HERITAGE RANCH COMMUNITY SERVICES DISTRICT
BOARD OF DIRECTORS REGULAR MEETING MINUTES
July 20, 2023

1. 4:00 PM OPEN SESSION / CALL TO ORDER / FLAG SALUTE

President Barker called the meeting to order at 4:00 pm and led the flag salute.

2. ROLL CALL

Secretary Gelos called the role.

Directors present: Bill Barker, Dan Burgess, Michael Camou, Devin Capps.

Directors absent: Masen Yaffee.

Staff present: General Manager, Scott Duffield, Operations Manager, Mike Wilcox and District Counsel, Josh George.

3. PUBLIC COMMENT ON ITEMS NOT ON THE AGENDA

Public Comments: Resident at 2974 Water View spoke.

4. PUBLIC HEARINGS

a. Submittal for approval Resolution 23-05 providing for collection of delinquent solid waste charges and penalties to be collected on the tax roll in the same manner as property taxes.

There were no public comments.

Director Capps made a motion to approve Resolution 23-05. Director Camou seconded the motion. The motion passed by the following roll call vote:

Ayes: Barker, Camou, Capps
Absent: Burgess, Yaffee

b. Submittal for approval Resolution 23-06 providing for collection of delinquent water and sewer charges and penalties to be collected on the tax roll in the same manner as property taxes.

There were no public comments.

Director Capps made a motion to approve Resolution 23-06. Director Camou seconded the motion. The motion passed by the following roll call vote:

Ayes: Barker, Camou, Capps
Absent: Burgess, Yaffee

Director Burgess arrived after approval of item.

c. Submittal for approval Resolution 23-07 adopting a Fiscal Year 2023/24 Final Budget and Salary Schedule.

There were no public comments.

Director Camou made a motion to approve Resolution 23-06. Director Burgess seconded the motion. The motion passed by the following roll call vote:

Ayes: Barker, Burgess, Camou, Capps
Absent: Yaffee

5. CONSENT ITEMS

a. Meeting Minutes: Receive/approve minutes of regular meeting of June 15, 2023.

b. Warrant Register: Receive/approve June 2023 warrants.

c. Treasurer's Report: Receive/file June 2023 Report.

d. Treasurer's Report: Receive/file FY 2022/23 4th Quarter Report.

e. Treasurer's Report: Receive/file FY 2022/23 Annual Report.

f. Fiscal Report: Receive/file June 2023 status report.

g. Office Report: Receive/file June 2023 report.

h. District Engineer Report: Receive/file July 2023 report.

i. Operations Manager Report: Receive/file July 2023 report.

There were no public comments.

Director Burgess made a motion to approve all items as presented. Director Capps seconded the motion. The motion passed by the following voice vote:

Ayes: Barker, Burgess, Camou, Capps
Absent: Yaffee

6. BUSINESS ITEMS

a. Discussion on site layout considerations and the procurement process for the packaged-Membrane Bioreactor equipment for the Water Resource Recovery Facility Upgrade project.

There were no public comments.

Dylan Wade of WSC provided a presentation to the board and answered any questions they had.

The Board directed staff to schedule a special board meeting to review and consider advertising a Request for Proposals for the MBR equipment for the WRRF project.

b. Request to approve renewal of conditional will serve letters for Vesting Tentative Tract Map 2879 and Vesting Tentative Tract Map 3110.

Public Comments: Sam Poppen spoke.

Director Burgess made a motion to approve renewal of conditional will serve letters for Vesting Tentative Tract Map 2879 and Vesting Tentative Tract Map 3110. Director Capps seconded the motion. The motion passed by the following roll call vote:

Ayes: Barker, Burgess, Camou, Capps
Absent: Yaffee

c. Receive updates regarding disinfection byproducts and provide direction to staff.

There were no public comments.

Report was received and filed.

7. GENERAL MANAGER REPORT

Report was received and filed.

8. FUTURE AGENDA ITEMS

There were no public comments.

The determination by the majority of the Board was to add the following items to future agenda: Recycled water workshop, Human Resource policy/MOU Review.

9. ADJOURN TO CLOSED SESSION

a. Pursuant to Government Code §54957(b)(1): Annual evaluation of performance of a public employee: General Manager

Meeting adjourned to closed session at 6:02 pm.

10. RECONVENE TO OPEN SESSION

The meeting reconvened to open session at 6:31.

District Counsel Josh George reported out of Closed Session that the General Manager received a favorable performance review by a majority of the Board.

The Board approved a 3.5% base salary increase for the General Manager.

11. ADJOURNMENT

On a motion by Director Camou and seconded by Director Burgess the meeting adjourned at 6:36 pm to the next scheduled meeting on Thursday, August 17, 2023.

APPROVED: **ATTEST:**

_____ _____

Bill Barker, President **Kristen Gelos, Secretary**

Board of Directors

Board of Directors

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
BOARD OF DIRECTORS SPECIAL MEETING MINUTES
August 22, 2023

1. 4:00 PM OPEN SESSION / CALL TO ORDER / FLAG SALUTE

President Barker called the meeting to order at 4:00 pm and led the flag salute.

2. ROLL CALL

Manager Duffield called the role.

Directors present: Bill Barker, Dan Burgess, Michael Camou, Devin Capps, Masen Yaffee.

Staff present: General Manager, Scott Duffield, District Engineer, Doug Groshart, and District Counsel, Josh George.

3. PUBLIC COMMENT ON ITEMS NOT ON THE AGENDA

Public Comments: none

4. BUSINESS ITEMS

a. Request to, 1) receive the draft procurement document for the packaged-Membrane Bioreactor equipment and direct staff to finalize the document and advertise for bids once USDA's review is complete, and 2) receive and file the 30% design for the Water Resource Recovery Facility Upgrade project.

There were no public comments.

Dylan Wade and Matt Rodrigues of WSC provided a presentation to the Board and answered any questions they had.

There was no motion. The Board directed staff to route the draft procurement document to vendors for comment, consider any and all comments received, and return to the Board at the September meeting to consider advertising the MBR equipment for bids.

5. ADJOURNMENT

On a motion by Director Burgess and seconded by Director Camou the meeting adjourned at 6:34 pm to the next scheduled meeting on Thursday, September 21, 2023.

APPROVED:

_____
Bill Barker, President
Board of Directors

ATTEST:

_____
Kristen Gelos, Secretary
Board of Directors

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WARRANT REGISTER
AUGUST 2023

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
8/1/2023	STATE WATER RESOURCES CONTROL		
	LICENSES & PERMITS	70.00	$ 70.00
8/1/2023	GREAT WESTERN ALARM		
	ALARM / ANSWERING SERVICE	312.32	
	ALARM / ANSWERING SERVICE	365.49	$ 677.81
8/1/2023	FERGUSON ENTERPRISES INC		
	MAINTENANCE FIXED EQUIPMENT	16.23	$ 16.23
8/1/2023	SPECIAL DISTRICT RISK MANAGEME		
	W/C INSURANCE FY 2023-24	23,242.68	$ 23,242.68
8/1/2023	AT&T		
	TELEPHONE	79.36	$ 79.36
8/1/2023	COUNTY OF SLO ACTTC		
	LAFCO 2023-24	7,280.90	$ 7,280.90
8/1/2023	CLINICAL LABORATORY OF SAN BER		
	LAB TESTING	300.00	$ 300.00
8/1/2023	USA BLUEBOOK		
	CHEMICALS	1,981.72	
	MAINTENANCE FIXED EQUIPMENT	766.41	
	SCADA PROJECT	110.20	
	MAINTENANCE FIXED EQUIPMENT	688.33	$ 3,546.66
8/1/2023	UNDERGROUND SERVICE ALERT		
	DUES & SUBSCRIPTIONS	300.00	$ 300.00
8/1/2023	BRENNTAG PACIFIC, INC		
	CHEMICALS	3,876.58	$ 3,876.58
8/1/2023	CAL COAST IRRIGATION, INC.		
	MAINTENANCE FIXED EQUIPMENT	35.28	$ 35.28
8/1/2023	C&N TRACTORS		
	STRUCTURES & GROUNDS	59.01	$ 59.01
8/1/2023	RDO EQUIPMENT CO.		
	SMALL TOOLS & EQUIPMENT	485.02	$ 485.02

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WARRANT REGISTER
AUGUST 2023

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
8/1/2023	FLUID RESOURCE MANAGEMENT		
	MAINTENANCE FIXED EQUIPMENT	400.00	$ 400.00
8/1/2023	KRISTEN GELOS		
	CELL PHONE/INTERNET ALLOWANCE	80.00	
	MEDICAL REIMBURSEMENT	424.00	$ 504.00
8/1/2023	ALL TECH SERIVCES, INC.		
	MAINTENANCE FIXED EQUIPMENT	1,463.32	$ 1,463.32
8/1/2023	PITNEY BOWES GLOBAL FINANCIAL		
	POSTAGE METER RENTAL	161.79	$ 161.79
8/1/2023	BURT INDUSTRIAL SUPPLY		
	GAC PROJECT	234.58	
	GAC PROJECT / SUPPLIES	225.96	$ 460.54
8/1/2023	DATA PROSE LLC		
	PROFESSIONAL SERVICES	374.80	$ 374.80
8/1/2023	SCOTT DUFFIELD		
	CELL PHONE/INTERNET ALLOWANCE	80.00	
	TRAINING & TRAVEL REIMB.	1,290.40	$ 1,370.40
8/1/2023	WESTERN EXTERMINATOR		
	STRUCTURES & GROUNDS	114.45	
	STRUCTURES & GROUNDS	110.90	$ 225.35
8/1/2023	RIVAL TECHNOLOGY INC.		
	PROFESSIONAL SERVICES	909.36	
	COMPUTER/SOFTWARE	130.00	$ 1,039.36
8/1/2023	MARK HUMPHREY		
	CELL PHONE/INTERNET ALLOWANCE	80.00	$ 80.00
8/1/2023	STREAMLINE		
	COMPUTER / SOFTWARE	2,988.00	$ 2,988.00
8/1/2023	MACLEOD WATTS, INC		
	PROFESSIONAL SERVICES	1,800.00	$ 1,800.00
8/1/2023	MIKE WILCOX		
	CELL PHONE/INTERNET ALLOWANCE	80.00	$ 80.00

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WARRANT REGISTER
AUGUST 2023

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
8/1/2023	BRIAN VOGEL		
	CELL PHONE/INTERNET ALLOWANCE	80.00	
	MEDICAL REIMBURSEMENT	209.00	$ 289.00
8/1/2023	TROY SHOGREN		
	CELL PHONE/INTERNET ALLOWANCE	80.00	
	UNIFORM ALLOWANCE	222.71	$ 302.71
8/1/2023	DOUGLAS GROSHART		
	CELL PHONE/INTERNET ALLOWANCE	80.00	
	MEDICAL REIMBURSEMENT	1,100.00	$ 1,180.00
8/1/2023	JORANDA MARKETING, INC. / JAN-		
	STRUCTURES & GROUNDS	274.60	
	STRUCTURES & GROUNDS	274.60	$ 549.20
8/1/2023	INDEPENDENT ELECTRIC SUPPLY IN		
	GAC PROJECT	9.98	$ 9.98
8/1/2023	FRESNO PIPE & SUPPLY, INC		
	GAC PROJECT	430.96	$ 430.96
8/1/2023	STAPLES CREDIT PLAN		
	OFFICE SUPPLIES	96.83	$ 96.83
8/1/2023	FLUID RESOURCE MANAGEMENT		
	PROFESSIONAL SERVICES	780.00	$ 780.00
8/1/2023	WATER SYSTEMS CONSULTING, INC.		
	WRRF PROJECT	41,434.58	$ 41,434.58
8/1/2023	CALPERS HEALTH BENEFITS		
	EMPLOYEE PAID HEALTH BENEFIT	714.66	
	EMPLOYEE PAID HEALTH BENEFIT	714.66	$ 1,429.32
8/3/2023	SPECIAL DISTRICT RISK MANAGEME		
	PROP./LIAB. INSURANCE FY 23/24	44,797.25	$ 44,797.25
8/3/2023	CALPERS HEALTH BENEFITS		
	CALPERS HEALTH BENEFITS	15,804.80	$ 15,804.80
8/7/2023	PG&E		
	ELECTRICITY	7,337.59	$ 7,337.59

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WARRANT REGISTER
AUGUST 2023

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
8/11/2023	B. BARKER		
	NET PAYROLL	92.35	$ 92.35
8/11/2023	R. ARNOLD		
	NET PAYROLL	2,709.29	$ 2,709.29
8/11/2023	K. GELOS		
	NET PAYROLL	2,710.14	$ 2,710.14
8/11/2023	D. BURGESS		
	NET PAYROLL	92.35	$ 92.35
8/11/2023	S. DUFFIELD		
	NET PAYROLL	3,451.94	$ 3,451.94
8/11/2023	D. CAPPS		
	NET PAYROLL	92.35	$ 92.35
8/11/2023	M. HUMPHREY		
	NET PAYROLL	2,290.88	$ 2,290.88
8/11/2023	B. VOGEL		
	NET PAYROLL	2,361.11	$ 2,361.11
8/11/2023	M. WILCOX		
	NET PAYROLL	2,392.11	$ 2,392.11
8/11/2023	T. SHOGREN		
	NET PAYROLL	2,296.75	$ 2,296.75
8/11/2023	D. GROSHART		
	NET PAYROLL	4,500.06	$ 4,500.06
8/11/2023	M. CAMOU		
	NET PAYROLL	92.35	$ 92.35
8/11/2023	MCCLELLAND, NEIL & L		
	US REFUND	56.92	$ 56.92
8/11/2023	INTERNAL REVENUE SERVICE		
	FEDERAL WITHHOLDING TAXES	2,611.40	
	FICA WITHIHOLDING	49.60	
	MEDICARE	989.90	$ 3,650.90

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WARRANT REGISTER
AUGUST 2023

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
8/11/2023	EMPLOYMENT DEVELOPMENT DEPARTM		
	SDI	303.60	
	STATE WITHHOLDING	1,067.58	$ 1,371.18
8/11/2023	CALPERS RETIREMENT SYSTEM		
	PERS UNIFORM ALLOWANCE	10.47	
	PERS-IRC 457 CONTRIBUTIONS	2,383.50	
	PERS RETIREMENT	1,609.86	
	PERS RETIREMENT TIER 2	1,861.09	
	PERS RETIREMENT PEPRA	2,457.93	
	PERS SERVICE CREDIT PURCHASE	981.47	
	SURVIVOR BENEFIT	7.44	$ 9,311.76
8/11/2023	J.B. DEWAR. INC.		
	FUEL & OIL	1,545.05	$ 1,545.05
8/11/2023	ADAMSKI, MOROSKI, MADDEN, CUMB		
	LEGAL & ATTORNEY	2,150.00	$ 2,150.00
8/11/2023	MCCLATCHY COMPANY LLC		
	ADVERTISING	424.32	$ 424.32
8/11/2023	USA BLUEBOOK		
	MAINTENANCE FIXED EQUIPMENT	204.96	
	MAINTENANCE FIXED EQUIPMENT	486.36	$ 691.32
8/11/2023	KRITZ EXCAVATING & TRUCKING, I		
	STRUCTURES & GROUNDS	1,904.76	$ 1,904.76
8/11/2023	BRENNTAG PACIFIC, INC		
	CHEMICALS	5,207.12	$ 5,207.12
8/11/2023	FGL ENVIRONMENTAL		
	LAB TESTING	46.00	
	LAB TESTING	23.00	$ 69.00
8/11/2023	COUNTY OF SAN LUIS OBISPO		
	PROFESSIONAL SVCS - X-CONNECT	525.70	$ 525.70
8/11/2023	SAN MIGUEL ROLL OFF COMPANY, I		
	MAINTENANCE FIXED EQUIPMENT	566.42	$ 566.42

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WARRANT REGISTER
AUGUST 2023

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
8/11/2023	RENTAL DEPOT		
	EQUIPMENT RENT / LEASE	1,436.40	
	EQUIPMENT RENT / LEASE	1,436.40	$ 2,872.80
8/11/2023	NAPA AUTO PARTS		
	VEHICLES	178.39	$ 178.39
8/11/2023	ABALONE COAST ANALYTICAL, INC.		
	LAB TESTING	3,333.00	$ 3,333.00
8/11/2023	PITNEY BOWES		
	POSTAGE	200.00	$ 200.00
8/11/2023	CAL WEST RAIN		
	SUPPLIES	60.47	
	GAC PROJECT	38.78	$ 99.25
8/11/2023	DATA PROSE LLC		
	JULY BILLING	1,333.53	$ 1,333.53
8/11/2023	SCOTT DUFFIELD		
	MEDICAL REIMBURSEMENT	166.24	$ 166.24
8/11/2023	RIVAL TECHNOLOGY INC.		
	PROFESSIONAL SERVICES	909.36	
	COMPUTER / SOFTWARE	130.00	$ 1,039.36
8/11/2023	TROY SHOGREN		
	MEDICAL REIMBURSEMENT	152.25	$ 152.25
8/11/2023	WEYRICK COMPANIES		
	STRUCTURES & GROUNDS	977.59	$ 977.59
8/11/2023	SPEEDY COASTAL MESSENGER, INC.		
	LAB TESTING	465.00	$ 465.00
8/11/2023	HERC RENTALS INC.		
	PROFESSIONAL SERVICES	27.19	$ 27.19
8/11/2023	SPICE INTEGRATION		
	SCADA PROJECT	7,812.50	
	MAINTENANCE FIXED EQUIPMENT	3,637.50	$ 11,450.00

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WARRANT REGISTER
AUGUST 2023

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
8/11/2023	CHARTER COMMUNICATIONS		
	INTERNET	89.99	$ 89.99
8/11/2023	GOVERNMENT JOBS		
	ADVERTISING	199.00	$ 199.00
8/11/2023	SMART & FINAL		
	LAB TESTING	5.16	$ 5.16
8/11/2023	CSDA		
	ADVERTISING	335.00	$ 335.00
8/11/2023	DMV RENEWAL		
	VEHICLES	1,341.60	$ 1,341.60
8/11/2023	LOWE'S		
	SMALL TOOLS & EQUIPMENT	561.15	$ 561.15
8/11/2023	RING CENTRAL		
	TELEPHONE	259.36	
	TELEPHONE	38.96	$ 298.32
8/21/2023	PG&E		
	ELECTRICITY	2,756.95	$ 2,756.95
8/24/2023	CALPERS RETIREMENT SYSTEM		
	PERS UNFUNDED LIABILITY	8,760.67	$ 8,760.67
8/25/2023	R. ARNOLD		
	NET PAYROLL	2,945.49	$ 2,945.49
8/25/2023	K. GELOS		
	NET PAYROLL	2,710.14	$ 2,710.14
8/25/2023	S. DUFFIELD		
	NET PAYROLL	3,288.39	$ 3,288.39
8/25/2023	M. HUMPHREY		
	NET PAYROLL	2,365.46	$ 2,365.46
8/25/2023	B. VOGEL		
	NET PAYROLL	2,694.78	$ 2,694.78

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WARRANT REGISTER
AUGUST 2023

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
8/25/2023	M. WILCOX		
	NET PAYROLL	2,392.12	$ 2,392.12
8/25/2023	T. SHOGREN		
	NET PAYROLL	2,192.93	$ 2,192.93
8/25/2023	D. GROSHART		
	NET PAYROLL	4,500.06	$ 4,500.06
8/25/2023	INTERNAL REVENUE SERVICE		
	FEDERAL WITHHOLDING TAXES	2,656.78	
	MEDICARE	992.28	$ 3,649.06
8/25/2023	EMPLOYMENT DEVELOPMENT DEPARTM		
	SDI	307.95	
	STATE WITHHOLDING	1,106.42	$ 1,414.37
8/25/2023	CALPERS RETIREMENT SYSTEM		
	PERS-IRC 457 CONTRIBUTIONS	2,383.50	
	PERS RETIREMENT	1,609.86	
	PERS RETIREMENT TIER 2	1,886.11	
	PERS RETIREMENT PEPRA	2,457.93	
	PERS SERVICE CREDIT PURCHASE	981.47	
	SURVIVOR BENEFIT	7.44	$ 9,326.31
8/26/2023	J.B. DEWAR. INC.		
	FUEL & OIL	31.24	$ 31.24
8/28/2023	ADAMSKI, MOROSKI, MADDEN, CUMB		
	LEGAL & ATTORNEY	1,800.00	$ 1,800.00
8/28/2023	AT&T		
	TELEPHONE	82.13	$ 82.13
8/28/2023	USA BLUEBOOK		
	MAINTENANCE FIXED EQUIPMENT	861.95	$ 861.95
8/28/2023	BRENNTAG PACIFIC, INC		
	CHEMICALS	5,530.68	$ 5,530.68
8/28/2023	THE BLUEPRINTER		
	CONSULTING & ENGINEERING	22.90	$ 22.90

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WARRANT REGISTER
AUGUST 2023

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
8/28/2023	TYLER TECHNOLOGIES		
	COMPUTER/SOFTWARE	250.00	$ 250.00
8/28/2023	STAR DRUG TESTING, INC		
	PROFESSIONAL SERVICES	45.00	$ 45.00
8/28/2023	C&N TRACTORS		
	VEHICLES	198.90	$ 198.90
8/28/2023	ROY ARNOLD		
	MEDICAL REIMBURSEMENT	315.00	
	CELL PHONE/INTERNET ALLOWANCE	80.00	$ 395.00
8/28/2023	FLUID RESOURCE MANAGEMENT		
	PROFESSIONAL SERVICES	540.00	$ 540.00
8/28/2023	KRISTEN GELOS		
	CELL PHONE/INTERNET ALLOWANCE	80.00	$ 80.00
8/28/2023	WATER SYSTEMS CONSULTING, INC.		
	WRRF PROJECT	54,156.15	$ 54,156.15
8/28/2023	BURT INDUSTRIAL SUPPLY		
	SUPPLIES	71.78	
	SUPPLIES	81.11	
	GAC PROJECT	97.83	$ 250.72
8/28/2023	SCOTT DUFFIELD		
	TRAINING & TRAVEL	180.00	
	CELL PHONE/INTERNET ALLOWANCE	80.00	$ 260.00
8/28/2023	WESTERN EXTERMINATOR		
	STRUCTURES & GROUNDS	114.45	
	STRUCTURES & GROUNDS	110.90	$ 225.35
8/28/2023	MARK HUMPHREY		
	CELL PHONE/INTERNET ALLOWANCE	80.00	$ 80.00
8/28/2023	BRIAN VOGEL		
	CELL PHONE/INTERNET ALLOWANCE	80.00	$ 80.00

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WARRANT REGISTER
AUGUST 2023

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
8/28/2023	MIKE WILCOX		
	CELL PHONE/INTERNET ALLOWANCE	80.00	$ 80.00
8/28/2023	TROY SHOGREN		
	CELL PHONE/INTERNET ALLOWANCE	80.00	$ 80.00
8/28/2023	PERRY'S ELECTRIC MOTORS & CONT		
	MAINTENANCE FIXED EQUIPMENT	5,125.08	$ 5,125.08
8/28/2023	DOUGLAS GROSHART		
	CELL PHONE/INTERNET ALLOWANCE	80.00	$ 80.00
8/28/2023	JORANDA MARKETING, INC. / JAN-		
	STRUCTURES & GROUNDS	274.60	$ 274.60
8/28/2023	J.B. DEWAR. INC.		
	FUEL & OIL	567.23	$ 567.23
8/30/2023	CALPERS RETIREMENT SYSTEM		
	PROFESSIONAL SVCS - GASB 68	1,050.00	$ 1,050.00
	TOTAL ALL WARRANTS		**$362,183.92**

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WARRANT REGISTER
JULY 2023

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
7/3/2023	CALPERS HEALTH BENEFITS		
	EMPLOYEE PAID HEALTH BENEFIT	714.66	
	EMPLOYEE PAID HEALTH BENEFIT	714.66	
	EMPLOYEE PAID HEALTH BENEFIT	714.66	$ 2,143.98
7/3/2023	CALPERS HEALTH BENEFITS		
	CALPERS HEALTH BENEFITS	15,091.92	$ 15,091.92
7/3/2023	J.B. DEWAR. INC.		
	FUEL & OIL	645.25	$ 645.25
7/10/2023	PG&E		
	ELECTRICITY	5,815.59	$ 5,815.59
7/14/2023	B. BARKER		
	NET PAYROLL	92.35	$ 92.35
7/14/2023	R. ARNOLD		
	NET PAYROLL	3,012.72	$ 3,012.72
7/14/2023	K. GELOS		
	NET PAYROLL	2,710.14	$ 2,710.14
7/14/2023	S. DUFFIELD		
	NET PAYROLL	3,272.48	$ 3,272.48
7/14/2023	M. HUMPHREY		
	NET PAYROLL	2,310.73	$ 2,310.73
7/14/2023	B. VOGEL		
	NET PAYROLL	2,712.63	$ 2,712.63
7/14/2023	M. WILCOX		
	NET PAYROLL	2,278.35	$ 2,278.35
7/14/2023	T. SHOGREN		
	NET PAYROLL	2,162.68	$ 2,162.68
7/14/2023	D. GROSHART		
	NET PAYROLL	4,539.81	$ 4,539.81
7/14/2023	M. CAMOU		
	NET PAYROLL	92.35	$ 92.35

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WARRANT REGISTER
JULY 2023

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
7/14/2023	M. YAFFEE		
	NET PAYROLL	92.35	$ 92.35
7/14/2023	INTERNAL REVENUE SERVICE		
	FEDERAL WITHHOLDING TAXES	2,609.78	
	FICA WITHIHOLDING	49.60	
	MEDICARE	996.12	$ 3,655.50
7/14/2023	EMPLOYMENT DEVELOPMENT DEPAR		
	SDI	305.54	
	STATE WITHHOLDING	1,091.49	$ 1,397.03
7/14/2023	CALPERS RETIREMENT SYSTEM		
	CALPERS UNIFORM ALLOWANCE	10.47	
	PERS-IRC 457 CONTRIBUTIONS	2,383.50	
	PERS RETIREMENT	1,609.86	
	PERS RETIREMENT TIER 2	1,815.12	
	PERS RETIREMENT PEPRA	2,427.69	
	PERS SERVICE CREDIT PURCHASE	981.47	
	SURVIVOR BENEFIT	7.44	$ 9,235.55
7/14/2023	SAN MIGUEL GARBAGE		
	DELINQUENT SOLID WASTE FEES	110.00	$ 110.00
7/17/2023	J.B. DEWAR. INC.		
	FUEL & OIL	892.73	$ 892.73
7/19/2023	CALPERS RETIREMENT SYSTEM		
	SURVIVOR PREMIUM FY 22/23	139.20	
	SURVIVOR PREMIUM FY 22/23	57.60	
	SURVIVOR PREMIUM FY 22/23	57.60	$ 254.40
7/24/2023	CALPERS RETIREMENT SYSTEM		
	CALPERS UNFUNDED LIABILITY	8,760.67	$ 8,760.67
7/24/2023	PG&E		
	ELECTRICITY	3,101.89	$ 3,101.89
7/27/2023	SAN MIGUEL GARBAGE		
	DELINQUENT SOLID WASTE FEES	1,068.76	$ 1,068.76
7/28/2023	R. ARNOLD		
	NET PAYROLL	3,011.22	$ 3,011.22

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
WARRANT REGISTER
JULY 2023

DATE	NAME OF PAYEE	ITEM AMOUNT	WARRANT AMOUNT
7/28/2023	K. GELOS		
	NET PAYROLL	2,710.14	$ 2,710.14
7/28/2023	S. DUFFIELD		
	NET PAYROLL	3,405.04	$ 3,405.04
7/28/2023	M. HUMPHREY		
	NET PAYROLL	2,547.71	$ 2,547.71
7/28/2023	B. VOGEL		
	NET PAYROLL	2,570.57	$ 2,570.57
7/28/2023	M. WILCOX		
	NET PAYROLL	2,392.11	$ 2,392.11
7/28/2023	T. SHOGREN		
	NET PAYROLL	2,092.82	$ 2,092.82
7/28/2023	D. GROSHART		
	NET PAYROLL	4,500.06	$ 4,500.06
7/28/2023	INTERNAL REVENUE SERVICE		
	FEDERAL WITHHOLDING TAXES	2,731.96	
	MEDICARE	1,001.46	$ 3,733.42
7/28/2023	EMPLOYMENT DEVELOPMENT DEPAR		
	SDI	310.79	
	STATE WITHHOLDING	1,146.29	$ 1,457.08
7/28/2023	CALPERS RETIREMENT SYSTEM		
	PERS-IRC 457 CONTRIBUTIONS	2,383.50	
	PERS RETIREMENT	1,609.86	
	PERS RETIREMENT TIER 2	1,907.06	
	PERS RETIREMENT PEPRA	2,457.93	
	PERS SERVICE CREDIT PURCHASE	981.47	
	SURVIVOR BENEFIT	7.44	$ 9,347.26
	TOTAL ALL WARRANTS		**$113,217.29**

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
TREASURER'S REPORT
AUGUST 2023

SUMMARY REPORT OF ALL ACCOUNTS

Beginning Balance:	$	4,584,553
Ending Balance:	$	4,449,774
Variance:	$	(134,779)
Interest Earnings for the Month Reported:	$	725
Interest Earnings Fiscal Year-to-Date:	$	34,978

ANALYSIS OF REVENUES

Total operating income for water and sewer was:	$	210,078
Non-operating income was:	$	2,064
Franchise fees paid to the District by San Miguel Garbage was:	$	8,054
Interest earnings for the LAIF account was:	$	-
Interest earnings for the Five Star Bank checking account was:	$	10
Interest earnings for the Five Star Bank DWR Loan Services account was:	$	133
Interest earnings for the Five Star Bank DWR Reserve account was:	$	325
Interest earnings for the Mechanics Bank money market account was:	$	0

ANALYSIS OF EXPENSES

Five Star Bank checking account total warrants, fees, and Electronic Fund Transfers was:	$	(327,577)

STATEMENT OF COMPLIANCE

This report was prepared in accordance with the Heritage Ranch Community Services District Statement of Investment Policy. All investment activity was within policy limits. There are sufficient funds to meet the next 30 days obligations. Attached is a status report of all accounts and related bank statements.

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
STATUS REPORT FOR ALL ACCOUNTS
AUGUST 2023

BEGINNING BALANCE ALL ACCOUNTS		**$4,584,552.88**
OPERATING CASH IN DRAWER		**$ 300.00**
FIVE STAR BANK DWR LOAN REPAYMENT (1994-2029):		
BEGINNING BALANCE 7/31/2023	26,591.37	
QUARTERLY DEPOSIT	25,907.00	
INTEREST EARNED	133.15	
SEMI-ANNUAL PAYMENT		
ENDING BALANCE 8/31/2023		**$ 52,631.52**
FIVE STAR BANK DWR RESERVE ACCOUNT		
BEGINNING BALANCE 7/31/2023	116,214.00	
INTEREST EARNED	325.33	
ENDING BALANCE 8/31/2023		**$ 116,539.33**
FIVE STAR BANK SDWSRF LOAN SERVICES ACCOUNT		
BEGINNING BALANCE 7/31/2023	589.86	
QUARTERLY DEPOSIT	14,685.00	
INTEREST EARNED	34.93	
SEMI-ANNUAL PAYMENT	-	
ENDING BALANCE 8/31/2023		**$ 15,309.79**
FIVE STAR BANK SDWSRF RESERVE ACCOUNT		
BEGINNING BALANCE 7/31/2023	60,139.43	
INTEREST EARNED	168.36	
REVENUE TRANSFER	-	
ENDING BALANCE 8/31/2023		**$ 60,307.79**
MECHANICS BANK MONEY MARKET ACCOUNT		
BEGINNING BALANCE 7/31/2023	7,185.68	
DEPOSIT REVENUE - CASH	1,283.47	
INTEREST EARNED	0.10	
ENDING BALANCE 8/31/2023		**$ 8,469.25**
FIVE STAR BANK - MONEY MARKET		
BEGINNING BALANCE 7/31/2023	78,409.81	
INTEREST EARNED	57.09	
REVENUE TRANSFER *To DWR Loan Account*	(25,907.00)	
REVENUE TRANSFER *To SRF Loan Account*	(14,685.00)	
REVENUE TRANSFER *To Five Star Checking*	(37,000.00)	
ENDING BALANCE 8/31/2023		**$ 874.90**

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
STATUS REPORT FOR ALL ACCOUNTS
AUGUST 2023

FIVE STAR BANK - CHECKING		
BEGINNING BALANCE 7/31/2023	133,465.66	
DEPOSIT REVENUE & MISCELLANEOUS INCOME	227,785.75	
INTEREST EARNED	9.93	
TOTAL CHECKS, FEES AND EFT'S	(327,576.78)	
REVENUE TRANSFER *From Five Star Money Market*	37,000.00	
ENDING BALANCE 8/31/2023		**$ 33,684.56**
LOCAL AGENCY INVESTMENT FUND (LAIF)		
BEGINNING BALANCE 7/31/2023	4,161,657.07	
INTEREST EARNED	-	
ENDING BALANCE 8/31/2023		**$4,161,657.07**
ENDING BALANCE ALL ACCOUNTS		**$4,449,774.21**
DIFFERENCE FROM LAST MONTH	**Decrease**	**$ (134,778.67)**

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
TREASURER'S REPORT
JULY 2023

SUMMARY REPORT OF ALL ACCOUNTS

Beginning Balance:	$	4,601,198
Ending Balance:	$	4,584,553
Variance:	$	(16,645)
Interest Earnings for the Month Reported:	$	34,253
Interest Earnings Fiscal Year-to-Date:	$	34,253

ANALYSIS OF REVENUES

Total operating income for water and sewer was:	$	211,915
Non-operating income was:	$	50,507
Franchise fees paid to the District by San Miguel Garbage was:	$	9,009
Interest earnings for the LAIF account was:	$	33,494
Interest earnings for the Five Star Bank checking account was:	$	6
Interest earnings for the Five Star Bank DWR Loan Services account was:	$	71
Interest earnings for the Five Star Bank DWR Reserve account was:	$	309
Interest earnings for the Mechanics Bank money market account was:	$	0

ANALYSIS OF EXPENSES

Five Star Bank checking account total warrants, fees, and Electronic Fund Transfers was:	$	(327,577)

STATEMENT OF COMPLIANCE

This report was prepared in accordance with the Heritage Ranch Community Services District Statement of Investment Policy. All investment activity was within policy limits. There are sufficient funds to meet the next 30 days obligations. Attached is a status report of all accounts and related bank statements.

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
STATUS REPORT FOR ALL ACCOUNTS
JULY 2023

BEGINNING BALANCE ALL ACCOUNTS		**$4,601,197.65**
OPERATING CASH IN DRAWER		**$ 300.00**
FIVE STAR BANK DWR LOAN REPAYMENT (1994-2029):		
BEGINNING BALANCE 6/30/2023	26,520.71	
QUARTERLY DEPOSIT	-	
INTEREST EARNED	70.66	
SEMI-ANNUAL PAYMENT	-	
ENDING BALANCE 7/31/2023		**$ 26,591.37**
FIVE STAR BANK DWR RESERVE ACCOUNT		
BEGINNING BALANCE 6/30/2023	115,905.16	
INTEREST EARNED	308.84	
ENDING BALANCE 7/31/2023		**$ 116,214.00**
FIVE STAR BANK SDWSRF LOAN SERVICES ACCOUNT		
BEGINNING BALANCE 6/30/2023	588.30	
QUARTERLY DEPOSIT	-	
INTEREST EARNED	1.56	
SEMI-ANNUAL PAYMENT	-	
ENDING BALANCE 7/31/2023		**$ 589.86**
FIVE STAR BANK SDWSRF RESERVE ACCOUNT		
BEGINNING BALANCE 6/30/2023	59,979.61	
INTEREST EARNED	159.82	
REVENUE TRANSFER	-	
ENDING BALANCE 7/31/2023		**$ 60,139.43**
MECHANICS BANK MONEY MARKET ACCOUNT		
BEGINNING BALANCE 6/30/2023	5,961.06	
DEPOSIT REVENUE - CASH	1,224.50	
INTEREST EARNED	0.12	
ENDING BALANCE 7/31/2023		**$ 7,185.68**
FIVE STAR BANK - MONEY MARKET		
BEGINNING BALANCE 6/30/2023	78,201.43	
INTEREST EARNED	208.38	
ENDING BALANCE 7/31/2023		**$ 78,409.81**

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
STATUS REPORT FOR ALL ACCOUNTS
JULY 2023

FIVE STAR BANK - CHECKING		
BEGINNING BALANCE 6/30/2023	85,577.85	
DEPOSIT REVENUE & MISCELLANEOUS INCOME	149,524.04	
INTEREST EARNED	6.00	
TOTAL CHECKS, FEES AND EFT'S	(101,642.23)	
REVENUE TRANSFER *From LAIF*	100,000.00	
ENDING BALANCE 7/31/2023		**$ 133,465.66**
LOCAL AGENCY INVESTMENT FUND (LAIF)		
BEGINNING BALANCE 6/30/2023	4,228,163.53	
INTEREST EARNED	33,493.54	
REVENUE TRANSFER *To Five Star Checking*	(100,000.00)	
ENDING BALANCE 7/31/2023		**$4,161,657.07**
ENDING BALANCE ALL ACCOUNTS		**$4,584,552.88**
DIFFERENCE FROM LAST MONTH	**Decrease**	**$ (16,644.77)**

HERITAGE RANCH COMMUNITY SERVICES DISTRICT - CONSOLIDATED BUDGET
2023/24 Budget

OPERATING REVENUE	Budget FY 23/24	Actual August	Actual Year to Date	Percentage Year to Date	Variance Explanation
Water Fees	1,364,806	131,135	263,421	19%	
Sewer Fees	1,018,537	75,849	151,829	15%	
Hook-Up Fees	2,400	0	0	0%	
Turn on Fees	3,500	375	600	17%	
Late Fees	18,830	2,518	5,227	28%	
Plan Check & Inspection	1,600	0	0	0%	
Miscellaneous Income	500	202	917	183%	
TOTAL OPERATING	$2,410,173	$210,078	$421,993	18%	
FRANCHISE REVENUE					
Solid Waste Franchise Fees	88,698	8,054	17,062	19%	
TOTAL FRANCHISE	$88,698	$8,054	$17,062	19%	
TOTAL OPERATING	$2,498,871	$218,132	$439,055	18%	
NON-OPERATING REVENUE					
Standby Charges	242,200	0	7,329	3%	
Property Tax	454,384	1,339	8,926	2%	
Interest	30,000	725	34,978	117%	
Connection Fees	70,580	0	0	0%	
TOTAL NON-OPERATING	$797,164	$2,064	$51,232	6%	
RESERVE REVENUE					
Capital Reserves	539,887	21,490	21,490	4%	
Operating Reserves	1,767,061	41,506	41,506	2%	
TOTAL RESERVE	$2,306,948	$62,996	$62,996	3%	
TOTAL NON-OPERATING	$3,104,112	$65,060	$114,228	4%	
TOTAL ALL INCOME	$5,602,983	$283,191	$553,283	10%	

HERITAGE RANCH COMMUNITY SERVICES DISTRICT - CONSOLIDATED BUDGET
2023/24 Budget

OPERATING EXPENSES

SALARIES AND BENEFITS	Budget FY 23/24	Actual August	Actual Year to Date	Percentage Year to Date	Variance Explanation
Salaries	993,973	66,517	132,950	13%	
Health Insurance	183,739	14,178	25,276	14%	
Health Insurance - Retirees	51,408	3,994	7,988	16%	
Pers Retirement	176,138	15,625	31,219	18%	
OPEB Funding/Transfer	10,181	0	0	0%	
Standby	13,200	876	1,840	14%	
Overtime	7,930	309	1,144	14%	
Workers Comp. Ins.	24,000	23,243	23,243	97%	
Directors' Fees	36,000	400	800	2%	
Medicare/FICA	14,616	1,016	2,039	14%	
Car Allowance	3,000	250	500	17%	
SUI/ETT	1,000	0	0	0%	
Uniforms	5,000	223	223	4%	
TOTAL SALARIES & BENEFITS	$1,520,185	$126,629	$227,221	15%	

UTILITIES					
Electricity	129,263	10,095	13,196	10%	
Propane	1,525	0	0	0%	
Water Purchase	28,600	0	0	0%	
Telephone/Internet	12,801	1,830	1,830	14%	
TOTAL UTILITIES	$172,189	$11,924	$15,026	9%	

MAINTENANCE & SUPPLIES					
Chemicals	82,160	16,596	16,596	20%	
Computer/Software	35,256	3,498	3,498	10%	
Equip. Rental/Lease	2,600	2,873	2,873	110%	
Fixed Equip.	194,480	14,252	14,252	7%	
Fuel & Oil	15,600	2,144	3,036	19%	
Lab Testing	61,360	4,172	4,172	7%	
Office Supplies	1,560	0	0	0%	
Parks & Recreation	1,000	0	0	0%	
Struct./Grnds.	15,537	4,216	4,216	27%	
Small Tools/Equip.	3,120	1,046	1,046	34%	
Supplies	4,680	334	334	7%	
Meters/Equip.	12,480	0	0	0%	
Vehicles	6,240	405	405	6%	
TOTAL MAINT. & SUP.	$436,073	$49,536	$50,428	12%	

HERITAGE RANCH COMMUNITY SERVICES DISTRICT - CONSOLIDATED BUDGET
2023/24 Budget

GENERAL & ADMINISTRATION	Budget FY 23/24	Actual August	Actual Year to Date	Percentage Year to Date	Variance Explanation
Ads./Advertising	1,500	958	958	64%	
Alarm/Answering Service	4,160	678	678	16%	
Audit	10,000	0	0	0%	
Bank Charges/Fees	1,000	0	0	0%	
Consulting/Engineering	10,000	23	23	0%	
Dues/Subscription	10,400	300	300	3%	
Elections	0	0	0	0%	
Insurance	44,000	44,797	44,797	102%	Paid Annually
LAFCO	7,700	7,281	7,281	95%	Paid Annually
Legal/Attorney	25,000	3,950	3,950	16%	
Licenses/Permits	30,160	70	70	0%	
Plan Check & Inspection	1,600	0	0	0%	
Postage/Billing	15,600	1,695	1,695	11%	
Professional Service	92,872	6,181	6,181	7%	
Tax Collection	7,300	0	0	0%	
Staff Training & Travel	12,480	1,470	1,470	12%	
Board Training & Travel	1,000	0	0	0%	
TOTAL G & A	$274,772	$67,404	$67,404	25%	
CAPITAL PROJECTS & EQUIPMENT					
Structures/Improvements	2,271,948	62,996	62,996	3%	
Equipment	35,000	0	0	0%	
TOTAL CAPITAL EXPENSE	$2,306,948	62,996	62,996	3%	
DEBT					
State Loan Payment	103,629	0	0	0%	
State Loan Payment Phase II	58,740	0	0	0%	
Western Alliance Lease-PVS	153,314	0	0	0%	
TOTAL DEBT	$315,683	$0	$0		
FUNDED DEPRECIATION	$288,000	$24,000	$48,000	17%	
UNFUNDED DEPRECIATION	$0	$0	$0	0%	
TOTAL EXPENSE	$5,313,850	$342,489	$471,076	9%	
CAPACITY CHARGES TRANSFER	$70,580	$0	$0	0%	
SOLID WASTE FEES TRANSFER	$26,109	$30	$4,250	16%	
FUND TOTAL	**$192,444**	**($59,328)**	**$77,958**		

HERITAGE RANCH COMMUNITY SERVICES DISTRICT - CONSOLIDATED BUDGET
2023/24 Budget

OPERATING REVENUE	Budget FY 23/24	Actual July	Actual Year to Date	Percentage Year to Date	Variance Explanation
Water Fees	1,364,806	132,286	132,286	10%	
Sewer Fees	1,018,537	75,979	75,979	7%	
Hook-Up Fees	2,400	0	0	0%	
Turn on Fees	3,500	225	225	6%	
Late Fees	18,830	2,709	2,709	14%	
Plan Check & Inspection	1,600	0	0	0%	
Miscellaneous Income	500	715	715	143%	
TOTAL OPERATING	$2,410,173	$211,915	$211,915	9%	
FRANCHISE REVENUE					
Solid Waste Franchise Fees	88,698	9,009	9,009	10%	
TOTAL FRANCHISE	$88,698	$9,009	$9,009	10%	
TOTAL OPERATING	$2,498,871	$220,924	$220,924	9%	
NON-OPERATING REVENUE					
Standby Charges	242,200	7,329	7,329	3%	
Property Tax	454,384	8,926	8,926	2%	
Interest	30,000	34,253	34,253	114%	
Connection Fees	70,580	0	0	0%	
TOTAL NON-OPERATING	$797,164	$50,507	$50,507	6%	
RESERVE REVENUE					
Capital Reserves	539,887	0	0	0%	
Operating Reserves	1,767,061	0	0	0%	
TOTAL RESERVE	$2,306,948	$0	$0	0%	
TOTAL NON-OPERATING	$3,104,112	$50,507	$50,507	2%	
TOTAL ALL INCOME	$5,602,983	$271,431	$271,431	5%	

HERITAGE RANCH COMMUNITY SERVICES DISTRICT - CONSOLIDATED BUDGET
2023/24 Budget

OPERATING EXPENSES

SALARIES AND BENEFITS	Budget FY 23/24	Actual July	Actual Year to Date	Percentage Year to Date	Variance Explanation
Salaries	993,973	66,433	66,433	7%	
Health Insurance	183,739	11,098	11,098	6%	
Health Insurance - Retirees	51,408	3,994	3,994	8%	
Pers Retirement	176,138	15,594	15,594	9%	
OPEB Funding/Transfer	10,181	0	0	0%	
Standby	13,200	964	964	7%	
Overtime	7,930	835	835	11%	
Workers Comp. Ins.	24,000	0	0	0%	
Directors' Fees	36,000	400	400	1%	
Medicare/FICA	14,616	1,024	1,024	7%	
Car Allowance	3,000	250	250	8%	
SUI/ETT	1,000	0	0	0%	
Uniforms	5,000	0	0	0%	
TOTAL SALARIES & BENEFITS	$1,520,185	$100,592	$100,592	7%	

UTILITIES					
Electricity	129,263	3,102	3,102	2%	
Propane	1,525	0	0	0%	
Water Purchase	28,600	0	0	0%	
Telephone/Internet	12,801	0	0	0%	
TOTAL UTILITIES	$172,189	$3,102	$3,102	2%	

MAINTENANCE & SUPPLIES					
Chemicals	82,160	0	0	0%	
Computer/Software	35,256	0	0	0%	
Equip. Rental/Lease	2,600	0	0	0%	
Fixed Equip.	194,480	0	0	0%	
Fuel & Oil	15,600	893	893	6%	
Lab Testing	61,360	0	0	0%	
Office Supplies	1,560	0	0	0%	
Parks & Recreation	1,000	0	0	0%	
Struct./Grnds.	15,537	0	0	0%	
Small Tools/Equip.	3,120	0	0	0%	
Supplies	4,680	0	0	0%	
Meters/Equip.	12,480	0	0	0%	
Vehicles	6,240	0	0	0%	
TOTAL MAINT. & SUP.	$436,073	$893	$893	0%	

HERITAGE RANCH COMMUNITY SERVICES DISTRICT - CONSOLIDATED BUDGET
2023/24 Budget

GENERAL & ADMINISTRATION	Budget FY 23/24	Actual July	Actual Year to Date	Percentage Year to Date	Variance Explanation
Ads./Advertising	1,500	0	0	0%	
Alarm/Answering Service	4,160	0	0	0%	
Audit	10,000	0	0	0%	
Bank Charges/Fees	1,000	0	0	0%	
Consulting/Engineering	10,000	0	0	0%	
Dues/Subscription	10,400	0	0	0%	
Elections	0	0	0	0%	
Insurance	44,000	0	0	0%	
LAFCO	7,700	0	0	0%	
Legal/Attorney	25,000	0	0	0%	
Licenses/Permits	30,160	0	0	0%	
Plan Check & Inspection	1,600	0	0	0%	
Postage/Billing	15,600	0	0	0%	
Professional Service	92,872	0	0	0%	
Tax Collection	7,300	0	0	0%	
Staff Training & Travel	12,480	0	0	0%	
Board Training & Travel	1,000	0	0	0%	
TOTAL G & A	$274,772	$0	$0	0%	
CAPITAL PROJECTS & EQUIPMENT					
Structures/Improvements	2,271,948	0	0	0%	
Equipment	35,000	0	0	0%	
TOTAL CAPITAL EXPENSE	$2,306,948	0	0	0%	
DEBT					
State Loan Payment	103,629	0	0	0%	
State Loan Payment Phase II	58,740	0	0	0%	
Western Alliance Lease-PVS	153,314	0	0	0%	
TOTAL DEBT	$315,683	$0	$0		
FUNDED DEPRECIATION	$288,000	$24,000	$24,000	8%	
UNFUNDED DEPRECIATION	$0	$0	$0	0%	
TOTAL EXPENSE	$5,313,850	$128,587	$128,587	2%	
CAPACITY CHARGES TRANSFER	$70,580	$0	$0	0%	
SOLID WASTE FEES TRANSFER	$26,109	$4,327	$4,327	17%	
FUND TOTAL	**$192,444**	**$138,518**	**$138,518**		

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
OFFICE REPORT

AUGUST 2023

Utility Billing

- On September 1st, 1,937 bills were processed for a total dollar amount of $224,685 for water and sewer user fees for the month of August.

