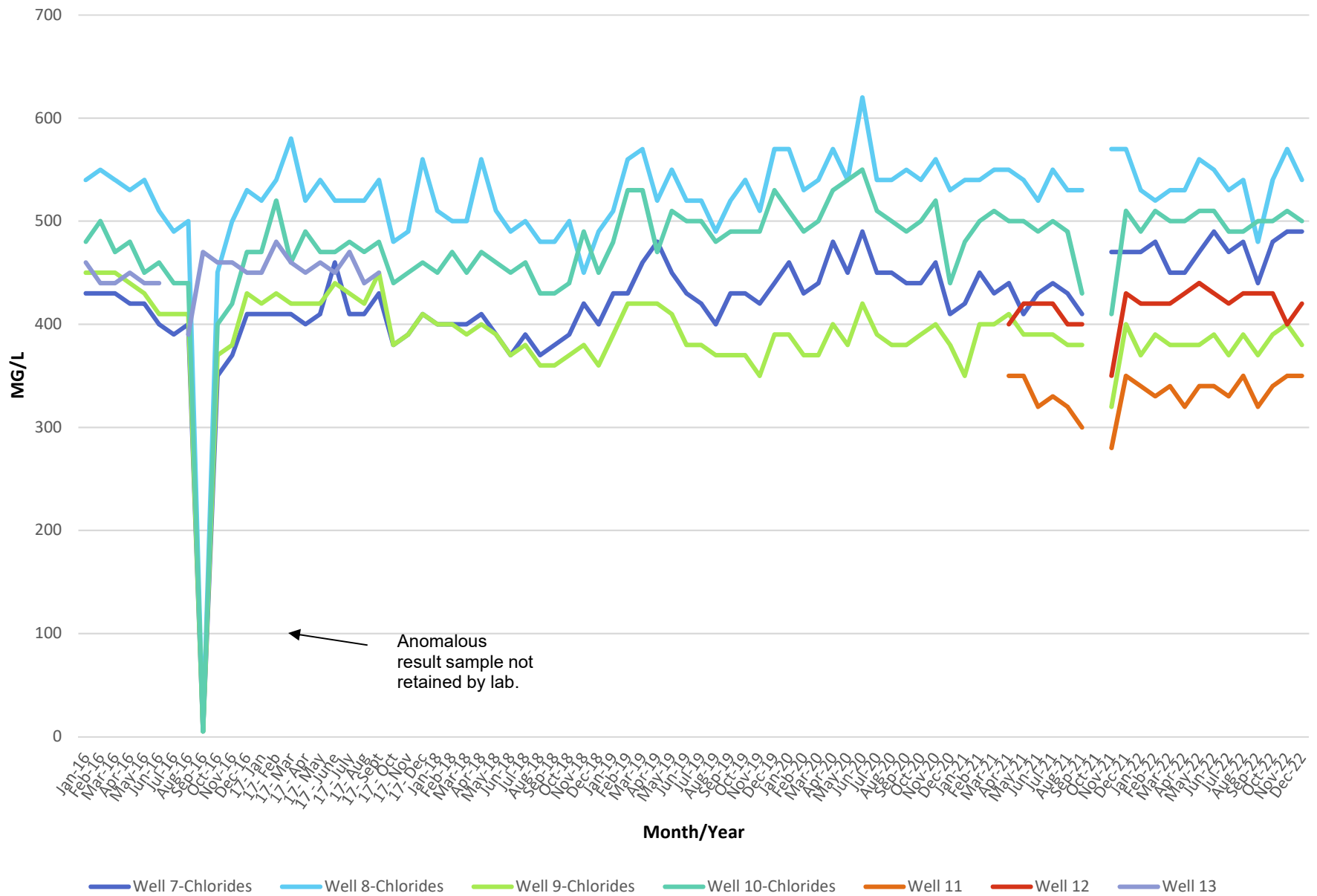
FERNLEY EWWTP CHLORINE MAX RESIDUAL - 2022 PG 7



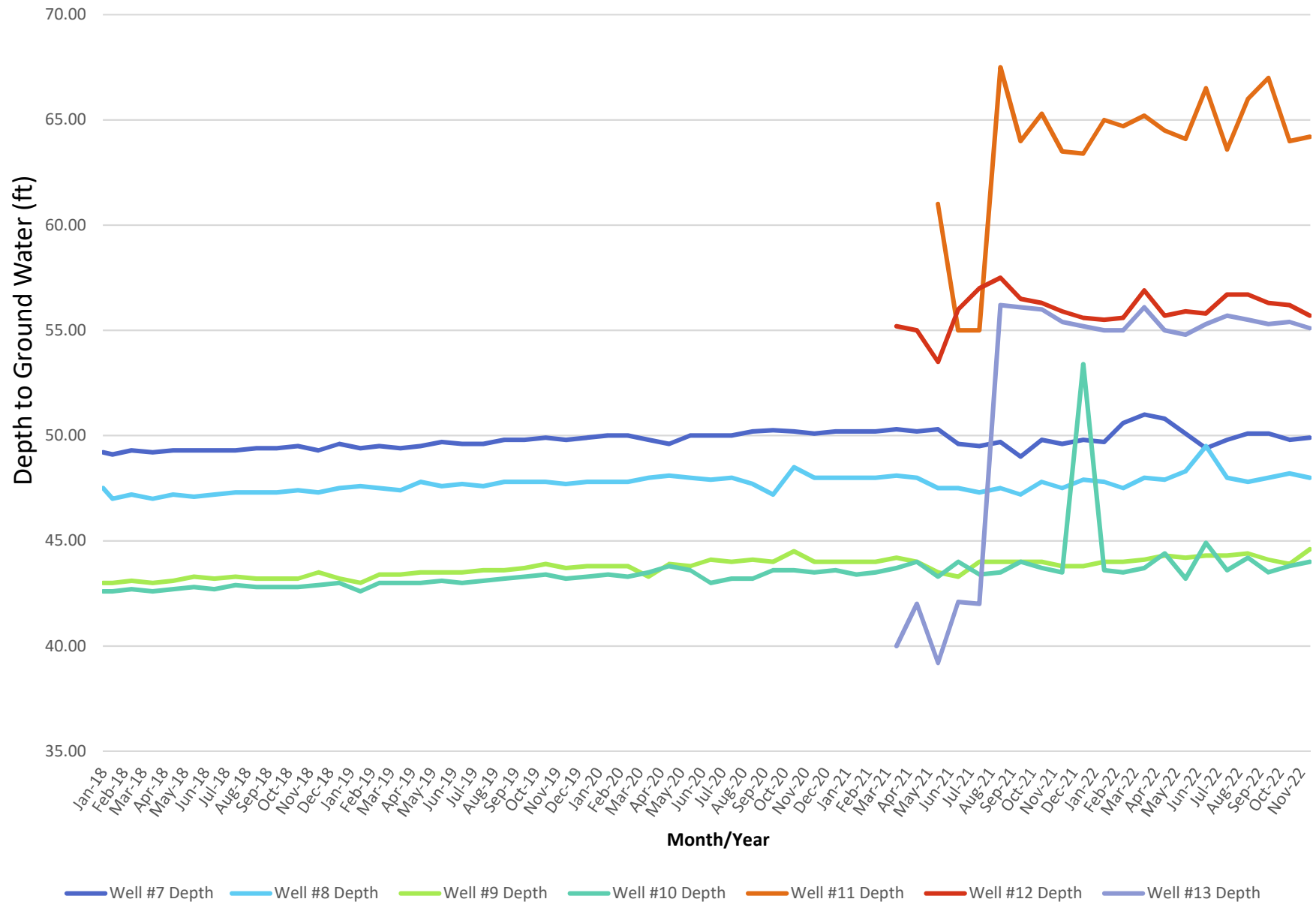
FERNLEY EWWTP MONITORING WELL TDS - 2022 PG 8



FERNLEY EWWTP WELL CHLORIDE - 2022 PG 9



FERNLEY EWWTP MONITORING WELL DEPTHS - 2022 PG 10



Appendix J 2023/24 Sewer Enterprise Fund Balance Sheet

CITY OF FERNLEY
BALANCE SHEET
MARCH 31, 2024

SEWER ENTERPRISE FUND

ASSETS

520-101000	CASH-COMBINED FUND	25,831,391.60	
520-104000	INTEREST RECEIVABLE	115,485.18	
520-105200	ACCOUNTS RECEIVABLE-SEWER	457,845.46	
520-105500	ALLOWANCE FOR DOUBTFUL ACCTS	(229.17)	
520-119911	DEFERRED OUTFLOWS OPEB	38,505.67	
520-141000	INVENTORY-METERS AND PARTS	9,322.20	
520-142000	DEFERRED OUTFLOWS - PENSIONS	638,862.00	
520-143000	PREPAID ITEMS	370.61	
520-149000	DEFERRED CHARGE-ISSUE COST	273,314.42	
520-161000	LAND	185,710.00	
520-162100	INFRA-SEWER	45,187,468.68	
520-162110	ACC DEP-SEWER	(19,427,104.99)	
520-162300	INFRA-COLLECTION SYSTEM	193,135.50	
520-163000	BUILDINGS AND IMPROVEMENTS	8,765.00	
520-163110	ACC DEP-BUILDINGS & IMPROVEMEN	(8,765.00)	
520-164100	IMPROVE OTHER THAN BUILDINGS	1,673,444.24	
520-164110	ACC DEP-IMPROV OTHER THAN BLDG	(824,667.77)	
520-165100	MAINTENANCE EQUIPMENT	1,754,636.82	
520-165110	ACC DEP-MAINTENANCE EQUIPMENT	(1,220,598.93)	
520-166100	CONSTRUCTION IN PROGRESS	4,497,799.82	
520-170200	INTANGIBLE ASSET-EPA HYD STUDY	17,390.73	
520-170210	ACCUM AMORT-EPA HYDROLOG STUDY	(17,390.75)	
	TOTAL ASSETS		59,384,691.32

LIABILITIES AND EQUITY

LIABILITIES

520-202000	ACCOUNTS PAYABLE	236,876.32	
520-203100	COMPENSATED ABSENCE PAYABLE	22,513.86	
520-214100	ACCRUED INTEREST PAYABLE	70,894.15	
520-219910	OPEB LIABILITY	81,873.98	
520-219911	DEFERRED INFLOWS OPEB	100,200.88	
520-222100	DEFERRED INFLOWS - PENSIONS	6,766.00	
520-225110	LOAN PAYABLE - CURRENT PORTION	69,909.85	
520-228200	CUSTOMER DEPOSITS	208,749.19	
520-228202	NET PENSION LIABILITY GASB 68	1,595,819.00	
520-228310	SWR SPEC ASSESS DISTRCT STUDY	20,000.00	
520-231100	BONDS PAY-LONG TERM PORTION	5,070,433.35	
520-231200	LOAN PAYABLE - LT PORTION	1,010,732.85	
	TOTAL LIABILITIES		8,494,769.43

FUND EQUITY

520-298000	NET POSITION	21,133,061.23	
520-298005	RESERVES - OPERATING	3,150,206.25	
520-298015	RESERVES - CAPITAL	17,159,638.33	
520-298020	RESERVES - CAPACITY	3,077,091.52	
520-298025	RESERVES - EMERGENCY	1,288,002.00	

CITY OF FERNLEY
BALANCE SHEET
MARCH 31, 2024

SEWER ENTERPRISE FUND

UNAPPROPRIATED FUND BALANCE:			
REVENUE OVER EXPENDITURES - YTD	5,081,922.56		
BALANCE - CURRENT DATE		5,081,922.56	
TOTAL FUND EQUITY			50,889,921.89
TOTAL LIABILITIES AND EQUITY			59,384,691.32

CITY OF FERNLEY
REVENUES WITH COMPARISON TO BUDGET
FOR THE 9 MONTHS ENDING MARCH 31, 2024

SEWER ENTERPRISE FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	DIFFERENCE	PCNT
	<u>OPERATING REVENUE</u>					
520-370-100	SEWER SERVICES	.00	3,535,612.31	5,080,160.00	1,544,547.69	69.6
	TOTAL OPERATING REVENUE	.00	3,535,612.31	5,080,160.00	1,544,547.69	69.6
	<u>NON-OPERATING REVENUE</u>					
520-380-100	INTEREST EARNINGS	.00	755,696.00	25,000.00	(730,696.00)	3022.8
520-380-900	MISCELLANEOUS REVENUE	.00	522.40	20,000.00	19,477.60	2.6
520-380-901	CREDIT CARD FEES	.00	40,248.00	35,000.00	(5,248.00)	115.0
	TOTAL NON-OPERATING REVENUE	.00	796,466.40	80,000.00	(716,466.40)	995.6
	<u>CAPITAL CONTRIBUTIONS</u>					
520-395-910	CUST. CONTRIB.-HOOKUPS/CONNECT	171,107.00	893,950.15	950,000.00	56,049.85	94.1
520-395-925	GRANT CONTRIBUTIONS	.00	.00	2,000,000.00	2,000,000.00	.0
520-395-940	DEVELOPER CONT.-INFRASTRUCTURE	.00	1,299,923.00	500,000.00	(799,923.00)	260.0
	TOTAL CAPITAL CONTRIBUTIONS	171,107.00	2,193,873.15	3,450,000.00	1,256,126.85	63.6
	TOTAL FUND REVENUE	171,107.00	6,525,951.86	8,610,160.00	2,084,208.14	75.8

CITY OF FERNLEY
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 9 MONTHS ENDING MARCH 31, 2024

SEWER ENTERPRISE FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
	<u>NON-OPERATING EXPENSES</u>					
520-800-860	INTEREST EXPENSE	.00	142,627.08	142,627.00	(.08)	100.0
	TOTAL NON-OPERATING EXPENSES	.00	142,627.08	142,627.00	(.08)	100.0

CITY OF FERNLEY
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 9 MONTHS ENDING MARCH 31, 2024

SEWER ENTERPRISE FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>OPERATING EXPENSES</u>					
520-810-100 REGULAR PAY	45,474.76	387,547.09	693,229.00	305,681.91	55.9
520-810-120 STANDBY PAY	2,130.75	20,718.58	31,949.00	11,230.42	64.9
520-810-130 OVERTIME PAY	2,412.75	19,246.16	33,534.00	14,287.84	57.4
520-810-140 ANNUAL LEAVE PAY	2,054.79	25,771.71	5,700.00	(20,071.71)	452.1
520-810-150 SICK LEAVE PAY	2,495.93	31,230.43	.00	(31,230.43)	.0
520-810-160 HOLIDAY PAY	2,294.07	25,020.69	.00	(25,020.69)	.0
520-810-200 FICA	7.42	68.82	95.00	26.18	72.4
520-810-210 MEDICARE	794.42	7,318.54	10,131.00	2,812.46	72.2
520-810-220 UNEMPLOYMENT	811.20	3,884.60	6,033.00	2,148.40	64.4
520-810-230 RETIREMENT (PERS)	12,446.21	111,468.97	143,317.00	31,848.03	77.8
520-810-235 PENSION EXPENSE - GASB 68 ADJ	.00	.00	200,000.00	200,000.00	.0
520-810-240 GROUP INSURANCE	11,360.26	100,354.08	148,636.00	48,281.92	67.5
520-810-250 WORKERS COMPENSATION INSURANCE	3,187.29	13,962.15	50,867.00	36,904.85	27.5
520-810-260 OTHER BENEFITS	190.77	1,130.49	.00	(1,130.49)	.0
520-810-270 OPEB EXPENSE	.00	.00	25,000.00	25,000.00	.0
520-810-320 PROF SERV-ENGINEERING	1,734.50	28,603.40	102,500.00	73,896.60	27.9
520-810-322 PROF SERV-OTHER	.00	1,001.33	2,000.00	998.67	50.1
520-810-342 TECH SERVICES-OTHER	202.97	1,712.61	2,500.00	787.39	68.5
520-810-410 UTILITY SERVICES-WATER & SEWER	601.29	9,934.87	9,000.00	(934.87)	110.4
520-810-412 UTILITY SERVICE-REFUSE	358.35	1,883.95	4,000.00	2,116.05	47.1
520-810-423 CONTRACT SERVICES-ANALYTICAL	665.00	11,672.78	17,500.00	5,827.22	66.7
520-810-426 CONTRACT-SEWER CLEANING & INSP	.00	.00	5,000.00	5,000.00	.0
520-810-428 CONTRACT SERVICES-ELECTRICAL	.00	3,100.27	10,000.00	6,899.73	31.0
520-810-429 CONTRACT SERVICES-SCADA	.00	3,041.78	12,500.00	9,458.22	24.3
520-810-430 SERVICE-REPAIR AND MAINTENANCE	563.60	97,090.10	235,000.00	137,909.90	41.3
520-810-441 RENTAL	.00	8,535.85	15,000.00	6,464.15	56.9
520-810-444 INTERFUND COST ALLOC. BUILD	.00	.00	144,310.00	144,310.00	.0
520-810-520 INSURANCE	.00	46,518.66	75,000.00	28,481.34	62.0
520-810-530 COMMUNICATIONS	515.11	4,715.29	6,000.00	1,284.71	78.6
520-810-540 ADVERTISING	.00	173.50	500.00	326.50	34.7
520-810-550 PRINTING AND POSTAGE	2,200.32	26,394.37	35,000.00	8,605.63	75.4
520-810-580 TRAINING	.00	1,278.80	5,000.00	3,721.20	25.6
520-810-581 DUES AND MEMBERSHIPS	.00	429.45	1,000.00	570.55	43.0
520-810-585 EDUCATIONAL ASSISTANCE PROGRAM	.00	.00	500.00	500.00	.0
520-810-600 GENERAL SUPPLIES	142.84	2,628.80	2,500.00	(128.80)	105.2
520-810-601 OFFICE SUPPLIES	108.94	2,387.14	6,000.00	3,612.86	39.8
520-810-605 MINOR EQUIPMENT	.00	1,187.98	15,000.00	13,812.02	7.9
520-810-609 CREDIT CARD FEES	.00	45,745.47	60,000.00	14,254.53	76.2
520-810-610 SUPPLIES-AUTOMOTIVE	223.26	3,711.63	18,000.00	14,288.37	20.6
520-810-614 SUPPLIES-PLANT/SHOP/MAINT	217.51	5,505.01	29,000.00	23,494.99	19.0
520-810-615 E-ONE R & M	15,298.56	64,278.44	130,000.00	65,721.56	49.4
520-810-616 SUPPLIES-SAFETY	12.14	1,168.92	5,000.00	3,831.08	23.4
520-810-617 SUPPLIES-CHEMICAL	7,462.00	57,166.50	55,000.00	(2,166.50)	103.9
520-810-621 NATURAL GAS	32.17	274.09	400.00	125.91	68.5
520-810-622 ELECTRICITY	12,773.64	93,586.65	185,000.00	91,413.35	50.6
520-810-625 BULK DIESEL	.00	.00	6,000.00	6,000.00	.0
520-810-626 GASOLINE	.00	23,811.12	32,500.00	8,688.88	73.3
520-810-640 BOOKS AND PERIODICALS	.00	.00	1,500.00	1,500.00	.0
520-810-642 PERMITS AND LICENSES	1,830.00	6,141.15	20,000.00	13,858.85	30.7
520-810-643 PROPERTY TAXES/ASSESSMNTS/FEES	.00	.00	100.00	100.00	.0
520-810-800 DEPRECIATION	.00	.00	1,400,000.00	1,400,000.00	.0

CITY OF FERNLEY
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 9 MONTHS ENDING MARCH 31, 2024

SEWER ENTERPRISE FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
TOTAL OPERATING EXPENSES	130,602.82	1,301,402.22	3,996,801.00	2,695,398.78	32.6
TOTAL FUND EXPENDITURES	130,602.82	1,444,029.30	4,139,428.00	2,695,398.70	34.9
NET REVENUE OVER EXPENDITURES	40,504.18	5,081,922.56	4,470,732.00	(611,190.56)	113.7

Appendix K Life Cycle Cost Analysis

City of Fernley East WWTP PER - Present Worth Analysis

Financial		
Financing Rate	4.7%	Nominal discount
Planning Period	15	years to 2040
Real Discount Rate (30-yr)	2.5%	Link to 2024
Real Discount Rate (20-yr)	2.5%	Use for 15 yr term
Real Discount Rate (10-yr)	2.3%	
Real Discount Rate (3-yr)	2.2%	
Inflation Rate	2.2%	Delta Nom-Real

Other Costs		
Electricity	\$ 0.152	/kWh
Hypo 12.5% Bulk Solution	\$ 2.91	/gallon
Bulk Salt	\$ 0.030	/lb

Rounding Factor	2
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	Electrical Requirements		
	1B	2A	2B
HP			
kWh/lb		1.8	
kWh	0		16.0
% of Time	100%	100%	100%
Annual kWh	-	45,401	140,160
Annual Cost	\$ -	\$ 6,905	\$ 21,317
Multiplier	1.5	1.5	1.5
Annual Electrical Cost	\$ -	\$ 10,358	\$ 31,975

	Depreciation		
	1B	2A	2B
Lifespan	30	23	5
Capital Cost	\$ 354,200	\$ 733,650	\$ 815,300
Annual R&R	\$ 6,730	\$ 10,152	\$ 11,800

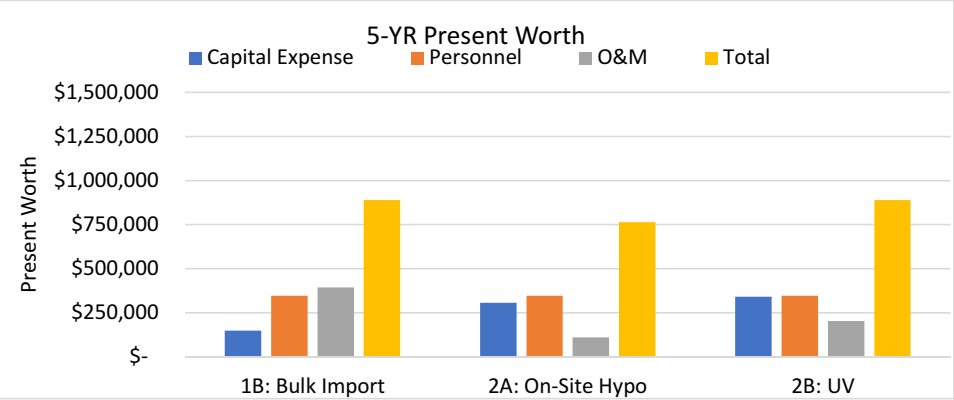
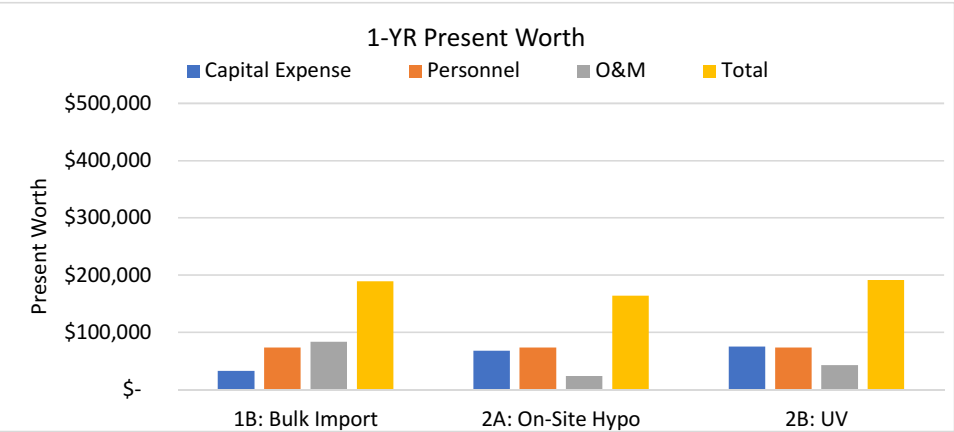
NOTE THAT THIS IS FOR 1.4-2.2MGD TO BE ABLE TO COMPARE AGAINST EXISTING SY

	Chemical Requirements		
	1B	2A	2B
Bulk 12.5% Hypo Soln., gal/mo	1,500	0	0
Annual Chlorine Cost	\$ 52,380	\$ -	\$ -
Bulk Salt, lb/mo	0	6,219	0
Annual Salt Cost	\$ -	\$ 2,239	\$ -
Multiplier	1.5	1.5	1.5
Annual Chemical Cost	\$ 78,570	\$ 3,358	\$ -

Staffing Requirements	
1B	1
2A	1
2B	1

Year	1		
	1B: Bulk Import	2A: On-Site Hypo	2B: UV
Capital Expense	\$ 33,436	\$ 69,256	\$ 76,963
Personnel (@\$75000 /yr)	\$ 75,000	\$ 75,000	\$ 75,000
O&M	\$ 85,300	\$ 23,900	\$ 43,800
Future Capital	NA	NA	NA
Total	\$ 193,700	\$ 168,200	\$ 195,800
% of Least Cost Option			
Year	5		
Capital Expense	\$ 167,180	\$ 346,278	\$ 384,816
Personnel	\$ 391,900	\$ 391,900	\$ 391,900
O&M	\$ 445,700	\$ 124,900	\$ 228,900
Future Capital	NA	NA	NA
Total	\$ 1,004,800	\$ 863,100	\$ 1,005,600
% of Least Cost Option			
Year	15		
Capital Expense	\$ 501,540	\$ 1,038,833	\$ 1,154,447
Personnel	\$ 1,315,900	\$ 1,315,900	\$ 1,315,900
O&M	\$ 1,496,600	\$ 419,300	\$ 768,500
Future Capital	NA	NA	NA
Total	\$ 3,314,000	\$ 2,774,000	\$ 3,238,800
% of Least Cost Option			
Year	30		
Capital Expense	\$ 501,540	\$ 1,038,833	\$ 1,154,447
Personnel	\$ 3,139,800	\$ 3,139,800	\$ 3,139,800
O&M	\$ 3,571,000	\$ 1,000,500	\$ 1,833,600
Future Capital			
Total	\$ 7,212,340	\$ 5,179,133	\$ 6,127,847
% of Least Cost Option			

1 Year Present Value			
	1B	2A	2B
	\$ 32,620	\$ 67,566	\$ 75,086
	\$ 73,171	\$ 73,171	\$ 73,171
	\$ 83,220	\$ 23,317	\$ 42,732
	NA	NA	NA
	\$ 189,000	\$ 164,100	\$ 191,000
5 Year Present Value			
	\$ 147,763	\$ 306,059	\$ 340,121
	\$ 346,382	\$ 346,382	\$ 346,382
	\$ 393,934	\$ 110,393	\$ 202,314
	NA	NA	NA
	\$ 888,100	\$ 762,800	\$ 888,800
15 Year Present Value			
	\$ 346,296	\$ 717,278	\$ 797,106
	\$ 908,584	\$ 908,584	\$ 908,584
	\$ 1,033,351	\$ 289,512	\$ 530,623
	NA	NA	NA
	\$ 2,288,200	\$ 1,915,400	\$ 2,236,300
30 Year Present Value			
	\$ 239,105	\$ 495,256	\$ 550,374
	\$ 1,496,877	\$ 1,496,877	\$ 1,496,877
	\$ 1,702,448	\$ 476,981	\$ 874,155
	NA	NA	NA
	\$ 3,438,400	\$ 2,469,100	\$ 2,921,400



City of Fernley East WWTP PER - Present Worth Analysis

Financial		
Financing Rate	4.7%	Nominal discount
Planning Period	15	years to 2040
Real Discount Rate (30-yr)	2.5%	Link to 2024
Real Discount Rate (20-yr)	2.5%	Use for 15 yr term
Real Discount Rate (10-yr)	2.3%	
Real Discount Rate (3-yr)	2.2%	
Inflation Rate	2.2%	Delta Nom-Real

Other Costs		
Electricity	\$	0.152 /kWh

Rounding Factor	2
-----------------	---

	Electrical Requirements (Pump + Blowers)			
	4A	4B	4C	4D
HP	1600	1,000	1,068	293
kW/HP	0.746	0.746	0.746	1.746
kW	1193	746	796	511
% of Time	100%	100%	100%	100%
Annual kWh	10,451,731	6,532,332	6,976,531	4,473,007
Annual Cost	\$ 1,589,604	\$ 993,502	\$ 1,061,061	\$ 680,300
Multiplier	1.5	1.5	1.5	2.5
Annual Electrical Cost	\$ 2,384,406	\$ 1,490,254	\$ 1,591,591	\$ 1,700,749

	Depreciation			
	4A	4B	4C	4D
Lifespan	24	18	19	19
Capital Cost	\$ 21,428,000	\$ 45,484,000	\$ 13,989,000	\$ 16,828,000
Annual R&R	\$ 498,642	\$ 1,355,267	\$ 450,983	\$ 382,002

Staffing Requirements	
4A	2
4B	2
4C	2
4D	2

Year	1			
	4A: MLE	4B: Side Stream	4C: Alternating Zones	4D: Mix Aeration
Capital Expense	\$ 2,022,772	\$ 4,293,624	\$ 1,320,541	\$ 1,588,539
Personnel (@\$75000 /yr)	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000
O&M	\$ 2,883,000	\$ 2,845,500	\$ 2,042,600	\$ 2,082,800
Future Capital	NA	NA	NA	NA
Total	\$ 5,055,800	\$ 7,289,100	\$ 3,513,100	\$ 3,821,300
% of Least Cost Option				
Year	5			
Capital Expense	\$ 10,113,862	\$ 21,468,120	\$ 6,602,707	\$ 7,942,695
Personnel	\$ 783,700	\$ 783,700	\$ 783,700	\$ 783,700
O&M	\$ 15,063,400	\$ 14,867,400	\$ 10,672,400	\$ 10,882,400
Future Capital	NA	NA	NA	NA
Total	\$ 25,961,000	\$ 37,119,200	\$ 18,058,800	\$ 19,608,800
% of Least Cost Option				
Year	15			
Capital Expense	\$ 30,341,585	\$ 64,404,361	\$ 19,808,122	\$ 23,828,084
Personnel	\$ 2,631,800	\$ 2,631,800	\$ 2,631,800	\$ 2,631,800
O&M	\$ 50,583,600	\$ 49,925,700	\$ 35,838,400	\$ 36,543,700
Future Capital	NA	NA	NA	NA
Total	\$ 83,557,000	\$ 116,961,900	\$ 58,278,300	\$ 63,003,584
% of Least Cost Option				
Year	30			
Capital Expense	\$ 151,707,925	\$ 322,021,805	\$ 99,040,608	\$ 119,140,422
Personnel	\$ 6,279,500	\$ 6,279,500	\$ 6,279,500	\$ 6,279,500
O&M	\$ 120,692,600	\$ 119,122,700	\$ 85,510,500	\$ 87,193,400
Future Capital				
Total	\$ 278,680,025	\$ 447,424,005	\$ 190,830,608	\$ 212,613,322
% of Least Cost Option				

1 Year Present Value			
4A	4B	4C	4D
\$ 1,973,436	\$ 4,188,902	\$ 1,288,333	\$ 1,549,794
\$ 146,341	\$ 146,341	\$ 146,341	\$ 146,341
\$ 2,812,683	\$ 2,776,098	\$ 1,992,780	\$ 2,032,000
NA	NA	NA	NA
\$ 4,932,500	\$ 7,111,300	\$ 3,427,500	\$ 3,728,100
5 Year Present Value			
\$ 8,939,180	\$ 18,974,690	\$ 5,835,831	\$ 7,020,185
\$ 692,677	\$ 692,677	\$ 692,677	\$ 692,677
\$ 13,313,851	\$ 13,140,615	\$ 9,432,846	\$ 9,618,456
NA	NA	NA	NA
\$ 22,945,700	\$ 32,808,000	\$ 15,961,400	\$ 17,331,300
15 Year Present Value			
\$ 20,949,819	\$ 44,468,993	\$ 13,676,826	\$ 16,452,472
\$ 1,817,167	\$ 1,817,167	\$ 1,817,167	\$ 1,817,167
\$ 34,926,234	\$ 34,471,976	\$ 24,745,181	\$ 25,232,166
NA	NA	NA	NA
\$ 57,693,200	\$ 80,758,100	\$ 40,239,200	\$ 43,501,800
30 Year Present Value			
\$ 72,325,643	\$ 153,521,540	\$ 47,216,886	\$ 56,799,325
\$ 2,993,706	\$ 2,993,706	\$ 2,993,706	\$ 2,993,706
\$ 57,539,314	\$ 56,790,876	\$ 40,766,505	\$ 41,568,816
NA	NA	NA	NA
\$ 132,858,700	\$ 213,306,100	\$ 90,977,100	\$ 101,361,800

City of Fernley East WWTP PER - Present Worth Analysis

Financial		
Financing Rate	4.7%	Nominal discount
Planning Period	15	years to 2040
Real Discount Rate (30-yr)	2.5%	Link to 2024
Real Discount Rate (20-yr)	2.5%	Use for 15 yr term
Real Discount Rate (10-yr)	2.3%	
Real Discount Rate (3-yr)	2.2%	
Inflation Rate	2.2%	Delta Nom-Real

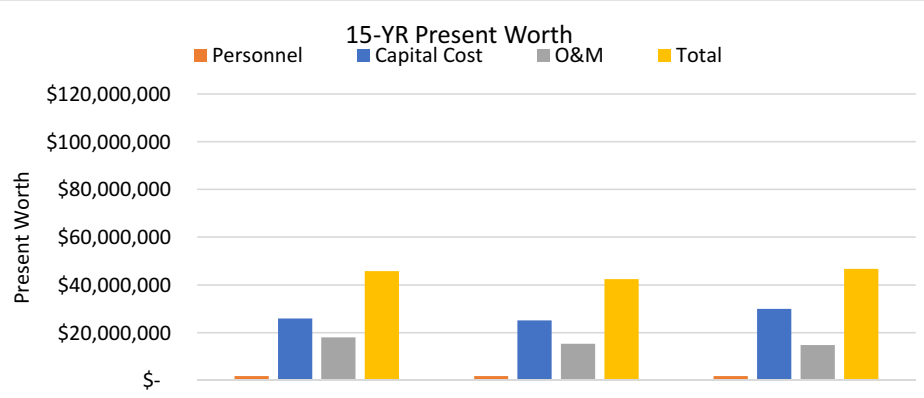
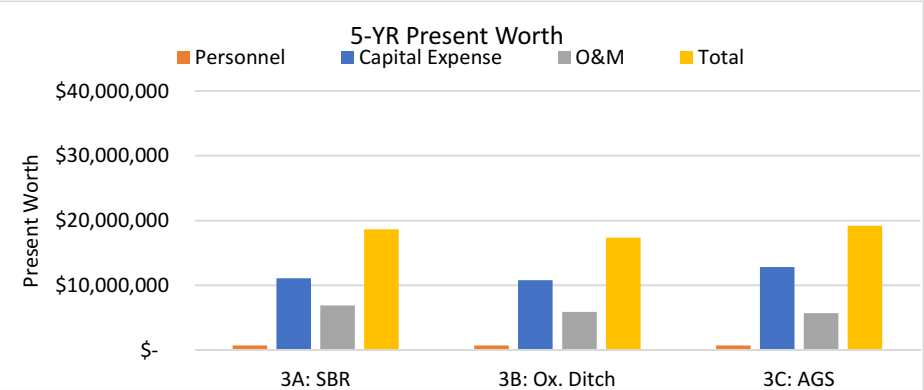
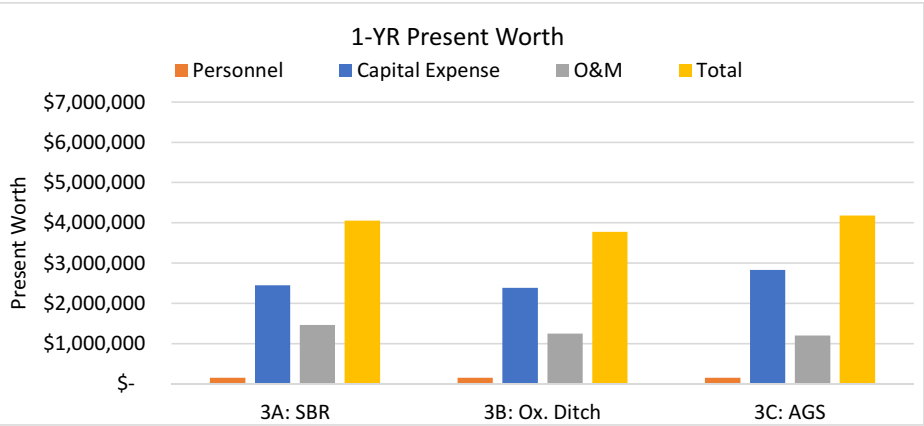
Other Costs		
Electricity	\$	0.152 /kWh

Rounding Factor	2
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	Electrical Requirements			
	3A	3B	3C	
HP	1200	484	218	
kW/HP	0.746	0.746	0.746	
kW	895	361	163	
% of Time	50%	100%	100%	
Annual kWh	3,919,399	3,161,649	1,427,150	
Annual Cost	\$ 596,101	\$ 480,855	\$ 217,055	
Multiplier	1.5	1.5	1.5	
Annual Electrical Cost	\$ 894,152	\$ 721,283	\$ 325,583	

	Depreciation			
	3A	3B	3C	
Lifespan	27	30	22	
Capital Cost	\$ 26,534,700	\$ 25,842,845	\$ 30,707,841	
Annual R&R	\$ 598,213	\$ 554,631	\$ 902,992	

Staffing Requirements	
3A	2
3B	2
3C	2



Year	1			1 Year Present Value		
	3A: SBR	3B: Ox. Ditch	3C: AGS	3A	3B	3C
Capital Expense	\$ 2,504,837	\$ 2,439,527	\$ 2,898,776	\$ 2,443,744	\$ 2,380,027	\$ 2,828,074
Personnel (@\$75000 /yr)	\$ 150,000	\$ 150,000	\$ 150,000	\$ 146,341	\$ 146,341	\$ 146,341
O&M	\$ 1,492,400	\$ 1,275,900	\$ 1,228,600	\$ 1,456,000	\$ 1,244,780	\$ 1,198,634
Future Capital	NA	NA	NA	NA	NA	NA
Total	\$ 4,147,200	\$ 3,865,400	\$ 4,277,400	\$ 4,046,100	\$ 3,771,100	\$ 4,173,000
% of Least Cost Option						
Year	5			5 Year Present Value		
	3A: SBR	3B: Ox. Ditch	3C: AGS	3A	3B	3C
Capital Expense	\$ 12,524,187	\$ 12,197,637	\$ 14,493,880	\$ 11,069,557	\$ 10,780,934	\$ 12,810,478
Personnel	\$ 783,700	\$ 783,700	\$ 783,700	\$ 692,677	\$ 692,677	\$ 692,677
O&M	\$ 7,797,600	\$ 6,666,400	\$ 6,419,300	\$ 6,891,942	\$ 5,892,126	\$ 5,673,726
Future Capital	NA	NA	NA	NA	NA	NA
Total	\$ 21,105,500	\$ 19,647,700	\$ 21,696,900	\$ 18,654,200	\$ 17,365,700	\$ 19,176,900
% of Least Cost Option						
Year	15			15 Year Present Value		
	3A: SBR	3B: Ox. Ditch	3C: AGS	3A	3B	3C
Capital Expense	\$ 37,572,562	\$ 36,592,911	\$ 43,481,639	\$ 25,942,560	\$ 25,266,144	\$ 30,022,574
Personnel	\$ 2,631,800	\$ 2,631,800	\$ 2,631,800	\$ 1,817,167	\$ 1,817,167	\$ 1,817,167
O&M	\$ 26,184,900	\$ 22,386,300	\$ 21,556,400	\$ 18,079,772	\$ 15,456,969	\$ 14,883,952
Future Capital	NA	NA	NA	NA	NA	NA
Total	\$ 66,389,300	\$ 61,611,000	\$ 67,669,800	\$ 45,839,500	\$ 42,540,300	\$ 46,723,700
% of Least Cost Option						
Year	30			30 Year Present Value		
	3A: SBR	3B: Ox. Ditch	3C: AGS	3A	3B	3C
Capital Expense	\$ 37,572,562	\$ 36,592,911	\$ 43,481,639	\$ 17,912,444	\$ 17,445,402	\$ 20,729,554
Personnel	\$ 6,279,500	\$ 6,279,500	\$ 6,279,500	\$ 2,993,706	\$ 2,993,706	\$ 2,993,706
O&M	\$ 62,477,100	\$ 53,413,700	\$ 51,433,500	\$ 29,785,500	\$ 25,464,591	\$ 24,520,545
Future Capital	NA	NA	NA	NA	NA	NA
Total	\$ 106,329,162	\$ 96,286,111	\$ 101,194,639	\$ 50,691,700	\$ 45,903,700	\$ 48,243,800
% of Least Cost Option						

Appendix L Recommended Project Cost Estimate

Project:
Alternative:

City of Fernley East WWTP PER
1B - Do Nothing: Disinfection

CE

Date:

7/2/2024

Design Phase Activities

Item	Percent	Amount
Permitting & Mitigation	11%	\$ 32,000
Total Design Phase Activities		\$ 32,000

Construction Phase Activities

Div	Item	Quantity	Unit	Unit Price	Amount
1	Mob/Demob/Erosion Control/General Conditions	10%	LS	\$ 18,000	\$ 18,000
2	Electrical and Controls	10%	LS	\$ 18,000	\$ 18,000
3	Additional 2,000 gallon storage tank	1	LS	\$ 30,000	\$ 30,000
4	Replacement metering equipment and alarming	1	LS	\$ 50,000	\$ 50,000
5	Replacement Shelter Structure	1	LS	\$ 100,000	\$ 100,000
6	Concrete pad expansion	150	SF	\$ 8.0	\$ 1,200
Construction Cost Subtotal					\$ 217,200
Contingency		35%			\$ 76,000
Construction Total					\$ 293,200
Engineering Services During Construction		10%			\$ 29,000
Subtotal					\$ 322,200
Escalation/Premium		0%			\$ -
Total Construction Phase Cost					\$ 322,200
Total Project Cost					\$ 354,200

Lifecycle Costs				
Item	Useful Life (yr)	Unit Replacement Cost	\$/YR	*YR
Reinforced Concrete Structures	40	\$ 101,200	\$ 2,530	4,048,000
Electrical and Controls	15	\$ 18,000	\$ 1,200	270,000
Poly Storage Tanks	15	\$ 30,000	\$ 2,000	450,000
Pipes, Fittings, and Valves	40	\$ -	\$ -	-
Meters and Pumps	15	\$ 15,000	\$ 1,000	225,000
UV Lamps	1.5	\$ -	\$ -	-
			\$ 6,730	4,993,000
			Useful Life of Project	30.4
				\$ 11,648

Lifecycle Costs				
Item	Useful Life (yr)	Replacement Cost	\$/YR	\$*YR
Reinforced Concrete Structures	40	\$ 54,000	\$ 1,350	2,160,000
Electrical and Controls	15	\$ 37,000	\$ 2,467	555,000
Poly Storage Tanks	15	\$ 78,150	\$ 5,210	1,172,250
Pipes, Fittings, and Valves	40	\$ 5,000	\$ 125	200,000
Meters and Pumps	15	\$ 15,000	\$ 1,000	225,000
UV Lamps	1.5	\$ -	\$ -	-
			\$ 10,152	4,312,250
			Useful Life of Project	22.8
			\$	32,180

Lifecycle Costs				
Item	Useful Life	Replacement Cost	\$/YR	*YR
Reinforced Concrete Structures	40	\$ 122,800	\$ 3,070	4,912,000
Electrical and Controls	15	\$ 42,000	\$ 2,800	630,000
Poly Storage Tanks	15	\$ 15,000	\$ 1,000	225,000
Pipes, Fittings, and Valves	40	0	\$ -	-
Meters and Pumps	15	\$ -	\$ -	-
UV Lamps	1.5	\$ 12,000	\$ 8,000	18,000
			\$ 11,800	873,000
			Useful Life of Project	4.6
				\$ 179,123

Class 5 Budgetary Cost Estimate			City of Fernley East WWTP PER		
Project:			3A - Mechanical Treatment: Sequencing Batch Reactor		
Alternative:			CE	Date:	7/16/2024
Design Phase Activities					
Item			Percent		Amount
Design and Permitting			20%		\$ 4,082,000
Total Design Phase Activities					\$ 4,082,000
Construction Phase Activities					
Div	Item	Quantity	Unit	Unit Price	Amount
1	Mob/Demob	10%	LS	\$ 1,120,000	\$ 1,120,000
2	Electrical and Controls	25%	LS	\$ 2,800,000	\$ 2,800,000
3	Earth Work	809	CY	\$ 15	\$ 12,133
4	Basin Concrete	4,401	CY	\$ 1,200	\$ 5,281,067
5	SBR Equipment	1	LS	\$ 5,116,500	\$ 5,116,500
6	Aerobic Digestion Allowance	1	LS	\$ 100,000	\$ 100,000
7	Piping, Valves, and Appurtenances	3,000	LF	\$ 170	\$ 510,000
8	Pumping Equipment	1	LS	\$ 120,000	\$ 120,000
9	Lift Station	1	LS	\$ 60,000	\$ 60,000
Construction Cost Subtotal					\$ 15,119,700
Contingency		35%			\$ 5,292,000
Construction Total					\$ 20,411,700
Engineering Services During Construction		10%			\$ 2,041,000
Subtotal					\$ 22,452,700
Escalation/Premium		0%			\$ -
Total Construction Phase Cost					\$ 22,452,700
Total Project Cost					\$ 26,534,700

Lifecycle Costs				
Item	Useful Life (yr)	Unit Replacement Cost	\$/YR	\$*YR
Reinforced Concrete Structures	40	\$ 5,281,067	\$ 132,027	211,242,667
Electrical and Controls	15	\$ 2,800,000	\$ 186,667	42,000,000
Aeration/Mixing Equipment	15	\$ 3,581,550	\$ 238,770	53,723,250
Piping and Appurtenances	40	\$ 510,000	\$ 12,750	20,400,000
Pumps	15	\$ 120,000	\$ 8,000	1,800,000
HDPE Pond Liner	30	\$ 600,000	\$ 20,000	18,000,000
			\$ 598,213	347,165,917
			Useful Life of Project	26.9
				\$ 985,413

Class 5 Budgetary Cost Estimate			City of Fernley East WWTP PER		
Project:			3B - Mechanical Treatment: Oxidation Ditch		
Alternative:			CE	Date:	7/16/2024
Design Phase Activities					
Item			Percent		Amount
Permitting & Mitigation			20%		\$ 3,976,000
					\$ -
Total Design Phase Activities					\$ 3,976,000
Construction Phase Activities					
Div	Item	Quantity	Unit	Unit Price	Amount
1	Mob/Demob/Erosion Control/General Conditions	10%	LS	\$ 1,091,000	\$ 1,091,000
2	Electrical and Controls	25%	LS	\$ 2,727,000	\$ 2,727,000
3	Earth Work	9,741	CY	\$ 15	\$ 146,120
4	Secondary Clarifier Concrete	1,220	CY	\$ 1,350	\$ 1,646,425
5	Oxidation Ditch Concrete	3,976	CY	\$ 1,250	\$ 4,970,000
6	Lift Station	1	LS	\$ 60,000	\$ 60,000
7	Pumping Equipment	1	LS	\$ 120,000	\$ 120,000
8	Oxidation Ditch and Clarifier Equipment	1	LS	\$ 2,235,000	\$ 2,235,000
9	Clarifier Equipment and Controls	1	LS	\$ 789,300	\$ 789,300
10	Piping, Valves, and Appurtenances	4,200	LF	\$ 200	\$ 840,000
11	Aerobic Digestion Allowance	1	LS	\$ 100,000	\$ 100,000
Construction Cost Subtotal					\$ 14,724,845
Contingency					35% \$ 5,154,000
Construction Total					\$ 19,878,845
Engineering Services During Construction					10% \$ 1,988,000
Subtotal					\$ 21,866,845
Escalation/Premium					0% \$ -
Total Construction Phase Cost					\$ 21,866,845
Total Project Cost					\$ 25,842,845

Lifecycle Costs				
Item	Useful Life (yr)	Replacement Cost	\$/YR	\$*YR
Reinforced Concrete Structures	40	\$ 6,676,425	\$ 166,911	267,057,017
Electrical and Controls	15	\$ 2,727,000	\$ 181,800	40,905,000
Aeration/Mixing Equipment	15	\$ 2,353,800	\$ 156,920	35,307,000
Piping and Appurtenances	40	\$ 840,000	\$ 21,000	33,600,000
Pumps	15	\$ 120,000	\$ 8,000	1,800,000
HDPE Pond Liner	30	\$ 600,000	\$ 20,000	18,000,000
			\$ 554,631	396,669,017
			Useful Life of Project	29.8
				\$ 867,613

Class 5 Budgetary Cost Estimate			City of Fernley East WWTP PER		
Project:			3C - Mechanical Treatment: Aerobic Granular Sludge		
Alternative:			CE		
Calculated By:			Date: 7/16/2024		
Design Phase Activities					
Item			Percent		Amount
Permitting & Mitigation			20%		\$ 4,724,000
Total Design Phase Activities					\$ 4,724,000
Construction Phase Activities					
Div	Item	Quantity	Unit	Unit Price	Amount
1	Mob/Demob/Erosion Control/General Conditions	10%	LS	\$ 1,505,000	\$ 1,505,000
2	Electrical and Controls	25%	LS	\$ 3,763,000	\$ 940,750
3	Earth Work	10,405	CY	\$ 15	\$ 156,069
4	Basin Concrete	3,036	CY	\$ 1,200	\$ 3,643,022
5	Aerobic Granular Sludge Equipment	1	LS	\$ 10,665,000	\$ 10,665,000
6	Piping, Valves, and Appurtenances	2,400	LF	\$ 170	\$ 408,000
7	Pumping Equipment	1	LS	\$ 120,000	\$ 120,000
8	Lift Station	1	LS	\$ 60,000	\$ 60,000
Construction Cost Subtotal					\$ 17,497,841
Contingency					35% \$ 6,124,000
Construction Total					\$ 23,621,841
Engineering Services During Construction					10% \$ 2,362,000
Subtotal					\$ 25,983,841
Escalation/Premium					0% \$ -
Total Construction Phase Cost					\$ 25,983,841
Total Project Cost					\$ 30,707,841

Lifecycle Costs				
Item	Useful Life	Replacement Cost	\$/YR	\$*YR
Reinforced Concrete Structures	40	\$ 3,643,022	\$ 91,076	145,720,889
Electrical and Controls	15	\$ 940,750	\$ 62,717	14,111,250
Aeration/Mixing Equipment	15	\$ 10,665,000	\$ 711,000	159,975,000
Piping and Appurtenances	40	\$ 408,000	\$ 10,200	16,320,000
Pumps	15	\$ 120,000	\$ 8,000	1,800,000
HDPE Pond Liner	30	\$ 600,000	\$ 20,000	18,000,000
			\$ 902,992	355,927,139
			Useful Life of Project	21.7
				\$ 1,412,916