- We processed 268 penalties for bills that were due by August 25th.

- We mailed out 22 Intent To Disconnect letters to customers that were more than 60 days delinquent.

- We issued 18 48-hour notices and locked off 1 meter for non-payment.

Customer Service Orders

- Staff completed a total of 13 service orders for the month of August. The breakdown by job code is as follows:

LOCK METER	1	OCCUPANT CHANGE	10
MISC.	1	UNLOCK	1

Administration

- Nothing to report.

San Miguel Garbage Franchise Fees Received

- The total Franchise Fees received for the Month of August was $ 8,895.60
  The breakdown is as follows:

  Residential Garbage Collection - $ 6,821.49
  Commercial Garbage Collection - $ 1,181.85
  Roll-Off Collection - $ 892.26

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
OFFICE REPORT

JULY 2023

Utility Billing

- On August 1st, 1,939 bills were processed for a total dollar amount of $210,928 for water and sewer user fees for the month of July.
- We processed 226 penalties for bills that were due by June 25th.
- We mailed out 29 Intent To Disconnect letters to customers that were more than 60 days delinquent.
- We issued 14 48-hour notices and locked off 1 meter for non-payment.

Customer Service Orders

- Staff completed a total of 28 service orders for the month of July. The breakdown by job code is as follows:

DIRTY WATER	1	CALL OUT	2
OCCUPANT CHANGE	15	DATA LOG	1
TURN-OFF	3	LOCK METER	1
MISC.	4	LEAK	1

Administration

- Nothing to report.

San Miguel Garbage Franchise Fees Received

- The total Franchise Fees received for the Month of July was $ 8,053.50
  The breakdown is as follows:

  Residential Garbage Collection - $ 6,005.41
  Commercial Garbage Collection - $ 1,216.84
  Roll-Off Collection - $ 831.25

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

District Engineer Report
For the Month of September 2023

In addition to normal engineering and administrative duties, below are updates for several areas of work:

Operations Support

- Working with Operations Staff re:
  - GAC project operation, troubleshooting for pilot study.
  - Water distribution system overview for outage coordination.
  - Wastewater collection system overview for I&I Study.
  - PRV project for order and scope of work.

Capital Improvement Projects

Projects / equipment replacement planned for this fiscal year and their status include:

- DBP/Compliance: See separate agenda item and report regarding this issue.

- SCADA water system: As of 9/14/23, the new SCADA system is completely installed and running.

- SCADA Telemetry survey: As of 9/14/23, the survey is underway to determine which sites (lift stations, booster stations, tanks, treatment plants and the office) currently have ability to communicate with each other and what modifications, if any, will be required to have complete communication. SPICE is performing another site survey on 9/16 that should wrap up the onsite work. They will have a report with recommendations for site improvements to us by 9/21 for discussion at the meeting.

- SCADA wastewater collection system: Issues with the current wastewater SCADA system may require us to perform some interim modifications for it to function properly before we procure, program and install the new system. More information will be available by the time of the meeting and will be discussed as necessary.

- PRV Project – We have selected a contractor for installation of a new isolation valve at Equestrian. The new valve will be an insertion valve, which is relatively new technology that allows for the installation of isolation valves without an outage. Once this valve is installed, it will allow us to replace the existing PRV, piping and valving, also without requiring an outage. We are working with Operations to determine the order of work for replacing/repairing the Lower Waterview and Equestrian PRVs. We have requested pricing for the required work from several

local contractors and equipment vendors and will have a contractor selected by the October meeting. Schedule of construction to be determined based on contractor availability and equipment lead time, but per preliminary discussions, we should be able to get contractors onsite within a few weeks of notice to proceed.

- Lift Station 1-5 rehabilitation design phase: This project's initial design/scoping will begin in October. PRV, GAC and SCADA projects have taken priority but will be sufficiently underway to allow for this project to begin in October.

- Wastewater collection system model and infiltration / inflow: Working with vendors to determine the best way to move forward. We have discussed GIS, smoke testing and video inspection with vendors. The next step is determining the scope/phasing of the assessment and obtaining pricing from vendors for the work.

- WRRF Project – Continuing to work with the General Manager and WSC to move the design forward.

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

MEMORANDUM

TO: Board of Directors

FROM: Scott Duffield, General Manager
Kristen Gelos, Office Supervisor

DATE: September 21, 2023

SUBJECT: Submittal for approval Resolution 23-08 fixing the employer contribution at an equal amount for employees and annuitants under the Public Employees' Medical and Hospital Care Act.

Recommendation

It is recommended that the Board of Directors approve Resolution 23-08 fixing the employer contribution at an equal amount for employees and annuitants under the Public Employees' Medical and Hospital Care Act.

Background

The District entered into agreement with CalPERS for medical coverage in 1992. The Resolution stipulates the District will contribute the total amount of insurance premiums for employees and retirees and their dependents.

In 2002, the Board adopted Resolution 02-13 setting health benefits vesting requirements for future retirees. The vesting applies to all employees hired on or after January 2003 and requires the retiree to have worked at least twenty years under the CalPERS system including at least five with the District and limited the employer's contribution to the average cost of CalPERS' various plans.

In 2006, the Board adopted Resolution 06-04 establishing health plans the District will fund for future retirees. The intent of this Resolution is to limit liability to the least expensive HMO or PPO.

In 2010, the Board adopted Resolution 10-01 establishing health plans the District will fund for employees and annuitants. The intent of this Resolution was to limit liability to the lease expensive HMO or PPO.

In 2016, the Board adopted Resolution 16-10 fixing the employer contribution at an equal amount for employees and annuitants under the Public Employees' Medical and Hospital Care Act.

Discussion

The District needs to provide an amended resolution to CalPERS every year indicating the specified health plan(s) the District covers for employees and annuitants under the Public Employees' Medical and Hospital Care Act. The health plans for calendar year 2022 to be covered by the District pursuant to District policy are shown in the table below.

2024	
Members	**Health Plan Region 2**
Basic Enrollments	PERS Gold
Medicare Enrollments	UnitedHealthcare Group Medicare Advantage
Combination Enrollments	UnitedHealthcare Signature Value Alliance and Medicare Advantage

Fiscal Considerations

The FY 2023/24 Budget includes health coverage costs.

Results

Approval of Resolution 23-08 will provide CalPERS with the documentation required to maintain District provided health coverage.

Attachments: Resolution 23-08

FILE: CalPERS

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
RESOLUTION NO. 23-08

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE HERITAGE RANCH COMMUNITY SERVICES DISTRICT FIXING THE EMPLOYER CONTRIBUTION AT AN EQUAL AMOUNT FOR EMPLOYEES AND ANNUITANTS UNDER THE PUBLIC EMPLOYEES' MEDICAL AND HOSPITAL CARE ACT

WHEREAS, the Heritage Ranch Community Services District is a contracting agency under Government Code Section 22920 and subject to the Public Employees' Medical and Hospital Care Act (the "Act"); and

WHEREAS, Government Code Section 22892(a) provides that a contracting agency subject to Act shall fix the amount of the employer contribution by resolution; and

WHEREAS, Government Code Section 22892(b) provides that the employer contribution shall be an equal amount for both employees and annuitants, but may not be less than the amount prescribed by Section 22892(b) of the Act; and

NOW, THEREFORE, BE IT RESOLVED AND ORDERED by the Board of Directors of the Heritage Ranch Community Services District that:

A. The employer contribution for each employee or annuitant shall be the amount necessary to pay the full cost of his/her enrollment, including the enrollment of family members in a health benefits plan up to a maximum of:

2024	
Members	**Health Plan Region 2**
Basic Enrollments	PERS Gold
Medicare Enrollments	UnitedHealthcare Group Medicare Advantage
Combination Enrollments	UnitedHealthcare Signature Value Alliance and Medicare Advantage

Per month, plus administrative fees and Contingency Reserve Fund assessments.

B. Heritage Ranch Community Services District has fully complied with any and all applicable provisions of Government Code Section 7507 in electing the benefits set forth above.

C. The participation of the employees and annuitants of Heritage Ranch Community Services District shall be subject to determination of its status as an "agency of instrumentality of the state or political subdivision of a State" that is eligible to participate in a governmental plan within the meaning of Section 414(d) of the Internal Revenue Code, upon publication of final Regulations pursuant to such Section. If it is determined that Heritage Ranch Community Services District would not qualify as an agency or instrumentality of the State of political subdivision of a State under such final Regulations, CalPERS may be obligated, and reserves the right to terminate the health coverage of all participants of the employer.

D. The executive body appoint and direct, and it does hereby appoint and direct, the General Manager to file with the Board a verified copy of this resolution, and to perform on behalf of Heritage Ranch Community Services District all functions required of it under the Act.

PASSED, APPROVED AND ADOPTED by the Board of Directors of the Heritage Ranch Community Services District on the 21st day of September 2023, by the following roll call vote.

AYES:
NOES:
ABSTAIN:
ABSENT:

APPROVED:_____
Bill Barker, President
Board of Directors

ATTEST:_____
Kristen Gelos, Secretary
Board of Directors

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

MEMORANDUM

TO: Board of Directors

FROM: Scott Duffield, General Manager

DATE: September 21, 2023

SUBJECT: Receive a letter of interest from Assurance Development / Vertical Bridge on behalf of T-Mobile and consider approval of the letter of interest to start the process to pursue placement of a cell tower on District property.

Recommendation

It is recommended that the Board of Directors Receive a letter of interest from Assurance Development / Vertical Bridge on behalf of T-Mobile and direct staff, in coordination with District Counsel, to approve the letter of interest to start the process to pursue placement of a cell tower on District property.

Background

Placement of a cell tower on District property has been discussed numerous times over the years, the most recent being January 2022.

Discussion

The letter of interest is attached for discussion. The proposed location is the District owned property described as Lot 176 of Tract 1990-2.

Fiscal Considerations

There are no direct costs other than staff and District Counsel time associated with this item currently. The District would receive revenue in the form of lease payments if the parties entered into a lease agreement.

Attachments: Letter of Interest from Assurance Development / Vertical Bridge dated August 3, 2023

File: Agreement & Contracts

ASSURANCE DEVELOPMENT

August 3rd, 2023

Heritage Ranch Community
Services District
4870 Heritage Rd
Paso Robles, CA 93446

Subject: Vertical Bridge's Lease Interest: 4870 Heritage Rd, Paso Robles | Site ID: CA-7221

Heritage Ranch Community Services District:

Assurance Development is an authorized representative for Vertical Bridge. Vertical Bridge is researching properties in the area to locate a wireless communications facility (cell-site) in-order to improve the wireless cell phone coverage in the surrounding commercial and residential areas on behalf of T-Mobile.

This letter confirms Vertical Bridge's interest to lease space on the property located at **4870 Heritage Rd, Paso Robles CA (as shown in exhibit A)** for the purposes of installing a wireless telecommunications facility (cell-site). The following information represents the general lease terms proposed.

1) **Lease Premises:**	Proposed lease area of 26' x 70' (approximately) for equipment plus antenna placement.
2) **Use:**	Construction, operation and maintenance of a cell-site for the transmission and reception of radio communications signals.
3) **Term:**	Vertical Bridge proposes an initial term of five (5) years plus four (9) automatic renewal options of five (5) years for a total of fifty (50) years. Lessee may terminate the lease at each annual anniversary by providing Lessor with thirty (30) days' notice.
4) **Rent:**	Vertical Bridge proposes an amount of Twelve Thousand 00/100 dollars **($12,000.00)** annual rent to be paid in monthly installments beginning upon the start of construction.
5) **Testing:**	Prior to lease commencement, Landowner shall provide access allowing Vertical Bridge to conduct any necessary inspections, surveys, and tests to determine the suitability of the property for Vertical Bridge.
6) **Access:**	24 hours a day, 7 days a week.
7) **Utilities:**	At Vertical Bridge's expense, power and telco will be brought to the leased premises.
8) **Title:**	A Memorandum of Lease will be recorded.
9) **Non-Disturbance Attornment (SNDA)**	A Subordination, Non-Disturbance Agreement must be obtained from the current deed of trust holders. If this cannot be obtained, Vertical Bridge will not enter into a lease agreement.
10) **Contingency:**	The lease is contingent upon Vertical Bridge's ability to obtain permits and use the premises as a communications facility.
11) **Signing Authority:**	Documents will be required evidencing the signors authority to encumber the property.
12) **Confidentiality:**	Landlord will keep the terms and conditions contained herein, and the details of ensuing negotiations confidential between the parties.

This letter is intended to be a nonbinding letter of interest entered into solely to reflecting the interest of the parties in negotiating with one another and to summarize the basic business terms being proposed for the lease agreement.

No portion of this letter is to be considered legally binding nor shall the provisions of this letter constitute any form of representation or warranty from one party to the other. The final lease agreement is subject to Vertical Bridge's review and approval, and contingent upon Vertical Bridge's signature.

If the terms of this letter of interest are acceptable concerning the proposed lease, please sign below in the place provided to evidence your agreement and return a copy of this letter so that we can begin the process of preparing mutually acceptable legal documents for yours and Vertical Bridge's signature.

I look forward to your response regarding this proposal and would be happy to provide additional information. I can be reached at 626-216-2024 or at BLewis@Assurance-Realty.com

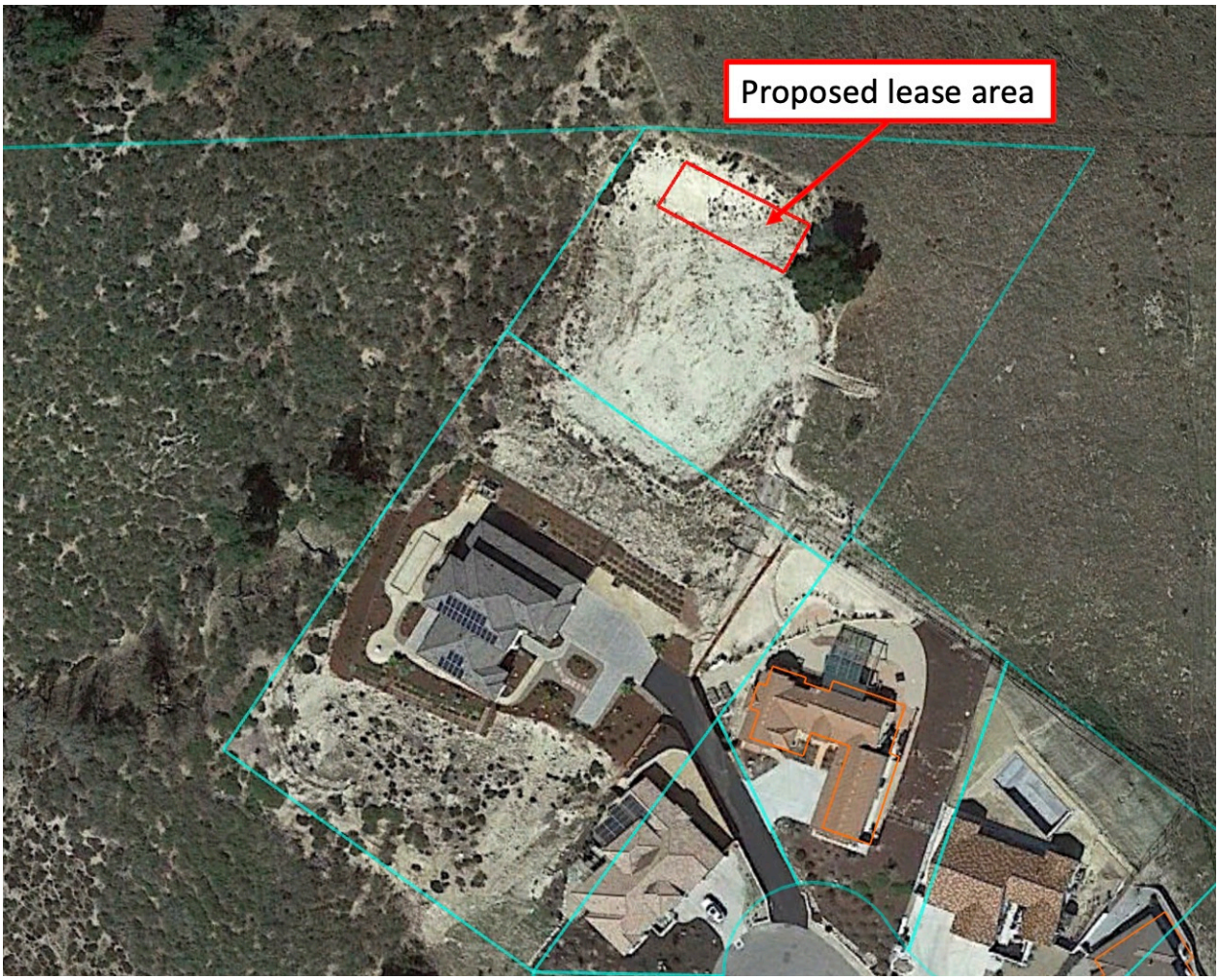
Warm regards,

Bill Lewis
Project Manager - Site Acquisitions
Authorized Representative for Vertical Bridge

_____ _____
Signature of Landlord Date

_____
Contact Number

Exhibit A



HERITAGE RANCH COMMUNITY SERVICES DISTRICT

MEMORANDUM

TO: Board of Directors

FROM: Scott Duffield, General Manager

DATE: September 21, 2023

SUBJECT: Receive updates regarding disinfection byproducts and provide direction to staff.

Background

The District water system is exceeding the disinfection byproducts maximum contaminant level. This is not an immediate health risk and you do not need to use an alternative water supply. Your Board has been updated regularly on this issue.

Disinfection Byproducts Rule

The Environmental Protection Agency adopted, and the California State Division of Drinking Water is implementing the Disinfection Byproducts Rule. This Federal Rule limits the levels of total trihalomethanes (TTHM) and haloacetic acids (HAA5) in drinking water.

Both TTHM and HAA5 are byproducts of drinking water disinfection and are controlled by State Primary Drinking Water Standards. TTHM and HAA5 are formed in drinking water when free chlorine comes in contact with organic compounds. All surface water has the presence of organic compounds. During a heavy rain event or low water levels, the amount of organics found in surface water can increase rapidly.

All water utilities that use surface water have become more concerned with the presence of organic compounds in their water and the implications of the Disinfection Byproducts Rule. Most water systems treat their water with a chemical disinfectant (e.g. Chlorine) to inactivate pathogens that cause diseases. The public health benefit of common disinfection practices is obvious, significant, and well recognized. While disinfectants are effective in controlling many harmful microorganisms, they react with organic matter in the water and form disinfection byproducts, some of which pose health risks over time when present above certain levels.

Total organic carbon (TOC) levels are an important factor in disinfection byproduct formation. TOC levels have increased in both our raw and finished water over time, and significantly since 2016 after the Chimney Fire. The increased organic matter left over from a wildfire is transported via rainfall runoff through the watershed, and in this case,

deposited into Nacimiento Reservoir. The increase in TOC coincides with a corresponding increase in haloacetic acid levels. The table below shows the average and range of raw water TOC, treated water TOC, and LRAA haloacetic acids.

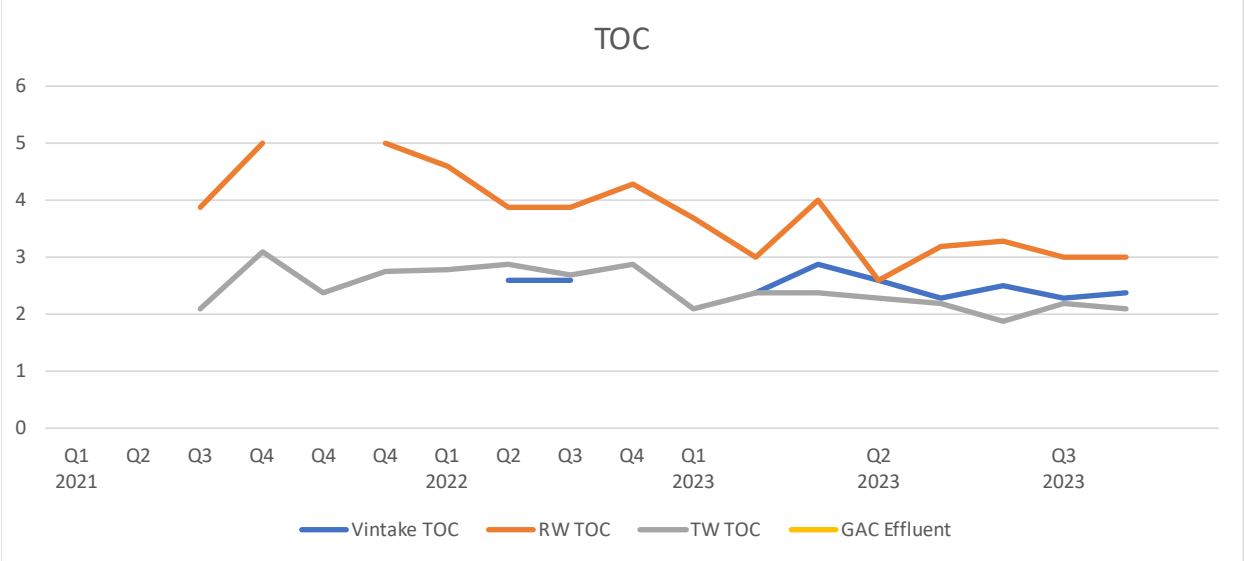
Time Period	Raw Water TOC ppm	Treated Water TOC ppm	Total Haloacetic Acids ppb
2010 - 2016	2.6 average (1.5 - 4.2)	2.2 average (1.3 - 3.6)	39.2 average (24.0 - 67.0)
2016 - 2023	3.6 average (2.3 - 5.0)	2.6 average (1.8 - 3.9)	59.1 average (31.3 - 105.0)

Discussion

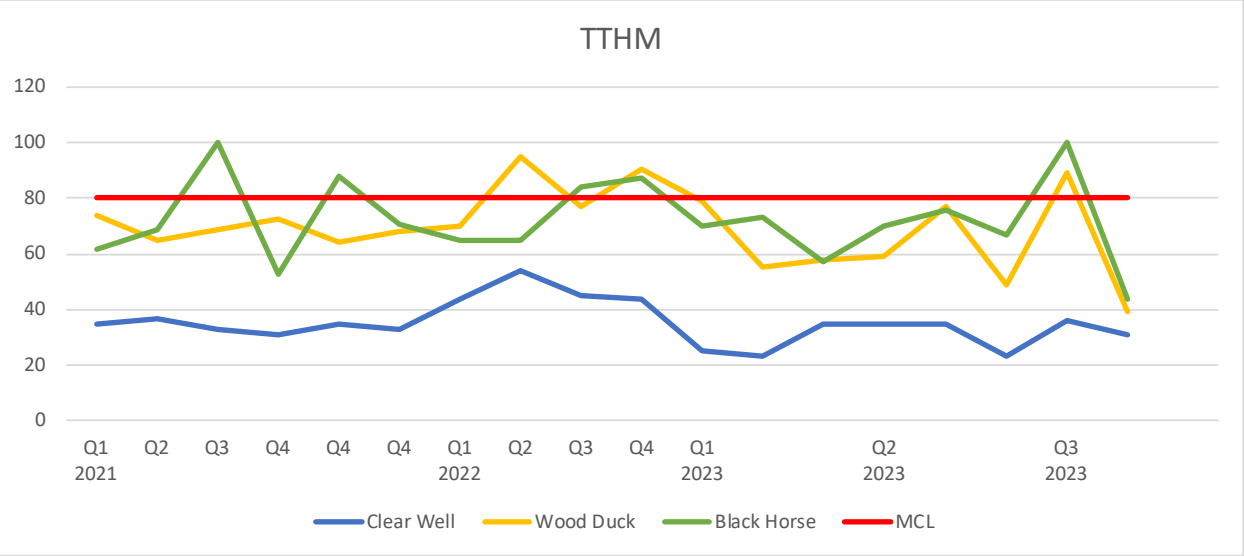
Sample data

The sample data for disinfection byproducts over the last several years is shown below. The allowable limit for TTHM is 80 parts per billion. The allowable limit for HAA5 is 60 parts per billion. This data is for individual samples. The reportable data required by the Division of Drinking Water is the Locational Running Annual Average (LRAA) by calendar quarter. The DDW approved us to use the average of samples taken every 30 days for the quarterly reportable data. In the table below, "Vintake TOC" is the TOC level of the water from the vertical intake. "RW TOC" is the TOC reading for Raw Water. "TW TOC" is the TOC reading for Treated Water. "GAC Effluent" shows the TOC reading after the GAC vessels and before chlorination.

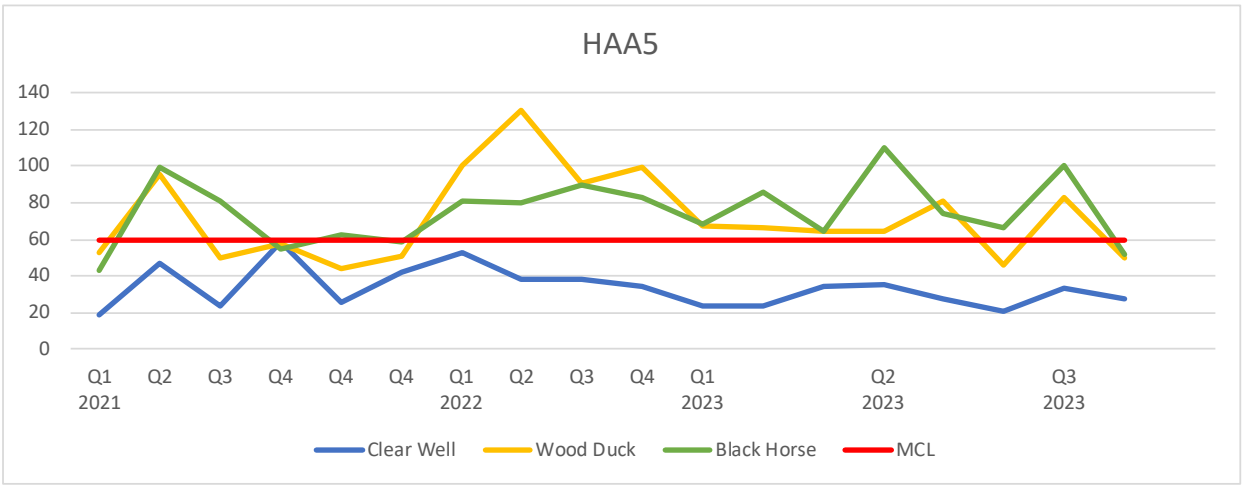
TOC	Q1 2021	Q2	Q3	Q4	Q4	Q4	Q1 2022	Q2	Q3	Q4	Q1 2023			Q2 2023			Q3 2023		
Vintake TOC								2.6	2.6			2.4	2.9	2.6	2.3	2.5	2.3	2.4	
RW TOC	3.6		3.9	5		5	4.6	3.9	3.9	4.3	3.7	3.0	4.0	2.6	3.2	3.3	3.0	3.0	
TW TOC	3.9		2.1	3.1	2.4	2.8	2.8	2.9	2.7	2.9	2.1	2.4	2.4	2.3	2.2	1.9	2.2	2.1	
GAC Effluent																	2.0		



TTHM	Q1 2021	Q2	Q3	Q4	Q4	Q4	Q1 2022	Q2	Q3	Q4	Q1 2023			Q2 2023			Q3 2023		
Clear Well	35	37	33	31	35	33	44	54	45	44	25	23	35	35	35	23	36	31	
Wood Duck	74	65	69	73	64	68	70	95	77	91	79	55	58	59	77	49	89	39	
Black Horse	62	69	100	53	88	70	65	65	84	88	70	73	57	70	76	67	100	44	
MCL	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	



HAA5	Q1 2021	Q2	Q3	Q4	Q4	Q4	Q1 2022	Q2	Q3	Q4	Q1 2023			Q2 2023			Q3 2023		
Clear Well	19	47	24	59	26	43	53	38	38	34	24	24	34	35	28	21	33	28	
Wood Duck	53	95	50	58	44	51	100	130	91	100	67	66	64	64	81	46	83	50	
Black Horse	43	99	81	55	62	59	81	80	90	83	68	86	64	110	74	66	100	52	
MCL	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	



The most recent LRAA for TTHM is 77 ppb at the Black Horse Lane sample site and 73 ppb at the Wood Duck Lane sample site. The most recent LRAA for HAA5 is 82 ppb at the Black Horse Lane sample site and 80 ppb at the Wood Duck Lane sample site. We will continue to send quarterly notices to customers until such time we are consistently within the allowable limits.

Operations and project updates

In addition to the installation of the vertical intake, other projects have been implemented to assist in lowering the overall TOC levels, which will lower the DBP levels. The SCADA system has been upgraded and is currently operating on the new program (Ignition). Operations staff are maximizing the current functionality of Water Treatment Plant (WTP) with SCADA programming changes not previously available to us. The vertical intake well is now operating 100% of the time that the plant is producing water. Additionally, it is the sole provider of raw water for the Raw Water Tank (RWT) between 17.5 and 21 feet. This is anticipated to have a significant impact on overall TOC reduction as this well has consistently tested lower in TOC since it went into service. As we continue on and become more comfortable with the operation and programming of the new SCADA system, we will be making additional programming changes to assist in TOC (and DBP) reduction.

Another project initiated to combat the DBP issue is the use granular activated carbon (GAC) to provide additional TOC removal. Currently, a pilot study is in operation wherein a portion of the total flow (up to 200 gpm) is sent through GAC downstream of the filters. This GAC-treated water is then sent to PS2 where it mixes with the rest of the filtered water. Initial startup of this system experienced siphoning issues due to air lock of the pump and manual calibration of valves and filter flows. Operations staff have completed the installation of automated valves and the programming changes needed to operate the GAC system in a fully automated mode. Integrating this system into our new SCADA program has allowed staff to fully associate this process with the water treatment process. Initial TOC readings from the GAC-treated water showed a significant reduction in TOC when compared to the water out of the filters. Due to the siphoning and valving issues, air was frequently introduced to the GAC vessels, which resulted in some additional organics. This impacted the overall effectiveness of the GAC. Staff made operational modifications to alleviate the siphoning issue. Additionally, we have performed several extended backwashes of the GAC in order to lessen the organics. We have new GAC on standby pending additional test results.

Fiscal Implications

The 5-year Capital Improvement Plan approved by your Board includes spending a total of $1,000,000 for a DBP project(s) through Fiscal Year End 2027. The current year budget includes $325,000 for a DBP project(s), as well as $50,000 for the design phase of Vertical Intake No. 2.

File: OPERATIONS_DBP

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

MEMORANDUM

TO: Board of Directors

FROM: Scott Duffield, General Manager

DATE: August 22, 2023

SUBJECT: Request to receive the draft procurement document for the packaged-Membrane Bioreactor equipment for the Water Resource Recovery Facility Upgrade project and direct staff to finalize the document and advertise for bids once USDA's review is complete.

Recommendation

It is recommended that the Board of Directors receive the draft procurement document for the packaged-Membrane Bioreactor equipment and direct staff to finalize the document and advertise for bids once USDA's review is complete; and

Background

At the July 20, 2023 meeting, your Board had a discussion on site layout considerations for the Water Resource Recovery Facility Upgrade project, as well as the process for procuring the packaged-Membrane Bioreactor equipment. Staff was directed to distribute the draft documents and schedule this Board Special Meeting for additional consideration and direction.

At the August 22, 2023 special meeting, your Board directed staff to request comments from potential vendors, then incorporate District and vendor comments into the documents and bring it back to the Board for re-consideration.

Discussion

The draft MBR procurement documents were previously distributed electronically to your Board for review and comment as requested.

The package consists of the following components:

1. Procurement and Contract Documents. These start with 00 from the Instructions to Bidders to the Supplementary Conditions and require careful legal review.

2. Division 1 Specifications. These contain primarily administrative instructions for the Seller and the Special Services they require.

3. Technical Specifications: These outline the requirements of the Goods the Seller will be responsible for furnishing and the minimal level of quality required for those Goods.

4. Misc drawings and attachments – Information to the Seller to help them understand the scope of supply and intended use of their Goods and Services.

Staff recommends that your Board direct staff to finalize the document and advertise for bids once USDA's review is complete.

Fiscal Considerations

The FY 2023/24 Budget includes budget for design phase services. It does not include any budget for the construction phase, including procurement of the MBR equipment. Your Board will need to initiate a rate study and a Proposition 218 process, or other financial plan, to obtain funding for the construction phase.

Results

Approval of the recommended action will initiate advertising the MBR equipment for bids. The completion of this package is a significant milestone for the project, and we are excited to be at this point.

Attachments: Draft bid documents for the MBR equipment (Clerk's file)

File: Projects_ WRRF

TABLE OF CONTENTS

Water Resource Recovery Facility Membrane Bioreactor Equipment Procurement Package

Standard General Conditions (Provided as Separate Documents)

C-111	Advertisement
C-430	Bid Bond
P-200	Instructions To Bidders Procurement
P-400	Bid Form Procurement
P-520	Agreement Between Buyer And Seller
P-610	Performance Bond Procurement
P-615	Payment Bond Procurement
P-625	Buyer's Acknowledge Of Receipt Of Goods
P-626	Buyer's Notice Regarding Conformity Of Goods And Special Services
P-700	General Conditions Of The Procurement Contracts
P-800	Supplementary Conditions
00451	Bidder Qualifications

Technical Specifications

01 10 00	Summary
01 29 00	Measurement And Payment
01 30 00	Administrative Requirements
01 40 00	Quality Requirements
01 43 34	Special Services
01 6 100	Wind And Seismic Criteria
01 70 00	Execution and Closeout Requirements
01 75 16	Startup Procedures
01 78 23	Operations And Maintenance Manual
26 05 00	Electrical Work, General
40 05 06	Couplings, Adapters, And Specials For Process Piping
40 27 00	Process Piping
40 27 02	Process Valves
40 91 00	Process Instrumentation
43 32 56	Membrane Bioreactor Equipment
46 05 10	Mechanical Equipment

ADVERTISEMENT FOR BIDS

Heritage Ranch Community Service District
Paso Robles, California
Water Resource Recovery Facility Membrane Bioreactor Equipment Procurement Package

General Notice

Heritage Ranch Community Services District (Owner) is requesting Bids for the construction of the following Project:

Water Resource Recovery Facility Membrane Bioreactor Equipment Procurement Package

Bids for the construction of the Project will be received at the **Water Systems Consulting San Luis Obispo Office** located at **805 Aero Vista Place Suite 201**, until **[day]**, **[date]** at **[time for receipt of Bids]** local time. At that time the Bids received will be publicly opened and read.

The Project includes the following Work:

Design, fabricate, deliver and install an approximately 240,000 gallon per day Membrane Bioreactor Equipment Package. Tasks included in the deliver of the Goods and Services of this project are generally described as:

1. Preparation of signed and sealed packaged MBR plant design including controls.
2. Preparation of and submittal to the Buyer and Engineer detailed packaged MBR plant design submittals.
3. Coordination with the Buyer and Engineer on the MBR plant electrical design including furnishing MBR Plant power requirements and conduit locations.
4. Coordination with the Buyer and Engineer on the MBR plant structural slab and anchorage requirements.
5. Packaged MBR anchorage design.
6. Fabrication of a packaged MBR plant including all control systems, conveyance systems, mechanical and structural components.
7. Factory Performance testing of the MBR plant.
8. Inspection of the site and work of others for compatibility with Seller's requirements.
9. Delivery of the MBR plant to the site.
10. Installation of the MBR plant at the site.
11. Packaged MBR Control System design, programming, and customization.
12. Coordination with the Buyer to start and stop flows to the packaged MBR plant for testing purposes.
13. Testing and Commissioning of the MBR plant.
14. Operator Training
15. Final Cleaning and Demobilization
16. All other efforts required to provide a complete and functional MBR system from the Buyer provided influent piping, WAS piping, and permeate piping.

Bids are requested for the following Contract: **Water Resource Recovery Facility Membrane Bioreactor Equipment Package Procurement.**

Owner anticipates that the Project's total bid price will be approximately $4,000,000. The Project has an expected duration of **1000** days.

Obtaining the Bidding Documents

Information and Bidding Documents for the Project can be found at the following designated website:

https://www.projectsasap.com/

Bidding Documents may be downloaded from the designated website. Prospective Bidders are urged to register with the designated website as a plan holder, even if Bidding Documents are obtained from a plan room or source other than the designated website in either electronic or paper format. The designated website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the designated website. Neither Owner nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website.

The Issuing Office for the Bidding Documents is:

Water Systems Consulting
805 Aerovista Place Suite 201
San Luis Obispo CA

Prospective Bidders may examine the Bidding Documents at the Issuing Office on Monday through Friday between the hours of **9 am to 4 pm,** by contacting Dylan WAde 24 hours in advance at 805-457-8833 ext. 111 . Bidders may obtain copies of the Bidding Documents from the ASAP Reprographics Online Planroom (projectsasap.com). Copies of Bidding Documents will not be available from the Issuing Office. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including addenda, if any, obtained from sources other than the designated website.

Bidding Documents may xxxx

Pre-bid Conference

A pre-bid conference for the Project will be held on **[day, date]** at **[time]** at **[name of venue] [street address of venue] [city, state, zip code].** Attendance at the pre-bid conference is encouraged but not required.

Instructions to Bidders.

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

This Advertisement is issued by:

Owner: **Heritage Ranch Community Services District**
By: **Scott Duffield**
Title: **General Manager**
Date: **[Date of initial publication of advertisement]**

BID BOND (PENAL SUM FORM)

Bidder Name: **[Full formal name of Bidder]** Address *(principal place of business)*: **[Address of Bidder's principal place of business]**	**Surety** Name: **[Full formal name of Surety]** Address *(principal place of business)*: **[Address of Surety's principal place of business]**
Owner Name: **Heritage Ranch Community Services District** Address *(principal place of business)*: **4870 Heritage Rd, Paso Robles, CA 93446**	**Bid** Project *(name and location)*: **Water Resource Recovery Facility Membrane Bioreactor Equipment Procurement Package** **4870 Heritage Rd, Paso Robles, CA 93446** Bid Due Date: **[Enter date bid is due]**
Bond Penal Sum: **[Amount]** Date of Bond: **[Date]**	

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

Bidder	Surety
_____ *(Full formal name of Bidder)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature) (Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title:	Title:

Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
    3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
    3.2. All Bids are rejected by Owner, or
    3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

INSTRUCTIONS TO BIDDERS FOR PROCUREMENT CONTRACTS

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INSTRUCTIONS TO BIDDERS FOR PROCUREMENT CONTRACT

ARTICLE 1—DEFINED TERMS

1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below.

A. *Agency* – The Project is financed in whole or in part by USDA Rural Utilities Service pursuant to the Consolidated Farm and Rural Development Act (7 USC Section 1921 et seq.). The Rural Utilities Service programs are administered through the USDA Rural Development offices; therefore, the Agency for these documents is USDA Rural Development.

B. *Buyer* – Heritage Ranch Community Services District.

C. *Issuing Office*—The office from which the Procurement Bidding Documents are to be issued and where the bidding procedures are to be administered. The Issuing Office is:

Water Systems Consulting

805 Aerovista Place, Suite 201

San Luis Obispo, CA 93401

(805) 457-8833 ext. 111

ARTICLE 2—PROCUREMENT BIDDING DOCUMENTS

2.01 The Bidding Documents may be examined by registering online with ASAP Reprographics at http://www.projectsasap.com/jobs/public. Viewing documents is free. Registering as a plan holder and downloading the bid documents has a cost of $XX dollars. Printed materials are available from ASAP Reprographics at the cost of printing. Prospective Bidders are urged to register with the designated website as a plan holder, even if Bidding Documents are obtained from a plan room or source other than the designated website in either electronic or paper format. The designated website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the designated website. Neither Buyer nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website.

2.02 Bidder must use a complete set of the Procurement Bidding Documents in preparing the Bid; neither Buyer nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Procurement Bidding Documents.

2.03 Buyer and Engineer make copies of Procurement Bidding Documents available on the above terms only for obtaining Bids for furnishing Goods and Special Services, and do not authorize or confer a license for any other use.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

3.01 Buyer may at any time conduct such investigations as Buyer deems necessary to establish the responsibility, qualifications, and financial ability of Bidder, and after the opening of Bids may require a Bidder to submit documentation of its qualifications, including but not limited to

financial data and documentation of previous experience providing goods and services comparable to the specified Goods and Special Services.

3.02 Bidder is to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

3.03 Bidder shall have the minimum qualifications:

A. The Bidder must have at least ten (10) years' experience in manufacturing, supply, startup, commissioning of MBR Equipment Packages with five (5) currently operating North American-based systems meeting all the following requirements:

1. Installed systems designed for and currently treating municipal wastewater.
2. Operating with the same membrane type and membrane materials as what is being proposed by Seller for this Project.
3. Seller's scope of supply for the installations included manufacturing, supply, startup, and commissioning.

Seller shall complete the attached Bidder Qualifications Form (Section 00451).

ARTICLE 4—SITE VISIT; PRE-BID CONFERENCE

4.01 Buyer recommends that Bidder visit the Point of Destination and the site where the Goods are to be installed and Special Services will be provided, taking into account observable local and site conditions that may affect the delivery, cost, progress, and furnishing of the Goods and Special Services. Arrangements for such a visit may be made through Engineer.

4.02 A non-mandatory pre-bid conference will be held at the time and location indicated in the advertisement or invitation to bid.

4.03 Interpretations or clarifications considered necessary by Engineer in response to questions arising at the pre-bid conference will be issued by Addenda delivered to all parties recorded by Engineer as having received the Procurement Bidding Documents. Only answers in the Addenda will be binding. Oral statements, interpretations, and clarifications may not be relied upon in the preparation of a Bid and will not be binding or legally effective.

ARTICLE 5—INTERPRETATIONS AND ADDENDA

5.01 All questions about the meaning or intent of the Procurement Bidding Documents are to be submitted to Engineer via email at: lwiley@wsc-inc.com

5.02 Interpretations or clarifications considered necessary by Engineer in response to such written questions will be issued by Addenda delivered to all parties recorded as having received the Procurement Bidding Documents. Questions received less than 10 days prior to the date for opening of Bids will not be answered. Only answers in the Addenda will be binding. Oral

statements, interpretations, and clarifications may not be relied upon in the preparation of a Bid, and will not be binding or legally effective.

5.03 Addenda may be issued to clarify, correct, or change the Procurement Bidding Documents as deemed advisable by Buyer or Engineer.

ARTICLE 6—BID SECURITY

6.01 A Bid must be accompanied by Bid security made payable to Buyer in an amount of 10 percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 5.01 of the General Conditions. Such Bid bond will be issued in the form included in the Procurement Bidding Documents.

6.02 The Bid security of the apparent Successful Bidder will be retained until Buyer (Project Owner) awards the Procurement Contract to such Bidder, and such Bidder has executed the Procurement Contract, furnished the required contract security, and met the other conditions of the Contract Documents, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Procurement Contract and furnish the required contract security within 15 days after the signing of the Agreement, Buyer (Project Owner) may consider Bidder to be in default and annul the Agreement, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Buyer's damages in the case of a damages-form bond. Such forfeiture will be Buyer's exclusive remedy if Bidder defaults.

6.03 The Bid security of other Bidders that Buyer believes to have a reasonable chance of receiving the award may be retained by Buyer until the earlier of 7 days after the Effective Date of the Procurement Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released upon request.

6.04 Bid security of other Bidders that Buyer believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening upon request.

ARTICLE 7—PROCUREMENT CONTRACT TIMES

7.01 See applicable provisions in the Procurement Agreement.

ARTICLE 8—LIQUIDATED DAMAGES

8.01 Any provisions for liquidated damages, such as those for Seller's failure to attain a specified Milestone such as the delivery of the Goods, are set forth in the Procurement Agreement.

ARTICLE 9—CONFIDENTIALITY OF BID INFORMATION- RESERVED

ARTICLE 10——"OR-EQUAL" ITEMS

10.01 The Procurement Contract, if awarded, will be based on material and equipment specified in the Procurement Bidding Documents without consideration of possible "or-equal" items. Whenever it is specified or described in the Procurement Bidding Documents that an "or-equal" item of material or equipment may be furnished or used by Seller if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Procurement Contact. The procedure for submittal of any such application by Seller and

consideration by Engineer is set forth in the General Conditions and may be supplemented in the Procurement Specifications.

ARTICLE 11—PREPARATION OF BID

11.01 The Bid Form is included with the Procurement Bidding Documents.

11.02 All blanks on the Bid Form must be completed and the Bid Form must be signed by an individual authorized to act on behalf of the Bidder. Alterations must be initialed by an individual authorized to act on behalf of the Bidder. A Bid price must be indicated for each item in the Bid Form. In the case of optional alternates, the words "No Bid" may be entered.

11.03 Bidder must acknowledge all Addenda by filling in the number and date of each Addendum in the Bid Form and sign where indicated to verify that the Addenda were received. A Bid that does not acknowledge receipt of all Addenda may be considered non-responsive.

11.04 Bidder shall:

A. Sign the Bid Form as indicated in the Bid Form.

B. Include evidence of authority to sign.

C. Provide information on the individual to be contacted for any communications regarding the Bid.

D. Provide evidence of the Bidder's authority and qualification to do business in the locality of the Project, to the extent required, or indicate the ability to obtain such authority and qualification prior to award of the Procurement Contract.

11.05 The responsibilities of each Bidder submitting a Bid are described in the Bidder's representations and certifications set forth in Article 6 of the Bid Form.

ARTICLE 12—BASIS OF BID; COMPARISON OF BIDS

12.01 *Series of Lump Sums*

A. Bidder shall submit a Bid for each lump sum item as set forth in Paragraph 2.01 of the Bid Form, and shall compute and enter the total of all lump sum items as the Base Bid Price in the space provided on the Bid Form in Paragraph 2.02.

B. The Base Bid Price will be the basis of the contracted amount to the awarded bidder.

C. Discrepancies between the indicated sum of any column of figures and the arithmetically correct sum will be resolved in favor of the arithmetically correct sum.

12.02 *Lifecycle Cost Adjustment*

A. The Base Bid Price will be adjusted with a Lifecycle Cost Adjustment (based on a 20-year lifecycle) related to the operation and maintenance of the Goods and Services.

B. The seller shall provide guaranteed annual chemical consumption and guaranteed power consumption data on Form 1 of Attachment A to the Bid Form and guaranteed membrane subunit replacement periods and guaranteed membrane subunit replacement costs on Form 2 of Attachment A of the Bid Form.

C. The Seller must compute and sum the items listed in the Lifecycle Cost Calculation tables in Form 1 of Attachment A to the Bid Form to calculate the Lifecycle Cost Adjustment Price in Form 2 of Attachment A to the Bid Form. Customized or alternate calculations to determine Lifecycle Cost Adjustment Price are not allowable.

D. The Seller must submit a lump sum item as the Lifecycle Cost Adjustment Price in the space provided on the Bid Form in Paragraph 2.03.

12.03 *Basis of Award*

A. The Seller must calculate and submit a lump sum item for the Adjusted Base Bid Price based on Paragraph 2.04 of the Bid Form.

B. The apparent low Bid will be determined on the basis of the Adjusted Base Bid Price.

ARTICLE 13—SUBMITTAL OF BID

13.01 Bidder shall refer to the advertisement for bids for specific identification of the date, time, and place where Bids are to be submitted.

13.02 Bidder must submit one separate unbound copy of the completed Bid Form, and, if required, the Bid Security and the other documents required to be submitted under the terms of Article 4 of the Bid Form.

13.03 A Bid must be submitted no later than the date and time prescribed and at the place indicated in the advertisement for bids. Submit the Bid in an envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted) and the name and address of Bidder. Enclose the Bid security and other documents required to be submitted with the Bid as listed in the Bid Form. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED."

ARTICLE 14—MODIFICATION OR WITHDRAWAL OF BID

14.01 A Bid may be modified or withdrawn by a document duly signed in the same manner that a Bid must be signed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

14.02 If, within 24 hours after Bids are opened, any Bidder files a duly signed written notice with Buyer and promptly thereafter demonstrates to the reasonable satisfaction of Buyer that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Bids so withdrawn would preclude Bidder from subsequent Bidding on the project should it be readvertised and rebid.

ARTICLE 15—OPENING OF BIDS

15.01 Bids will be publicly opened at the time and place indicated in the advertisement for bids and read aloud, unless obviously non-responsive. An abstract of the amounts of the Base Bids and Alternate

Bids, if any, will be made available to Bidders after Bids have been opened and reviewed by the Buyer.

ARTICLE 16—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

16.01 All Bids will remain subject to acceptance for the period stated in the Bid Form, but Buyer may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 17—EVALUATION OF BIDS AND AWARD OF PROCUREMENT CONTRACT

17.01 Buyer reserves the right to reject any and all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Buyer also reserves the right to waive all informalities not involving price, time, or changes in the Goods and Special Services at the Buyer's sole discretion.

17.02 Buyer will reject the Bid of any Bidder that Buyer finds, after reasonable inquiry and evaluation, to not be responsible.

17.03 In evaluating Bids, Buyer will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, minimum qualifications, and other data as may be requested in the Bid Form or may be requested from Bidders prior to determining the Successful Bidder.

17.04 If Buyer awards the Procurement Contract, such award will be to the responsible Bidder submitting the lowest responsive Bid.

ARTICLE 18—BONDS AND INSURANCE

18.01 Article 5 of the General Conditions and Article 5 of the Supplementary Conditions set forth Buyer's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the signed Procurement Agreement to Buyer, it must be accompanied by such bonds and acceptable evidence of insurance.

ARTICLE 19—SIGNING OF PROCUREMENT AGREEMENT

19.01 When Buyer determines the Successful Bidder , the Procurement Agreement will be provided and signed by the Buyer along with the other Procurement Contract Documents for Seller's signature. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Procurement Agreement and any bonds and insurance documentation required to be delivered by the Procurement Contract Documents to Buyer. Within 10 days thereafter, Buyer will deliver one fully executed counterpart of the Procurement Agreement to Successful Bidder, together with printed and electronic copies of the Procurement Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 20—PROCUREMENT CONTRACT TO BE ASSIGNED

20.01 Bidder's attention is directed to the provisions of Article 5 of the Procurement Agreement which provide for the assignment of the Procurement Contract to a construction contractor designated by the Buyer to construct the Heritage Ranch Community Services District WRRF Upgrades. Successful Bidder (Seller) will be required to perform the Procurement Contract after it has been assigned to the WRRF construction contractor (Contractor/Assignee) in accordance with the

provisions in the Procurement Contract. Anticipated timing of the assignment is addressed in the Procurement Agreement but changes to the timing of the assignment do not relieve the Seller of their obligation to execute the Assignment Forms in a timely fashion. Forms documenting the assignment of the Procurement Contract and for the agreement of the Seller's surety to such assignment are included as attachments to the Procurement Agreement.

BID FORM FOR PROCUREMENT CONTRACT

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BID FORM FOR PROCUREMENT CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—BUYER AND BIDDER

1.01 This Bid is submitted to:

Heritage Ranch Community Services District

4870 Heritage Road

Paso Robles, CA 93446

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into a Procurement Contract with Buyer in the form included in the Procurement Bidding Documents, and to furnish the Goods and Special Services as specified or indicated in the Procurement Bidding Documents, for the prices and within the times indicated in this Bid, and in accordance with the other terms and conditions of the Procurement Bidding Documents.

ARTICLE 2—BASIS OF BID

2.01 *Lump Sum Bids*

A. Bidder will furnish the Goods and Special Services in accordance with the Procurement Contract Documents for the following Procurement Contract Price(s):

1. Lump Sum Bid Price

Lump Sum Bid Price for Special Engineering and Field Services	$
Lump Sum Bid Price for Warranties	
Lump Sum Bid Price for Supply, Delivery and Installation of MBR Equipment	
Lump Sum Bid Price for Taxes	
Lump Sum Bid Price for Annual Maintenance Agreement	
Lump Sum Bid Price for Performance Bond	
All other Contract Document Requirements Including Overhead and Profit	

2.02 *Base Bid Price*

A. The following Base Bid Price is the sum of the Lump Sum Bid Prices from Paragraph 2.01. The Base Bid Price, if accepted and incorporated in the Procurement Contract to be awarded, will be subject to any Buyer-accepted Alternates and to final Unit Price and Buyer's Contingency Allowance adjustments.

Base Bid Price	$

2.03 *Lifecycle Cost Adjustment Price*

A. The following Lifecycle Cost Adjustment Price is the lump sum Lifecycle Cost Adjustment total from Item D.3 in Form 2 of Attachment A, which is based on Seller's entries in Form 1 of Attachment A.

Lifecycle Cost Adjustment Price	$

2.04 *Adjusted Base Bid Price*

A. The Adjusted Base Bid Price is the sum of the Base Bid Price from Paragraph 2.02 and the Lifecycle Cost Adjustment Price from Paragraph 2.03. The Adjusted Base Bid price will be used to make the determination of the low bid.

Adjusted Base Bid Price	$

ARTICLE 3—TIME OF COMPLETION

3.01 Bidder agrees that the furnishing of Goods and Special Services will conform to the schedule of Procurement Contract Times set forth in Article 2 of the Procurement Agreement.

3.02 Bidder accepts the provisions of the Procurement Agreement as to liquidated damages.

ARTICLE 4—ATTACHMENTS TO THIS BID

4.01 The following documents are attached to and made a condition of this Bid:

A. Attachment A

1. Form 1 - Lifecycle Cost Calculations
2. Form 2 - Lifecycle Cost Adjustment Summary

B. Required Bid security in the form prescribed in the Instructions to Bidders.

C. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids.

D. Department of Industrial Relations Number of Bidder #_____.

E. Drug-Free Workplace Certification.

ARTICLE 5—BIDDER'S ACKNOWLEDGMENTS

5.01 Bidder accepts all terms and conditions of the Instructions to Bidders. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period that Bidder may agree to in writing upon request of Buyer.

5.02 Bidder has examined and carefully studied the Procurement Bidding Documents, the related data identified in the Procurement Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No.	Addendum Date

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder's Representations*

A. In submitting this Bid, Bidder represents that:

1. Bidder has examined and carefully studied the Procurement Contract Documents.

2. If required by the Instructions to Bidders to visit the Point of Destination and the site where the Goods are to be installed or Special Services will be provided, or if, in Bidder's judgment, any observable local or site conditions may affect the delivery, cost, progress, or furnishing of the Goods and Special Services, then Bidder has visited the Point of Destination and site where the Goods are to be installed or Special Services will be provided (as applicable) and become familiar with and is satisfied as to the observable local and site conditions that may affect delivery, cost, progress, and furnishing of the Goods and Special Services.

3. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect the cost, progress, and performance of Seller's obligations under the Procurement Contract.

4. Bidder has carefully studied, considered, and correlated the information known to Bidder with respect to the effect of such information on the cost, progress, and performance of Seller's obligations under the Procurement Contract.

5. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Procurement Contract Documents, and the written resolution (if any) thereof by Engineer is acceptable to Bidder.

6. The Procurement Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance of Seller's obligations under the Procurement Contract.

7. The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of the Bidding Requirements, that without exception the Bid (including all Bid prices) is premised upon furnishing the Goods and Special Services as required by the Procurement Contract Documents.

6.02 *Bidder's Certifications*

A. Bidder certifies that:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

3. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Procurement Contract. For the purposes of this Paragraph 6.02.A.4:

a. “corrupt practice” means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;

b. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Buyer, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Buyer of the benefits of free and open competition;

c. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Buyer, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

d. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process.

This Bid is offered by:

Bidder:

_____

(typed or printed name of organization)

By: _____

(individual's signature)

Date: _____

(date signed)

Name: _____

(typed or printed)

Title: _____

(typed or printed)

(If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

(individual's signature)

Title: _____

(typed or printed)

Address for giving notices:

_____

_____

_____

Designated Representative:

Name: _____

(typed or printed)

Title: _____

(typed or printed)

Address:

_____

_____

_____

Phone: _____

Email: _____

License No.: _____

Classification: _____

Limitation: _____

PERMEATE PUMPING OPERATIONAL COST

Identifier	Item	Units	AA	MM	MW	Calculation	Notes
A	Influent Flow Rate	MGD	0.24	0.46	0.55		
B	Time of Operation Over 20-year Lifecycle	% of time	89.7%	8.3%	1.9%		
C	Permeate Production (Including Backpulse)	gpm					
D	Permeate Suction Head	ft					Membrane Tank HGL (ft) - Permeate Pump HGL (ft) + 9.2 ft Discharge Head
E	Pump Power	hp				(C x D) ÷ 3960	
F	Wire to Water Efficiency	%					
G	Annual Power Consumption	kW-hr/year				(E÷F) x 8760 x 0.7457 x B	Total of this row comprises **Guaranteed Annual Power Consumption for Permeate Pumps**
H	Annual Power Cost	$				G x $0.19/kW-hr	
Annual Permeate Pumping Costs (Item B.1)						AA Power Cost + MM Power Cost + MW Power Cost	

RETURN ACTIVATED SLUDGE (RAS) PUMPING OPERATIONAL COST

Identifier	Item	Units	AA	MM	MW	Calculation	Notes
A	Influent Flow Rate	MGD	0.24	0.46	0.55		
B	Time of Operation Over 20-year Lifecycle	% of time	89.7%	8.3%	1.9%		
C	RAS Pumping Rate	gpm					
D	RAS Pump Discharge Head	ft					
E	Pump Power	hp				(C x D) ÷ 3960	
F	Wire to Water Efficiency	%					
G	Annual Power Consumption	kW-hr/year				(E÷F) x 8760 x 0.7457 x B	Total of this row comprises **Guaranteed Annual Power Consumption for RAS Pumps**
H	Annual Power Cost	$				G x $0.19/kW-hr	
Annual RAS Pumping Costs (Item B.2)						AA Power Cost + MM Power Cost + MW Power Cost	

PROCESS PUMPING OPERATIONAL COST – Seller to complete additional Process Pumping worksheets as required.

Identifier	Item	Units	AA	MM	MW	Calculation	Notes
A.1	Influent Flow Rate	MGD	0.24	0.46	0.55		
B.1	Time of Operation Over 20-year Lifecycle	% of time	89.7%	8.3%	2.0%		
C.1	Process Pumping No. 1 Rate	gpm					
D.1	Process Pump No. 1 Discharge Head	ft					
E.1	Pump No. 1 Power	hp				(C.1 x D.1) ÷ 3960	
F.1	Wire to Water Efficiency	%					
G.1	Annual Power Consumption	kW-hr/year				(E.1÷F.1) x 8760 x 0.7457 x B.1	Total of this row comprises **Guaranteed Annual Power Consumption for Process Pumping No. 1**
H.1	Annual Power Cost	$				G.1 x $0.19/kW-hr	
Annual Process Pumping No. 1 Cost						AA Power Cost + MM Power Cost + MW Power Cost	
A.2	Influent Flow Rate	MGD	0.24	0.46	0.55		
B.2	Time of Operation Over 20-year Lifecycle	% of time	89.7%	8.3%	2.0%		
C.2	Process Pumping No. 2 Rate	gpm					
D.2	Process Pump No. 2 Discharge Head	ft					
E.2	Pump No. 2 Power	hp				(C.2 x D.2) ÷ 3960	
F.2	Wire to Water Efficiency	%					
G.2	Annual Power Consumption	kW-hr/year				(E.2÷F.2) x 8760 x 0.7457 x B.2	Total of this row comprises **Guaranteed Annual Power Consumption for Process Pumping No. 2**
H.2	Annual Power Cost	$				G.2 x $0.19/kW-hr	
Annual Process Pumping No. 2 Cost						AA Power Cost + MM Power Cost + MW Power Cost	
A.3	Influent Flow Rate	MGD	0.24	0.46	0.55		
B.3	Time of Operation Over 20-year Lifecycle	% of time	89.7%	8.3%	2.0%		
C.3	Process Pumping No. 3 Rate	gpm					
D.3	Process Pump No. 3 Discharge Head	ft					
E.3	Pump No. 3 Power	hp				(C.3 x D.3) ÷ 3960	
F.3	Wire to Water Efficiency	%					
G.3	Annual Power Consumption	kW-hr/year				(E.3÷F.3) x 8760 x 0.7457 x B.3	Total of this row comprises **Guaranteed Annual Power Consumption for Process Pumping No. 3**
H.3	Annual Power Cost	$				G.3 x $0.19/kW-hr	
Annual Process Pumping No. 3 Cost						AA Power Cost + MM Power Cost + MW Power Cost	
Total Annual Process Pumping Cost (Item B.3)						Sum of Annual Process Pumping No. 1, No. 2 and No. 3 Costs	

BACKPULSE PUMPING OPERATIONAL COST

Identifier	Item	Units	AA	MM	MW	Calculation	Notes
A	Influent Flow Rate	MGD	0.24	0.46	0.55		
B	Time of Operation Over 20-year Lifecycle	% of time	89.7%	8.3%	2.0%		
C	Backpulse Pumping Rate	gpm					Include normal operation and cleaning cycles
D	Backpulse Pumping Head	ft					
E	Pump Power	hp				(C x D) ÷ 3960	
F	Wire to Water Efficiency	%					
G	Fraction of 24-hour Day in Operation	%					Include normal operation and cleaning cycles
H	Annual Power Consumption	kW-hr/year				(E÷F) x 8760 x 0.7457 x B x G	Total of this row comprises **Guaranteed Annual Power Consumption for Backpulse Pumps**
I	Annual Power Cost	$				H x $0.19/kW-hr	
Annual Backpulse Pumping Costs (Item B.4)						AA Power Cost + MM Power Cost + MW Power Cost	

PROCESS AIR OPERATIONAL COST

Identifier	Item	Units	AA	MM	MW	Calculation	Notes
A	Influent Flow Rate	MGD	0.24	0.46	0.55		
B	Time of Operation Over 20-year Lifecycle	% of time	89.7%	8.3%	2.0%		
C	Average Process Air Delivery Rate	scfm					
D	Process Blower Discharge Pressure	psig					
E	Combined Blower and Motor Efficiency	%					
F	Blower Power	hp				$(C \times 0.216 \div E) \times ((14.0 + D) \div 14.0)^{0.283} - 1)$	
G	Annual Power Consumption	kW-hr/year				F x 8760 x 0.7457 x B	Total of this row comprises **Guaranteed Annual Power Consumption for Process Air**
H	Annual Power Cost	$				G x $0.19/kW-hr	
Annual Process Air Costs (Item B.5)						AA Power Cost + MM Power Cost + MW Power Cost	

AIR SCOUR OPERATIONAL COST

Identifier	Item	Units	AA	MM	MW	Calculation	Notes
A	Influent Flow Rate	MGD	0.24	0.46	0.55		
B	Time of Operation Over 20-year Lifecycle	% of time	89.7%	8.3%	2.0%		
C	Average Membrane Air Scour Rate	scfm					
D	Process Blower Discharge Pressure	psig					
E	Combined Blower and Motor Efficiency	%					
F	Blower Power	hp				$(C \times 0.216 \div E) \times ((14.0 + D) \div 14.0)^{0.283} - 1)$	
G	Annual Power Consumption	kW-hr/year				F x 8760 x 0.7457 x B	Total of this row comprises **Guaranteed Annual Power Consumption for Air Scour**
H	Annual Power Cost	$				G x $0.19/kW-hr	
Annual Air Scour Costs (Item B.6)						AA Power Cost + MM Power Cost + MW Power Cost	

PROCESS AIR CREDIT FROM AIR SCOUR

Identifier	Item	Units	AA	MM	MW	Calculation	Notes
A	Influent Flow Rate	MGD	0.24	0.46	0.55		
B	Time of Operation Over 20-year Lifecycle	% of time	89.7%	8.3%	2.0%		
C	Air Scour Annual Power Costs	$				H from "Air Scour Operational Cost"	
D	Standard Oxygen Transfer Eff. of Air Scour System	%					
E	Annual Power Cost	$				(D ÷ 25) x (-C)	Calculate as negative value to indicate credit
Annual Air Scour Cost Credit (Item B.7)						AA Power Cost + MM Power Cost + MW Power Cost	

Chemical	Purpose	Concentration (%)	Guaranteed Annual Chemical Consumption at AA (gallons/year)	Cost ($/gal)	Annual Cost ($/year)
Sodium Hypochlorite		12.5		$ 2.90	
Sodium Hydroxide		25		$ 3.50	
Citric Acid		30-50		$ 7.00	
Sodium Bisulfite		25		$ 3.25	
Micro-C		100		$ 3.00	
Glycerin		100		$ 3.00	
			Annual Chemical Cost (Item B.8)		

If Seller's MBR Package Equipment system uses a chemical that is not listed herein, that chemical shall be communicated via a Bidder Question to Buyer. Buyer will issue addenda with additional line item in the table, including the chemical, concentration, and unit cost.

Identifier	Item	Units	Proposed Costs	Calculation
A	**MBR Equipment Package Components**			
A.1	Number of Actuated Valves	Quantity		Enter number provided in Seller's proposed MBR Equipment Package
A.2	Number of Process Pumps	Quantity		Enter number provided in Seller's proposed MBR Equipment Package
A.3	Number of Chemical Pumps	Quantity		Enter number provided in Seller's proposed MBR Equipment Package
A.4	Number of Process Sensors (In-situ)	Quantity		Enter number provided in Seller's proposed MBR Equipment Package
A.5	Number of Process Analyzers (Ex-situ)	Quantity		Enter number provided in Seller's proposed MBR Equipment Package
B	**Annual Operations and Maintenance Costs**			
B.1	Permeate Pumping	Annual Cost, $		Item B.1 from Attachment A Form
B.2	RAS Pumping	Annual Cost, $		Item B.2 from Attachment A Form
B.3	Process Pumping	Annual Cost, $		Item B.3 from Attachment A Form
B.4	Backpulse Pumping Cost	Annual Cost, $		Item B.4 from Attachment A Form
B.5	Process Air	Annual Cost, $		Item B.5 from Attachment A Form
B.6	Air Scour	Annual Cost, $		Item B.6 from Attachment A Form
B.7	Process Air Credit	Annual Cost, $		Item B.7 from Attachment A Form
B.8	Cleaning Chemical	Annual Cost, $		Item B.8 from Attachment A Form
	MBR Equipment Package Components			
B.9	Actuated Valves	Annual Cost, $		A.1 x $350
B.10	Process Pumps	Annual Cost, $		A.2 x $500
B.11	Chemical Pumps	Annual Cost, $		A.3 x $300
B.12	Process Sensors (In-situ)	Annual Cost, $		A.4 x $1,000
B.13	Process Analyzers (Ex-situ)	Annual Cost, $		A.5 x $1,500
B.14	**Total Annual Operations and Maintenance Cost**	**Annual Cost, $**		**Sum of B.1 through B.13**
C	**Membrane Replacements**			
C.1	Guaranteed Small Membrane Subunit Replacement Interval	Years		Small Membrane Subunit Replacements in 20-year period, to be the greater of: *a)* one (1), or *b)* 20 years ÷ Seller's Replacement Warranty Period
C.2	Guaranteed Small Membrane Subunit Replacement Cost	Lump Sum, $		Enter Seller's Guarantee Replacement Cost
C.3	Number of Small Membrane Subunits	Quantity		Enter number provided in Seller's proposed MBR Equipment Package
C.4	Small Membrane Subunit Replacement Cost	Lump Sum, $		C.1 x C.2 x C.3
C.5	Guaranteed Large Membrane Subunit Replacement Interval	Years		Large Membrane Subunit Replacements in 20-year period, to be the greater of: *a)* one (1), or *b)* 20 years ÷ Seller's Replacement Warranty Period
C.6	Guaranteed Large Membrane Subunit Replacement Cost	Lump Sum, $		Enter Seller's Guarantee Replacement Cost
C.7	Number of Large Membrane Subunits	Quantity		Enter number provided in Seller's proposed MBR Equipment Package
C.8	Large Membrane Subunit Replacement Cost	Lump Sum, $		C.5 x C.6 x C.7
C.9	**Membrane Replacement Cost**	**Lump Sum, $**		**Sum of C.4 and C.8**
D	**Lifecycle Cost**			
D.1	Total Annual Operations and Maintenance Cost	Lump Sum, $		B.14 x 1.1
D.2	Membrane Replacement Cost	Lump Sum, $		C.9 x 1.1
D.3	**Lifecycle Cost Adjustment**	**Lump Sum, $**		**Sum of D.1 & D.2**

STATE OF CALIFORNIA

DRUG-FREE WORKPLACE CERTIFICATION

STD. 21 (Rev. 10/2019)

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized legally to bind the contractor or grant recipient to the certification described below. I am fully aware that this certification, executed on the date below, is made under penalty of perjury under the laws of the State of California.

CONTRACTOR/BIDDER FIRM NAME	FEDERAL ID NUMBER
BY *(Authorized Signature)*	DATE EXECUTED
PRINTED NAME AND TITLE OF PERSON SIGNING	TELEPHONE NUMBER *(Include Area Code)* ( )
TITLE	
CONTRACTOR/BIDDER FIRM'S MAILING ADDRESS	

The contractor or grant recipient named above hereby certifies compliance with Government Code Section 8355 in matters relating to providing a drug-free workplace. The above named contractor or grant recipient will:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations, as required by Government Code Section 8355(a).

2. Establish a Drug-Free Awareness Program as required by Government Code Section 8355(b), to inform employees about all of the following:

   (a) The dangers of drug abuse in the workplace,

   (b) The person's or organization's policy of maintaining a drug-free workplace,

   (c) Any available counseling, rehabilitation and employee assistance programs, and

   (d) Penalties that may be imposed upon employees for drug abuse violations.

3. Provide as required by Government Code Section 8355(c), that every employee who works on the proposed contract or grant:

   (a) Will receive a copy of the company's drug-free workplace policy statement, and

   (b) Will agree to abide by the terms of the company's statement as a condition of employment on the contract or grant.

4. At the election of the contractor or grantee, from and after the "Date Executed" and until _____ (DATE) (NOT TO EXCEED 36 MONTHS), the state will regard this certificate as valid for all contracts or grants entered into between the contractor or grantee and this state agency without requiring the contractor or grantee to provide a new and individual certificate for each contract or grant. If the contractor or grantee elects to fill in the blank date, then the terms and conditions of this certificate shall have the same force, meaning, effect and enforceability as if a certificate were separately, specifically, and individually provided for each contract or grant between the contractor or grantee and this state agency.

AGREEMENT BETWEEN BUYER AND SELLER FOR PROCUREMENT CONTRACT

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AGREEMENT BETWEEN BUYER AND SELLER FOR PROCUREMENT CONTRACT

This Procurement Agreement is by and between Heritage Ranch Community Services District ("Buyer") and **[formal name of entity]** ("Seller").

Terms used in this Procurement Agreement have the meanings stated in the General Conditions of the Procurement Contract and the Supplementary Conditions of the Procurement Contract.

Buyer and Seller hereby agree as follows:

ARTICLE 1—PROCUREMENT CONTRACT

1.01 *Goods and Special Services*

A. Seller shall furnish the Goods and Special Services as specified or indicated in the Procurement Contract Documents. The Goods and Special Services are generally described as follows: all labor, materials, equipment, software, and incidentals required, and install complete, ready for operation, and test the Membrane Bioreactor Equipment Package.

1.02 *The Project*

A. The Project, of which the Goods and Special Services are a part, is generally described as follows: Heritage Ranch Community Services District Water Resource Recovery Facility Membrane Bioreactor Equipment Procurement Package.

1.03 *Engineer*

A. Buyer has retained Water Systems Consulting, Inc. ("Engineer"), to prepare Procurement Contract Documents and act as Buyer's representative. Engineer assumes all duties and responsibilities and has the rights and authority assigned to Engineer in the Procurement Contract Documents in connection with Seller's furnishing of Goods and Special Services.

1.04 *Point of Destination*

A. The Point of Destination is designated as: Heritage Ranch Community Services District Water Resource Recovery Facility, 4870 Heritage Road, Paso Robles CA 93446.

ARTICLE 2—PROCUREMENT CONTRACT TIMES

2.01 *Time of the Essence*

A. All time limits for Milestones, including the submittal of Shop Drawings and Samples, the delivery of Goods, and the furnishing of Special Services as stated in the Procurement Contract Documents, are of the essence of the Procurement Contract.

2.02 *Schedule of Procurement Contract Times*

A. The following schedule sets forth the Procurement Contract Times:

Milestone	Date or Days	Liquidated Damages	Notes
Accept Agreement	15	N/A	Delivery may be made in the 15-day period before delivery date
Receipt of Approval of Shop Drawings and Samples	120	$500	
Completion of Acceptable factory testing	January 30, 2025	$2,150	
Deliver acceptable Goods to Point of Destination and Installation	April 15, 2025	$5,000	
Commence Special Services for Goods	Contractor's request plus 30 days	$5,000	If commencement is linked to delivery, "delivery" means date of Buyer's acknowledgment of receipt
Complete Special Services for Goods	December 30, 2025	$5,000	
Readiness for Final Inspection and Acceptance of Goods and Special Services	1,000	$5,000	

2.03 *Shop Drawings and Samples*

A. *Submittal of Shop Drawings and Samples*: Seller shall submit all Shop Drawings and Samples required by the Procurement Contract Documents to Engineer for its review and approval.

B. *Engineer's Review*: It is the intent of the parties that Engineer will conduct its review of Shop Drawings and Samples and issue its approval, or a denial accompanied by substantive comments regarding information needed to gain approval, within 21 days after Seller's submittal of such Shop Drawings and Samples, or within such longer period that is needed because of the quantity and quality of such submittals. Resubmittals will be limited whenever possible.

2.04 *Liquidated Damages*

A. Buyer and Seller recognize that time is of the essence as stated in Paragraph 2.01, and that Buyer will suffer financial and other losses if the Goods are not delivered to the Point of Destination and ready for receipt of delivery by Buyer within the time specified in Paragraph 2.02, plus any extensions thereof allowed in accordance with this Procurement Contract. The parties also recognize that the timely performance of services by others involved in the Project is materially dependent upon Seller's specific compliance with the delivery requirements of Paragraph 2.02. Further, the parties recognize the time, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the loss (whether

direct, consequential, or otherwise) suffered by Buyer if complete, acceptable Goods are not delivered on time. Accordingly, instead of requiring any such proof, Buyer and Seller agree that as liquidated damages for delay (but not as a penalty) Seller shall pay Buyer the damages shown for each day that expires after the time specified in Paragraph 2.02.A for delivery of acceptable Goods and other Milestones as defined therein. Damages are not cumulative.

ARTICLE 3—PROCUREMENT CONTRACT PRICE

3.01 *Procurement Contract Price and Total Price—Based on Attached Bid*

A. For furnishing the Goods and Special Services in accordance with the Procurement Contract Documents, Buyer shall pay Seller the prices stated in Seller's Bid, attached hereto as an exhibit, subject to final adjustments for Unit Price Goods and Special Services and Buyer's Contingency Allowance, if any, and subject to the following Buyer-accepted alternates: **[identify accepted alternates, if any]**.

ARTICLE 4—PAYMENT PROCEDURES

4.01 *Submittal and Processing of Applications for Payment*

A. Seller shall submit Applications for Payment in accordance with Article 13 of the General Conditions and the following paragraphs. Engineer and Buyer will process such Applications for Payment in accordance with said Article 13.

4.02 *Progress Payments; Final Payment*

A. Seller may submit an Application for Payment requesting the stated percentage of Procurement Contract Price upon attainment of each of the following Payment Line Items:

Payment Line Item (Lump Sum)	Percentage of Lump Sum
1. Receipt of Approval of Shop Drawings and Samples	10
2. Completion of acceptable factory testing	5
3. Delivery of Goods to Point of Destination in accordance with the Procurement Contract Documents	70
4. Completion of Special Services in accordance with Procurement Contract Documents	10
5. Final Payment: Correction of non-conformities, provision of final Operations and Maintenance manuals, submittal of warranties and other final documentation required by the Procurement Contract Documents	5
Total Procurement Contract Price (Lump Sum)	100

B. For Unit Price Goods and Special Services, if any, or for payments owed to Seller as a result of authorizations by Buyer under the Buyer's Contingency Allowance (if any), Seller shall submit a separate Application for Payment, no more frequently than monthly, that states (1) the actual quantities of such Unit Price Goods and Special Services that have been furnished, and the applicable unit prices; and (2) the services or items performed or furnished under the Buyer's Contingency Allowance, and the amounts owed. If practical, and at Seller's option, Seller may apply for such unit price and Buyer's Contingency Allowance

payments in a separate section of an Application for Payment submitted under Paragraph 4.02.A for lump sum items.

C. Buyer shall pay Seller the amount owed under an Application for Payment within 30 days after Engineer's presentation to Buyer of the Application for Payment and Engineer's recommendation.

4.03 *Interest*

A. All amounts not paid when due will bear interest as the rate of ten (10) percent per annum.

ARTICLE 5—ASSIGNMENT OF PROCUREMENT CONTRACT

5.01 *Assignment of Contract*

A. Buyer has the right to assign this Procurement Contract for furnishing Goods and Special Services, but only to a person or entity with sufficient apparent ability to satisfy all of Buyer's obligations under this Procurement Contract, and Seller hereby consents to such assignment. Forms documenting the assignment of the Procurement Contract, and consent of Seller's surety to the assignment, are required to be executed by Buyer, Seller, and Seller's surety, and when completed will be attached as exhibits to this Procurement Agreement. If so assigned, the following provisions apply:

1. The Procurement Contract is initially executed in the name of the entity identified herein as Buyer, and will be assigned by such Buyer (as assignor) to a construction contractor (Contractor/Assignee) designated by such Buyer. The assignment will occur on the effective date of the construction contract between such Buyer (Project Owner) and the Contractor/Assignee, which is expected to occur on or about **August 2024**. Commencing on the date of acceptance of assignment by the Contractor/Assignee, all references in the Procurement Contract to "Buyer" shall mean the designated Contractor/Assignee.

2. The assignment of this Procurement Contract relieves the assignor from all further obligations and liabilities under this Procurement Contract. After assignment, Seller shall become a subcontractor or supplier to the Contractor/Assignee and, except as noted herein, all rights, duties, and obligations of Buyer under the Procurement Contract become the rights, duties, and obligations of the Contractor/Assignee.

3. After assignment:

    a. The Procurement Drawings and Procurement Specifications, and any modifying Addenda will become "Contract Documents" under the construction contract.

    b. If the Procurement Drawings or Procurement Specifications, as "Contract Documents" under the construction contract, are duly modified under such construction contract, then Seller and Contractor/Assignee shall enter into a corresponding Change Order under the applicable provisions of this Procurement Contract.

    c. The Procurement Drawings and Procurement Specifications may not be modified by Seller or Contractor/Assignee, singly or in tandem, except as such Procurement Drawings or Procurement Specifications, as "Contract Documents" under the construction contract, have been duly modified under such construction contract.

d. All performance warranties, guarantees, and indemnifications required by the Procurement Contract will continue to run for the benefit of assignor (Project Owner) and, in addition, for the benefit of the Contractor/Assignee. However, if assignor (Project Owner) and Contractor/Assignee make the same warranty or guarantee claim, then Seller shall only be liable once for such claim. Other than its remedies under such warranties, guarantees, and indemnifications, assignor will not retain direct rights under this Procurement Contract, but will have rights and remedies as a party to the construction contract, whose scope of work will encompass the Procurement Drawings, Procurement Specifications, and modifying Addenda; provided, however, that any limitations on Seller's liability in this Procurement Contract will continue to bind the original Buyer (assignor) after assignment.

e. The Contractor/Assignee shall have all the rights of the Buyer under the Performance Bond and Payment Bond.

f. Seller shall submit all Applications for Payment directly to Contractor/Assignee.

   1) Contractor/Assignee shall review each Application for Payment promptly, determine the amount that Contractor/Assignee approves for payment, and then include the amount approved in the next application for payment submitted to Project Owner (or Engineer) under the construction contract.

   2) Contractor/Assignee shall pay Seller within **fifteen (15)** days of receipt of payment from the Project Owner under the construction contract.

   3) After assignment Engineer will review, approve, or deny the content of Applications for Payment under the Procurement Contract only to the extent that Contractor/Assignee, as construction contractor, has incorporated such content into payment applications that Engineer reviews under the construction contract.

g. The Contractor/Assignee shall have all the rights of the Buyer under any pending Claim by Buyer.

h. All Claims and supporting documentation will be submitted directly by the claimant party (either Buyer, **WRRF Contractor/Assignee,** or Seller), to the other party, without submittal to Engineer.

   1) The other party will render a response in writing within 30 days of receipt of the last submittal of claimant.

   2) If the other party does not render a written response to a Claim within 30 days after receipt of the last submittal of the claimant, the other party shall be deemed to have rejected the Claim in its entirety.

   3) The other party's written response to a Claim, or the rejected of the Claim in its entirety as a function of failure to respond within 30 days, will be final and binding upon Buyer and Seller 30 days after it is issued, unless within such 30 days of issuance either Buyer or Seller appeals the result by initiating the mediation of the Claim in accordance with the dispute resolution procedures set forth in Paragraph 12.02 of the General Conditions.

4) Any Claim by Seller that Contractor/Assignee may choose to submit, present, or forward to Project Owner must be submitted to Buyer within sufficient time for Contractor/Assignee to preserve its rights under the construction contract, notwithstanding any procedures or time limits in this Procurement Contract.

i. Seller's recovery of additional cost, time, or both cost and time for any Claim attributable to the Project Owner will be limited to the proportionate recovery by Contractor/Assignee against Project Owner for such Claim. Seller will cooperate and assist Contractor/Assignee in pursuing any Claim by Contractor/Assignee against Project Owner on behalf of Seller, including the timely preparation and delivery of supporting documentation.

j. If the pursuit of any claim by Contractor/Assignee against Project Owner on Seller's behalf requires the expenditure by Contractor/Assignee of legal or consulting fees, or results in litigation, arbitration, or any dispute resolution procedures, Seller agrees to pay for a proportionate share of attorneys' fees, consultant fees, and litigation, arbitration, and other resolution costs incurred by Contractor/Assignee in pursuing the claim on behalf of Seller, based upon the amount claimed by Seller as compared to the total value of the claim pursued by the Contractor/Assignee.

k. With the exception of interpreting the Procurement Contract Documents, all rights, duties, and obligations of Engineer to Contractor/Assignee and Seller under this Procurement Contract will cease.

l. Subject to the foregoing provisions, all references in the Procurement Contract to submitting items to Engineer, or to Engineer having tasks or obligations, will be read after such an assignment as requiring submittal to Contractor/Assignee, or as Contractor/Assignee having such tasks or obligations (which Contractor/Assignee may delegate when appropriate).

m. If the Procurement Contract includes a Buyer's Contingency Allowance, upon assignment such allowance will be automatically reduced to the amount previously authorized by Buyer (Project Owner), and cease to be operational.

B. No other assignment by a party hereto of any rights under or interests in the Procurement Contract will be binding on another party hereto without the written consent of the party sought to be bound. Specifically, but without limitation, Procurement Contract payments or other money that may become due, and Procurement Contract payments or other money that are due, may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by Laws and Regulations). Unless specifically stated to the contrary in any written consent to such an assignment, such an assignment will not release or discharge the assignor from any duty or responsibility under the Procurement Contract Documents.

C. Seller is not bound to assign this Procurement Contract and may assign or not assign the Procurement Contract at their sole discretion.

ARTICLE 6—PROCUREMENT CONTRACT DOCUMENTS

6.01 *List of Procurement Contract Documents*

A. The Procurement Contract Documents consist of the following:

1. This Procurement Agreement.
2. General Conditions of the Procurement Contract.
3. Supplementary Conditions of the Procurement Contract.
4. Procurement Specifications
5. Procurement Drawings (not attached but incorporated by reference):
    a. consisting of a cover sheet and sheets numbered **[number]** through **[number]**, inclusive, with each sheet bearing the following general title: **[Title]**.
    b. **[listed on the attached sheet index.]**
6. Addenda Numbers **[list those Addenda that are Procurement Contract Documents]**.
7. Bonds:
    a. Performance bond (together with power of attorney).
    b. Payment bond (together with power of attorney).
8. Seller's Bid, solely as to the prices set forth therein and the required Attachments.
9. Exhibits to this Procurement Agreement (enumerated as follows):
    a. Exhibit A, Assignment of Contract, Consent to Assignment, and Acceptance of Assignment.
    b. Exhibit B, Surety's Consent to Assignment.
    c. Documentation submitted by Seller **[identify]**; and
    d. **[Other Exhibits]**.
10. The following which may be delivered or issued on or after the Effective Date of the Procurement Contract and are not attached hereto:
    a. Change Orders;
    b. Change Directives; and
    c. Field Orders.
11. USDA Rural Development Forms
    a. Compliance Statement/Certifications of Non-Segregated Facilities (Form RD 400-6).
    b. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transactions (Form AD-1048)
    c. Certification for Contracts, Grants and Loans (RD Instruction 1940-Q, Exhibit A-1)

B. The documents listed in Paragraph 6.01.A are attached to this Procurement Agreement (except as expressly noted otherwise above).

C. There are no Procurement Contract Documents other than those listed above.

D. The Procurement Contract Documents may only be amended or supplemented as provided in Paragraph 11.01 of the Procurement General Conditions.

ARTICLE 7—SELLER'S REPRESENTATIONS AND CERTIFICATIONS

7.01 *Seller's Representations*

A. In order to induce Buyer to enter into this Procurement Agreement, Seller makes the following representations:

1. Seller has examined and carefully studied the Procurement Contract Documents.

2. If required by the Instructions to Bidders to visit the Point of Destination and the site where the Goods are to be installed or Special Services will be provided, or if, in Seller's judgment, any observable local or site conditions may affect the delivery, cost, progress, or furnishing of the Goods and Special Services, then Seller has visited the Point of Destination and site where the Goods are to be installed or Special Services will be provided (as applicable) and become familiar with and is satisfied as to the observable local and site conditions that may affect delivery, cost, progress, and furnishing of the Goods and Special Services.

3. Seller is familiar with and is satisfied as to all Laws and Regulations that may affect the cost, progress, and performance of Seller's obligations under the Procurement Contract.