Class 5 Budgetary Cost Estimate				City of Fernley East WWTP PER	
Project: Alternative:		4A - Lagoon Optimization: MLE			
		CE	Date:		7/16/2024
Design Phase Activities					
Item			Percent		Amount
Permitting & Mitigation			2%		\$ 355,000
Total Design Phase Activities					\$ 355,000
Construction Phase Activities					
Div	Item	Quantity	Unit	Unit Price	Amount
1	Mob/Demob/Erosion Control/General Conditions	10%	LS	\$ 1,051,000	\$ 1,051,000
2	Electrical and Controls	15%	LS	\$ 1,576,000	\$ 1,576,000
3	Dewatering	35,680,000	gal	\$ 0.05	\$ 1,784,000
4	Sludge Removal	27,039	CY	\$ 25	\$ 675,987
5	Equipment Supply and Install	1	LS	\$ 2,868,450	\$ 2,868,450
6	Piping, Valves, and Appurtenances	4,500	LF	\$ 170	\$ 765,000
7	Pumping Equipment	1	LS	\$ 400,000	\$ 400,000
8	Lift Stations	1	LS	\$ 120,000	\$ 120,000
9	Secondary Clarifier Equipment	1	LS	\$ 1,047,000	\$ 1,047,000
10	Cast-in-Place Concrete Secondary Clarifiers	1,220	CY	\$ 1,350	\$ 1,646,425
11	HDPE Liner	1	LS	\$ 1,200,000	\$ 1,200,000
Construction Cost Subtotal					\$ 13,133,862
Contingency		35%			\$ 4,597,000
Construction Total					\$ 17,730,862
Engineering Services During Construction		10%			\$ 1,773,000
Subtotal					\$ 19,503,862
Escalation/Premium		0%			\$ -
Total Construction Phase Cost					\$ 19,503,862
Total Project Cost					\$ 19,858,862

Lifecycle Costs				
Item	Useful Life (yr)	Unit Replacement Cost	\$/YR	\$*YR
Reinforced Concrete Structures	40	\$ 1,766,425	\$ 44,161	70,657,017
Electrical and Controls	15	\$ 1,576,000	\$ 105,067	23,640,000
Aeration/Mixing/Clarifier Equipment	15	\$ 3,915,450	\$ 261,030	58,731,750
Piping and Appurtenances	40	\$ 765,000	\$ 19,125	30,600,000
Pumps	15	\$ 400,000	\$ 26,667	6,000,000
HDPE Pond Liner	30	\$ 1,200,000	\$ 40,000	36,000,000
			\$ 496,049	225,628,767
			Useful Life of Project	23.4
				\$ 846,964

Class 5 Budgetary Cost Estimate			City of Fernley East WWTP PER		
Project:			4B - Lagoon Optimization: NitrOx+D		
Alternative:			CE	Date:	7/16/2024
Design Phase Activities					
Item			Percent		Amount
Permitting & Mitigation			2%		\$ 758,000
					\$ -
Total Design Phase Activities					\$ 758,000
Construction Phase Activities					
Div	Item	Quantity	Unit	Unit Price	Amount
1	Mob/Demob/Erosion Control/General Conditions	10%	LS	\$ 2,246,000	\$ 2,246,000
2	Electrical and Controls	15%	LS	\$ 3,369,000	\$ 3,369,000
3	Dewatering	53,520,000	gal	\$ 0.05	\$ 2,676,000
4	Sludge Removal	27,039	CY	\$ 25	\$ 675,987
5	Equipment Supply and Install	1	LS	\$ 15,057,536	\$ 15,057,536
6	Cast-in-Place Concrete Reactor	1,097	CY	\$ 1,200	\$ 1,316,933
6	Earthworks	6,644	CY	\$ 15	\$ 99,667
7	Piping, Valves, and Appurtenances	3,850	LF	\$ 170	\$ 654,500
8	Pumping Equipment	1	LS	\$ 120,000	\$ 120,000
9	Lift Station	1	LS	\$ 60,000	\$ 60,000
10	HDPE Liner	1	LS	\$ 1,800,000	\$ 1,800,000
Construction Cost Subtotal					\$ 28,075,623
Contingency		35%			\$ 9,826,000
Construction Total					\$ 37,901,623
Engineering Services During Construction		10%			\$ 3,790,000
Subtotal					\$ 41,691,623
Escalation/Premium		0%			\$ -
Total Construction Phase Cost					\$ 41,691,623
Total Project Cost					\$ 42,449,623

Lifecycle Costs				
Item	Useful Life (yr)	Replacement Cost	\$/YR	*YR
Reinforced Concrete Structures	40	\$ 1,376,933	\$ 34,423	55,077,333
Electrical and Controls	15	\$ 3,369,000	\$ 224,600	50,535,000
Aeration/Mixing/Clarifier Equipment	15	\$ 15,177,536	\$ 1,011,836	227,663,040
Piping and Appurtenances	40	\$ 654,500	\$ 16,363	26,180,000
Pumps	15	\$ 120,000	\$ 8,000	1,800,000
HDPE Pond Liner	30	\$ 1,800,000	\$ 60,000	54,000,000
			\$ 1,355,222	415,255,373
			Useful Life of Project	18.5
				\$ 2,299,863

Class 5 Budgetary Cost Estimate			City of Fernley East WWTP PER		
Project:			4C - Lagoon Optimization: Biolac		
Alternative:			CE		
Calculated By:			Date: 7/16/2024		
Design Phase Activities					
Item			Percent		Amount
Permitting & Mitigation			2%		\$ 233,000
Total Design Phase Activities					\$ 233,000
Construction Phase Activities					
Div	Item	Quantity	Unit	Unit Price	Amount
1	Mob/Demob/Erosion Control/General Conditions	10%	LS	\$ 769,000	\$ 769,000
2	Electrical and Controls	15%	LS	\$ 1,154,000	\$ 173,100
3	Dewatering	8,920,000	gal	\$ 0.05	\$ 446,000
4	Sludge Removal	6,760	CY	\$ 25	\$ 168,997
5	Equipment Supply and Install	1	LS	\$ 5,940,000	\$ 5,940,000
6	Cast-in-Place Concrete Secondary Clarifiers	458	CY	\$ 1,200	\$ 549,600
7	Piping, Valves, and Appurtenances	2,400	LF	\$ 170	\$ 408,000
8	Pumping Equipment	1	LS	\$ 120,000	\$ 120,000
9	Lift Station	1	LS	\$ 60,000	\$ 60,000
10	HDPE Liner	0	LS	\$ 300,000	\$ -
Construction Cost Subtotal					\$ 8,634,697
Contingency					35% \$ 3,022,000
Construction Total					\$ 11,656,697
Engineering Services During Construction					10% \$ 1,166,000
Subtotal					\$ 12,822,697
Escalation/Premium					0% \$ -
Total Construction Phase Cost					\$ 12,822,697
Total Project Cost					\$ 13,055,697

Lifecycle Costs				
Item	Useful Life	Replacement Cost	\$/YR	\$*YR
Reinforced Concrete Structures	40	\$ 609,600	\$ 15,240	24,384,000
Electrical and Controls	15	\$ 173,100	\$ 11,540	2,596,500
Aeration/Mixing/Clarifier Equipment	15	\$ 5,940,000	\$ 396,000	89,100,000
Piping and Appurtenances	40	\$ 408,000	\$ 10,200	16,320,000
Pumps	15	\$ 120,000	\$ 8,000	1,800,000
HDPE Pond Liner	30	\$ 300,000	\$ 10,000	9,000,000
			\$ 450,980	143,200,500
			Useful Life of Project	19.0
				\$ 688,403

Class 5 Budgetary Cost Estimate				City of Fernley East WWTP PER	
Project:		4D-Partial Mix Aeration			
Alternative:					
Calculated By:		CE	Date:	9/24/2024	
Design Phase Activities					
Item			Percent		Amount
Design and Permitting			10%		\$ 1,402,000
Total Design Phase Activities					\$ 1,402,000
Construction Phase Activities					
Div	Item	Quantity	Unit	Unit Price	Amount
1	Mob/Demob/Erosion Control/General Conditions	10%	LS	\$ 831,000	\$ 831,000
2	Electrical and Controls	15%	LS	\$ 1,247,000	\$ 1,247,000
3	Dewatering	38,980,000	gal	\$ 0.05	\$ 1,949,000
4	Sludge Removal	25,975	CY	\$ 25	\$ 649,000
5	Aerators	81	EA	\$ 37,500	\$ 3,038,000
6	HDPE Liner	701,316	SF	\$ 3	\$ 2,104,000
7	Earthwork to Deepen Pond 1A and 1B	10,893	CY	\$ 15	\$ 163,000
8	Replacement Piping, Valves, and Appurtenances	1,949	LF	\$ 170	\$ 331,000
9	Replacement Splitter Box	50	LS	\$ 1,200	\$ 60,000
10	Replacement Mixing Weir	13	LS	\$ 1,200	\$ 16,000
Construction Cost Subtotal					\$ 10,388,000
Contingency		35%			\$ 3,636,000
Construction Total					\$ 14,024,000
Engineering Services During Construction		10%			\$ 1,402,000
Subtotal					\$ 15,426,000
Escalation/Premium		0%			\$ -
Total Construction Phase Cost					\$ 15,426,000
Total Project Cost					\$ 16,828,000

Lifecycle Costs				
Item	Useful Life	Replacement Cost	\$/YR	*YR
Reinforced Concrete Structures	40	\$ 2,400	\$ 60	96,000
Electrical and Controls	15	\$ 1,247,000	\$ 83,133	18,705,000
Aeration/Mixing/Clarifier Equipment	15	\$ 3,038,000	\$ 202,533	45,570,000
Piping and Appurtenances	40	\$ 163,000	\$ 4,075	6,520,000
Pumps	15	\$ 331,000	\$ 22,067	4,965,000
HDPE Pond Liner	30	\$ 2,104,000	\$ 70,133	63,120,000
			\$ 382,002	138,976,000
			Useful Life of Project	20.2
				\$ 833,723

Appendix M Alternative 2 Figures

\\lamosengineering.net\Shared\LAProj\10939.000 - Wastewater Treatment Plant PER\3-Design\DWG\Civil\10939.000 ON-SITE HYDRO.dwg,ALT 2A - ON-SITE HYDRO.
09/05/2024 01:16 pm lbuehler



CITY OF FERNLEY

PRELIMINARY ENGINEERING REPORT
EAST WASTE WATER TREATMENT PLANT
ALT.2A: ON-SITE HYDRO

NEVADA
LYON COUNTY
FERNLEY

REV	DATE	DESCRIPTION	BY

PRELIMINARY
NOT FOR CONSTRUCTION
JULY

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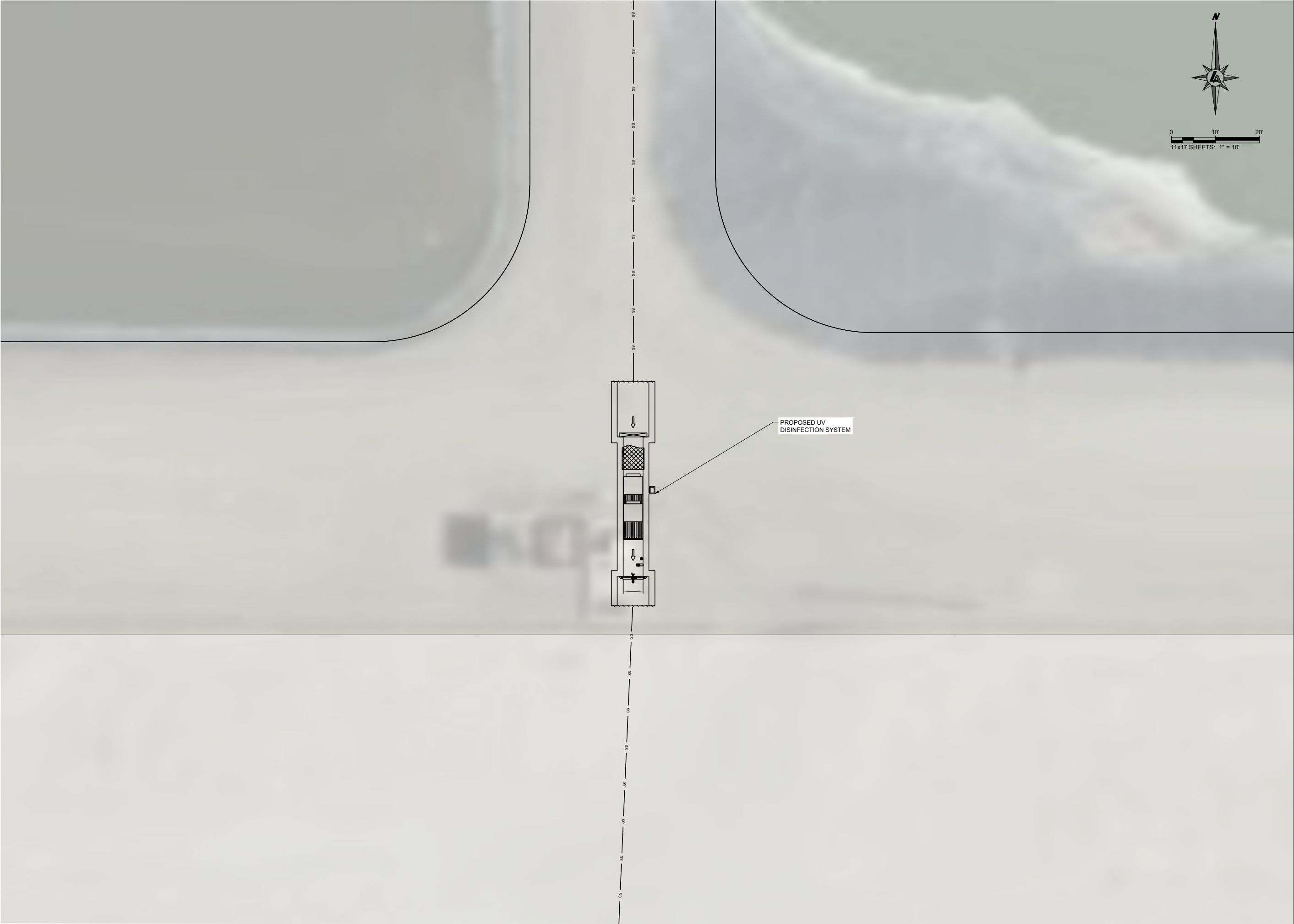
ALT. 2A

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\\lumlumossengineering.net\Shared\LAProj\10939.000 - Wastewater Treatment Plant_PER\3-Design\DWG\Civil\10939.000 UV TREATMENT.dwg-ALT 2B- UV TREATMENT.
09/05/2024 12:57 pm lbuehler



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CITY OF FERNLEY

PRELIMINARY ENGINEERING REPORT
EAST WASTE WATER TREATMENT PLANT
ALT.2B: UV TREATMENT

NEVADA
LYON COUNTY
FERNLEY

REV	DATE	DESCRIPTION	BY

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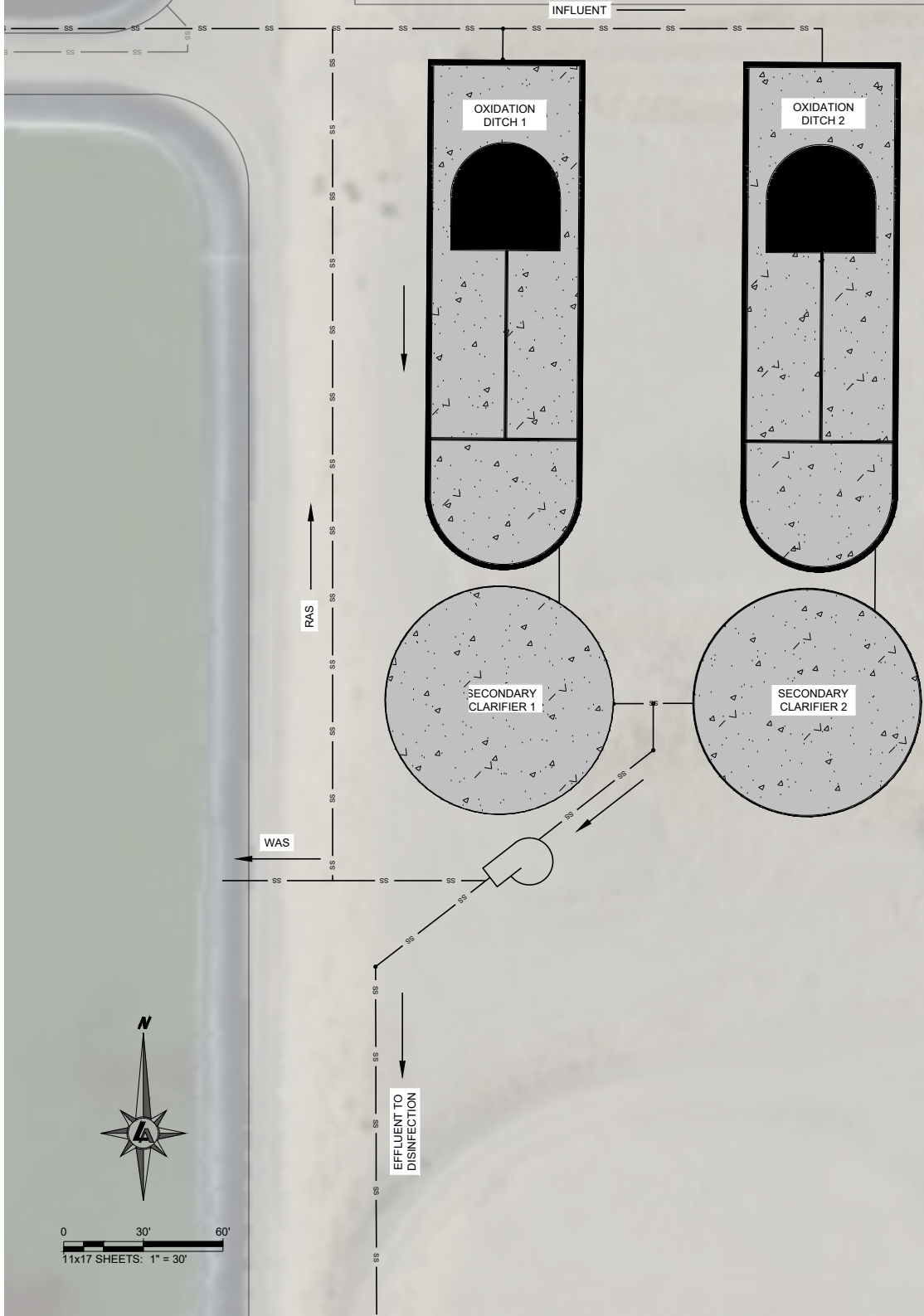
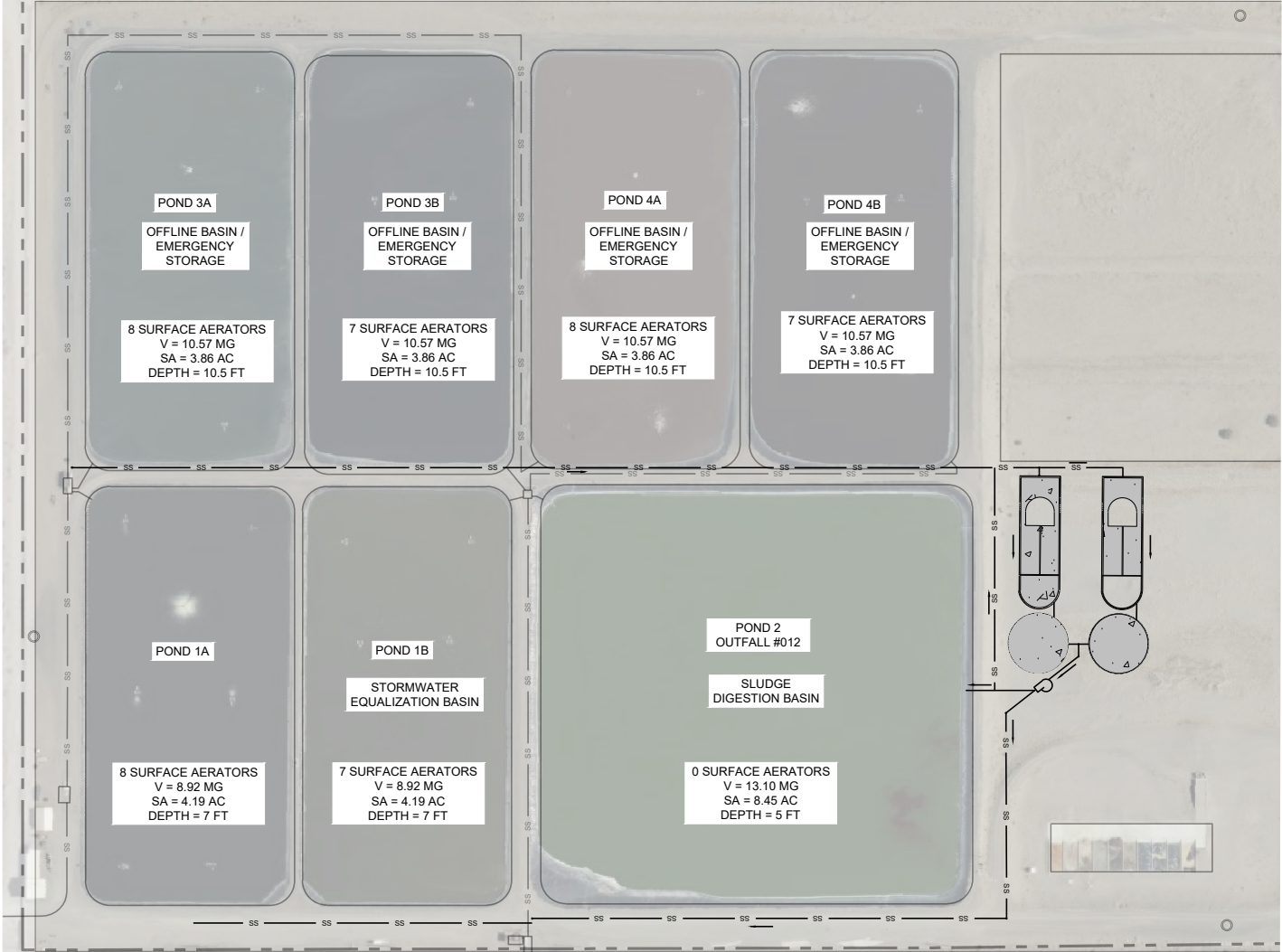
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ALT. 2B

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Appendix N Alternative 3 Figures

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CITY OF FERNLEY
PRELIMINARY ENGINEERING REPORT
EAST WASTE WATER TREATMENT PLANT
ALT.3B: OXIDATION DITCH
LYON COUNTY
NEVADA
FERNLEY

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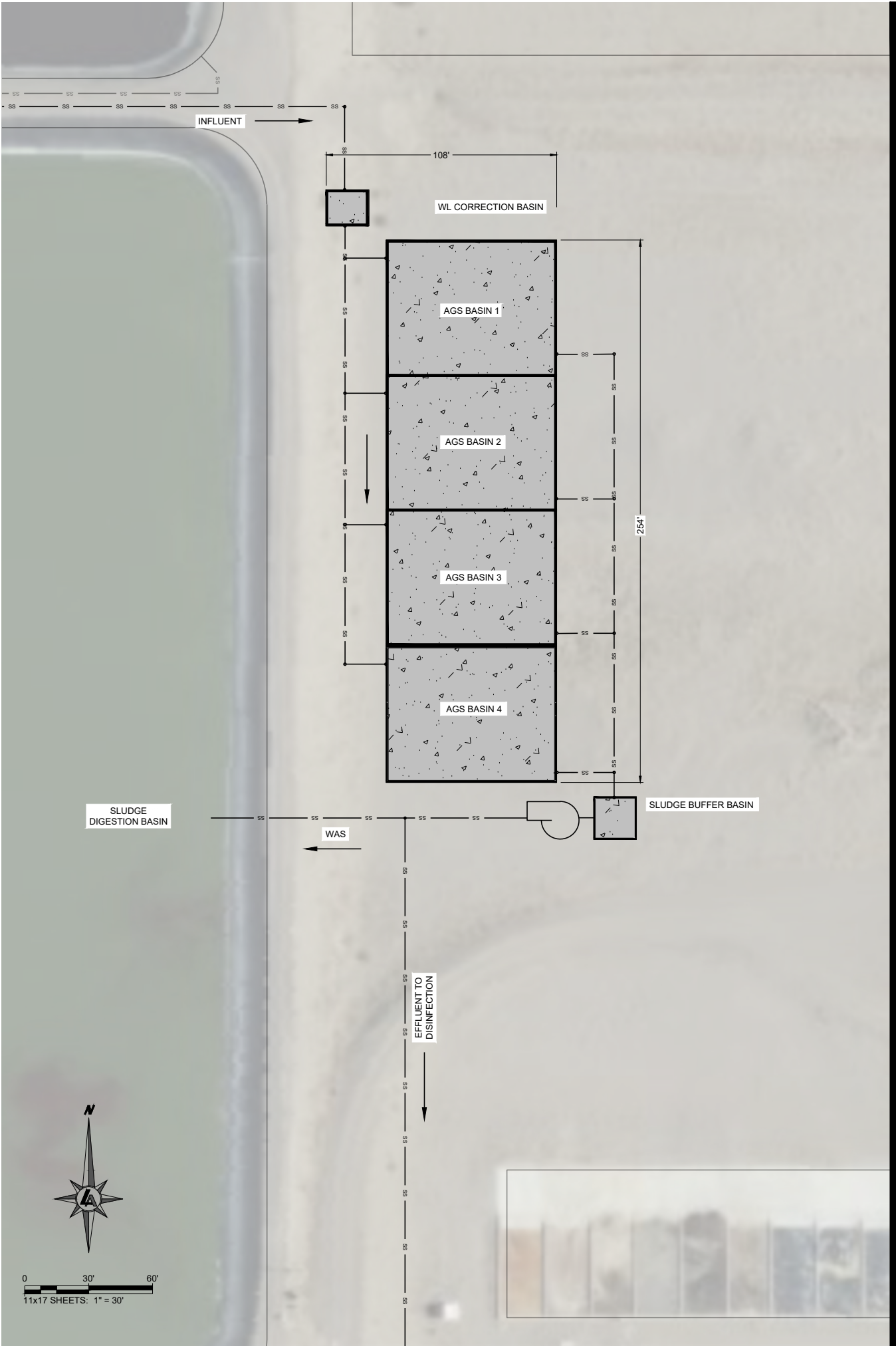
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CITY OF FERNLEY
PRELIMINARY ENGINEERING REPORT
EAST WASTE WATER TREATMENT PLANT
ALT.3C: AEROBIC GRANULAR SLUDGE
NEVADA
LYON COUNTY
FERNLEY

REV	DATE	DESCRIPTION	BY

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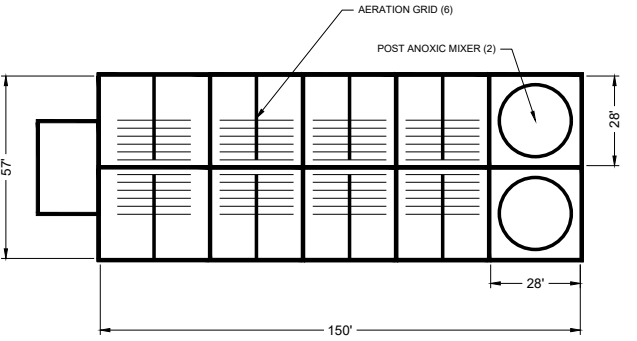
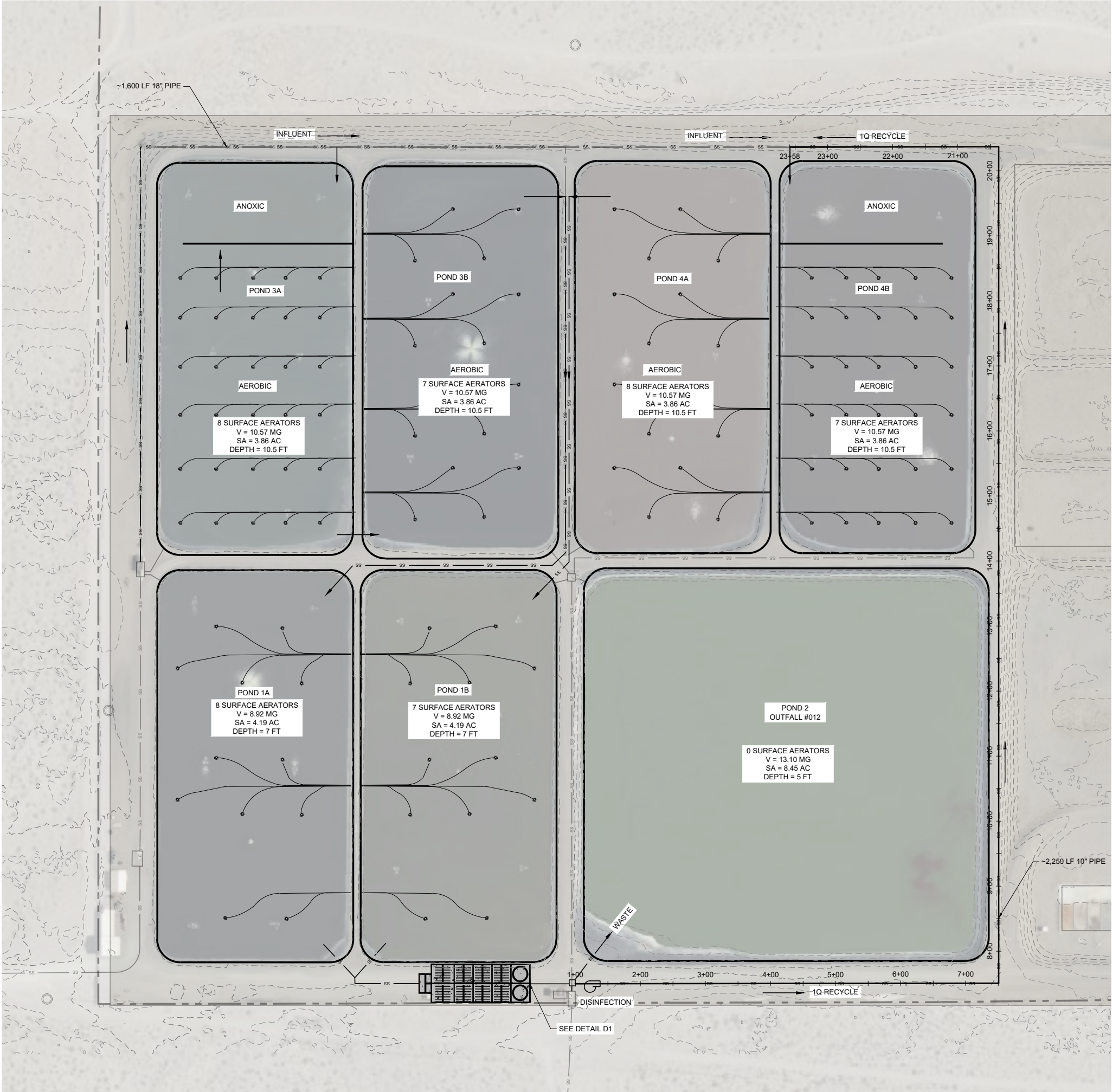
Appendix O Alternative 4 Figures

\\lumosinc\engineering\alt\Shredd\AP03\0939.000 - Wastewater Treatment Plant PER\3-Design\DWG\Civil\0939.000 LAGOON MLE LAYOUT.dwg,ALT 4A - LAGOON MLE.
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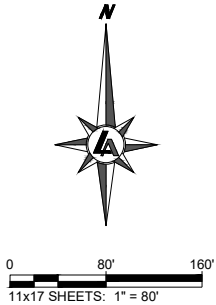


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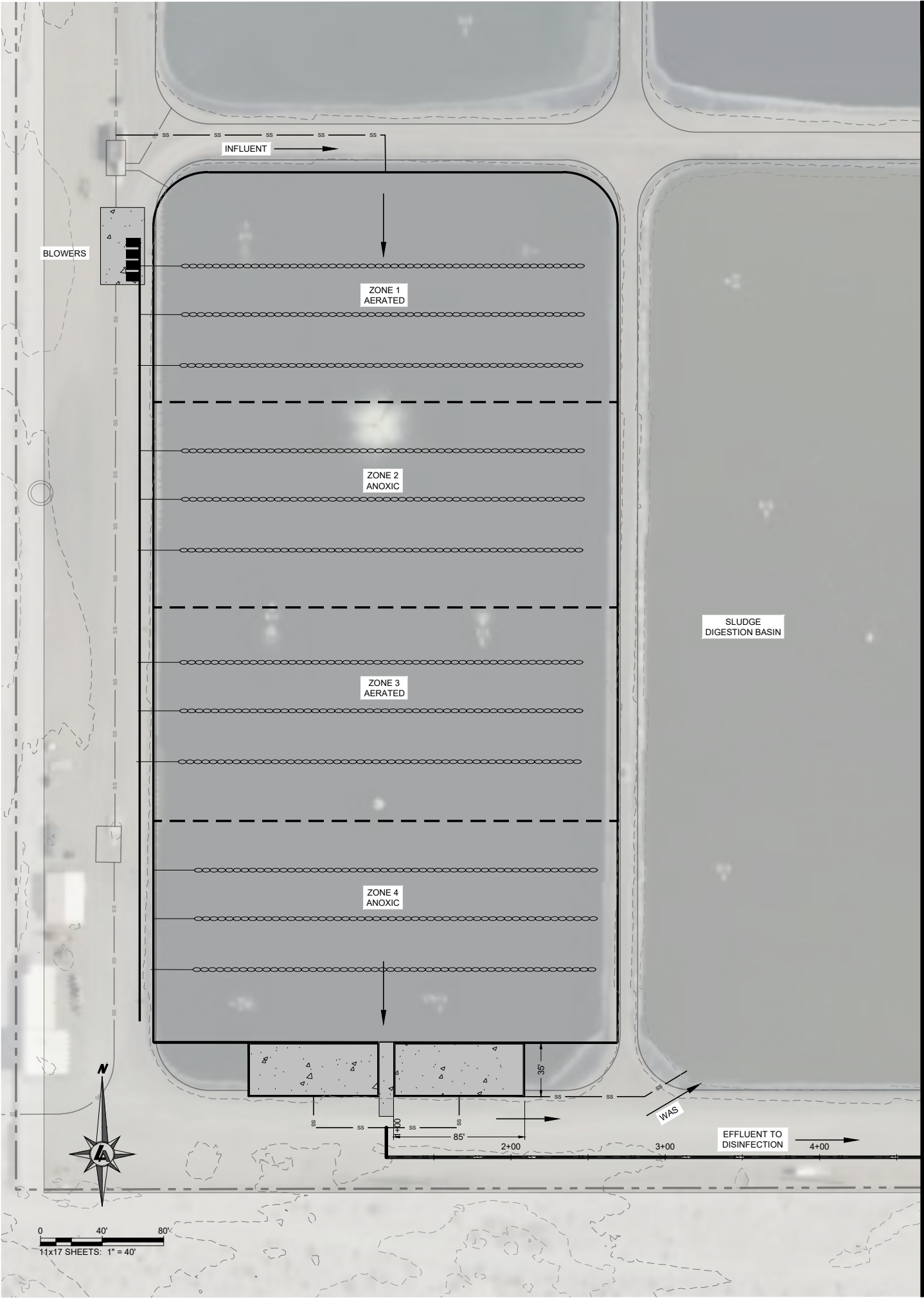
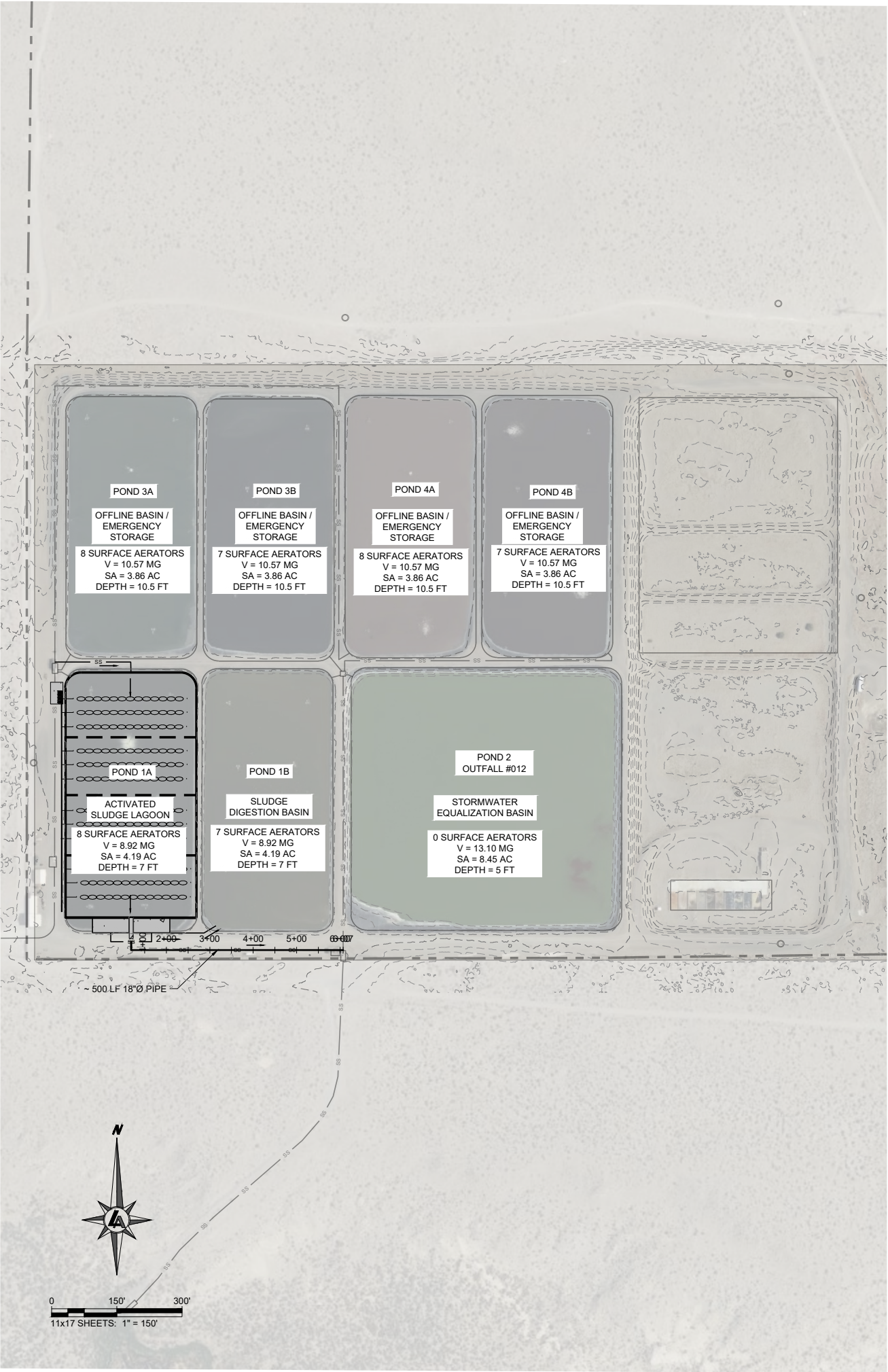


DETAIL D1
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09/10/2024 04:14 pm buelher



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CITY OF FERNLEY
PRELIMINARY ENGINEERING REPORT
EAST WASTE WATER TREATMENT PLANT
ALT.4C: ALTERNATING ZONES
NEVADA
LYON COUNTY
FERNLEY

REV	DATE	DESCRIPTION	BY

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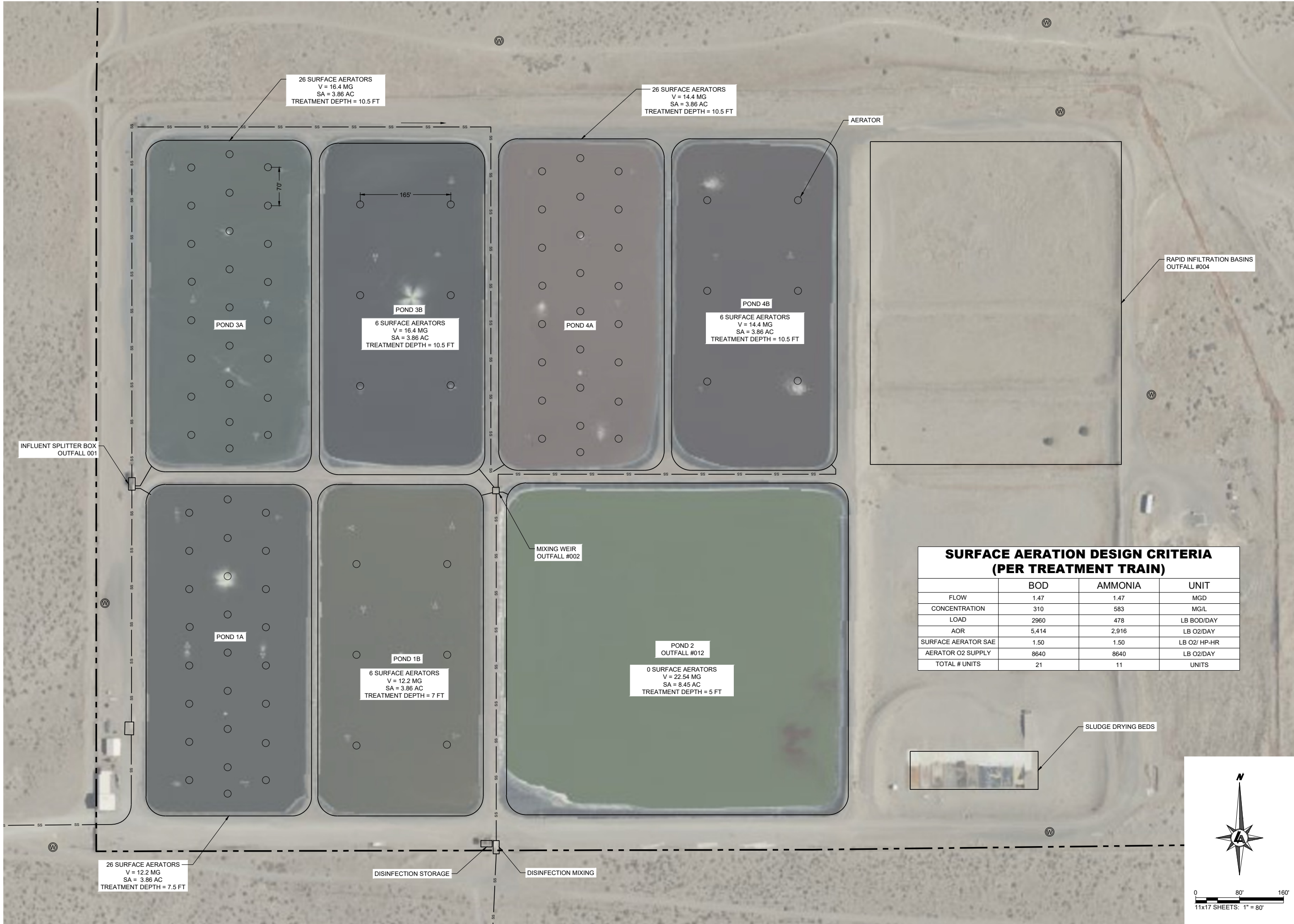
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MARCH 2025

Appendix P Partial Mix Aeration Calculations

Lagoon Flow Rates	Existing Flows ¹	Future Growth Flows ²	Unit	Notes
<u>Existing Lagoons</u>				
No. Parallel Treatment Trains	3	3	-	Existing ponds 1A/1B, 3A/3B, and 4A/4B
No. Cells in Series, n	2	2	-	Ponds A and B, each treatment train
Plant Total Average Daily Flow (ADF)	1.26	4.40	MGD	Annual average day influent flow to Plant
Treatment Train ADF (3 Treatment Trains)	0.42	1.47	MGD	Flow per treatment train
Plant Total Peak Hour (PH) Flow	N/A	10.58	MGD	Peak hour influent flow to Plant
Treatment Train PH (3 Treatment Trains)	N/A	3.53	MGD	Peak hour flow per treatment train
[1] Based on 2022 DMR Data				
[2] Based on Sewer Master Plan (Shaw Engineering, 2024)				

Microbial Kinetics Equations for First Order Reaction			Notes
$C_n/C_o = \frac{1}{[1 + (K_{pm}t/n)]^n}$	Variation of Kpm w\ Temp.		Partial Mix BOD Treatment Model per 'Guidance for Design of Wastewater Treatment Ponds' WTS-5 (NDEP BWPC, May 2017).
Kpm = Partial Mix reaction rate (0.276 day ⁻¹ at 20°C.)	$Kpm(temp) = Kpm_{20^{\circ}C} (1.036)^{T-20}$		
t = detention time in each pond (days)	T= temperature in Celsius		
n = number of equal sized ponds in series	NOTE: Use Kpm _{20°C} (0.276 d ⁻¹) as a cold temp design maximum.		