4. Seller has carefully studied, considered, and correlated the information known to Seller with respect to the effect of such information on the cost, progress, and performance of Seller's obligations under the Procurement Contract.

5. Seller has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Seller has discovered in the Procurement Contract Documents, and the written resolution (if any) thereof by Engineer is acceptable to Seller.

6. The Procurement Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance of Seller's obligations under the Procurement Contract.

7. Seller's entry into this Procurement Contract constitutes an incontrovertible representation by Seller that without exception all prices in the Procurement Agreement are premised upon furnishing the Goods and Special Services as required by the Procurement Contract Documents.

7.02 *Seller's Certifications*

A. Seller certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Procurement Contract. For the purposes of this Paragraph 7.02:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Procurement Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Procurement Contract to the detriment of Buyer, (b) to establish bid or contract prices at artificial non-competitive levels, or (c) to deprive Buyer of the benefits of free and open competition;

3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Buyer, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Procurement Contract.

ARTICLE 8—CONFIDENTIALITY - RESERVED

ARTICLE 9—MUTUAL WAIVER - RESERVED

IN WITNESS WHEREOF, Buyer and Seller have signed this Procurement Agreement. Counterparts have been delivered to Buyer and Seller.

The Effective Date of the Procurement Contract is **[date to be inserted at the time of execution]**.

Buyer	Seller
Heritage Ranch Community Services District *(typed or printed name of organization)*	_____ *(typed or printed name of organization)*
By: _____ *(individual's signature)*	By: _____ *(individual's signature)*
Date: _____ *(date signed)*	Date: _____ *(date signed)*
Name: Scott Duffield *(typed or printed)*	Name: _____ *(typed or printed)*
Title: General Manager *(typed or printed)*	Title: _____ *(typed or printed)* *(If Seller is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)*
Attest: _____ *(individual's signature)*	Attest: _____ *(individual's signature)*
Title: _____ *(typed or printed)*	Title: _____ *(typed or printed)*
Address for giving notices: 4870 Heritage Road Paso Robles, CA 93446	Address for giving notices:
Designated Representative:	Designated Representative:
Name: _____ *(typed or printed)*	Name: _____ *(typed or printed)*
Title: _____ *(typed or printed)*	Title: _____ *(typed or printed)*
Address:	Address:
Phone: _____	Phone: _____
Email: _____ *(If Buyer is a corporation, attach evidence of authority to sign. If Buyer is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)*	Email: _____

EXHIBIT A—ASSIGNMENT OF PROCUREMENT CONTRACT, CONSENT TO ASSIGNMENT, AND ACCEPTANCE OF ASSIGNMENT

This assignment will be effective on the effective date of the construction contract between Buyer (as "Owner") and Contractor/Assignee (as "Contractor").

The Procurement Contract between Heritage Ranch Community Services District ("Buyer") and **[insert name of Seller]** ("Seller") for furnishing Goods and Special Services entitled Membrane Bioreactor Equipment Package (Procurement Contract) is hereby assigned, transferred, and set over to Contractor/Assignee, as assignee, by Buyer, as assignor. Upon assignment the Contractor/Assignee shall have the duties, rights, and obligations of Buyer under the terms of the Procurement Contract, and will be responsible to Owner under the construction contract for the performance of obligations by Seller, which will become a Subcontractor or Supplier to Contractor/Assignee. Buyer, Seller, and Contractor/Assignee hereby acknowledge and agree to be bound by the terms and conditions of assignment set forth in Article 5 of the Agreement Between Buyer and Seller for Procurement Contract.

Assignment Made by Buyer

_____
(typed or printed name of organization)

By: _____ Date: _____
(individual's signature) *(date signed)*

Name: _____ Title: _____
(typed or printed) *(typed or printed)*

If Buyer is a corporation, attach evidence of authority to sign. If Buyer is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Buyer-Seller Agreement.

Assignment Acknowledged and Accepted by Seller

_____
(typed or printed name of organization)

By: _____ Date: _____
(individual's signature) *(date signed)*

Name: _____ Title: _____
(typed or printed) *(typed or printed)*

If Seller is a corporation, attach evidence of authority to sign.

Assignment Accepted by Contractor/Assignee

_____
(typed or printed name of organization)

By: _____ Date: _____
(individual's signature) *(date signed)*

Name: _____ Title: _____
(typed or printed) *(typed or printed)*

If Contractor/Assignee is a corporation, attach evidence of authority to sign.

EXHIBIT B—SURETY'S CONSENT TO ASSIGNMENT

Notes to User—This document must be executed by Seller's surety at the time surety executes the performance and payment bonds.

Surety hereby acknowledges, agrees, and consents that the Procurement Contract for furnishing Goods and Special Services entitled Membrane Bioreactor Equipment Package by and between Heritage Ranch Community Services District ("Buyer") and **[Name of Seller]** ("Seller") may be assigned, transferred, and set over to **[Name of Contractor/Assignee]** ("Contractor/Assignee"), in accordance with Article 5 and Exhibit A of the Agreement between Buyer and Seller for Procurement Contract.

Surety further agrees that, upon assignment of the Procurement Contract, the Contractor/Assignee shall have all the rights of the Buyer under the Procurement Performance Bond and Procurement Payment Bond.

Agreement to Assignment Acknowledged and Accepted by Surety

_____
(typed or printed name of organization)

By: _____ Date: _____
(individual's signature) *(date signed)*

Name: _____ Title: _____
(typed or printed) *(typed or printed)*

Attach Power of Attorney.

PERFORMANCE BOND FOR PROCUREMENT CONTRACT

Seller Name: **[Full formal name of Seller]** Address *(principal place of business)*: **[Address of Seller's principal place of business]**	**Surety** Name: **[Full formal name of Surety]** Address *(principal place of business)*: **[Address of Surety's principal place of business]**
Buyer Name: **Heritage Ranch Community Services District** Mailing address *(principal place of business)*: **4870 Heritage Road** **Paso Robles CA 93446**	**Procurement Contract** Description *(name and location)*: **Water Resource Recovery Facility** **Membrane Bioreactor Equipment Procurement Package** **4870 Heritage Road, Paso Robles CA 93446** Procurement Contract Price: **[Amount, from Proc. Contract]** Effective Date of Procurement Contract: **[Date, from Proc. Contract]**

Bond

Bond Amount: **[Amount]**

Date of Bond: **[Date]**

(Date of Bond cannot be earlier than Effective Date of Procurement Contract)

Modifications to this Bond form:

☐ None ☐ See Paragraph 15

Surety and Seller, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

Seller as Principal	Surety
_____ *(Full formal name of Seller)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature)(Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Seller, Surety, Buyer, or other party is considered plural where applicable.

The Seller and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Buyer for the performance of the Procurement Contract, which is incorporated herein by reference.

1. If the Seller performs the Procurement Contract, the Surety and the Seller shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
2. If there is no Buyer Default under the Procurement Contract, the Surety's obligation under this Bond will arise after:
    2.1. The Buyer first provides notice to the Seller and the Surety that the Buyer is considering declaring a Seller Default. Such notice may indicate whether the Buyer is requesting a conference among the Buyer, Seller, and Surety to discuss the Seller's performance. If the Buyer does not request a conference, the Surety may, within five (5) business days after receipt of the Buyer's notice, request such a conference. If the Surety timely requests a conference, the Buyer shall attend. Unless the Buyer agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Buyer's notice. If the Buyer, the Seller, and the Surety agree, the Seller shall be allowed a reasonable time to perform the Procurement Contract, but such an agreement does not waive the Buyer's right, if any, subsequently to declare a Seller Default;
    2.2. The Buyer declares a Seller Default, terminates the Procurement Contract, and notifies the Surety; and
    2.3. The Buyer has agreed to pay the Balance of the Procurement Contract Price in accordance with the terms of the Procurement Contract to the Surety or to a seller selected to perform the Procurement Contract.
3. Failure on the part of the Buyer to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
4. When the Buyer has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
    4.1. Arrange for the Seller, with the consent of the Buyer, to perform and complete the Procurement Contract;
    4.2. Undertake to perform and complete the Procurement Contract itself, through its agents or independent contractors;
    4.3. Obtain bids or negotiated proposals from qualified sellers acceptable to the Buyer for a contract for performance and completion of the Procurement Contract, arrange for a contract to be prepared for execution by the Buyer and a seller selected with the Buyer's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Procurement Contract, and pay to the Buyer the amount of damages as described in Paragraph 7 in excess of the Balance of the Procurement Contract Price incurred by the Buyer as a result of the Seller Default; or
    4.4. Waive its right to perform and complete, arrange for completion, or obtain a new seller, and with reasonable promptness under the circumstances:
        4.4.1. After investigation, determine the amount for which Surety may be liable to the Buyer and, as soon as practicable after the amount is determined, make payment to the Buyer; or

4.4.2. Deny liability in whole or in part and notify the Buyer, citing the reasons for denial.

5. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven (7) days after receipt of an additional written notice from the Buyer to the Surety demanding that the Surety perform its obligations under this Bond, and the Buyer shall be entitled to enforce any remedy available to the Buyer. If the Surety proceeds as provided in Paragraph 5.4, and the Buyer refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Buyer shall be entitled to enforce any remedy available to the Buyer.

6. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Buyer will not be greater than those of the Seller under the Procurement Contract, and the responsibilities of the Buyer to the Surety will not be greater than those of the Buyer under the Procurement Contract. Subject to the commitment by the Buyer to pay the Balance of the Procurement Contract Price, the Surety is obligated, without duplication for:

   6.1. the responsibilities of the Seller for correction of defective or non-conforming Goods and Special Services, and completion of the Procurement Contract;

   6.2. additional legal, design professional, and delay costs resulting from the Seller's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

   6.3. liquidated damages, or if no liquidated damages are specified in the Procurement Contract, actual damages caused by delayed performance or non-performance of the Seller.

7. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

8. The Surety shall not be liable to the Buyer or others for obligations of the Seller that are unrelated to the Procurement Contract, and the Balance of the Procurement Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Buyer or its heirs, executors, administrators, successors, and assigns.

9. The Surety hereby waives notice of any change, including changes of time, to the Procurement Contract or to related subcontracts, purchase orders, and other obligations.

10. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction where the Point of Destination is located and must be instituted within two years after a declaration of Seller Default, or within two years after the Seller ceased working, or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.

11. Notice to the Surety, the Buyer, or the Seller must be mailed or delivered to the address shown on the page on which their signature appears.

12. When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Point of Destination, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

13. Definitions

   13.1. *Balance of the Procurement Contract Price*—The total amount payable by the Buyer to the Seller under the Procurement Contract after all proper adjustments have been made including

allowance for the Seller for any amounts received or to be received by the Buyer in settlement of insurance or other claims for damages to which the Seller is entitled, reduced by all valid and proper payments made to or on behalf of the Seller under the Procurement Contract.

13.2. *Buyer Default*—Failure of the Buyer, which has not been remedied or waived, to pay the Seller as required under the Procurement Contract or to perform and complete or comply with the other material terms of the Procurement Contract.

13.3. *Goods and Special Services*—The full scope of materials, equipment, other items, and services to be furnished by Seller, as defined in the Procurement Contract.

13.4. *Point of Destination*—The location where delivery of the Goods shall be made, as stated in the Procurement Contract.

13.5. *Procurement Contract*—The contractual agreement between the Buyer and Seller identified on the cover page, including all Procurement Contract Documents and changes made to the Procurement Contract.

13.6. *Seller Default*—Failure of the Seller, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Procurement Contract.

13.7. *Procurement Contract Documents*—All the documents that comprise the contractual agreement between the Buyer and Seller.

14. Modifications to this Bond are as follows: **[Describe modification or enter "None"]**

PAYMENT BOND FOR PROCUREMENT CONTRACT

Seller Name: **[Full formal name of Seller]** Address *(principal place of business)*: **[Address of Seller's principal place of business]**	**Surety** Name: **[Full formal name of Surety]** Address *(principal place of business)*: **[Address of Surety's principal place of business]**
Buyer Name: **Heritage Ranch Community Services District** Mailing address *(principal place of business)*: **4870 Heritage Road** **Paso Robles CA 93446**	**Procurement Contract** Description *(name and location)*: **Water Resource Recovery Facility** **Membrane Bioreactor Equipment Procurement Package** **4870 Heritage Road, Paso Robles CA 93446** Procurement Contract Price: **[Amount, from Proc. Contract]** Effective Date of Procurement Contract: **[Date, from Proc. Contract]**

Bond

Bond Amount: **[Amount]**

Date of Bond: **[Date]**

(Date of Bond cannot be earlier than Effective Date of Procurement Contract)

Modifications to this Bond form:

☐ None ☐ See Paragraph 17

Surety and Seller, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

Seller as Principal	Surety
_____ *(Full formal name of Seller)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature)(Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Seller, Surety, Buyer, or other party is considered plural where applicable.

The Seller and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Buyer to pay for labor, materials, and equipment furnished for use in the performance of the Procurement Contract, which is incorporated herein by reference, subject to the following terms.

1. If the Seller promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Buyer from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Procurement Contract, then the Surety and the Seller shall have no obligation under this Bond.
2. If there is no Buyer Default under the Procurement Contract, the Surety's obligation to the Buyer under this Bond will arise after the Buyer has promptly notified the Seller and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Buyer or the Buyer's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Procurement Contract, and tendered defense of such claims, demands, liens, or suits to the Seller and the Surety.
3. When the Buyer has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Buyer against a duly tendered claim, demand, lien, or suit.
4. The Surety's obligations to a Claimant under this Bond will arise after the following:
    4.1. Claimants who do not have a direct contract with the Seller
        4.1.1. have furnished a written notice of non-payment to the Seller, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
        4.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
    4.2. Claimants who are employed by or have a direct contract with the Seller have sent a Claim to the Surety (at the address described in Paragraph 13).
5. If a notice of non-payment required by Paragraph 5.1.1 is given by the Buyer to the Seller, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
6. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
    6.1. Send an answer to the Claimant, with a copy to the Buyer, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
    6.2. Pay or arrange for payment of any undisputed amounts.
    6.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Seller may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

7. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.

8. Amounts owed by the Buyer to the Seller under the Procurement Contract will be used for the performance of the Procurement Contract and to satisfy claims, if any, under any procurement performance bond. By the Seller furnishing and the Buyer accepting this Bond, they agree that all funds earned by the Seller in the performance of the Procurement Contract are dedicated to satisfying obligations of the Seller and Surety under this Bond, subject to the Buyer's priority to use the funds for the completion of the Goods and Special Services.

9. The Surety shall not be liable to the Buyer, Claimants, or others for obligations of the Seller that are unrelated to the Procurement Contract. The Buyer shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

10. The Surety hereby waives notice of any change, including changes of time, to the Procurement Contract or to related subcontracts, purchase orders, and other obligations.

11. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the Point of Destination is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Procurement Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.

12. Notice and Claims to the Surety, the Buyer, or the Seller must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.

13. When this Bond has been furnished to comply with a statutory or other legal requirement where the Point of Destination is located, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Seller and Buyer shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions

    15.1. *Buyer Default*—Failure of the Buyer, which has not been remedied or waived, to pay the Seller as required under the Procurement Contract or to perform and complete or comply with the other material terms of the Procurement Contract.

    15.2. *Claim*—A written statement by the Claimant including at a minimum:

        15.2.1. The name of the Claimant;

        15.2.2. The name of the person for whom the labor was done, or materials or equipment furnished;

        15.2.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Procurement Contract;

15.2.4. A brief description of the labor, materials, or equipment furnished;

15.2.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Procurement Contract;

15.2.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;

15.2.7. The total amount of previous payments received by the Claimant; and

15.2.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

15.3. *Claimant*—An individual or entity having a direct contract with the Seller or with a subcontractor of the Seller to furnish labor, materials, or equipment for use in the performance of the Procurement Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Point of Destination is located or where the Goods and Special Services are to be installed or furnished. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Procurement Contract, architectural and engineering services required for performance of the work of the Seller and the Seller's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.4. *Goods and Special Services*—The full scope of materials, equipment, other items, and services to be furnished by Seller, as defined in the Procurement Contract.

15.5. *Point of Destination*—The location where delivery of the Goods shall be made, as stated in the Procurement Contract.

15.6. *Procurement Contract*—The contractual agreement between the Buyer and Seller identified on the cover page, including all Procurement Contract Documents and all changes made to the Procurement Contract.

15.7. *Procurement Contract Documents*—All the documents that comprise the contractual agreement between the Buyer and Seller.

16. Modifications to this Bond are as follows: **[Describe modification or enter "None"]**

BUYER'S ACKNOWLEDGMENT OF RECEIPT OF GOODS

Buyer:	Heritage Ranch Community Services District	Buyer's Project No.:
Engineer:	Water Systems Consulting, Inc.	Engineer's Project No.:
Seller:		Seller's Project No.:
Project:	Water Resource Recovery Facility Membrane Bioreactor Equipment Procurement Package	
Contract Name:	Membrane Bioreactor Equipment Package	

This Buyer's Acknowledgment of Receipt of Goods (Acknowledgment) applies to:

☐ All Goods ☐ The following specified portions of the Goods: **[Specify]**

Date of delivery of the Goods to the Point of Destination: **[Date]**

Date of Buyer's visual inspection of the Goods: **[Date]**

Date of this Acknowledgment: **[Date]**

Buyer acknowledges:

1. The Goods to which this notice applies have been delivered to the Point of Destination.
2. Buyer has visually inspected such Goods pursuant to Paragraph 9.02.B.1 of the General Conditions of the Procurement Contract.
3. Based on the visual inspection, such Goods appear to comply with the requirements of the Procurement Contract Documents as to quantities and condition, subject to any exceptions and limitations in this Acknowledgment.
4. Such Goods are deemed received for purposes of Paragraph 9.02.B.2 of the General Conditions of the Procurement Contract.
5. Seller may submit its Application for Payment for the delivered Goods, subject to the terms of the Procurement Agreement.

Exceptions (if any) to this Acknowledgment: ☐ None ☐ As follows:

The responsibilities between Buyer and Seller for securing and storing the Goods, maintaining the Goods during storage, and for furnishing the Special Services, shall be as provided in the Procurement Contract.

The following documents are attached to and made a part of this Acknowledgement:

[List, if any, or indicate None]

This Acknowledgment does not constitute an acceptance of any Goods not in conformance with the Procurement Contract Documents, nor is it a release of Seller's obligation to furnish all Goods and Special Services in accordance with the Procurement Contract.

Buyer

By (signature):	_____	_____
Name (Printed):	_____	_____
Title:	_____	_____
Date:	_____	_____

BUYER'S NOTICE REGARDING CONFORMITY OF GOODS AND SPECIAL SERVICES

Buyer:	Heritage Ranch Community Services District	Buyer's Project No.:
Engineer:	Water Systems Consulting, Inc.	Engineer's Project No.:
Seller:		Seller's Project No.:
Project:	Water Resource Recovery Facility Membrane Bioreactor Equipment Procurement Package	
Contract Name:	Membrane Bioreactor Equipment Package	
Notice Date:	Effective Date of the Procurement Contract:	

Buyer hereby gives notice to Seller that, to the best of Buyer's knowledge, information, and belief, the Goods and Special Services:

☐ Are in conformance with the Procurement Contract Documents. Upon Seller's submittal of its final Application for Payment in accordance with the Procurement Contract Documents, Seller will be eligible for final payment, except as expressly indicated in the Procurement Contract.

☐ Are nonconforming with the Procurement Contract Documents for the following reason(s):

1. **[List reason(s) and clearly cite contractual provisions and factual circumstances of each]**

Seller's Special Services were completed on: **[fill in date]**

Buyer has consulted with and received Engineer's recommendation on conformity of the Goods and Special Services.

This Buyer's Notice Regarding Conformity of Goods and Special Services (Notice) is made expressly subject to the following terms and conditions to which all who receive and rely on said Notice agree:

1. This Notice is expressly subject to the terms and conditions set forth in the Procurement Contract.
2. This Notice is not a guarantee or warranty of Seller's performance under the Procurement Contract, an acceptance of Goods and Special Services that are not in accordance with the related Procurement Contract Documents, including but not limited to nonconforming Goods and Special Services discovered after final inspection, nor an assumption of responsibility for any failure of Seller to furnish the Goods and Special Services thereunder in accordance with the Procurement Contract, or to otherwise comply with the Procurement Contract Documents or the terms of any special guarantees specified therein.
3. This Notice does not relieve Seller of any surviving obligations under the Procurement Contract and is subject to Buyer's reservations of rights with respect to completion and final payment.

Buyer

By (signature): _____ Name (Printed): _____

Date: _____ Title: _____

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE PROCUREMENT CONTRACT

Prepared By

EJCDC®
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

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NOTE: EJCDC publications may be purchased at www.ejcdc.org, or from any of the sponsoring organizations above.

GUIDELINES FOR USE OF EJCDC® P-700, STANDARD GENERAL CONDITIONS OF THE PROCUREMENT CONTRACT

1.0 PURPOSE AND INTENDED USE OF THE DOCUMENT

EJCDC® P-700, Standard General Conditions of the Procurement Contract (2019), is one of the foundation documents for the EJCDC Procurement Series. The General Conditions define the basic rights, responsibilities, risk allocations, and contractual relationship of the Buyer and Seller, and establish how the Procurement Contract is to be administered.

The term "Procurement" as used by EJCDC refers to the purchase of Goods (typically equipment or systems that will be installed in a facility, or in some cases construction materials) and related Special Services. The purchaser ("Buyer") is the Project Owner; and in most cases such a purchase will be initiated in the early stages of a project, before the overall design is complete and before the Project Owner has selected and brought a construction contractor under contract. The Seller will be either a manufacturer or a vendor/supplier. The EJCDC Procurement Series of documents provides the user with forms and documents for obtaining bids from prospective Sellers, and for establishing the Procurement Contract itself.

2.0 OTHER DOCUMENTS

EJCDC documents are intended to be used as a system and changes in one EJCDC document may require a corresponding change in other documents. Other EJCDC documents may also serve as a reference to provide insight or guidance for the preparation of this document.

These General Conditions have been prepared for use with EJCDC® P-520, Agreement Between Buyer and Seller for Procurement Contract (2019 Edition). The provisions of the General Conditions and the Procurement Agreement are interrelated, and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC® P-800, Supplementary Conditions of the Procurement Contract (2019). If a Supplementary Condition will alter the standard provisions of the General Conditions, the user should determine whether changes are needed in other Procurement Contract Documents, or in the Procurement Bidding Requirements.

The full EJCDC Procurement series of documents is discussed in EJCDC® P-001, Commentary on the 2019 EJCDC Procurement Documents (2019).

3.0 ORGANIZATION OF INFORMATION

All parties involved in a construction project benefit significantly from a standardized approach in the location of subject matter throughout the documents. Experience confirms the danger of addressing the same subject matter in more than one location; doing so frequently leads to confusion and unanticipated legal consequences. Careful attention should be given to the guidance provided in EJCDC® N-122/AIA® A521, Uniform Location of Subject Matter (2012 Edition) when preparing documents. EJCDC® N-122/AIA® A521 is available at no charge from the EJCDC website, www.ejcdc.org, and from the websites of EJCDC's sponsoring organizations.

If CSI MasterFormat™ is used for organizing the project manual, consult CSI MasterFormat™ for the appropriate document number (e.g., under 00 11 00, Advertisements and Invitations), and accordingly number the document and its pages.

4.0 EDITING THIS DOCUMENT

When preparing P-700 for inclusion in Procurement Bidding Documents or in a Procurement Contract, remove these Guidelines for Use. Some users may also prefer to remove the two cover pages.

Although it is permissible to revise the Standard EJCDC Text of P-700 (the content beginning at page 1 and continuing to the end), it is common practice to leave the Standard EJCDC Text of P-700 intact and unaltered, with modifications and supplementation of P-700's provisions set forth in EJCDC® P-800, Supplementary Conditions of the Procurement Contract (2019). If the Standard Text itself is revised, the user must comply with the terms of the License Agreement, Paragraph 4.0, Document-Specific Provisions, concerning the tracking or highlighting of revisions. The following is a summary of the relevant License Agreement provisions:

1. The term "Standard EJCDC Text" for P-700 refers to all text prepared by EJCDC in the main body of the document. Document covers, logos, footers, instructions, or copyright notices are not Standard EJCDC Text for this purpose.
2. During the drafting or negotiating process for a procurement contract based on P-700, it is important that the two contracting parties are both aware of any changes that have been made to the Standard EJCDC Text. Thus, if a draft or version of P-700 purports to be or appears to be an EJCDC document, the user must plainly show all changes to the Standard EJCDC Text, using "Track Changes" (redline/strikeout), highlighting, or other means of clearly indicating additions and deletions.
3. If P-700 has been revised or altered and is subsequently presented to third parties (such as potential bidders, grant agencies, lenders, or sureties) as an EJCDC document, then the changes to the Standard EJCDC Text must be shown, or the third parties must receive access to a version that shows the changes.
4. Once the document is ready to be finalized (and if applicable executed by the contracting parties), it is no longer necessary to continue to show changes that were made to the Standard EJCDC Text. The user may produce a final version of the document in a format in which all changes are accepted, and the document at that point does not need to include any "Track Changes," redline/strikeout, highlighting, or other indication of additions and deletions to the Standard EJCDC Text.

5.0 LICENSE AGREEMENT

This document is subject to the terms and conditions of the **License Agreement, 2019 EJCDC® Procurement Series Documents**. A copy of the License Agreement was furnished at the time of purchase of this document, and is available for review at www.ejcdc.org and the websites of EJCDC's sponsoring organizations.

STANDARD GENERAL CONDITIONS OF THE PROCUREMENT CONTRACT

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ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Whenever used in the Procurement Bidding Requirements or Procurement Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated, which are applicable to the singular or plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Procurement Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Procurement Contract Documents.

2. *Application for Payment*—The document prepared by Seller, in a form acceptable to Buyer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Procurement Contract Documents.

3. *Bid*—An offer or proposal of a prospective Seller submitted on the prescribed form setting forth the prices for the Goods and Special Services to be provided.

4. *Bidder*—An individual or entity that, as a prospective Seller, submits a Bid to Buyer.

5. *Buyer*—The individual or entity purchasing the Goods and Special Services.

6. *Change Directive*—A written directive from Buyer to Seller issued on or after the Effective Date of the Procurement Contract, ordering an addition, deletion, or revision in the Goods and Special Services.

7. *Change Order*—A document which is signed by Seller and Buyer and authorizes an addition, deletion, or revision to the Procurement Contract Documents or an adjustment in the Procurement Contract Price or the Procurement Contract Times, issued on or after the Effective Date of the Procurement Contract. Change Orders may be the result of mutual agreement by Buyer and Seller, or of resolution of a Claim.

8. *Claim*—A demand or assertion by Buyer or Seller seeking an adjustment of Procurement Contract Price or Procurement Contract Times, or both, or other relief with respect to the terms of the Procurement Contract. A demand for money or services by a third party is not a Claim.

9. *Contractor/Assignee*—A construction contractor with which Project Owner enters into a construction contract, and to which Project Owner, as initial Buyer, assigns this Procurement Contract.

10. *Effective Date of the Procurement Contract*—The date indicated in the Procurement Agreement on which the Procurement Contract becomes effective.

11. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

12. *Electronic Means*—Electronic mail (e-mail), upload/download from a secure Project website, or other communications methods that allow: the transmission or communication of Electronic Documents; the documentation of transmissions, including sending and receipt; printing of the transmitted Electronic Document by the recipient; the storage and archiving of the Electronic Document by sender and recipient; and the use by recipient of the Electronic Document for purposes permitted by this Procurement Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

13. *Engineer*—The individual or entity designated as such in the Procurement Agreement.

14. *Field Order*—A written order issued by Engineer which requires minor changes in the Goods or Special Services, but which does not involve a change in the Procurement Contract Price or Procurement Contract Times.

15. *Goods*—The tangible and movable personal property that is described in the Procurement Contract Documents, regardless of whether the property is to be later attached to realty.

16. *Goods and Special Services*—The full scope of materials, equipment, other items, and services to be furnished by Seller, including Goods, as defined herein, and Special Services, if any, as defined herein. This term refers to both the Goods and the Special Services, or to either the Goods or the Special Services, and to any portion of the Goods or the Special Services, as the context requires.

17. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

18. *Milestone*—A principal event specified in the Procurement Contract that Seller must attain by the date or within the number of days indicated, including but not limited to the delivery of the Goods and the furnishing of Special Services.

19. *Notice of Award*—The written notice, by Buyer to a Bidder, of Buyer's acceptance of the Bid.

20. *Point of Destination*—The specific address of the location where delivery of the Goods will be made, as stated in the Procurement Agreement.

21. *Procurement Agreement*—The written instrument, executed by Buyer and Seller, that sets forth the Procurement Contract Price and Procurement Contract Times, identifies the parties and the Engineer, and designates the specific items that are Procurement Contract Documents.

22. *Procurement Bidding Documents*—The Procurement Bidding Requirements and the proposed Procurement Contract Documents (including all Addenda).

23. *Procurement Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and Bid Form with any supplements.

24. *Procurement Contract*—The entire and integrated written agreement between Buyer and Seller concerning the Goods and Special Services.

25. *Procurement Contract Documents*—Those items so designated in the Procurement Agreement, and which together comprise the Procurement Contract. Shop Drawings and other Seller submittals are not Procurement Contract Documents, even if accepted, reviewed, or approved by Engineer or Buyer.

26. *Procurement Contract Price*—The money that Buyer has agreed to pay Seller for furnishing the Goods and Special Services in accordance with the Procurement Contract Documents.

27. *Procurement Contract Times*—The times stated in the Procurement Agreement by which the Goods must be delivered, Special Services must be furnished, and other Milestones must be attained.

28. *Procurement Drawings*—That part of the Procurement Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Goods and Special Services to be furnished by Seller. Shop Drawings and other Seller submittals are not Procurement Drawings as so defined.

29. *Procurement Specifications*—That part of the Procurement Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the furnishing of the Goods and Special Services, and certain administrative requirements and procedural matters applicable thereto.

30. *Project*—The total undertaking to be accomplished for Project Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Goods and Special Services are a part.

31. *Project Owner*—The entity that has retained (or will retain) engineers, contractors, and others for the planning, study, design, construction, testing, commissioning, and start-up of facilities and improvements. As of the Effective Date of the Procurement Contract, the Project Owner is the Buyer.

32. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Goods and Special Services and which establish the standards by which such portion of the Goods and Special Services will be judged.

33. *Schedule of Submittals*—A schedule, prepared and maintained by Seller, of required Submittals and the time requirements for Engineer's review of the Submittals.

34. *Seller*—The individual or entity furnishing the Goods and Special Services.

35. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Seller and submitted by Seller to illustrate some portion of the Goods and Special Services. Shop Drawings, whether approved or not, are not Procurement Drawings and are not Procurement Contract Documents.

36. *Special Services*—Services to be performed by Seller (or its agents or subcontractors) in association with the Goods to be furnished by Seller, as required by the Procurement Contract Documents.

37. *Submittal*—A written or graphic document, prepared by or for Seller, which the Procurement Contract Documents require Seller to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals

may include Shop Drawings and Samples; schedules; product data; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or site quality-control testing and inspections; warranties and certifications; suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; record documents; and other such documents required by the Procurement Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Procurement Contract Documents. Change proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

38. *Successful Bidder*—The Bidder whose Bid the Buyer accepts, and to which Buyer makes an award of the Procurement Contract.

39. *Supplementary Conditions*—The part of the Procurement Contract that amends or supplements these General Conditions.

40. *Unit Price Goods and Special Services*—Goods and Special Services to be paid for on the basis of unit prices (if any).

1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B and 1.02.C are not defined, but have the indicated meanings when used in the Bidding Requirements or Procurement Contract Documents.

B. *Intent of Certain Terms or Adjectives*

1. The Procurement Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Goods and Special Services. It is intended that such exercise of professional judgment, action, or determination will be commercially reasonable and will be solely to evaluate, in general, the Goods and Special Services for compliance with the requirements of and information in the Procurement Contract Documents and conformance with the design concept of the completed Project as a functioning whole, as shown or indicated in the Procurement Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective will not be effective to assign to Engineer any duty or authority to supervise or direct the furnishing of Goods or Special Services or any duty or authority to undertake responsibility contrary to any other provision of the Procurement Contract Documents.

2. The word "non-conforming" when modifying the words "Goods and Special Services," "Goods," or "Special Services," refers to Goods and Special Services that are unsatisfactory, faulty, or deficient in that they:

a. do not conform to or comply with the requirements of the Procurement Contract Documents;

b. do not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Procurement Contract Documents; or

c. in the case of Special Services, have not been completed.

3. The word “receipt” when referring to the Goods, means the physical taking and possession by the Buyer under the conditions specified in Paragraph 9.02.B.2.

4. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

5. The word "furnish," when used in connection with the Goods and Special Services means to supply and deliver said Goods to the Point of Destination (or some other specified location) and to perform said Special Services fully, all in accordance with the Procurement Contract Documents.

C. *Procurement Contract Price or Procurement Contract Times*: References to a change in “Procurement Contract Price or Procurement Contract Times” or “Procurement Contract Times or Procurement Contract Price” or similar, indicate that such change applies to (1) Procurement Contract Price, (2) Procurement Contract Times, or (3) both Procurement Contract Price and Procurement Contract Times, as warranted, even if the term “or both” is not expressed.

D. Unless stated otherwise in the Procurement Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Procurement Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Seller delivers the executed counterparts of the Procurement Agreement to Buyer, the Seller also shall deliver to Buyer the performance bond and payment bond (if the Procurement Contract requires Seller to furnish such bonds).

B. *Evidence of Seller’s Insurance*: When Seller delivers the signed counterparts of the Procurement Agreement to Buyer, the Seller also shall deliver to Buyer, with copies to each additional insured (as identified in the Procurement Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Seller in accordance with Article 5. Evidence of insurance to be obtained at a later date, such as insurance relating to transit or storage of the Goods, will be provided to Buyer at the time of such insurance is obtained.

C. *Evidence of Buyer’s Insurance*: After receipt of the signed counterparts of the Procurement Agreement and all required bonds and insurance documentation, Buyer shall promptly deliver to Seller, with copies to each additional insured (as identified in the Procurement Contract), certificates and other evidence of insurance (if any) required to be provided by Buyer.

2.02 *Copies of Documents*

A. Buyer shall furnish to Seller four printed copies of the Procurement Contract (including one fully executed counterpart of the Procurement Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

2.03 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Procurement Contract, the Buyer, Seller, and Engineer may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Procurement Contract does not establish protocols for Electronic Means, then Buyer, Seller, and Engineer shall jointly develop such protocols.

C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

2.04 *Preliminary Schedules*

A. Within 15 days after the Effective Date of the Procurement Contract, Seller shall submit to Buyer and Engineer for timely review:

1. a progress schedule of activities, consistent with the Procurement Contract Times, including at a minimum, Shop Drawing and Sample submittals, tests, and deliveries as required by the Procurement Contract Documents.

a. The progress schedule will be acceptable to Buyer and Engineer if it provides an orderly progression of the Submittals, tests, and deliveries to completion within the specified Milestones of the Procurement Contract Times.

b. Such acceptance will not impose on Buyer or Engineer responsibility for the progress schedule, for sequencing, scheduling, or progress of Seller's performance of its obligations under the Procurement Contract, nor interfere with or relieve Seller from Seller's full responsibility therefor.

c. Such acceptance will not be deemed as an acknowledgment of the reasonableness and attainability of the schedule.

2. a preliminary schedule of Submittals.

B. No progress payment will be made to Seller until an acceptable progress schedule and acceptable schedule of Submittals are submitted to Buyer and Engineer (and other conditions applicable to progress payments are met).

2.05 *Preliminary Conference*

A. Within 20 days after the Procurement Contract Times start to run, a conference attended by Seller, Buyer, Engineer and others as appropriate will be held to establish a working understanding among the parties as to the Goods and Special Services and to discuss the schedules referred to in Paragraph 2.04.A, procedures for handling Shop Drawings and other Submittals, processing Applications for Payment, and maintaining required records.

2.06 *Safety*

A. Buyer and Seller shall comply with all applicable Laws and Regulations relating to the safety of persons or property, and to the protection of persons or property from damage, injury, or loss.

B. When Seller's personnel, or the personnel of any subcontractor to Seller, are present at the Point of Destination or any work area or site controlled by Buyer, the Seller shall be responsible for the compliance by such personnel with any applicable requirements of Buyer's safety programs that are made known to Seller.

C. If Buyer or its representatives visit the Seller's manufacturing or storage facilities, for testing, inspection, or other purposes, Seller shall inform Buyer in advance of any safety preparations, standards, or programs with which Buyer and its representatives must comply.

ARTICLE 3—PROCUREMENT CONTRACT DOCUMENTS

3.01 *Intent*

A. The Procurement Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Procurement Contract Documents or from prevailing custom or trade usage as being required to produce or furnish the indicated Goods and Special Services will be provided, whether or not specifically called for, at no additional cost to Buyer.

C. Unless otherwise stated in the Procurement Contract Documents, if there is a discrepancy between the electronic or digital versions of the Procurement Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version will govern.

D. The Procurement Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Procurement Contract Documents, as provided in Paragraph 3.04.

F. Any provision or part of the Procurement Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Buyer and Seller.

3.02 *Reference Standards*

A. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws and Regulations, whether such reference be specific or by implication, means the standard, specification, manual, code, or Laws and Regulations in effect at the time of opening of Bids (or on the Effective Date of the Procurement Agreement if there were no Bids), except as may be otherwise specifically stated in the Procurement Contract Documents.

B. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a supplier, will be effective to change the duties or responsibilities of Buyer, Seller, or Engineer from those set forth in the part of the Procurement Contract Documents prepared by or for Engineer. No such provision or instruction will be effective to assign to Buyer or Engineer any duty or authority to supervise or direct the performance of Seller's obligations, or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Procurement Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Seller's Review of Procurement Contract Documents*: If, before or during the performance of Seller's obligations, Seller discovers any conflict, error, ambiguity, or discrepancy within the Procurement Contract Documents, or between the Procurement Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any supplier to Seller, then Seller shall promptly report it to Engineer (or if the Procurement Contract is assigned, then directly to Contractor/Assignee) in writing. Seller shall not proceed with the Goods and Special Services affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer (or if the Procurement Contract is assigned, then by Contractor/Assignee) or by an amendment or supplement to the Procurement Contract Documents issued pursuant to Article 11.

2. Seller shall not be liable to Buyer or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Procurement Contract Documents unless Seller had actual knowledge thereof.

B. *Resolving Discrepancies*: Except as may be otherwise specifically stated in the Procurement Contract Documents, the provisions of the Procurement Contract Documents will take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Procurement Contract Documents and:

1. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Procurement Contract Documents); or

2. the provisions of any Laws or Regulations applicable to the furnishing of the Goods and Special Services (unless such an interpretation of the provisions of the Procurement Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Procurement Drawings and Procurement Specifications*

A. During the performance of Seller's obligations and until final payment, Seller and Buyer shall submit to the Engineer all matters in question concerning the requirements of the Procurement Drawings and Procurement Specifications (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Goods and Special Services, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Procurement Drawings and Procurement Specifications, and judge of the acceptability of the Goods and Special Services thereunder.

1. After assignment (if any) Seller shall submit such matters directly to Contractor/Assignee for response or administration, and the Procurement Contract provisions in Paragraphs 3.04.B and C will not apply.

B. Engineer will issue with reasonable promptness a written clarification, interpretation, or decision on the issue submitted, and if necessary, initiate an amendment or supplement to the Procurement Drawings or Procurement Specifications. Engineer's written clarification, interpretation, or decision will be consistent with the overall intent of the Procurement Contract Documents, and will be final and binding on Seller and Buyer. If either Buyer or Seller believes that a written clarification or interpretation justifies an adjustment in the

Procurement Contract Price or Procurement Contract Times, either may make a Claim for such adjustment as provided in Article 12.

C. If a submitted matter in question concerns terms and conditions of the Procurement Contract Documents that do not involve (1) the performance or acceptability of the Goods and Services, (2) the design (as set forth in the Procurement Drawings, Procurement Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Buyer and Seller that Engineer is unable to provide a decision or interpretation.

3.05 *Reuse of Documents*

A. Seller and its subcontractors and suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Procurement Drawings, Procurement Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Procurement Drawings, Procurement Specifications, other documents, or copies thereof, on extensions of the Project or any other project, without written consent of Buyer and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Procurement Contract Documents, reuse any such Procurement Contract Documents for any purpose without Buyer's express written consent, or violate any copyrights pertaining to such Procurement Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Procurement Contract. Nothing herein precludes Seller from retaining copies of the Procurement Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND SCHEDULE

4.01 *Commencement of Procurement Contract Times*

A. The Procurement Contract Times will commence to run on the Effective Date of the Procurement Contract.

4.02 *Continuing Performance*

A. Seller shall adhere to the progress schedule established in accordance with Paragraph 2.04.A., as duly adjusted, and the Goods will be delivered and the Special Services furnished within the Procurement Contract Times.

B. Seller shall carry on furnishing of the Goods and Special Services and adhere to the progress schedule during all disputes or disagreements with Buyer. No furnishing of Goods and Special Services will be delayed or postponed pending resolution of any disputes or disagreements, except as expressly permitted herein, or as Buyer and Seller may otherwise agree in writing.

4.03 *Adjustments to Progress Schedule*

A. The progress schedule established in accordance with Paragraph 2.04 may be adjusted from time to time as provided below.

1. Seller shall submit to Buyer for acceptance (to the extent indicated in Paragraph 2.04) proposed adjustments in the progress schedule that will not result in changing the Procurement Contract Times. Such adjustments will comply with any applicable provisions of the Procurement Specifications.

2. Proposed adjustments in the progress schedule that will change the Procurement Contract Times must be submitted in accordance with the requirements of Article 11. Adjustments in Procurement Contract Times may only be made by a Change Order.

4.04 *Delays*

A. If Buyer, Engineer, or anyone for whom Buyer is responsible, delays, disrupts, or interferes with Seller's performance or progress, then Seller shall be entitled to an equitable adjustment in Procurement Contract Price or Procurement Contract Times.

B. Seller shall not be entitled to an adjustment in Procurement Contract Price or Procurement Contract Times for delay, disruption, or interference caused by or within the control of Seller or anyone for whom Seller is responsible.

C. If Seller's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Buyer, Seller, and those for which they are responsible, then Seller shall be entitled to an equitable adjustment in Procurement Contract Times. Such an adjustment will be Seller's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Procurement Contract Times under this paragraph include but are not limited to the following:

1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

2. abnormal weather conditions;

3. inspection delays by governmental authorities, and custom delays;

4. international shipping delays;

5. acts or failures to act of third-party entities; and

6. acts of war or terrorism.

D. *Adjustments of Procurement Contract Times or Procurement Contract Price—General Provisions*: Seller's entitlement to an adjustment of Procurement Contract Times or Procurement Contract Price is limited as follows:

1. Seller's entitlement to an adjustment of the Procurement Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of Seller's obligations, as of the time of the delay, disruption, or interference.

2. Seller shall not be entitled to an adjustment in Procurement Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Seller. Such a concurrent delay by Seller does not preclude an adjustment of Procurement Contract Times to which Seller is otherwise entitled.

3. Adjustments of Procurement Contract Times or Procurement Contract Price are subject to the provisions of Articles 11 and 12.

E. Each Seller request seeking a delay-related increase in Procurement Contract Times or Procurement Contract Price must be supplemented by supporting data that sets forth in detail the following: (1) the circumstances that form the basis for the requested adjustment; (2) the date upon which each cause of delay, disruption, or interference began to affect Seller's progress; (3) the date upon which each cause of delay, disruption, or interference ceased to affect Seller's progress; (4) the number of days' increase in Procurement Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and (5) the impact on Procurement Contract Price. Seller shall also furnish such additional supporting documentation as Buyer or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion.

ARTICLE 5—BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Seller shall furnish a performance bond and a payment bond, each in an amount at least equal to the Procurement Contract Price, as security for the faithful performance and payment of Seller's obligations under the Procurement Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 9.04, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Procurement Contract.

B. Seller shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Procurement Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Buyer prior to execution of the Procurement Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Seller shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Seller is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Seller shall promptly notify Buyer and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements of this Procurement Contract.

F. If Seller has failed to obtain a required bond, Buyer may exercise Buyer's termination rights under Article 14.

G. Upon request to Buyer from any subcontractor, supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of Seller's obligations, Buyer shall provide a copy of the payment bond to such person or entity.

H. Upon request to Seller from any subcontractor, supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of Seller's obligations, Seller shall provide a copy of the payment bond to such person or entity.

5.02 *Insurance*

A. Seller shall provide insurance of the types and coverages and in the amounts stipulated in the Supplementary Conditions.

B. Failure of Buyer to demand certificates of insurance or other evidence of Seller's full compliance with these insurance requirements or failure of Buyer to identify a deficiency in compliance from the evidence provided will not be construed as a waiver of Seller's obligation to maintain such insurance.

C. Upon assignment of this Procurement Contract, Seller shall name the Contractor/Assignee as an additional insured and comply with the written request of Contractor/Assignee to provide evidence of insurance.

D. Buyer does not represent that insurance coverage and limits established in this Procurement Contract necessarily will be adequate to protect Seller.

E. The insurance and insurance limits required herein will not be deemed as a limitation on Seller's liability under the indemnities and other rights granted to Buyer in the Procurement Contract.

5.03 *Surety or Insurance Companies*

A. All bonds and insurance required by the Procurement Contract Documents to be purchased and maintained by Buyer or Seller shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies must also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

ARTICLE 6—LICENSES AND FEES

6.01 *Intellectual Property and License Fees*

A. Except to the extent stated elsewhere in the Procurement Contract Documents, Seller is not transferring any patent rights, copyrights, or other intellectual property rights for the Goods delivered.

B. To the extent Seller is manufacturing to Buyer's design, Buyer retains all patent rights, copyrights, and other intellectual property rights in such design.

C. If an invention, design, process, product, or device is specified in the Procurement Contract Documents for incorporation in the Goods or for the performance of Special Services, and if, to the actual knowledge of Buyer or Engineer, its use is subject to patent rights, copyrights,

or other intellectual property rights calling for the payment of a license fee or royalty to others, then the existence of such rights and payment obligations will be disclosed to Seller in the Procurement Contract Documents.

D. Seller shall pay all license fees and royalties and assume all costs incident to the use or the furnishing of the Goods, unless specified otherwise by the Procurement Contract Documents.

6.02 *Seller's Infringement*

A. Subject to Paragraph 6.01, to the fullest extent permitted by Laws and Regulations, Seller shall indemnify and hold harmless Buyer, Engineer, and their officers, directors, members, partners, employees, agents, consultants, contractors, and subcontractors, from and against all claims, costs, losses, damages, and judgments (including but not limited to all reasonable fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement or alleged infringement of any patent, copyright, or other intellectual property right by any of the Goods as delivered or Special Services as performed.

B. Buyer will promptly notify Seller in writing of any claim, suit, or threat of suit by a third party for any infringement or alleged infringement of any patent, copyright, or other intellectual property right with respect to the Goods as delivered or Special Services as performed.

C. Seller shall promptly defend or settle the claim or suit. Seller shall have control over such claim or suit, bear all expenses, and satisfy any adverse judgment.

1. If Seller fails to defend such suit or claim after written notice by Buyer, Seller will be bound, in any subsequent suit or claim against Seller by Buyer, by any factual determination in the prior suit or claim.

2. If Buyer fails to provide Seller the opportunity to defend such suit or claim, Buyer shall be barred from any remedy against Seller for such suit or claim.

D. If a determination is made that Seller has infringed upon the intellectual property rights of another, Seller may, at Seller's own expense, obtain the necessary licenses for Buyer's benefit, or replace the Goods and provide related design and construction, consistent with the requirements of the Procurement Contract Documents, to avoid the infringement.

6.03 *Buyer's Infringement*

A. Subject to Paragraph 6.01, and to the fullest extent permitted by Laws and Regulations, Buyer shall be responsible to Seller for any infringement or alleged infringement of any patent, copyright, or other intellectual property right caused by Seller's compliance with the Procurement Drawings or Procurement Specifications, and will reimburse Seller for any license fee or royalties paid by Seller to others if such payment resulted from any invention, design, process, product, or device specified to be furnished or performed in the Procurement Drawings or Procurement Specifications, but not identified as being subject to payment of such license fee or royalty.

B. Seller will promptly notify Buyer in writing of any claim, suit, or threat of suit by a third party for intellectual property infringement arising from Seller's compliance with the Procurement Drawings or Procurement Specifications.

C. Buyer shall defend or settle the claim or suit. Buyer shall have control over such claim or suit, bear all expenses, and satisfy any adverse judgment.

1. If Buyer fails to defend such suit or claim after written notice by Seller, Buyer will be bound, in any subsequent suit or claim against Buyer by Seller, by any factual determination in the prior suit or claim.

2. If Seller fails to provide Buyer the opportunity to defend such suit or claim, Seller shall be barred from any remedy against Buyer for such suit or claim.

ARTICLE 7—SELLER'S RESPONSIBILITIES

7.01 *Performance of Obligations*

A. Seller shall be solely responsible for the means, methods, techniques, sequences, and procedures necessary to perform its obligations in accordance with the Procurement Contract Documents.

B. Seller shall supervise, inspect, and direct the furnishing of the Goods and Special Services competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform its obligations in accordance with the Procurement Contract Documents.

C. Seller shall coordinate the provision of Special Services to avoid or limit interference or disruption of other activities at the location where the Special Services are to occur, including but not limited to ongoing facility operations and construction activities.

7.02 *Labor, Materials and Equipment*

A. Seller shall provide competent, qualified and trained personnel in all aspects of its performance of the Procurement Contract.

B. All Goods, and all equipment and material incorporated into the Goods, must be as specified, and unless specified otherwise in the Procurement Contract Documents, must be:

1. new, and of good quality;

2. protected, assembled, connected, cleaned, and conditioned in accordance with the original manufacturer's instructions; and

3. shop-assembled to the greatest extent practicable.

7.03 *Laws and Regulations*

A. Seller shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of its obligations in accordance with the Procurement Contract Documents. Except where otherwise expressly required by such Laws and Regulations, neither Buyer nor Engineer shall be responsible for monitoring Seller's compliance with any Laws or Regulations.

B. If Seller furnishes Goods and Special Services knowing or having reason to know that such furnishing is contrary to Laws or Regulations, Seller shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such performance. It will not be Seller's responsibility to make certain

that the Procurement Specifications and Procurement Drawings are in accordance with Laws and Regulations, but this provision will not relieve Seller of Seller's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Procurement Contract if there were no Bids) that have a direct effect on the cost or time of Seller's performance will be the subject of an adjustment in Procurement Contract Price or Procurement Contract Times. If Buyer and Seller are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Article 12.

7.04 *"Or Equals"*

A. Whenever an item of material or equipment to be incorporated into the Goods is specified or described in the Procurement Contract Documents by using the names of one or more proprietary items or specific suppliers or manufacturers, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, other items of material or equipment or material or equipment of other suppliers or manufacturers may be submitted to Buyer for Engineer's review.

1. If in Engineer's sole discretion, such an item of material or equipment proposed by Seller is functionally equal to that named and sufficiently similar so that no change in related work will be required, it may be considered by Engineer as an "or equal" item.

2. For the purposes of this paragraph, a proposed item of material or equipment may be considered functionally equal to an item so named only if in the exercise of reasonable judgment, Engineer determines that: 1) it is at least equal in quality, durability, appearance, strength, and design characteristics; 2) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole; 3) it has an acceptable record of performance and availability of responsive service; and (4) Seller certifies that if approved: a) there will be no increase in any cost, including capital, installation or operating costs, to Buyer; and b) the proposed item will conform substantially to the detailed requirements of the item named in the Procurement Contract Documents.

B. *Engineer's Evaluation*: Engineer will be allowed a reasonable time within which to evaluate each proposal or Submittal made pursuant to Paragraph 7.04.A. Engineer will be the sole judge of whether to accept or reject such a proposal or Submittal. No "or equal" will be ordered, manufactured or utilized until Engineer's review is complete, which will be evidenced by an approved Shop Drawing. Engineer will advise Buyer and Seller in writing of any negative determination. Notwithstanding Engineer's approval of an "or-equal" item, Seller shall remain obligated to comply with the requirements of the Procurement Contract Documents.

C. *Special Guarantee*: Buyer may require Seller to furnish at Seller's expense a special performance guarantee or other surety with respect to any such proposed "or-equal."

D. *Data*: Seller shall provide all data in support of any such proposed "or equal" at Seller's expense.

7.05 *Taxes*

A. Seller shall pay all taxes and duties arising out of the sale of the Goods and the performance of Special Services. All taxes and duties are included in the Procurement Contract Price, except as noted in the Supplementary Conditions.

7.06 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Seller shall:

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Procurement Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal; and

2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of Seller's obligations.

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Seller has satisfied its obligations under the Procurement Contract Documents with respect to Seller's review of that Submittal, and that Seller approves the Submittal.

3. With each Shop Drawing or Sample, Seller shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Procurement Contract Documents. This notice will be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. *Submittal Procedures for Shop Drawings and Samples*: Seller shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

a. Seller shall submit the number of copies required in the Procurement Specifications.

b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Seller proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.06.C.

2. *Samples*

a. Seller shall submit the number of Samples required in the Procurement Specifications.

b. Seller shall clearly identify each Sample as to material, supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.06.C.

3. Where a Shop Drawing or Sample is required by the Procurement Contract Documents or the Schedule of Submittals, any related work performed by Seller prior to Engineer's review and approval of the pertinent Submittal will be at the sole expense and responsibility of Seller.

C. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Goods, comply with the requirements of the Procurement Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Procurement Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, manufacturing, fabrication, installation, or shipping, or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Seller from responsibility for any variation from the requirements of the Procurement Contract Documents unless Seller has complied with the requirements of Paragraph 7.06.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Procurement Contract Documents in a Field Order or other appropriate Procurement Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Seller from responsibility for complying with the requirements of Paragraphs 7.06.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Procurement Contract Documents, will not, under any circumstances, change the Procurement Contract Times or Procurement Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing or Sample will result in such item becoming a Procurement Contract Document.

8. Seller shall furnish Goods that comply with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.06.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

1. Seller shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review

and approval. Seller shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.

2. Seller shall furnish required Shop Drawing and Sample Submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Seller shall be responsible for Engineer's charges to Buyer for such time. Buyer may impose a set-off against payments due Seller to secure reimbursement for such charges.

3. If Seller requests a change of a previously approved Shop Drawing or Sample, Seller shall be responsible for Engineer's charges to Buyer for its review time, and Buyer may impose a set-off against payments due Seller to secure reimbursement for such charges, unless the need for such change is beyond the control of Seller.

E. *Submittals Other than Shop Drawings and Samples*

1. The following provisions apply to all Submittals other than Shop Drawings and Samples:

a. Seller shall submit all such Submittals to the Engineer in accordance with the schedule of Submittals and pursuant to the applicable terms of the Procurement Contract Documents.

b. Engineer will provide timely review of all such Submittals in accordance with the schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the schedule of Submittals will be deemed accepted.

c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Procurement Contract Documents as to general form and content of the Submittal.

d. If any such Submittal is not accepted, Seller shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.04 and 2.05.

7.07 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Seller shall indemnify and hold harmless Buyer, Engineer, Project Owner, and any assignee of Buyer, including Contractor/Assignee, and their officers, directors, members, partners, employees, agents, consultants, contractors, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of Seller's obligations under the Procurement Contract, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Goods themselves), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Seller, or any individual or entity directly or indirectly employed by Seller or anyone for whose acts Seller may be liable.

B. In any and all claims against Buyer, Engineer, Project Owner, or any assignee of Buyer, including Contractor/Assignee, or their officers, directors, members, partners, employees, agents, consultants, contractors, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Seller, any subcontractor, any supplier, or any individual or entity directly or indirectly employed by any of them to furnish any of the Goods and Special Services, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.07.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Seller or any such subcontractor, supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.08 *Concerning Subcontractors and Suppliers*

A. Seller may retain subcontractors and suppliers for the performance of parts of the furnishing of the Goods and Special Services. The Seller's retention of a subcontractor or supplier will not relieve Seller's obligation to Buyer to perform and complete the furnishing the Goods and Special Services in accordance with the Procurement Contract Documents.

ARTICLE 8—SHIPPING AND DELIVERY

8.01 *Shipping*

A. Seller shall select the carrier and bear all costs of packaging, transportation, insurance, special handling, and all other costs associated with shipment and delivery.

8.02 *Delivery*

A. Seller shall deliver the Goods free on board (FOB) to the Point of Destination, freight prepaid, in accordance with the Procurement Contract Times set forth in the Procurement Agreement, or other date agreed to by Buyer and Seller.

B. At least 10 days before shipment, Seller shall provide written notice to Buyer of the manner of shipment and the anticipated delivery date. The notice must also include any instructions concerning special equipment or services required at the Point of Destination to unload and care for the Goods. Seller shall also require the carrier to give Buyer at least 24 hours' notice by telephone prior to the anticipated time of delivery.

C. Buyer will be responsible and bear all costs for unloading the Goods from carrier.

D. Buyer will assure that adequate facilities are available to receive delivery of the Goods at the time established for delivery, or on another date agreed to by Buyer and Seller.

E. No partial deliveries will be allowed, unless permitted or required by the Procurement Contract Documents or agreed to in writing by Buyer.

F. Provisions governing inspection on delivery are set forth in Paragraph 9.02.

8.03 *Risk of Loss*

A. Risk of loss and insurable interests transfer from Seller to Buyer upon Buyer's receipt of the Goods.

B. Notwithstanding the provisions of Paragraph 8.03.A, if Buyer rejects the Goods as non-conforming, the risk of loss on such Goods will remain with Seller until Seller corrects the non-conformity or Buyer accepts the Goods. If rejected Goods remain at the Point of

Destination pending modification and acceptance, then Seller shall be responsible for arranging adequate protection and maintenance of the Goods at Seller's expense.

ARTICLE 9—BUYER'S RIGHTS

9.01 *Seller's Warranties and Guarantees*

A. Seller warrants and guarantees to Buyer that the title to the Goods conveyed will be proper, its transfer rightful, and free from any security interest, lien, or other encumbrance. Seller shall defend, indemnify, and hold Buyer harmless against any liens, claims, or demands contesting or affecting title of the Goods conveyed.

B. Seller warrants and guarantees to Buyer that all Goods and Special Services will conform with the Procurement Contract Documents, and with the standards established by any Samples approved by Engineer. Engineer shall be entitled to rely on Seller's warranty and guarantee. If the Procurement Contract Documents do not otherwise specify the characteristics or the quality of the Goods, the Goods must comply with the requirements of Paragraph 7.02.B.

C. Seller's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, improper modification, improper maintenance, or improper operation by persons other than Seller;

2. excessive corrosion or chemical attack, unless corrosive or chemically-damaging conditions were disclosed by Buyer in the Procurement Contract Documents and the Procurement Contract Documents required the Goods to withstand such conditions;

3. use in a manner contrary to Seller's written instructions for installation, operation, and maintenance; or

4. normal wear and tear under normal usage.

D. Seller's obligation to furnish the Goods and Special Services in accordance with the Procurement Contract Documents will be absolute. None of the following will constitute an acceptance of Goods and Special Services that are non-conforming, or a release of Seller's obligation to furnish the Goods and Special Services in accordance with the Procurement Contract Documents:

1. observations by Buyer, Engineer, or Project Owner;

2. recommendation by Engineer or payment by Buyer of any progress or final payment;

3. use of the Goods by Buyer or Project Owner;

4. any acceptance by Buyer, Engineer, or Project Owner, or any failure to do so;

5. the end of the correction period established in Paragraph 9.04;

6. the issuance of a notice of acceptance;

7. any inspection, test or approval by others; or

8. any correction of non-conforming Goods and Special Services by Buyer or Project Owner.

E. Buyer shall promptly notify Seller of any breach of Seller's warranties or guarantees.

9.02 *Inspections and Testing*

A. *General Provisions*

1. The Procurement Contract Documents specify required inspections and tests. Buyer shall have the right to perform, or cause to be performed, reasonable inspections and require reasonable tests of the Goods at Seller's facility, and at the Point of Destination. Seller shall allow Buyer a reasonable time to perform such inspections or tests.

2. Seller shall reimburse Buyer for all expenses, except for travel, lodging, and subsistence expenses of Buyer's and Engineer's representatives, for inspections and tests specified in the Procurement Contract Documents. If as the result of any such specified testing the Goods are determined to be non-conforming, then Seller shall also bear the travel, lodging, and subsistence expenses of Buyer's and Engineer's representatives, and all expenses of re-inspection or retesting.

3. Buyer shall bear all expenses of inspections and tests that are not specified in the Procurement Contract Documents (other than any re-inspection or retesting resulting from a determination of non-conformity, as set forth in Paragraph 9.03); provided, however, that if as the result of any such non-specified inspections or testing the Goods are determined to be non-conforming, then Seller shall bear all expenses of such inspections and testing, and of any necessary re-inspection and retesting.

4. Seller shall provide Buyer timely written notice of the readiness of the Goods for all inspections, tests, or approvals which the Procurement Contract Documents specify are to be observed by Buyer prior to shipment.

5. Buyer will give Seller timely notice of all specified tests, inspections, and approvals of the Goods which are to be conducted at the Point of Destination, and a representative of Seller will attend such tests, inspections, and approvals.

6. If, on the basis of inspections or testing, the Goods appear to be conforming, Buyer will give Seller prompt notice thereof. If on the basis of inspections or testing, the Goods appear to be non-conforming, Buyer will give Seller prompt notice thereof and will advise Seller of the remedy Buyer elects under the provisions of Paragraph 9.03.

7. Neither payments made by Buyer to Seller prior to any tests or inspections, nor any tests or inspections, will constitute acceptance of non-conforming Goods, or prejudice Buyer's rights under the Procurement Contract.

B. *Visual Inspection on Delivery*

1. Buyer will visually inspect the Goods upon delivery solely for purposes of identifying the Goods, general verification of quantities, and observation of apparent condition. Such visual inspection will not be construed as final or as receipt of any Goods and Special Services that, as a result of subsequent inspections and tests, are determined to be non-conforming.

2. If, on the basis of the visual inspection specified in Paragraph 9.02.B.1, the Goods appear to comply with the requirements of the Procurement Contract Documents as to quantities and condition, then within 10 days of delivery Buyer shall issue to Seller Buyer's acknowledgment of the receipt of Goods.

C. *Final Inspection*

1. After all of the Goods have been incorporated into the Project, tested in accordance with such testing requirements as are specified, and are functioning as required, and Seller has performed and completed all Special Services, Buyer will make a final inspection.

2. If, on the basis of the final inspection, Buyer determines that the Goods and Special Services are conforming, Buyer's notice thereof will constitute Buyer's acceptance of the Goods and Special Services, subject to any limitations stated in the notice.

3. If, on the basis of the final inspection, the Goods and Special Services are non-conforming, Buyer will identify the non-conformity in writing.

9.03 *Non-Conforming Goods and Special Services*

A. If, on the basis of inspections and testing prior to delivery, the Goods and Special Services are found to be non-conforming, or if at any time after Buyer has acknowledged receipt of delivery and before the expiration of the correction period described in Paragraph 9.04, Buyer determines that the Goods and Special Services are non-conforming, then Seller shall promptly, without cost to Buyer and in response to written instructions from Buyer, either correct such non-conforming Goods and Special Services, or, if Goods are rejected by Buyer, remove and replace the non-conforming Goods with conforming Goods, including all work required for reinstallation.

B. *Buyer's Rejection of Non-Conforming Goods*

1. If Buyer elects to reject the Goods in whole or in part, Buyer's notice to Seller will describe in sufficient detail the non-conforming aspect of the Goods. If Goods have been delivered to Buyer, Seller shall promptly, and within the Procurement Contract Times, remove and replace the rejected Goods.

2. Seller shall bear all costs, losses and damages attributable to the removal, replacement, reinspection, and retesting of the non-conforming Goods.

3. Upon rejection of the Goods, Buyer retains a security interest in the Goods to the extent of any payments made and expenses incurred in their testing and inspection.

C. *Buyer's Rejection of Non-Conforming Special Services*

1. If at any time Buyer elects to reject the Special Services in whole or in part, Buyer's notice to Seller will describe in sufficient detail the non-conforming aspect of the Special Services.

2. Seller shall promptly provide conforming Special Services acceptable to Buyer.

3. If Seller fails to provide conforming Special Services, Buyer may remove the Special Services from the scope of the Procurement Contract, and equitably reduce the Procurement Contract Price.

D. *Remedying Non-Conforming Goods*: If Buyer elects to permit the Seller to modify the Goods to correct the non-conformance, then Seller shall promptly provide a schedule for such modifications and shall make the Goods conforming within a reasonable time.

E. *Buyer's Acceptance of Non-Conforming Goods*: Instead of requiring correction or removal and replacement of non-conforming Goods discovered either before or after final payment,

Buyer may accept the non-conforming Goods. Seller shall bear all reasonable costs, losses, and damages attributable to Buyer's evaluation of and determination to accept such non-conforming Goods.

F. *Seller Obligations*: Seller shall pay all claims, costs, losses, and damages, including but not limited to all fees and charges for re-inspection, retesting and for any engineers, architects, attorneys and other professionals, and all court or arbitration or other dispute resolution costs arising out of or relating to the non-conforming Goods and Special Services. Seller's obligations will include the costs of the correction or removal and replacement of the non-conforming Goods and the replacement of property of Buyer and others destroyed by the correction or removal and replacement of the non-conforming Goods, and obtaining conforming Special Services from others.

G. *Buyer's Rejection of Conforming Goods*: If Buyer asserts that Goods and Special Services are non-conforming and such Goods and Special Services are determined to be conforming, or if Buyer rejects as non-conforming Goods and Special Services that are later determined to be conforming, then Seller shall be entitled to reimbursement from Buyer of costs incurred by Seller in inspecting, testing, correcting, removing, or replacing the conforming Goods and Special Services, including but not limited to fees and charges of engineers, architects, attorneys and other professionals, and all court or arbitration or other dispute resolution costs associated with the incorrect assertion of non-conformance or rejection of conforming Goods and Special Services.

9.04 *Correction Period*

A. Seller's responsibility for correcting all non-conformities in the Goods and Special Services will extend for a period of one year after the acceptance of the Goods and Special Services in accordance with Paragraph 9.02.C.2.

B. Where non-conforming Goods and Services (and damage to other work resulting therefrom) have been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Goods and Services will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

C. Seller's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph may not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 10—ENGINEER'S STATUS

10.01 *Engineer's Role Defined*

A. Engineer will be Buyer's representative until assignment (if any) of the Procurement Contract.

B. The duties and responsibilities and the limitations of authority of Engineer prior to assignment, if any, of the Procurement Contract, are set forth in the Procurement Contract Documents.

C. Engineer's responsibilities, if any, after an assignment (if any) of the Procurement Contract, are set forth in the Procurement Agreement.

10.02 *Duties and Responsibilities; Authority; Limitations*

A. As set forth in Article 3, Engineer will be the initial interpreter of the Procurement Contract Documents and judge of the acceptability of the Goods and Special Services, and will issue clarifications, interpretations, and decisions regarding such issues.

B. Acting on behalf of Buyer under the provisions of Article 9, Engineer has the authority to disapprove or reject Goods and Special Services that Engineer believes to be non-conforming. Engineer also has the authority to require special inspection or testing of the Goods or Special Services as provided in Paragraph 9.02, whether or not the Goods are fabricated or installed, or the Special Services are completed.

C. Engineer may authorize minor deviations or variations in the Procurement Contract Documents by: 1) written approval of specific variations set forth in Shop Drawings when Seller has duly noted such variations as required in Paragraph 7.06.A.3, or 2) a Field Order.

D. As set forth in Article 12, Engineer will review Claims, and render decisions on Claims.

E. In rendering any interpretations, clarifications, reviews, decisions, disapprovals, acceptances, rejections, authorizations, and judgments, Engineer will not show partiality to Buyer or Seller. Engineer will not be liable to Buyer, Seller, or others in connection with any interpretations, clarifications, reviews, decisions, disapprovals, acceptances, rejections, authorizations, or judgments conducted or rendered by Engineer in good faith.

F. Engineer will not supervise, direct, control, or have authority over or be responsible for the means, methods, techniques, sequences, or procedures used by Seller to perform its obligations under this Procurement Contract, or the safety precautions and programs incident thereto, or for any failure of Seller to comply with Laws and Regulations applicable to the performance of its obligations. Engineer will not be responsible for Seller's failure to furnish the Goods and Special Services in accordance with the Procurement Contract Documents.

ARTICLE 11—CHANGES

11.01 *Amending and Supplementing the Procurement Contract*

A. The Procurement Contract may be amended or supplemented by a Change Order, a Change Directive, or a Field Order.

B. If an amendment or supplement to the Procurement Contract includes a change in the Procurement Contract Price or the Procurement Contract Times, such amendment or supplement must be set forth in a Change Order.

C. All changes to the Procurement Contract that involve (1) the conformance or acceptability of the Goods and Special Services, (2) the design (as set forth in the Procurement Drawings, Procurement Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Buyer and Seller may amend other terms and conditions of the Procurement Contract without the recommendation of the Engineer.

11.02 *Change Orders*

A. Buyer and Seller shall execute appropriate Change Orders covering:

1. Changes in Procurement Contract Price or Procurement Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Goods and Special Services furnished in accordance with a Change Directive;

2. Changes in Procurement Contract Price resulting from a Buyer set-off, unless Seller has duly contested such set-off;

3. Changes in the Goods and Special Services which are: (a) ordered by Buyer pursuant to Paragraph 11.05, (b) required because of Buyer's acceptance of non-conforming Goods and Services under Paragraph 9.03 or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Goods and Special Services involves the design (as set forth in the Procurement Drawings, Procurement Specifications, or otherwise) or other engineering or technical matters; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Change Directive; Article 12, Claims; and similar provisions.

B. If Buyer or Seller refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Change Directives*

A. A Change Directive will not change the Procurement Contract Price or the Procurement Contract Times but is evidence that the parties expect that the modification ordered or documented by a Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Change Directive's effect, if any, on the Procurement Contract Price and Procurement Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Procurement Contract Documents governing adjustments, expressly including Paragraph 11.08 regarding change of Procurement Contract Price.

B. If Buyer has issued a Change Directive and Buyer or Seller believes that an adjustment in Procurement Contract Times or Procurement Contract Price is necessary, then such party shall submit a Claim seeking such an adjustment no later than 30 days after the completion of the Goods and Services set out in the Change Directive.

11.04 *Field Orders*

A. Engineer may authorize minor changes in the Goods and Services if the changes do not involve an adjustment in the Procurement Contract Price or the Procurement Contract Times and are compatible with the design concept as indicated by the Procurement Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Buyer and also on Seller, which shall perform the Goods and Special Services involved promptly.

B. If Seller believes that a Field Order justifies an adjustment in the Procurement Contract Price or Procurement Contract Times, then before proceeding with the Goods and Special Services at issue, Seller shall submit a Claim as provided herein.

11.05 *Buyer-Authorized Changes in the Goods and Special Services*

A. Without invalidating the Procurement Contract and without notice to any surety, Buyer may, at any time or from time to time, order additions, deletions, or revisions in the Goods and Special Services. Changes involving the design (as set forth in the Procurement Drawings, Procurement Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

B. Such changes in the Goods and Special Services may be accomplished by a Change Order, if Buyer and Seller have agreed as to the effect, if any, of the changes on Procurement Contract Times or Procurement Contract Price; or by a Change Directive. Upon receipt of any such document, Seller shall promptly proceed with the Goods and Special Services involved; or, in the case of a deletion in the Goods and Special Services, promptly cease activities with respect to such deletion. Added or revised Goods and Special Services must be performed under the applicable conditions of the Procurement Contract Documents.

11.06 *Buyer's Contingency Allowance*

A. The Buyer's Contingency Allowance, if any such is set forth in the Procurement Agreement, is for the sole use of Buyer to cover unanticipated costs.

B. If Buyer exercises its unilateral right to use all or a portion of the Buyer's Contingency Allowance, Buyer will issue a written directive that documents the costs to which the allowance is applied, Seller's entitlement to compensation, and the consequent reduction in such allowance.

C. Prior to final payment, the Total Price, as set forth in the Procurement Agreement, will be duly adjusted to account for any unused portion of the Buyer's Contingency Allowance.

D. The Procurement Agreement, Article 5, addresses the impact on Buyer's Contingency Allowance of an assignment of the Procurement Contract.

11.07 *Unauthorized Changes in the Goods and Special Services*

A. Seller shall not be entitled to an increase in the Procurement Contract Price or an extension of the Procurement Contract Times with respect to any work performed that is not required by the Procurement Contract Documents, as amended, modified, or supplemented.

11.08 *Change of Procurement Contract Price*

A. The Procurement Contract Price may only be changed by a Change Order. Any Claim for an adjustment of Procurement Contract Price must comply with the provisions of Article 12.

B. An adjustment in the Procurement Contract Price will be determined as follows:

1. For changes in Unit Price Goods and Special Services, by application of the unit prices to the quantities of the items involved;

2. To the extent the cost of the change is not covered by unit prices, then by a mutually agreed lump sum; or

3. To the extent the cost of the change is not covered by unit prices and the parties do not reach mutual agreement to a lump sum, then on the basis of documented costs plus a Seller's fee for overhead and profit of 15%.

11.09 *Change of Procurement Contract Times*

A. The Procurement Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Procurement Contract Times must comply with the provisions of Article 12.

11.10 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Goods and Special Services or the provisions of the Procurement Contract (including, but not limited to, Procurement Contract Price or Procurement Contract Times), the giving of any such notice will be Seller's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS, DISPUTES, AND DISPUTE RESOLUTION

12.01 *Claims*

A. The parties agree to endeavor to avoid or resolve Claims through direct, good faith discussions and negotiations whenever practicable. Such discussions and negotiations should at the outset address whether the parties mutually agree to suspend the Claims process, including the time periods established in this Paragraph 12.01; if so, a written record of such mutual agreement should be made and jointly executed.

B. Claimant shall deliver to Engineer and the other party to the Procurement Contract written notice of each Claim within 15 days after the occurrence of the event giving rise to the Claim.

C. Claimant shall deliver written supporting data to Engineer and the other party within 45 days after such occurrence unless Engineer allows an additional period of time.

D. Engineer will review each such Claim and render a decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

E. If Engineer does not render a formal written decision on a Claim within the time stated in Paragraph 12.01.D., Engineer shall be deemed to have issued a decision denying the Claim in its entirety 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

F. The rendering of a decision by Engineer pursuant to this Paragraph 12.01 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment) will be a condition precedent to any exercise by Buyer or Seller of such rights or remedies as either may otherwise have under the Procurement Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter. If the exercise of such rights or remedies will imminently be time-barred, a party may take actions necessary to preserve such rights and remedies notwithstanding the lack of the condition precedent referred to in this paragraph.

G. If a submitted matter in question concerns terms and conditions of the Procurement Contract Documents that do not involve (1) the performance or acceptability of Goods and Special Services under the Procurement Contract Documents, (2) the design (as set forth in the Procurement Drawings, Procurement Specifications, Addenda, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Buyer and Seller that Engineer is unable to provide a decision or interpretation. If Buyer and Seller

are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Paragraph 12.02.

H. Engineer's written decision on such Claim or a decision denying the Claim in its entirety that is deemed to have been issued pursuant to Paragraph 12.01, will be final and binding upon Buyer and Seller 30 days after it is issued unless within 30 days of issuance Buyer or Seller appeals Engineer's decision by initiating the mediation of such Claim in accordance with the dispute resolution procedures set forth in Paragraph 12.02.

I. If Article 12 has been amended to delete the mediation requirement, then Buyer or Seller may appeal Engineer's decision within 30 days of issuance by following the alternative dispute resolution process set forth in Article 12, as amended; or if no such alternative dispute resolution process has been set forth, Buyer or Seller may appeal Engineer's decision by 1) delivering to the other party within 30 days of the date of such decision a written notice of intent to submit the Claim to a court of competent jurisdiction, and 2) within 60 days after the date of such decision instituting a formal proceeding in a court of competent jurisdiction.

J. No Claim for an adjustment in Procurement Contract Price or Procurement Contract Times will be valid if not submitted in accordance with Article 12.

K. The effect on Claims of an assignment of the Procurement Contract by Buyer to a Contractor/Assignee is addressed in the Procurement Agreement, Article 5.

12.02 *Dispute Resolution Method*

A. Either Buyer or Seller may initiate the mediation of (1) any Claim decided in writing by Engineer under Paragraph 12.01 before such decision becomes final and binding, or (2) any other dispute between the parties, including but not limited to any dispute arising after final inspection of the Goods and Services. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Procurement Contract. The request for mediation must be submitted in writing to the American Arbitration Association and the other party to the Procurement Contract. Timely submission of the request will stay Engineer's decision from becoming final and binding.

B. Mediation is a condition precedent to seeking final dispute resolution under Paragraph 12.01.C. Buyer and Seller shall participate in the mediation process in good faith. The process must be concluded within 60 days of filing of the request. The date of termination of the mediation will be determined by application of the mediation rules referenced above.

C. If the mediation process does not result in resolution of the dispute, then Engineer's written Claim decision under Paragraph 12.01.D or a Claim denial pursuant to Paragraph 12.01.E becomes final and binding, or if applicable such other dispute is deemed resolved in favor of respondent, unless, within 30 days after termination of the mediation, Buyer or Seller:

1. elects in writing to invoke any final dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim or dispute to another final dispute resolution process, or

3. if no final dispute resolution process has been provided for in the Supplementary Conditions, delivers to the other party written notice of the intent to submit the Claim

or dispute to a court of competent jurisdiction, and within 60 days of the termination of the mediation institutes such formal proceeding.

ARTICLE 13—PAYMENT

13.01 *Applications for Progress Payments*

A. Seller shall submit to Buyer for Engineer's review Applications for Payment filled out and signed by Seller and accompanied by such supporting documentation as is required by the Procurement Contract Documents and also as Buyer or Engineer may reasonably require.

B. The timing and amounts of progress payments will be as stipulated in the Procurement Agreement.

C. Any Application for Payment that is based in whole or in part on the delivery of Goods must be accompanied by a bill of sale, invoice, or other documentation reasonably satisfactory to Buyer warranting that Buyer has rightfully received good title to the Goods from Seller and that, upon payment, the Goods will be free and clear of all liens. Such documentation will include releases and waivers from all parties with viable lien rights.

D. Buyer shall notify Seller promptly of any deficiency in the required documentation.

13.02 *Review of Applications for Progress Payments*

A. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Buyer, or return the Application to Seller indicating in writing Engineer's reasons for refusing to recommend payment.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Buyer, based on Engineer's observations of Seller's progress, as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Goods and Special Services or other obligations of Seller have progressed to the point indicated;

b. the quality of the Goods and Special Services or other obligations of Seller are generally in accordance with the Procurement Contract Documents; and

c. the conditions precedent to Seller being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Seller's progress.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Goods and Special Services or other obligations of Seller have been exhaustive, extended to every aspect of the Goods and Special Services or other obligations of Seller in progress, or involved detailed inspections of the Goods and Special Services or other

obligations of Seller beyond the responsibilities specifically assigned to Engineer in the Procurement Contract; or

b. there may not be other matters or issues between the parties that might entitle Seller to be paid additionally by Buyer, or entitle Buyer to withhold payment to Seller.

4. Neither Engineer's review of Seller's progress for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Seller's performance or furnishing of Goods and Special Services or other obligations of Seller; or

b. for the means, methods, techniques, sequences, or procedures of construction, manufacturing, fabrication, installation, or shipping, or the safety precautions and programs incident thereto; or

c. for Seller's failure to comply with Laws and Regulations applicable to Seller's performance under the Procurement Contract; or

d. to make any examination to ascertain how or for what purposes Seller has used the money paid for the Procurement Contract Price; or

e. to determine that title to any of the Goods or component parts have passed to Buyer free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Buyer stated in Paragraph 13.02.A.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Buyer from loss because:

a. the Goods and Services are non-conforming, requiring correction or replacement;

b. the Procurement Contract Price has been reduced by Change Orders;

c. Buyer has been required to correct non-conforming Goods and Special Services in accordance with Paragraph 9.03.C, or has accepted non-conforming Goods and Special Services pursuant to Paragraph 9.03.E; or

d. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Seller and therefore justify termination for cause under the Procurement Contract Documents.

13.03 *Basis and Amount of Progress Payments*

A. The basis and amounts of the progress payments will be as provided in the Procurement Agreement, subject to the provisions of this Article 13 regarding reductions in payment.

13.04 *Suspension of or Reduction in Payment*

A. Buyer may temporarily cease making progress payments, or reduce the amount of a progress payment, even though recommended for payment by Engineer, under the following circumstances:

1. Buyer has reasonable grounds to conclude that Seller will not furnish the Goods or the Special Services in accordance with the Procurement Contract Documents, and

2. Buyer has requested in writing assurances from Seller that the Goods and Special Services will be delivered or furnished in accordance with the Procurement Contract Documents, and Seller has failed to provide adequate assurances within ten days of Buyer's written request.

3. In addition to any reductions in payment (set-offs) recommended by Engineer, Buyer is entitled to impose a set-off against payment based on any of the following:

    a. claims have been made against Buyer based on Seller's conduct in the performance or furnishing of the Goods and Special Services, or has incurred costs, losses, or damages resulting from Seller's conduct in the performance or furnishing of the Goods and Special Services, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

    b. Seller has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Point of Destination or the worksite;

    c. Seller has failed to provide and maintain required bonds or insurance;

    d. Buyer has incurred extra charges or engineering costs related to Submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

    e. the Goods and Special Services are non-conforming, requiring correction or replacement;

    f. Buyer has been required to correct non-conforming Goods and Special Services, in accordance with Paragraph 9.03.C, or has accepted non-conforming Goods and Special Services pursuant to Paragraph 9.03.E;

    g. the Procurement Contract Price has been reduced by Change Orders;

    h. an event that would constitute a default by Seller and therefore justify a termination for cause has occurred;

    i. liquidated or other damages have accrued as a result of Seller's failure to achieve Milestones, Substantial Completion, or final completion of the Goods and Special Services; or

    j. liens have been filed in connection with the Procurement Contract, except where Seller has delivered a specific bond satisfactory to Buyer to secure the satisfaction and discharge of such liens.

B. If Buyer refuses to make payment of the full amount recommended by Engineer, Buyer will provide Seller and Engineer immediate written notice stating the reason for such action and promptly pay Seller any amount remaining after deduction of the amount withheld. Buyer shall promptly pay Seller the amount withheld when Seller corrects the reason for such action to Buyer's satisfaction.

13.05 *Final Payment*

A. After Seller has corrected all non-conformities to the reasonable satisfaction of Buyer and Engineer and furnished all Special Services, Seller may submit its final Application for Payment following the procedures for progress payments.

B. The final Application for Payment will be accompanied by all documentation called for in the Procurement Contract Documents (including but not limited to all final operations and maintenance manuals, and any special warranties), a list of all unsettled Claims, and the written consent of surety to the making of final payment.

C. If, on the basis of final inspection and the review of the final Application for Payment and accompanying documentation, Engineer is reasonably satisfied that Seller has furnished the Goods and Special Services in accordance with the Procurement Contract Documents, and that Seller has fulfilled all other obligations under the Procurement Contract Documents, then Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment subject to the provisions of Paragraph 13.02, and present the final Application for Payment to Buyer. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Buyer from loss for the reasons stated in Paragraph 13.02.

D. If Engineer does not recommend final payment, Engineer will return the final Application for Payment to Seller, indicating the reasons for refusing to recommend final payment, in which case Seller shall make the necessary corrections and resubmit the final Application for Payment.

E. In support of its recommendation of final payment Engineer will also give written notice to Buyer and Seller that the Goods and Special Services are acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 13.06.

F. If the final Application for Payment and accompanying documentation are appropriate as to form and substance, Buyer shall, within 30 days after receipt thereof, pay Seller the amount recommended by Engineer, less any sum Buyer is entitled to set off against Engineer's recommendation, pursuant to the provisions of Paragraph 13.04.

G. Buyer will not make final payment, or return or release included retainage (if any) at any time, unless Seller submits written consent of the surety to such payment, return, or release.

13.06 *Waiver of Claims*

A. By making final payment, Buyer waives its claim or right to liquidated damages or other damages for late completion by Seller, except as set forth in an outstanding Claim, appeal, set-off, or express reservation of rights by Buyer. Buyer reserves all other claims or rights after final payment.

B. The acceptance of final payment by Seller will constitute a waiver by Seller of all claims and rights against Buyer other than those pending matters that have been duly submitted or appealed under the provisions of Article 12.

ARTICLE 14—CANCELLATION, SUSPENSION, AND TERMINATION

14.01 *Cancellation*

A. Buyer has the right to cancel the Procurement Contract, without cause, at any time prior to delivery of the Goods by written notice. Cancellation pursuant to the terms of this paragraph will not constitute a breach of contract by Buyer. Upon cancellation:

1. Buyer shall pay Seller for the direct costs incurred in producing any Goods that Seller has specially manufactured for the Project, plus a fair and reasonable amount for overhead and profit.

2. For Goods that are not specially manufactured for the Project, Seller shall be entitled to a restocking charge of 10 percent of the unpaid Procurement Contract Price of such Goods.

14.02 *Suspension of Performance by Buyer*

A. Buyer has the right to suspend performance of the Procurement Contract for up to 90 days, without cause, by written notice. Upon suspension under this paragraph, Seller shall be entitled to an increase in the Procurement Contract Times and Procurement Contract Price caused by the suspension, provided that performance would not have been suspended or delayed for causes attributable to Seller.

14.03 *Suspension of Performance by Seller*

A. Seller may suspend the furnishing of the Goods and Special Services only under the following circumstance:

1. Seller has reasonable grounds to conclude that Buyer will not perform its future payment obligations under the Procurement Contract; and

2. Seller has requested in writing assurances from Buyer that future payments will be made in accordance with the Procurement Contract, and Buyer has failed to provide such assurances within ten days of Seller's written request.

14.04 *Breach and Termination*

A. *Buyer's Breach*

1. Seller shall have the right to terminate the Procurement Contract for cause by declaring a breach if Buyer fails to comply with any material provision of the Procurement Contract. Upon termination, Seller shall be entitled to all remedies provided by Laws and Regulations.

2. If Seller believes Buyer is in breach of its obligations under the Procurement Contract, Seller shall provide Buyer with reasonably prompt written notice setting forth in sufficient detail the reasons for declaring that it believes a breach has occurred. Buyer shall have 7 days from receipt of the written notice declaring the breach (or such longer period of time as Seller may grant in writing) within which to cure or to proceed diligently to cure such alleged breach.

B. *Seller's Breach*

1. Buyer may terminate Seller's right to perform the Procurement Contract for cause by declaring a breach should Seller fail to comply with any material provision of the

Procurement Contract Documents. Upon termination, Buyer shall be entitled to all remedies provided by Laws and Regulations.

2. In the event Buyer believes Seller is in breach of its obligations under the Procurement Contract, Buyer shall provide Seller with reasonably prompt written notice setting forth in sufficient detail the reasons for declaring that it believes a breach has occurred. Seller shall have 7 days from receipt of the written notice declaring the breach (or such longer period of time as Buyer may grant in writing) within which to cure or to proceed diligently to cure such alleged breach.

3. If and to the extent that Seller has provided a performance bond under the provisions of Paragraph 5.01, the notice and cure procedures of that bond, if any, will supersede the notice and cure procedures of Paragraph 14.04.B.2.

ARTICLE 15—MISCELLANEOUS

15.01 *Giving Notice*

A. Whenever any provision of the Procurement Contract requires the giving of written notice to Buyer, Seller, or Engineer, it will be deemed to have been validly given if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business;

2. by registered or certified mail, postage prepaid, to the recipient's place of business; or

3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

15.02 *Controlling Law*

A. This Procurement Contract is to be governed by the law of the state in which the Goods are to be installed.

B. In the case of any conflict between the express terms of this Procurement Contract and the Uniform Commercial Code, as adopted in the state whose law governs, it is the intent of the parties that the express terms of this Procurement Contract will apply.

15.03 *Computation of Time*

A. When any period of time is referred to in the Procurement Contract by number of days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

15.04 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Procurement Contract, and the provisions of this paragraph will be as effective as if repeated specifically in the Procurement Contract in connection with each particular duty, obligation, right, and remedy to which they apply.

15.05 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Procurement Contract, as well as all continuing obligations indicated in the Procurement Contract, will survive final payment, completion, and acceptance of the Goods and Special Services or termination or completion of the Procurement Contract or of the services of Seller.

15.06 *Entire Agreement*

A. Buyer and Seller agree that this Procurement Contract is the complete and final agreement between them, and supersedes all prior negotiations, representations, or agreements, either written or oral. This Procurement Contract may not be altered, modified, or amended except in writing signed by an authorized representative of both parties.

15.07 *No Waiver*

A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Procurement Contract.

15.08 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

15.09 *Successors and Assigns*

A. Buyer and Seller each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Procurement Contract.

SUPPLEMENTARY CONDITIONS OF THE PROCUREMENT CONTRACT

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ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

SC-1.01.A.6. **Add the following language at the end of the last sentence of Paragraph 1.01.A.6:** A Change Directive cannot change Contract Price or Contract Times without a subsequent Change Order.

SC-1.01.A.7 Add the following language at the end of last sentence of Paragraph 1.01.A.7:

The Change Order form to be used on this Project is EJCDC No. C-941. Agency approval is required before Change Orders are effective.

SC 1.01.41 Add the following new definition to Section 1.01.A.41

Owner – Heritage Ranch Community Services District also referred to as Buyer.

SC 1.01.42 Add the following new definition to Section 1.01.A.42

WRRF Contractor – Contractor retained by Heritage Ranch Community Services District who will be responsible for the WRRF construction.

SC 1.01.43 Add the following new definition to Section 1.01.A.43

Large Membrane Subunit – An assembly of Small Membrane Subunits, supported by a common support structure and connected to a common permeate manifold.

SC 1.01.43 Add the following new definition to Section 1.01.A.44

Small Membrane Subunit – The smallest arrangement of the microfiltration or ultrafiltration unit that can be replaced as an integral piece, and when integrated with a Large Membrane Subunit provides a complete and functioning membrane unit.