System Criteria	Value	Unit	Notes
Number of Cells in Series, n	2	cells	Per treatment train
Influent BOD, C ₀	310	mg/L	90th percentile influent BOD fro DMR Data
Effluent BOD, C _e	40	mg/L	Effluent target per updated NDEP Discharge Permit
Design Rate Constant, k	0.276	/day	Per NDEP WTS-5 Guidance
Theoretical Design HRT, t	12.9	days	Per treatment train
Theoretical Design HRT, t	38.8	days	Plant Total, 3 treatment trains

Existing Lagoons (3 Treatment Trains)	Treatment Volume (MG)	Theoretical HRT (days)	Target HRT (days)	Target Met?	Percent HRT Achieved
Pond Series 1	22.2	15.1	12.9	Yes	117%
Pond 1A	11.1	7.6	6.5	N/A	N/A
Pond 1B	11.1	7.6	6.5	N/A	N/A
Pond Series 3	21.1	14.4	12.9	Yes	112%
Pond 3A	10.6	7.2	6.5	N/A	N/A
Pond 3B	10.6	7.2	6.5	N/A	N/A
Pond Series 4	21.9	14.9	12.9	Yes	116%
Pond 4A	11.0	7.5	6.5	N/A	N/A
Pond 4B	11.0	7.5	6.5	N/A	N/A
Total	65.3	44.5	38.8	Yes	115%
Weighted Average Treatment Train HRT (days)	N/A	14.8	12.9	Yes	115%

Partial Mix Aeration Conceptual Design	Ponds 1 Series		Ponds 3 Series		Ponds 4 Series		Unit	Notes
	Primary Pond 1A	Secondary Pond 1B	Primary Pond 3A	Secondary Pond 3B	Primary Pond 4A	Secondary Pond 4B		
Ponds in Series	2		2		2		-	
Influent Flow Rate	1.47	1.47	1.47	1.47	1.47	1.47	MGD	Projected growth condition, Plant AAF = 4.40 MGD
Pond Surface Area	4.19	4.19	3.86	3.86	3.86	3.86	Acres	
Pond Volume	11.10	11.10	10.57	10.57	10.96	10.96	MG	
Pond HRT	12.90	12.90	12.90	12.90	12.90	12.90	days	
Treatment Train HRT	25.80		25.80		25.80		days	
Partial-Mix Reaction rate Constant, k	0.276	0.276	0.276	0.276	0.276	0.276	/day	
Pond Influent BOD	310.00	67.98	310.00	67.98	310.00	67.98	mg/l	90th percentile influent BOD fro DMR Data
Pond Effluent BOD	67.98	14.91	67.98	14.91	67.98	14.91	mg/l	Per partial-mix kinetic first order reaction equation, n=1
Pond Percent BOD Removal	0.78	0.78	0.78	0.78	0.78	0.78	%	
Treatment Train Percent BOD Removal	0.95		0.95		0.95		%	
O2 to BOD Design Ratio	1.50	1.50	1.50	1.50	1.50	1.50	lb O2 / lb BOD	EPA (2011) Principles of Design and Operations of Wastewater Treatment Pond Systems. This assumes that the load requiring oxygen is the difference between the influent and the effluent concentrations converted to lbs/day.
90th Percentile Pond BOD Load	2,960	649	2,960	649	2,960	649	lb BOD/day	
Actual Oxygen Requirement (AOR) to Oxidise BOD	4,441	974	4,441	974	4,441	974	lb O2/day	
O2 to Ammonia Design Ratio	5.00	5.00	5.00	5.00	5.00	5.00	lb O2 / lb Ammonia	EPA (2011) Principles of Design and Operations of Wastewater Treatment Pond Systems.
90th Percentile Ammonia Load	478	104.87	478	104.87	478	104.87	lb BOD/day	Based off of ratio of BOD Load in Pond A & B
AOR to Oxidise Ammonia	2,391	524	2,391	524	2,391	524	lb O2/day	
Total AOR	6,832	1,498	6,832	1,498	6,832	1,498	lb O2/day	
Surface Aerators Estimated Standard Aeration Efficiency (SAE)	3.0	3.0	3.0	3.0	3.0	3.0	lb O2/hp-hr	EPA (2002) WW Technology Fact Sheet: Aerated, Partial Mix Lagoons. Assumption on transfer efficiency losses included in this value (i.e. otherwise accounts for equivalent of SOR)
Efficiency	0.5	0.5	0.5	0.5	0.5	0.5		Per manufacturer based on clean water test
Project SAE	1.5	1.5	1.5	1.5	1.5	1.5	lb O2/hp-hr	multiplied by Manufacture Eff.
Horsepower Per Unit	7.5	7.5	7.5	7.5	7.5	7.5	hp/unit	Confirmed from Aspiro EcoJet
Number of Units for BOD	17	4	17	4	17	4	units	
Number of Aerators for Ammonia	9	2	9	2	9	2	units	
Number of Units	26	6	26	6	26	6	units	Lumos optimised design to meet Total AOR
Total Horsepower Supplied	195	45	195	45	195	45	hp	
Total Horsepower Supplied V2	195	45	195	45	195	45	HP	Adjusts based on number of hours
Minimum Mixing Energy Required (Partial Mix)	14.7	14.7	14.7	14.7	14.7	14.7	hp	EPA (2002) WW Technology Fact Sheet: Aerated, Partial Mix Lagoons. Assuming 10 hp per Million Gallons for partial-mix requirement. Check > total HP supplied.
Aeration Time	24	24	24	24	24	24	hrs per day	Lumos optimised desing to meet Total AOR
O2 Supply (Hourly)	293	68	293	68	293	68	lb-O2/hr	
O2 Supply (Daily)	7,020	1,620	7,020	1,620	7,020	1,620	lb-O2/day	Ensure this meets AOR
Price of Electricity	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.10	\$/kWh	
Electrical Consumption V2	1,474,547	327,551	1,474,547	327,551	1,474,547	327,551	kWh/yr	
Operational Costs V2	142,294	31,609	142,294	31,609	142,294	31,609	\$/year	

Partial Mix Aeration Conceptual Design	Ponds 1 Series		Ponds 3 Series		Ponds 4 Series		Unit	Notes
	Primary Pond 1A	Secondary Pond 1B	Primary Pond 3A	Secondary Pond 3B	Primary Pond 4A	Secondary Pond 4B		
Ponds in Series	2		2		2		-	
Influent Flow Rate	0.42	0.42	0.42	0.42	0.42	0.42	MGD	Projected growth condition, Plant AAF = 4.40 MGD
Pond Surface Area	4.19	4.19	3.86	3.86	3.86	3.86	Acres	
Pond Volume	11.10	11.10	10.57	10.57	10.96	10.96	MG	
Pond HRT	12.90	12.90	12.90	12.90	12.90	12.90	days	
Treatment Train HRT	25.80		25.80		25.80		days	
Partial-Mix Reaction rate Constant, k	0.276	0.276	0.276	0.276	0.276	0.276	/day	
Pond Influent BOD	310.00	67.98	310.00	67.98	310.00	67.98	mg/l	90th percentile influent BOD fro DMR Data
Pond Effluent BOD	67.98	14.91	67.98	14.91	67.98	14.91	mg/l	Per partial-mix kinetic first order reaction equation, n=1
Pond Percent BOD Removal	0.78	0.78	0.78	0.78	0.78	0.78	%	
Treatment Train Percent BOD Removal	0.95		0.95		0.95		%	
O2 to BOD Design Ratio	1.50	1.50	1.50	1.50	1.50	1.50	lb O2 / lb BOD	EPA (2011) Principles of Design and Operations of Wastewater Treatment Pond Systems. This assumes that the load requiring oxygen is the difference between the influent and the effluent concentrations converted to lbs/day.
90th Percentile Pond BOD Load	848	186	848	186	848	186	lb BOD/day	
Actual Oxygen Requirement (AOR) to Oxidise BOD	1,272	279	1,272	279	1,272	279	lb O2/day	
O2 to Ammonia Design Ratio	5.00	5.00	5.00	5.00	5.00	5.00	lb O2 / lb Ammonia	EPA (2011) Principles of Design and Operations of Wastewater Treatment Pond Systems.
90th Percentile Ammonia Load	137	30.03	137	30.03	137	30.03	lb BOD/day	Based off of ratio of BOD Load in Pond A & B
AOR to Oxidise Ammonia	685	150	685	150	685	150	lb O2/day	
Total AOR	1,956	429	1,956	429	1,956	429	lb O2/day	
Surface Aerators Estimated Standard Aeration Efficiency (SAE)	3.0	3.0	3.0	3.0	3.0	3.0	lb O2/hp-hr	EPA (2002) WW Technology Fact Sheet: Aerated, Partial Mix Lagoons. Assumption on transfer efficiency losses included in this value (i.e. otherwise accounts for equivalent of SOR)
Efficiency	0.5	0.5	0.5	0.5	0.5	0.5		Per manufacturer based on clean water test
Project SAE	1.5	1.5	1.5	1.5	1.5	1.5	lb O2/hp-hr	multiplied by Manufacture Eff.
Horsepower Per Unit	7.5	7.5	7.5	7.5	7.5	7.5	hp/unit	Confirmed from Aspiro EcoJet
Number of Units for BOD	5	1	5	1	5	1	units	
Number of Units for Ammonia	3	1	3	1	3	1	units	
Number of Units	8	2	8	2	8	2	units	Lumos optimised design to meet Total AOR
Total Horsepower Supplied	60	15	60	15	60	15	hp	
Total Horsepower Supplied V2	60	15	60	15	60	15	HP	Adjusts based on number of hours
Minimum Mixing Energy Required (Partial Mix)	4.2	4.2	4.2	4.2	4.2	4.2	hp	EPA (2002) WW Technology Fact Sheet: Aerated, Partial Mix Lagoons. Assuming 10 hp per Million Gallons for partial-mix requirement. Check > total HP supplied.
Aeration Time	24	24	24	24	24	24	hrs per day	Lumos optimised desing to meet Total AOR
O2 Supply (Hourly)	90	23	90	23	90	23	lb-O2/hr	
O2 Supply (Daily)	2,160	540	2,160	540	2,160	540	lb-O2/day	Ensure this meets AOR
Price of Electricity	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.10	\$/kWh	
Electrical Consumption V2	440,014	106,109	440,014	106,109	440,014	106,109	kWh/yr	
Operational Costs V2	42,461	10,240	42,461	10,240	42,461	10,240	\$/year	

East Wastewater Treatment Plant PER

1. EXISTING SYSTEM & PER OVERVIEW
2. DISINFECTION ALTERNATIVES
3. TREATMENT ALTERNATIVES
4. RECOMMENDATIONS
5. DISCUSSION/QUESTIONS

Existing System and PER Overview

City of Fernley EWWTP PER

SYSTEM OVERVIEW



East WWTP Background:

- Flows at 1.45 MGD, capacity 3.0 MGD
- Partial-mix aerated ponds with surface aerators to remove organics and ammonia
- Secondary clarified 'Category C' → FWMA
- NDEP AOC process
- Draft permit process: Nitrogen limit
- Plant unable to denitrify

EFFLUENT REUSE

Effluent Reuse Assumptions:

- Current Discharge Permit 2025
- Existing Reuse Category C

Elevated Reuse Considerations:

- Higher reuse classification is possible, would require an evaluation for Reclaimed Water potential. NDEP would not impose this unless City pursued it
- Less water available to FMWA. As growth occurs could see opportunity to divert excess flows, but anticipate regulatory challenges and potential stakeholder pushback (current users)
- Higher effluent quality > increasingly complex treatment upgrades
- Infrastructure needs for delivery of reclaimed water
- Potential customers will be reuse classification dependent.
- Challenges for economically viable City investment

PER OVERVIEW

Preliminary Engineering Report

1. Background
2. Existing system
3. Need for Project
4. Alternatives Analyzed
5. Benefit Cost Analysis
6. Recommended Project
 - Preliminary Scope
 - Budgetary Costs
 - Schedule

Need for Project:

- **Anticipate future growth**
 - 15-year planning horizon
 - Known final map developments → growth
 - Growth flows = 4.40 MGD AAD
- **Anticipate future regulation changes**
 - Possible future effluent Nitrogen limit of ~10 mg/l
 - WWTP currently not designed to achieve this
- **Streamline operations and increase plant efficiency**

Alternatives and Benefit-Cost Analysis

City of Fernley EWWTP PER

ALTERNATIVES EVALUATED

Treatment Alternatives:

Alt. 1A: No Action (Existing Aeration)

Alt. 3A: Sequencing Batch Reactor

Alt. 3B: Oxidation Ditch

Alt. 3C: Aerobic Granular Sludge

Alt. 4A: Modified Ludzack Ettinger

Alt. 4B: Side Stream N Removal

Alt. 4C: Extended Aeration

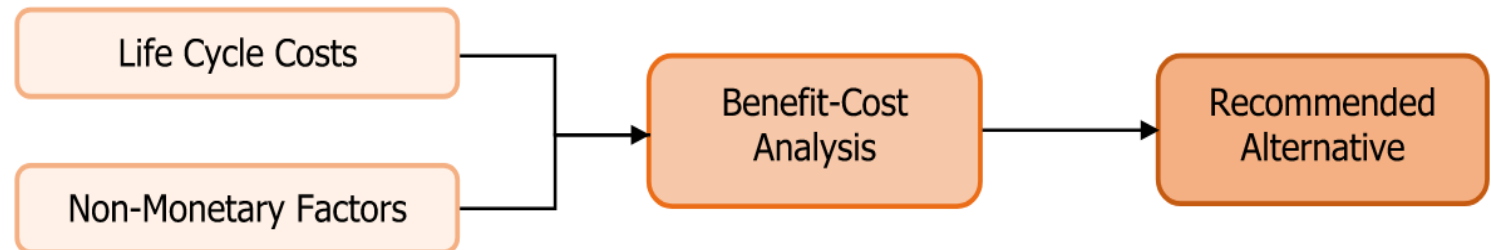
Alt. 4D: Partial Mix Aeration

Disinfection Alternatives:

Alt. 1B: No Action (Existing Disinfection)

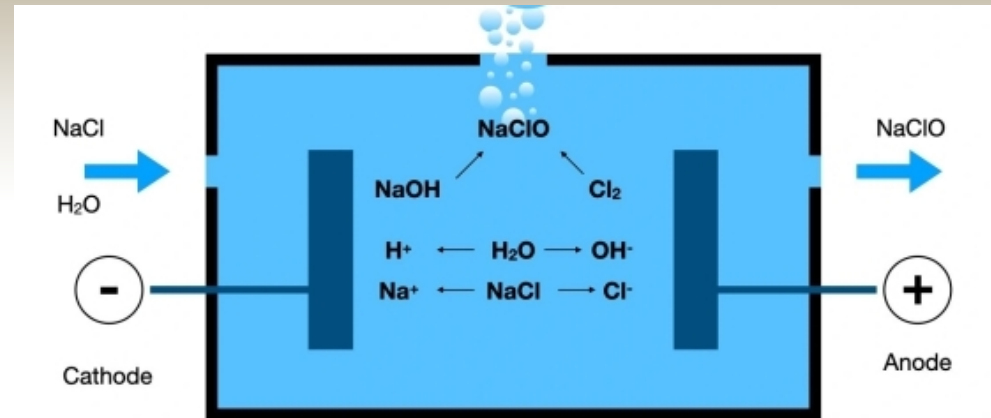
Alt. 2A: On-Site Na Hypochlorite Generation

Alt. 2B: UV Disinfection

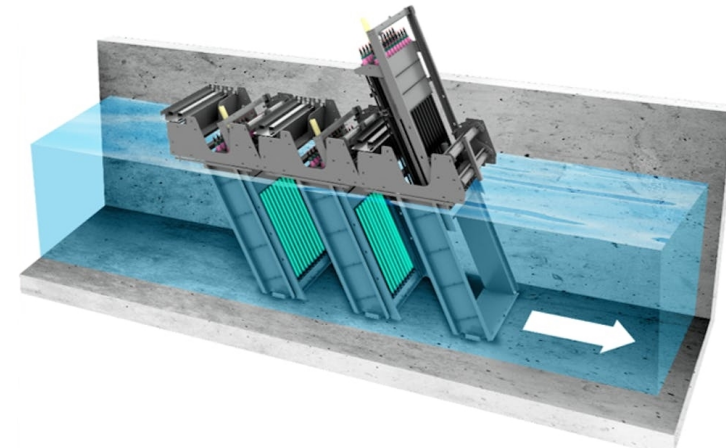


DISINFECTION ALTERNATIVES

- **Alternative 1B**
 - No Action (Existing Disinfection)
 - Bulk import of chlorine
- **Alternative 2A**
 - On-Site Sodium Hypo Generation
 - Continued chlorination
 - Bulk import of salt
- **Alternative 2B**
 - UV Disinfection
 - UV Transmittance $\sim 30\%$
 - Target UVT $65\%+$ for wastewater



Alternative 2A: Sodium Hypo Generation Process



Alternative 2B: UV Disinfection Example

DISINFECTION BENEFIT COST ANALYSIS

Table 5.2: Disinfection BCA

Criteria		Long Term Reliability	Ease of Operation	Future Adaptability	Permit Compliance	Constructability	Capital Expense	O&M Costs	TOTAL WEIGHTED SCORE	
Weighting		92%	84%	76%	92%	60%	76%	80%	/100	Rank
Alternatives		Score /10								
1B	Existing Disinfection	7	8	6	10	9	10	2.8	75	2
2A	On-Site Hypo	9	7	6	10	8	5.3	10	80	1
2B	UV Treatment	8	6	9	8	6	4.3	7.7	71	3

Alternative 2A: On-Site Sodium Hypochlorite Generation

- Existing chlorination system use
- Cheaper chemical import (salt)
- Low electricity consumption
- Long term reliability

MECHANICAL TREATMENT ALTERNATIVES

- **Alternative 3A**
 - Sequencing Batch Reactor
 - Single-tank on/off treatment: fill, react, decant
- **Alternative 3B**
 - Oxidation Ditch
 - Extended aeration
 - Secondary clarifiers
- **Alternative 3C**
 - Aerobic Granular Sludge
 - Cultivated granular sludge, less equipment
 - Faster settling and simultaneous nitrification-denitrification



Alternative 3A: Example Two-Basin System

LAGOON TREATMENT ALTERNATIVES

- **Alternative 4A**
 - Modified Ludzack Ettinger
 - Pond Reconfig. + new aeration and mixing
- **Alternative 4B**
 - Side stream N removal
 - Pond aeration retrofit + denitrification unit
- **Alternative 4C**
 - Extended Aeration
 - Biolac equipment + built-in clarifiers
- **Alternative 4D**
 - Partial Mix Aeration
 - Growth only, no denitrification
 - Expand existing aeration system



Alternative 4D: Preliminary Layout

BENEFIT COST ANALYSIS - TREATMENT

Criteria		Long Term Reliability	Ease of Operation	Future Adaptability	Permit Compliance	Constructability	Capital Expense	O&M Costs	TOTAL WEIGHTED SCORE	
Weighting		92%	84%	76%	92%	60%	76%	90%	/100	Rank
Alternatives		Score /10								
1A	No Action: Primary & Secondary Treatment	0	5	0	0	10	10.0	10.0	47.0	8
3A	Mechanical Treatment: Sequencing Batch Reactor	8	9	7	10	7	5.2	8.8	79.7	1
3B	Mechanical Treatment: Oxidation Ditch	8	8	7	10	6	5.8	9.6	79.3	2
3C	Mechanical Treatment: Aerobic Granular Sludge	8	7	7	10	7	4.4	9.7	77.3	4
4A	Lagoon Optimization: MLE	4	6	3	9	5	6.3	4.0	53.8	6
4B	Lagoon Optimization: NitroOx + D	6	7	4	9	5	1.0	4.1	53.0	7
4C	Lagoon Optimization: Biolac	8	9	5	9	9	7.9	6.9	78.3	3
4D	Lagoon Optimization: Aeration Partial Mix	7	9	3	9	8	7.3	6.8	71.9	5

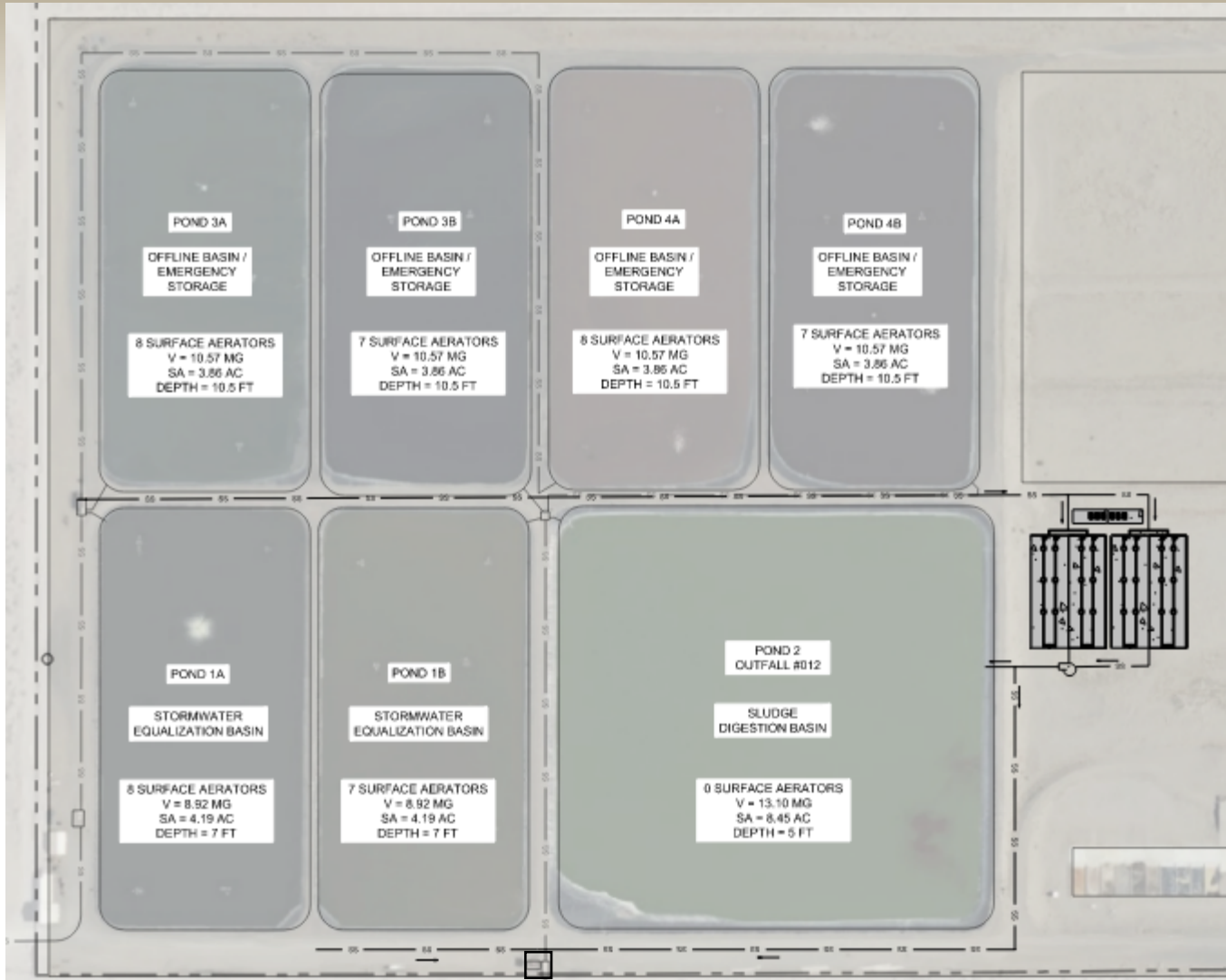
Alternative 3A: Sequencing Batch Reactor

- Simple operation
- Reliable
- Expandable
- Reasonably simple concrete construction
- Low O&M costs

Recommendations

City of Fernley EWWTP PER

RECOMMENDATIONS



Treatment: Alternative 3A Sequencing Batch Reactor

- Single reactor, fill, react, decant
- Two (2) basins existing, four (4) for growth
- Concrete basins + equipment + controls + piping + blowers + effluent pump station
- Pond 2 repurposed for sludge digestion
- Other ponds repurposed for EQ and storm flows

+

Disinfection: Alternative 2A On-Site Sodium Hypochlorite Generation

- Bulk import of salt
- (1) 400 gal bulk storage tank or 1 month equiv.
- (2) 3,000 gal chemical storage tanks or 2 weeks equiv.
- Includes replacement housing

RECOMMENDATIONS



Timeline

Funding Acquisition	Jan 2026	6 months
Planning, Design, and Bidding	July 2026	24 months
Construction and Startup	July 2028	24 months
Total Implementation	July 2028	4.5 years

Category	Preferred Alternative	Project Timeline	Project Cost (\$)
Disinfection (Phase 1)	2A - On-Site Sodium HypoChlorite Generation	2026-2030	2023 AACE Class 5: \$791,000 2025 Escalation: \$864,000
Treatment (Phase 1)	3A - Sequencing Batch Reactor (half buildout)		2023 AACE Class 5: \$26,550,000 2025 Escalation: \$29,011,000
Treatment (Phase 2)	3A - Sequencing Batch Reactor (full buildout)	TBD as Growth Occurs	

Questions?

Lumos & Associates

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EFFLUENT REUSE

Reuse Category	Primary Approved Uses	Access Restrictions / Notes
A+	Indirect potable reuse (injection wells, spreading basins); all A–E uses	Meets drinking water standards; requires advanced treatment (virus, protozoa removal)
A	Spray irrigation (public parks, cemeteries, golf courses), snowmaking, food crop irrigation, toilet flushing, decorative features	Unrestricted public access allowed; human contact expected
B	Spray & subsurface irrigation (restricted areas), industrial cooling, urban fire-fighting, hydroseeding, street sweeping	Restricted public access; minimal human contact
C	Irrigation (buffer zones), wetlands (restricted), nursery stock, concrete production, wildland fire-fighting	100-ft buffer; no public access or human contact
D	Agricultural irrigation, dust control, soil compaction, sewer flushing, non-contact impoundments	Prohibited public access; 400-ft buffer for spray irrigation
E	Agricultural spray irrigation	Strictest: prohibited access and 800-ft buffer



CITY OF FERNLEY

City Council AGENDA REPORT

Meeting Date: August 20, 2025

REPORT TO: Mayor and City Council

REPORT FROM: Ana Navarro

FINANCIAL IMPACT:

Yes: X

No:

CURRENTLY BUDGETED:

Yes:

No: X

FUND/ACCOUNT:

NA

ACTION REQUESTED: Motion

AGENDA ITEM:

Possible Action and Discussion to accept the Preliminary Engineering Report for Design, Planning, and Prioritization of Recommended Improvements for the Fernley Water Treatment Plant (WTP), with a presentation by CDM Smith.

AGENDA ITEM BRIEF:

The Fernley Water Treatment Plant (WTP) requires critical upgrades to ensure continued safety, reliability, and operational efficiency by integrating surface water from the Truckee Canal into the existing WTP infrastructure. The Utilities Department is requesting Council's approval to proceed with the planning and design of key improvements identified in the June 2025 Preliminary Engineering Report. While the Utilities Department is seeking Council approval for the full project cost, estimated at \$40 million, we are currently requesting approval of \$4 million to fund the design phase. The remaining \$36 million for construction and implementation will be presented to the Council for approval at a later date.

RECOMMENDED MOTION:

"I move to approve the Utilities Department to proceed with the planning and design of the recommended improvements for the Fernley Water Treatment Plant (WTP), as outlined in the June 2025 Preliminary Engineering Report, with a total estimated project cost of \$40 million. Furthermore, I move to approve the use of up to \$4 million by the Utilities Department to carry out the design phase of the project."

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which

legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

1. Approve the recommendation to proceed with project planning and design.
2. Do not approve and provide alternate direction to staff.

BACKGROUND:

The Fernley Water Treatment Plant, built in 2009, requires critical upgrades to ensure continued safety, reliability, and efficiency. According to the June 2025 Preliminary Engineering Report by CDM Smith, the facility has an urgent need for surface water integration with the WTP to renovate the entire groundwater pumping system, protect groundwater production, ensure redundancy, and comply with water system safety regulatory requirements. The total estimated cost of the recommended improvements is \$40 million.

RELEVANT LAWS, STATUTES, AND REGULATIONS:

NA

FINANCIAL IMPLICATIONS:

Funding for design and early implementation efforts is to be identified, totaling \$38.53 million.

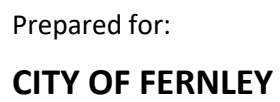
ATTACHMENTS:

1. Fernley WTP Facility Improvements Report - REV 2 2025-0609 (004)
2. 8.2 Final.SurfaceWTPImprovements



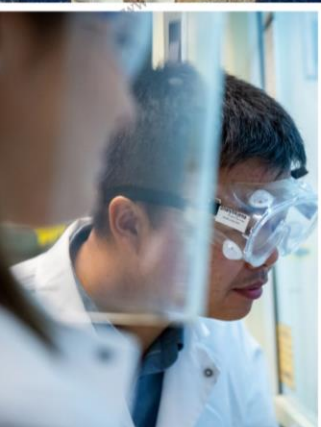
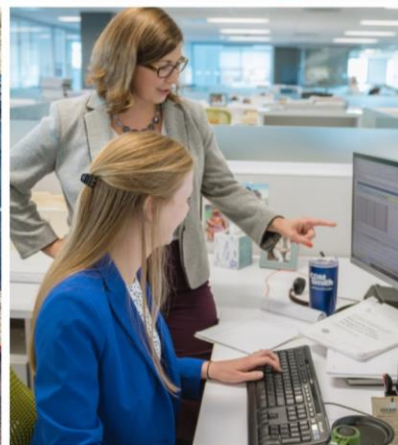
Fernley Water Treatment Facility Improvements Conceptual Design







REPORT
JUNE 2025



Fernley Water Treatment Facility Improvements Conceptual Design

Prepared for:
CITY OF FERNLEY

**CDM
Smith**

REPORT
JUNE 2025

Fernley Water Treatment Facility Improvements Conceptual Design



Prepared for:
City of Fernley





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Appendix C Fernley FWTF Process Flow Diagrams for Scenarios 1, 2, and 3

Appendix D 1000-GPM Pump Design Performance Curve

Appendix E Turbidimeter Vault Conceptual Plan

Appendix F Telecommunications Conduit Layout and Schedule



Acronyms and Abbreviations

ADD	Average Day Demand
BSDW	(Nevada) Bureau of Safe Drinking Water
CCPP	Calcium Carbonate Precipitation Potential
CO ₂	Carbon Dioxide
FC	Ferric Chloride
GAC	Granular Activated Carbon
GW	Groundwater
FWTF	Fernley Water Treatment Facility
HGL	Hydraulic Grade Line
HSPS	High Service Pump Station
LOX	Liquid Oxygen
LSI	Langelier Saturation Index
MCC	Motor Control Center
MDD	Maximum Day Demand
MF	Microfiltration (membranes)
MIB	Methyl- Isoborneol
MGD	Million Gallons per Day
mg/L	milligrams per liter
NDEP	Nevada Division of Environmental Protection
OCL	Sodium Hypochlorite
ppm	parts per million
OPCC	Opinion of Probable Construction Cost
PLC	Programmable Logic Controller
RIO	Remote Input Output
sf	square feet
SOG	slab on grade
SW	Surface Water
T&O	Taste and Odor

TCID	Truckee-Carson Irrigation District
TMWA	Truckee Meadows Water Authority
UV	Ultraviolet
WTF	Water Treatment Facility



Executive Summary

The City of Fernley, Nevada, plans to supplement the groundwater treated at the Fernley Water Treatment Facility (FWTF) with a new, surface water source pumped from the nearby Truckee-Carson Irrigation District (TCID) Canal, via the Surface Water Pump Station (SWPS). To accomplish this will require either new facilities and/or modifications to existing facilities. This report describes conceptual evaluations of five potential plant modifications to allow for treatment of the new surface water source:

- Carbon Dioxide System for pH Adjustment
- Solids Drying Ponds
- Granular activated carbon (GAC) for Taste and Odor (T&O) Control
- Modifications to raw water piping
- Modifications at the surface water pump station.

The FWTF currently treats approximately 5 to 7 mgd of groundwater and plans to initially introduce surface water blended at a 10:90 ratio (surface to groundwater) on a seasonal preliminary basis. After gaining additional surface water quality data and treatment experience, the FWTF would increase the blend up to 90:10 surface water to groundwater on a seasonal basis when surface water is available in the TCID canal.

Carbon Dioxide

The objective of Carbon Dioxide for pH adjustment is to mitigate diurnal pH fluctuations in the surface water and potential disruptions to the coagulation, flocculation and sedimentation processes of the FWTF. A secondary benefit of the Carbon Dioxide system is the adjustment of pH to optimize arsenic removal and potentially reduce the required Ferric Chloride usage and subsequent solids production. The diurnal pH fluctuations observed in the water quality data provided and relatively small reductions in coagulant usage and solids production are not significant enough to justify the costs and operational complexity of adding a Carbon Dioxide system.

A carbon dioxide system (storage tanks, feed pumps, piping, and controls) is not recommended for the Fernley WTF and no preliminary sizing or infrastructure improvements were completed. As a result, no opinion of probable construction costs (OPCC) was developed for a carbon dioxide feed system.

Solids Drying Ponds

The objective of the solids drying ponds is to dewater the additional solids that will be produced when treating surface water. Three different plant flowrate/chemical dosing scenarios and their associated pond sizes were evaluated. The selected scenario for design is maximum plant flowrate with average chemical doses. The number and size of drying ponds is determined based on the estimated solids production and filling, drying, and removal cycles for the Facility. The recommendation to the City is to construct three (3) solids drying ponds, associated inlet and outlet piping, a decant pump station and

perimeter road around the solids ponds. **Figure ES.1** presents the location and layout of the solids drying ponds.

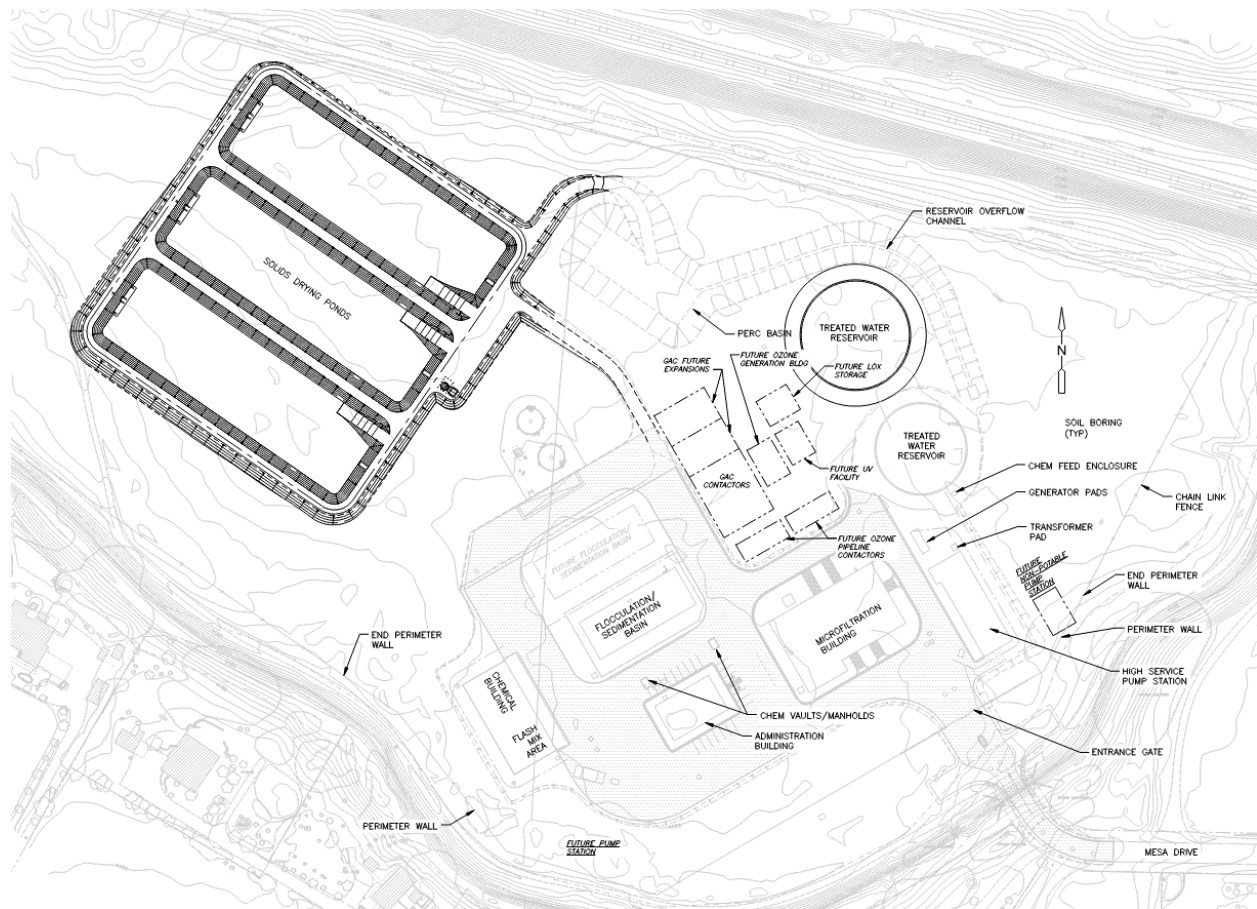


Figure ES.1 Site Plan with Solids Drying Ponds

The AACE Class 4 OPCC range for construction of the proposed Sludge Drying Ponds is \$12.8M to \$21.5M. A detailed breakdown of costs, markups, and contingencies can be found in **Section 7** of this Report.

Granular Activated Carbon Adsorbers

The objective of the granular activated carbon (GAC) adsorbers is to provide Taste and Odor (T&O) control when treating surface water at the FWTF. Vessel size and piping sizes were selected to minimize head loss and make use of the existing pressure available downstream of the membrane process. We recommend a phased implementation of GAC capacity based on current flow demands and future demands. The three phases proposed begin with an initial build of 4 contactor vessels capable of treating 5.6 MGD of flow which matches the average day demand (ADD) followed with two additional phases. This initial phase will be able to treat up to 80 percent of the blended surface/groundwater stream assuming a peak instantaneous flow of 7 MGD. The 4 vessels in the first phase will be fed based on excess pressure from the MF feed pumps. Each additional phase adds 4 more vessels and will introduce booster pumping. The timing and need for implementing the first phase would be based on

surface water quality monitoring conducted while the FWWTF operates with a small blend of surface water for at least one summer season to gain more insight in the prevalence of T&O compounds. The location and plan view of the GAC Facility is shown in **Figure ES.2** and **Figure ES.3**. The GAC facility would only be operated seasonally when surface water is the dominant water source and T&O compounds or T.O.N. values warrant treatment.

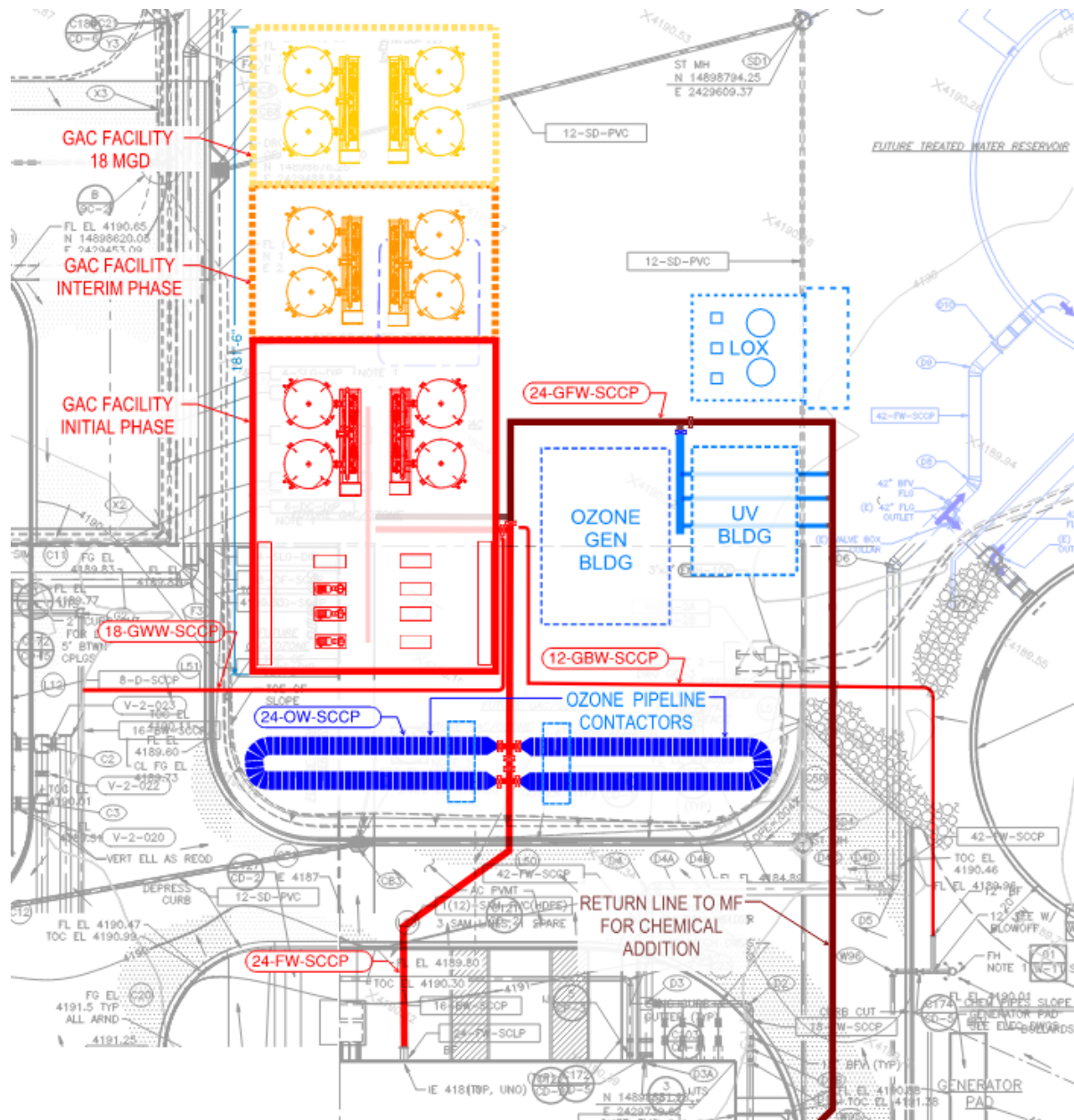


Figure ES.2 GAC Site Plan Layout

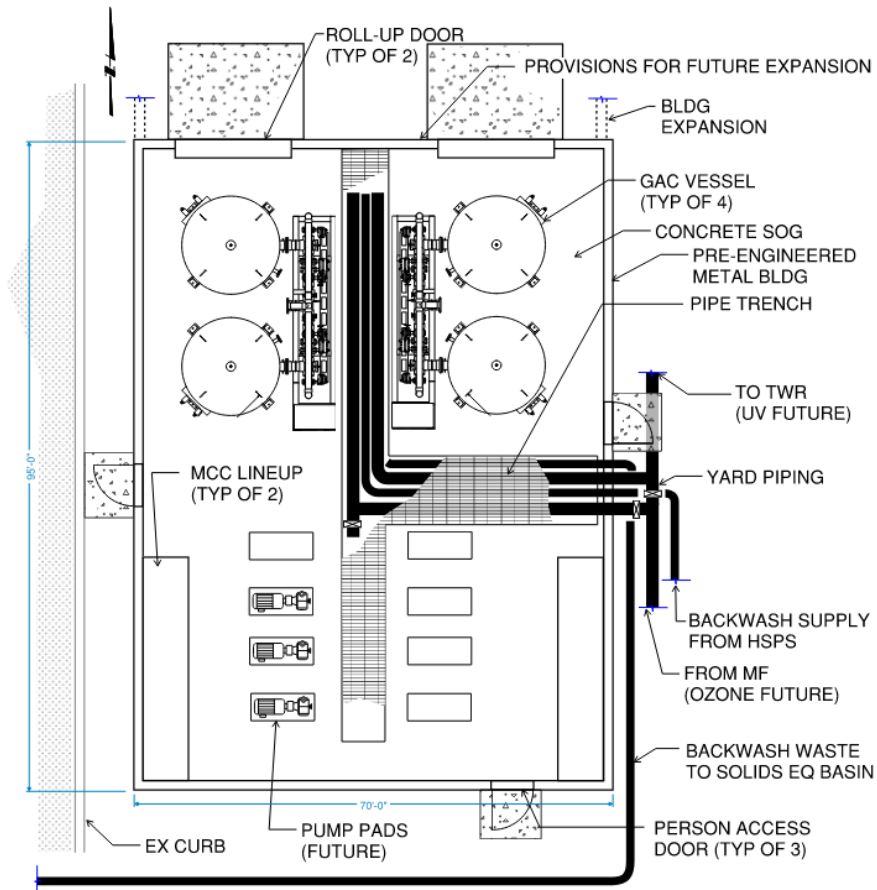


Figure ES.3 GAC Facility Building Plan

The AACE Class 4 OPCC range for construction of the proposed Granular Activated Carbon Facility is \$9.0M to \$15.2M. A detailed breakdown of costs, markups, and contingencies can be found in **Section 7** of this Report.

Modifications to Raw Water Piping

The objective of the modifications to the raw water piping is to allow for conveyance of surface water through the plant. The original design and construction of the FWTF allows for blending of surface water and groundwater at several locations in the treatment train. This piping layout allows for independent treatment of water sources, if desired, or blended treatment. We recommend that the surface water be tied into the 24-in groundwater (GW) influent line outside of the Chemical Building as depicted in **Figure ES.4**. Two 24-in lines enter the Flash Mix Room, the northern one is in use and is the primary influent for the GW to the plant. On the existing SW line, a new tee will be added to tie-in the ground water flows and a static mixer upstream of the tie in will provide blending of the two sources prior to chemical addition.

To provide the necessary infrastructure for treating the flows separately, the considerations for adding a second flash mix system were assessed and a list of modifications was developed. This included the tie-in points, piping additions, and addition of chemical metering pumps.

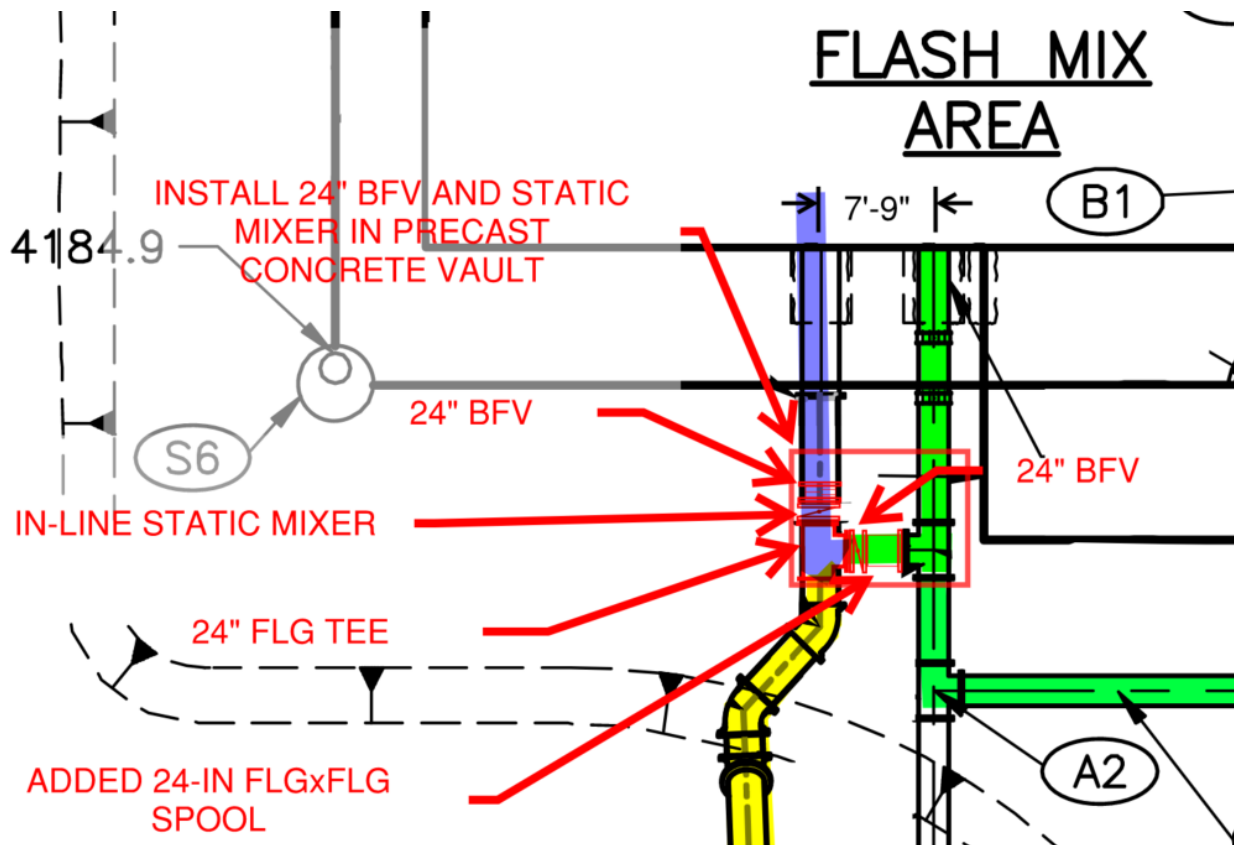


Figure ES.4 CDM Smith Record Drawings with added alignment, Sheet C-8, Modified Alignment Surface Water (Yellow), Groundwater (Green), Blended Water (Purple)

The AACE Class 4 OPCC range for construction of the proposed modifications to the Raw Water Piping is \$0.5M to \$0.8M. The AACE Class 4 OPCC range for construction of the proposed second flash mix system is \$0.6M to \$1.0M. The detailed breakdown of costs, markups, and contingencies can be found in **Section 7** of this Report.

Modifications to Surface Water Pump Station

The objectives of the modifications to the SWPS are to:

- Modify the flow turndown capability of the SWPS to the desired minimum surface water flow rate.
- Add a shutoff valve on the surface water intake line to shut down intake to the SWPS during high turbidity events.
- Provide telecommunication between the new SWPS and the existing plant.
- Determine what would be needed to expand the existing SCADA and network system to be ready for surface water treatment with solids drying basins.

The conceptual evaluations for the above improvements, along with recommendations and an opinion of probable construction costs for their implementation, are discussed in more detail in the following sections of this Report.

The AACE Class 4 OPCC range for construction of the proposed modifications to the Surface Water Pump Station is \$0.2M to \$0.3M. A detailed breakdown of costs, markups, and contingencies can be found in **Section 7** of this Report. This OPCC does not include any of the costs associated with upgrades to the SCADA and network system; further evaluation of the existing system and planned improvements would be required to develop these costs.



1.0 Project Overview

The City of Fernley (City) owns and operates the Fernley Water Treatment Facility (FWTF) a 20 million gallon per day (MGD) drinking water treatment facility located at 1315 Mesa Drive in Fernley, Nevada. The facility treats groundwater and its treatment train consists of chemical flash mix, coagulation, flocculation, sedimentation, membrane filtration, and disinfection. The plant currently uses sodium hypochlorite (disinfection), ferric chloride (coagulation and arsenic removal), and can feed sodium hydroxide (for final pH control) in the treatment process.

The City plans to supplement the groundwater treated at the plant with a new, surface water source pumped from the nearby TCID Canal. To accomplish this will require either new facilities and/or modifications to existing facilities. To better define the improvements needed and to be implemented, CDM Smith and the City undertook this conceptual engineering phase. The detailed design of the selected improvements will be completed at a later date.

1.1 Introduction

This report describes the conceptual evaluations of five potential plant modifications to allow for treatment of the new surface water source:

- Carbon Dioxide System for pH Adjustment
- Solids Drying Ponds
- GAC for Taste and Odor (T&O) Control
- Modifications to raw water piping
- Modifications at the surface water pump station.

1.2 Existing Plant Process Description

The existing WTF treatment train consists of chemical flash mix, coagulation, flocculation, sedimentation, membrane filtration, and disinfection. After the flash mix system, the coagulated water is split into three parallel flocculation and sedimentation basins with plate settlers. Settled water flows into a common settled water channel with subdivision gates and into one of two equalization basins. The equalized settled water is pumped by vertical turbine pumps to the microfiltration membrane system. Filtered water, after it is disinfected with sodium hypochlorite, flows to the Treated Water Reservoir (TWR) No. 1. Lastly, treated water is sent to the distribution system via a High Service Pump Station (HSPS). A second treated water reservoir has been designed by others and will soon enter the construction phase.

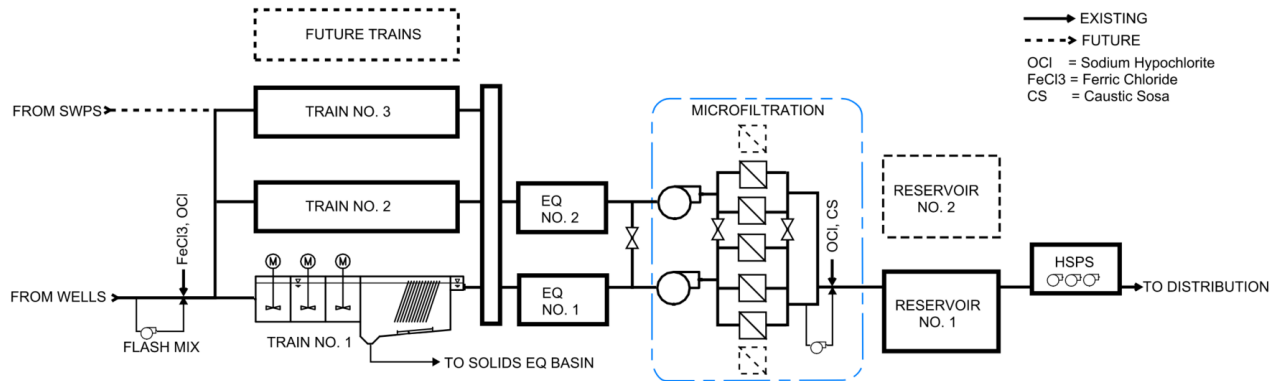


Figure 1.1 Plant Process Flow Diagram

The FWTF was designed to treat groundwater or surface water. Both source waters contain arsenic, but the levels in the groundwater are higher (40 to 60 ppb vs. 5 to 20 ppb in surface water). Up to now, the City has only treated ground water. At each wellhead ground water is dosed with sodium hypochlorite as a pre-oxidant to oxidize arsenic from As(III) to As(V) before being blended at the offsite Raw Water Tank. The treatment process is optimized to remove the oxidized arsenic down to 5 ppb or less using ferric chloride as a coagulant followed by microfiltration.

1.3 Typical Operating Flows

The City reported that the typical seasonal operating flows at the FWTF are:

- Winter (mid-October to mid-March), run 13 hours per day at 6 MGD.
- Summer (mid-March to mid-October), run 24 hours per day.
 - On Monday, Wednesday and Friday the maximum day demand (MDD) is 6.5 MGD (with an instantaneous maximum of 7 MGD)
 - Tuesday and Thursdays are non-irrigation days, and the demand reduces to 5.5 MGD

Higher flow rates are not possible due to lack of demand and limited treated water storage in the distribution system, which is currently 7 to 8 million gallons (MG). At these rates and part time operation, the storage tank levels drop about 10 ft overnight. A planned new 1.5 MG tank at the FWTF (design completed by others) and new 1.5 MG tank at the City's Ricci tank site are anticipated to reduce this limitation.

1.4 Groundwater Source

The City operates six nearby groundwater wells. Five of the groundwater wells discharge to a raw water tank. The tank allows for blending of the groundwater sources. The blended groundwater flows to FWTF. The one remaining well discharges directly to the blended raw groundwater pipeline in route to the FWTF. The groundwater is dosed with hypochlorite as a pre-oxidant prior to going to the FWTF.

1.5 Surface Water Source

This report provides a conceptual evaluation for specific process piping modifications and additional improvements needed to facilitate the City's transition to utilize the surface water source. The City recently completed construction of a new Surface Water Pump Station (SWPS) is preparing to treat this new water source.

1.5.1 Supply Availability

The TCID canal provides irrigation water in the area and typically operates from April through September each year but may extend its operation to begin sooner or stay open later in the year depending on the demands.

The City has water rights for 9,723 AF per year. Monthly usage is limited to 25 percent of this annual total and results in 2,431 AF/month or 26.4 MGD. Since plant production is well below this value, surface water flows are not limiting. The recently constructed SWPS that will lift water from the TCID to the treatment plant has a total pumping capacity of 9,100 gpm (13 MGD).

1.5.2 Potential Anticipated Treatment Changes

Treating the surface water will require changes to how the FWTF currently operates. The following water quality differences in the surface water versus the groundwater are noted as:

- Diurnal pH variation and increased alkalinity.
 - Potential need for pH adjustment.
- Increased total organic carbon (TOC) concentration and turbidity.
 - Need for higher coagulant doses will result in higher residuals (solids, sludge) production.
- Potential tastes and odors.
 - Potential need for granular activated carbon (GAC).
- Lower arsenic levels.