SC 1.01.43 Add the following new definition to Section 1.01.A.45

Guaranteed Small Membrane Subunit Replacement Interval – Seller's guaranteed interval, in years, before Small Membrane Subunits require replacement due to reaching the end of their useful life or becoming unable to meet Membrane Bioreactor Equipment Package performance requirements under normal operating parameters and membrane cleaning intervals.

SC 1.01.44 Add the following new definition to Section 1.01.A.46

Guaranteed Large Membrane Subunit Replacement Interval – Seller's guaranteed interval, in years, before Large Membrane Subunits require replacement due to reaching the end of their useful life or becoming unable to meet Membrane Bioreactor Equipment Package performance requirements under normal operating parameters and membrane cleaning intervals.

SC 1.01.44 Add the following new definition to Section 1.01.A.47

Guaranteed Annual Power Consumption – Seller's guaranteed annual power consumption for specifically referenced equipment based on Seller provided equipment data in Bid Form.

SC 1.01.44 Add the following new definition to Section 1.01.A.48

Guaranteed Annual Chemical Consumption – Seller's guaranteed annual chemical consumption for process treatment and membrane cleaning based on Seller provided chemical consumption data in Bid Form.

SC 1.01.44 Add the following new definition to Section 1.01.A.49

Lifecycle Cost Adjustment – Lump sum cost of various operations and maintenance costs based on 20-year lifecycle of Membrane Bioreactor Equipment Package.

SC 1.01.44 Add the following new definition to Section 1.01.A.50

Adjusted Base Bid Price – Summation of Lifecycle Cost Adjustment and Base Bid pricing.

SC 1.01.44 Add the following new definition to Section 1.01.A.51

Process Pumping - All pumping required to convey coarse screened influent, fine screen effluent, mixed liquor, and permeate through the Seller's Membrane Bioreactor Equipment Package, excluding RAS pumping and permeate pumping.

SC 2.04 Amend the first sentence of Paragraph 2.04.A. to read as follows:

Within ~~15~~ 30 days after the Effective Date of the Procurement Contract, Seller shall submit to Buyer and Engineer for timely review:

SC 2.04 Add the following language after Paragraph 2.04.A.2 to read as follows:

3. Within 30 days after the Effective Date of the Procurement Contract, Seller shall submit to the Buyer and Engineer for review the Schedule of Values defined in Specification Section 01 29 00 Measurement and Payment.

ARTICLE 3—PROCUREMENT CONTRACT DOCUMENTS

SC-3.05 Add the following new paragraph immediately after Paragraph 3.05.B

C. Nothing in the Contract shall be construed to create a contractual relationship between persons or entities other than Owner and Contractor.

ARTICLE 4—COMMENCEMENT AND SCHEDULE

No suggested Supplementary Conditions in this Article.

ARTICLE 5—BONDS AND INSURANCE

5.02 *Performance, Payment, and Other Bonds*

SC-5.01 Add the following paragraphs immediately after Paragraph 5.01.A:

1. *Required Performance Bond Form*: The performance bond that Seller furnishes will be in the form of EJCDC® P-610, Performance Bond (2010 or 2019 edition).
2. *Required Payment Bond Form*: The payment bond that Contractor furnishes will be in the form of EJCDC® P-615, Payment Bond (2010 or 2019 edition).

5.03 ***Insurance***

SC-5.02 Add the following new paragraphs immediately after Paragraph 5.02.E:

F. Seller shall purchase and maintain such liability and other insurance as is appropriate for the furnishing of Goods and Special Services and as will provide protection from claims set forth below which may arise out of or result from Seller's furnishing of the Goods or Special Services and Seller's other obligations under the Procurement Contract Documents, whether the furnishing of Goods and Special Services or other obligations are to be performed by Seller, any subcontractor or supplier, or by anyone directly or indirectly employed by any of

them to furnish the Goods and Special Services, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of Seller's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Seller's employees;
4. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (a) by any person as a result of an offense directly or indirectly related to the employment of such person by Seller, or (b) by any other person for any other reason;
5. claims for damages, other than to the Goods, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

G. The policies of insurance so required by this Paragraph 5.02 to be purchased and maintained must:

1. with respect to insurance required by Paragraphs SC-5.02.F.3 through SC-5.02.F.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) Buyer, Engineer, their consultants, all of whom must be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds must provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided below or required by Laws or Regulations, whichever is greater;
3. include completed operations insurance;
4. include contractual liability insurance covering Seller's indemnity obligations under Paragraph 7.07;
5. contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder will provide a copy of the notice to the other party, each other insured, and Engineer;
6. remain in effect at least until final payment and at all times thereafter when Seller may be correcting, removing, or replacing non-conforming Goods in accordance with Paragraph 9.03 and 9.04; and
7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and Seller shall furnish Buyer and each other additional insured identified in these

Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Buyer and any such additional insured of continuation of such insurance at final payment and one year thereafter).

H. The limits of liability for the insurance required by Paragraph SC-5.02.F must provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs SC-5.02.F.1 and F.2:

Workers' Compensation and Related Policies	Policy limits of not less than
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Employer's Liability	
Each accident	$1,000,000
Each employee	$1,000,000
Policy limit	$2,500,000

2. Seller's General Liability under Paragraphs SC-5.02.F.3 through F.6 which must include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Seller:

Commercial General Liability	Policy limits of not less than
General Aggregate	$2,000,000
Products—Completed Operations Aggregate	$1,000,000
Personal and Advertising Injury	$1,000,000
Bodily Injury and Property Damage—Each Occurrence	$1,000,000
Excess or Umbrella Liability	$2,000,000

3. Automobile Liability under Paragraph SC-5.02.F.6:

Automobile Liability	Policy limits of not less than
Bodily Injury	
Each Person	$1,000,000
Each Accident	$2,000,000
Property Damage	
Each Accident	$1,000,000
[or]	
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	$2,000,000

4. Professional Liability (if the Special Services include professional services):

Seller's Professional Liability	Policy limits of not less than
Each Claim	$1,000,000
Annual Aggregate	$2,000,000

I. Seller shall deliver to Buyer, with copies to each additional insured identified in these Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Buyer or any other additional insured) which Seller is required to purchase and maintain.

ARTICLE 6—LICENSES AND FEES

SC-6.01.A Delete Paragraph 6.01.A in its entirety and insert the following in its place:

6.01.A Seller shall and hereby does, grant to Buyer, a non-exclusive, non-transferable, royalty free license to use all the intellectual property included in the Goods and Services into perpetuity. Seller shall provide a backup copy of the PLC software and any other software necessary to operate the Membrane Bioreactor Equipment Package upon Buyer's request.

SC-6.03.A Delete Paragraph 6.03.A in its entirety

ARTICLE 7—SELLER'S RESPONSIBILITIES

7.02 Labor, Materials and Equipment

SC-7.02.C. Add the following new paragraphs immediately after Paragraph 7.02.B.:

C. Regular working hours will be Monday through Friday 7:00 AM to 4:00PM.

D. Owner's legal holidays are; New Year's Day, Martin Luther King Jr. Birthday, President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, Christmas Day.

E. Seller shall not award work valued at more than fifty percent of the Contract Price to Subcontractor(s), without prior written approval of the Buyer.

7.03 *Laws and Regulations*

SC-7.03.C Add the following language at the end of the second sentence of Paragraph 7.03.C:

D. State of California Requirements

1. Registration with the California Department of Industrial Relations

A. This project is a "public works" project as defined in California Labor Code Section 1720 through 1743. In accordance with California Labor Code Article 1725.5, Seller and all subcontractors are required to be registered with the California Department of Industrial Relations (DIR) in order to bid or be listed on a bid and/or work on a public works project.

E. – WAGE RATE REQUIREMENTS

1. The prevailing wage rates of the State of California apply to this contract as do any requirements of the State of California associated with the use of these State Prevailing wages.

2. Prevailing Wages: Notice is hereby given that, pursuant to 1773 of the Labor Code of the State of California, the Buyer has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate for holidays and overtime work for each craft, classification, or type of worker required to execute the contract. A copy of said prevailing rate of per diem wages is on file in the principal office of the owner, to which reference is hereby made for further particulars. Said prevailing rate of per diem wages will be made available to any interested party upon request, and a copy thereof shall be posted at each job site.

3. Statutory Penalty For Failure to Pay Minimum Wages: In accordance with 1775 (a) through (c) of the California Labor Code, the Seller shall as a penalty to the State of political subdivision on whose behalf a contract is made or awarded, forfeit not more than two hundred dollars ($200.00)for each calendar day or portion thereof, for each worker paid less than the prevailing wage rates as determined by the director for the work or craft in which the worker is employed for any public work done under the contract by the Seller or, except as provided in subdivision 1775 (b), by any subcontractor under the Seller.

4. Statutory Penalty for Unauthorized Overtime Work: In accordance with Section 1813 of the California Labor Code, the Seller shall as a penalty to the State or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars ($25.00) for each worker employed in the execution of the contract by the respective Seller or subcontractor for each calendar day during which said worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of Sections 1810-1815 of the California Labor Code.

5. Apprenticeship Requirements: Seller agrees to comply with Sections 1777.5, 1777.6 and 1777.7 of the California Labor Code relating to the employment of apprentices. The responsibility for compliance with these provisions is fixed with the prime contractor for all apprenticeship occupations. Under these sections of the law, contractors and subcontractors must employ apprentices in apprenticeship occupations, where journeymen in the craft are employed on the public work, in a ratio of not less than one apprentice hour for each five journeymen hours (unless an exemption is granted in accordance with 1777.5) and contractors and subcontractors shall not discriminate among otherwise qualified employees as indentured apprentices on any public work solely on the ground of race, religious creed, color, national origin, ancestry, sex, or age, except as provided in 3077 of the Labor Code. Only apprentices, as defined in 3077, which provides that an apprentice must be at least 16 years of age, who are in training under apprenticeship standards and who have signed written apprentice agreements will be employed on public works in apprenticeship occupations.

6. Payroll Records: Seller shall keep accurate payroll records in format specified by the Division of Labor Standards Enforcement. Said information shall include, but not be limited to, a record of the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and actual per diem wages paid to each journeyman, apprentice, or worker employed by the Seller. Copies of such

record shall be made available for inspection at all reasonable hours, and a copy shall be made available to employee or his authorized representative, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards in compliance with California Labor Code, Section 1776. Seller and subcontractors shall furnish and submit electronic certified payrolls directly to the Labor Commissioner, and duplicate copies available to the owner

F. Antitrust Claim Settlement

A. In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Sellerr or Subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Seller, without further acknowledgment by the parties.

G. Federal Requirements

1. Agency Not a Party

a. This Contract is expected to be funded in part with funds provided by Agency. Neither Agency, nor any of its departments, entities, or employees is a party to this Contract.

2. Contract Approval

a. Buyer and Seller will furnish Buyer's attorney such evidence as required so that Buyer's attorney can complete and execute the "Certificate of Owner's Attorney" before Buyer submits the executed Contract Documents to Agency for approval.

b. Concurrence by Agency in the award of the Contract is required before the Contract is effective.

3. Conflict of Interest

a. Seller may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the plans and specifications has a corporate or financial affiliation with the supplier or manufacturer. Buyer's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in or other interest in or a tangible personal benefit from the Seller. Buyer's officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from Seller or subcontractors.

4. Gratuities

a. If Buyer finds after a notice and hearing that Seller, or any of Seller's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of Buyer or Agency in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, Buyer may, by written notice to Seller, terminate this Contract. Buyer may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which Buyer bases such findings shall be an issue and may reviewed in proceedings under the dispute resolution provisions of this Contract.

b. In the event this Contract is terminated as provided in paragraph 19.04.A, Buyer may pursue the same remedies against Seller as it could pursue in the event of a breach of this Contract by Seller. As a penalty, in addition to any other damages to which it may be entitled by law, Buyer may pursue exemplary damages in an amount (as determined by Buyer) which shall not be less than three nor more than ten times the costs Seller incurs in providing any such gratuities to any such officer or employee.

5. Audit and Access to Records

a. Buyer, Agency, the Comptroller General of the United States, or any of their duly authorized representatives shall have access to any books, documents, papers, and records of the Engineer which are pertinent to the Agreement, for the purpose of making audits, examinations, excerpts, and transcriptions. Engineer shall maintain all required records for three years after final payment is made and all other pending matters are closed.

6. Small, Minority and Women's Businesses

a. Contracting with small and minority businesses, women's business enterprises, and labor surplus area firms. If Seller intends to let any subcontracts for a portion of the work, Seller must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used whenever possible. Affirmative steps must include:

1) Placing qualified small and minority businesses and women's enterprises on solicitation lists;

2) Assuring that small and minority businesses; and women's business enterprises are solicited whenever they are potential sources;

3) Dividing total requirements when economically feasible, into small tasks or quantities to permit maximum participation by small, minority, and women's businesses;

4) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and

5) Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

6) Requiring each party to a subcontract to take the affirmative steps of this section.

7) Seller is encouraged to procure goods and services from labor surplus area firms.

b. The Federal regulation for the Affirmative Action Steps will be provided. Compliance documentation is not required during bidding but should be kept on file for possible audit by the Buyer, USDA, the Comptroller General of the United States or any of their duly authorized representatives.

7. Anti-Kickback

a. Seller shall comply with the Copeland Anti-Kickback Act (40 U.S.C. 3145) as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans and Grants from the United States"). The Act provides that Seller or subcontractor must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. Buyer shall report all suspected or reported violations to Agency.

8. Clean Air Act and the Federal Water Pollution Control Act

a. Seller to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q and 42 U.S.C. 1857(h)) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Executive Order 11738 and Environmental Protection Agency regulations (40 CFR part 15) is required. Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

9. State Energy Policy

a. Seller shall comply with the Energy Policy and Conservation Act (P.L. 94-163). Mandatory standards and policies relating to energy efficiency, contained in any applicable State Energy Conservation Plan, shall be utilized.

10. Equal Employment Opportunity

a. Seller shall comply with Executive Order 11246, "Equal Employment Opportunity," as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and as supplemented by regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, and Department of Labor."

b. The Contract is considered a federally assisted construction contract. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 CFR 12319, 12935, 3 CFR Part 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR Part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

c. Compliance documentation is not required during bidding but should be kept on file. The Seller and project information will be provided to the U.S. Department of Labor (DOL) after the contract is signed. The DOL will make the decision if they want to review the Seller's compliance documents. A DOL Construction Contractor Technical Assistance Guide is being provided for your use.

11. Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)

    a. Sellers that apply or bid for an award exceeding $100,000 must file the required certification (RD Instruction 1940-Q, Exhibit A-1). The Seller certifies to the Owner and every subcontractor certifies to the Seller that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining the Contract if it is covered by 31 U.S.C. 1352. The Seller and every subcontractor must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the Buyer. Necessary certification and disclosure forms shall be provided by Buyer.

12. Environmental Requirements

    a. When constructing a project involving trenching and/or other related earth excavations, Seller shall comply with the following environmental conditions:

        1) Wetlands - When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert wetlands.

        2) Floodplains - When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert 100-year floodplain areas (Standard Flood Hazard Area) delineated on the latest Federal Emergency Management Agency Floodplain Maps, or other appropriate maps, e.g., alluvial soils on NRCS Soil Survey maps.

        3) Historic Preservation - Any excavation by Contractor that uncovers an historical or archaeological artifact or human remains shall be immediately reported to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further direction issued by Agency after consultation with the State Historic Preservation Officer (SHPO).

        4) Endangered Species - Contractor shall comply with the Endangered Species Act, which provides for protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of Contractor, Contractor will immediately report this evidence to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the U.S. Fish and Wildlife Service.

5) Mitigation Measures – Implement mitigation measures required by governmental approvals pertaining to the delivery of Goods and Services.

13. Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708)

    a. Where applicable, for contracts awarded by the Buyer in excess of $100,000 that involve the employment of mechanics or laborers, the Seller must comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, the Seller must compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

14. Debarment and Suspension (Executive Orders 12549 and 12689)

    a. A contract award (see 2 CFR 180.220) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR Part 1986 Comp., p. 189) and 12689 (3 CFR Part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared in eligible under statutory or regulatory authority other than Executive Order 12549.

15. Procurement of Recovered Materials

    a. The Seller must comply with 2 CFR Part 200.322, "Procurement of recovered materials.

Guidance Notes—Referring to or Including Specific Laws and Regulations

The types of Laws and Regulations that may need to be expressly included or referenced in the Supplementary Conditions include (but are not limited to):

- Labor Standards Provisions
- Minimum Wage Rates
- Buy American and similar statutes
- Statutory Declarations

7.07 *Indemnification*

SC-7.07.B Add the following language at the end of the second sentence of Paragraph 7.07.B:

C. Notwithstanding the foregoing, to the extent Seller's work is subject to Civil Code Section 2782.8, the above indemnity shall be limited, to the extent required by Civil Code Section 2782.8, to claims that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Seller.

ARTICLE 8—SHIPPING AND DELIVERY

8.02 *Delivery*

SC-8.02.C Delete Paragraph 8.02.C in its entirety and insert the following in its place:

C. Seller shall be responsible and bear all costs for unloading Goods from carrier.

ARTICLE 9—BUYER'S RIGHTS

9.04 *Correction Period*

SC-9.04.D Add the following language at the end of the of Paragraph 9.04.C:

D. Seller's provision of Good and Services is subjected to an extended warranty for the Membrane elements and process tanks. The Seller's obligations related to the Membrane element and process tank warranties shall extend beyond the Correction Period.

ARTICLE 10—CHANGES

SC-11.11 Add the following new paragraph immediately after Paragraph 11.10:

10.11 All Contract Change Orders must be concurred with in writing on the required change order form by USDA Rural Development and approved by the Agency before they are effective.

ARTICLE 11—CLAIMS, DISPUTES, AND DISPUTE RESOLUTION

SC-12.01. Add the following new paragraphs immediately after paragraph 12.01.K:

L. If this is a "Public Works Contract" as defined in Section 22200 of the California Public Contract Code, claims shall be resolved pursuant to Section 9204 of the California Public Contract Code. Key provisions of that section are summarized as follows:

1. "Claim" means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

a. A time extension, including, without limitation, for relief from damages or penalties for delay assessed by a public entity under a contract for a public works project.

b. Payment by the public entity of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled.

c. Payment of an amount that is disputed by the public entity.

2. Upon receipt of a claim pursuant to this section, Buyer shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide Seller a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, Buyer and Seller may, by mutual agreement, extend the time period provided in this subdivision.

3. Seller shall furnish reasonable documentation to support the claim.

4. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after Buyer issues its written statement.

5. If Seller disputes Buyer's written response, or if Buyer fails to respond to a claim, Seller may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, Buyer shall schedule a meet and confer conference within 30 days for settlement of the dispute.

6. Within 10 business days following the conclusion of the meet and confer conference , if the claim or any portion of the claim remains in dispute, Buyer shall provide Seller a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after Owner issues its written statement, Any undisputed portion of the claim, as identified by the Seller in writing, shall be submitted to nonbinding mediation with the public entity and Seller sharing the associated costs equally. If the mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

7. Failure by Buyer to respond to a claim from Seller within the time periods described herein or to otherwise meet the time requirements of this section shall result in the claim being rejected in its entirety. A claim that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

8. Amounts not paid in a timely manner as required by this section shall bear interest at the maximum legal rate.

M. Venue: In the event that either party brings any action against the other under this Agreement, the parties agree that trial of such action shall be vested exclusively in the state courts of California in the County of San Luis Obispo or in the United States District Court for Central California Western Division.

N. Choice of Law: This Agreement shall be governed by and construed in accordance with the domestic Laws of the State of California as if this Agreement were fully performed and all obligations recited herein were undertaken solely within the State of California without giving effect to any choice or conflict of Law provision or rule (whether of the State of California or any other jurisdiction) that would cause the application of the Laws of any jurisdiction other than the State of California.

ARTICLE 12—PAYMENT

12.02 *Applications for Progress Payments*

SC-13.01.C Amend the first sentence of Paragraph 13.01.C by striking out the following text:

"a bill of sale, invoice, or other."

SC-13.01.E. Add the following new paragraph after Paragraph 13.01.D

The Application for Payment Form to be used on this Project is EJCDC No. C-620. The Agency must approve all Applications for Payment before payment is made.

12.03 *Review of Applications for Progress Payments*

SC-13.02.B Add the following language at the end of paragraph13.02.A.6.d:

B. No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage, or invest the retainage for the benefit of the Seller. Funding for this project is provided pursuant to the Consolidated Farm and Rural Development Act (7 U.S.C. Section 1921 et seq.) and this contract does not allow for substitution of securities (as described in Public Code Section 22300) in lieu of retention.

C. The Application for Payment with Engineer's recommendation will be presented to the Buyer and Agency for consideration, If both the Buyer and Agency find the Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraph 15.01.E will become due thirty (30) days after the Application for Payment is presented to the Buyer, and the Buyer will make payment to the Seller.

SC-13.04.F Delete Paragraph 13.04.F in its entirety and insert the following in its place:

F. Thirty-five days after the filing of a Notice of Completion with the County Recorder and after presentation to Buyer of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Buyer to Seller.

SC-13.06.A Delete Paragraph 13.06.A in its entirety

ARTICLE 13—CANCELLATION, SUSPENSION, AND TERMINATION

No suggested Supplementary Conditions in this Article.

ARTICLE 14—MISCELLANEOUS

No suggested Supplementary Conditions in this Article.

SECTION 00451 CERTIFICATION OF BIDDER'S EXPERIENCE AND QUALIFICATIONS

This certification and the responses herein shall assist the Buyer in determining the lowest responsive responsible bidder. The undersigned Bidder represents that it is competent, knowledgeable and has the special skills on the nature, extent and inherent conditions of the work to be performed on this project. Bidder further acknowledges that these inherent conditions existent in the delivery of Goods and Services for these particular facilities may create, during fabrication, delivery and installation, unusual or unsafe conditions hazardous to persons and property. Bidder expressly acknowledges that it is aware of such risks and that it has the skill and experience to foresee and to adopt protective measures to perform the delivery of Goods and Services adequately and safely with respect to such hazards. Bidder must submit this certification to the Owner within three (3) business days after receipt of the bids.

None of the requirements herein are to determine pre-qualification to bid on the Project but are part of the Owner's evaluation of bids received.

A. ESSENTIAL REQUIREMENTS FOR QUALIFICATION

If the answer to any of questions 1 through 3 is "no", or if the answer to any of questions 4 through 7 is "yes", the Bidder shall provide an explanation of its answer, including the reasons why its answer shall not result in it being disqualified from being awarded the Contract.

1. Bidder will comply with and provide all insurance as defined in Section 00700 Standard General Conditions and Section 00800 Supplementary Conditions.

☐Yes ☐No

2. Bidder has current Workers' Compensation insurance policy as required by the Labor Code or is legally self-insured pursuant to Labor Code section 3700 et. seq.

☐Yes ☐No

3. Bidder has ten (10) years’ experience in manufacturing, supply, startup, commissioning of MBR Equipment Packages

☐Yes ☐No

4. Has your contractor's license been revoked at any time in the last five (5) years?

☐Yes ☐No

5. Has a surety firm completed a contract on your behalf, or paid for completion because your firm was default terminated by the project owner within the last five (5) years?

☐Yes ☐No

6. At the time of submitting this qualification form, is your firm ineligible to bid on or be awarded a public works contract, or perform as a subcontractor on a public works contract, pursuant to either Labor Code section 1777.1 or Labor Code section 1777.7?

☐ Yes ☐ No

7. At any time during the last five (5) years, has your firm, or any of its owners or officers been convicted of a crime involving the awarding of a contract of a government construction project, or the bidding or performance of a government contract?

☐ Yes ☐ No

B. COMPANY EXPERIENCE-To be submitted three (3) business days after receipt of the bids.

1. The Bidder has been engaged in the contracting business, under the present business name for__years arid has experience in work of a nature similar to this project which extends over a period of_____years (Bidder must show at least ten (10) years of related experience).

   The Bidder, as a Contractor, has never failed to satisfactorily complete a contract awarded to him, except as follows:

   _____
   _____
   _____

2. For the Owner to consider the Bidder properly experienced in work of similar nature to this project, the Bidder must list at least five (5) currently operating North American based MBR Equipment Package systems meeting all of the following requirements:
   a) Installed systems designed for and currently treating municipal wastewater;

b) Operating with the same membrane type and membrane materials as is what is being proposed for this project; and

c) Bidder's scope of supply for those installations included manufacturing, supply, start up and commissioning.

Seller shall complete an attached Reference Form for each of the five (5) systems.

If the Bidder fails to have the required experience as set forth in sections B.1, B.2, the Bidder shall provide an explanation as to why its Bid should not be rejected.

If the Bidder is a Joint Venture of two or more companies, each participant in the Joint Venture shall meet this prior project experience requirement proportional to their participation in the Joint Venture and shall provide project information for each Joint Venture participant.

Bidder shall complete the Seller Reference form attached to Specification Section 43 32 56 Membrane Bioreactor Equipment for each of the five projects required by this section.

The undersigned hereby states that all representations regarding the Bidder's Company Experience, Project Experience and Information on the Seller's Reference Form are correct and true.

Signed this _____ day of _____, 20__

_____
Bidder's Name

_____ _____
Authorized Signature Date

_____
Title of Signatory

Seller Reference Form No. 1

Customer Name	
Facility	
Street Address	
City, State, Zip Code	
Date of Services	
Contact Person	
Telephone and Email	
Contract Amount	
Membrane Bioreactor System Model and Large Membrane Subunit Supplied	
Brief Description of Scope of Supply	
Current Operational Status	
Design BOD, TSS and Nitrogen Limits	

Seller Reference Form No. 2

Customer Name	
Facility	
Street Address	
City, State, Zip Code	
Date of Services	
Contact Person	
Telephone and Email	
Contract Amount	
Membrane Bioreactor System Model and Large Membrane Subunit Supplied	
Brief Description of Scope of Supply	
Current Operational Status	
Design BOD, TSS and Nitrogen Limits	

Seller Reference Form No. 3

Customer Name	
Facility	
Street Address	
City, State, Zip Code	
Date of Services	
Contact Person	
Telephone and Email	
Contract Amount	
Membrane Bioreactor System Model and Large Membrane Subunit Supplied	
Brief Description of Scope of Supply	
Current Operational Status	
Design BOD, TSS and Nitrogen Limits	

Seller Reference Form No. 4

Customer Name	
Facility	
Street Address	
City, State, Zip Code	
Date of Services	
Contact Person	
Telephone and Email	
Contract Amount	
Membrane Bioreactor System Model and Large Membrane Subunit Supplied	
Brief Description of Scope of Supply	
Current Operational Status	
Design BOD, TSS and Nitrogen Limits	

Seller Reference Form No. 5

Customer Name	
Facility	
Street Address	
City, State, Zip Code	
Date of Services	
Contact Person	
Telephone and Email	
Contract Amount	
Membrane Bioreactor System Model and Large Membrane Subunit Supplied	
Brief Description of Scope of Supply	
Current Operational Status	
Design BOD, TSS and Nitrogen Limits	

END OF SECTION

SECTION 01 10 00
SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Contract Description,
   2. Work by Buyer or Others at the Site,
   3. Seller's Use of the Site,
   4. Work Sequence,
   5. Permits,
   6. Specification Conventions.

1.02 CONTRACT DESCRIPTION

A. The scope elements listed for this Project are for general background information and are intended as a summary and not to be construed as all-encompassing or indicative of the total scope of the Project. Refer to all parts of the Contract Documents for a complete description of the Project. The Goods and Services shall be complete, and all equipment, materials, and services not expressly indicated in the Contract Documents, which may be necessary for the complete and proper construction of the Goods and Services in good faith shall be provided by the Seller.

B. The Seller shall be responsible for all deliveries to the site, furnishing all transportation, traffic control, and services, including fuel, essential communications, temporary facilities and providing all Goods and Services, or other operations required to provide the Goods and Services, in accordance with the Contract Documents.

C. The Goods and Services of this Contract include the design, delivery, installation, testing and commissioning of a complete Membrane Bioreactor (MBR) Equipment Package which generally includes but is not limited to the following:
   1. Preparation of signed and sealed MBR Equipment Package design including controls.
   2. Preparation of and submittal to the Buyer and Engineer detailed MBR Equipment Package design submittals.
   3. Coordination with the Buyer and Engineer on the MBR Equipment Package electrical design including furnishing MBR Equipment Package power requirements and conduit locations.
   4. Coordination with the Buyer and Engineer on the MBR Equipment Package structural slab and anchorage requirements.
   5. MBR Equipment Package anchorage design.
   6. Fabrication of an MBR Equipment Package including all control systems, conveyance systems, mechanical and structural components.
   7. Factory Performance testing of the MBR Equipment Package.
   8. Inspection of the site and work of others for compatibility with Seller's requirements.
   9. Delivery of the MBR Equipment Package to the site.
   10. Installation of the MBR Equipment Package at the site.
   11. MBR Equipment Package Control System design, programming, and customization.
   12. Coordination with the Buyer to start and stop flows to the MBR Equipment Package for testing purposes.
   13. Testing and Commissioning of the MBR Equipment Package.
   14. Operator Training.
   15. Final Cleaning.
   16. Demobilization.
   17. All other efforts required to provide a complete and functional MBR Equipment Package to function with Buyer provided influent piping, WAS piping, and permeate piping.

1.03 WORK BY BUYER OR OTHERS AT THE SITE

A. Buyer anticipates awarding multiple contracts for work at the Project Site. This Contract is for the design delivery and start-up of the MBR Equipment Package. A separate contract is

anticipated for the other work at the site to include: piping connections to the MBR Equipment Package for the influent, WAS, and permeate streams, anchorage of the MBR Equipment Package, electrical conduit and wiring for the MBR Equipment Package, structural anchorage installation, and other wastewater systems such as Headworks, Equalization, Dewatering and Disinfection.

B. Concurrent with this work is the construction of the WRRF. Seller shall coordinate during startup and testing of the WRRF to provide wastewater flows and return flows to the related processes. Seller shall provide reasonable access, schedule around, and coordinate the Goods and Services with the work performed by others at the site when applicable.

1.04 **SELLER'S USE OF THE SITE**

A. Buyer's Site Responsibilities:
   1. Provide onsite project representation.
   2. Arrange site access for equipment and material deliveries.
   3. Provide temporary non potable water and electrical power in vicinity of the Project Site.
   4. Provide a Buyer's WRRF Contractor to provide mechanical and electrical connections.

B. Seller's Access to the Site:
   1. Seller shall coordinate with the Buyer, Engineer, and Buyer's WRRF Contractor to arrange access to the Project Site.
   2. Seller shall comply with Buyer's WRRF Contractor's health and safety programs while onsite.
   3. Construction Operations shall be limited to areas of the MBR Equipment Package.
   4. Noisy and Disruptive Operations (such as jack hammers or other noisy equipment) is allowed only during normal working hours.
   5. Work on the site is restricted to Normal Working hours defined as Monday through Friday 7:00 am to 3:30 pm exclusive of State and Federal Holidays. Work onsite is limited to between 8 am to 5 pm Saturday and Sunday. Cost incurred by Buyer, as a result of Seller's efforts outside of normal working hours, will be charged back to the Seller.
   6. Utility Outages and Shutdowns:
      a. Coordinate and schedule electrical and other utility outages with Engineer, Buyer's WRRF Contractor, and District Operators.
      b. Outages: Allowed only at previously agreed upon times. In general, schedule outages at times when facility is not being used and during Regular Working Hours unless otherwise approved by Buyer.
      c. At least one week before scheduled outage, submit Outage Request Plan to Buyer/Engineer itemizing the dates, times, and duration of each requested outage.

1.05 **WORK SEQUENCE**

A. The anticipated sequence of work for this Project is as follows:
   1. Buyer to enter into a contract with the Seller.
   2. Seller to work with the Buyer and the Engineer to design a MBR Equipment Package that meets all the requirements of these Contract Documents.
   3. Concurrent with the Seller's design of the MBR Equipment Package, the Engineer will progress the WRRF design.
   4. The Buyer will bid out the complete WRRF design package and select the WRRF Contractor.
   5. The Buyer may assign this Contract to the WRRF Contractor.
   6. The Seller will fabricate the MBR Equipment Package.
   7. The Seller will coordinate delivery of the MBR Equipment Package with the WRRF Contractor.
   8. The Seller will deliver and install the MBR Equipment Package at the Project Site.
   9. The Seller will return to assist the Buyer, Engineer, and WRRF Contractor in the Startup of the MBR Equipment Package once all WRRF components are complete and ready for testing.
   10. Upon Substantial Completion of the WRRF, the Goods and Services are completed and the Warranty period begins.

1.06 **PERMITS**

A. Buyer will furnish the following permits related to the Goods and Services:
   1. Air Pollution Control District Authority to Construct.
   2. County of San Luis Obispo Building Permits as required.

B. Seller to furnish all remaining permits required for the performance of their duties. E.g., oversized load transportation permits.

C. Seller to assist Buyer in obtaining any necessary Buyer provided permits. Buyer will assist Seller in obtaining necessary Seller Provided permits.

D. Seller agrees to be bound by the terms and conditions of the Buyer provided permits.

1.07 **SPECIFICATIONS CONVENTIONS**

A. The Specifications shall use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
   1. Abbreviated Language: Language used in the Specifications is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural and plural words shall be interpreted as singular where applicable as the context of the Specifications indicates.
   2. These Specifications are written in imperative mood and streamlined form. This imperative language is directed to Seller unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

B. If common items are included in multiple Specification sections, language is to be included in the Specifications that the same manufacturer is to be used for these common products.

PART 2 PRODUCTS

2.01 SELLER PROVIDED PRODUCTS / SYSTEMS / EQUIPMENT / MATERIALS

A. See Technical Specifications for requirements of Seller provided materials.

PART 3 EXECUTION

3.01 INSTALLERS

A. Seller to install the MBR Equipment Package at the project site. The use of a subcontractor or others to perform the work is allowed but does not relieve Seller of their singular installation responsibility.

3.02 EXAMINATION

A. Verification of Conditions: Seller may visit the site before, during, and after the design and during construction to verify the conditions that will impact their work on the Project Site.

3.03 INSTALLATION / APPLICATION

A. Seller will install the MBR Equipment Package.

3.04 FIELD QUALITY CONTROL

A. Seller will provide field quality control of the MBR Equipment Package as specified in these Contract Documents.

3.05 STARTUP AND COMMISSIONING

A. Seller will provide field technicians to assist in the Startup and Commissioning of the MBR Equipment Package as specified in these Contract Documents.

3.06 CLEANING

A. Seller shall provide a final cleaning of the MBR Equipment Package upon completion of the work onsite.

3.07 CLOSEOUT ACTIVITIES

A. Seller will participate in the Demonstration and other site tests as described in these Contract Documents.

B. Training: Seller will provide training on the operation of the MBR Equipment Package to the District Operations staff as defined by these Contract Documents.

END OF SECTION

SECTION 01 29 00
MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Parameters, methods, and guidelines necessary for accurate measurement, evaluation, and payment processes.
   2. Framework for measuring critical performance indicators, establishing payment terms, and ensuring compliance during the procurement, installation, and start-up of the MBR Equipment Package.

1.02 SUBMITTALS

A. Submittals required under this section include:
   1. Schedule of Values
   2. Schedule of Estimated Progress Payments
   3. Application for Payment
   4. Final Application for Payment.

1.03 SCHEDULE OF VALUES

A. Prepare a Schedule of Values including at a minimum the payment milestones shown in Section 1.04 below. Submit in both hard copy and electronically in either Microsoft Word, Excel, or Adobe pdf format.

B. Upon request of Engineer, provide documentation to support the accuracy of the Schedule of Values.

C. Lump Sum Goods and Services:
   1. Reflect Schedule of Values format included in conformed Bid Form, specified allowances, alternates, and equipment selected by Buyer, as applicable.
   2. List bonds and insurance premiums, mobilization, demobilization, installation, facility startup, and contract closeout separately.
   3. Include within each item, directly proportional amount of overhead and profit.

D. An unbalanced or front-end loaded Schedule of Values will not be acceptable.

E. Summation of the complete Schedule of Values representing all the Goods and Services shall equal the Contract Price.

F. Revise Schedule of Values to list approved Change Orders with each Application for Payment.

1.04 PAYMENT

A. Payments: Progress payments shall be made in the manner specified herein and in accordance with the requirements of Section 13.01 of the General and Supplementary Conditions of the Agreement.
   1. Payment Schedule: The Buyer will pay for the equipment based on the following schedule:

Milestone Completion	Percent of Seller's Lump Sum Proposal Amount to be Paid by Buyer	Milestone Completion Deadline (date or days past Notice to Proceed)
Receipt of Approval of Shop Drawings and Samples	10% maximum	120
Completion of acceptable factory testing	5%	January 30, 2025
Delivery of Goods to Point of Destination and installation in accordance with the Procurement Contract Documents	70%	April 15, 2025
Completion of Special Services in accordance with Procurement Contract Documents	10%	December 2025
Final Payment: Correction of non-conformities, provision of final Operations and Maintenance manuals, submittal of warranties and other final documentation required by the Procurement Contract Documents	5%	1000

B. Payment for all the Goods and Services shown or specified in Contract Documents is included in the Contract Price. No measurement or payment will be made for individual items, unless otherwise specified in the Payment Application table. Payment for Lump Sum Goods and Services covers all work specified in the Specifications sections.

1.05 **APPLICATION FOR PAYMENT**

A. Transmittal Summary Form: Attach a summary form with each Application for Payment.

B. Include a Schedule of Values for each portion of Goods and Services, a list of Buyer-selected equipment, if applicable, and allowances, as appropriate.

C. Beginning with the second Application for Payment, each Application shall include an affidavit of the Seller stating that all previous progress payments received on account of the Goods and Services have been applied on account to discharge Seller's legitimate obligations associated with prior Applications for Payment.

D. Preparation:
   1. Round values to the nearest dollar.
   2. List any Change Order executed prior to date of submission as separate line item.
   3. Submit the Application for Payment and Transmittal Summary Form for each portion of the Goods and Services as well as any necessary supporting documentation as requested by Engineer.
   4. Submit each Application for Payment on form EJCDC C-620- Contractor's Application for Payment or approved equivalent.
   5. Submit payment requests at the completion of milestones described in Section 1.04 above.

1.06 **MEASUREMENT**

A. All pay quantities of materials are determined by the lump sum amounts proposed and the Payment Schedule Table in Section 1.04.

B. Payment Includes: Full compensation for required labor, products, tools, equipment, facilities, transportation, services, and incidentals; erection, application, or installation of item of the Goods and Services; overhead and profit.

C. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Goods and Services.

1.07 **NONPAYMENT FOR REJECTED OR UNUSED PRODUCTS**

A. Payment will not be made for the following:
   1. Loading, hauling, and disposing of rejected material.
   2. Quantities of material wasted or disposed of in manner not called for under Contract Documents.
   3. Material not unloaded from transporting vehicle.
   4. Defective work not accepted by Buyer.
   5. Nonconforming work may not be paid for or be paid with Set-offs.
   6. Material remaining on hand after completion of Goods and Services.
   7. Set-offs recommended by the Engineer and as defined in Section 13.02 of the General and Supplementary Conditions.

1.08 **PARTIAL PAYMENT FOR STORED MATERIALS AND EQUIPMENT**

A. Partial Payment: No partial payment will be made for materials and equipment delivered or stored unless Shop Drawings or preliminary operation and maintenance manuals are acceptable to Engineer.

B. Final Payment: Will be made only for products incorporated in Good and Services; remaining products, for which partial payments have been made, shall revert to Seller unless otherwise agreed, and partial payments made for those items will be deducted from final payment.

1.09 **FINAL PAYMENT**

A. Release of Liability: Acceptance by the Seller of the final payment shall be a release to the Buyer and every officer and agent thereof from all claims and liability hereunder for anything furnished in connection with the Goods and Services, or for any act or neglect of the Buyer or any person relating to or affecting the Good and Services.

B. Final Payment will follow the process outlined in Section 13.05 of the General and Supplementary Conditions.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Administrative requirements of the Seller for their Goods and Special Services, including:
      a. Project coordination
      b. Meetings,
      c. Schedule progress reporting,
      d. designated design submittal preparation,
      e. submittals, shop drawings, other submittal requirements,
      f. alteration procedures of equipment onsite.

1.02 DEFINITIONS

A. Action Submittal: Written and graphic information submitted by Seller that requires Engineer's approval.

B. Informational Submittal: Written and graphic information submitted by Seller that does not require Engineer's approval. Submittals may be rejected for not complying with requirements.

C. Designated Design Submittal – A submittal where the design of an element or component of the Goods and Services is being designed by a licensed professional employed by the Seller. The licensed professional and not the Engineer is responsible for the development and performance of that design. The Engineer's review is limited to compliance with the requirements of the Contract Documents.

1.03 PROJECT COORDINATION

A. Onsite Coordination:
   1. The Seller will be required to coordinate with the WRRF Contractor for the Project.
   2. Seller and WRRF Contractor will coordinate the activities at the Point of Destination related to the Goods furnished under this Contract.
   3. Fully coordinate activities with WRRF Contractor and other Contractors performing work onsite. Promptly bring to Buyer's attention any conflict or coordination problem.

B. Coordination Meetings: In addition to other meetings specified in the following Section, provide appropriate personnel to attend and participate in coordination meetings with Buyer, WRRF Contractor, Engineer, and Subcontractors to ensure coordination of Goods and Services on a periodic basis.

C. Coordinate completion and clean-up of the Goods and Services in preparation for Substantial Completion and for portions of Goods and Services designated for Buyer's occupancy.

D. After Buyer's occupancy of premises, coordinate access to Site for correction of defective Goods and Services and Goods and Services not complying with Contract Documents, to minimize disruption of Buyer's activities.

1.04 ROUTINE PROJECT MEETINGS

A. Preconstruction Meeting
   1. Engineer, Buyer, Resident Project Representative, and Agency will schedule and preside over meeting after award of the Contract between Buyer and Seller.
   2. Attendance Required: Engineer, Buyer, Resident Project Representative, appropriate governmental agency representatives, major Subcontractors, and Seller.
   3. Minimum Agenda:
      a. Execution of Buyer-Seller Agreement.
      b. Submission of executed bonds and insurance certificates.
      c. Distribution of Contract Documents.
      d. Submission of list of Subcontractors, list of products, schedule of values, and Performance Schedule.

e. Designation of personnel representing parties in Contract, Buyer, and Engineer.
f. Communication procedures.
g. Procedures and processing of requests for interpretations, field decisions, field orders, submittals, substitutions, Applications for Payments, proposal request, Change Orders, and Contract closeout procedures.
h. Scheduling.
i. Critical Work sequencing.
j. Scheduling activities of special inspections, inspections by government agencies, or others.
k. County reporting and permit requirements
l. Monthly reporting requirements, review of milestone payment process

4. Engineer will record minutes and distribute copies to participants within two business days after meeting, with digital copies each to Seller, Buyer, and those affected by decisions made.

B. Site Mobilization Meeting
1. Engineer, and Buyer will schedule a meeting at Project Site prior to Seller mobilization. Engineer presides over meeting.
2. Attendance Required: Engineer, Seller, Buyer, WRRF Contractor's site superintendent, appropriate governmental agency representatives.
3. Minimum Agenda:

a. Use of premises by Buyer and Seller.
b. Buyer's requirements.
c. Construction facilities and controls.
d. Site access and safety requirements
e. Temporary utilities.
f. Survey and building layout.
g. Security and housekeeping procedures.
h. Schedules.
i. Procedures for testing.
j. Procedures for maintaining record documents.
k. Requirements for startup of equipment.
l. Governmental Agency inspection and reporting requirements.
m. Inspection and acceptance of equipment put into service during construction period.

4. Engineer: Record minutes and distribute copies to participants within two business days after meeting, with digital copies each to Seller, WRRF Contractor, Buyer, and those affected by decisions made.

C. Environmental Mitigation Monitoring And Reporting Training And Meetings
1. Seller’s work force may require preconstruction training on the Mitigation Monitoring and Reporting program. Seller should anticipate one 2-hour training for each person working on the Project Site.

D. Start Up Planning Meetings
1. See required Start Up and Commissioning requirements in 01 75 16.

E. Closeout Meeting
1. Schedule Project closeout meeting with sufficient time to prepare for requesting Substantial Completion. Preside over meeting and be responsible for minutes.
2. Attendance Required: Seller, WRRF Contractor, Engineer, Buyer, Agency and others appropriate to agenda.
3. Notify Engineer seven days in advance of meeting date.
4. Minimum Agenda:

a. Start-up of MBR Equipment Package.
b. Operations and maintenance manuals.
c. Testing, adjusting, and balancing.
d. System demonstration and observation.
e. Operation and maintenance instructions for Buyer's personnel.

f. Seller's final inspection and acceptance of Goods and Services.
g. Seller's preparation of an initial "punch list."
h. Procedure to request Engineer, Buyer and Agency inspection to determine date of Substantial Completion.
i. Completion time for correcting deficiencies.
j. Inspections by authorities having jurisdiction.
k. Closure of construction related permits.
l. Certificate of Occupancy and transfer of maintenance and insurance responsibilities.
m. Partial release of retainage.
n. Final cleaning.
o. Preparation for final inspection.
p. Closeout Submittals:

1) Project record documents.
2) Operating and maintenance documents.
3) Operating and maintenance materials.
4) Affidavits.

q. Final Application for Payment.
r. Seller's demobilization of Site.
s. Maintenance.