1.5.3 Prior Work

This conceptual design report follows two prior reports prepared related to treatment of surface water at the FWTF.

- Proposed Improvement to Treat Surface Water at the City of Fernley Drinking Water Treatment Plant (June 2020) by CDM Smith.
 - Identified various treatment plant improvements required for surface water treatment.
- City of Fernley Water Treatment Plant Surface Water Treatability Study (March 2022) by CDM Smith
 - Performed bench-scale testing of various surface water blends to assess arsenic removal and Disinfection byproducts (DBP) formation.
 - Identified plant improvements.

- Included a desktop corrosion control and blending study.
- City of Fernley Drinking Water Distribution Assessment Report (June 2024 – DRAFT) by CDM Smith.
 - Provides recommendations for treated water pH based on the surface water blend ratio.
 - Recommends unidirectional flushing of the distribution system.
 - Recommends a monitoring program for select metals.

1.6 Blending Approach

The FWTF was designed to allow for parallel treatment of ground water and surface water through its three flocculation and sedimentation trains and microfiltration skids. Modifications described in this report will allow for blending of the two water sources at the head of the FWTF. Initial flow rates are planned to be up to 10 percent surface water and the remaining 90 percent will be ground water. This initial approach will allow for better surface water quality monitoring and allow the City to gain operational experience with treating combined sources. After this experience has been gained, the FWTF would increase the surface water portion and optimize its treatment processes with an intent to treat up to a 90:10 surface to ground water blend during the summer season when the TCID Canal is operational. At least 10 percent groundwater will be used to maintain operation of the groundwater supply system and to keep the recommended pH of the treated water at or below Nevada Bureau of Safe Drinking Water's (BSDW) regulatory limit of 8.5, unless negotiated otherwise. To accommodate increasing water demands for the FWTF, separate flash mixing infrastructure is recommended to treat the two source waters separately before blending prior to distribution.

1.7 Report Structure

The report is structured as follows:

- Section 1 – Project Overview
- Section 2 – Carbon Dioxide for pH Adjustment
 - This section evaluates the necessity for providing a carbon dioxide system.
- Section 3 – Solids Drying Ponds
 - This section provides a basis of design for sizing the Solids Drying Ponds using expected surface water turbidity and TOC data.
 - This section also provides a feasibility level preliminary layout and process component list for a mechanical dewatering alternative.
- Section 4 – GAC Adsorbers for Taste & Odor
 - This section provides an approach for a phased design and implementation of a GAC system if T&O compounds occur in concentrations resulting in noticeable tastes and/or odor.
- Section 5 – Modifications to Raw Water Piping

- This section evaluates the changes to the existing raw water piping that would be needed to begin bringing in surface water to blend with groundwater.
- This section evaluates the new infrastructure needed to implement flash mixing of surface water without prior blending.
- Section 6 – Modifications at Surface Water Pump Station
 - This section discusses changes to the SWPS needed to accommodate low surface water flow rates that are being planned for as the City begins to treat surface water at low blend ratios with groundwater.
 - This section discusses changes on the SWPS intake needed to shut off flow to the SWPS during high turbidity events at the Truckee Canal.
 - This section discusses the modifications that would be required to expand the existing SCADA and network system to be ready for surface water treatment with solids drying basins.
- Section 7 – Opinions of Probable Construction Costs
 - This section provides opinions of probable construction costs for implementing each of the improvements described in previous report sections.
- Section 8 – Recommendations
 - This section provides recommendations for the City of Fernley.

2.0 Carbon Dioxide for pH Adjustment

2.1 Objective

The objective of Carbon Dioxide for pH adjustment is to mitigate diurnal pH fluctuations in the surface water to minimize potential disruptions to the coagulation, flocculation and sedimentation process of the FWTF.

2.2 Approach

The following documents were reviewed and used in the evaluation:

- City of Fernley WTF Surface Water Treatability Study (CDM Smith, 2022)
- City of Fernley Proposed Improvements to Treat Surface Water at the City of Fernley Drinking Water Treatment Plant (CDM Smith, 2020)
- City of Fernley Surface Water Treatment Upgrades – Truckee Canal Water Quality Characterization Study (Seventy Five Blue, 2022)
- City of Fernley Surface Water and Groundwater Treatment Facility – Engineer’s Report (CDM Smith, 2006)
- Various Water Quality Data provided by the City
 - Canal Water
 - Water Treatment Facility Sample Data
 - 2022 Water Treatment Facility Operations Data
 - 2023 Water Treatment Facility Operations Data

2.3 Review of Water Quality and Findings

The TCID Canal water quality was reviewed and is summarized in the table below:

Table 2.1 Surface Water Quality Data¹

	April	May	June	July	August	September	October
Maximum pH	8.33	8.28	8.88	8.54	8.67	8.50	8.80
Minimum pH	7.96	7.70	8.14	7.85	7.95	8.15	8.28
Max Diurnal pH Difference	0.37	0.58	0.74	0.69	0.72	0.35	0.52
Alkalinity (mg/L as CaCO ₃)	58	56	59.67	75.83	74.67	74.5	67.83
Temperature (°C)	10.94	16.34	18.82	24.71	22.62	16.21	14.27
Turbidity (NTU)	9.9	7.43	8.33	5.07	5.17	2.47	2.55
Arsenic (mg/L)	0.009	0.009	0.01	0.02	0.02	0.02	0.01

¹Data provided in Truckee Canal Water Quality Characterization Study by Seventy-Five Blue from monthly 24-hour sampling in 2022.

There is limited TCID Canal Water Quality Data available to review for diurnal pH fluctuations. The Truckee Canal Water Quality Characterization Study, Seventy Five Blue, 2022 was the only sample data available for review illustrating the diurnal fluctuations. The Characterization Study provided six monthly data collection points every hour for 24 hours for April – September of 2022. The limited data provided by the City was reviewed and showed a maximum 0.74 pH unit diurnal fluctuation for the six months of data provided by Seventy-Five Blue.

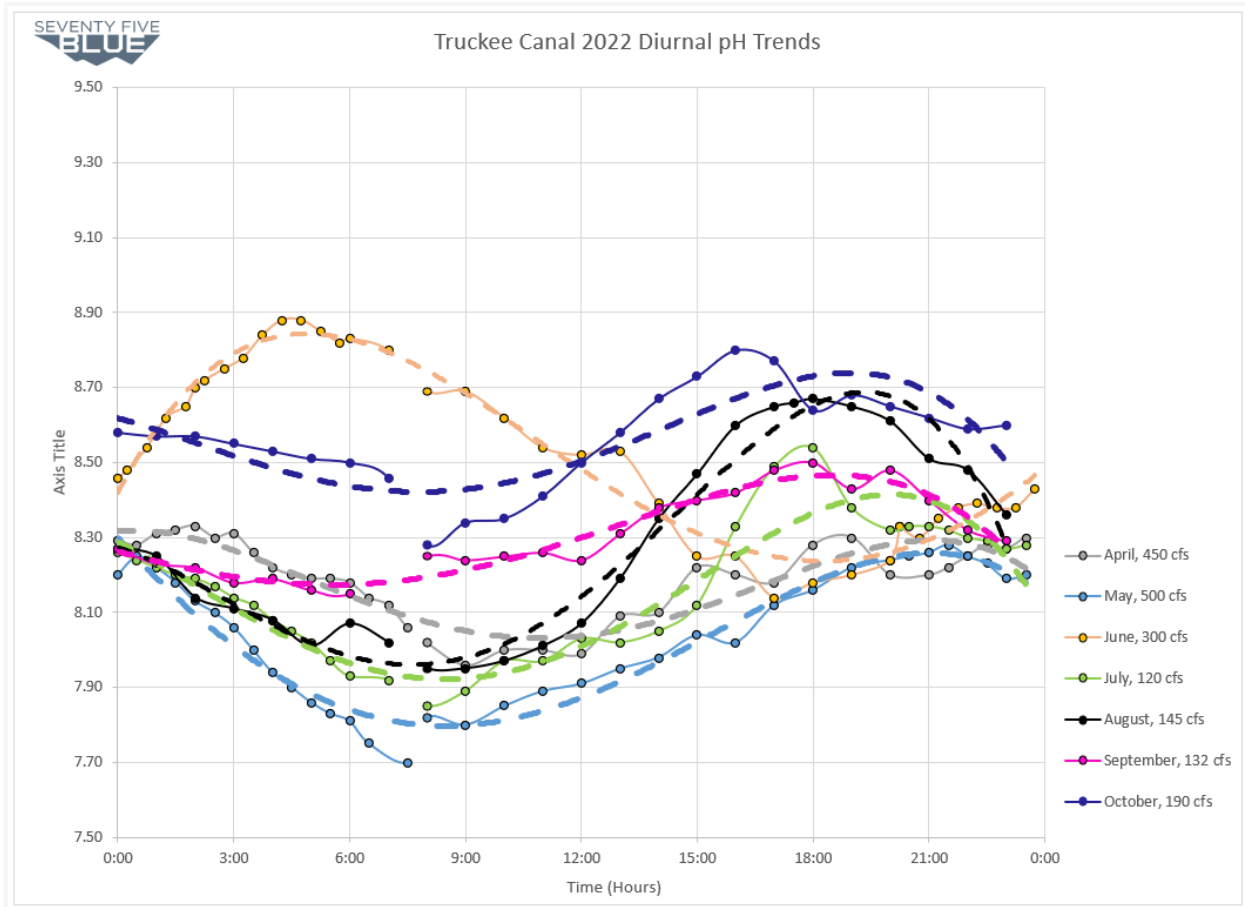


Figure 2.1 Truckee Canal 2022 Diurnal pH Trends

The pH range of the ground water the Fernley Water Treatment Facility is 7.0 to 8.5 based on 2022 and 2023 Plant Operations data provided by the City. For comparison, the pH range of the TCID canal is 7.7 to 8.9.

2.4 Conclusion

Historically, the treated water leaving the plant is targeted to have a pH of 7.8. The addition of TCID Canal water does have the potential to raise the pH. However, adding a Carbon Dioxide system for pH adjustment is not expected to make a large impact on the treatment efficiency of the existing plant. The diurnal pH fluctuations observed in the data provided are relatively small and are not anticipated to have a significant negative impact on the clarification processes (i.e., coagulation, flocculation,

sedimentation) of the TWTF. Consequently, the addition of a carbon dioxide system is not recommended.

3.0 Solids Drying Ponds

3.1 Objective

The objective of the solids drying ponds is to handle the additional solids that will be produced when treating surface water, as a result of higher turbidity, TOC, and coagulant use.

3.2 Approach

Currently at the FWTF, solids produced are from treating the groundwater and are collected in the two, 100,000-gallon solids storage tanks. The solids are then trucked off site for disposal by a third-party vendor at approximately 2% solids. Solids are produced at the facility by two main streams: the Sedimentation Basins sludge and the solids collected at the Solids Equalization Basin.

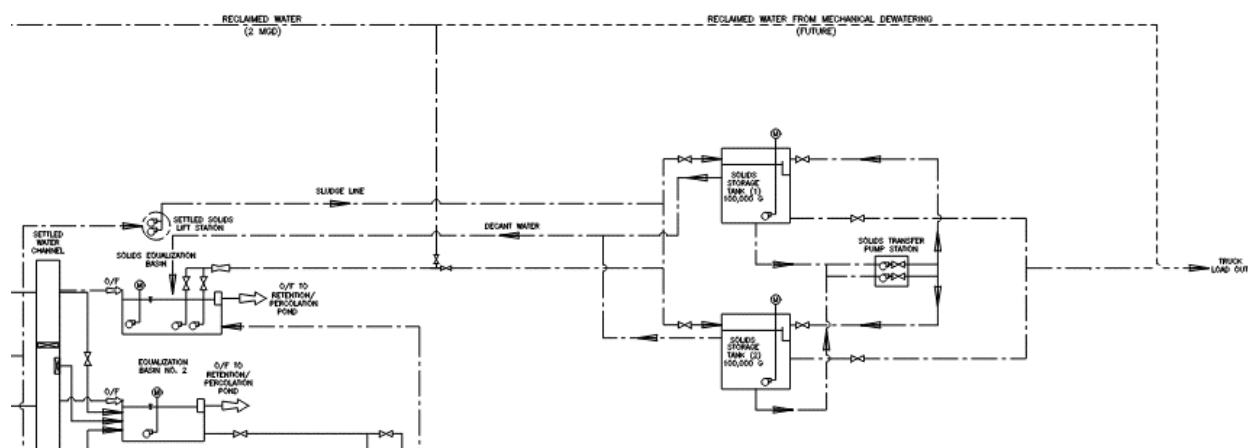


Figure 3.1 Existing Process Flow Diagram for Solids Handling

Sludge is collected by sludge collectors from each of the three sedimentation basins and flows by gravity to the Settled Solids Lift Station, where it is then pumped to the Solids Storage Tanks. The lift station consists of two pumps (duty/standby) with a capacity of 200 gpm each.

The liquid waste streams being sent to the Solids Equalization Basin are currently from the Microfiltration Backwash and Filter to Waste waters. Note that in the future if GAC is implemented, GAC backwash water will also be sent to the Solids Equalization Basin. At the Solids Equalization Basin, there are two submersible pumps that perform two functions, return reclaimed water/decant water to the head of plant upstream of flash mix, or send solids to the solids storage tanks. Each pump has a rated capacity of 1,400 gpm.

The introduction of surface water from the TCID to the treatment facility will require the ferric chloride dose to increase, estimated from 10-30 mg/L (existing dose) to 15-40mg/L (per the 2022 Surface Water Treatability Study completed by CDM Smith).

3.3 Conceptual Design

To size Solids Drying Ponds, the solids production rate must first be calculated to quantify the amount of solids being produced using the formula below.

$$S = 8.34 * Q * [1.0(FeCl_3) + 2.2(T) + TOC_{Removed}]$$

Equation from Water Treatment Principles and Design, James M. Montgomery, Consulting Engineers, Inc, 1985.

Where:

S = Solids Production Rate (dry lb/day)

Q = Raw Water Flow Rate (mgd)

1.0 = ratio of ferric hydroxide solids with 3 waters of hydration

FeCl₃ = ferric chloride dose (mg/L)

2.2 = ratio of suspended solids to turbidity (typical range is 0.7 to 2.2)

The max value of 2.2 was assumed to be conservative, as historical suspended solids data for correlation to turbidity values are not available.

T = Turbidity (NTU)

TOC_{Removed} = Total Organic Carbon Removed (mg/L)

Once the Solids Production Rate is estimated, the area required for the sludge drying ponds is calculated using the following formula.

$$A = \frac{S * F}{D}$$

Equation from Water Treatment Principles and Design, James M. Montgomery, Consulting Engineers, Inc, 1985.

Where:

A = Area of Pond (ft²)

S = Solids Production Rate (dry lb/day)

F = Fill Duration (days)

D = Drying Rate (lbs/ft²)

There were three scenarios evaluated for sizing the Solids Drying Ponds. Those being:

- Max Flow Rate and Max Ferric Chloride Dose, Max Turbidity
- Average Flow Rate and Average Ferric Chloride Dose, Average Turbidity
- Max Flow Rate and Average Ferric Chloride Dose, Average Turbidity
 - This means that during the peak flow months we used the highest average value of turbidity to size the Solids Drying Ponds conservatively.

The assumptions made while evaluating these three scenarios are as follows:

- Maximum FWTF Flowrate of 20 mgd

- 15 mgd surface water and 5 mgd ground water
- Average FWTF Flowrate of 12 mgd
 - 9 mgd surface water and 3 mgd ground water
- Maximum Ferric Chloride dose used for Surface Water (SW) and Groundwater (GW), 40 mg/L and 30 mg/L respectively.
- Average Ferric Chloride dose used for SW and GW, 20 mg/L and 15 mg/L respectively.
- Maximum Turbidity for SW and GW, 16. NTU and 1 NTU respectively.
- Average Turbidity for SW and GW, 6. NTU and 0.2 NTU respectively.
- “Maximum – Average” Scenario Turbidity for SW and GW, 8.3 NTU and 0.4 NTU respectively.
- 25% TOC removal from SW, 0% TOC removed from GW (conservative assumption)
 - Maximum Scenario: 1.11 mg/L TOC Removed
 - Average Scenario: 0.75 mg/L TOC Removed
- 80% of Solids produced from Sedimentation Basins, solids concentration 0.25%
- 20% of Solids produced from Microfiltration Backwash Water, solids concentration 0.025%
- Fill Duration = 90 days
- Dry Duration = 90 days
- Sludge Removal Duration = 30 days
- Drying Rate = 16 pounds dry solids/square foot (typical range of 8-16 pounds dry solids/square foot) ¹

Evaluating these three scenarios provided us with the following information on the required area per pond:

Table 3.1 Solids Drying Pond Sizing Scenarios

	Solids Production Rate		Area Required for Pond	Relative Dimension of Pond
	Dry lbs/day	Dry lbs/week	ft ²	ft x ft
Max – Max	10,946	76,625	61,580	125 x 550
Average – Average	2,973	20,812	16,730	75 x 250
Max – Average	5,572	39,003	31,350	100 x 350

¹ Water Treatment Principles and Design, James M. Montgomery, Consulting Engineers, Inc, 1985.

Based on how the FWTF currently operates and the treated water production rates seen annually with a maximum production rate of 10 mgd, it is a conservative approach to choose the Max – Average Scenario. This allows for flexibility in both plant flows and chemical doses until maximum flows reach approximately 15 mgd regularly during peak season. Then the City should consider adding a fourth solids drying pond.

As shown in **Table 3.2** Instantaneous Solids Flow Rates below, the existing pumps in both the Settled Solids Lift Station and the Solids Equalization Basin are sized adequately to pump solids to the Solids Drying Ponds as is, based on the instantaneous flow rates calculated assuming solids content of 0.25% from the sedimentation basins and 0.025% from the MF waste streams.

Table 3.2 Instantaneous Solids Flow Rates

Source	Assumed Solids Content	Maximum Calculated Instantaneous Flow Rate		Capacity of Existing Pumps (each)
		Gallons per day (gpd)	Gallons per minute (gpm)	Gallons per minute (gpm)
Solids from Sedimentation Basins	0.25	213,786	148	200
Solids from MF Waste Streams	0.025	534,464	371	1,400

Solids Drying Ponds Operation

Solids drying ponds operate in three phases – filling, drying, and solids removal. During the fill phase, a pond will receive solids from the treatment process. In the case of the FFWTF, this will come from sludge removal from the sedimentation basins as well as solids from the membrane backwash cycles. During filling, diluted solids are pumped to the designated drying pond. As the solids settle to the bottom of the pond, clear water is decanted off the top and returned to the treatment plant for treatment. Once enough solids have accumulated in the pond, it is taken off-line for drying. During the drying phase, the pond no longer receives sludge. Liquid in the pond gradually dries/evaporates over the course of approximately three months (typically shorter under hot/dry climate). This will reduce the liquid content of the remaining solids to a point where it can be removed and hauled away using a front-end loader and dump trucks. During the solids removal phase, solids are removed from the pond and the pond is prepared (pond bottom smoothed, decant box and pipes cleaned, if necessary, etc.) to receive solids once again.

Typical sludge drying pond systems have at least three separate ponds to allow for one pond to be operating in each phase (i.e., filling, drying, solids removal). The typical filling cycles are 90 days, as are the typical drying cycles. The solids removal cycle is assumed to be 30 days. Given the dry climate in Northern Nevada, and operational information obtained through conversations with operations staff at the Truckee Meadows Water Authority, it is recommended that three solids drying ponds be initially constructed at the FWTF. A fourth pond may be added as treatment plant flows increase beyond the original design capacity of 20 MGD.

Solids Drying Ponds Design

Solids pond layout on the FWTF site, piping to and from the ponds, and a typical decant box detail are shown in **Figure 3.1**, **Figure 3.2**, and **Figure 3.3** in the following pages. Pond dimensions are provided in **Section 3.4 – Costs**, below, as calculated using assumptions and equations above. Each solids drying pond will have an 18" thick soil cement floor slab and 12" thick, sloped (2:1), soil cement sidewalls and an access ramp. Inlet and outlet piping will be on opposite sides of the ponds. An NDOT Type 2 Class A perimeter road will be constructed around the ponds to provide ease of access. The inlet piping will have a concrete splash pad and distribution header to evenly distribute the sludge across the width of the basin. The outlet structure will consist of a decant box with a downward opening gate. From the decant box, the decant water will flow by gravity to the Decant Pump Station, consisting of 3 pumps, 2 duty/1 standby. Decant Water will then be pumped to the head of the facility, upstream of Flash Mix. The solids decant pumps will each be sized for 700 gpm, which meets the maximum reclaimed water flowrate of 2 mgd.

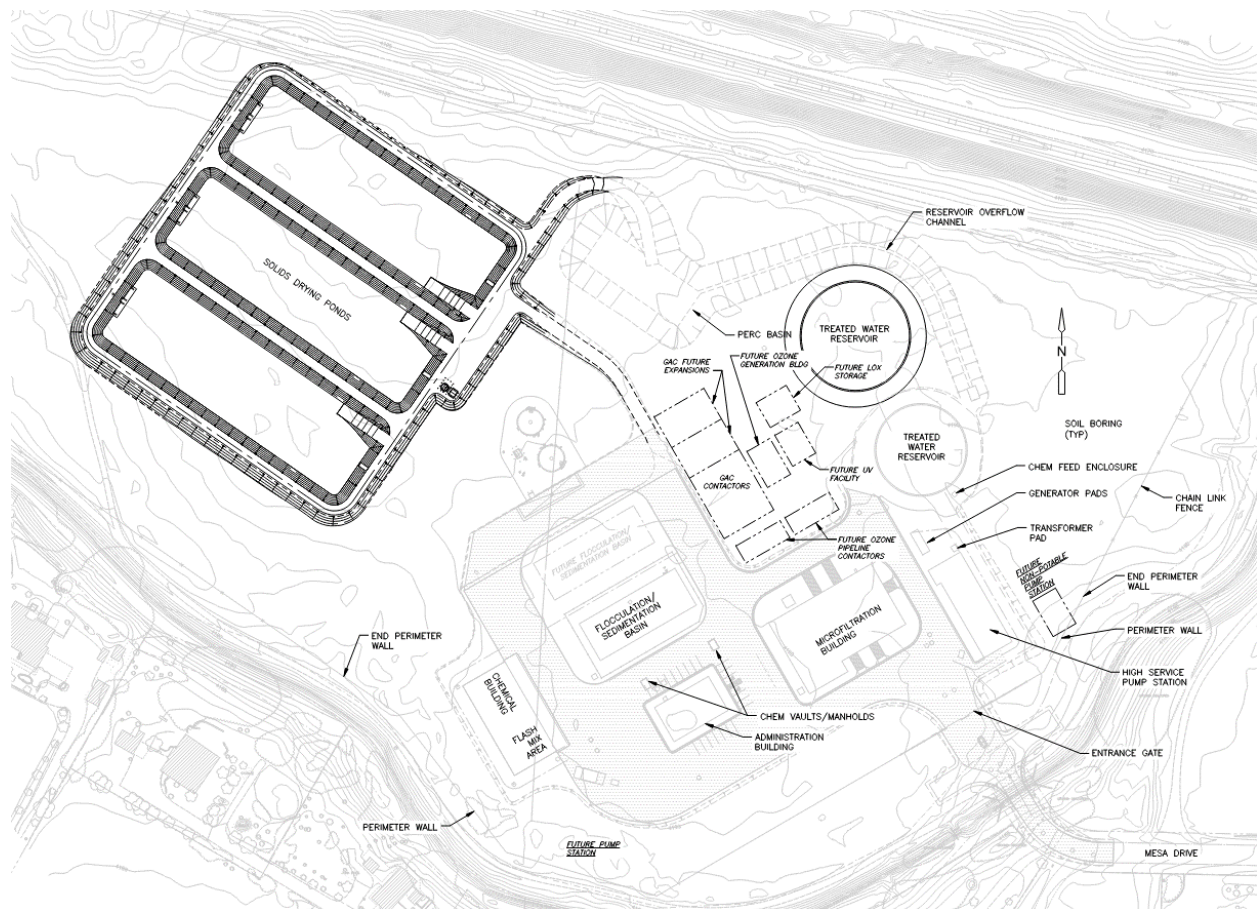


Figure 3.2 Site Plan with Solids Drying Ponds

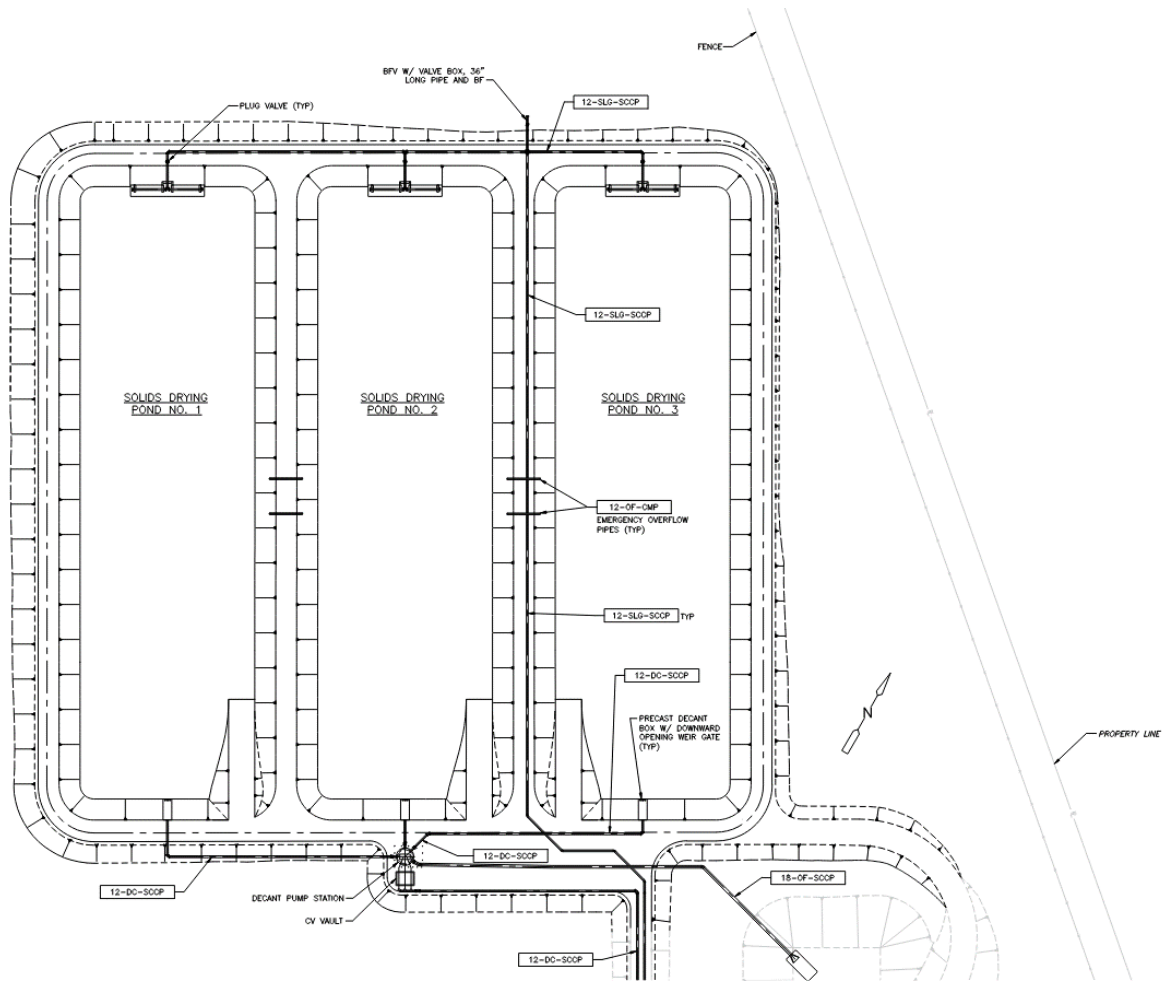


Figure 3.3 Solids Drying Ponds Enlarged Plan

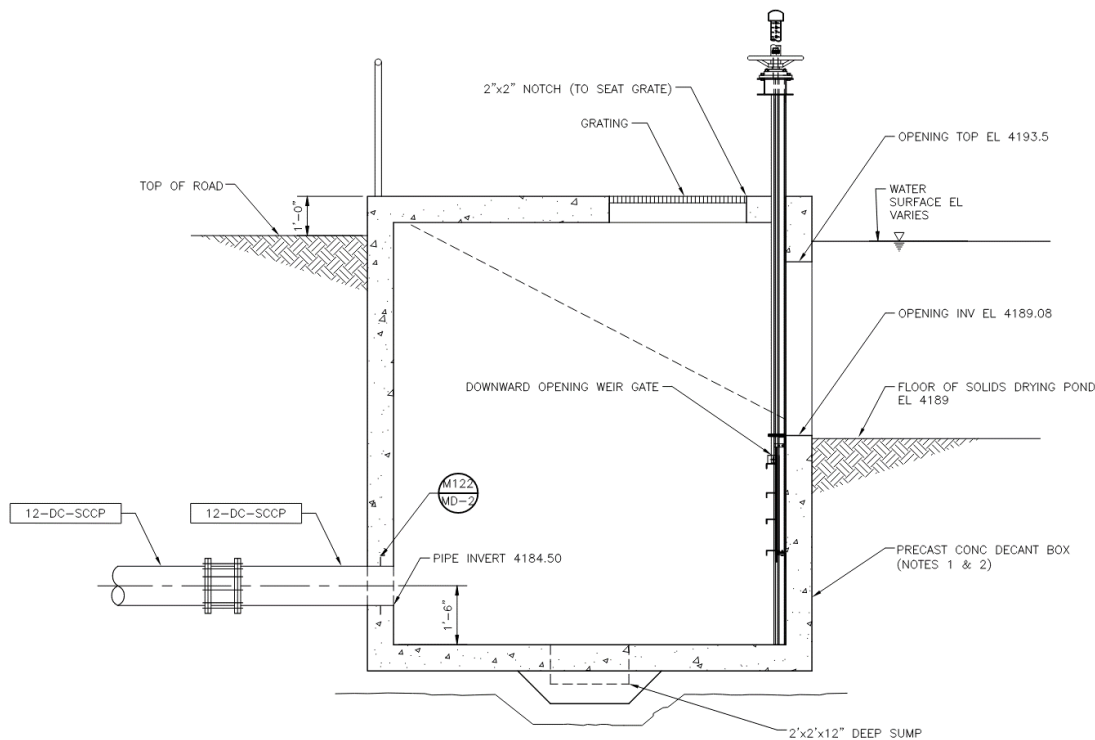


Figure 3.4 Section of Decant Box

3.4 Opinion of Probable Construction Cost

The Opinion of Probable Construction Cost to construct this improvement is \$12.8M to \$21.5M, and it includes:

- Construction of ponds (3) – 100 ft x 350 ft, earthwork, grading, concrete bottom, shotcrete walls with 2:1 side slopes, a concrete ramp, concrete splash pad at inlet, decant boxes at outlet, perimeter access road
- yard piping
- valves
- downward opening gates
- Decant Pump Station

Additional cost information for the OPCC can be found in **Section 7**.

3.5 Mechanical Dewatering Alternative

3.5.1 Description

A dewatering alternative to solids drying ponds is mechanical dewatering. This is a process to accelerate the separation of residual solids from the conventional sludge and backwash waste streams. There are multiple dewatering technologies which include centrifuges, belt presses, or plate and frame filter

presses as the final dewatering process. For this TM, a centrifuge-based system has been selected for cost comparison to solids drying ponds. A typical centrifuge-based system consists of the following:

- Gravity thickener(s)
- Thickener polymer system
- Decant return pump station
- Thickened sludge pumps
- Thickened sludge storage and equalization tank(s) with mixers
- Centrifuge feed pumps
- Centrifuges
- Classifying conveyors
- Loading conveyor
- Polymer storage and feed system
- Centrate return pump station

3.5.2 Implementation

A process flow schematic for the solids handling system is shown in **Figure 3.5**.

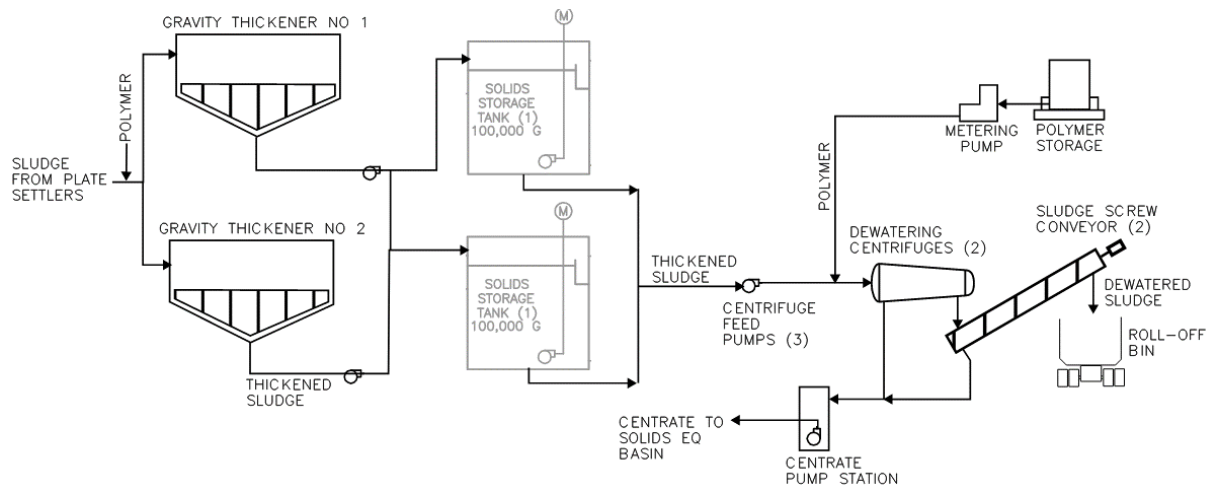


Figure 3.5 Solids Handling Process Flow Schematic

A new mechanical dewatering system can be located on the northwest part of the main process area. The two existing solids storage tanks receive sludge blow downs from the plate settler basins and backwash waste from the microfiltration process. These two tanks would be incorporated into the mechanical dewatering system, serving as feed tanks to the centrifuges. New gravity thickeners would intercept the sludge blow downs from the plate settlers as well as membrane backwash waste streams. Thickened sludge would be pumped to the existing solids storage tanks which would serve as homogenizing tanks. A consistent solids concentration is important for centrifuge performance. The

homogenized thickened sludge would be pumped to a centrifuge. Polymer is added at the inlet to the centrifuge. The centrifuge separates more water from the thickened sludge. This water, called centrate, is returned to the WTP. The solids that are dewatered by the centrifuge(s) are called “cake” which has a dry solids content of 15 to 25 percent. The cake is then transferred to a roll off bin or disposal truck via conveyors .

Figure 3.6 shows a preliminary layout of the dewatering facilities on the plant site.

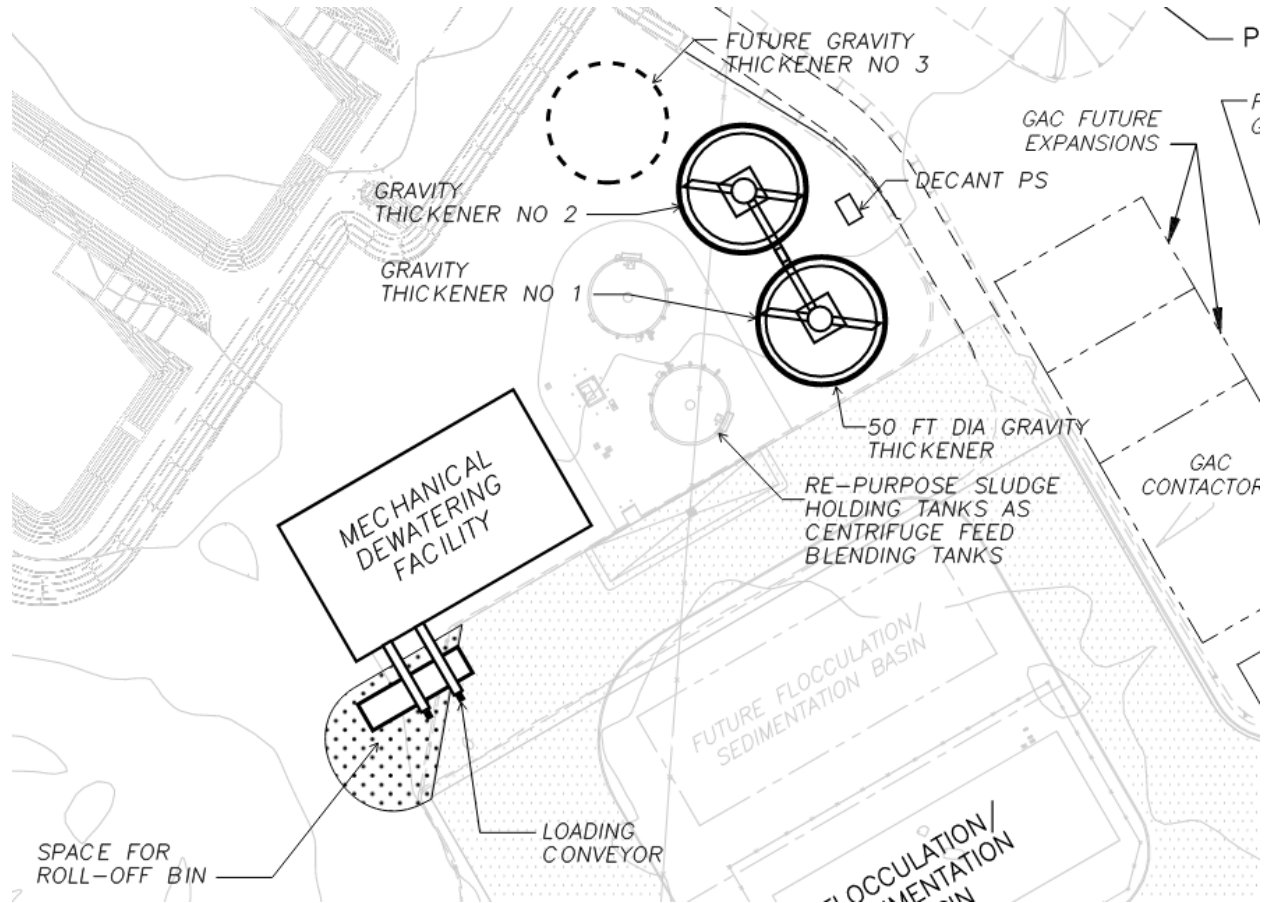


Figure 3.6 Mechanical Dewatering Site Plan

Figure 3.7 is a preliminary dewatering building layout for the purpose of showing the major components of the facility, relative sizes and arrangements.

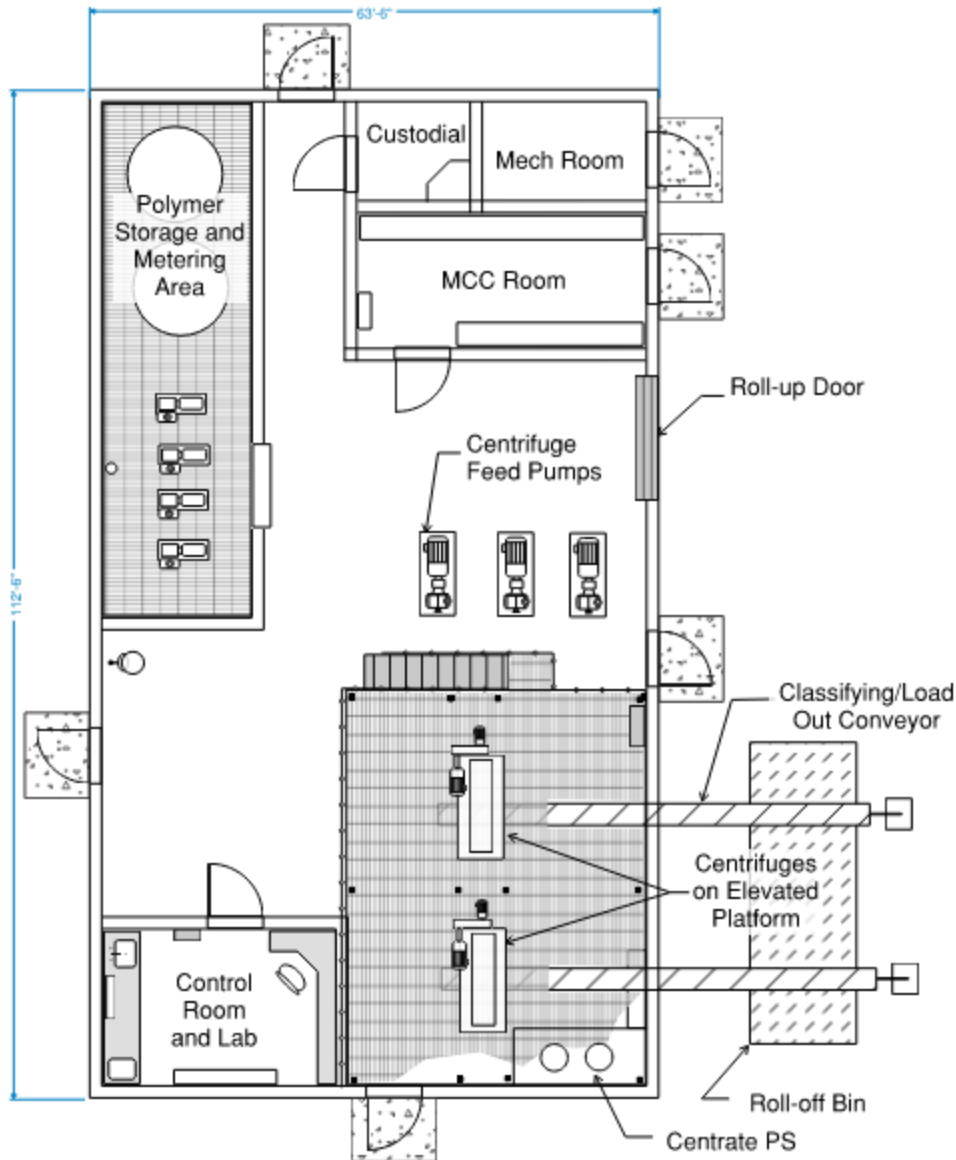


Figure 3.7 Mechanical Dewatering Building Plan

3.5.3 Operational Considerations

Solids drying ponds as described previously in **Section 3.3** are a passive dewatering process. Filling and decanting of the ponds can be automated with minimal operator effort. After a pond's solids have dried sufficiently for removal, they can be removed by front-end loader and trucks over a period of weeks depending on trucking availability.

Mechanical dewatering is an active process requiring operations and maintenance staffing as the facilities would be in operation between once a week at low plant flows to daily (5 days per week) at high flows and higher surface water turbidity conditions. The increased amount of equipment also requires additional maintenance costs. Energy costs would also be higher with more and larger motors

than what is needed for solids drying ponds. Mechanical dewatering is anticipated to have significantly higher O&M costs than solids drying ponds.

3.5.4 Opinion of Probable Construction Cost

The Opinion of Probable Construction Cost (Class 5) to construct this improvement is \$16M to \$27M, and it includes:

- Construction of two 50-ft diameter gravity thickeners
- Yard piping
- Dewatering Building with:
 - Two centrifuges on an elevated second floor platform
 - Two combination classifying and loading conveyors
 - Centrifuge feed pumps
 - Polymer storage tank and metering pumps
 - Electrical room
 - Control room and lab (for testing dry solids)
 - Centrate pump station

Based on this OPCC, it will be more cost effective to construct solids drying ponds than mechanical dewatering. If a Class 4 OPCC is desired, additional design progression is needed to verify equipment features and sizing, which would also include a determination of FWTF's operational needs and goals for mechanical dewatering.

4.0 GAC Adsorbers for Taste & Odor

4.1 Objective

The objective of the granular activated carbon (GAC) adsorbers is to provide Taste and Odor (T&O) control when treating surface water at the FWTF.

4.2 Approach

The following documents were reviewed to develop this evaluation:

- City of Fernley Surface Water and Groundwater Treatment Facility – Engineer’s Report (CDM Smith, 2006)
- Fernley WTF Record Drawings (CDM Smith, 2010)
- City of Fernley WTF Surface Water Treatability Study (CDM Smith, 2022)

The Engineer’s Report provided a basis of design for an initial and final buildout of the GAC facility and included key design parameters. The record drawings provided the planned locations for future ozone, GAC, and UV disinfection facilities.

These planning level design elements will be refined based on the City’s current and future operational goals and strategies for the integration of surface water as a new supply. The GAC system will also be space planned with considerations for future ozone before GAC and UV disinfection downstream of GAC. This space planning will consider sizing needs for all three future possible process facilities.

4.3 Review of Water Quality

There is limited taste and odor data for the TCID Canal and there is only one sample showing a measurable amount of T&O. There is no T&O compound specific data such as Geosmin or Methyl-Isoborneol (MIB) available.

Table 4.1 Surface Water T&O Data

Date	Taste and Odor Number (TON)
11/15/2005	0
9/25/2017	4
5/21/2018	< 1
8/18/2018	< 1
8/24/2018	< 1
5/20/2019	< 1
10/14/2019	0

4.4 Sizing Criteria

Based on limited surface water T&O data from the TCID canal and recognizing that algae events can be expected during the summer, the design criteria selection is conservative, erring on the size of caution.

The GAC system has been conservatively sized to allow for a 10-minute empty bed contact time (EBCT). This EBCT value provides adequate time for T&O compound removal to very low levels, with TON values of 1 or less. After experience treating surface water at low blend ratios and regular water quality monitoring, the design EBCT could be reduced for future plant process expansions.

Pressure vessels have been selected to preserve excess pressure from the membrane feed pumps, whereas gravity contactors would break head and require additional pumping to the Treated Water Reservoirs. **Figure 4.1** schematically depicts a pressure vessel GAC contactor installed for the FWTF. Filtered water from the MF system enters the top of the vessel and passes through the GAC media. It exits the bottom through an underdrain system and flows back to the MF system for chemical addition prior to the Treated Water Reservoir. Over time, head loss will develop in the media and the vessel will need to be backwashed using water from the HSPS.

To maximize the initial GAC facility's capacity, a vessel diameter of 14 ft was selected to minimize the number of vessels needed to treat the initial water flow rate. Vessel size and piping sizes were selected to minimize head loss and make use of the existing pressure available downstream of the membrane process.

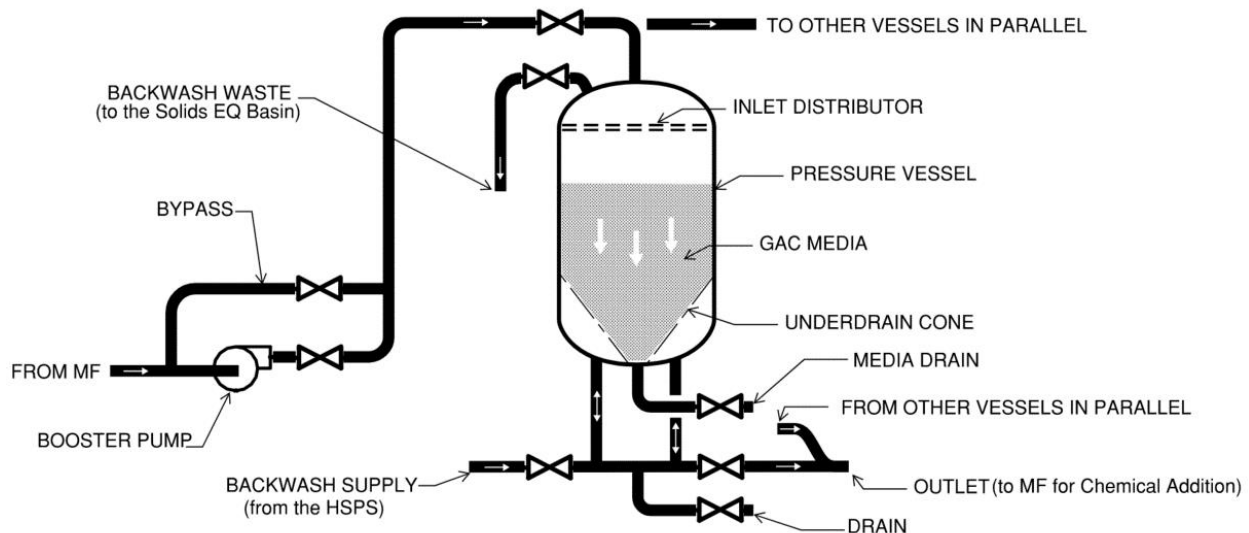


Figure 4.1 General GAC Pressure Vessel Process Flow Diagram

A basis of design is presented in **Table 4.2** which proposes a phased implementation of GAC capacity based on current flow demands and future demands. The three phases proposed are an initial build of 4 contactor vessels capable of treating 5.6 MGD of flow which matches the ADD followed with two additional phases each adding 4 more vessels plus booster pumping.

Table 4.2 GAC System Basis of Design

Description	Units	Initial	Interim	Ultimate
Plant Capacity	mgd	20	20	30
Typical Summertime Max Production	mgd	7	Undetermined	Undetermined
Flow to GAC Facility	mgd	5.6	10	18
Number of Contactor Vessels	each	4	8	12
Flow per Contactor Vessel	mgd	1.4	1.25	1.5
Contactor Vessel Diameter	ft	14	14	14
Media Area per Contactor Vessel	sf	154	154	154
Total Media Area	sf	616	1232	1847
Filtration Rate at Max Flow, All Contactors Online	gpm/sf	6.3	5.6	6.8
GAC Media				
Depth ¹	Inches (ft)	100 (8.4)	90 (7.5)	108 (9)
Contact Time	min	10	10	10
Effective Size	mm	0.9	0.9	0.9
Uniformity Coefficient	--	≤1.4	≤1.4	≤1.4
Specific Gravity (minimum)	--	0.54	0.54	0.54
Quantity (all vessels)	lbs	175,000	315,000	560,000
Pumps				
Type	-	-	TBD ²	Centrifugal with VFD
Number	ea	0	TBD ²	8
Capacity	mgd	-	TBD ²	3.0
Horsepower	HP	-	TBD ²	Up to 15

1. It is assumed that the GAC media of initial vessels will be replaced at the time of expansion so that each vessel has the same amount of GAC. If the media in initial vessels is not replaced, the EBCT for the new vessels will be per design but the initial vessels will see higher or lower EBCT values depending on the design versus media depth.
2. Pumping requirements for the interim phase would be refined during detail design of the initial phase.

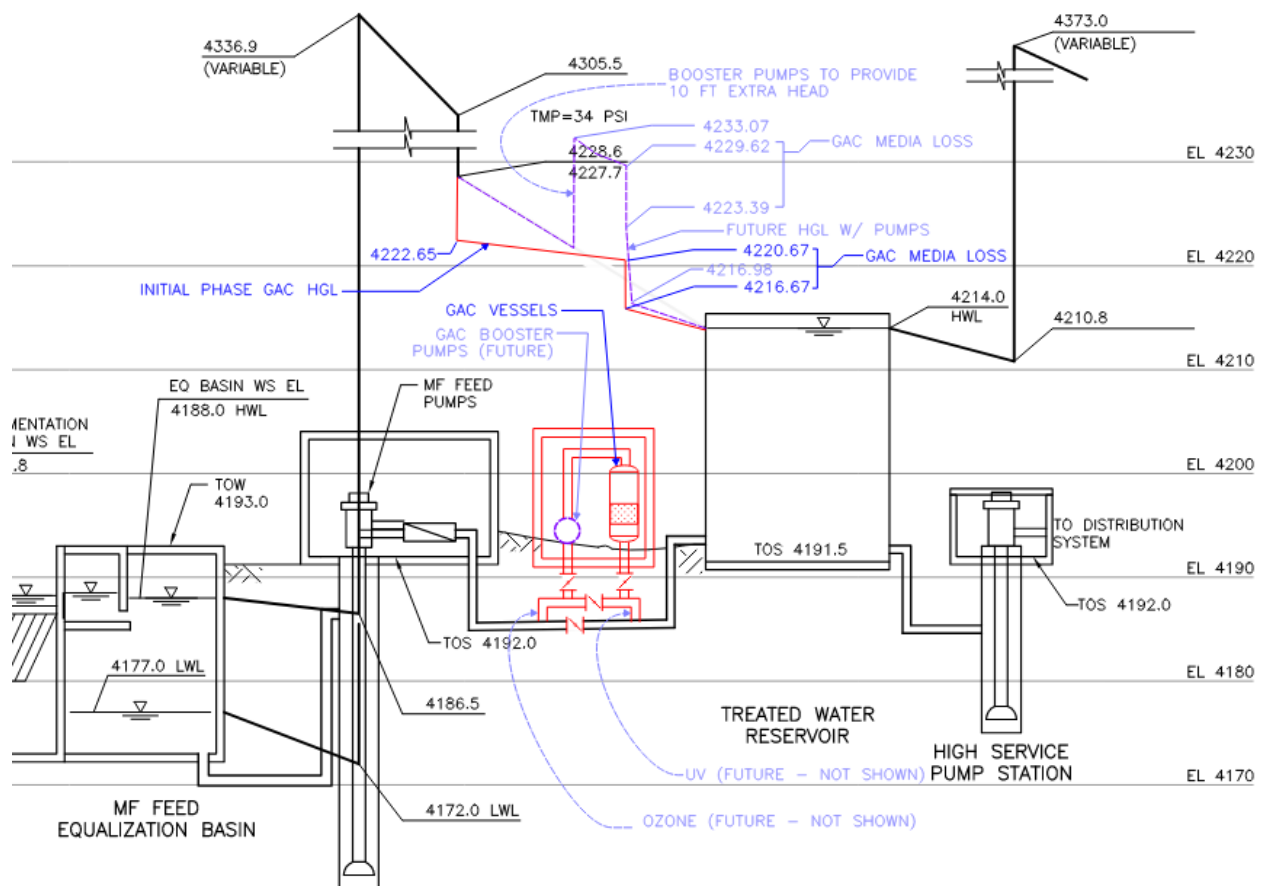
4.5 Conceptual Design

The GAC Facility would be comprised of a building at grade, housing the GAC system components. The building would be a pre-engineered metal building, designed to be expanded for future capacity increases in a phased approach. The components of the build-out GAC system would include:

- Centrifugal booster pumps with variable speed drives (if needed)
- GAC contactor pressure vessels with automated valves and controls (package system)
- Motor control center (MCC) for power distribution
- Subgrade trench for routing of large diameter piping with grating over the top

Filtered water from the microfiltration building is routed to the GAC Building via a 24-inch pipeline that is stubbed out into the yard on the north side of the building. This 24-inch pipeline would be extended into the pipe trench within the GAC Building. The booster pumps (if/when needed) will increase the pressure to allow the GAC pressure vessels to operate. The filtered water is pumped to the online GAC pressure vessels and through the GAC media bed from the top down to the bottom of the vessel. The water then exits each vessel and is collected into a second 24-inch pipe that is routed to the existing 30-inch treated water stub-out at the MF Building. Stub-outs on both 24-inch pipelines would be provided for future ozone and UV facility connections. Based on the FWTF's hydraulic profile per the 2010 record drawings, there is excess head available from the membrane feed pumps to provide driving head for the GAC system in the near term (see **Figure 4.2**). For initial sizing, flow to the GAC system has been assumed to be 5.6 MGD which would represent 80 percent of the current 7 MGD MDD.

If detailed design of the GAC contactors is pursued, more detailed hydraulic analyses would be performed, including the potential to increase the main conveyance line from 24-inch diameter to 30- or 36-inch diameter to reduce the pumping head requirements at facility build-out.



PLANT HYDRAULIC PROFILE WITH CLARIFICATION AND MICROFILTRATION

Figure 4.2 Hydraulic Profile with GAC

The preliminary hydraulic calculations indicate that there is enough available residual pressure from the MF feed pumps to send flow to the new GAC pressure vessels at the initial phase flow rate of 5.6 MGD. If T&O compounds are found to be present on a regular basis and additional GAC treatment capacity is required, additional pressure vessels can be added as well as booster pumps to provide the required pressure as the system is expanded.

4.6 Site Planning

To determine the space available for GAC, space allocations for future ozone and UV were considered. A planning level basis of design was developed for ozone and UV systems for the treatment of surface water. This planning level design provides the basis for footprint sizing and spacing for the two future systems, allowing for potential placement of the GAC facility in the near future. The ozone and UV basis of design tables and data can be found in **Appendix A1**. The results of the space-planning effort yielded the footprint areas for the facilities presented in **Table 4.3**. The building/structure area is defined as the approximate footprint the facility will occupy. The planning area is defined as the area that should be allocated for the facility with buffer space as needed for person/vehicular access and utility routing.

Table 4.3 Future Facility Footprint Planning

Facility	Building/Structure Area	Planning Area	Notes
Ozone LOX Storage and Feed Facility	45' x 35'	75' x 45'	15' buffer around 3 sides for non-combustible zone
Ozone Generation Building	50' x 37'	60' x 45'	
Ozone Pipeline Contactor	150' x 22'	160' x 30'	Overlap with LOX non-combustible zone allowed
GAC Building	95' x 70'	200' x 80'	Future 85 ft GAC building extension in planning area
UV Building	36' x 30'	40' x 35'	
Minimum building separation	10 ft		

Based on the sizing criteria above, a preliminary process treatment layout is presented in **Figure 4.3** (larger print is in **Appendix A2**). The location of the GAC Facility is shown with space allocation planning for two future ozone pipeline contactors upstream of GAC and one UV Facility downstream of GAC. The yard piping to the GAC Facility is depicted as using the existing dedicated MF tie-in for surface water flow to GAC. The yard piping leaving the GAC Facility is depicted as being routed back to the MF building for chemical addition prior to flowing into the common TW line and onto the existing and planned treated water reservoirs.

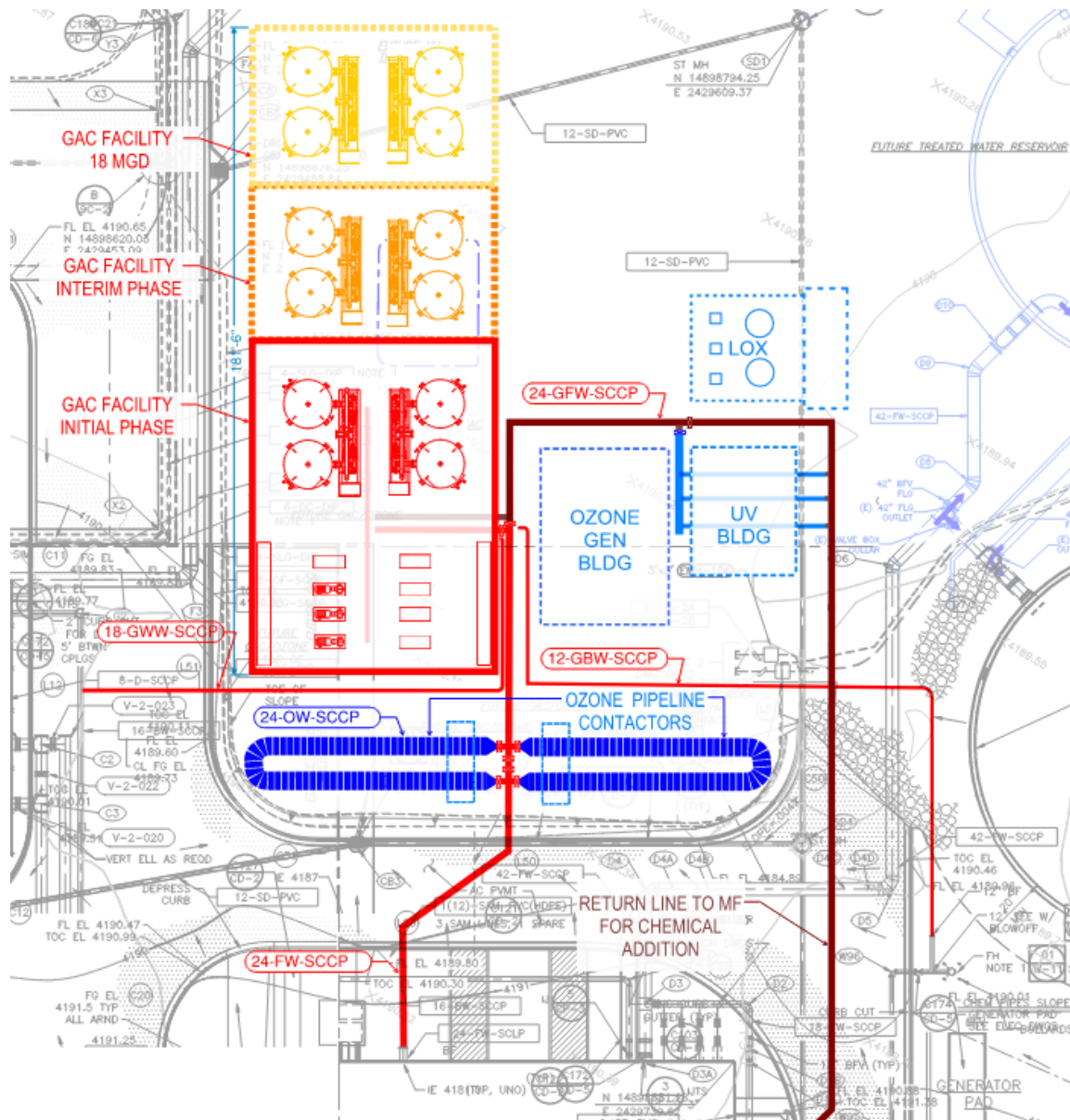


Figure 4.3 GAC Site Plan Layout

4.6.1 Facility Layout

A preliminary GAC Facility building plan is presented in **Figure 4.4**. This building plan displays space on the south half for the system electrical equipment (MCCs, switchboards) and future booster pump area. The northern half is dedicated to the first four GAC pressure vessels. A subgrade pipe trench with grating cover is provided to route the larger diameter piping in and out of the building and to and from the vessels. The northern side of the pre-engineered metal building would be designed to be removed for future building expansion to the north to house additional GAC pressure vessels. Roll-up doors would also be provided on the north side of the building.

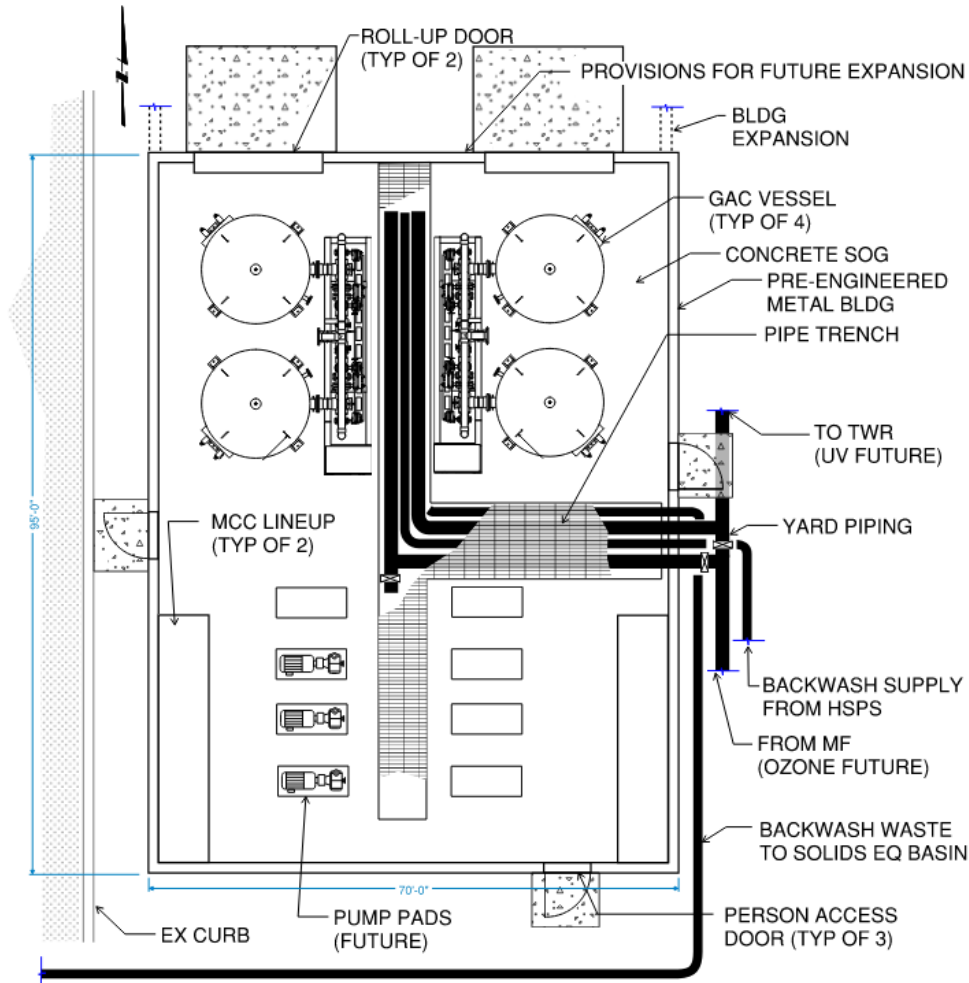


Figure 4.4 GAC Facility Building Plan

A rendering of a typical GAC pressure vessel pair is presented in **Figure 4.5**. This rendering shows the pair with interconnecting piping to allow for parallel or series operation. Since T&O is not a regulated contaminant the benefit of series operation (complete exhaustion of lead bed without contaminant break through from the lag bed) does not justify the added complexity. The GAC vessels would be designed for parallel operation which reduces the amount of piping, valving, and controls. **Figure 4.6** is a photo a variation of a GAC vessel pair.



Source: Courtesy of AqueoUS Vets

Figure 4.5 Rendering of parallel/series pressure vessel pair



Source: Courtesy of Napier Reid

Figure 4.6 Photo of parallel/series pressure vessel pair

4.7 Opinion of Probable Construction Cost

The OPCC for an initial GAC Facility to treat up to 5.6 MGD of membrane filtered water is \$9M to \$15M and it includes:

- Yard piping
 - 24-in piping to GAC
 - 24-in piping from GAC to MF (chemical addition point)
 - 12-in backwash supply piping from plant water tie-in from HSPS
 - 18-in backwash waste piping to solids EQ basin
- Major valves
- (4) GAC pressure vessels
- GAC media
- GAC building
- MCCs and electrical and I&C equipment

Additional cost information for the OPCC can be found in **Section 7**.

5.0 Modifications to Raw Water Piping

5.1 Objective

The objective of the modifications to the raw water piping is to allow for conveyance of surface water through the plant. The original design and construction of the FWTF allows for blending of surface water and groundwater at several locations in the treatment train as shown in **Figure 5-1**.

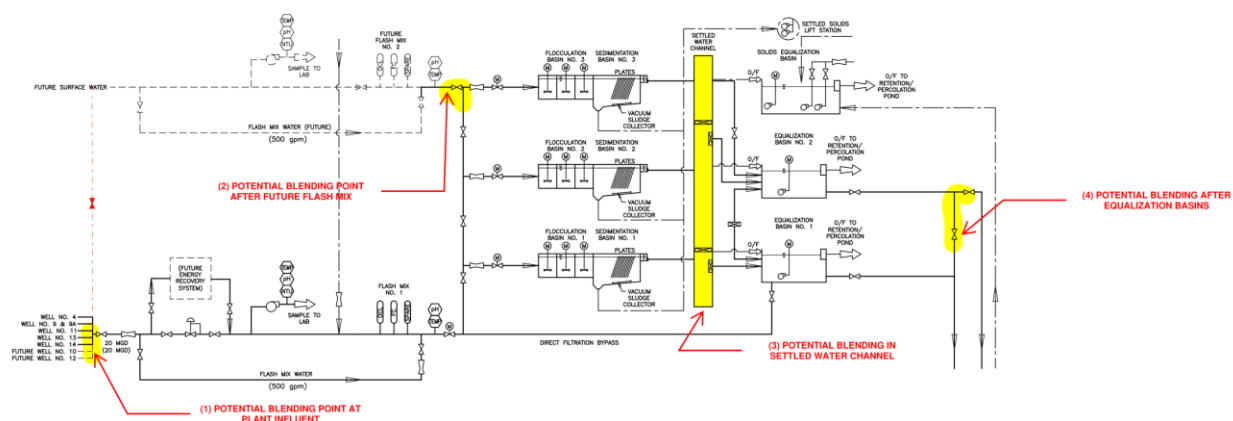


Figure 5.1 CDM Smith Record Drawings, Sheet G-10, Process Flow Diagram with Surface Water Blending Points

This capability allows for independent treatment of water sources, if desired, or blended treatment. In initial discussions, FWTF operations staff indicated that the preferred treatment method would be to blend raw water sources as early in the treatment process as possible to facilitate uniform operations across all treatment trains. In later discussions with the FWTF operations staff, the operating preference was modified to blend the flows downstream of the flash mix system. The City plans to always treat some groundwater to keep water moving through its groundwater pumping and pre-chlorination system and not allow it to stagnate or go dry, so there will always be a need for blending when the surface water is introduced. This report is focused on tie-in locations at various points of treatment.

5.2 Approach

Based on the original scope, piping modifications are needed to allow for two flow scenarios:

- Scenario 1: Completely independent surface water flow through the plant. Treated surface water and treated groundwater are blended in the treated water reservoir. The piping modifications for Scenario 1 are included in this approach; however, a separate flash mix system would need to be added if this will be the primary flow scenario
- Scenario 2: Surface water flow and groundwater flow are combined upstream of the flash mix and treated as a blended flow through the plant as shown in Blending Point (1) in **Figure 5.1**. Valving is in place to isolate flows. A new flash mix system is included to facilitate tie-in phasing.

Through initial discussions with the City, it was understood that Scenario 2 was the intended operation for the City and as a result, the focus the initial evaluation was on blending the flows; however, through

additional discussions with the FWTF staff it was understood that piping modifications to allow for Scenario 1 were preferred to allow independent flows that could be blended at various points with an emphasis on blending after flash mixing. To achieve this, slight modifications were made to Scenario 1 from the original scope.

The components needed for these scenarios include piping, valve(s), an in-line static mixer, and a second flash mix system. The space for installation for these will need to be considered for the conceptual design.

Scenarios 1 and 2 are based on feedback that the City intends to add a second flash mix system within the Flash Mix Room. Should the City elect to defer construction of the second flash mix system, an optional Scenario 3 is provided that would allow for blended flows through the existing flash mix system.

- Scenario 3: Surface water flow and groundwater flow are combined upstream of the flash mix system and treated as a blended flow through the plant as shown in Blending Point (1) in **Figure 5.1**. Valving is in place to isolate flows. A new flash mix is not required.

5.3 Review of Existing Piping

CDM Smith reviewed the record drawings for the existing plant and the new Truckee Canal SWPS and determined that in the initial build of the plant, provisions for a future water source were accounted for. These provisions include two blind flanges in the Flash Mix Room and one buried blind flange for future water source connection. One of the blind flanges in the Flash Mix Room connects to a 24-inch line that can be isolated to the Flocculation and Sedimentation Basins Number 3. The two blind flanges within the Flash Mix Room are shown in yellow in **Figure 5.2**.

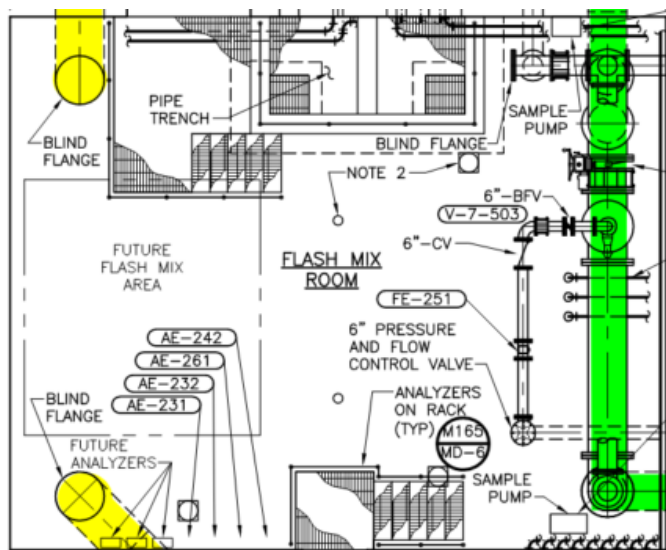


Figure 5.2 CDM Smith Record Drawings, Sheet 7M-1, Flash Mix Room with SW (Yellow) and GW (Green)

Within the scope of the SWPS, the buried 24-inch blind flange was connected to the effluent from the SWPS providing surface water flow into the Flash Mix Room shown in **Figure 5.3**.

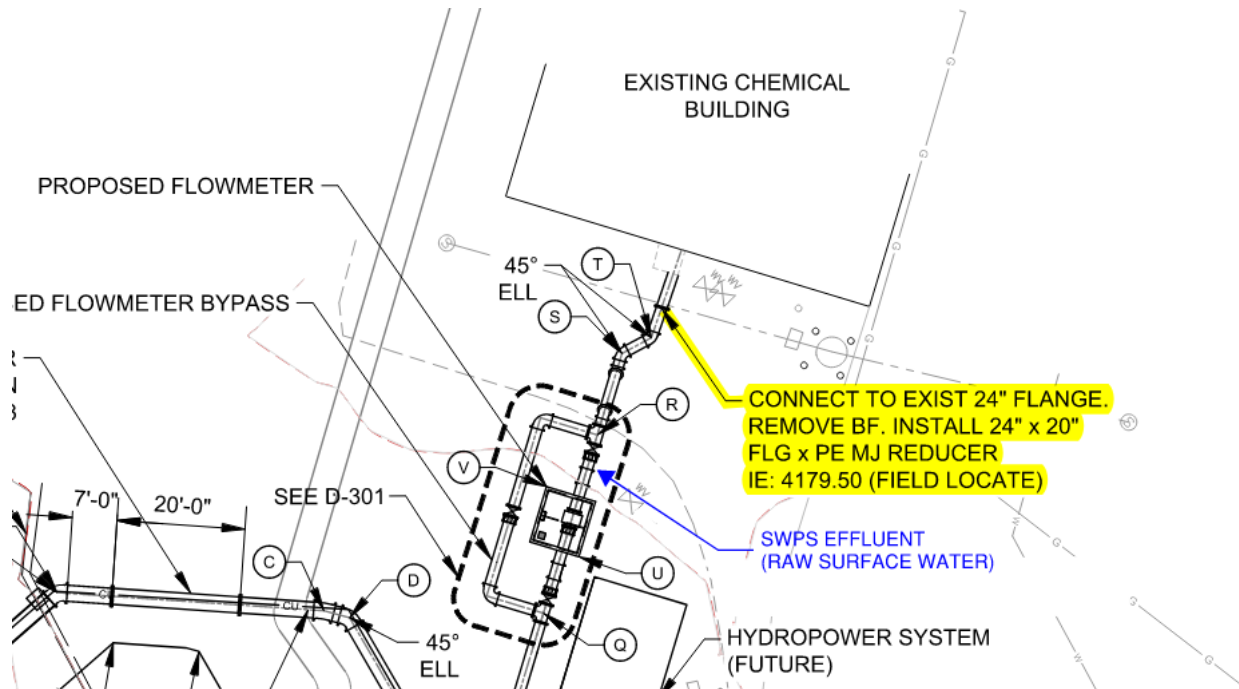


Figure 5.3 AECOM Construction Drawings, Sheet C-402, Tie-In to Existing Chemical Building

As a result, CDM Smith's focused on determining piping connections that would allow for a combination of flow scenarios further detailed.

5.4 Conceptual Design

5.4.1 Scenario 1 – Separate Flows with New Flash Mix and Ancillary Equipment

As described in **Section 5.3**, in the north and west corners of the flash mix room there are two existing blind flanges in place for allowing an alternative water source into flocculation and sedimentation. To achieve the preferred operating condition of chemical dosing and flash mixing the surface water and groundwater flows separately, these blind flanges will be removed and connected with similar flash mix infrastructure along the northwest wall of the flash mix room as shown in **Figure 5.4**.

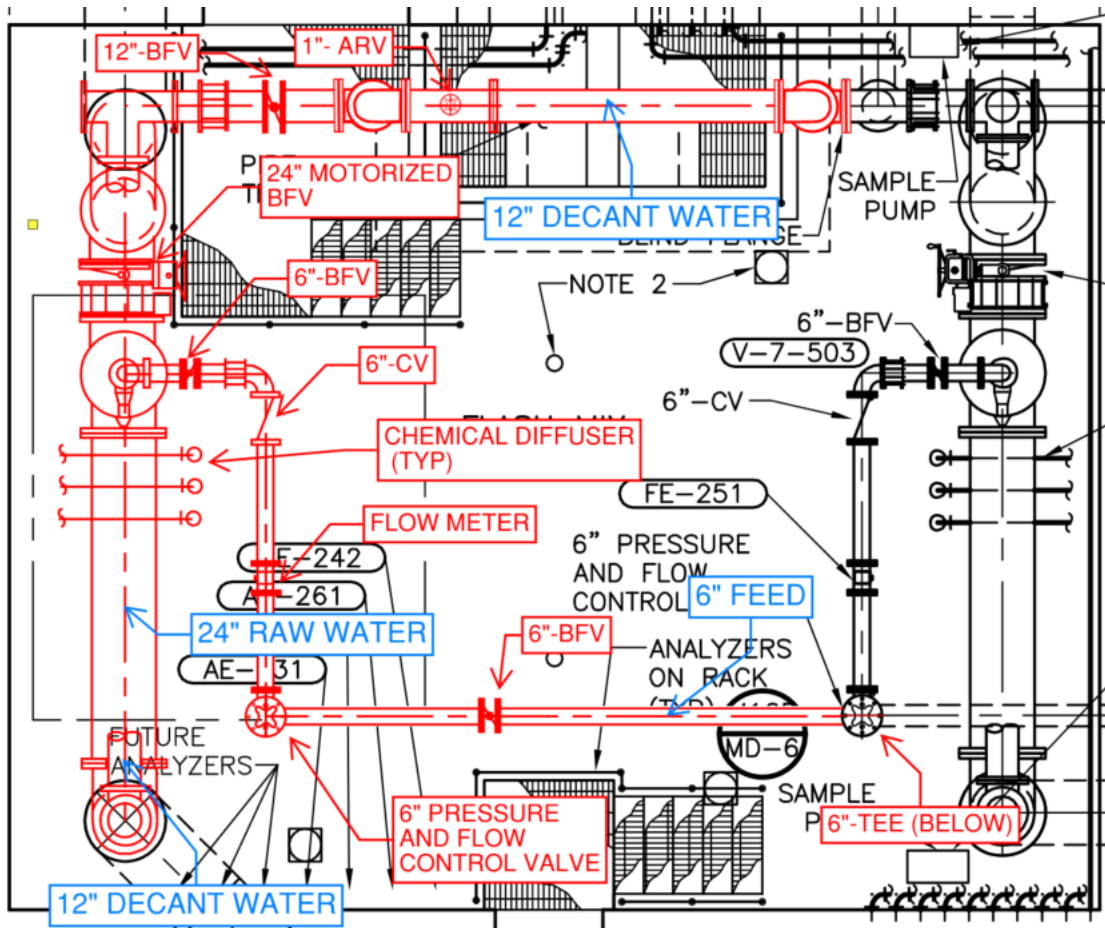


Figure 5.4 CDM Smith Record Drawings with added alignment, Sheet 7M-1

Since the piping is along the wall, no additional platforming is required; however, supports for the pipe would be needed. In the original plant design, space was allocated along the wall for a future flash mixing system and space for a future/spare pump was dedicated in the ferric chloride (FC) storage room. Though a pedestal was not allocated in the sodium hypochlorite (OCL) room for a future/spare pump,

there is space along the southeast wall. Metering pumps are required to provide FC and OCL to the new flash mix system. The proposed location of these is shown in **Figure 5.5**.

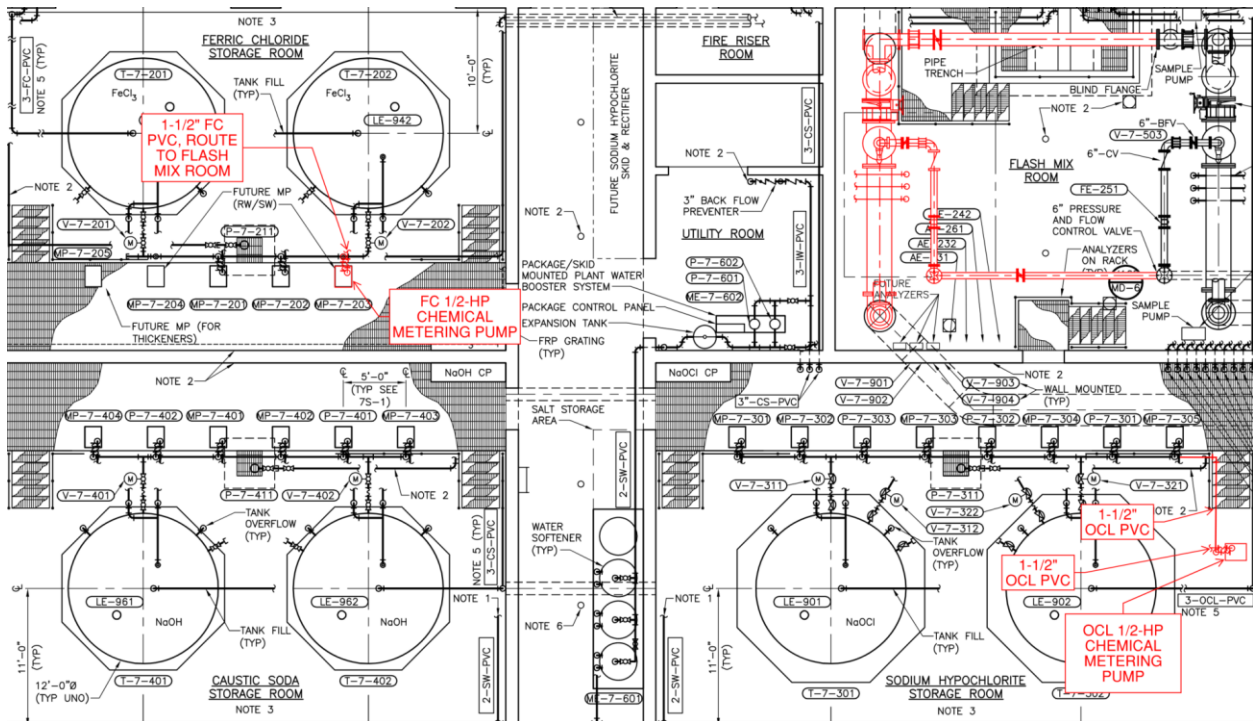


Figure 5.5 CDM Smith Record Drawings with added chemical metering pumps, Sheet 7M-1

Additional infrastructure to connect a future similar flash mix to the existing reclaimed and flash mix water piping is proposed for Scenario 1.

This tie-in would require the following:

- Removal of the existing 24-in blind flanges,
- Addition of 24-in flanged tee to the existing surface water line,
- Addition of 24-in SCCP,
- Addition of three horizontal and one vertical chemical injection nozzles,
- Addition of a 24-in motorized BFV,
- Addition of 12-in steel piping to the existing reclaimed water line,
- Addition of 24-in x 12-in reducer,
- Addition of a 6-in tee to the existing flash mix water line,
- Addition of a ½-hp chemical metering pump for OCL with associated 1 ½-in tubing and piping,
- Addition of a ½-hp chemical metering pump for FC with associated 1 ½-in tubing and piping.

Once a new flash mix for the groundwater is in place, the City will have the capability to blend the flows at Blending Points (2), (3), and (4) shown in Figure 5.1 without any additional piping modifications.

5.4.2 Scenario 2 – Blended Flow Prior to Flash Mix (West Side)

For Scenario 2, CDM Smith is proposing that the surface water is tied into the 24-in GW influent line outside of the Chemical Building. Two 24-in lines enter the Flash Mix Room, the northern one is in use and is the primary influent for the GW to the plant, the southern line has been tied into to allow SW influent into the plant. These lines are both buried outside of the building and encased through the slab. **Figure 5.6** shows the existing configuration for the lines conveying influent into the flash mix room.

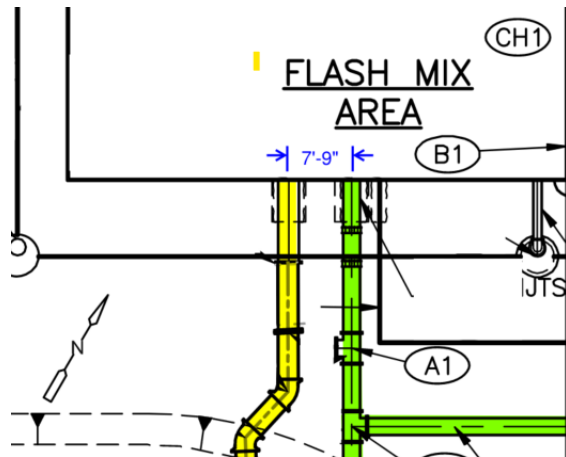


Figure 5.6 CDM Smith Record Drawings with added alignment, Sheet C-8, Surface Water (Yellow) and Groundwater (Green) Influent Lines

The spacing between the centerline of the pipes buried outside of the building is 7'-9". CDM Smith evaluated and confirmed that there is adequate space to add in a tee and isolation valve to connect the flows on the primary influent. Additionally, CDM Smith recommends adding a wafer style static mixer on the new surface water line after the flows have been combined to ensure blending of the two flows as shown in **Figure 5.6**.

This tie-in would require the following:

- Temporary removal of the existing 24-in flanged tee on the Green/GW SCCP,
- Removal of a section of the Green/GW SCCP downstream of the existing tee,
- Addition of a wafer style 24-in static mixer downstream of the existing tee,
- Replacement of the 24-in flanged tee on the Green/GW SCCP upstream of new static mixer,
- Removal of the blind flange on the tee along the Green/GW line,
- Removal of the pipe spool along the Yellow/SW line,
- Addition of 24-in flanged tee along the Yellow/SW line,
- Addition of 24" butterfly valve (BFV) on cross-over between Yellow/SW and Green/GW lines to allow for isolation of flows,

- Installation of flanged pipe spool to connect lines.

The conceptual configuration with these changes is shown in **Figure 5.7**, the full sheet is included in **Appendix B**.

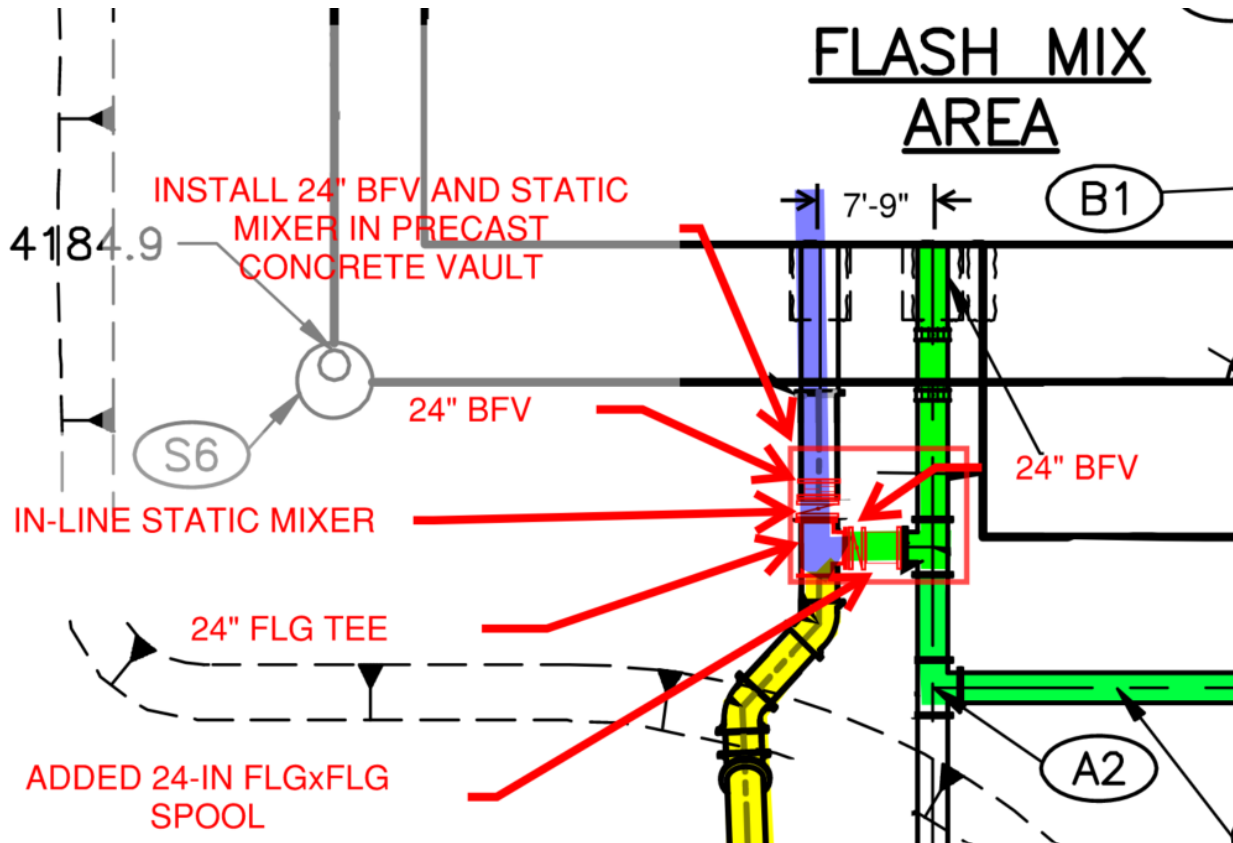


Figure 5.7 CDM Smith Record Drawings with added alignment, Sheet C-8, Modified Alignment Surface Water (Yellow), Groundwater (Green), Blended Water (Purple)

These changes to the buried yard piping would be coupled with the new flash mix equipment per Scenario 1. The contractor would construct the new surface water flash mix system. Then the contractor would install the new static mixer, valves and tee on the surface water pipeline; the valve on the side-outlet of the interconnecting tee would have a blind flange. The new flash mix system can be brought online to treat surface water after the completion of these two activities.

The benefit of blending the flows on the new surface water tie in is that it allows the plant to maintain operation during the construction of the tie in from the groundwater line to the surface water line. A brief shutdown of the GW flow will be required to remove the blind flange on the newly installed 24" BFV and install the pipe spool, but once that segment is in place, the plant can resume GW flow.

These modifications would allow for the two flow scenarios described in **Section 5.2**; additionally, with the valving in-place within the FWTF there are alternative locations where blending of the surface water can occur within the plant. Three process flow diagrams (PFDs) with blending locations recommended by CDM Smith are included in **Appendix C**.

5.4.3 Scenario 3 (Optional) – Blended Flow (East Flash Mix)

Scenarios 1 and 2 include provisions for providing blending flows through a single flash mix train or separate, parallel flows through separate flash mix trains. It is understood that the City intends to add a second flash mix and the need to blend flows through the existing flash mix system is not required; however, Scenario 3 provides opportunity for the City to run blended GW and SW through the existing flash mix system. The piping modifications are shown in **Figure 5.8** and include modifying the northern existing tee to the SW flowmeter bypass to a cross and tying into the existing 24-inch BFV on the designated GW line.

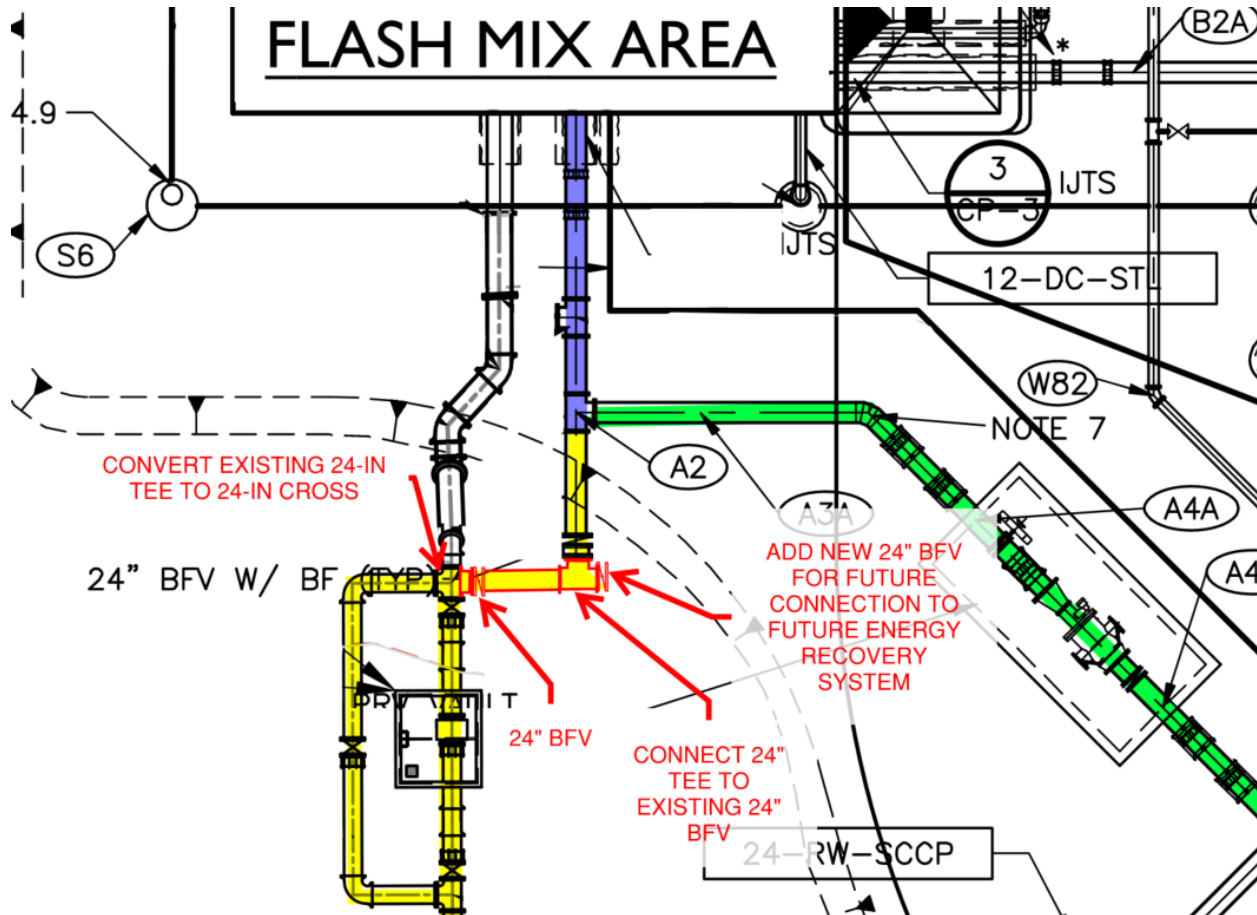


Figure 5.8 Modification Alignment for Scenario 3, Sheet C-8, Surface Water (Yellow), Groundwater (Green), Blended Water (Purple)

The existing 24-inch BFV that is intended for tie-in to the future Energy Recover System would be replaced by adding a tee and a new 24" BFV. These modifications could be installed without any shutdown to GW system.

The modifications for Scenario 3 are not included in the OPCC as this is not a preferred scenario. Additionally, further investigation on the as-built location of the yard piping would be required to confirm the ability to make the connections shown in Figure 5.8.

5.5 Opinion of Probable Construction Cost

The OPCC for the proposed piping modifications outside of the building, shown in Figure 5.1, to allow the Facility to treat surface water separately and as a blended flow is \$0.5 M to \$0.8M.

The OPCC for the additional piping and equipment modifications inside of the building, shown in Figure 5.5, to provide a second flash mix system is \$0.6 M to \$1.0M. These values are comprised of the direct construction costs which include materials, labor, and equipment costs.

Additional cost information for the OPCC can be found in **Section 7**.



6.0 Modifications at Surface Water Pump Station

6.1 Objective

The objectives of the modifications to the SWPS are to:

- Activity 1: Modify the flow turndown capability of the pump station to the desired minimum surface water flow.
- Activity 2: Add a shutoff valve on the surface water intake line to shut down intake to the SWPS during high turbidity events.
- Activity 3: Provide telecommunication between the new surface water pump station and the existing plant.
- Activity 4: Determine what would be needed to expand the existing SCADA and network system to be ready for surface water treatment with solids drying basins.

6.2 Review of Existing Surface Water Pump Station Design

The following documents were provided by the City and reviewed for the above activities:

- Conformed Construction Drawings for the Truckee Canal Diversion and Conveyance project, with Addendums 1 through 8 (Addendum 8 dated May 25, 2022),
- Conformed Project Specifications for the Truckee Canal Diversion and Conveyance project, with Addendums 1 through 3 (Addendum 3 dated July 13, 2021),
- Basis of Design Report (BODR) for the Truckee Canal Diversion and Conveyance project, dated June 2018,
- The pump curve submittal for the (3) pumps installed at the surface water PS,
- Record Drawings for the Water Treatment Facility, dated February 2010,
- Surface Water Available Documentation PDF, developed by the City of Fernley.

Additionally, a discussion was held with the City to determine the operational strategy of the treatment plant, seasonal changes in flow, and diurnal changes in flow. The TCID canal operates seasonally as an irrigation water supply, from approximately mid-March to mid-October. As a result, the Fernley Water Treatment Plant is restricted in its ability to pump and treat surface water to the irrigation season.

In the available documentation provided by the City, it was determined that the City of Fernley has water rights for 9,723 acre-feet (AF) per year with monthly usages limited to 25% of this annual total at 2,431 AF/month or 26.4 million gallons per day (MGD).

6.3 Approach

6.3.1 Activity 1 – Flow Turndown Capability

The review of the available documents provided understanding of the existing piping, electrical service, and spatial constraints. Additionally, the review included brainstorming discussions conducted with City staff to understand current and future treatment strategies, including expected minimum surface water pumping and blending rates.

The City's initial request was to modify the SWPS to treat 5-10% of the total minimum plant flow which is approximately 3 million gallons per day (MGD) equating to 0.15 MGD or approximately 100 gallons per minute (gpm).

The minimum and maximum capacity of the existing SWPS were evaluated and it was determined that the maximum output from the SWPS was nearly equal to the maximum design capacity for the FWTF and no modifications would be required to meet the upper limit pumping capacity of the SWPS.

The new SWPS is equipped with three (3) vertical turbine pumps with space for a future fourth pump. The (3) pumps (P-1-101/102/104) are identical, 2500-gpm, 30-hp pumps with variable frequency drives and 20-inch suction inlets and 14-inch discharge pipes.

The three existing surface water pumps installed at the SWPS have a baseline operating range of approximately 760-3200 gpm for each pump, providing a maximum total upper limit pumping capacity of approximately 9,000 gpm (approximately 13 MGD) and a firm (i.e., 2 pumps in service, 1 pump in standby/out of service) pumping capacity of approximately 6,000 gpm (approximately 8.5 MGD). **Figure 6.1** provides the combined pump curve of the three pumps with the curve for a single pump extrapolated.

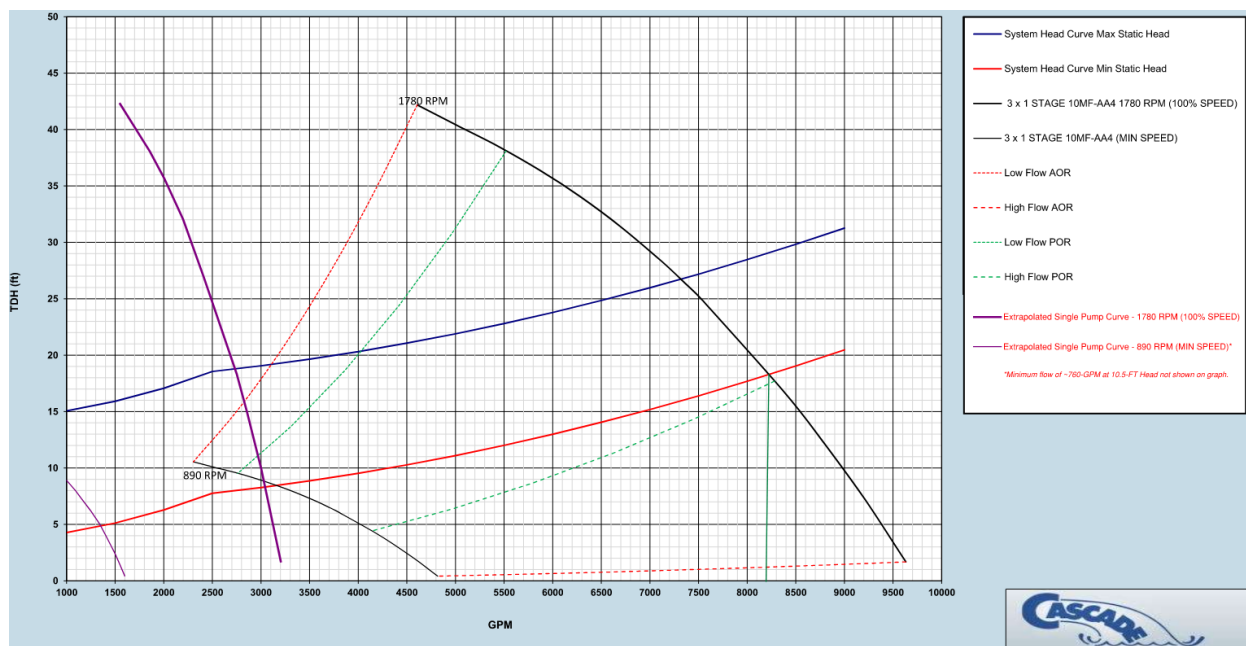


Figure 6.1 Cascade Pumps, Pump Overlay for 3 Existing Pumps with Single Pump Extrapolation

6.3.1.1 Capacity Comparison

As seen by the purple line on the pump curve in **Figure 6.1**, a single pump turned down to minimum speed, has a pumping capacity of approximately 760 gpm (1.1 MGD), as currently configured. This exceeds the expected minimum surface water blending flow of 5-10% of the minimum total treated flow of 3 MGD, of approximately 100 gpm (0.14 MGD).