5. Record minutes and distribute copies to participants within two days after meeting, with digital copies each to Engineer, Buyer, and those affected by decisions made.

F. Other Meetings
1. Seller may be required to attend other meetings as requested by the Buyer and Engineer to assure the regular progress of the work and to resolve issues.

1.05 CONTRACT PROGRESS REPORTING

A. Progress Schedule:
1. Seller to provide a Bar Chart Schedule demonstrating Seller's plan for fulfilling Contract requirements.
2. Information shall be comprehensive and shall represent all activities, including submittals and procurement necessary to complete Contract.
3. Typical minimum detail on the schedule shall include, but not be limited to, the following:
a. Delivery date(s) of Shop Drawings and Sample submittals.
b. Delivery date(s) of Operation and Maintenance Data.
c. Date Seller places purchase orders with major subcontractors and suppliers.
d. Date of starting assembly of specified Goods.
e. Date of finishing assembly of specified Goods.
f. Date of testing at plant.
g. Date of shipment from Seller.
h. Date of arrival at Point of Destination.
4. Assist Buyer in determining the most current schedule information on the Contract items, including whether Seller is on schedule or delayed. These requirements apply fully to telephone inquiries, personal visits, letters, or other communication.
5. Schedule Reporting:
a. Submit Notice of Schedule Impact at any time that a Progress Schedule activity is delayed by 5 or more days.
b. Complete and submit Schedule updates to Buyer and Engineer.
c. Transmit updated schedule either via, e-mail, or other electronic transmission.
d. Provide updated schedule with Milestone payment applications.

1.06 DESIGNATED DESIGN SUBMITTALS

A. The Seller shall provide signed and stamped MBR Equipment Package design information by a registered California Professional Engineer and participate in design workshops in accordance with the Seller's Services specified in Section 43 32 56 – Membrane Bioreactor Equipment and Section 01 43 34 – Special Services.

B. The Seller is solely responsible for the design and performance of the completed MBR Equipment Package design and as such Design Calculations and drawings are Designated Design Submittals.

C. Seller is solely responsible for the selection and incorporation of the equipment furnished under Specification Section 46 05 10 – Mechanical Equipment and as such Design Calculations and shop drawings of this equipment are Designated Design Submittals.

1.07 SUBMITTALS REQUIRED

A. The Seller shall prepare the following Shop Drawings:
   1. Delegated Design Submittal of the engineered process design.
   2. Final arrangement drawings and specifications of all items and equipment showing all dimensions required for installation, weights, forces, pipe supports and locations, and construction details and materials required to demonstrate compliance with these Specifications.
   3. Refer to Specification Section 46 05 10 – Mechanical Equipment for anchorage and power and control wiring diagram submittal requirements.
   4. For Piping Systems, provide:
      a. Detailed pipe fabrication and spool drawings showing special couplings, fittings and bends, dimensions, coatings, and other pertinent information. Layout drawing showing location of each pipe section and each special length; number or otherwise designate laying sequence on each piece.
      b. Pipe wall thickness and rational method or standard applied to determine wall thickness for each size of each different service.
      c. Details of hydraulic thrust restraint.
      d. Sizing calculations for open-close/throttle and modulating valves.
      e. Certified welding inspection and test results.
      f. Qualifications of welders and weld inspectors.
      g. Qualified welding procedures.
      h. Nondestructive inspection and testing procedures.
   5. For all connections between equipment provided by the Seller and equipment or works provided by others, provide:
      a. Layout and details of complete attachment assemblies including connection hardware, braces, and anchor bolts. Anchor bolts will be provided by others.
      b. Recommended size and location of anchor bolts, supplied by others, based on 4,000 psi concrete.
   6. Indicate the paint and coating system for each equipment item. Provide data sheets for each paint system with PSDS, manufacturer's technical data.
   7. Provide the following Electrical Drawings and Information:
      a. Motor data as required by Section 26 05 00 – Electrical.
      b. Panel elementary diagrams of prewired panels including control devices and auxiliary devices.
      c. Wiring and control diagrams of membrane systems and equipment, including all motors and local control panels.
      d. Complete catalog information, descriptive literature, specifications, and identification of materials of construction including boxes, device plates, junction and pull boxes, wiring devices, circuit breakers and switches, motor-rated switches, control devices, terminal block, and relays, contactors, transformers, support and framing channels, nameplates and nameplate schedule, conduit, fittings, and accessories, wireways, conductors, cable, and accessories, and grouting materials. Submit these items per the requirements of Section 26 05 01, Electrical Work, General.
   8. Provide the following Instrumentation and Control Drawings and Information:
      a. Final P&IDs consistent with legend requirements.
      b. Detailed PLC system block diagram including network communications architecture, control panel layouts, Control panel power distribution diagram, loop diagrams, Instrument installation details, configuration data, I/O lists, and I/O point addresses. Include a detailed bill of materials for all PLC hardware. Provide this information in an electronic format (CD-ROM) along with hard copies. Where

sample drawings are included in the Bidding documents, submitted drawings shall have the same format.

9. Include complete I/O lists with addresses and field terminal numbers.
10. Instrumentation and control description detailing treatment system startup, shutdown procedures, operation, control, and monitoring, including interface requirements as specified herein.
11. Submit manufacturer's printed installation instructions and information including mounting requirements, access, approximate weight of each major piece of equipment, and required conduit size and routing.
12. Estimated delivery time for various materials and equipment items.

B. The following Information Submittals:
1. Provide required membrane system handling procedures including, but not limited to, protection of equipment prior to and during installation, removal of membrane preservatives, and extended out-of-service storage and handling.
2. Seller's delivery and handling space and access requirements.
3. Manufacturer's Certificates of Proper Installation.
4. Test plans per Section 43 32 56, Membrane Bioreactor Equipment.
5. Factory test reports and field test reports for all process equipment for which testing is required.
6. Test logs for piping systems.
7. Field test reports for electrical equipment.
8. Data summary for testing and startup.
9. Preliminary and final Operations and Maintenance Manuals for all equipment provided per Section 43 32 56, Membrane Bioreactor Equipment and 46 05 10 – Mechanical Equipment.
10. Include with the O&M manual for the MBR Equipment Package a document (up to five pages) summarizing all the requirements that must be followed to maintain the full warranty of the membranes and the system.
11. Executed warranties.

C. Applications Software Documentation:
1. General: Seller shall provide applications software for all PLC components provided as part of the system. Seller shall provide applications software for the operator interface.
2. Delivery:
   a. Provide a preliminary version of application software including programmer's comments at completion of Factory Witness Testing before shipment of control equipment.
   b. Provide final version at completion of performance acceptance testing, after final changes to application software are completed.
3. Complete configuration documentation for microprocessor-based configurable devices.
4. For each device, include a program configuration listing showing:
   a. Function blocks or modules used.
   b. Configuration, calibration, and tuning parameters.
   c. Descriptive annotations.
5. Programmable Controller Submittals:
   a. Complete set of user manuals.
   b. PLC program description.
   c. Fully documented application program files, associating internal device addressing with program tags and symbols.
   d. Function listing for function blocks not fully documented by application program listings.
   e. Cross-reference listing and interface register assignments.
   f. PLC input/output listings.
   g. Downloadable PLC application software program, identical to program installed in the device at time of delivery.
      1) Compiled and pre-compiled (source code) versions in native format downloadable to the device.

2) Include documentation internal to the program in the compiled and pre-compiled (source code) versions.

h. Format:
1) Electronic files of PLC submittals on PC-compatible CD-ROM disk.
2) Hard copy version in three-ring binders. Provide three copies.

6. Communication Computer Submittals:
a. Complete set of user manuals for hardware, standard software, and applications software.
b. System installation and software setup details, including all parameters settings and attribute assignments.
c. Copies of all operator interface screens.
d. Database listings showing all configuration information, including I/O addressing.
e. With Final Version of Submittal Package (Only): Standard software authorization codes. (Microsoft Windows certificates of authenticity.)

1.08 PROCEDURES FOR SUBMITTALS

A. Direct submittals to Seller, unless otherwise directed, in indexed and searchable Adobe PDF format via email to the Engineer's designee. Provide hard copy paper documents of all approved submittals and other documents if requested by the Engineer.

B. Transmittal of Submittal:
1. Review each submittal and check for compliance with Contract Documents.
2. Stamp each submittal with uniform approval stamp before submitting; stamp to include Project name, submittal number, Specification number, Seller's reviewer name, date of Seller's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with Contract Documents. Engineer will not review submittals that do not bear Seller's certification, and will return them without action.
3. Complete, sign, and transmit with each submittal package, one Engineer -accepted Transmittal of Seller's Submittal form.
4. Identify each submittal with the following:
a. Numbering and Tracking System:
1) Sequentially number each submittal.
2) Resubmission of submittal shall have original number with sequential alphabetic suffix.
b. Specification section and paragraph to which submittal applies.
c. Project title and Engineer's project number.
d. Date of transmittal.
e. Names of Seller, Subcontractor or Supplier, and manufacturer as appropriate.
5. Identify and describe each deviation or variation from Contract Documents.

C. Format:
1. Seller shall provide original Shop Drawings that clearly and thoroughly show kind, size, arrangement, and function of all components, materials, and devices.
2. Shop Drawings shall be in compliance with the Contract Documents.

D. Timeliness of Submittal: Schedule and submit in accordance with the Seller's Progress Schedule, and requirements of individual Specification sections.

E. Processing Time:
1. Time for review shall commence on Engineer's receipt of submittal.
2. Engineer will act upon Seller's submittal and transmit response to Seller not later than 21 business days after receipt, unless otherwise specified.
3. Resubmittals will be subject to same review time.
4. No adjustment of Contract Times or Price will be allowed due to delays in providing Goods or Special Services caused by rejection and subsequent resubmittals.

F. Resubmittals: Clearly identify each correction or change made. The Engineer has accounted for a maximum of two reviews for each submittal and reserves the right to recover the cost for review of any additional submittals. The Seller will be informed of the cost for additional submittal review and the cost will be recovered from the subsequent progress payment.

G. Incomplete Submittals:
   1. Engineer will return entire submittal for Seller's revision if preliminary review deems it incomplete.
   2. When any of the following are missing, submittal will be deemed incomplete:
      a. Seller's certification as required by the General Conditions.
      b. Transmittal of Seller's Submittal, completed and signed.

H. Submittals not required by Contract Documents:
   1. Will not be reviewed and will be returned stamped "Not Subject to Review."

I. Action Submittals:
   1. Prepare and submit as required by individual Specification sections and this Specification section.
   2. Shop Drawings:
      a. Identify and Indicate:
         1) Applicable Contract Documents and Detail number, products, units and assemblies, and system or equipment identification or tag numbers.
         2) Goods and Component Title: Identical to title shown on Drawings.
         3) Critical filed dimensions and relationships to other critical features. Note dimensions established by field measurement.
         4) Project-specific information drawn accurately to scale.
      b. Manufacturer's standard schematic drawings and diagrams as follows:
         1) Modify to delete information that is not applicable.
         2) Supplement standard information to provide information specifically applicable.
      c. Product Data: Provide as specified in individual Specifications.
      d. Foreign Manufacturers: When proposed, include following additional information:
         1) Names and addresses of at least two companies that maintain technical service representatives close to the Project.
         2) Complete list of spare parts and accessories for each piece of equipment.

J. Action Submittal Dispositions:
   1. Engineer will review, mark, and stamp as appropriate, and distribute marked-up copies as noted:
      a. Accepted - No Exceptions Taken:
         1) Seller may provide Goods or Special Services covered by submittal.
         2) The acceptance of the submittal is subject to compatibility with future submissions and additional partial submissions for portion of the Goods and Services not covered in this submission.
      b. Accepted - Make Corrections Noted:
         1) Seller may provide Goods or Special Services covered by submittal, after making the minor corrections in accordance with Engineer's notations.
      c. Revise and Resubmit:
         1) Seller may not provide Goods or Special Services covered by submittal.
         2) Submittal does not include pertinent information to verify the material conforms to the Contract Documents.
      d. Rejected - Resubmit:
         1) Submitted material does not conform to the Drawings and Specifications, rejected because of major inconsistencies or errors which must be resolved by the Seller prior to resubmission, or resubmittal is required to ensure corrections are made.
      e. Submittal Not Reviewed:
         1) Applies to submittals which are required but not reviewed.
      f. Accepted as Informational Submittal:
         1) Acceptance of submittals that do not require submission in the Contract Documents.
   2. All responses will be sent electronically.

K. Informational Submittals:
   1. Refer to individual Specification sections for specific submittal requirements.
   2. Engineer will review each submittal. If submittal meets conditions of the Contract, Engineer will forward submittal to appropriate parties. If Engineer determines submittal does not meet conditions of the Contract and is therefore considered unacceptable, Engineer will return with review comments to Seller, and require that submittal be corrected and resubmitted.
   3. Engineers reserves the right to review and comment on an informational submittal at its discretion. Informational submittals so reviewed shall become Action Submittals.

L. Samples
   1. Seller shall furnish physical samples in duplicate. Upon completion of their review the Engineer shall return one physical copy to the Seller.

1.09 OPERATION AND MAINTENANCE (O&M) DATA

A. Operations and Maintenance Manuals: Comply with Section 017823 Operations and Maintenance Data.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 ALTERATION PROCEDURES

1. During start up and following Substantial Completion, the Project Site will be occupied for normal operations during progress of construction. Cooperate with Buyer in scheduling operations to minimize conflict and to permit continuous usage.

    a. Goods and Services not to interfere with operations of occupied areas.

    b. Keep utility and service outages to a minimum and perform only after written approval of Buyer.

    c. Clean Buyer-occupied areas daily. Clean spillage, overspray, and heavy collection of dust in Buyer-occupied areas immediately.

2. Materials: As specified in product Sections; match existing products with new products for patching and extending work.

3. Employ skilled and experienced installer to perform alteration and renovation work.

4. Cut, move, or remove items as necessary for access to alterations and renovation work. Replace and restore at completion. Comply with Section 01 70 00 - Execution and Closeout Requirements.

5. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Goods and Services.

6. Remove debris and abandoned items from area and from concealed spaces.

7. Prepare surface and remove surface finishes to permit installation of new work and finishes.

8. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.

9. Remove, cut, and patch work to minimize damage and to permit restoring products and finishes to original or specified condition.

10. Refinish existing visible surfaces to remain to specified condition for each material, with neat transition to adjacent finishes.

11. Where new work abuts or aligns with existing work, provide smooth and even transition. Patch work to match existing adjacent work in texture and appearance.

12. When finished surfaces are cut so that smooth transition with new work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Engineer for review.

13. Where change of plane of ¼ inch or more occurs, submit recommendation for providing smooth transition to Engineer for review.

14. Patch or replace portions of existing surfaces that are damaged, lifted, discolored, or showing other imperfections.

15. Finish surfaces as specified in individual product Sections.

END OF SECTION

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Quality control.
   2. Tolerances.
   3. References.
   4. Labeling.
   5. Testing and inspection services.
   6. Seller's field services.

1.02 QUALITY CONTROL

A. Monitor quality control over suppliers, manufacturers, products, services, and workmanship, to produce Goods of specified quality.

B. Comply with specified standards as the minimum quality for the Goods and Services except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

C. Perform Goods and Services using persons qualified to produce required and specified quality.

D. Products, materials, and equipment may be subject to inspection by Engineer and Buyer at place of manufacture or fabrication. Such inspections, or lack thereof, shall not relieve Seller of complying with requirements of Contract Documents.

E. Supervise performance of Goods and Services in such manner and by such means to ensure that Goods and Services, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction, installation and startup.

1.03 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Goods and Services. Do not permit tolerances to accumulate.

B. Comply with manufacturers' recommended tolerances and tolerance requirements in reference standards. When such tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

1.04 REFERNCES

A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current as of date of Buyer-Seller Agreement except where specific date is established by code.

C. Obtain copies of standards and maintain on Site when required by product Specification Sections.

D. When requirements of indicated reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.

E. Neither contractual relationships, duties, or responsibilities of parties in the Agreement nor those of Engineer shall be altered from Contract Documents by mention or inference in reference documents.

1.05 LABELING

A. Attach label from agency approved by authorities having jurisdiction for products, assemblies, and systems required to be labeled by applicable code or Manufacturing association standard.

B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label:

a. Model number.
b. Serial number.
c. Performance characteristics.

C. Manufacturer's Nameplates, Trademarks, Logos, and Other Identifying Marks on Products: Not allowed on surfaces exposed to view in public areas, interior or exterior.

1.06 **TESTING AND INSPECTION**

A. Buyer will employ and pay for the services of an independent firm to perform testing and inspection of materials incorporated into the work. Seller will include the costs of providing safe access, coordinating the services of the independent testing firm, and any time impacts associated with testing, and rework into its Lump Sum price for the Goods and Services.

B. Independent firm will perform tests, inspections, and other services specified in individual Specification Sections and as required by Engineer or Buyer.

C. Seller shall employ and pay for the services of an independent testing firm to perform all specified services and testing identified in the individual Specification Sections as being provided by Seller.

D. Testing, inspections, and source quality control may occur on or off Project Site including the Seller's place of business.

E. Reports shall be submitted by independent firm to Buyer, Engineer, and authorities having jurisdiction, in triplicate, indicating observations and results of tests and compliance or noncompliance with Contract Documents.

1. Submit final report indicating correction of Goods and Services previously reported as noncompliant.

F. Cooperate with independent firm; furnish samples of materials, equipment, tools, storage, safe access, and assistance by incidental labor as requested.

2. Notify Engineer and independent firm **48** hours before expected time for operations requiring services.
3. Make arrangements with independent firm and pay for additional Samples and tests required for Seller's use, or for retesting as a result of a failed test.

G. Employment of testing agency or laboratory shall not relieve Seller of obligation to perform Goods and Services according to requirements of Contract Documents.

H. Retesting or re-inspection required because of nonconformance with specified or indicated requirements shall be performed by same independent firm on instructions from Buyer or Engineer. Payment for retesting or re-inspection will be charged to Seller by deducting testing charges from Contract Sum/Price.

I. Independent firm shall promptly notify Engineer, Buyer, and Seller of observed irregularities or nonconformance of Goods and Services.

J. Limits on Testing Firm Authority:

1. Testing Firm or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Testing Firm or laboratory may not approve or accept any portion of the Goods and Services.
3. Testing Firm or laboratory may not assume duties of Seller.
4. Testing Firm or laboratory has no authority to stop the Goods and Services unless necessary to protect the health and safety of persons onsite.

1.07 **SELER'S FIELD SERVICES**

1. When specified in individual Specification Sections, Seller to provide qualified staff personnel to observe Site conditions, conditions of surfaces and installation, quality of workmanship, assist in the startup of equipment, testing, adjusting, and balancing of

equipment, commissioning and Buyer training as applicable, and to initiate instructions when necessary.

2. Submit qualifications of Seller's Field Representative to Engineer **30** days in advance of required observations.
3. Report observations and Site decisions or instructions given to applicators or installers that are supplemental or contrary to Seller's written instructions.

PART 2 PRODUCTS

2.01 PRODUCT TESTING

1. Buyer furnished testing is intended to verify the quality of the finished work and compliance with the Contract Documents. Seller shall pay for any testing required to verify quality of products for submittal and submittal approval purposes.
2. Buyer shall not be liable for standard testing performed by Seller or the Seller's suppliers in verifying the quality of their products and compliance with the Contract Documents.

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 43 34
SPECIAL SERVICES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Definitions
   2. Summary of Special Services
   3. Certification of Installation
   4. Start Up and Commissioning Assistance
   5. Demonstration and Testing

1.02 DEFINITIONS

A. System Testing: Tests necessary to demonstrate that installed Goods function as specified and operate in the manner intended.

B. Performance Testing: Tests necessary to demonstrate, after successful System testing, that Goods meet specified performance requirements.

C. Commissioning: Procedure to bring process into working condition ensuring facility, systems, subsystems, and equipment are installed correctly and fully functional.

1.03 SUMMARY OF SPECIAL SERVICES

A. The following Special Services shall be provided by the Seller during the design period:
   1. Design assistance to the Engineer.
   2. Provide required design information deliverables and participate in workshops and meetings as described in the Contract Documents.
   3. Review of Construction Drawings prepared by Engineer for coordination with the MBR Equipment Package design regarding structural connections, mechanical and electrical compatibility.
   4. Provide electrical and HVAC loads for electrically driven equipment.

B. The following Special Services shall be provided by the Seller, in addition to the requirements listed in Section 01 30 00 – Administrative Requirements, under this Contract:
   1. Factory inspection and Factory testing.
   2. Delivery of Equipment.
   3. Installation of Goods and Services
   4. Preparation of Certificate of Installation.
   5. Inspection.
   6. Coordinate with Plant Control System supplier for interface requirements between the MBR Equipment Package Control System and the Plant Control System software development.
   7. PLC software, Startup, and Testing for Control Software for the MBR Equipment Package.
   8. Services during Startup and Commissioning:
      a. Meeting attendance
      b. Functional Testing of Individual Equipment.
      c. System testing
      d. Performance Testing.
      e. Startup Assistance to WRRF Contractor.
      f. Pre-startup and post-startup Training.
      g. Commissioning Services.
      h. Post Commissioning Services.

C. All Special Services shall be performed by a qualified, factory trained representative of the manufacturer.

1. If Buyer or Engineer determine that the representative does not have the proper qualifications or experience, a replacement representative shall be provided with documentation of qualifications.

1.04 MANUFACTURER'S CERITIFICATE OF PROPER INSTALLATION

A. A Manufacturer's or Seller's Certificate of Proper Installation form to be provided by the Engineer shall be completed and signed by the Seller's representative signifying that the signing party is an authorized representative of the Seller and is entitled to inspect, approve, and operate their Goods and make recommendations required to ensure the Goods are complete and operational.

1.05 STARTUP AND COMMISSIONING ASSISTANCE

A. Functional Testing: Provide a representative to perform functional testing and any required adjustments of installed Goods.

B. Performance Testing: Provide a representative to complete performance testing and correct any malfunctions of installed Goods.
   1. If any of the Goods must be performance tested after Startup, such testing shall not be performed until system has been accepted.

C. Startup Assistance: Provide representative to assist WRRF Contractor with startup of installed Goods.
   1. Seller's representative shall attend the pre-startup meetings.
   2. Provide all necessary labor, materials, tools, and services for checking, testing, and startup.
   3. Develop a standard record of testing, approved by Engineer. The record shall include:
      a. Name of Goods.
      b. Dates of completion for checking, inspection, verification, and completion of subsystem tests.
      c. Notes section for descriptions of any remaining problems with Goods.
      d. Signature of Engineer, indicating acceptance.

D. Commissioning Period
   1. Assign personnel to assist the Operations staff during the commissioning period.

1.06 DEMONSTRATION AND TESTING

A. Seller's representative shall instruct Buyer's personnel in troubleshooting, proper operation and maintenance procedures for the installed Goods prior to placing those Goods into service.

B. Training and demonstration to be provided by either a qualified representative of the Seller or by a qualified Equipment Manufacturer's representative. Trainer shall be knowledgeable about the Goods and Services being provided and the equipment on which they are training.

C. Training shall include a mixture of classroom and field style training making sure that the Operators being trained understand the principles and practices necessary to safely operate and maintain the Goods and Services provided by the Seller. Seller should use multimedia, physical demonstrations, diagrams and other visual aids to engagingly and effectively communicate.

D. Submit a Training Program outline to the Buyer for approval prior to any training. The Training Program shall include the following information and instruction as a minimum:
   1. Purpose of the equipment.
   2. Principles of the equipment or system.
   3. Operation of and need for each piece of equipment in the system.
   4. Equipment monitoring and controls.
   5. Startup and shutdown of the equipment.
   6. Emergency operation procedures.
   7. Equipment routine maintenance and preventative maintenance.
   8. Operational troubleshooting.

E. Pre-startup Training: Shall be completed at least 14 days prior to actual startup.
   1. Operation and Maintenance Data shall be reviewed and accepted before this training and should serve as the primary basis for instruction.

F. Post-Startup Training: Utilize qualified manufacturer's services and Seller's personnel for post-startup training of Buyer's operating personnel.

G. Recording of Training Sessions:
   1. Provide professional quality video recordings with audio of the pre-startup and post-startup training sessions. Include menu navigation and submit training materials as an Informational Submittal.

1.07 POST COMISSIONING SERVICE AND MAINTENANCE AGREEMENT

A. The Owner anticipates entering into a Maintenance Agreement with the Seller. The cost of the first year of the Maintenance Agreement shall be included in the bid price. The Buyer reserves the right to extend the Maintenance Agreement an additional 2 years at the same annual price provided in the bid form. Buyer and Seller may agree to negotiate additional changes to the Maintenance Agreement following the first year.

B. Buyer requests that the Seller provide their standard Maintenance Agreement and may consider enhanced maintenance efforts by the Seller at additional cost. At a minimum the Seller shall provide a Maintenance Agreement that will anticipate the following activities:
   1. Onsite technician support during initial clean in place/enhanced chemical cleaning process- estimate 24 hours onsite over at least two different trips.
   2. Assistance in the removal and inspection of Large Membrane Subunits.
   3. Monitoring of key operational parameters, continuous online monitoring preferred if available.
   4. Review of Operating data and operation recommendations to the Buyer during one-hour monthly calls.
   5. 24/7 on call access to Seller's field support staff for troubleshooting.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 61 00
WIND AND SEISMIC DESIGN CRITERIA

PART 1 GENERAL

1.01 SUMMARY

A. Seller is responsible for the design and stability of their provided MBR Equipment Package in response to gravity, wind, and seismic induced loading including:
   1. Anchorage and bracing for mechanical equipment.
   2. Anchorage and bracing for electrical equipment.
   3. Anchorage and bracing for piping and conduits.
   4. Design of tanks and tank anchorage

B. Section Includes:
   1. References
   2. Performance Requirements
   3. Submittals
   4. Quality Assurance

1.02 REFERENCES

A. 2022 California Building Code.

B. American Concrete Institute (ACI) 355.2-19 Qualification of Post-Installed Mechanical Anchors in Concrete & Commentary Reference Standards.

C. American Society of Civil Engineers (ASCE) 7-16 Minimum design Loads for Buildings and Other Structures.

D. American Concrete Institute (ACI) 318-19.

E. Site Specific Requirements found in the Soils Engineering Report prepared by Geo Solutions.

1.03 PERFORMANCE REQUIREMENTS

A. Comply with seismic-restraint requirements in the CBC unless requirements in this Section are more stringent.

B. Seismic Design Parameters

Site Class	C “Very Dense Soil and Soft Rock”
Seismic Importance Factor – Non-Structural Components	1.5
Seismic Importance Factor - Buildings	1.25
Structure Risk Category	III
One Second Period Spectral Response Acceleration, SD1	0.393g
Short Period Spectral Response Acceleration, SDS	0.865g
Site Specific MCE Peak Ground Acceleration, PGAM	0.555g

C. Wind Speed Parameters
   1. Wind Speed, 98 Vmph
   2. 10-year MRI 64 Vmph
   3. 25-year MRI 70 Vmph
   4. 50-year MRI 74 Vmph
   5. 100-year MRI 79 Vmph
   6. Risk Category, III
   7. Exposure Category, C

D. Component attachments shall be bolted, welded, or otherwise positively fastened without consideration of frictional resistance produced by the effects of gravity.

E. Anchors in concrete shall be designed in accordance with Chapter 17 of ACI 318.

F. Post-installed anchors in concrete shall be prequalified for seismic applications in accordance with ACI 355.2 or other approved qualification procedures.

1.04 **SUBMITTALS**

A. Shop drawings and calculations: Submit shop drawings and complete calculations as a Delegated Design Submittal.
   1. Design Analysis: To support selection and arrangement of seismic and wind restraints. Include calculations of combined tensile and shear loads.
   2. Details: Indicate fabrication and arrangement. Detail attachments of restraints to the restrained items and to the structure. Show attachment locations, methods, and spacings. Identify components, list their strengths, and indicate directions and values of forces transmitted to the structure during seismic events. Indicate association with vibration isolation devices.
   3. Coordinate seismic-restraint and vibration isolation details with wind-restraint details required for equipment mounted outdoors. Comply with requirements in other Sections for equipment mounted outdoors.
   4. Calculations shall be signed and stamped by a Civil or Structural Engineer licensed to practice in the State of California. All calculations shall be provided in English units.

B. Provide Arrangement Drawings for tank anchor installation by others as an Informational Submittal.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Closeout procedures.
   2. Project record documents.
   3. Spare parts and maintenance products.
   4. Product warranties and product bonds.
   5. Maintenance service.
   6. Examination.
   7. Preparation.
   8. Installation.
   9. Execution.
   10. Cutting and patching.
   11. Protecting installed construction.
   12. Final cleaning.

1.02 PROJECT RECORD DOCUMENTS

A. Maintain for the Goods and Services one complete set of the following records documents related to the furnishing Seller's Goods and Services;
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Agreement.
   5. Reviewed Shop Drawings, product data, and Samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.
   7. Provide as-built documentation for O&M and Technical Manuals that have been approved.

B. Record actual revisions to the Goods and Services provided.

C. Ensure entries are complete and accurate, enabling future reference by Buyer.

D. Store record documents separate from documents used for construction.

E. Record information concurrent with construction progress, not less than weekly. Capture horizontal and vertical location of buried or concealed work.

F. Specifications: Legibly mark and record, at each product Section, description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates used.
   3. Changes made by Addenda and modifications.

G. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction as follows:
   1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in the Goods and Services, and change orders.
   2. Include locations of concealed elements of the work.
   3. Measured depths of foundations in relation to finish floor datum.
   4. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   5. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Goods and Services.
   6. Field changes of dimension and detail.
   7. Details not on original Drawings.

H. Submit marked-up paper copy documents to Engineer before Substantial Completion.

I. Seller may prepare as-built documents using mark up or editing software such as Bluebeam Revu or other similar Adobe pdf editing software. Electronic submittal of as-built

documentation in Adobe pdf format will be acceptable in lieu of paper copy documents required by this section.

1.03 **SPARE PARTS AND MAINTENANCE PRODUCTS**

A. Furnish spare parts, maintenance, and extra products in quantities specified in individual Specification Sections.

B. Deliver to Project Site to Operations staff; obtain receipt of Goods for maintenance and spare parts prior to final payment.

1.04 **PRODUCT WARRANTIES AND PRODUCT BONDS**

A. Warranty period for all materials and equipment shall begin to run upon award of Substantial Completion unless Buyer has taken beneficial occupancy and Buyer and Engineer have approved otherwise in writing.

B. Obtain warranties and bonds executed in duplicate by responsible Subcontractors, suppliers, and manufacturers within ten days after completion of applicable item of the Goods and Services.

C. Execute and assemble transferable warranty documents and bonds from Subcontractors, suppliers, and manufacturers.

D. Verify documents are in proper form, contain full information, and are notarized.

E. Co-execute submittals when required.

F. Include copies in Operation and Maintenance Manuals as described in Section 01 78 23 Operation and Maintenance Data.

G. Approved warranty submittals are a prerequisite to final Application for Payment.

H. Time of Submittals:
   1. For equipment or component parts of equipment put into service during construction with Buyer's written permission, submit documents within ten days after acceptance.
   2. Make other warranty submittals within ten days after date of Substantial Completion, prior to final Application for Payment.
   3. For items of the Goods and Services for which acceptance is delayed beyond Substantial Completion, submit within ten days after acceptance, listing date of acceptance as beginning of warranty or bond period.

1.05 **MAINTENANCE SERVICE**

A. Furnish service and maintenance of components indicated in Specification Sections during warranty period.

B. Examine system components at frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by manufacturer of original component.

D. Do not assign or transfer maintenance service to agent or Subcontractor without prior written consent of Buyer.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 **EXAMINATION**

A. Prior to delivery of Goods and Services to the project site conduct an inspection to verify that existing Site conditions and substrate surfaces are acceptable. Delivery of Goods and Services means acceptance of existing site conditions.

B. Verify that existing substrate is capable of structural support or attachment of new Goods being applied or attached.

C. Verify that utility services are available with correct characteristics and in correct locations.

D. Verify that provisions for structural and mechanical connections are as specified and required for attachment of Seller's Goods.

3.02 **PREPARATION**

A. Inform Buyer, WRRF Contractor, and Engineer of any nonconforming site or utility Goods and Services. Describe and document in writing any additional preparation efforts required for delivery of the Goods and Services.

B. Coordinate timing of delivery and installation of Goods and Services with the WRRF Contractor

3.03 **INSTALLATION / APPLICATION**

A. Upon Delivery of the Goods to the Project Site, offload furnished Goods and begin the work of installation.

B. WRRF Contractor is responsible for electrical connections to electrically driven equipment and installing and terminating electrical power.

C. WRRF Contractor is responsible for connecting to the Seller's Influent, Waste Activated Sludge, Chemical, and Treated Water piping connections.

D. Systems Integrations – Seller will cooperate with the Control Systems Integrator for the project to share tags and data and to facilitate complete and open access to the Seller's PLC.

E. Seller is responsible for the delivery and installation of the Goods provided under this Agreement.

F. Seller is responsible to provide the Special Services and all other services described for a complete and function MBR Equipment Package.

3.04 **EXECUTION**

A. Comply with Seller and equipment manufacturer's installation instructions, performing each step in sequence. Maintain one set of installation instructions at Project Site during installation and until completion of construction. Provide a Manufacturer's certificate of installation for equipment components over $20,000 in value.

B. When manufacturer's installation instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

C. Verify that field measurements are as indicated on approved Shop Drawings.

D. Furnish anchor designs for process tank anchor installation by the WRRF Contractor.

E. Install tanks and packaged equipment to the lines and grades shown on the Buyer approved Shop Drawings.

F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
   1. Secure Goods true to line and level and within specified tolerances, or if not specified, industry-recognized tolerances.
   2. Physically separate products in place, provide electrical insulation, or provide protective coatings to prevent galvanic action or corrosion between dissimilar metals.
   3. Exposed Joints: Provide uniform joint width and arrange to obtain best visual effect. Refer questionable visual-effect choices to Engineer for final decision.

G. Allow for expansion of materials and building movement.

H. Climatic Conditions and Project Status: Install each unit of Goods under conditions to ensure best possible results in coordination with entire Project.
   1. Isolate each unit of Goods from incompatible Goods as necessary to prevent deterioration.
   2. Coordinate enclosure of Goods with required inspections and tests to minimize necessity of uncovering Goods for those purposes.

I. Mounting Heights: Where not indicated, mount individual units of Goods at industry recognized standard mounting heights for particular application indicated.
   1. Refer questionable mounting heights choices to Engineer for final decision.
   2. Elements Identified as Accessible to Handicapped: Comply with applicable codes and regulations.

J. Adjust operating products and equipment to ensure smooth and unhindered operation.

K. Clean and perform maintenance on installed work as frequently as necessary through remainder of construction period. Lubricate operable components, replace filters and lubricants, etc. as recommended by manufacturer.

3.05 **CUTTING AND PATCHING**

A. Avoid cutting or patching Goods to the extent possible.

B. If cutting and patching become necessary, employ skilled and experienced installers to perform cutting and patching.

C. Submit written request in advance of cutting or altering elements affecting:
   1. Structural integrity of element.
   2. Integrity of weather-exposed or moisture-resistant elements.
   3. Efficiency, maintenance, or safety of element.
   4. Visual qualities of sight-exposed elements.
   5. Work of Buyer or WRRF Contractor.

D. Subject to the review and approval of the Engineer, execute cutting, fitting, and patching to complete Goods and to:
   1. Fit the several parts together, to integrate with other work.
   2. Uncover Goods to install or correct ill-timed Goods.
   3. Remove and replace defective and nonconforming Goods.
   4. Remove samples of installed Goods for testing.
   5. Provide openings in elements of work for penetrations of mechanical and electrical work where field conflicts exist.

E. Execute Goods and Services by methods to avoid damage to other work and to provide proper surfaces to receive patching and finishing.

F. Cut masonry and concrete materials using masonry saw or core drill.

G. Restore Goods with new products according to requirements of Contract Documents.

H. Fit Goods tight to pipes, sleeves, ducts, conduits, and other penetrations through surfaces.

I. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

J. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.

K. Identify hazardous substances or conditions exposed during the work to Engineer for decision or remedy.

3.06 **PROTECTING INSTALLED CONSTRUCTION**

A. Protect installed Goods and provide special protection where required.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage to the Seller's Goods.

3.07 **FINAL CLEANING**

A. Special care must be taken prior to the installation, start up and testing of the Membrane Elements. Prior to Membrane Element installation upstream, new construction shall be cleaned adequately to protect Membrane Elements from intrusion of construction debris. Seller shall be responsible to replace Membrane Elements damaged during plant commissioning.

B. Execute final cleaning prior to Substantial Completion.

C. Employ experienced personnel or professional cleaning firm.

D. Clean equipment and fixtures to sanitary condition with appropriate cleaning materials.

E. Replace filters and lubricants of operating equipment.

F. Remove waste and surplus materials, rubbish, and construction facilities from Site.

G. Final result shall be all Goods are in clean like new and serviceable condition.

H. Prior to Final Completion clean and touch up or repair and finished surface, structure, equipment, fixture, or installation that has been damaged by WRRF Contractor's or Sellers startup operations to the satisfaction of the Buyer and Engineer.

END OF SECTION

SECTION 01 75 16
STARTUP PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Description
   1. The Start-Up of a MBR Equipment Package is a complex operation requiring the close coordination of the Seller, the WRRF Contractor, Manufacturer's Representatives, Subcontractors, Control System Integrator, Instrumentation Supplier, Buyer, Operational Staff, and Engineer. Seller shall furnish all labor, equipment, materials, power, water, and temporary facilities necessary to perform start-up, field testing, and acceptance of the MBR Equipment Package.
   2. Buyer, Engineer, WRRF Contractor, and Operational Staff will be available for technical assistance to the Seller however, Seller shall be responsible for furnishing the required services of its Subcontractors and suppliers and for bringing MBR Equipment Package into successful operation.
   3. Seller to furnish appropriate staff from the Seller's organization and not a third party vendor to lead and oversee the efforts of this Specification Section.
   4. Seller, Subcontractors, and Manufacturer's Representatives shall work collaboratively with WRRF Contractor, Buyer, and Engineer in their development of the plans and documents required by this section.
   5. Seller shall coordinate the requirements of this section with the WRRF Contractor's development of its CPM schedule. At Seller's option, the Seller may provide additional detail for the startup and testing schedule items for use in planning this element of the Goods and Services during the preparation of the Start Up plan identified below.
   6. Seller to participate in the WRRF Startup process as described in this section and will serve as a technical resource to the Buyer, Engineer, WRRF Contractor, and other to facilitate the System Test of the MBR Equipment Package and the Performance test of the WRRF.

B. Section Includes:
   1. Submittals.
   2. Prerequisites
   3. Meetings
   4. Factory Testing
   5. Checking, Adjusting, Testing, and Start-up.
   6. System Testing
   7. Performance Test
   8. Commissioning Period

1.02 SUBMITTALS

A. All submittals shall be in accordance with Section 01 30 00 – Administrative Requirements.

B. A minimum of 90 days prior to scheduled Factory Testing, Seller to prepare a detailed Start-Up plan. At a minimum, the plan shall include: a detailed schedule outlining the timing of Buyer training, submission of manuals, and the timing of all Start-Up related activities; a list of temporary facilities; test checklists and draft testing forms; and anticipated interface and shutdowns of existing facilities. This is an Action Submittal.

C. Equipment Installation Certificates: After delivery of MBR Equipment Package to the site and installation of the same Seller shall provide the Certificate of Installation described in Section 01 78 23 – Operations and Maintenance Manual. This is an Informational Submittal.

D. Additional Informational Submittals: Seller's Records of Startup and Acceptance and Performance Testing.

1.03 PREREQUISITES

A. Factory Acceptance Tests shall be completed, and non-conforming goods corrected, prior to Delivery of Goods to the site where System Testing will be performed.

B. Prior to the MBR Equipment Package System Test, Buyer and Operations staff shall be properly trained on the operation and maintenance of the MBR Equipment Package system components in accordance with the requirements of Section 01 70 00 Execution and Closeout Requirements.

C. Seller's Certificate of Installation shall be provided in advance of MBR Equipment Package System Testing.

D. MBR Equipment Package System Testing shall be completed prior to the overall Performance test. Seller will be responsible to Buyer and WRRF Contractor for delays to the overall Performance test schedule to the extent caused by the MBR Equipment Package component or System Test failures.

1.04 **MEETINGS**

A. Seller should anticipate having the appropriate staff, including as a minimum the Seller's project manager and site foreman, participate in the following meetings related to Startup
   1. Start Up Preparation Workshop- A 4-hour workshop with representatives of WRRF Contractor, Manufacturer's Representatives, Subcontractors, Control System Integrator, Instrumentation Supplier, Buyer, Operational Staff, and Engineer. Topics to include requirements of Start Up plans, Start Up documentation requirements, and Start Up schedules.
   2. Start Up Planning Meetings - Bimonthly for 1 year duration, the WRRF's Start Up Manager will conduct a 2 hour planning session with representatives of Seller, Manufacturer's Representatives, Subcontractors, Control System Integrator, Instrumentation Supplier, Buyer, Operational Staff, and Engineer as appropriate to develop the Start Up plan for each process System including the MBR Equipment Package. Topics include requirements of Start Up plan, Start Up documentation requirements, and Start Up schedule.
   3. System Testing Meeting – Seller to attend a meeting prior to the startup of the MBR Equipment Package, with representatives of WRRF Contractor, Manufacturer's Representatives, Subcontractors, Control System Integrator, Instrumentation Supplier, Buyer, Operational Staff, and Engineer as appropriate. Topics to include requirements of System in advance of testing, documentation requirements, and schedule.
   4. Performance Test Workshop - Seller to participate, in advance of the WRRF Performance testing, a 4 hour workshop with representatives of WRRF Contractor, Manufacturer's Representatives, Subcontractors, Control System Integrator, Instrumentation Supplier, Buyer, Operational Staff, and Engineer, as appropriate. Topics include requirements of Start Up and Acceptance Test, documentation requirements, and schedule.
   5. Other meetings as necessary to plan, coordinate, and troubleshoot the Testing requirements of this specification.

1.05 FACTORY TESTING

A. Seller to demonstrate to Buyer through an Engineer witnessed Factory test that the MBR Equipment Package has been completely assembled in the factory and is operational as intended. Factory testing shall be performed with clean water and is intended, at a minimum to:
   1. demonstrate the successful operation of the packaged MBR system at a range of flows including the Average Annual and the Max Week Flow rates.
   2. demonstrate that all tankage, pumps and piping are free from leakage
   3. demonstrate proper operation of equipment so that it is free from misalignment or excessive vibration during its operation
   4. demonstrate the proper operation and functionality of the HMI, Control panel, and PLC software over a range of flows and real and simulated alarm states
   5. demonstrate the hydraulic capacity of the packaged MBR
   6. demonstrate the operation of automatic control functions and instruments

B. Seller shall provide staffing, power, clean water for testing and all other items necessary for Factory testing at its own expense.

C. Produce documentation of the above and submit as an Action Submittal to the Buyer and Engineer.

D. Seller shall inspect the installed MBR Equipment Package for correct operation, proper connection, and satisfactory function of all components. The Factory Test shall be accepted by the Buyer and Engineer prior to shipping the MBR Equipment Package to the site.

E. A procedure shall be developed and proposed by the Seller, documented in the Startup plan reviewed and approved by the Engineer for the Factory Testing.

F. If Engineer determines the Factory Test to be nonconforming, Seller shall make the adjustments and modifications needed to correct the equipment at no additional cost to the Buyer and repeat the Factory Test if required by the Engineer prior to shipping the MBR Equipment Package to the site.

G. Buyer reserves the right to perform additional testing and inspections at the Seller's site during the production of the system and at any time until successful completion of the Factory testing.

H. Seller shall provide safe access to the Goods and Services and shall cooperate with and make provisions for Buyer's additional tests and inspections as part of its bid price.

1.06 CHECKING, ADJUSTING, TESTING AND STARTUP OF INDIVIDUAL EQUIPMENT

A. The WRRF Contractor shall provide fourteen days advance notice to the Seller, Engineer, and Buyer prior to start-up of any process related equipment.