After review and discussion with City staff, it was clarified that the City intends to introduce low flow amounts of surface water starting at approximately 300-400 gpm, but this low flow would only be used temporarily for 1 to 2 years while the plant optimized treatment of the new source water. After 1 year, the plant intends to slowly increase the amount of surface water blended with the groundwater. The focus of this evaluation was determining options to optimize the SWPS lower pumping limit capabilities and with the low flow condition being temporary, lower cost alternatives were prioritized.

6.3.1.2 Pump Modifications

As stated in 6.3.1, there are 3 pumps installed at the SWPS; additionally, there is a fourth, spare pump pedestal dedicated for a future pump. Currently in place at the spare pump pedestal is 14-inch piping to recirculate water back into the wet well with a butterfly valve to shut off recirculation, this is seen in **Figure 6.2**.

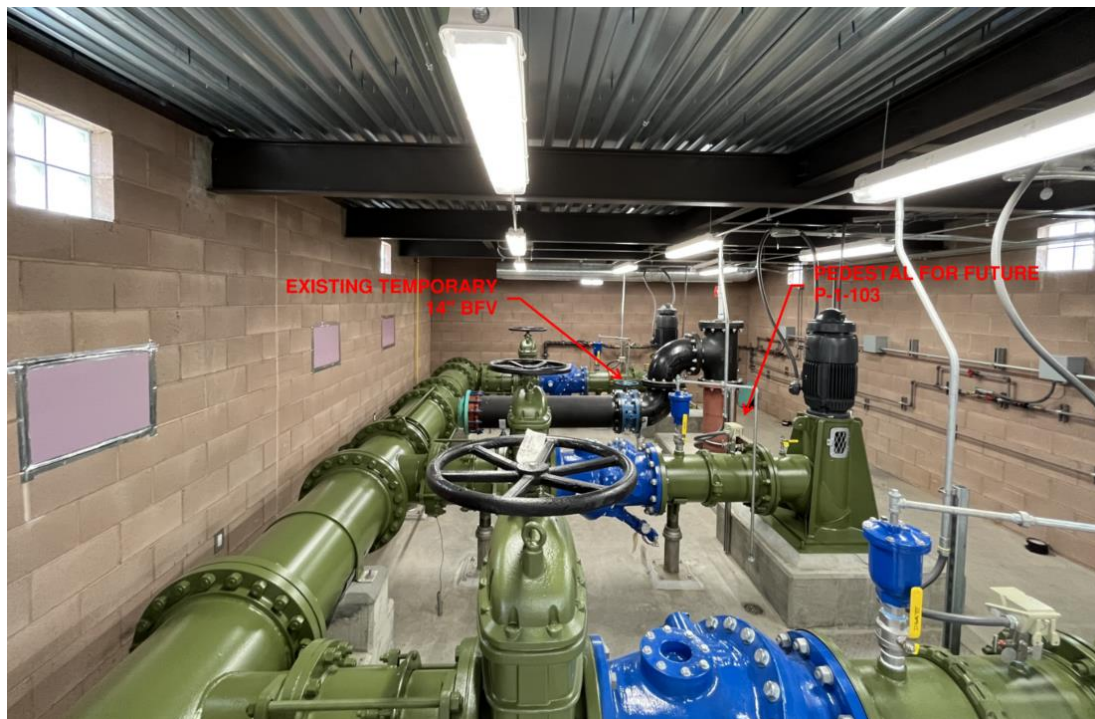


Figure 6.2 Photo of SWPS Installed Pumps and Temporary Recirculating Piping

If the plant were to run one of the existing 2500-gpm pumps at minimum speed, an estimated pumping rate of only 760-gpm (1 MGD) could be achieved. With the current configuration of the temporary piping in the future pump location, the plant could run the existing P-1-102 at its minimum speed and use the 14-inch butterfly valve to modulate flow, diverting a portion back to the wet well and allowing the desired flow rate to be sent to the FWTF. The recirculation of flow is illustrated in **Figure 6.3** below.

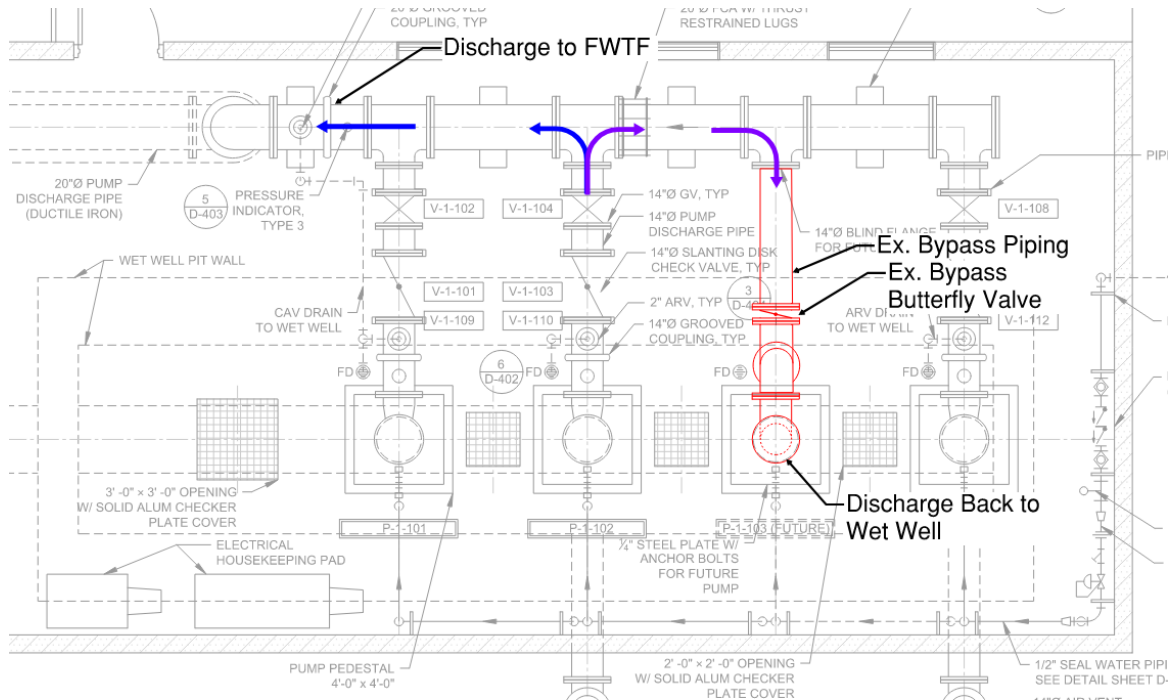


Figure 6.3 Plan Drawing of Installed Pumps and Temporary Recirculating Piping (based on D-101 from the Truckee Canal Diversion and Conveyance Project)

Additional head will be needed for the 1-year temporary flows of 300-400-gpm, this can be achieved by throttling valve V-1-025 upstream of the Flow Meter Value for the 18" flow meter on the influent line. This valve is highlighted in **Figure 6.4** below. Flows will be measured with flow meter FE-1-030 and V-1-025 can be adjusted until the desired flow is achieved.

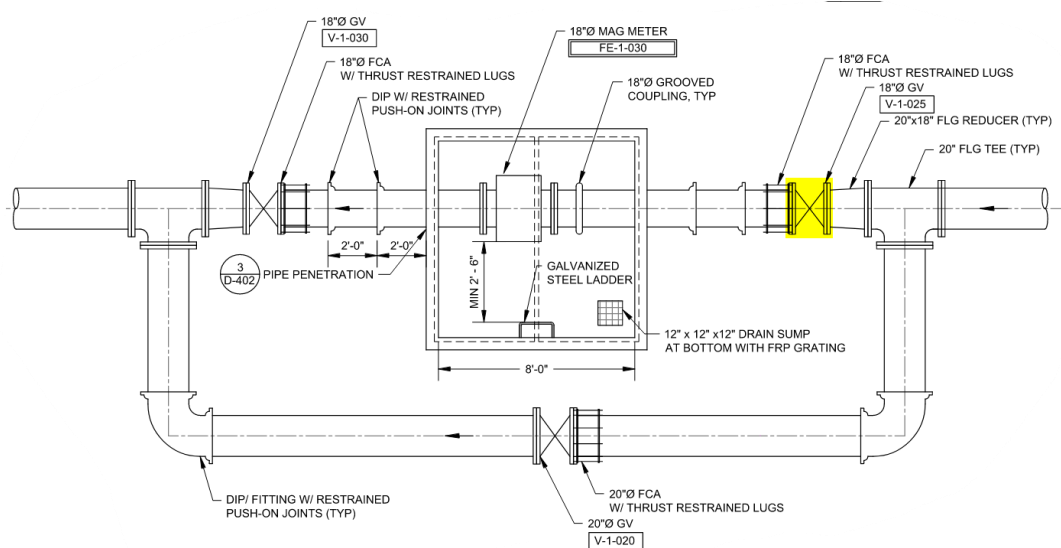


Figure 6.4 AECOM Construction Drawings, Sheet D-301, Meter Vault with Highlighted Throttle Valve

For further efficiency, the existing manual 14-inch BFV could be replaced with a motor operated (MO) 14-inch BFV which can be powered through LP-1 at the SWPS, to automate flow control or adjust it remotely.

Although not recommended, should the FWTF intend to maintain low flows longer than a year, a 1,000-gpm rated pump could be installed in the dedicated space P-1-103 which could achieve the desired turndowns and corresponding flow rate. A proposed pump that would work for this purpose was reviewed and the pump curve for this pump is included in **Appendix D**.

6.3.2 Activity 2 – Alarm Improvements

Activity 2 consisted of determining a location and available power for a new turbidimeter and valve to shutoff flows to the SWPS. Through discussion with the City it was understood that the City does not control access to the new outtake structure at the Truckee Canal and in situations where the City wants to shut off water intake from the canal, there can be delays due to response times from the Truckee Canal Irrigation District. As such, it is preferred that the location for the turbidimeter would be upstream of the SWPS pumps along the 30-inch intake line and in a separate vault that the City can maintain control of. In review of the plan and profile for the 30-inch line, it was determined that a new vault could be added along the line between stations 2+00 and 3+00 as shown in **Figure 6.2**. This vault location would be north of Truckee Lane, within the easement line for public utility from Lyon County, and alongside the new paved roadway to the FWTF.

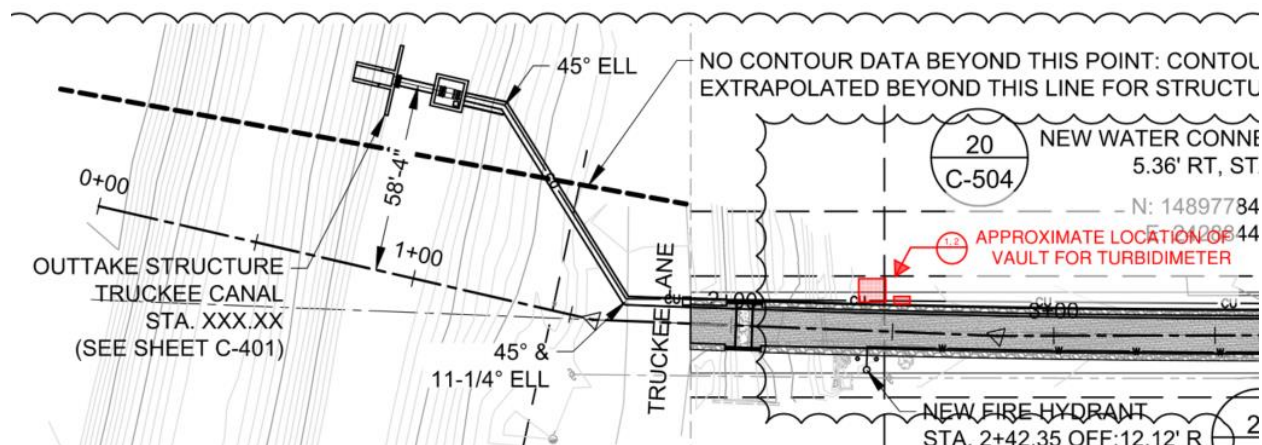


Figure 6.5 AECOM Construction Drawings, Sheet C-201, 30-inch Plan and Profile with proposed vault

The new vault seen in **Figure 6.3** would be concrete with a double door lid for access and would be approximately 8-feet (L) x 8-feet (W) x 13-feet (H).

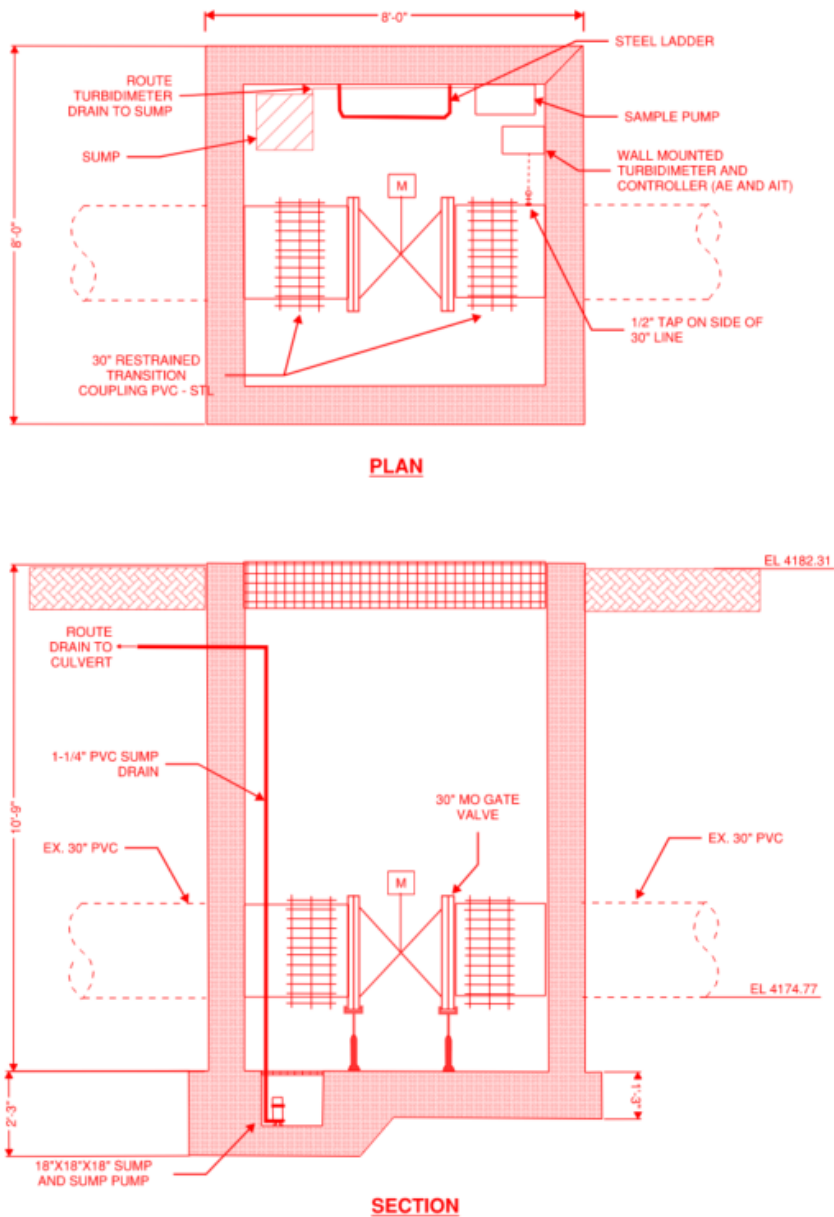


Figure 6.6 Plan and Section of Propose Turbidimeter and Valve Vault

The vault would contain the following materials:

- 30-inch restrained transition couplings
- Steel ladder
- 30-inch motorized gate valve
- Sample pump
- Turbidimeter Sample Unit
- Shutoff ball valve

- Rotameter
- Tubing (for sample and drain)
- Power and Analog Signal conduits
- Sump pump

Figure 6.7 shows an example layout of the turbidimeter, and controller based on the proposed Hach Surface Scatter 7.

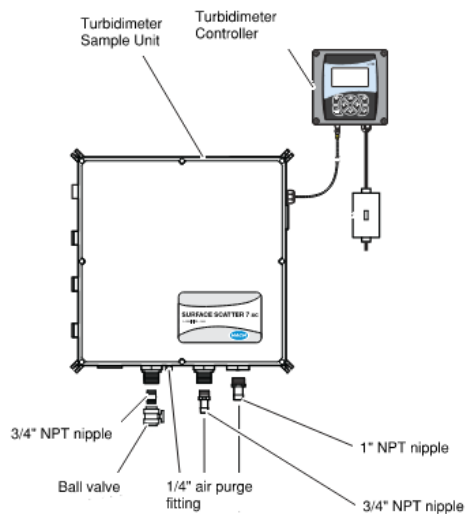


Figure 6.7 Hach Surface Scatter 7 Turbidimeter, Typical Wall Mounted Configuration

The turbidimeter sample unit, controller, and conduit will be wall mounted inside the vault. Power for the equipment in the new vault would be provided through the existing conduit that currently provides power to the intake vault at the Truckee Canal from the main switchboard at the SWPS. The existing conduit is K1B and is a 4-inch diameter conduit with space for additional power feeds. To provide power to the new turbidimeter vault, this conduit would need to be spliced into and a handhole would need to be installed adjacent to the vault.

In discussion with the City, it was confirmed that power and communication would not be combined in the one existing, available conduit. As such, once a turbidimeter is in place and a turbidity shutoff setpoint is set, there are two options for implementing an alarm interlock for high turbidity.

6.3.2.1 Alarm Interlock Option 1

Option 1 would send signal from the turbidimeter controller directly to the motor for the 30-inch gate valve such that a high-turbidity alarm closes the valve. With this option, there is a single contact used on the turbidimeter controller and one conduit which transmits signal directly to the valve.

The disadvantage of Option 1 is a result of the lack of communication sent back to the SCADA system. Since there is no available conduit for communication, the plant would only be notified that the valve on the intake line was shutoff after the existing pumps at the SWPS were shut off due to low levels in the wet well. Additionally, the plant would need to retrieve turbidity readings from the turbidimeter controller within the vault to determine if the turbidity had returned to acceptable levels. CDM Smith

would recommend taking turbidity samples of the water to confirm acceptable levels prior to opening the valve.

6.3.2.2 Alarm Interlock Option 2

Option 2 would address the disadvantages listed in Option 1 with the addition of a remote input/output (RIO) panel. In lieu of having the turbidimeter controller directly connected to the motor for the 30-inch gate valve, the controller would send signal to the RIO which would send signal to the antenna located on the Administration Building. The antenna on the administration building is connected to SCADA and the PLC via a SCADAWave. Programming changes would be required to enable the gate valve on the 30-inch intake line to close in high turbidity setpoints.

This set up would provide the plant with feedback on turbidity levels of the intake water from the administration building and the valve could be returned to open at set turbidity levels.

6.3.3 Activity 3 – Telecommunications Alternatives

For Activity 3 the location of the existing SCADA network and a path between the SWPS, as well as available power, were identified. The existing plant SCADA terminal is housed in the FWTF's administration building.

Based on the SWPS construction drawings an existing spare conduit between the SWPS to the control room within the Administration Building was identified to be used for communication between the two structures. This conduit is shown highlighted in green in **Figure 6.8**. Additionally, a second conduit which has wires already in it, was identified as having available space for pulling telecommunication cable; this conduit is shown highlighted in teal in **Figure 6.8**.

The first conduit is run through handholes IMH-103A, EMH-103A, IMH-103 and EMH-103 and is labeled as J1 and J1A. The second conduit identified as I1 and I1A runs through the same handholes and is currently in use but has space for the additional cable required for the signal. Both conduits are 1-inch. The site plan showing the routing of these conduits and the Cable and Conduit Schedule from the AECOM Construction Drawings are included for reference in **Appendix E**.

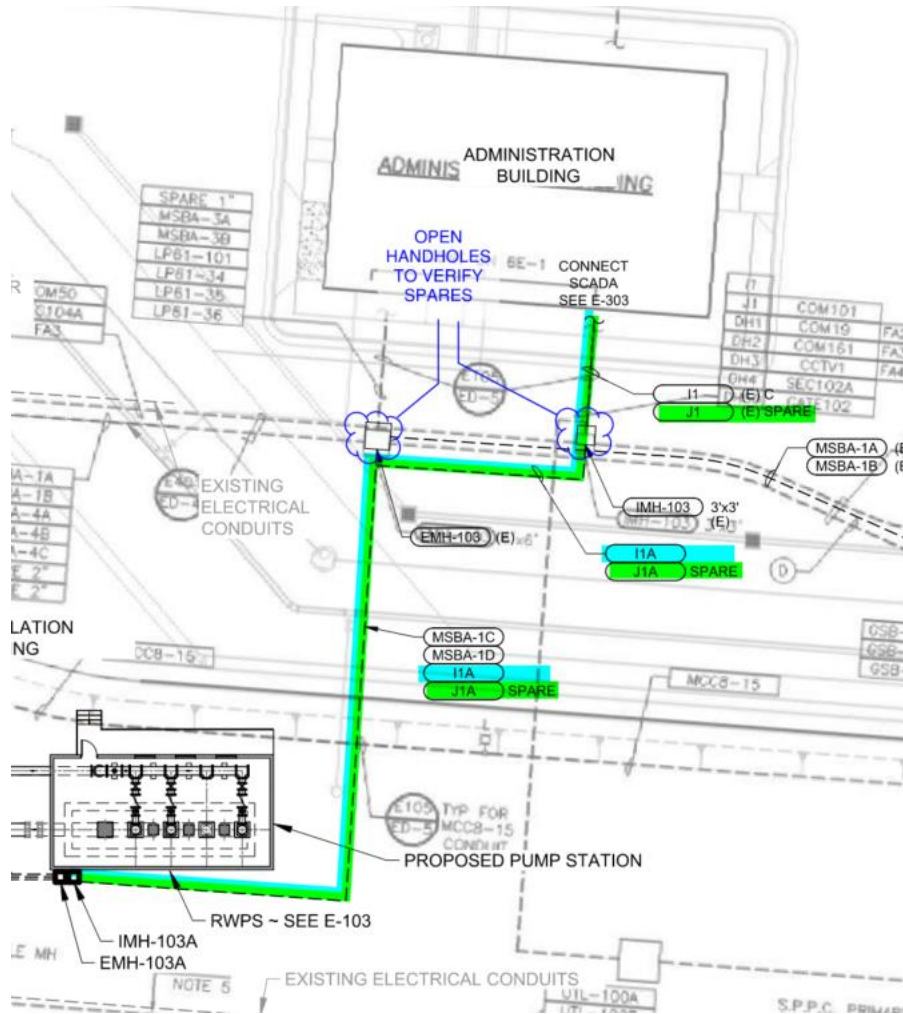


Figure 6.8 AECOM Construction Drawings, Sheet E-101, Indicated Spare and Handholes for Task 3

During the site visit in April 2024, handholes EMH-103 and IMH-103 were opened and the pictures shown in **Figure 6.9** and **Figure 6.10** were taken to confirm that the spares J1 and J1A were still available. It is CDM Smith recommendation that J1 and J1A are used to provide telecommunication from the new SWPS to the existing plant's SCADA system for simplicity; however, the photos also show space in conduits I1 and I1A if preferred.



Figure 6.9 Handhole EMH-103, taken during site visit



Figure 6.10 Handhole IMH-103, taken during site visit

6.3.4 Activity 4 Expansion of Existing SCADA and Network System

To assess the feasibility to expand the existing input/output (I/O) module, network, and SCADA system for Activity 4, CDM Smith first needed to establish what is currently in use.

CDM Smith reviewed the as-built records for the full plant and reviewed the available I/O at the control panels for the administration building, chemical building, and high service pump station. The control panels at the Membrane Filtration Building and Surface Water Pump Station were not reviewed due to lack of availability of as-builts and recent installation, respectively. In total, CDM Smith determined the following I/O availability:

- Digital Inputs – 129 available,
- Analog Inputs – 54 available,
- Digital Inputs – 49 available,
- Analog Outputs – 41 available.

A breakdown of which control panels have availability is provided in **Table 6.1**; the table also includes information on I/O in use.

Table 6.1 Existing I/O Summary

Control Panel	Input/Output	Type	Spare Quantity	In Use
Admin Building	Input	Digital	21	11
Admin Building	Input	Analog	16	0
Admin Building	Output	Digital	8	0
Admin Building	Output	Analog	8	0
Chemical Building - Rack 0-3	Input	Digital	70	250
Chemical Building - Rack 0-3	Input	Analog	18	46
Chemical Building - Rack 0-3	Output	Digital	37	123
Chemical Building - Rack 0-3	Output	Analog	21	35
High Service Pump Station	Input	Digital	12	20
High Service Pump Station	Input	Digital	26	6
High Service Pump Station	Output	Digital	2	6
High Service Pump Station	Output	Digital	2	6
High Service Pump Station	Input	Analog	6	10
High Service Pump Station	Input	Analog	14	2
High Service Pump Station	Output	Analog	6	2
High Service Pump Station	Output	Analog	6	2

Based on the design for the initial flash mix system, the anticipated required I/O for the new flash mix system including the additional chemical metering pumps is:

- Digital, Inputs – 16 required
- Digital, Outputs – 7 required
- Analog, Inputs – 6 required
- Analog, Outputs – 5 required

In discussion with the plant staff, it is understood that the plant has not added I/O and therefore these could all be accommodated with the available I/O with additional spares remaining. Further design development would be required to confirm the I/O that would be required for the sludge drying ponds and additional water storage tank; however, based on what is currently available it is CDM Smith's assessment that the control panels could accommodate these expansions for the short-term. However, in review of the existing equipment, the Programmable Logic Controllers (PLCs) are ControlLogix 1756 Series which were discontinued on March 31, 2017 and not supported. Although many of the smaller, replaceable components remain active or have an updated replacement part, it is CDM Smith's recommendation that these PLCs are candidates for an upgrade. Upgrading will address obsolescence, improve functionality, enhance security and efficiency. In addition, increasing I/O capacity for future improvements to the plant, ease of maintenance and customer support when replacing parts. These costs are not included in the OPCC.

6.4 Opinion of Probable Construction Cost

The direct costs OPCC for the following proposed modifications is \$0.6M to \$1.0M, this includes the following:

- Addition of a 8-feet (L) x 8-feet (W) x 13-feet (H) vault to house a gate valve and turbidimeter,
- Addition of a RIO panel adjacent to the turbidimeter vault to send signal back to SCADA,
- Addition of a 30-inch motorized GV,
- Addition of a turbidimeter and associated conduit and sampling accessories,
- Addition of new electrical handhole for power to vault.

Additional cost information for the OPCC can be found in **Section 7**.



7.0 Opinion of Probable Construction Costs

This section provides cost information for implementing each of the changes described in previous sections.

7.1 Opinion of Probable Construction Costs (OPCC)

The opinion of probable construction cost (OPCC) presented in this report corresponds to an AACE Class 4² cost opinion with an expected accuracy of -15% to -30% on the low end of the cost range to +20% to +50% at the high end of the cost range. A Class 4 cost opinion is typically used for “*project screening, determination of feasibility, concept evaluation, and preliminary budget approval*”. Engineering is typically 1 to 15 percent complete. Expected accuracy depends upon the complexity of the project, market conditions, appropriate reference information, and the inclusion of an appropriate contingency. The costs for this report are based on the June 2024 ENR Construction Cost Index value 13,546.8.

The OPCC consists of two primary components- contractor direct costs, which include materials, labor, and equipment costs; and contractor indirect costs, which include general conditions, taxes, insurance, overhead, profit, and construction contingency.

Construction direct costs for each potential improvement was prepared using quantity take-offs from conceptual facility layouts, vendor quotes, and costs and allowances based upon similar projects.

To develop the total OPCC, the following key indirect construction cost prorates were then applied to the direct cost:

- General conditions: 15%
- Other Indirect costs (sales taxes, insurance, bonds, etc.): 7.98%
- Contractor overhead and profit: 15%
- Estimating contingency: 15-25% (appropriate given the early stage of project design and/or the complexity of the process/facility)

Please note that this does not include City soft costs (project management, administration, permitting, legal, etc.), planning, construction management, and engineering services during construction. These costs are generally referred to as implementation costs that are complimentary to the contractor’s cost.

These values and factors listed above have been applied to the costs for each potential improvement in the following sections of this report.

7.2 Solids Drying Ponds

As presented in **Section 3**, the OPCC is \$13M - \$22M. A summary of the OPCC presented in **Table 7.1**.

² Association of Advancement of Cost Engineering (AACE) International Recommended Practice No. 18R-97.

Table 7.1 Preliminary Solids Drying Ponds OPCC Cost Summary

Description	Subtotal Amount ¹	Totals	Prorate
Direct Costs (labor, material, subcontracts, equipment, etc.)	N/A	\$9,800,000	-
General Conditions	\$1,470,000	\$11,270,000	15%
Taxes and Bonds	\$780,000	\$12,050,000	7.98%
Contractor Overhead and Profit	\$1,810,000	\$13,860,000	15%
Estimating Contingency ²	\$2,080,000	\$15,940,000	15%
Expected Range in 2024 Dollars (-20% to + 35%)	\$12,800,000 to \$21,500,000		

Notes:

¹ Subtotal amount has been calculated as a prorate percentage of the preceding subtotal, i.e., General Conditions subtotal of \$1,470,000 was calculated as 15% of \$9,800,000. Values have been rounded, as appropriate.

² The Construction Contingency for the Solids Drying Ponds is assumed to be 15% as the construction of the ponds will not require specialty equipment.

7.3 GAC Adsorbers for T&O

As presented in Section 4, the OPCC is \$9M - \$15M. A summary of the OPCC is presented in **Table 7.2**.

Table 7.2 Preliminary GAC Facility OPCC Cost Summary

Description	Subtotal Amount ¹	Totals	Prorate
Direct Costs (labor, material, subcontracts, equipment, etc.)	N/A	\$6,300,000	-
General Conditions	\$950,000	\$7,300,000	15%
Taxes and Bonds	\$580,000	\$7,800,000	7.98%
Contractor Overhead and Profit	\$1,170,000	\$9,000,000	15%
Estimating Contingency	\$2,250,000	\$11,250,000	25%
Expected Range in 2024 Dollars (-20% to + 35%)	\$9,000,000 to \$15,200,000		

Notes:

¹ Subtotal amount has been calculated as a prorate percentage of the preceding subtotal, i.e., General Conditions subtotal of \$950,000 was calculated as 15% of \$6,400,000.

7.4 Modification to Raw Water Piping

As presented in Section 5, the OPCC is \$0.5 M to \$0.8M. A summary of the OPCC is presented in **Table 7.3**.

Table 7.3 Preliminary Raw Water Modifications OPCC Cost Summary

Description	Subtotal Amount ¹	Totals	Prorate
Direct Costs (labor, material, subcontracts, equipment, etc.)	N/A	\$350,000	-
General Conditions	\$55,000	\$400,000	15%
Taxes and Bonds	\$30,000	\$430,000	7.98%
Contractor Overhead and Profit	\$65,000	\$500,000	15%
Estimating Contingency	\$125,000	\$620,000	25%
Expected Range in 2024 Dollars (-20% to + 35%)	\$490,000 to \$830,000		

Notes:

¹ Subtotal amount has been calculated as a prorate percentage of the preceding subtotal, i.e., General Conditions subtotal of \$55,000 was calculated as 15% of \$350,000. Values have been rounded, as appropriate.

7.5 Modifications at the Surface Water Pump Station

As presented in **Section 6**, the OPCC is \$0.6M to \$1.0M. A summary of the OPCC is presented in **Table 7.4**.

Table 7.4 Preliminary SWPS Modifications OPCC Cost Summary

Description	Subtotal Amount ¹	Totals	Prorate
Direct Costs (labor, material, subcontracts, equipment, etc.)	N/A	\$420,000	-
General Conditions	\$60,000	\$490,000	15%
Taxes and Bonds	\$30,000	\$520,000	7.98%
Contractor Overhead and Profit	\$80,000	\$600,000	15%
Estimating Contingency	\$150,000	\$750,000	25%
Expected Range in 2024 Dollars (-20% to + 35%)	\$600,000 to \$1,000,000		

Notes:

¹ Subtotal amount has been calculated as a prorate percentage of the preceding subtotal, i.e., General Conditions subtotal of \$60,000 was calculated as 15% of \$420,000. Values have been rounded, as appropriate.



8.0 Recommendations

8.1 Facility Additions and Modifications

As the City moves toward supplementing the groundwater treated at the plant with a new surface water source pumped from the nearby Truckee Canal, the following new facilities and modifications to the existing plant are recommended:

- Installation of three (3) 100 ft x 350 ft solids drying ponds with associated decant boxes and a surrounding access road.
 - This improvement will allow for storage and processing of the anticipated increase in solids from treating surface water.
 - The proposed location is on the northwest side of the existing plant in an existing undeveloped area within the plant as shown in **Figure 8.1**.
 - These sludge drying ponds will serve as the primary sludge handling facilities and the existing sludge storage tanks can be maintained as a back-up.
 - The City should cycle the sludge drying ponds and can expect a 90-day fill cycle, 90-day dry cycle, and 30-day sludge removal cycle.
- Installation of a GAC Facility that will include a pre-engineered metal building to house centrifugal booster pumps, four (4) 14-ft diameter GAC contactor pressure vessels, and a dedicated MCC.
 - This improvement will remove T&O compounds encountered from the surface water portion of plant flows.
 - The proposed location of the GAC facility is north of the Microfiltration Building between the Flocculation/Sedimentation Basins and Treated Water Reservoirs. The proposed location accounts for the allocation of space needed should the City later add ozone and UV downstream of the GAC for disinfection. Refer to **Figure 8.1**.
 - Facility will include space for future vessels should the City expand the plant capacity to 30 MGD.
 - This work may be deferred to a later date to allow the City to obtain experience running a blend of groundwater and surface water. This experience will allow for the collection of surface water T&O data, TOC, and any other water quality parameters of interest to determine the actual need for a T&O removal process. Additionally, if high T&O events occur, the City has the option to return to primarily groundwater as the source water until the even passes. Lastly, T&O is not a primary contaminant with enforceable regulatory limits that the City is required to meet.

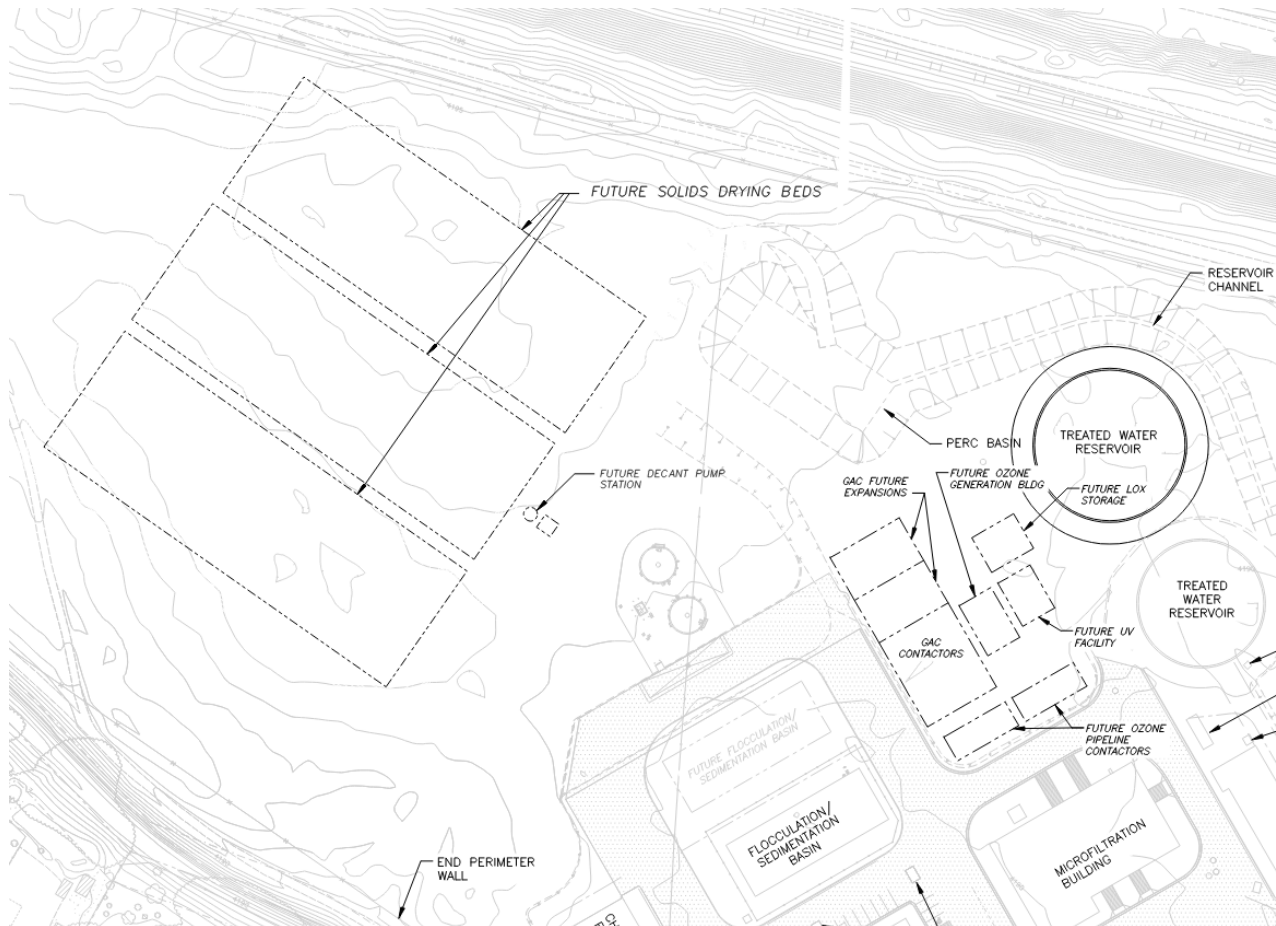


Figure 8.1 Site Plan

- Installation of a new 24-in tee on the buried surface water influent line to connect to the 24-in groundwater influent line, installation of two (2) 24-inch butterfly valves, and installation of in-line static mixer.
 - This improvement allows for ground water to be directed to the new flash mixer and blended with surface water.
 - The proposed location of this tie-in is outside of the Chemical Building on the south side of the Flash Mix Room per **Figure 8.2**.
 - Although this is not the preferred operation for the FWTF staff, these modifications allow for blending at any point between treatments and the ability to blend flows and take one flash mix system offline for service.

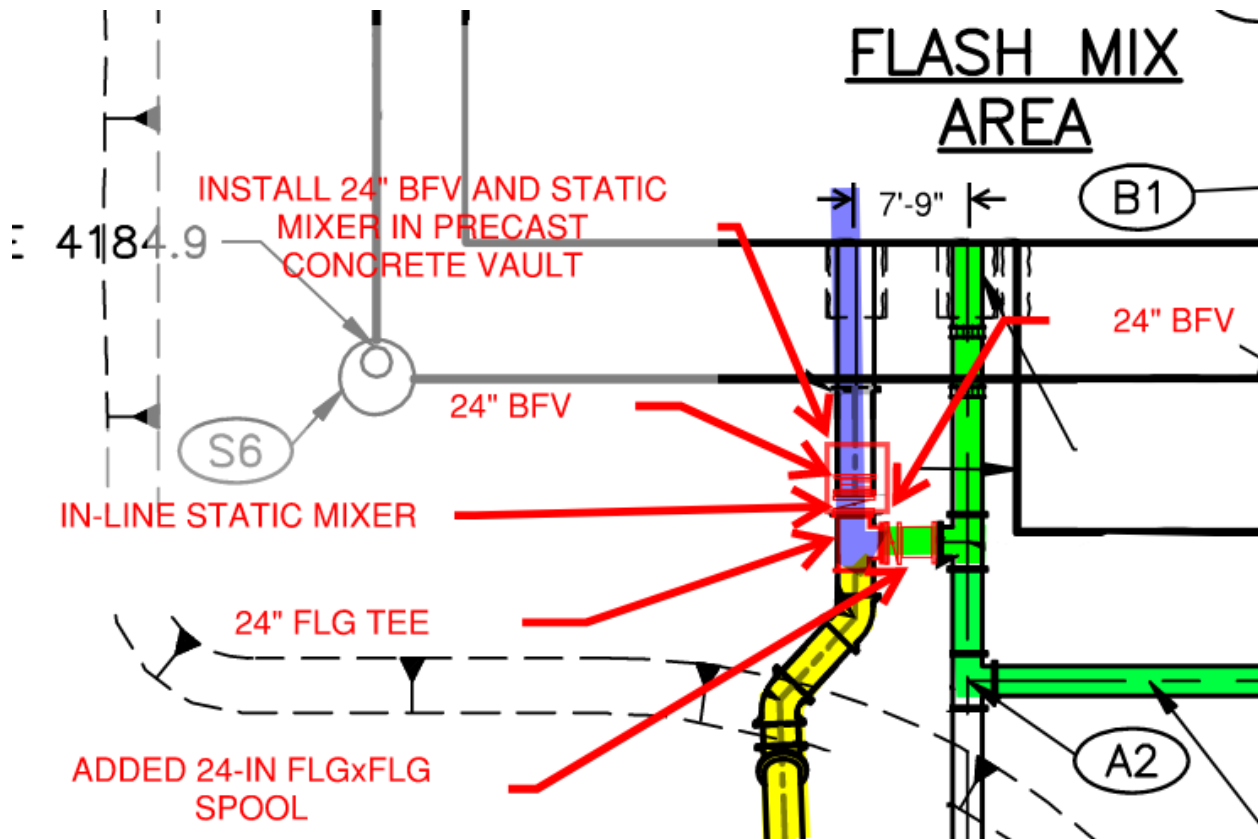


Figure 8.2 CDM Smith Record Drawings with added alignment, Sheet C-8, Modified Alignment Surface Water (Yellow), Groundwater (Green), Blended Water (Purple)

- Installation of a new flash mix system inside of the Flash Mix Room between the existing blind flanges along the northwest wall. The flash mix system will allow surface water flow into the Flocculation/Sedimentation basins as a completely isolated flow.

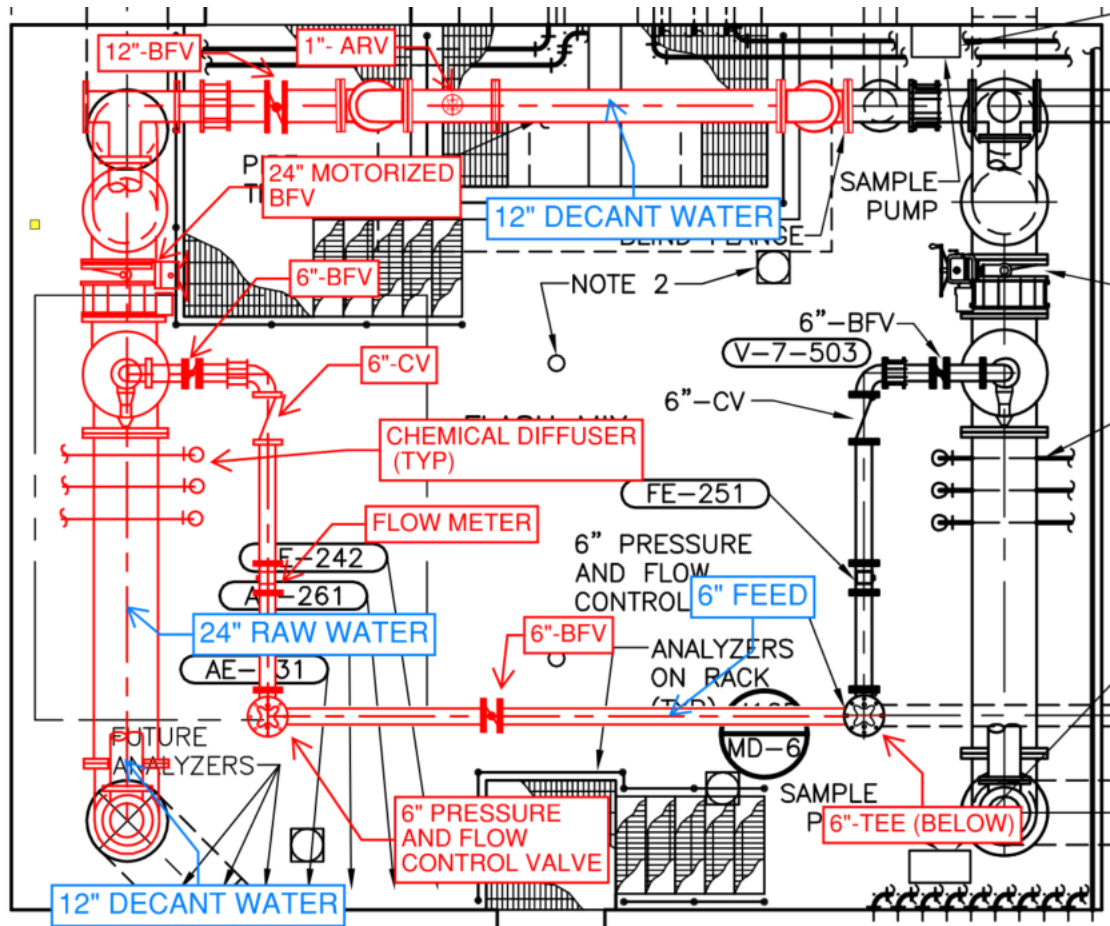


Figure 8.3 Flash Mix Room, with second flash mix system piping

- Replacement of the existing 14-inch manual BFV on the piping in place at the future P-1-103 with a motor-operated butterfly valve.
 - This improvement allows for surface water conveyance to the FWTF at flow rates below the turn-down of a single SWPS pump.
 - This is based on reducing capital costs for low surface water flows with the understanding that the City will run low surface water flows temporarily and intends to maximize surface water flow after a year.
 - The motor-operated butterfly valve will be used to throttle the flow from pump P-1-104 to achieve the desired low flows.
 - This will maintain space for a future, larger pump should the City want to increase the surface water flows to the full current plant capacity of 20 MGD.
- Installation of a new vault containing a 30-inch gate valve and turbidimeter to shut off flow from the Truckee Canal to the SWPS.
 - The proposed location of the turbidimeter vault is outside of the plant on the east side of Truckee Lane.

- The City can determine a high turbidity setpoint to close the valve regardless of SCADA operation. Alternatively, the City can utilize a RIO to send signal to the SCADA system to close the valve.
- Use existing conduit J1 and J1A to provide telecommunication from the SWPS to the existing SCADA system.
- Upgrade the existing PLCs to address obsolescence, improve functionality, enhance security and efficiency. Additionally, this will increase I/O capacity for future improvements to the plant and improve ease of maintenance and customer support when replacing parts.
- Plan for a SCADA upgrade which will also take the I/O from the SWPS as landed via fiber to a patch panel at the main plant SCADA system. This work should include provisions for reviewing the SWPS PLC code and existing plant SCADA code. The programmer would add new screens for monitoring and control of SWPS equipment based on the SWPS program functionality and comply with the plant SCADA standards.

These recommendations are based on the improvements necessary for the treatment of surface water . Other improvements were considered as part of this evaluation; however, the anticipated benefits did not justify the capital costs. These improvements included the CO₂ dosing for pH adjustment and addition of a fourth pump within the SWPS. CO₂ dosing is not recommended since the surface water pH fluctuations are minimal and depressing the pH of the surface water is not expected to have a significant impact on the treatment efficiency of the existing plant. Additionally, installation of a fourth, smaller pump in the spare location of the SWPS was considered; however, based on understanding that the City only intends to run the requested low flows temporarily the costs to install a new pump and associated piping could not be justified and it is recommended that the spare pump location is maintained for increasing surface water flows in the future.

8.2 Next Steps

- Meet with the City to discuss this conceptual evaluation.
- Once the City determines which improvements to implement, meet with the Bureau of Safe Drinking Water (BSDW) to discuss the planned improvements.
- Then, proceed with detailed design of the planned improvements.
- Construct and commission plant improvements to begin treatment of surface water
- Develop and implement a water quality testing plan during the first year of using surface water flows to validate and inform treatment approaches for increasing flows and optimizing treatment processes in subsequent years.



Appendix A GAC Facility Additional Information

Appendix A1 Ozone Planning Level Design Tables

Table A.1a Ozone Process Planning Level Design (Pipeline Contactors)

Parameter	Units	Initial	Final	Notes
Feed Source	--	Surface water from TCID Canal		
Ozone Feed		Side stream injection		
Process Flow	MGD	5	12	
System		Pipeline contactor		
Ozone Gas Application		Side stream injection		
Flow per train	MGD	5	6	
Number of trains	Ea	1	2	
Contact Time	Min	9.6	8.0	
Diameter	In	84		
Length	Lf	116		Length of 84-inch piping for CT
Train Length	Ft	116		Includes U-loop and vaults
Train Width	Ft	25		For vaults
Footprint	Ft x ft	75 x 25		Includes U-pipeline and injection and sampling vaults

Table A.1b Ozone Process Planning Level -Design (Concrete Basin Contactors)

Parameter	Units	Initial	Final	Notes
Feed Source	--	Surface water from TCID Canal		
Process Flow	MGD	5	12	
System		Concrete over/under baffled structure		
Ozone Gas Application		Fine Bubble Diffusers		
Flow per train	MGD	5	6	
Number of trains	Ea	1	2	
Contact Time	Min	9.7	8	
Water Depth	Ft	22		
Cell Length	Ft	5		
Cell Width	Ft	5.1		
Gallery Width	Ft	12		
Total Length	Ft	75		Assumes 15 ft inlet chamber and 18" thick walls
Total Width	Ft	28		Assumed 18" thick walls

Table A.2 – Ozone Dose and Generation Planning Level Basis of Design

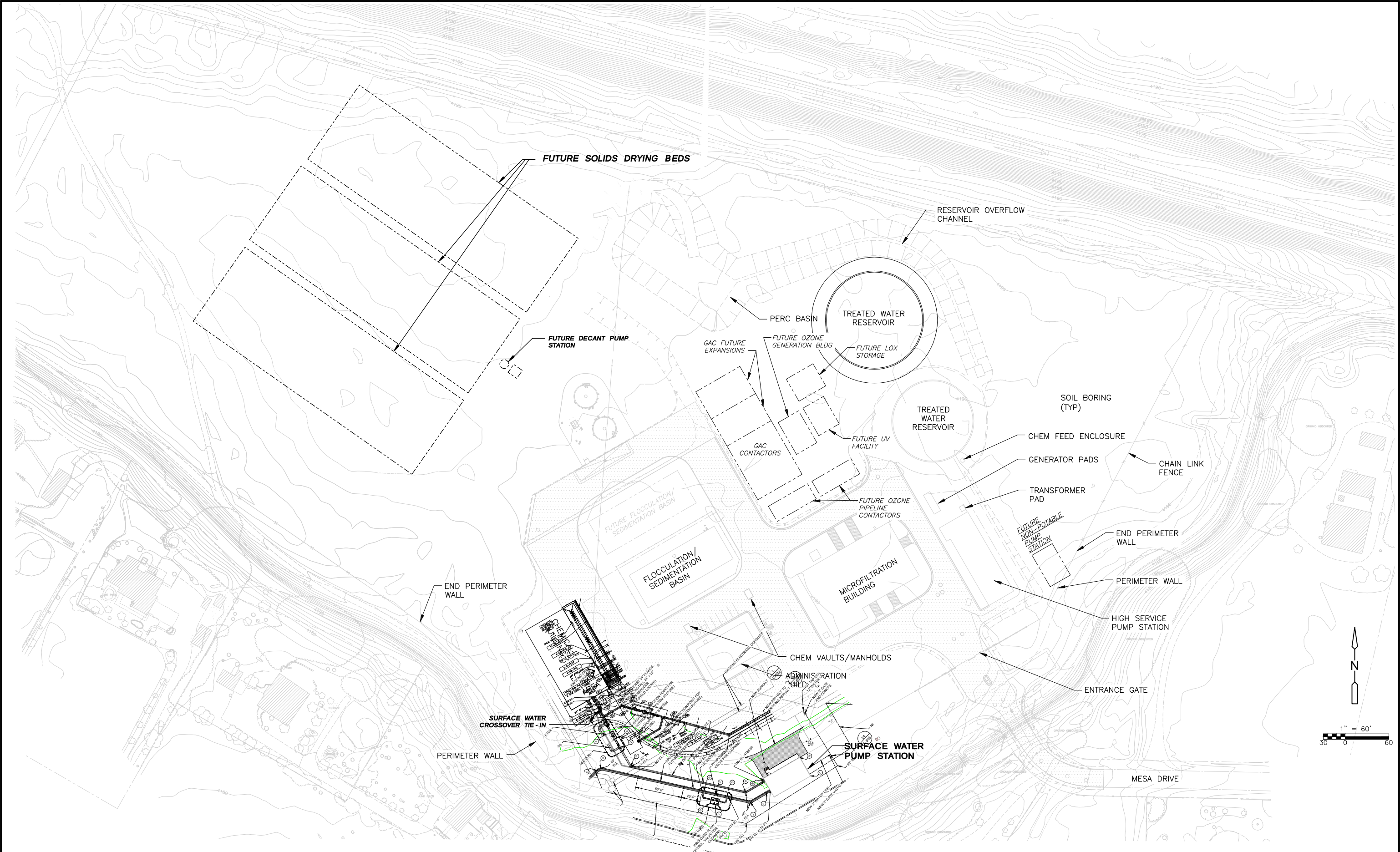
Parameter	Units	Initial	Final	Notes
Process Flow	MGD	5	12	
Dose, Min	Mg/L	2	2	
Dose, Max	Mg/L	4	4	
Capacity Required	PPD	167	400	
Number of generators	Ea	2	3	Includes 1 standby
Capacity, each	ppd	200		
Capacity, total	ppd	400	600	
Building dimensions	Ft x ft			

Table A.3 – LOX System Planning Level Basis of Design

Parameter	Units	Value	Notes
System		LOX	
Storage	-	Vertical tanks	
Number	Ea	2	
Vaporizers	-	Ambient air	
Number	Ea	3	Online, standby, defrosting
Pad dimensions	Ft x ft	20x20	

Appendix A2 Enlarged Site Plan

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REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. URBAN X
DRAWN BY: M. URBAN / M. RUSH
SHEET CHK'D BY: _____ X
CROSS CHK'D BY: _____ X
APPROVED BY: _____ X
DATE: AUGUST 2024

CDM Smith
75 State Street, Suite 701
Boston, MA 02109
Tel: (617) 452-6000

City of Fernley

Surface Water Treatment Evaluation

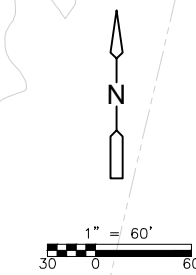
Site Plan

PROJECT NO.

FILE NAME:

SHEET NO.

Figure A.1



Appendix A3 Enlarged Figure 4.3

VERIFICATION SCALE

40'-0"

THIS BAR IS ONE INCH LONG AT FULL SCALE

40'-0"

THIS BAR IS
ONE INCH LONG
AT FULL SCALE

					DESIGNED BY: _____ X	 75 State Street, Suite 701 Boston, MA 02109 Tel: (617) 452-6000	City of Fernley	Surface Water Treatment Evaluation	GAC Site Plan 1	PROJECT NO.
					DRAWN BY: _____					FILE NAME:
					SHEET CHK'D BY: _____ X					SHEET NO.
					CROSS CHK'D BY: _____ X					Figure 4.3
					APPROVED BY: _____ X					
REV. NO.	DATE	DRWN	CHKD	REMARKS	DATE: JUNE 2024					



Appendix B Conceptual Site Plan for Raw Water Piping Modifications

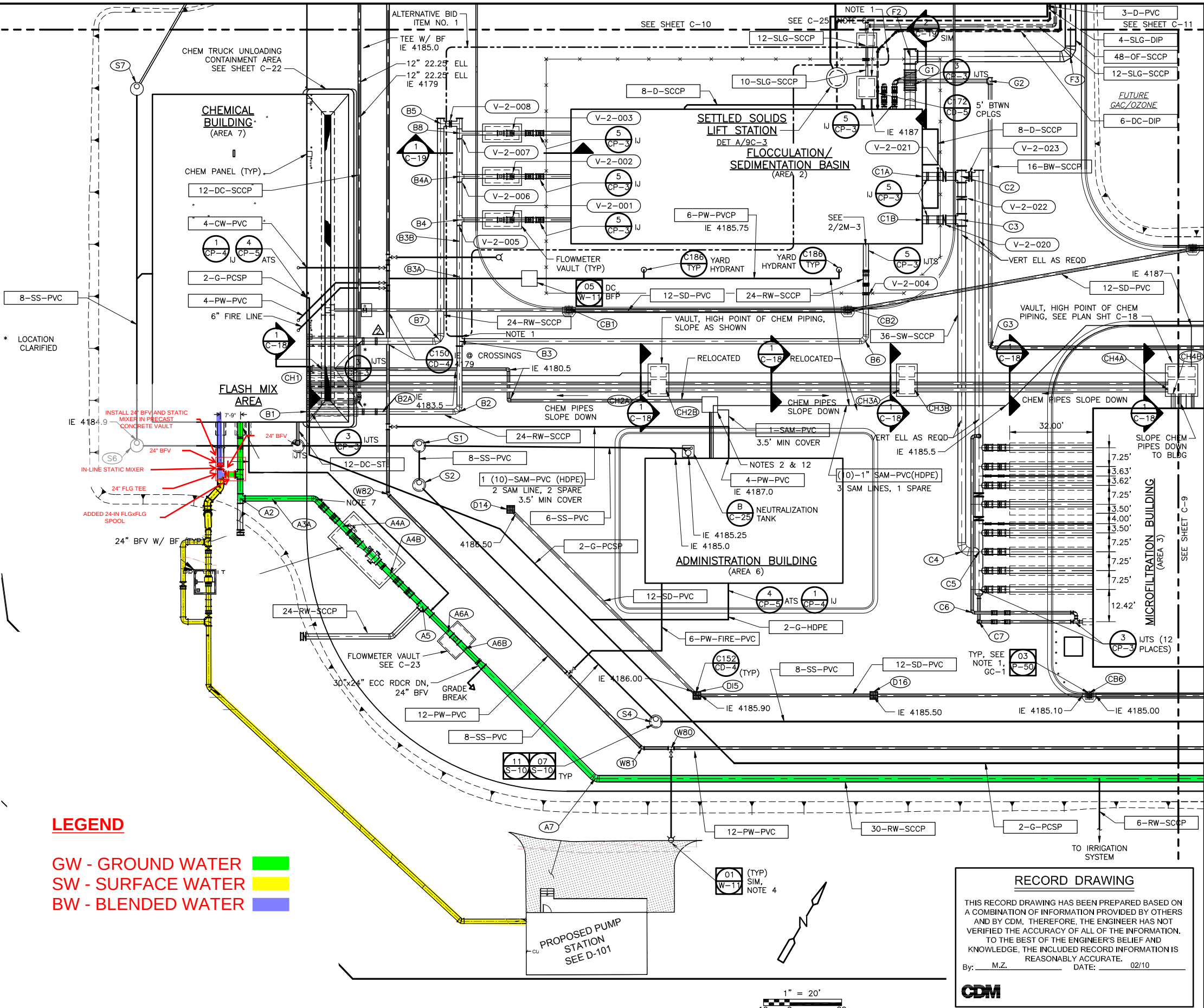
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SAVE DATE: Mar 11, 2010 4:21 PM BY: J. Sellberg
PLOT DATE: Mar 11, 2010 4:21 PM BY: J. Sellberg

YARD PIPING DATA TABLE
(FOR STRUCTURE: PIPE AT INSIDE OF WALL)

NO.	DEFLECTION	INVERT ELEVATION	NORTHING	EASTING	NOTES
A1	TEE W/ BF	4179.5	14898273.20	2429348.67	
A2	TEE H	4179.5	14898265.13	2429465.72	ROTATE TEE
A3	45° LT H	4184.0	14898279.51	2429373.53	
A3A	22.5° V	4184.0	14898271.24	2429359.31	
A4A	VAULT	4184.0	14898275.64	2429388.00	
A4B	VAULT	4184.0	14898268.93	2429413.12	
A5	TEE H	4184.0	14898264.44	2429429.95	
A6A	VAULT	4184.0	14898260.81	2429443.55	
A6B	VAULT	4184.0	14898258.48	2429452.25	
A7	45° RT H	4182.0	14898240.21	2429520.63	
B1	INT	4183.0	14898306.86	2429354.08	
B2	90° H	4179.5	14898336.23	2429404.87	ROTATE ELL VERTICALLY
B2A	3.0° V	4182.5	14898321.49	2429379.34	
B3	TEE H	4179.5	14898359.65	2429391.32	ROTATE TEE
B3A	3.78° V	4179.5	14898381.08	2429378.93	
B3B	3.79° V	4180.41	14898392.94	2429372.07	
B4	TEE H	4181.5	14898400.04	2429367.96	
B4A	TEE H	4181.5	14898414.47	2429359.61	
B5	24 TEE W/BF	4181.5	14898428.38	2429343.19	
B6	90° H	4181.0	14898437.84	2429526.51	ROTATE ELL VERTICALLY
B7	90° H	4182.0	14898356.05	2429385.03	ROTATE ELL VERTICALLY
B8	TEE	4181.5	14898428.90	2429351.27	
C1A	INT	4173.5	14898503.51	2429513.55	
C1B	INT	4173.5	14898489.08	2429521.90	
C2	TEE	4173.5	14898511.08	2429526.65	
C3	TEE	4173.5	14898496.66	2429534.99	
C4	90° H	4166.5	14898386.23	2429598.86	
C5	TEE	4166.5	14898389.56	2429604.61	
C6	90° H	4186.0	14898367.47	2429614.06	
C7	90° H	4186.0	14898366.26	2429618.04	
F2	TEE	4182.5	14898541.08	2429486.42	
F3	90° H	4182.44	14898571.93	2429539.75	
G1	90° H	4178.5	14898529.94	2429485.93	
G2	90° H	4178.5	14898546.36	2429517.74	
G3	90° H	4178.5	14898459.56	2429569.10	
W80	TEE	4186.5	14898264.97	2429540.00	
W81	45° H	4186.5	14898259.37	2429530.32	
W82	45° H	4186.5	14898294.99	2429396.95	
CH1	WALL	4183.0	14898380.21	2429464.26	
CH2A	VAULT	4184.0	14898383.22	2429469.46	
CH2B	VAULT	4184.0	14898428.02	2429546.90	
CH3A	VAULT	4183.50	14898431.02	2429552.10	
CH4A	VAULT	4185.00	14898479.73	2429636.32	
CH4B	VAULT	4185.00	14898479.44	2429638.80	
S1	X	8" IN 4182.70 8" OUT 4182.60 6" IN 4182.70	14898317.11	2429398.02	
S1A	X	8" IN 4183.3 8" OUT 4183.2	14898293.75	2429357.62	
S2	X	8" IN 4182.4 8" OUT 4181.92	14898304.08	2429405.56	
S4	X	8" IN 4180.67 8" OUT 4180.57	14898270.90	2429529.78	
S6	X	8" IN 4184.10 8" OUT 4184.00	14898262.90	2429304.07	
S7	X	8" IN 4185.9 8" OUT 4185.8	14898381.56	2429235.44	
CB1	X	12" IN 4185.20 12" OUT 4185.10	14898391.56	2429421.44	
CB2	X	12" IN 4184.72 12" OUT 4184.62	14898445.16	2429514.21	
DI5	X	12" IN 4186.00 12" OUT 4185.90	14898287.47	2429538.46	
CB6	X	12" IN 4185.10 12" OUT 4185.00	14898363.78	2429668.47	

LEGEND

GW - GROUND WATER
SW - SURFACE WATER
BW - BLENDED WATER



RECORD DRAWING

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By: M.Z. DATE: 02/10

CDM

REV. NO.	DATE	DRWN	CHKD	REMARKS
02-10	DI	GMP		RECORD DRAWING

DESIGNED BY: J. SELLBERG
DRAWN BY: C. ANDERSON
SHEET CHK'D BY: J. SELLBERG
CROSS CHK'D BY: W. O'DONNELL
APPROVED BY: J. SELLBERG
DATE: AUGUST 2007

VERIFY SCALE

THIS BAR IS ONE INCH LONG AT FULL SCALE

WATER TREATMENT FACILITY

1315 MESA DR
FERNLEY, NV 89408

YARD PIPING PLAN 1

PROJECT NO. 37337-54010
FILE NAME: 54010_000008.dwg

DRAWING NO. C-8
20 OF 336

Page 520 of 565

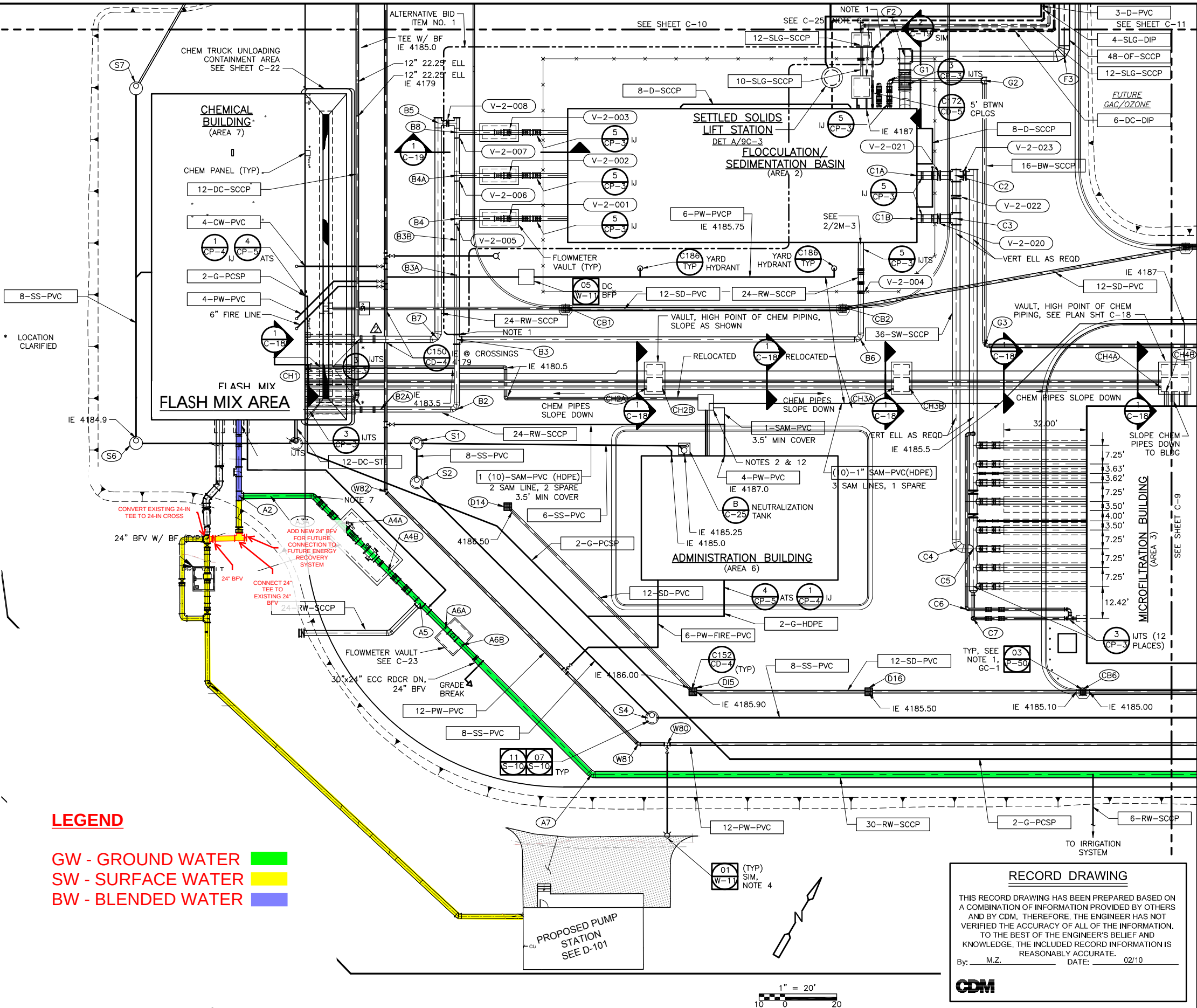
DWG FILE: P:\61973 - Fernley As-Built\02-Civil\54010_000008.dwg
SAVE DATE: Mar 11, 2010 4:21 PM BY: J. Sellberg
PLOT DATE: Mar 11, 2010 4:21 PM BY: J. Sellberg

YARD PIPING DATA TABLE
(FOR STRUCTURE: PIPE AT INSIDE OF WALL)

NO.	DEFLECTION	INVERT ELEVATION	NORTHING	EASTING	NOTES
A1	TEE W/ BF	4179.5	14898273.20	2429348.67	
A2	TEE H	4179.5	14898265.13	2429465.72	ROTATE TEE
A3	45° LT H	4184.0	14898279.51	2429373.53	
A3A	22.5° V	4184.0	14898271.24	2429359.31	
A4A	VAULT	4184.0	14898275.64	2429388.00	
A4B	VAULT	4184.0	14898268.93	2429413.12	
A5	TEE H	4184.0	14898264.44	2429429.95	
A6A	VAULT	4184.0	14898260.81	2429443.55	
A6B	VAULT	4184.0	14898258.48	2429452.25	
A7	45° RT H	4182.0	14898240.21	2429520.63	
B1	INT	4183.0	14898306.86	2429354.08	
B2	90° H	4179.5	14898336.23	2429404.87	ROTATE ELL VERTICALLY
B2A	3.0° V	4182.5	14898321.49	2429379.34	
B3	TEE H	4179.5	14898359.65	2429391.32	ROTATE TEE
B3A	3.78° V	4179.5	14898381.08	2429378.93	
B3B	3.79° V	4180.41	14898392.94	2429372.07	
B4	TEE H	4181.5	14898400.04	2429367.96	
B4A	TEE H	4181.5	14898414.47	2429359.61	
B5	24 TEE W/BF	4181.5	14898428.38	2429343.19	
B6	90° H	4181.0	14898437.84	2429526.51	ROTATE ELL VERTICALLY
B7	90° H	4182.0	14898356.05	2429385.03	ROTATE ELL VERTICALLY
B8	TEE	4181.5	14898428.90	2429351.27	
C1A	INT	4173.5	14898503.51	2429513.55	
C1B	INT	4173.5	14898489.08	2429521.90	
C2	TEE	4173.5	14898511.08	2429526.65	
C3	TEE	4173.5	14898496.66	2429534.99	
C4	90° H	4166.5	14898386.23	2429598.86	
C5	TEE	4166.5	14898389.56	2429604.61	
C6	90° H	4186.0	14898367.47	2429614.06	
C7	90° H	4186.0	14898366.26	2429618.04	
F2	TEE	4182.5	14898541.08	2429486.42	
F3	90° H	4182.44	14898571.93	2429539.75	
G1	90° H	4178.5	14898529.94	2429485.93	
G2	90° H	4178.5	14898546.36	2429517.74	
G3	90° H	4178.5	14898459.56	2429569.10	
W80	TEE	4186.5	14898264.97	2429540.00	
W81	45° H	4186.5	14898259.37	2429530.32	
W82	45° H	4186.5	14898294.99	2429396.95	
CH1	WALL	4183.0			
CH2A	VAULT	4184.0	14898380.21	2429464.26	
CH2B	VAULT	4184.0	14898383.22	2429469.46	
CH3A	VAULT	4183.50	14898428.02	2429546.90	
CH3B	VAULT	4183.50	14898431.02	2429552.10	
CH4A	VAULT	4185.00	14898479.73	2429636.32	
CH4B	VAULT	4185.00	14898479.44	2429638.80	
S1	X	8" IN 4182.70 8" OUT 4182.60 6" IN 4182.70	14898317.11	2429398.02	
S1A	X	8" IN 4183.3 8" OUT 4183.2	14898293.75	2429357.62	
S2	X	8" IN 4182.4 8" OUT 4181.92	14898304.08	2429405.56	
S4	X	8" IN 4180.67 8" OUT 4180.57	14898270.90	2429529.78	
S6	X	8" IN 4184.10 8" OUT 4184.00	14898262.90	2429304.07	
S7	X	8" IN 4185.9 8" OUT 4185.8	14898381.56	2429235.44	
CB1	X	12" IN 4185.20 12" OUT 4185.10	14898391.56	2429421.44	
CB2	X	12" IN 4184.72 12" OUT 4184.62	14898445.16	2429514.21	
DI5	X	12" IN 4186.00 12" OUT 4185.90	14898287.47	2429538.46	
CB6	X	12" IN 4185.10 12" OUT 4185.00	14898363.78	2429668.47	

LEGEND

GW - GROUND WATER
SW - SURFACE WATER
BW - BLENDED WATER



RECORD DRAWING

THIS RECORD DRAWING HAS BEEN PREPARED BASED ON A COMBINATION OF INFORMATION PROVIDED BY OTHERS AND BY CDM. THEREFORE, THE ENGINEER HAS NOT VERIFIED THE ACCURACY OF ALL OF THE INFORMATION. TO THE BEST OF THE ENGINEER'S BELIEF AND KNOWLEDGE, THE INCLUDED RECORD INFORMATION IS REASONABLY ACCURATE.

By: M.Z. DATE: 02/10

CDM

REV. NO.	DATE	DRWN	CHKD	REMARKS
02-10	DI	GMP		RECORD DRAWING

DESIGNED BY: J. SELLBERG
DRAWN BY: C. ANDERSON
SHEET CHK'D BY: J. SELLBERG
CROSS CHK'D BY: W. O'DONNELL
APPROVED BY: J. SELLBERG
DATE: AUGUST 2007

VERIFY SCALE

THIS BAR IS ONE INCH LONG AT FULL SCALE

WATER TREATMENT FACILITY

1315 MESA DR
FERNLEY, NV 89408

YARD PIPING PLAN 1

PROJECT NO. 37337-54010
FILE NAME: 54010_000008.dwg

DRAWING NO. C-8
20 OF 336

Page 521 of 565



Appendix C Fernley FWTF Process Flow Diagrams for Scenarios 1, 2, and 3

DWG FILE: P:\61973 - Fernley As-Built\01-GEN\54010_00G010.dwg
SAVE DATE: Feb 25, 2010 1:25 PM BY: islasjd
XREFS: FERNLEY_TB Record-DWG010

LEGEND

GW - GROUND WATER
SW - SURFACE WATER
BW - BLENDED WATER

LEGEND AND ABBREVIATIONS

AS	ARSENIC	⋈	FLOW METER, GENERIC REPRESENTATION
BW	BACKWASH	⋈	KEY VALVE, GENERIC VALVE, NORMALLY CLOSED (NOT ALL SHOWN)
CA	CITRIC ACID	⋈	KEY VALVE, GENERIC (NOT ALL SHOWN)
CL2	CHLORINE	⋈	SLUICE GATE (NOT ALL SHOWN)
CS	CAUSTIC SODA	⋈	PUMP OR BLOWER, GENERIC REPRESENTATION
EX	EXISTING	⋈	ANALYZER
FC	FERRIC CHLORIDE	X MGD	INITIAL DESIGN FLOW
FTW	FILTER-TO-WASTE	(X MGD)	ULTIMATE DESIGN FLOW
FUT	FUTURE	—	CHEMICAL ADDITION POINT
GPM	GALLONS PER MINUTE	—	MAIN PROCESS FLOW
LFC	LIQUID FERRIC CHLORIDE	—	RESIDUALS, OVER FLOWS, RECLAIMED WATER
M	ELECTRIC MOTOR DRIVEN	—	FUTURE FACILITIES
MF	MICROFILTRATION	⊗	MIXER, GENERIC REPRESENTATION
MGD	MILLION GALLONS PER DAY	⊗	SUBMERSIBLE MIXER, GENERIC REPRESENTATION
NTU	TURBIDITY		
OCL	SODIUM HYPOCHLORITE		
pH	PH		
PRV	PRESSURE REGULATING VALVE		
SCD	STREAMING CURRENT DETECTOR		
SPARE	SPARE CHEMICAL		
TEMP	TEMPERATURE		
UV	ULTRA VIOLET DISINFECTION		

DESCRIPTION: GW and SW flows are upstream of the flash mix outside of the building.
Under low flow conditions, option to not use CO2.

REV. NO.	DATE	DRWN	CHKD	REMARKS
02-10	DI	GMP		RECORD DRAWING

DESIGNED BY: J. SELLBERG
DRAWN BY: T. NGUYEN
SHEET CHK'D BY: M. ZAFER
CROSS CHK'D BY: W. O'DONNELL
APPROVED BY: J. SELLBERG
DATE: AUGUST 2007

CDM Camp Dresser & McKee Inc.
100 PRINGLE AVENUE, SUITE 300
WALNUT CREEK, CA 94596
Tel (925) 933-2900
Fax (925) 933-4174

VERIFY SCALE
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595 SILVER LACE BLVD
FERNLEY, NV 89408
Tel (775) 784-9910

WATER TREATMENT FACILITY

1315 MESA DR
FERNLEY, NV 89408

PROCESS FLOW DIAGRAM

FLOW SCENARIO 1 - BLENDED FLOWS (HEAD OF PLANT)

PROJECT NO. 37337-54010
FILE NAME: 54010_00G010.dwg
DRAWING NO. G-10
10 OF 336

DWG FILE: P:\61973 - Fernley As-Built\01-GEN\54010_00G010.dwg
SAVE DATE: Feb 25, 2010 1:25 PM BY: islsjd
XREFS: FERNLEY_TB Record-DWG01c

DESIGNED BY: J. SELLBERG
DRAWN BY: T. NGUYEN
SHEET CHK'D BY: M. ZAFER
CROSS CHK'D BY: W. O'DONNELL
APPROVED BY: J. SELLBERG
DATE: AUGUST 2007

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FERNLEY, NV 89408

PROJECT NO. 37337-54010
FILE NAME: 54010_00G010.dwg
DRAWING NO. G-10
10 OF 336

Page 524 of 565

LEGEND

GW - GROUND WATER
SW - SURFACE WATER
BW - BLENDED WATER

LEGEND AND ABBREVIATIONS

AS	ARSENIC	○	FLOW METER, GENERIC REPRESENTATION
BW	BACKWASH	⋈	KEY VALVE, GENERIC VALVE, NORMALLY CLOSED (NOT ALL SHOWN)
CA	CITRIC ACID	⋈	KEY VALVE, GENERIC (NOT ALL SHOWN)
CL2	CHLORINE	⋈	SLUICE GATE (NOT ALL SHOWN)
CS	CAUSTIC SODA	⋈	PUMP OR BLOWER, GENERIC REPRESENTATION
EX	EXISTING	⋈	ANALYZER
FC	FERRIC CHLORIDE	⋈	INITIAL DESIGN FLOW
FTW	FILTER-TO-WASTE	⋈	ULTIMATE DESIGN FLOW
FUT	FUTURE	⋈	CHEMICAL ADDITION POINT
GPM	GALLONS PER MINUTE	⋈	MAIN PROCESS FLOW
LFC	LIQUID FERRIC CHLORIDE	⋈	RESIDUALS, OVER FLOWS, RECLAIMED WATER
M	ELECTRIC MOTOR DRIVEN	⋈	FUTURE FACILITIES
MF	MICROFILTRATION	⋈	MIXER, GENERIC REPRESENTATION
MGD	MILLION GALLONS PER DAY	⋈	SUBMERSIBLE MIXER, GENERIC REPRESENTATION
NTU	TURBIDITY	⋈	
OCL	SODIUM HYPOCHLORITE	⋈	
pH	PH	⋈	
PRV	PRESSURE REGULATING VALVE	⋈	
SCD	STREAMING CURRENT DETECTOR	⋈	
SPARE	SPARE CHEMICAL	⋈	
TEMP	TEMPERATURE	⋈	
UV	ULTRA VIOLET DISINFECTION	⋈	

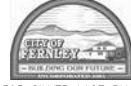
DESCRIPTION: GW and SW flows are combined in the Equalization Basin(s)

REV. NO.	DATE	DRWN	CHKD	REMARKS
02-10	DI	GMP		RECORD DRAWING

DESIGNED BY: J. SELLBERG
DRAWN BY: T. NGUYEN
SHEET CHK'D BY: M. ZAFER
CROSS CHK'D BY: W. O'DONNELL
APPROVED BY: J. SELLBERG
DATE: AUGUST 2007

CDM Camp Dresser & McKee Inc. consulting engineering construction operations	100 PRINGLE AVENUE, SUITE 300 WALNUT CREEK, CA 94596 Tel (925) 933-2900 Fax (925) 933-4174
--	---

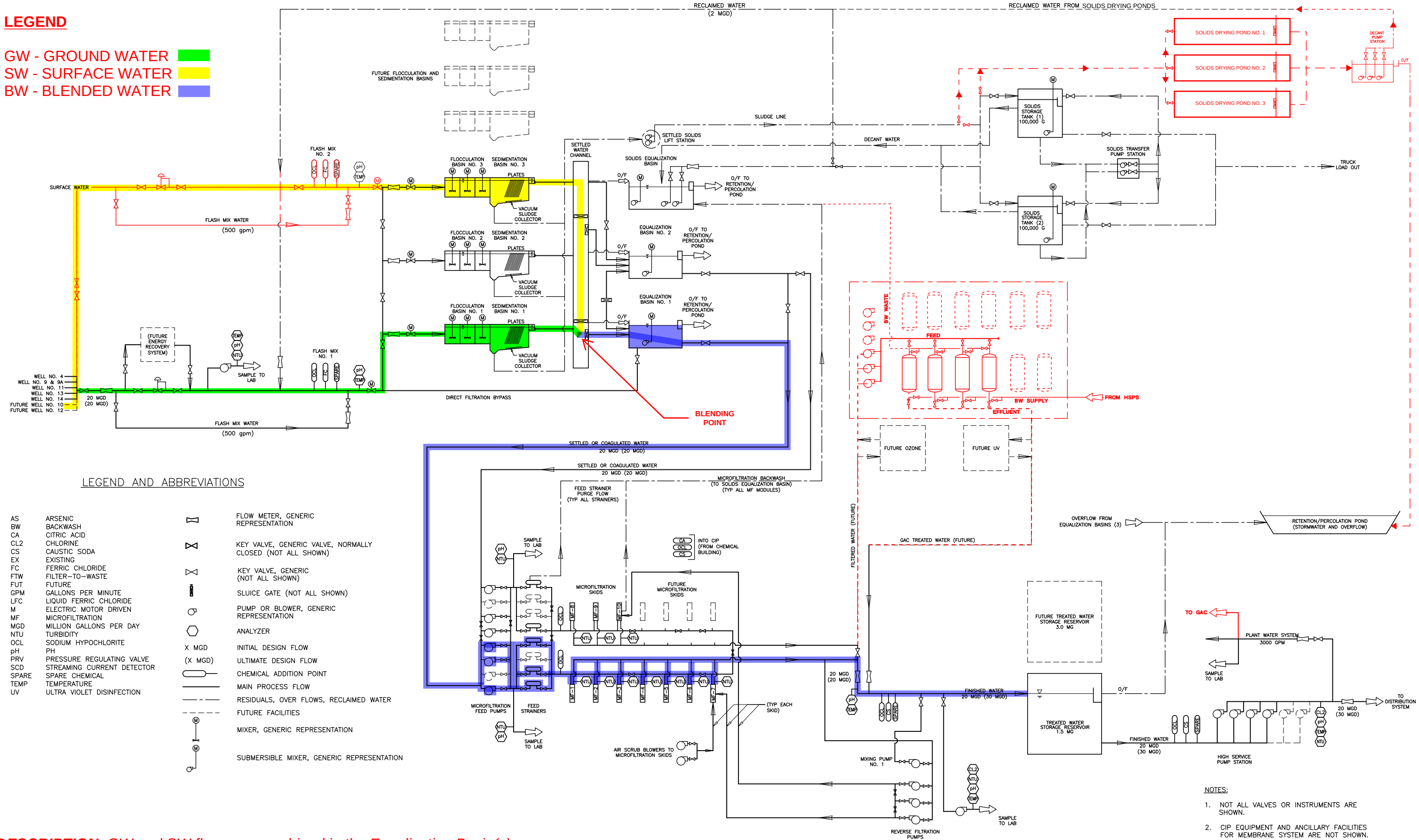
VERIFY SCALE
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 595 SILVER LACE BLVD FERNLEY, NV 89408 Tel (775) 784-9910
--

WATER TREATMENT FACILITY 1315 MESA DR FERNLEY, NV 89408
--

PROCESS FLOW DIAGRAM FLOW SCENARIO 2 - BLENDING AFTER SEDIMENTATION
--

PROJECT NO. 37337-54010 FILE NAME: 54010_00G010.dwg DRAWING NO. G-10 10 OF 336



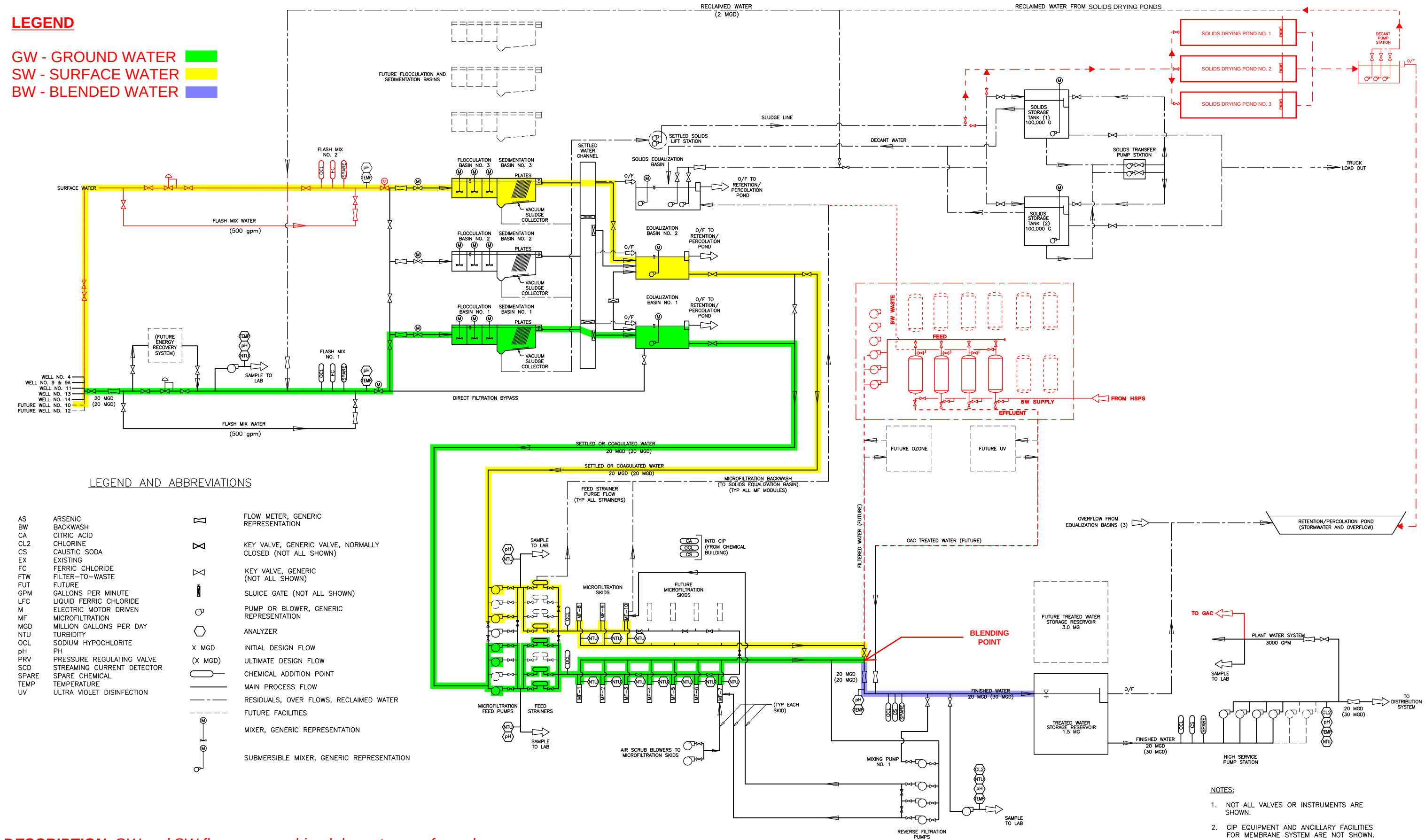
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 SAVE DATE: Feb 25, 2010 1:25 PM BY: lsasjd
 PLOT DATE: Feb 25, 2010 1:25 PM BY: lsasjd
 XREFS: FERNLEY_TB Record-DWG01c

LEGEND

GW - GROUND WATER
 SW - SURFACE WATER
 BW - BLENDED WATER

AS ARSENIC
 BW BACKWASH
 CA CITRIC ACID
 CL2 CHLORINE
 CS CAUSTIC SODA
 EX EXISTING
 FC FERRIC CHLORIDE
 FTW FILTER-TO-WASTE
 FUT FUTURE
 GPM GALLONS PER MINUTE
 LFC LIQUID FERRIC CHLORIDE
 M ELECTRIC MOTOR DRIVEN
 MF MICROFILTRATION
 MGD MILLION GALLONS PER DAY
 NTU TURBIDITY
 OCL SODIUM HYPOCHLORITE
 pH PH
 PRV PRESSURE REGULATING VALVE
 SCD STREAMING CURRENT DETECTOR
 SPARE SPARE
 TEMP TEMPERATURE
 UV ULTRA VIOLET DISINFECTION
 FLOW METER, GENERIC REPRESENTATION
 KEY VALVE, GENERIC VALVE, NORMALLY CLOSED (NOT ALL SHOWN)
 KEY VALVE, GENERIC (NOT ALL SHOWN)
 SLUICE GATE (NOT ALL SHOWN)
 PUMP OR BLOWER, GENERIC REPRESENTATION
 ANALYZER
 INITIAL DESIGN FLOW
 ULTIMATE DESIGN FLOW
 CHEMICAL ADDITION POINT
 MAIN PROCESS FLOW
 RESIDUALS, OVER FLOWS, RECLAIMED WATER
 FUTURE FACILITIES
 MIXER, GENERIC REPRESENTATION
 SUBMERSIBLE MIXER, GENERIC REPRESENTATION

LEGEND AND ABBREVIATIONS



DESCRIPTION: GW and SW flows are combined downstream of membranes.

REV. NO.	DATE	DRWN	CHKD	REMARKS
02-10	DI	GMP		RECORD DRAWING
DESIGNED BY: J. SELLBERG				
DRAWN BY: T. NGUYEN				
SHEET CHK'D BY: M. ZAFER				
CROSS CHK'D BY: W. O'DONNELL				
APPROVED BY: J. SELLBERG				
DATE: AUGUST 2007				

CDM Camp Dresser & McKee Inc.
 100 PRINGLE AVENUE, SUITE 300
 WALNUT CREEK, CA 94596
 Tel (925) 933-2900
 Fax (925) 933-4174

VERIFY SCALE
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WATER TREATMENT FACILITY
 1315 MESA DR
 FERNLEY, NV 89408
 595 SILVER LACE BLVD
 FERNLEY, NV 89408
 Tel (775) 784-9910

PROJECT NO. 37337-54010
 FILE NAME: 54010_00G010.dwg
 DRAWING NO. G-10
 10 OF 336

PROCESS FLOW DIAGRAM
 FLOW SCENARIO 3 - BLENDING ONLY WHEN FULLY TREATED



Appendix D 1000-GPM Pump Design Performance Curve

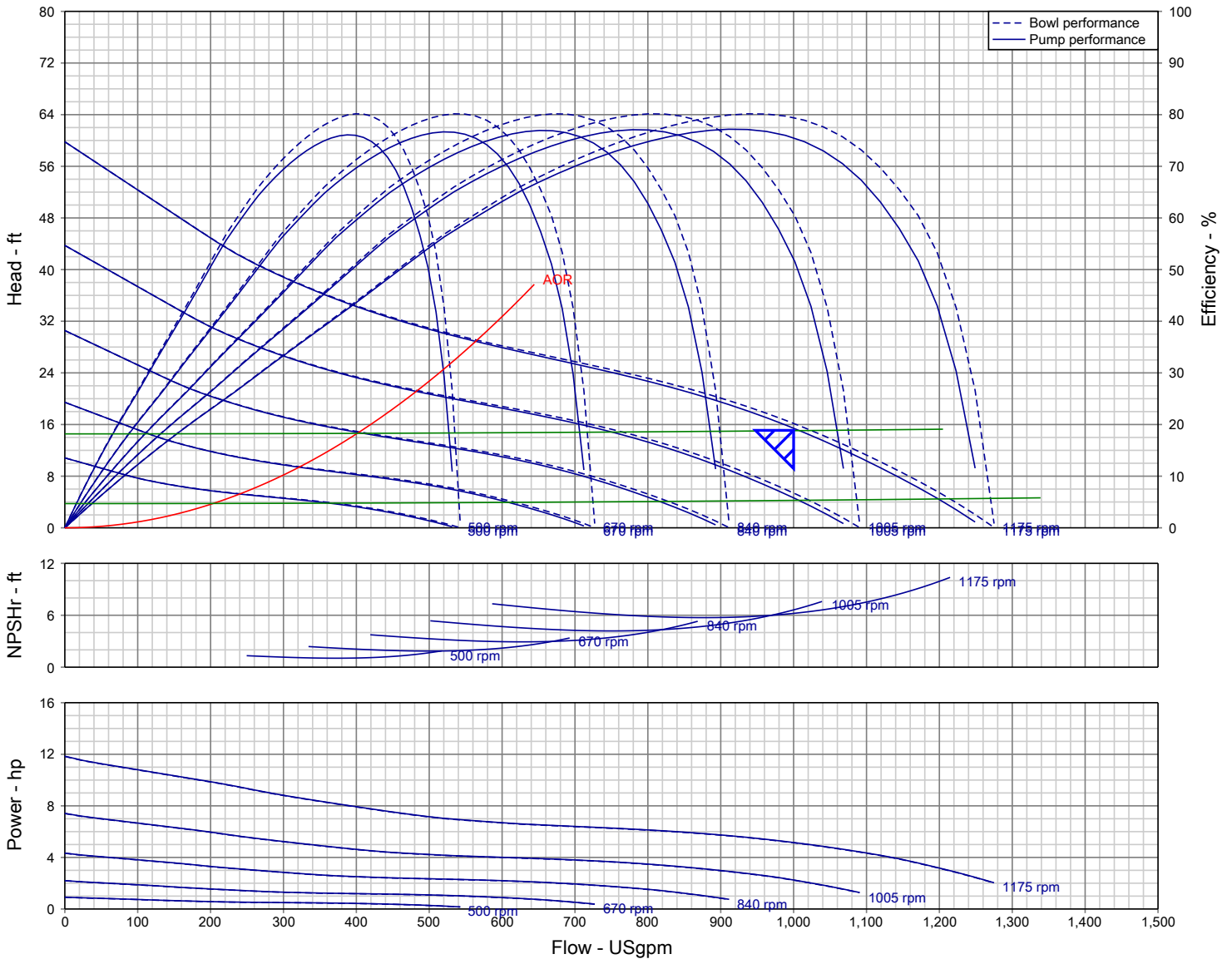


CASCADE PUMP COMPANY

Customer : G3 ENGINEERING, INC.
Customer Reference :
Job Name : Truckee Canal Surface Water PS
Low Flow Pump

Pump Model : 8MF_XA4_B_RPM1175
Quote/Serial No. : CQ2185

Pump and bowl (dashed) performance.



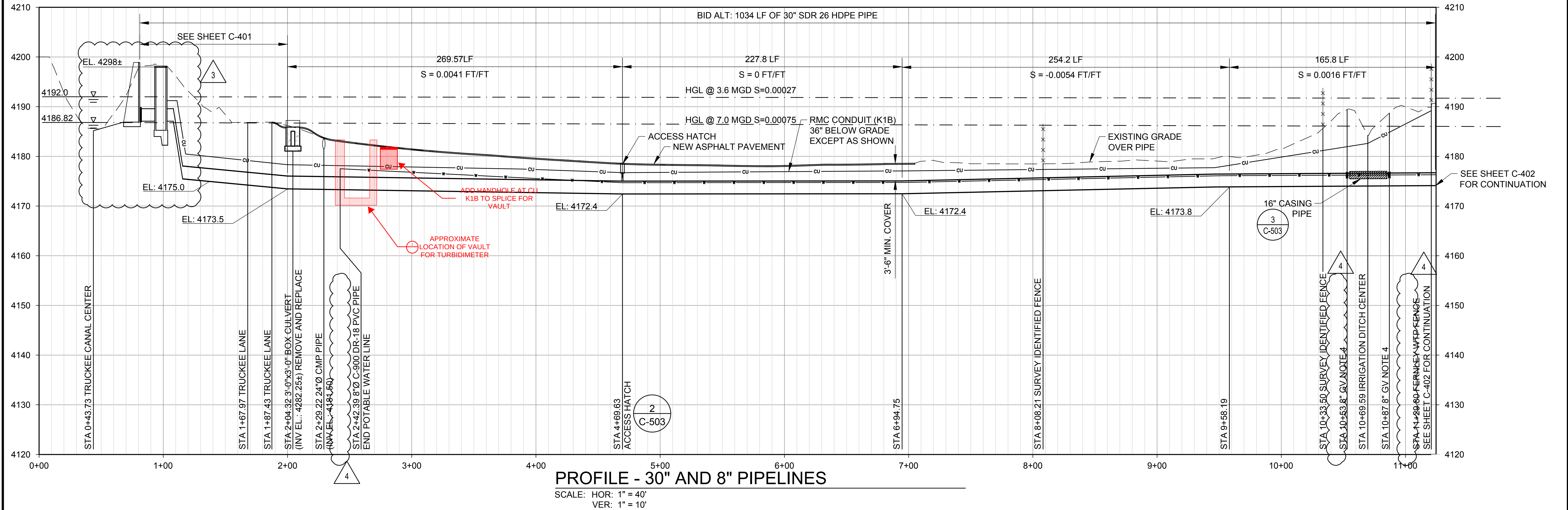
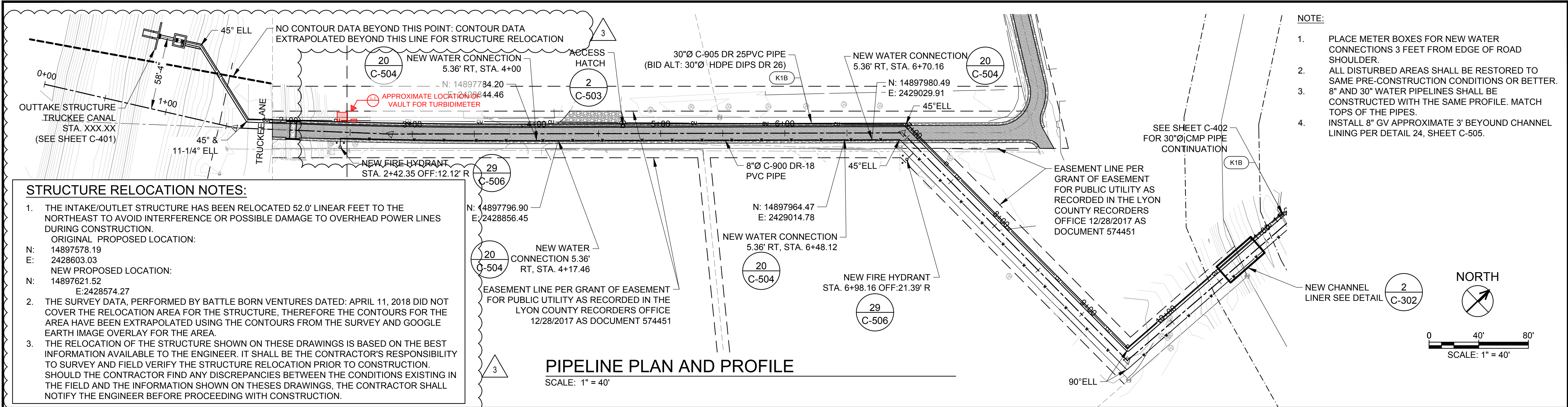
Curves show approximately the characteristics when pumping clear non-aerated water. No guarantee is made except for the rated point.

Quantity	: 1	Nominal speed	: 1170 rpm
Flow, rated	: 1,000.0 USgpm	Stages	: 2
Differential head / pressure, rated / TDH	: 15.10 ft	Efficiency (bowl / pump)	: 79.43 / 75.52 %
Speed, rated	: 1175 rpm	Power, rated	: 5.14 hp
Impeller trim, rated	: 40	NPSH required	: 6.22 ft
Site Supply Frequency	: 60 Hz	Fluid density, rated / max	: 1.000 / 1.000 SG
Date	: 04/01/2024	Item Number	: A
		Application	:



Appendix E Turbidimeter Vault Conceptual Plan

PLOT BY: DAVID LARSON - Feb 07, 2022 - 3:48:07pm
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IMAGES: tcd.jpg 1202410nw.tif 1202410sw.tif



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IF THIS BAR IS LESS THAN ONE INCH, IT IS A REDUCED PRINT. SCALE REDUCED SHEET ACCORDINGLY.	

NO.	BY.	DATE	REVISIONS DESCRIPTION
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2	TG	07/01/21	ADDENDUM NO. 1
3	TG	07/06/21	ADDENDUM NO. 2
4	TG	12/20/21	INTAKE RELOCATION / BUILDING PERMIT
5	DD	01/28/22	REVISED FOR PVC PIPING

NO.	BY.	DATE	REVISIONS DESCRIPTION
1	DD	06/30/21	ISSUED FOR CONSTRUCTION
2	TG	07/01/21	ADDENDUM NO. 1
3	TG	07/06/21	ADDENDUM NO. 2
4	TG	12/20/21	INTAKE RELOCATION / BUILDING PERMIT
5	DD	01/28/22	REVISED FOR PVC PIPING

DRAWING SCALE		AS NOTED	
		DATE	
DESIGNED BY:	GF	10/01/2019	
DRAWN BY:	DL	10/01/2019	
CHECKED BY:	DD	10/01/2019	
APPROVED BY:	TG	10/01/2019	

AECOM
1 EAST FIRST STREET
16TH FLOOR
RENO, NEVADA 89501
TEL: (775) 870-4923

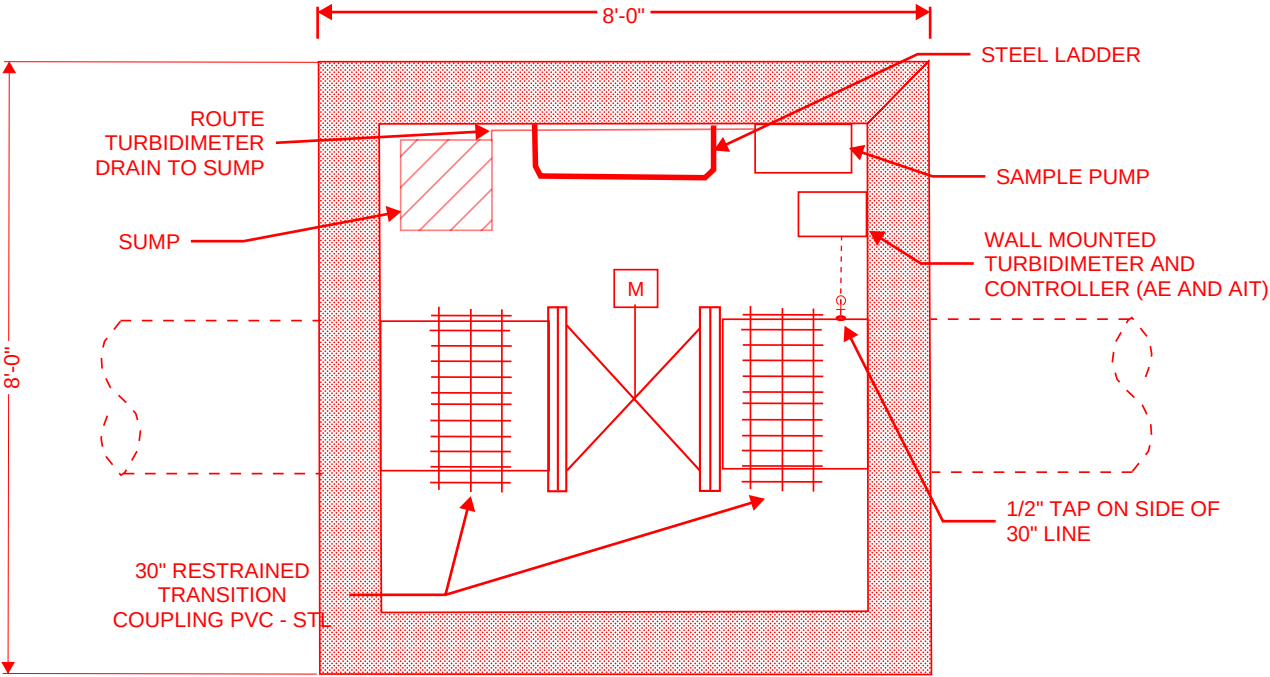
CITY OF FERNLEY TRUCKEE CANAL DIVERSION AND CONVEYANCE PIPELINE PLAN AND PROFILE	JOB NO.
	CONTRACT/TASK ORDER NO.
	SHEET NO. C-201



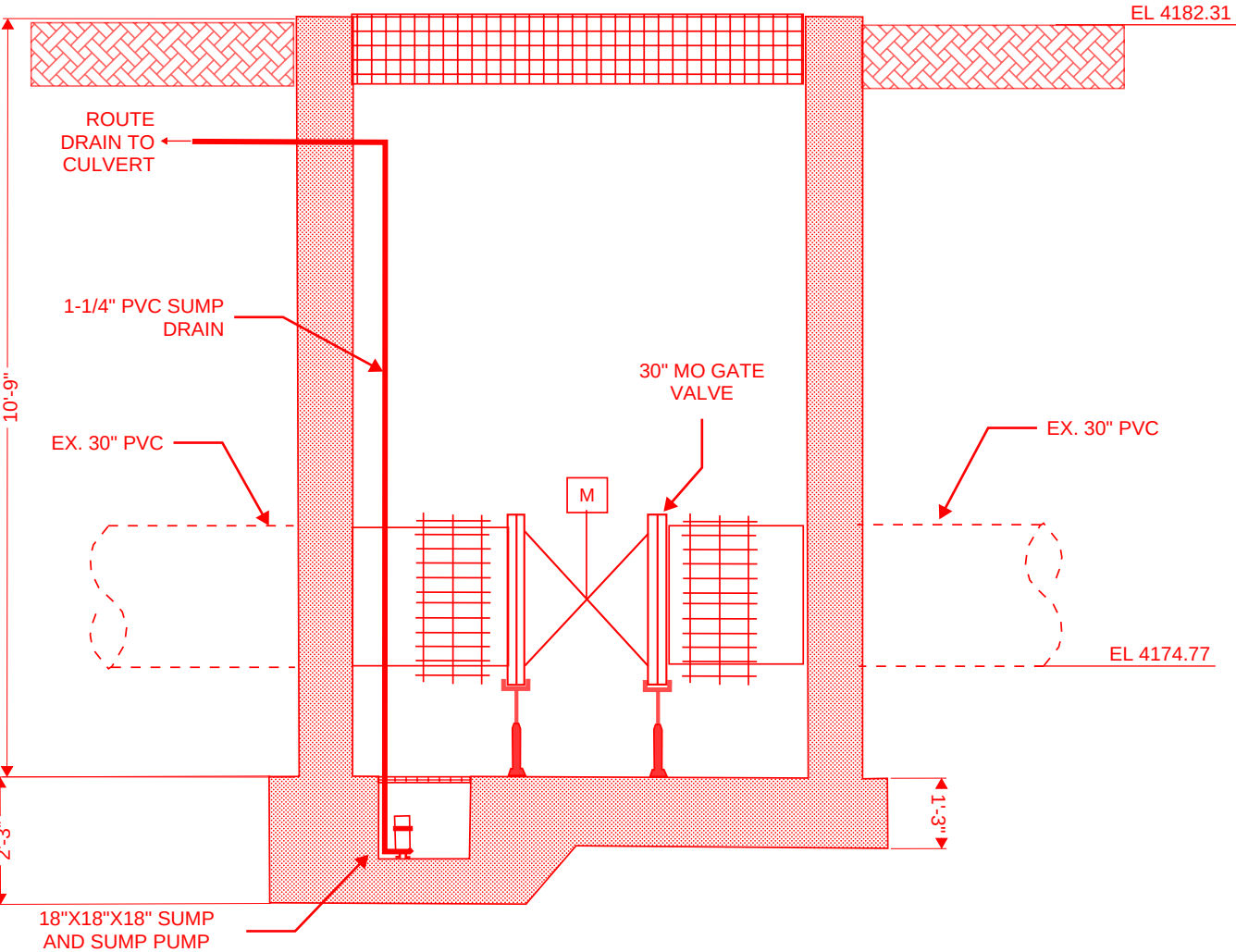
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N.T.S. 1
C-201



VAULT SITE LOCATION FACING EAST
N.T.S. 2
C-201



PLAN



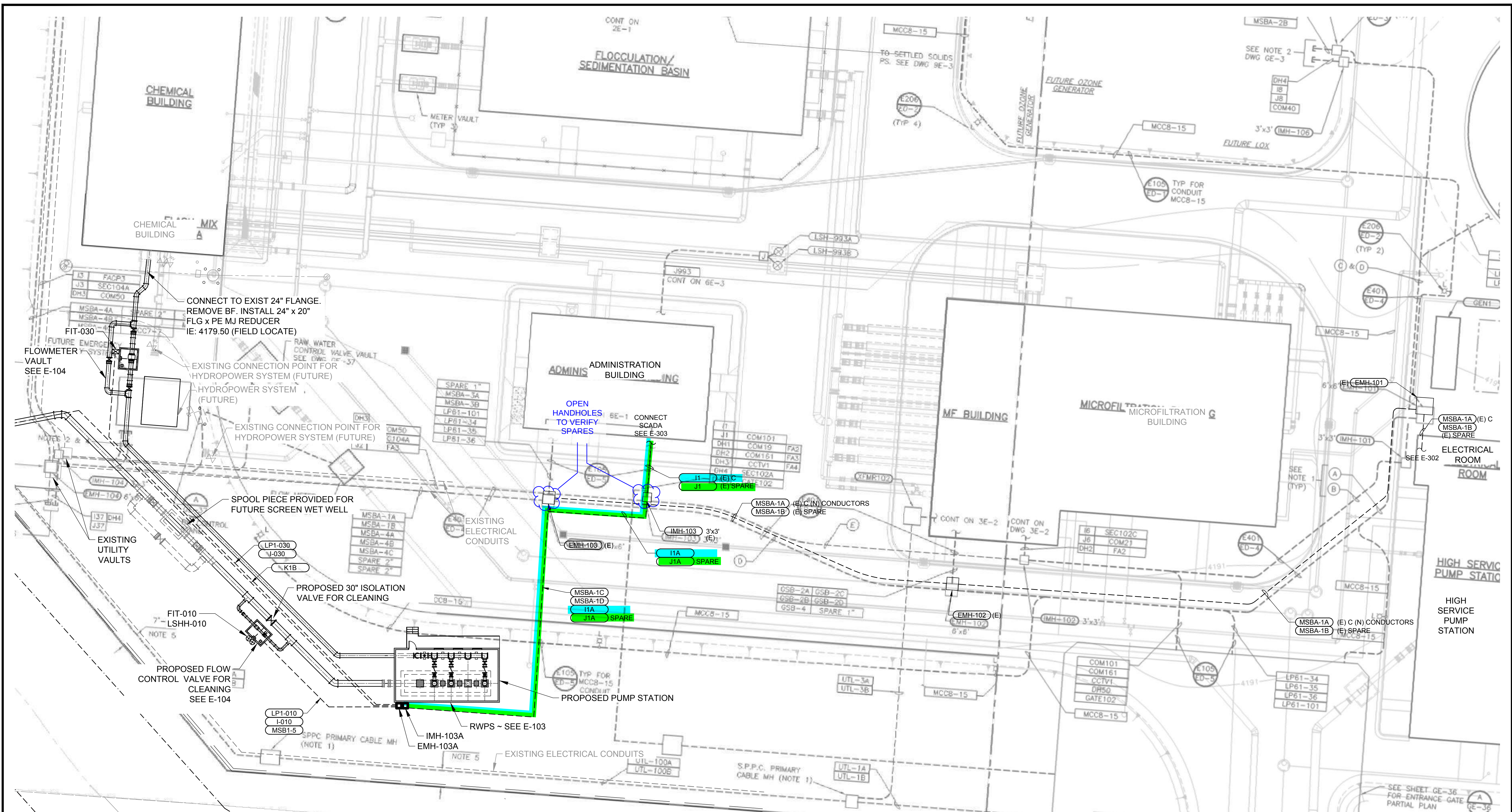
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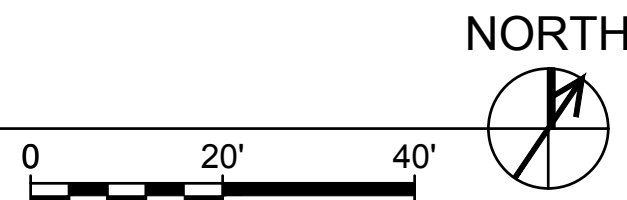
Appendix F Telecommunications Conduit Layout and Schedule

IMAGES: GE-3.tif GE-4.tif 120241Dnw.tif 120241Dnw.tif

PLOT BY: DAVID LARSON - Jun 02, 2021 - 11:04:34am
DRAWING: L:\DCS\Projects\Water\60544235_TOD_Cond_Intake\900_CAD_051910_CAD\20_Streets\E-101.dwg



ELECTRICAL SITE PLAN
SCALE: 1" = 20'



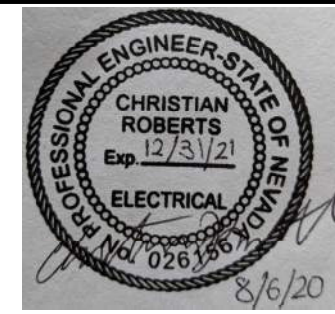
GENERAL NOTES

- PROJECT WORK SHALL USE EXISTING (E) ELECTRICAL CONDUIT AND VAULTS TO EXTENT POSSIBLE. SEE (E) AS-BUILT SHEETS GE-3 AND GE-4 FOR SITE FEATURES AND CONDUIT CALLOUTS.
- SEE SHEET E-102 FOR GENERAL ELECTRICAL NOTES.

DRAWING SCALE
0 1 INCH
IF THIS BAR IS LESS THAN ONE INCH, IT IS A REDUCED PRINT. SCALE REDUCED SHEET ACCORDINGLY.

NO.	BY.	DATE	REVISIONS DESCRIPTION
1	DB	06/03/21	ISSUED FOR CONSTRUCTION BIDDING
2			
3			
4			

NO.	BY.	DATE	REVISIONS DESCRIPTION
1	DB	06/03/21	ISSUED FOR CONSTRUCTION BIDDING
2			
3			
4			



DRAWING SCALE		N/A
DESIGNED BY:	SK	10/01/2019
DRAWN BY:	DB	10/01/2019
CHECKED BY:	MR	10/01/2019
APPROVED BY:	TG	10/01/2019

AECOM
1 EAST FIRST STREET
16TH FLOOR
RENO, NEVADA 89501
TEL: (775) 870-4923

CITY OF FERNLEY
TRUCKEE CANAL DIVERSION AND CONVEYANCE

ELECTRICAL SITE PLAN

JOB NO.
CONTRACT/TASK ORDER NO.
SHEET NO.
E-101

PLOT BY: DAVID LARSON - Jul 01, 2021 - 8:13:15am
 DRAWING: L:\DCS\Projects\Water\60544235_TOD_Cond_Intake\900_CAD_05\910_CAD\20_Streets\E-401.dwg

CABLE AND CONDUIT SCHEDULE						
CONDUIT NUMBER	SIZE (INCH)	CONDUCTORS			FROM	TO
		POWER	CONTROL/SIGNAL	SPARE		NOTES
I-010	1 1/2	--	1 MFR CABLE (FIT-010); 2TSP#16; 10#14 & 1#14 G	2#14	FE-010/FIT-010 INCOMING VAULT	RWSCP VALVE CONTROL & POSITION, FLOW TRANSMITTER, AND VAULT LEVEL SWITCH
I-030	1	--	1 MFR CABLE (FIT-030); 1#14 G	2#14	FE-030/FIT-030 OUTGOING VAULT	RWSCP FLOW TRANSMITTER CABLE
I1	1	--	1, 24 FIBER FO CABLE	--	IMH-103	ADMIN SCADA PANEL (E) CONDUIT, (N) SCADA, FIBER CONNECTION
I1A	1	--	1, 24 FIBER FO	--	IMH-103	IMH-103A, RWSCP SCADA FO CONNECTION
I101	3/4	--	2#14 & 1#14 G	--	PSHH-101	RWPCP
I102	3/4	--	2#14 & 1#14 G	--	PSHH-102	RWPCP
I103	3/4	--	PULLCORD	--	PSHH-103 (FUTURE)	RWPCP STUB OUT AFTER ELBOW AT WALL
I104	3/4	--	2#14 & 1#14 G	--	PSHH-104	RWPCP
I150	3/4	--	1TST#18 & 1#14 G	--	LIT-150	RWSCP SUMP WATER LEVEL
J1	1	--	(E) PULLCORD	--	IMH-103	ADMIN SCADA (E) CONDUIT, NOTED AS SPARE
J1A	1	--	PULLCORD	--	IMH-103	IMH-103A, RWSCP SPARE, FUTURE SCADA
LP1-010	1	4#12 & 1#12 G	--	--	LP-1	JBOX: FIT-010 XMTR; SUMP PUMP AC POWER; FIT TO BE ABOVE GRADE
LP1-030	1	2#12 & 1#12 G	--	--	LP-1	FIT-030 XMTR AC POWER; FIT TO BE ABOVE GRADE
LP1-LTG	3/4	2#12 & 1#12 G	--	--	LP-1	LIGHT SWITCHES INTERIOR LIGHTS
LP1-RECP	3/4	2#12 & 1#12 G	--	--	LP-1	RECEPTACLES
LP1-RWSCP	1	6#12 & 1#12 G	--	--	LP-1	RWSCP 120V TO CONTROLS, AC UNIT AND
LP1-RWPCP	1	4#12 & 1#12 G	--	--	LP-1	RWPCP 120V TO AC UNIT AND RECEPTACLE
MSBA-1A	3	3#250 KCM & 1#4 G	--	--	MSB-A	MSB-1, RWPS (E) CONDUIT TO EMH-103, (N) CABLE
MSBA-1B	3	--	(E) PULLCORD	--	MSB-A	EMH-104 STUBOUT (E) CONDUIT, NOT USED
MSBA-1C	3	3#250 KCM & 1#4 G	--	--	EMH-103	EMH103A, MSB-1 (N) CONDUIT & CABLE INTO RWPS
MSBA-1D	3	--	PULLCORD	--	EMH-103	EMH103A, MSB-1 (N) SPARE POWER CONDUIT INTO RWPS
MSB1-1	1	3#6 & 1#10 G	--	--	MSB-1	VFD111
MSB1-2	1	3#6 & 1#10 G	--	--	MSB-1	VFD112
MSB1-3	1	PULLCORD	--	--	MSB-1	VFD113 FUTURE PUMP 103
MSB1-4	1	3#6 & 1#10 G	--	--	MSB-1	VFD114
MSB1-5	1	3#12 & 1#12 G	--	--	MSB-1	MOV-010 480V, 3 PHASE TO VALVE VAULT
MSB1-T1	1	2#8 & 1#10 G	--	--	MSB-1	T-1 480V, 1 PHASE
RWPCP-1	2	--	3 CAT 6, 6TSP#18	--	RWPCP	RWSCP ETHERNET AND ANALOG TO VFDs
RWPCP-2	2	--	54#14 & 3#14 G	6#14	RWPCP	RWSCP 120V CONTROL, PLC TO VFDs
RWPCP-3	2	--	PULLCORD	--	RWPCP	RWSCP FUTURE PUMP 103
RWSCP-1	3/4	--	4#14 & 1#14 G	--	RWSCP	SMOKE DETECTORS
RWSCP-2	3/4	--	2#14 & 1#14 G	2#14	RWSCP	ENTRANCE DOOR
RWSCP-3	3/4	--	1TSP#18 & 1#14 G	--	PIT-150	RWSCP
RWSCP-4	1	--	20#14	--	RWSCP	SEAL WATER 120V AC, W/ #14 G TO EACH
T1-LP1	1 1/2	3#4 & 1#8 G	--	--	T-1	LP-1 120/240V
VFD111A	1	3#6 & 1#10 G	4#14 & 1#14 G	--	VFD111	P-1-101 VFDs ENCLOSED IN RAW WATER PUMP CONTROL PANEL (RWPCP)
VFD112A	1	3#6 & 1#10 G	4#14 & 1#14 G	--	VFD112	P-1-102 VFDs ENCLOSED IN RAW WATER PUMP CONTROL PANEL (RWPCP)
VFD113A	1	--	PULLCORD	--	VFD113	P-1-103 CONDUIT CAPPED NEAR WALL
VFD114A	1	3#6 & 1#10 G	4#14 & 1#14 G	--	VFD114	P-1-104 VFDs ENCLOSED IN RAW WATER PUMP CONTROL PANEL (RWPCP)
K1A	4	2#8	--	--	MSB-1	EMH-103A K1A
K1B	4	2#8	--	--	EMH-103A	SUMP PUMP CONCRETE VAULT LUBRICANT REQUIRED FOR CABLE PULL
ALL CONDUCTORS COPPER. SEE NOTE 2.						

PANEL 'LP-1'						LOCATION: RWPS	
VOLTAGE: 240/120			MOUNTING: SURFACE			AIC: 10 K	
BUS: 125A			TYPE: NEMA 3R			MAIN: 125A	
LOAD		VA	CB	NO	NO	CB	VA
LTG	384	20	1	1	2	20	1
LTG	50	20	1	3	4	20	1
SCADA (RWSCP)	600	20	1	5	6	20	1
FLOW METER FIT-10	20	20	1	7	8	20	1
FLOW METER FIT-150	20	20	1	9	10	20	1
SPACE HEATER (AC-1)	670	20	1	11	12	20	1
RWPCP AC	940	20	1	13	14	20	1
SPARE		20	1	15	16	20	1
SPARE		20	1	17	18	20	1
SPARE		20	1	19	20	20	1
SPARE		20	1	21	22	20	1
SPARE		20	1	23	24	20	1
TOTAL	2684						4180
KVA: 6.9						AMPS: 57	

LUMINAIRE SCHEDULE								
SYMBOL	FIXTURE TYPE	DESCRIPTION	ELECTRICAL CHARACTERICS			MANUFACTURER / MODEL	MOUNTING	NOTES
			BALLAST	WATTS	VOLTAGE			
	A	INDUSTRIAL WET LOCATION LIGHT, TWO TUBE	ELECTRONIC	2 x 16W LED	120	DAYBRITE / VAPOURLUME LED DW	PENDANT	NOM. 12"x48"
	AE	SAME AS TYPE A EXCEPT WITH EMERGENCY BALLAST	ELECTRONIC	2 x 16W LED	120	AS TYPE A, WITH EMLED	PENDANT	AS SHOWN ON PLANS
	E	EMERGENCY EXIT LIGHT, SINGLE FACE	ELECTRONIC	19W (12V DC)	120	EMERGI-LITE / SURVIVE-ALL SVX12N1	WALL	GREY/WHITE, TWO LAMPS, 12V NI-CAD BATTERY, OPERATES 1 1/2 HRS ON BATTERY
	J	PHOTOCELL CONTROLLED DOOR ENTRY LIGHT	ELECTRONIC	10 LED, 39W	120	LITHONIA / TWH LED	WALL	NOM. 16"x16", GLASS WITH VANDAL GUARD

SHEET NOTES

- SEE GENERAL NOTES AND REQUIREMENTS ON SHEET E-102.
- SEE PLAN SHEETS FOR CONDUIT LAYOUT. CONTRACTOR SHALL VERIFY ALL CONDUIT AND CABLE LAYOUTS BASED ON EQUIPMENT AS PURCHASED.
- CONTRACTOR SHALL VERIFY PANEL AC UNIT SIZING BASED ON PANEL HEAT LOAD ESTIMATES.

DRAWING SCALE
0 1 INCH IF THIS BAR IS LESS THAN ONE INCH, IT IS A REDUCED PRINT. SCALE REDUCED SHEET ACCORDINGLY.

NO.	BY.	DATE	REVISIONS DESCRIPTION
1	DD	06/30/21	ISSUED FOR CONSTRUCTION
2	TG	07/01/21	ADDENDUM NO. 1

NO.	BY.	DATE	REVISIONS DESCRIPTION
1	DD	06/30/21	ISSUED FOR CONSTRUCTION
2	TG	07/01/21	ADDENDUM NO. 1

DRAWING SCALE	AS SHOWN
DESIGNED BY:	SK 10/01/2019
DRAWN BY:	DB 10/01/2019
CHECKED BY:	MR 10/01/2019
APPROVED BY:	TG 10/01/2019



CITY OF FERNLEY
TRUCKEE CANAL DIVERSION AND CONVEYANCE

ELECTRICAL SCHEDULES

JOB NO.
CONTRACT/TASK ORDER NO.
SHEET NO.
E-401



Overview of Improvements for Surface Water Treatment

Fernley Water Treatment Facility



8/20/25



**CDM
Smith**



Agenda

1. Introductions
2. Overview of Scope of Work
3. Recommended Plant Improvements
4. Opinion of Probable Cost
5. Recent PFAS Monitoring
6. Next Steps



Overview of Scope of Work



Overview of CDM Smith Scope of Work

- PURPOSE: City of Fernley to bring in new source water from Truckee Irrigation Canal for treatment to supplement groundwater source.
 - WTF designed to remove arsenic from groundwater
 - Surface water treatment brings new challenges (different chemical treatment, higher sludge production, potential tastes and odors, etc.)
- Scope of CDM Smith work:
 - Identify implications of treating surface water at the WTF and in the distribution system.
 - Identify and evaluate treatment plant improvements.
 - Develop preliminary cost estimates for potential improvements
 - Prepare Conceptual Design Report

WTF and Surrounding Area Site Plan

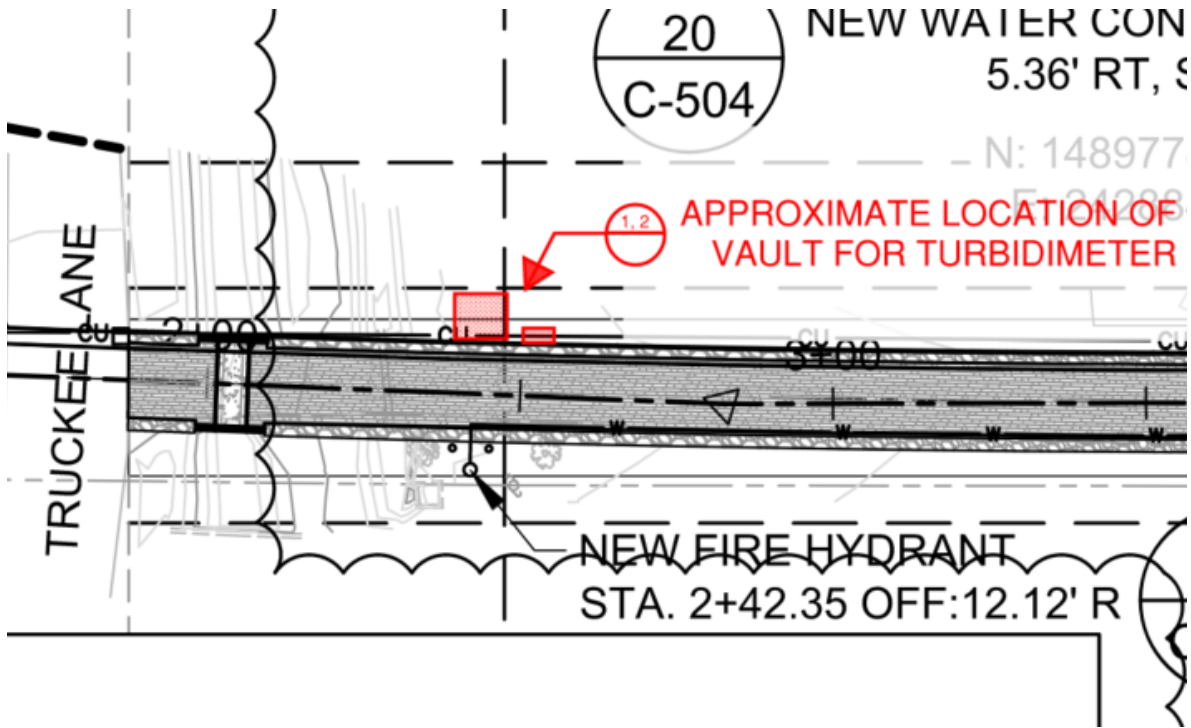




Modifications to Surface Water PS

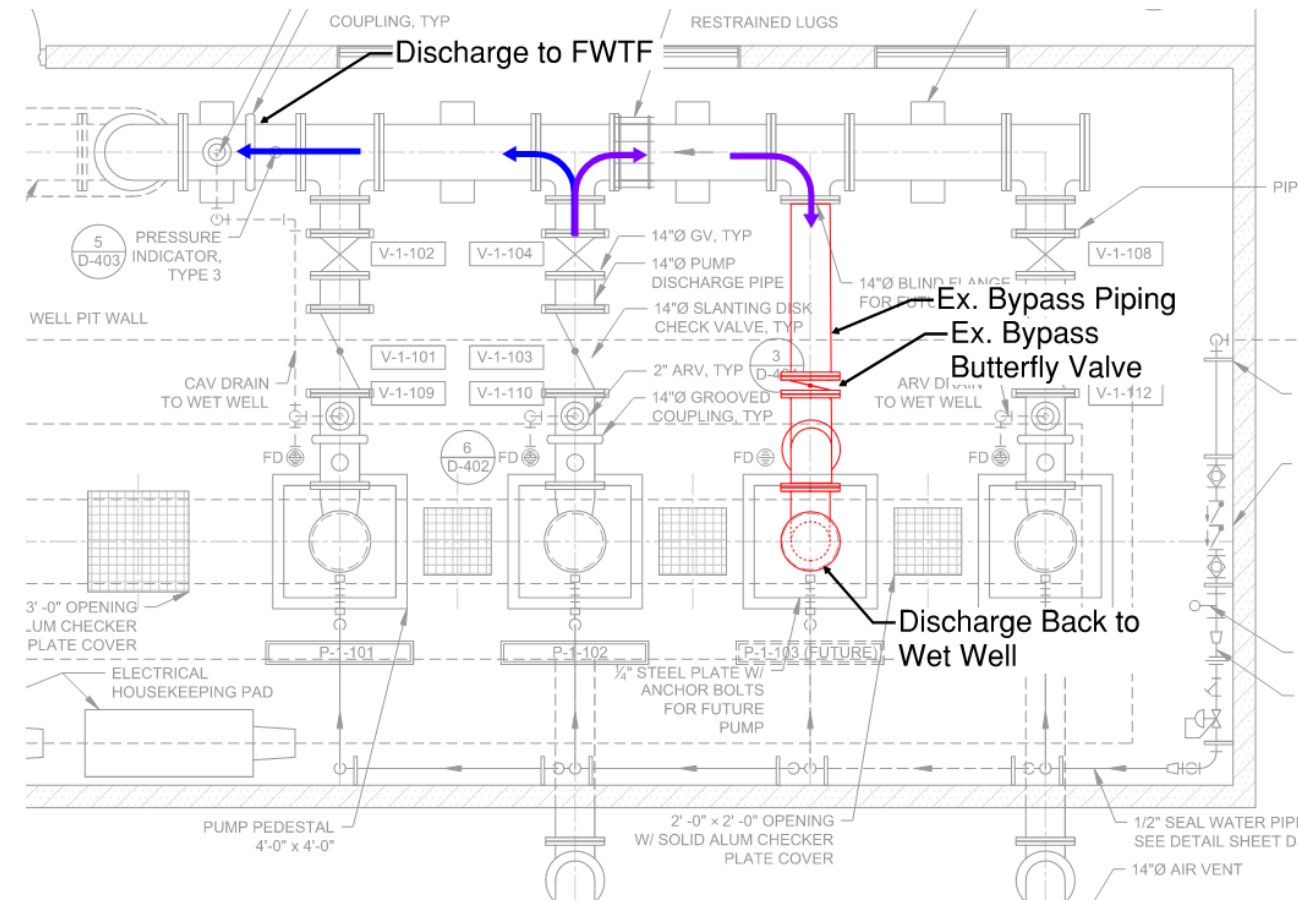


Canal Intake Improvements



- Objective: provide capability to automatically shutdown surface water pump station under high turbidity events
- Improvements needed: New valve and turbidimeter near the intake structure, electrical and instrumentation modifications.

Flow Turndown Capability



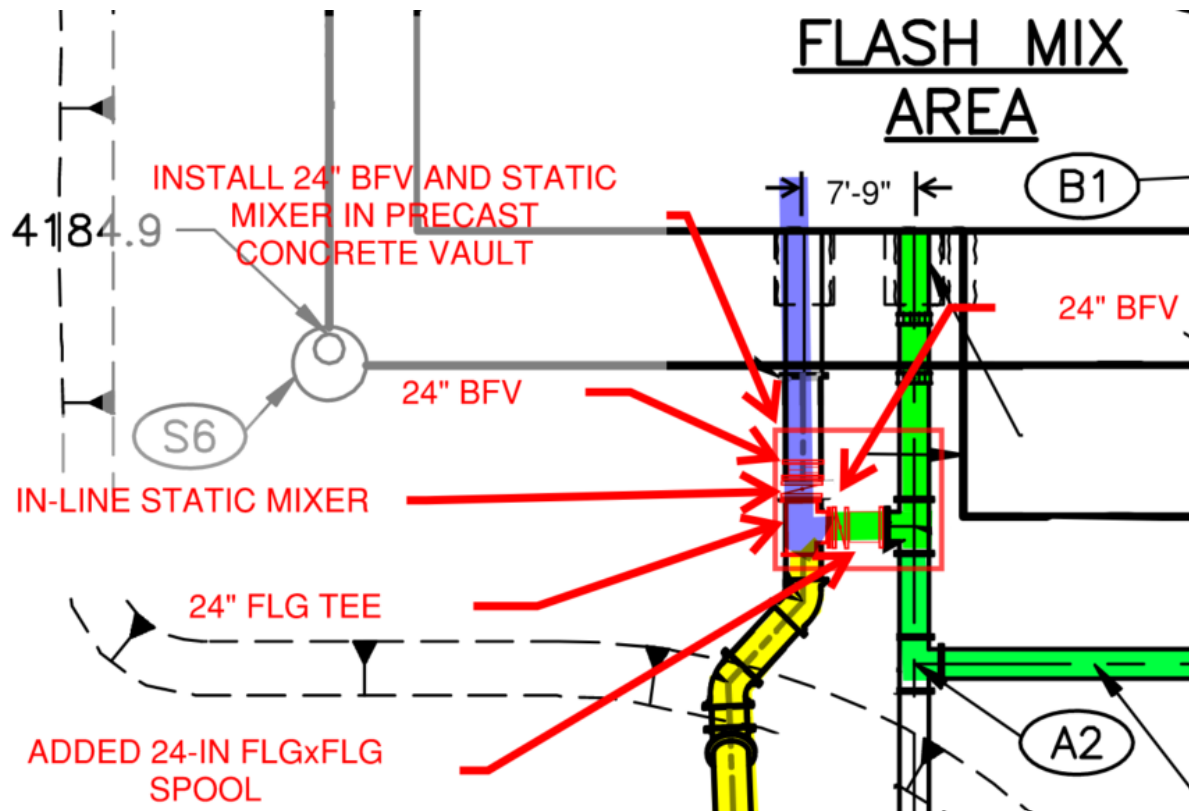
- Objective: expand the low end of pumping range
- This recommendation requires minimal capital costs and maintains the spare pedestal for installation of a future, larger pump when demand increases
- Minor upgrade needed to improve telecommunication from pump station to the main control building



Raw Water Piping Modifications

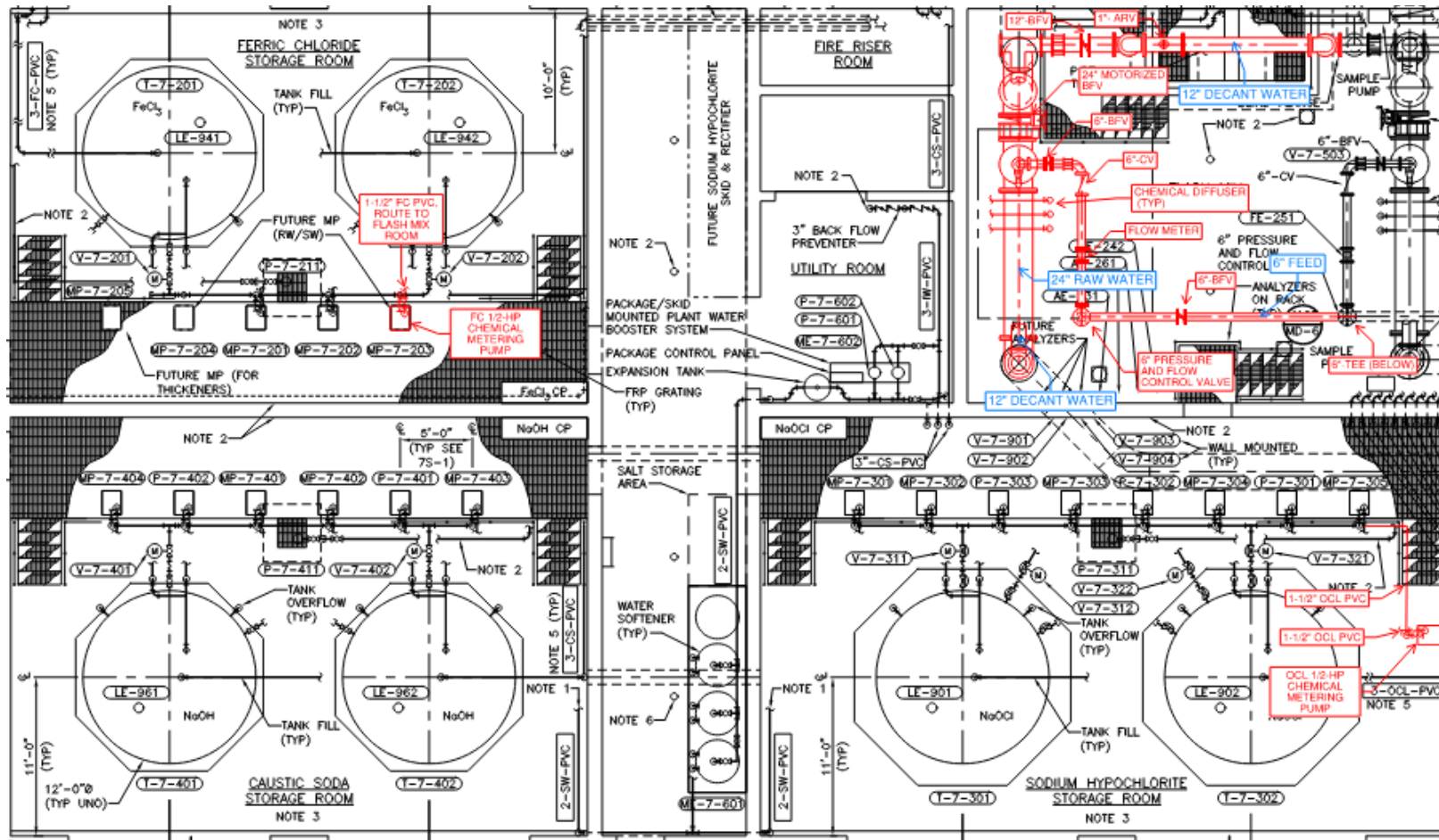


Raw Water Tie-In Improvements



- Objective: Tie-in existing groundwater (GW) flows with new surface water (SW) flows; can treat SW separately or blend with GW.
- Improvements: piping and valving modifications.

Chemical Flash Mix System for Pretreatment



- Objective: Add ability to treat surface water separately from groundwater
- Improvements:
 - Add a new flash mix train (piping and appurtenances)
 - New chemical metering pumps for sodium hypochlorite and coagulant dosing



Sludge (solids) Handling

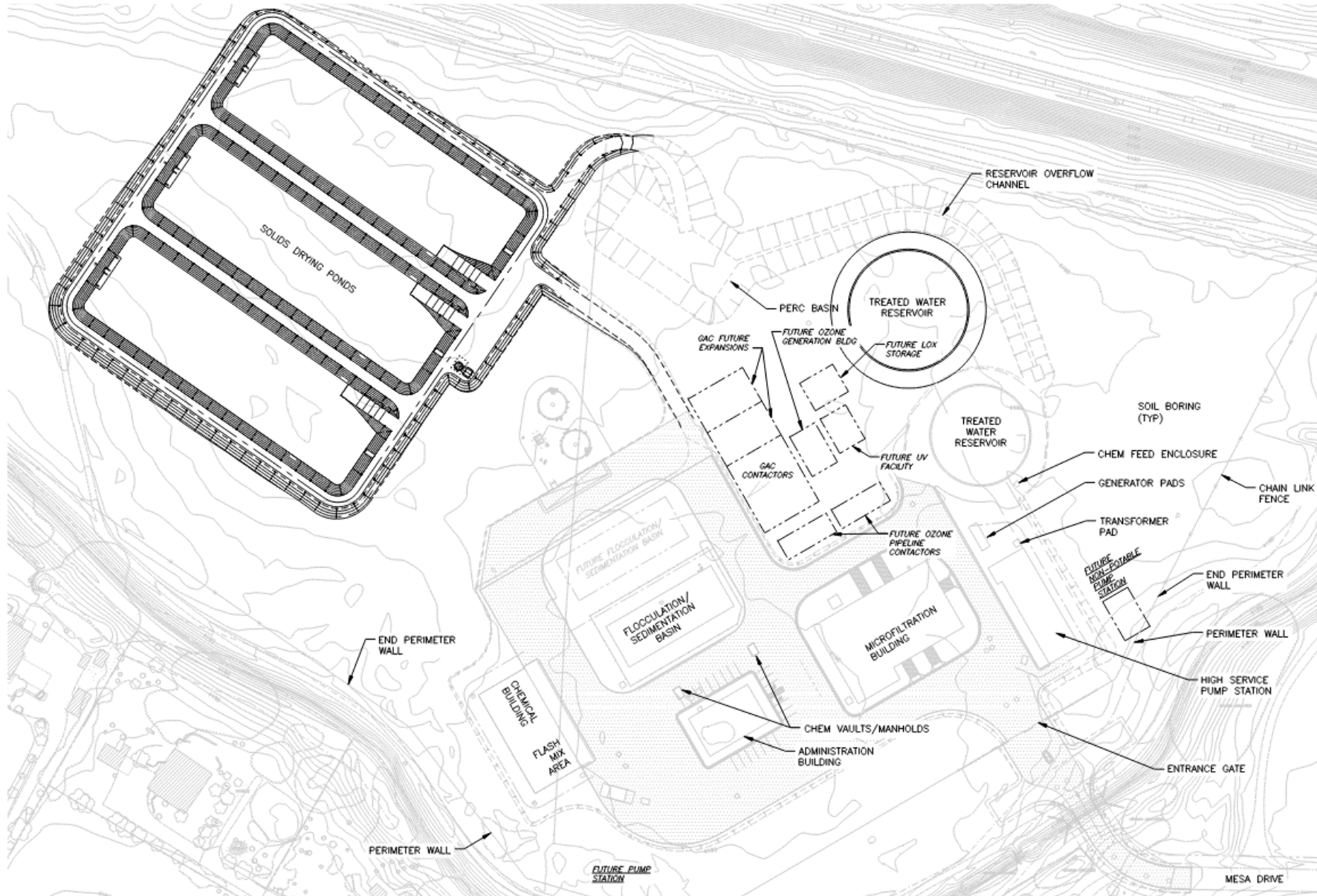




Solids Handling with Sludge Drying Ponds

- Need: New surface water source will increase solids production
- Objective: equalize and dewater (dry) sludge produced by treating water
- Improvements:
 - Construct 3 solids drying ponds with a decant pump station
- A fourth pond may be added as plant flows exceed 20MGD

Sludge Drying Beds Site Plan





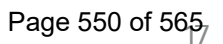
Granular Activated Carbon System





Potential Improvement: Granular Activated Carbon Contactors

- Objective Address potential Tastes and Odors (T&O) in surface water
 - Truckee Canal Irrigation District (TCID) – open canal
 - Subject to runoff from land with cows and horses
 - Algae
- Improvements:
 - Booster pump station
 - GAC pressure vessels
 - Civil, Electrical, and Instrumentation
- Equipment to be housed in building





Plant SCADA System





Potential Improvements of Existing SCADA and Network System

- Need: Existing PLCs are becoming obsolete. Support service from manufacturers is waning.
- Objective: Upgrade the existing SCADA PLCs and network. This upgrade will enhance security and efficiency of the system.
- Potential Improvements: New PLCs, SCADA terminals, etc.,



Opinion of Probable Construction Costs





Opinion of Probable Construction Cost

Description	OPCC in 2024 Dollars (-20% to 35%) ¹
SWPS Modifications (necessary)	\$480K to \$820K
Raw Water Piping Modifications (necessary)	\$490K to \$830K
Sludge Handling – Sludge Drying Ponds (necessary)	\$12.8MM to \$21.5MM
Granular Activated Carbon (potential)	\$9.0MM to \$15.2MM
SCADA Improvements	TBD

¹ Other costs to be incurred for implementing improvements include: design, construction management, engineering services during construction, permitting, legal, City’s soft costs



Recent PFAS Monitoring





Recent PFAS Sampling Results

Sample Location (01/07/2025)	Contaminant	MCL (ppt)	Result (ppt)
Well 4	PFOS	4	6.32
Well 9	PFOS	4	6.84
Well 9A	PFOS	4	ND
Well 11 (Shop Well)	PFOS	4	5.49
Well 13	PFOS	4	1.20
Well 14	PFOS	4	ND
Treated Water at WTF	PFOS	4	4.37

PFAS Regulatory Update and Implications

Proposed EPA Regulatory Changes/Updates	Implications for Fernley WTF
The new EPA administration will maintain the current PFOS MCL of 4 ppt	City has 3 wells that have exceed PFOS MCL. <i>Treatment for removal will be required.</i>
The compliance deadline will be extended from 2029 to 2031	This informs the schedule for implementing PFAS treatment.
EPA is revisiting the individual MCLs of other PFAS compounds.	Implications for the City still to be determined.



Next Steps



Next Steps

- Determine if GAC is necessary (conduct additional sampling of surface water for T&O)
- Conduct SCADA study to determine specific upgrades needed
- Conduct study to determine approach for removing PFAS from groundwater
- Proceed with next steps for raw water piping modifications, SWPS modifications, and sludge drying ponds
 - Engage Nevada BSDW
 - Develop design documents and bid for construction



Questions and Discussion



Grant Name: Public Works and Economic Adjustment Assistance - U.S. Economic

Development Administration

CFDA #: N/A

1) Purpose of Grant/Problem Being Solved. How does this grant tie to strategic goals?:

Pre-construction, engineering and design costs for an East Wastewater Treatment Plan Expansion.

- Current capacity will not be able to handle the projected flow
- Project is anticipated to meet future growth
- Project anticipates future regulation changes
- Project will streamline operations and increase plant efficiency
- Project brings potential for higher reuse classification and potential industrial customers and delivery of reclaimed water for community irrigation
- Reduction of odor problems

2) Would receiving this grant benefit the community, society, economic development and/or public well-being? Y x N

3) Who/What does the project impact?

The entire community

4) Are matching funds required? Y x N If yes, are they included in the budget? Y x N

Undetermined.

5) Is an in-kind match required? Y N x

However, an in-kind match could offset the required dollar match amount.

6) Will additional staffing be required to manage this grant/project or will additional staff be required to run a project/facility after completion? Y N x

First question is no, second is a possibility.

7) Will any other type of resource be required? Y N

Undetermined.

8) Are there any future costs associated with this project Y x N

9) What is the expected timeline for the completion of the project?

2028

10) Are easements required? Y N x

11) Will there be soil or other environmental studies involved? Y N

Undetermined.

12) Are there any foreseen geographical issues? Y N x

None anticipated.

13) Are there any potential risks associated with the project? Y N x

None anticipated.

14) If the answers to 4-13 are NO, STOP here.

15) Discuss current costs involved prior to project commencement:

Construction Costs: Phase 1 \$10.3 million (est.)

16) Discuss any future costs involved with the project after completion (including through the life of the project):

Undetermined.

17) Current annual costs to the City prior to commencement of the project and annual costs to the City after project completion:

Current annual costs for maintenance and operation of the EWWTP are \$3M. It is undetermined as

of now what the annual costs will be after project completion.

18) Discuss the benefits should the project be funded (revenues, savings, transportation, productivity, efficiency, or other benefits):

- Current capacity will not be able to handle the projected flow
- Project is anticipated to meet future growth
- Project anticipates future regulation changes
- Project will streamline operations and increase plant efficiency
- Project brings potential for higher reuse classification and potential industrial customers and delivery of reclaimed water for community irrigation
- Reduction of odor problems
- Potential new revenues from higher-level reuse water from industrial clients

19) Discuss what may happen if the project is not funded?

Unable to meet growth demands for industrial/commercial and residential customers

20) Discuss any long-term impacts of the project that may outweigh the benefits:

There are no negative impacts to this project.

21) Are there any new Revenues that will be generated from the project?

Potential new revenues from higher-level reuse water from industrial clients.

22) Rate the feasibility of the grant/project with 1 being a very low level of feasibility and provide a conclusion as to why this grant application should be approved or denied:

1 2 3 4 **5**



CITY OF FERNLEY

City Council AGENDA REPORT

Meeting Date: August 20, 2025

REPORT TO: Mayor and City Council

REPORT FROM: Lydia Altick, Deputy City Manager

FINANCIAL IMPACT:

Yes: No: X

CURRENTLY BUDGETED:

Yes: No: X

FUND/ACCOUNT:

N/A

ACTION REQUESTED: Resolution

AGENDA ITEM:

Discussion and possible action to approve Resolution 25-014 to implement negotiations with the Boys & Girls Club of Truckee Meadows for design and construction of the Early Learning Center.

AGENDA ITEM BRIEF:

This resolution formally recognizes the community partnership with the Boys & Girls Club Truckee Meadows (B&GC) that promotes education, equity, and opportunity. The City finds that it is in the public interest to enter into negotiations with the B&GC to determine the feasibility, terms, and conditions for the potential sale of property to support this endeavor.

RECOMMENDED MOTION:

I move to adopt Resolution 25-XXX, formalizing negotiations with the Boys & Girls Club for the design and construction of the Early Learning Center.

BUSINESS IMPACT (per NRS Chapter 237):

A Business Impact Statement is not required because this is not a rule (term excludes vehicles by which legislative powers are exercised under NRS Chapters 271, 278, 278A, or 278B).

See attached report for background, analysis, alternatives.

ALTERNATIVES:

The City Council may choose not to approve Resolution 2025-xxx.

BACKGROUND:

In early August, the Boys & Girls Club initiated a discussion with City staff to explore the possibility of designing and constructing the Early Learning Center (ELC). On August 4, 2025, staff halted the ELC design process while the Fernley City Council considers whether to approve this option.

On July 2, 2025, the City Council approved a proposal with TSK to complete the design of the ELC to 100% Construction Documents. No contract has been executed for this work to date.

On July 3, 2024, City Council approved directing staff to apply for an EDA grant of \$3,600,000.00 to fund the construction of the ELC at the CRRC campus. However, EDA did not approve the ELC for a grant.

On April 19, 2023, City Council approved the 50% Construction Documents for the Base Bid, Phase 1 (Alt A), and Phase 2 (Alt B) and voted to move forward with developing 100% Construction Documents for the CRRC's Base Bid.

On February 15, 2023, City council approved completion of Design Development and directed staff to progress Base Bid (CRRC), Phase 1 (Alt A - ELC), and Phase 2 (Alt B - gymnasium) to 50% Construction Documents.

RELEVANT LAWS, STATUTES, AND REGULATIONS:

NRS 82.021, NRS 268.055

FINANCIAL IMPLICATIONS:

There are none.

ATTACHMENTS:

None