B. Testing and Commission of the electrical work shall be completed prior to System Testing of process equipment.

C. In addition to testing requirements specified elsewhere, Seller is responsible for checking, adjusting, testing, and start-up of each MBR Equipment Package component after delivery and installation at the project site. This effort shall include, at a minimum:
   1. Verifying installation of safety equipment.
   2. Testing of Seller provided piping systems at appropriate test pressures.
   3. Opening and closing of valves to verify proper operation.
   4. Lubricating equipment in accordance with Manufacturer's recommendations
   5. Confirmation that motors freely turn by hand.
   6. Checking equipment for proper rotation.
   7. Visually inspecting field wiring installation of both control and electrical systems against approved shop drawings.
   8. Checking for abnormalities that may have occurred during shipping or installation of all equipment and components including loose wiring, physical damage, or insecure mounting of components.
   9. Energizing all panels

10. Simulate all controls and equipment start, stop, and shutdown, including checking discrete signals locally at the panel and by jumpering remote devices at the field end to simulate signals.
11. Testing all interlock and maintenance switches.
12. Checking analog signals by utilizing loop calibrator as required.
13. Calibrating all control instrumentation and monitoring equipment (flow, level, pressure, etc.).
14. Calibrating panel devices as required including timers and controllers.
15. Cycle motors in both automatic and manual modes of operation.
16. Checking out main control panel in conjunction with all associated equipment.
17. Testing and calibrating VFDs (as applicable).
18. Testing all components of the main control panel including control systems, and SCADA system.
19. Checking proper operation of equipment hatches.
20. Verifying that equipment is free from excessive noise or vibration.
21. Adjust equipment for clearance and torque.
22. Verify proper equipment anchorage and bracing.
23. Test the supply voltage while the normal plant loads are operating. If the voltage is not within normal limits (plus or minus one percent), notify the Buyer and Engineer.
24. Where required by the Buyer and Engineer or specifically specified, equipment manufacturer shall furnish the services of an authorized representative especially trained and experienced in the installation of his equipment to: (1) certify installation in accordance with the approved submittals and manufacturer's instructions; (2) be present when the equipment is first put into operation; (3) inspect, check, adjust as necessary, and approve the installation; (4) repeat the inspection, checking, and adjusting until all trouble or defects are corrected and the equipment installation and operation are acceptable; and (5) prepare and submit a Manufacturer's Installation Certification on a form to be provided by the Engineer.

D. Produce documentation of the above and submit to the Buyer and Engineer.

E. Seller shall inspect the installed MBR Equipment Package components for correct operation, proper connection, and satisfactory function of all components. All Seller and Manufacturer certifications for equipment and system components shall be accepted by the Buyer and Engineer prior to commencing System Testing specified herein.

F. A procedure shall be developed and proposed by the Seller, documented in the Startup plan reviewed and approved by the Engineer for the Checking, Adjusting and Startup of individual equipment.

G. If Engineer determines the equipment to be nonconforming, Seller shall make the adjustments and modifications needed to correct the equipment at no additional cost to the Buyer before starting System Testing.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 SYSTEM TESTING

A. After testing individual equipment components, test relevant valves, piping, utility, chemical feed and safety systems for the entire process area or functional system.

B. Test each process area or system with their appurtenant equipment and controls.

C. Demonstrate automatic and manual modes of operation, interlocks; control strategies and responses.

D. System test anticipates using clean water (provided by others) or other process media (Seller provided) as appropriate for testing purposes.

E. System Test minimum requirements:
   1. Test duration 7 days 24 hours without system or process failure. Upon system or process failure make repairs and adjustments and restart test from time zero.
   2. Seller to demonstrate during the System test:

a. Automatic START/STOP and flow control of membrane trains using the Facility Control System.
b. Manual flow control using membrane train HMI and PLC.
c. Automatic backwashing, back pulse, or relaxation at various time intervals.
d. Automatic shutoff and alarm for various failure modes for each membrane train and for entire MBR Equipment Package.
e. START and STOP of air system.
f. Determination of clean water turbidity and permeability of each membrane train and temperature correction of the clean water permeability for each train.
g. Monitoring and recovery of operating data.
h. Monitoring and control from remote workstation.
i. Automatic switchover from normal power to emergency power, and emergency power to normal power.
j. All control functions, both at local system and remote workstation.
k. Operation of systems for maintenance and recovery cleans.
l. Operation of all monitoring instruments.
m. Bubble point testing of the small membrane subunits.

3. Lubricate and maintain processes and equipment during test period.
4. Clean and replace filters and consumables as required or recommended by Manufacturer during and following clean water testing.
5. Provide services of Seller's and Manufacturer Representatives as required to meet test requirements and duration.

F. Produce documentation of the above and submit to the Buyer and Engineer.

G. A procedure shall be developed and proposed by the Seller documented in the Startup plan reviewed and approved by the Engineer for the System Testing. This shall be approved by Engineer before commencing the System Test. Seller is allowed in the Start Up plan to recommend additional requirements or modifications to these System Test requirements to fit the needs of their individualized system.

H. If Engineer determines the system to be nonconforming, Seller shall make the adjustments and modifications needed to correct the system at no additional cost to the Buyer before starting Performance Accepting Testing.

3.02 **PERFORMANCE TESTING**

A. After successful System Testing, the Seller shall work with the WRRF Contractor, Buyer, and Engineer to complete the Performance Acceptance Testing.

B. Performance Testing minimum requirements include:

1. Wastewater and mixed liquor shall be used for the entirety of the Performance Acceptance Testing.
2. Seller will be responsible for leading the testing of the MBR Equipment Package during the WRRF Performance test.
3. WRRF Contractor will be responsible for testing all other equipment not associated with the MBR Equipment Package as part of the overall facility testing.
4. The Buyer will be responsible for controlling SRT and establishing mixed liquor solids concentrations as specified. MBR Equipment Package and WRRF effluent intended to meet all discharge requirements during the duration of the testing.
5. Buyer will provide property certified operators onsite during normal working hours and on call at other times for duration of Performance Test period.
6. The testing shall have a duration of 60 calendar days during which the Seller shall provide assistance to the Buyer on a full-time basis.

C. Seller shall collect and summarize data to demonstrate that the MBR Equipment Package meets the Performance Acceptance Testing requirements listed below. To successfully pass the Performance Acceptance Test, the system must comply with these requirements for each calendar day of the 60-day test period.
    a. Production Capacity – MBR Equipment Package meets production capacity requirements.
    b. Pressure Limitations – MBR Equipment Package operates within the TMP limit specified by the Seller in the Bid Form.
    c. Membrane Permeate Quality – Membrane permeate meets the requirements listed in Specification Section 43 32 56 – Membrane Bioreactor Equipment.
    d. Maintenance Clean – Maintenance Clean operations are performed at or less than the frequencies specified by the Seller in the Bid Form.
    e. Recovery Clean – Perform recovery clean operation at the end of the 60-day test period on each membrane train. Using the TMP and temperature corrected permeability data from the 60-day operation, the recovery clean interval averaged over one year shall not exceed the maximum frequency specified by the Seller in their proposal.
    f. Energy Usage – Monitor average power consumption and maximum power demand throughout the test period. Equipment to be monitored for energy usage includes air scour blowers, permeate pumps, and backwash pumps. Testing shall verify the guaranteed power requirements for the range of flows specified by the Seller in the Bid Form.
        1) Test method shall be included in the Startup Plan.
    g. Air Scour Usage – Monitor average air scour consumption and maximum air scour demand throughout the test period.
        1) Test method shall be included in the Startup Plan.
    h. Chemical Usage – Monitor chemical usage for system cleaning. Testing shall verify the chemical usage specified by the Seller in the Bid Form.
    i. Control System – Verify that the PLC, Process Control, HMI, and network communications systems operate as intended. Verify that automatic transfer to redundant systems is functional and that operator intervention to reestablish normal operation is only required on weekdays between 8:00 am and 4:00 pm. Any other required manual intervention is considered a system failure.

D. A procedure shall be developed and proposed by the Seller documented in the Startup plan reviewed and approved by the Buyer for the Performance Acceptance Testing. This shall be approved by the Buyer and Engineer before commencing the testing.

E. Successful completion of the Performance Acceptance Testing constitutes the operating MBR Equipment Package complying with all the requirements for the entire 60-day period without a major fail.
    1. A major failure is one where any of the requirements listed above are not met.

F. If the MBR Equipment Package does not successfully complete the Performance Acceptance Testing, the Seller will have the option to repeat the test over an additional 60-day period.
    1. If the system fails again during the second test period, the Seller shall prepare a written plan for modifying the system to adhere to the requirements listed above.

2. This plan shall be submitted within 14 calendar days after the second unsuccessful test period ends to the Buyer and Engineer for approval.
3. If the modification plan is approved by Engineer and Buyer, the Seller shall complete the modifications to the system within 30 calendar days of approval. These modifications shall be completed at no additional cost to the Buyer.
4. If the system requires new equipment as part of the modifications, the Engineer will calculate associated life-cycle costs over a 10-year period for these pieces of equipment. These associated costs shall be paid in full by the Seller in a lump sum payment based on a 10-year net present worth calculation with a 5 percent interest rate.
5. After modifications have been completed, the Seller shall begin another Performance Acceptance Testing period to evaluate the effectiveness of these adjustments.
6. If the Engineer and/or Buyer determine that the system cannot be modified to meet the requirements listed above, the Seller shall replace the system with an alternate system that can at the sole cost of the Seller. This requirement is secured by the Performance Bond.

G. The WRRF Contractor, Buyer, and/or Engineer shall be able to collect samples for independent analyses during the Performance Acceptance Testing to confirm Seller's results.

H. Buyer and Engineer shall have the option to witness all testing performed by the Seller.

I. Successful Completion of the Performance Testing constitutes completion of the Special Services Milestone and maintenance responsibility of the Goods and Services will transfer to the Buyer.

J. Seller will remain responsible for supporting the Commissioning Period activities as described below.

3.03 **COMMISSIONING PERIOD**

A. Compliance with the requirements for production capacity, flux rates, energy usage, chemical cleaning interval, and membrane permeate quality shall be determined during the Commissioning Period.

B. The Buyer will dictate when to commence commissioning and the duration with the following limits:
   1. Start of commissioning will begin no later than two months after the Performance Acceptance Testing.
   2. The maximum duration will be 180 calendar days.
   3. Commissioning period will not extend past the Correction Period.

C. It is the Buyer's intent to time the Commissioning Period to coincide with peak flow conditions, or to simulate those conditions using a substantial portion of the plant to the extent possible with the flow available at startup.

D. The Buyer will operate the facility during the Commissioning Period while the Seller and WRRF Contractor will provide on-call assistance.

E. Buyer shall measure performance requirements to determine and confirm that the Seller's system complies with the Guaranteed values provided on the Bid Forms and that the guaranteed annual costs provided by the Seller are not exceeded.

F. Seller shall monitor operating conditions and performance during the Commissioning Period.
   1. Seller shall prepare a written report with the date and results from the Commissioning Period to the Buyer and Engineer.
   2. This report shall include a narrative description along with tables and graphs of production capacity, TMP, energy usage, maintenance and recovery cleans frequencies, and other parameters to document performance of the system.
   3. The report shall be submitted within 30 calendar days following the end of the Commissioning Period.

G. The Buyer and Engineer will conduct NPDES and required monitoring efforts during the Commissioning Period. Seller may designate additional recommended testing in the Startup Plan.

H. Buyer and Seller recognize that failure to meet the performance requirements and the guaranteed values on the bid forms provided by the Seller will cause the Buyer to suffer financial loss over the life of the Goods and Services provided by this Contract. Seller will be liable to the Buyer for increased and ongoing maintenance costs incurred by the Buyer as a result of the failure to meet guaranteed rates and performance requirements.

I. Whenever the system does not meet the performance requirements as outlined in technical specifications or meet the guaranteed performance requirements identified on the Bid Form, the Seller shall prepare written plans to modify the system as necessary to achieve compliance at sole cost of the Seller. This may include repairing damaged fibers, replacing seals, complete replacement of system, etc. Once the modification plan has been implemented, the Buyer shall re-commence all of the commissioning tests. The following are the situations that would require a modification plan:
    1. The Membrane Permeate Quality does not meet the requirements.
    2. The Production Capacity does not meet the requirements.
    3. The Transmembrane Pressure exceeds that guaranteed by the Seller.
    4. The Cleaning Intervals for maintenance and recovery cleans are shorter than the frequency of cleaning specified in the technical specifications.
    5. Energy usage is significantly different than Guaranteed values.

END OF SECTION

SECTION 01 78 23
OPERATIONS AND MAINTENANCE MANUAL

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
1. Operations and Maintenance Data
2. Seller's Certificate of Installation
3. Operations and Maintenance Data Submittal Schedule

1.02 OPERATIONS AND MAINTENANCE DATA

A. Seller shall prepare and submit detailed operations and maintenance manuals (O&M Manual) for each item of mechanical, electrical, and instrumentation equipment.

B. Data shall be divided first by specification section, second by individual equipment item, and third by the following Categories:
1. Table of Contents
2. Equipment Summary
   a. Summary identify in a table the equipment name, number, and where the equipment is installed.
   b. Form: Seller may propose a form for the Engineer's review and approval or the Engineer will develop an Equipment Summary form for the Seller's use to identify each piece of electrical, mechanical and instrumentation equipment item. Seller shall include completed form in the operations and maintenance data.
3. Operational Procedures
   a. Provide Manufacturer's recommended operating procedures for the following as applicable:
      1) Installation
      2) Safety Precautions
      3) Start Up and beak in requirements
      4) Adjustment and tuning
      5) Equipment Controls
      6) Normal Operating Procedures
      7) Special tools or requirements
      8) Calibration
      9) Shutdown and Restarting
      10) Emergency Operation Procedures
      11) Troubleshooting
      12) Disassembly
      13) Repair
      14) Reassembly
      15) Testing to confirm performance
      16) Installation data including as-installed settings, operating setpoints, relay, and alarm settings
4. Preventative Maintenance Procedures
   a. Manufacturer's recommended procedures for periodic maintenance of equipment in place.
   b. Manufacturer's recommended schedule for preventative maintenance based on hours of operation or on a fixed time schedule e.g. semi-annual
      1) Provide lubrication schedule, list required lubrication materials, operating ranges and drawings showing lubrication points.
      2) Provide replacement schedules for wear parts.
      3) Include any special maintenance requirements.
5. Shop Drawings
   a. Provide approved shop drawings showing including incorporation of all

submittal comments.
   b. Update this section if modifications are made in the installation of the equipment.
   c. Provide charts of valve tag numbers, with locations and function of each valve.
   d. Drawings to be on 11x17 folded to 81/2 x 11 inches.
6. Parts List
   a. Provide an exploded parts diagram with a complete list of equipment parts and manufacturer's part numbers.
   b. Identify recommended spare parts and supplies.
   c. Provide contact information for where Buyer can order additional spare parts including address, phone number, and website.
   d. Provide a list of Manufacturer approved support providers including address, phone number, and website.
7. Wiring Diagrams
   a. Complete internal and connection wiring diagrams for electrically driven equipment.
   b. Interconnection diagrams showing control and signal wiring.
8. Documentation as applicable:
   a. Manufacturer's Certification of Installation
   b. Warranties
   c. Lab testing results
   d. Additional information described in the technical specifications.

C. Data for Materials and Finishes- not covered by equipment O&M Manuals
1. Provide Manufacturers data including catalog number, size, and selected options.
2. Provide care and cleaning methods and material recommendations.
3. Provide schedule for cleaning and maintenance.

D. Format
1. Provide two (2) hard copy O&M Manuals bound in a standard size 3-ring hardcover binder. Label Binder spines with MBR Equipment Package – specification section numbers, equipment name and numbers.
2. Binders to not exceed three (3) inches in thickness.
3. Paper to be 20 lb. Bond.
4. Three-hole punch data for binding arranged so that three (3) hole punching does not obliterate data.
5. Submit both electronic (searchable Adobe pdf) and hard copies of O&M Manuals in quality suitable for reproduction.
6. Provide a searchable PDF copy of each O&M Manual on a DVD or thumb drive in each hardcopy manual.

E. Field Changes
1. Following installation and commissioning of equipment or an item, the O&M Manual content shall be updated to reflect the actual as-built condition.

1.03 **SELLER'S CERTIFICATION OF INSTALLATION**

A. Engineer will provide a form for the Seller's use in certifying that the MBR Equipment Package installation meets the Seller's and Contract Documents requirements and that the MBR Equipment Package is ready for operation.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 **INSTALLERS**

A. Manuals shall not be submitted until the submittals for the equipment have been reviewed and accepted.

B. Manuals shall be submitted for Engineer review before Factory Testing.

C. Approved manuals shall be completed and furnished prior to placing any piece of equipment into operation onsite.

D. Failure to provide complete and approvable manuals will delay the Special Services Milestone.

END OF SECTION

SECTION 260500
ELECTRICAL WORK, GENERAL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. The Seller shall provide a Packaged MBR System, including Control Panel, instrumentation, electrical equipment, plus all required programming and configuration, for a complete and operable system.

B. Packaged MBR System to contain a Control Panel with Allen Bradley ControlLogix or CompactLogix programmable logic controller (PLC) and operator interface terminal (OIT). Seller is responsible for programming PLC and OIT. The PLC program shall not be proprietary, and shall be accessible for read and write commands and data transfer and communication from the Plant PLC and Plant's SCADA system, via an Ethernet connection, no exceptions. The Plant's SCADA system is Ignition SCADA.

1.02 APPLICABLE CODES AND REQUIREMENTS

A. The work of this Section shall comply with the latest editions, unless noted otherwise, of the following:
   1. Title 8, Subchapter 5, California Administrative Code – Electrical Safety Orders.
   2. Local Laws and Ordinances.
   3. State and Federal Laws.
   4. Local and State Fire Marshal.
   5. Underwriters' Laboratories (UL).
   6. National Electrical Safety Code (NESC).
   7. American National Standards Institute (ANSI).
   8. National Electrical Manufacturer's Association (NEMA).
   9. National Electrical Contractors' Association (NECA) Standard of Installation.
   10. Institute of Electrical and Electronics Engineers (IEEE).
   11. Insulated Cable Engineers Association (ICEA).
   12. Occupational Safety and Health Act (OSHA).
   13. National Electrical Testing Association (NETA).
   14. American Society for Testing and Materials (ASTM).
   15. National Fire Protection Association (NFPA).
   16. National Electrical Code (NEC).
   17. California Electrical Code (CEC).

B. All electrical equipment shall be listed by and shall bear the label of Underwriters' Laboratories, Inc. (UL), or by an independent testing laboratory acceptable to the local code enforcement agency having jurisdiction.

C. All equipment shall be NEMA rated. IEC rated equipment will not be allowed. All equipment shall be rated for 40° C ambient.

D. Electrical work shall be provided and installed as required for hazardous locations as defined by NFPA-820 and the NEC.
   1. Seller shall treat their MBR Package Equipment as an isolated system as the nearest process units with NFPA-820 hazardous are classifications will be outside the most stringent hazardous area envelopes.

E. Installation of electrical equipment and materials shall comply with Occupational Safety and Health Administration (OSHA) Safety and Health Standards, state building standards, and applicable local codes and regulations.

F. Where the requirements of the specifications conflict with UL, National Electrical Manufacturers Association (NEMA), National Fire Protection Association (NFPA), or other applicable

standards, the more stringent requirements shall govern as approved by the local authority having jurisdiction.

1.03 SIGNAGE

A. Provide danger, caution, and warning signs and equipment identification markings in accordance with applicable federal, state, OSHA, and NEC requirements. The Seller shall provide the following signage at a minimum, unless otherwise stated in individual equipment specifications sections. Nameplates and Warning Signs shall be screwed on with stainless steel screws. Arc Flash Labels may be adhesive.
   1. Arc Flash Labels: Provide Arc Flash labels as required per NEC Article 110.16. Provide Arc Flash hazard labels at panel. Adhesive arc flash labels are acceptable.
   2. Equipment Nameplates: Provide engraved phenolic equipment nameplates on all electrical and instrumentation equipment. Nameplate to be inscribed with equipment name and equipment tag number, at a minimum. Submit listing of equipment nameplates complete with inscriptions for review. Phenolic nameplates to have minimum ¼-inch lettering. Nameplates shall be black phenolic engraved to white core, unless noted otherwise.
   3. Warning Signs:
      a. Provide signs near equipment that can start automatically, including pumps, blowers, and motor operated valves, to read: “Caution Equipment to Start Automatically”. Warning signs shall be 7 inches high by 10 inches wide, colored yellow and black, on not less than 18-gauge vitreous enameling stock.

1.04 RESPONSIBILITY

A. The Seller shall be responsible for:
   1. Complete, fully functional, and operational systems, in accordance with the intent of these Contract Documents and manufacturer requirements.
   2. Furnishing and installing all incidental items not actually shown or specified, but which are required by good practice, and/or to provide complete and operational systems.

1.05 AREA DESIGNATIONS

A. The following (Table 1) lists the type of electrical equipment and materials to be used based on applied area. Installation shall be in conformance with NEC and NFPA 820.

Table 1
Electrical Equipment and Materials

Applied Area Classification	Enclosure, Pullbox or J-Box NEMA Rating	Device Box or Small Enclosure	Strut and Mounting Hardware	Exposed Conduit System	Concrete Encased Conduit System
Exterior Wet	NEMA 4X	PVC Coated Cast Steel	316 Stainless Steel strut and hardware	PVC Coated Galvanized Rigid Steel	PVC Sch 40
Exterior Corrosive (Both Class 1, Div 1 and Div 2 Areas)	NEMA 4X (non-sparking) NEMA 7 (sparking)	PVC Coated Cast Steel	316 Stainless Steel strut and hardware	PVC Coated Galvanized Rigid Steel, or 316 Stainless Steel	PVC Coated Galvanized Rigid Steel, or 316 Stainless Steel

1.06 CONTRACTOR SUBMITTALS

A. General

1. Provide manufacturers' descriptive information and shop drawings for all equipment, material, and devices furnished as part of supply, including Schematic (elementary) Diagrams, scaled equipment and panel dimensional drawings, and catalog cut sheet information. Device designations and symbols for schematic (elementary) drawings shall conform to the latest edition of NEMA ICS 1.
2. Submit complete electrical drawings for Control Panel. These drawings shall contain scaled elevation drawings, bill of materials, Schematic Diagrams, Interconnect Drawings (complete with terminal numbers, device names, field equipment tag numbers, cable insulation color, cable size, cable tag, conduit number, etc.) to provide complete identification of the circuits and provide coordination between the Control Panel and connected field equipment. Both AutoCAD and PDF-type files are required for Control Panel electrical drawings.
3. Check submittals for proper number of copies, adequate identification, correctness and compliance with Drawings and Specifications, and initial all copies indicating this has been done.
4. Manufacturer's standardized Schematic Diagrams will not be acceptable unless applicable portions of the diagram have been clearly identified and non-applicable portions deleted or crossed out.
5. Catalog cut sheets shall be highlighted to designate the exact model number of proposed equipment. Cross out all non-applicable equipment on submitted sheets.

B. Submit certified shop drawings and diagrams as follows:
1. Layouts indicating conformity with space requirements, including front and rear access requirements.
2. Detailed anchoring requirements, including stamped and signed seismic calculations confirming anchor type, size and depth.
3. Assembly drawings in sufficient detail to identify every part of the specified equipment, including bills of material.
4. General dimension, outline, and panel layout drawings showing the principal dimensions of the equipment, the location of all devices therein, and the size of electrical conduit windows, and cable lug connections. Include front, rear, side elevations and top view. Include front and rear access requirements. Provide finish and materials, temperature limitations, and grounding requirements. Provide nameplate inscription schedule.
5. In AutoCAD format and PDF format, submit the following: Control Panel Elevation Drawings, Control Panel Schematic Diagrams, and Interconnect Drawings. Drawings shall be 11 inches x 17 inches. Submit in PDF format and AutoCAD format.

C. Submit manufacturer's certified shop drawings and information on the following:
1. Control Panel, complete with all components.
2. Instrumentation and Analyzers.
    a. Submit ISA data sheets for each instrument and analyzer.
3. Factory Acceptance Testing (FAT) procedures and results.
4. Commissioning Plan.
5. Training Agenda.
6. Performance Testing.
7. In addition to submittals for the specific items mentioned above, furnish catalog cut information on the following items:
    a. Conduits, fittings, junction boxes as provided as part of supply.
    b. Low voltage power, control, and instrumentation conductors and equipment grounding conductors as provided as part of supply.
    c. Grounding system components and bare copper grounding electrode conductors.
    d. Tagging and labeling materials, with inscriptions, for conduits, cables, instruments, panels, switches, control devices, and equipment.
    e. Provide hardcopy of PLC and OIT programs in PDF format.
    f. Provide hard copy of configuration settings for instrumentation. This can be shown in ISA datasheet for each instrument.

D. Operation and Maintenance Manuals shall be submitted per Specification Section 01 78 23 - Operations and Maintenance Manual.

PART 2 PRODUCTS

2.01 GENERAL

A. Miscellaneous Hardware: All struts, nuts, bolts, and washers shall be 304 stainless steel. All conduit clamps shall match conduit type.

B. All motors shall be IEEE 841 type, regardless of starter type.

C. PLC Panel shall have AC Unit, mounted on side of panel, with both heating and cooling and thermostats. PLC Panel AC Unit to be painted to match exterior color of MCC, “desert tan” or Buyer approved color.

2.02 EQUIPMENT RATINGS

A. Provide equipment and devices capable of continuous operation within an ambient temperature range of 0° C to 40° C. Equipment must be capable of proper operation at rated output continuously in this ambient temperature range in direct sun. Equipment to be rated for elevation installed.

B. Provide equipment such as enclosures, sunshades, heaters, ventilation fans, removable filtered louvers, and cooling equipment as required so equipment warranty is valid and provides continuous operation per manufacturer literature.

C. Provide sunshields on all instruments with readouts and/or displays. Sunshields shall be stainless steel or white painted steel, and fully protect instrument electronics and display.

2.03 CONDUITS AND FITTINGS

A. General
   1. This section only applies to conduits and fittings installed as part of system supply, outside of the Control Panel.
   2. Pull boxes, junction boxes, conduit fittings, and other indicated enclosures which are dedicated to the raceway system shall comply with this Section.
   3. Conduit Tags: Provide custom stainless steel 2-inch diameter conduit tags with conduit number pressure stamped onto the tag. Conduit numbers shall be 1/2-inch, and painted black. Attached with 316 stainless steel tie wire to conduit. Conduit tags shall be Seton #MA0220, or equal.

B. Conduit
   1. Rigid Non-Metallic Conduit
      a. Rigid non-metallic conduit shall be Schedule 40 PVC, sunlight resistant.
      b. Rigid non-metallic conduit shall be manufactured in accordance with NEMA TC-2 - Electrical Plastic Tubing and Conduit, and UL-651 - Standard for Rigid Non-metallic Conduit.
      c. Manufacturer shall be Carlon, Cantex, or equal.
   2. PVC Coated Rigid Galvanized Steel Conduit
      a. PVC coated rigid galvanized steel conduit shall be manufactured in accordance with the following standards: UL-6, ANSI C80.1, Federal Specification WW-C-581E, NEMA RN1 - PVC Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.
      b. Manufacturer shall be Robroy, Perma-Cote, or equal.
   3. Rigid Galvanized Steel Conduit
      a. Rigid steel conduit shall be mild steel, hot-dip galvanized inside and out. Rigid steel conduit shall be manufactured in accordance with ANSI C80.1 - Rigid Steel Conduit, Zinc Coated, and UL-6.
      b. Manufacturer shall be Allied Tube and Conduit, Western Tube and Conduit, or equal.
   4. Liquidtight Flexible Conduit

a. Liquidtight flexible conduit shall be constructed of a flexible galvanized metal core with a sunlight resistant thermoplastic outer jacket.
b. Liquidtight flexible conduit shall be manufactured in accordance with UL-360 - Steel Conduits, Liquid-Tight Flexible.
c. Manufacturer shall be Anaconda Sealtite, Electri-flex Liquatite LA, or equal.

5. Electrical Metallic Tubing or Intermediate conduit will not be accepted.

C. Fittings and Boxes
1. Cast and malleable iron fittings for use with metallic conduit shall be the threaded type with five full threads, as required for installed environment including hazardous locations per NFPA-280 and NEC.
2. Conduits that terminate at panels shall be terminated with raintight hubs as manufactured by Myers, OZ Gedney, or equal.
3. Provide seal off fittings where required by NFPA-820 and NEC.
4. Boxes shall be continuous hinge with clamps, 316 stainless steel, NEMA 3R/4 rated. Boxes shall be Hoffman A51S, or equal.

2.04 CONDUCTORS

A. General
1. This section only applies to conductors installed as part of system supply, outside of the Control Panel.
2. Conductors, include grounding conductors, shall be stranded copper. Insulation shall bear UL label, the manufacturer's trademark, and identify the type, voltage, and conductor size.
3. Wiring shall have wire markers at each end.

B. Low Voltage Conductors and Instrumentation Cables
1. Power and Control and Grounding Conductors
a. All conductors shall be rated for 600 volts, Class B, Type XHHW-2, and UL Listed.
b. Low voltage conductors shall be as manufactured by Okonite X-Olene Type XHHW-2, Southwire XHHW-2, or equal.
2. Instrumentation Cable
a. Instrumentation wire shall be #16 AWG, twisted shielded pairs, overall shield, with insulation rated for 600 VAC. Colors to be black and red.
b. Signal wire shall be as manufactured by Belden 8719, or equal.

C. Conductor Tags
1. Provide tags for individual wires, at termination ends, for wires #1/0 AWG and smaller. Tags shall be white heat-shrink with thermal transfer printing, 3 to 1 shrink ratio, two (2) inches long and meet UL 224. Acceptable products: Raychem Tyco Shrink Mark Heat Shrinkable Sleeves, or equal.

2.05 CONTROL PANEL

A. Control Panel shall be assembled by UL Listed shop and contain UL label.

B. Control Panel internal wiring shall be MTW type. AC control wiring shall be red insulation. DC wiring shall be blue insulation.

C. Control Panel enclosure shall be NEMA 4/3R, free standing, three-point latching, painted white, padlockable, with back panels. Control Panel shall be dead front with internal swing panels for mounting OIT and miscellaneous control devices. Control Panel shall be Hoffman Bulletin A4L3, or equal.

D. PLC hardware shall be Allen Bradley ControlLogix or CompactLogix. OIT shall be minimum 15” touchscreen, and shall be Allen Bradley, C-More, or Redlion. Ethernet switch shall be Allen Bradley, or equal.
1. PLC digital inputs shall be 24 VDC.
2. PLC digital outputs shall be 24 VDC with interposing relay.
3. PLC analog inputs and outputs shall be 4-20 mA.

E. Control devices including hand switches, pushbuttons, and LED push to test pilot lamps, shall be Allen Bradley 800H, or equal.

F. Circuit breakers shall be DIN rail mounted, thermal magnetic, tease-free, trip-free, snap action mechanism, UL-489. Breakers shall be Allen Bradley 1489, or equal. Utilize circuit breakers in lieu of fuses.

G. Terminal blocks shall be rated 20 amps, 1/4" wide, screw type with follower plates. Terminal blocks shall be Phoenix Contact Type UK, or equal.

H. Panels shall be so sized as to adequately dissipate heat generated by equipment mounted in or on the panel. Provide fans with replaceable filtered louvers. Provide thermostat AC Unit with heating and cooling settings, with cord and plug connection to dedicated panel receptacle AC Unit to be sized to so maximum internal panel temperature is 90 degrees F.
   1. Provide dedicated receptacles.
   2. Provide with cord and plug and dedicated receptacle. Provide with heating and cooling features, with thermostats.
   3. PLC Panel AC Unit shall be Hoffman 6000 BTU, side mount unit #G280616G100, or equal.

I. Provide nameplates for each control device, and circuit breakers.

2.06 INSTRUMENTATION AND ANALYZERS

A. Refer to Specification Section 40 91 00 – Process Instrumentation for Instrument and Analyzer Product specifications.

PART 3 EXECUTION

3.01 GENERAL

A. Workmanship: All materials and equipment shall be installed in strict accordance with the printed recommendations of the manufacturer. Installation shall be accomplished by workers skilled in the work. Installation shall be coordinated in the field with other trades to avoid interferences.

B. Protection of Equipment and Materials: The Seller shall fully protect all materials and equipment against damage from any cause. All materials and equipment, both in storage and during transport, shall be covered in such a manner that no finished surfaces will be damaged, marred, or splattered.

C. PLC programming shall be open (not proprietary), for Plant PLC and Plant's SCADA system to communicate with, no exceptions. Plant PLC and Plant's SCADA system shall read and write data points from specific data point registers, as allocated by Control Panel PLC programmer, as required by Plant PLC controls.

3.02 OPERATION AND MAINTENANCE MANUALS

A. Provide Operation and Maintenance Manuals in hard cover, 3-ring binders, separately bound volumes, number as required to accommodate material 8½-inch x 11-inch for text and 11-inch x 17-inch half-sized drawings and also in accordance with provisions of specifications. Provide the number of copies specified. Electrical and Instrumentation O&Ms shall include the following as a minimum:
   1. Operation, maintenance, recommended spare parts, and renewal parts information for all equipment furnished under this Section.
   2. Provide separate O&M Manuals for each facility, and for each of the following: Control Panel and Instrumentation
   3. Set of complete, final, as-reviewed and accepted manufacturers or vendors descriptive information.
   4. Provide drawings in PDF and AutoCAD formats, on USB drive.

5. Index of all equipment suppliers with a list of current names, addresses, and telephone numbers of those who should be contacted for service, information, supply, and assistance.
6. All factory and field test results.
7. Information listed under individual specification submittal requirements.
8. Complete Interconnect Drawings for all equipment as part of system supply. Show wiring from equipment origin numbered terminal to destination numbered terminal in block diagram format. Include wire labels, conduit numbers, cable size, cable insulation colors, junction boxes, etc.
9. Submit material to the ENGINEER for review prior to delivery of the final Operation and Maintenance Manuals. O&M Manuals to be approved prior to start of Commissioning Period. Make additions or changes required by the reviewer.

3.03 TESTING, TRAINING, AND COMMISSIONING

A. Seller shall provide Factory Acceptance Testing (FAT), Field Testing, Commissioning, Training, and Performance Testing.

B. Factory Acceptance Testing: Seller shall test the MBR System in the factory based on standard testing procedures. Submit testing procedures for review. Testing shall confirm operation of system based on design criteria, control panel wiring, PLC programming, and OIT screens. District and Engineer may elect to witness the FAT, plan for 3 witnesses.

C. Field Testing: Seller shall test the MBR System in the field based on standard field testing procures. Submit testing procedures for review.

D. Commissioning: Submit a detailed Commissioning Plan which will outline the requirements and steps including results.

E. Training: Submit a detailed Training Agenda which will outline the items for operator and maintenance training. Provide for 16 hours of on-site training.

F. Performance Testing: Submit a detailed Performance Testing Plan which will outline the requirements and steps including results. Seller staff will assist the Plant operators in operating the treatment system for 48 hours after successful Commissioning. The primary focus of the Performance Test will be to evaluate the system against a defined set of performance criteria which include the quantity and quality of the treated water produced by the treatment system. Successful completion of the Performance Test will constitute confirmation that the treatment system functions as per the design basis and that substantial completion has been attained.

G. Provide minimum of 64 hours of on-site Commissioning and Performance Testing.

H. Provide a total of 80 hours of remote support, via phone and web, for 12 months after Performance Testing completion. Support shall be available 24 hours a day, 7 days a week.

END OF SECTION

SECTION 40 05 06
COUPLINGS, ADAPTERS, AND SPECIALS FOR PROCESS PIPING

PART 1 - GENERAL

SUMMARY

1.01 SECTION INCLUDES:

A. Restrained joints.

B. Mechanical joints.

C. Dismantling joints.

D. Flexible couplings.

E. Coupling adapters.

F. Pipe Saddles.

1.02 REFERENCE STANDARDS

A. American Water Works Association:
   1. AWWA C110 – Standard for Ductile-Iron and Gray-Iron Fittings.
   2. AWWA C111 – Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
   3. AWWA C151 – Standard for Ductile-Iron Pipe, Centrifugally Cast.
   4. AWWA C219 - Bolted, Sleeve-Type Couplings for Plain-End Pipe.
   5. AWWA C207 – Standard for Steel Pipe Flanges for Waterworks Service – Sizes 4 In. Through 144 In.
   6. AWWA C606 – Standard for Grooved and shouldered Joints.

B. American Welding Society:
   1. AWS D1.1/D1.1M - Structural Welding Code - Steel.

C. ASME International:
   1. ASME A13.1 - Scheme for the Identification of Piping Systems.
   2. ASME B16.5 – Pipe Flanges and Flanged Fittings: NPS ½ through NPS 24.
   3. ASME B31.1 – Power Piping.
   4. ASME B31.3 - Process Piping.
   5. ASME B31.9 - Building Services Piping.
   6. ASME Boiler and Pressure Vessel Code (BPVC), Section IX - Welding, Brazing, and Fusing Qualifications.

D. ASTM International:
   1. ASTM A36 – Standard Specification for Carbon Structural Steel.
   2. ASTM A53 – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
   3. ASTM A148 – Standard Specification for Steel Castings, High-Strength, for Structural Purposes.
   4. ASTM A193 - Standard Specification for Alloy Steel and Stainless Steel Bolting Materials for High Temperature or High Pressure Service and Other Special.
   5. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
   6. ASTM A351 - Standard Specification for Castings, Austenitic, for Pressure-Containing Parts.
   7. ASTM A449 - Standard Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/9 ksi Minimum Tensile Strength, General Use.
   8. ASTM A536 - Standard Specification for Ductile Iron Castings.
   9. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.

10. ASTM A576 - Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality.
11. ASTM D2000 - Standard Classification System for Rubber Products in Automotive Applications.
12. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
13. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
14. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.
15. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
16. ASTM F594 - Standard Specification for Stainless Steel Nuts.

E. Expansion Joint Manufacturers Association, Inc.:
   1. EJMA Standards.

1.03 SUBMITTALS

A. Provide submittals in accordance with Section 01 30 00 – Administrative Requirements.

B. Product Data:
   1. Manufacturer data and product sheets.
   2. Flexible Pipe Connectors: Indicate maximum temperature and pressure rating, face-to-face length, live length, hose wall thickness, hose convolutions per foot and per assembly, fundamental frequency of assembly, braid structure, and total number of wires in braid.
   3. Expansion Joints: Indicate maximum temperature, pressure rating, and expansion compensation.
   4. Manufacturer installation instructions.

C. Shop Drawings:
   1. Indicate numbers, locations, and types of each product supplied.
   2. Indicate layout of piping systems, including flexible connectors, expansion joints and compensators, loops, offsets, and swing joints.

D. Source Quality Control Submittals:
   1. Manufacturer factory test and inspection results.
   2. Seller-furnished field tests and inspections of piping systems.

E. Delegated Design Submittal
   1. Submit signed and sealed Shop Drawings with design calculations and assumptions for flexible connectors, expansion joints, pipe restraints sizing and specifying methods.

1.04 QUALITY ASSURANCE

A. Qualifications:
   1. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum five years' experience.
   2. Installer: Company specializing in performing work of this Section with minimum three years’ experience.

1.05 WARRANTY

A. Furnish two-year manufacturer's warranty.

PART 2 - PRODUCTS

2.01 MECHANICAL JOINTS:

A. Comply with ANSI/AWWA C11/A21.11., with ductile iron glands.

B. Restrained Mechanical Joints (factory prepared spigot):
   1. 4 inch through 48 inch
   2. Manufacturers: One of the following or equal:

a. American “MJ coupled Joints”
b. Griffin “Mech-Lok”

C. Restrained Mechanical Joints (field spigot):
1. 4 inch through 24 inch
2. Manufacturers: One of the following or equal:
a. EBAA Iron “Megalug” Series 1100
b. Sigma “One Lok” SLDE series
c. Pipe Products “StarGrip 3000”
3. Where standard bolt holes are not used, mechanical joint with water stop and tapped holes; single casting or fabricated ductile iron pipe shall be provided with removable plugs.

D. Mechanical Joints (with tie rod):
1. As indicated on Drawings.
2. Tie Rods: ASTM A307.
3. Steel Pipe: ASTM A53, Schedule 40 or 80 as indicated on Drawings.
4. Washers: ANSI/ASME B18.22.1, plain steel.

2.02 PIPE COUPLINGS FOR DUCTILE IRON PIPING:

A. Dismantling joints:
1. Manufacturers: One of the following or equal:
a. Romac Industries, Inc., Style DJ400.
b. Smith-Blair, Inc., Series 975.
2. Materials:
a. Flanged spool: AWWA C207 steel pipe:
1) ASTM A53 for sizes 3 inches to 12 inches.
2) ASTM A36 for sizes 14 inches to 72 inches.
b. End ring and body:
1) For sizes 3 inches to 12 inches, ductile iron in accordance with ASTM A536.
2) For sizes 14 inches to 72 inches, steel in accordance with ASTM A36 or A53.
c. Follower ring: Ductile iron in accordance with ASTM A536.
d. Bolts and hex nuts:
1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
e. Tie rods: High tensile steel in accordance with ASTM A193 Grade B7.
3. Flange design: Class D steel ring flange in accordance with AWWA C207, compatible with ANSI Class 125 and 150 bolt circles.
4. Coating and lining: Manufacturer’s standard fusion bonded epoxy.

B. Flanged coupling adapters: 12-inch size and smaller:
1. Manufacturers: One of the following or equal:
a. Dresser, Inc., Style 227.
b. Romac Industries, Inc., Style FCA501.
c. Smith-Blair, Inc., Series 912.
2. Materials:
a. Flanged body: Ductile iron in accordance with ASTM A536.
b. Follower ring: Ductile iron in accordance with ASTM A536.
c. Bolts and hex nuts:
1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
3. Flange design: Class D steel ring flange in accordance with AWWA C207 compatible with ANSI Class 125 and 150 bolt circles.
4. Coating and lining: Manufacturer’s standard fusion bonded epoxy, NSF 61 certified.

C. Flexible couplings:
   1. Manufacturers: One of the following or equal:
      a. Dresser, Inc., Style 253.
      b. Romac Industries, Inc., Style 501.
      c. Smith-Blair, Inc., Series 441.
   2. Materials:
      a. Center rings: Ductile iron in accordance with ASTM A536.
      b. Follower rings: Ductile iron in accordance with ASTM A536.
      c. Bolts and hex nuts:
         1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
         2) Buried and underwater: Type 316 stainless steel in accordance with ASTM F593.
   3. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.
   4. Center sleeve dimensions: Provide center sleeves with lengths in accordance with following table:

Nominal Pipe Size	Sleeve Length
3 inch and smaller	Manufacturer's standard
4 inch through 8 inch	7 inches
10 inch through 14 inch	12 inches
Greater than 16 inch	Use steel flexible coupling per Pipe Couplings for Steel Piping

D. Restrained flange coupling adapter:
   1. Manufacturers: One of the following or equal:
      a. Romac Industries, Inc., Style RFCA.
      b. Star Pipe Products, 3200 StarFlange.
   2. Materials:
      a. Flange and flanged body: Ductile iron in accordance with ASTM A536.
      b. Follower ring: Lug type restraint system.
         1) Follower ring: Ductile iron in accordance with ASTM A536.
         2) Restraining lugs: Ductile iron in accordance with ASTM A536.
            (a) Designed to contact the pipe and apply forces evenly.
         3) Restraining bolts:
            (a) Ductile iron in accordance with ASTM A536.
            (b) Bolt heads shall be designed to twist off when the proper torque has been applied.
      c. Bolts and hex nuts:
         1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
         2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
   3. Flange design: Class D steel ring flange in accordance with AWWA C207 compatible with ANSI Class 125 and 150 bolt circles.
   4. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.
   5. Angular deflection: Restrained flange coupling adapter must allow angular deflection after assembly.

E. Grooved joint couplings:
   1. Manufacturers:
      a. Victaulic Company, Series 31 or equal.
   2. Materials:
      a. Housings: Ductile iron in accordance with ASTM A536.
      b. Gasket:
         1) FlushSeal® type, or equal. Elastomer in accordance with ASTM D2000.

c. Bolts and nuts: Electroplated steel in accordance with ASTM A449.
3. For use with rigid or flexible radius grooved components in accordance with AWWA C606.
4. For connection to IPS steel pipe sizes, Victaulic Style 307.

2.03 PIPE COUPLINGS FOR CARBON STEEL PIPING

A. Dismantling joints:
1. Manufacturers: One of the following or equal:
a. Romac Industries, Inc., Style DJ400.
b. Smith-Blair, Inc., Series 975.
2. Materials:
a. Flanged spool:
1) C207 Schedule 40 pipe in accordance with ASTM A53 for sizes 3 inches to 12 inches.
2) Steel for pipe in accordance with ASTM A36 or A53 for sizes 14 inches to 72 inches.
b. End ring and body:
1) For sizes 3 inches to 12 inches, ductile iron in accordance with ASTM A536.
2) For sizes 14 inches to 72 inches, steel in accordance with ASTM A36.
c. Follower ring: Ductile iron in accordance with ASTM A536 or steel in accordance with ASTM A36 or A576.
d. Bolts and hex nuts:
1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
e. Tie rods: High tensile steel in accordance with ASTM A193 grade B7.
3. Flange design: Class D steel ring flange in accordance with AWWA C207 compatible with ANSI Class 125 and 150 bolt circles.
4. Coating and lining: Fusion bonded epoxy certified in accordance with NSF 61.

B. Flanged coupling adapters:
1. Manufacturers: One of the following or equal:
a. Dresser, Inc., Style 128-W.
b. Romac Industries, Inc., Style FCA501 (10 inch and smaller) or Style FC400 (12 inch and larger).
c. Smith-Blair, Inc., Series913.
2. Materials:
a. Flange and flanged body: Ductile iron or low carbon steel having a minimum yield strength of 30,000 pounds per square inch.
b. Follower ring: Low carbon steel having a minimum yield strength of 30,000 pounds per square inch.
c. Bolts and hex nuts:
1) Aboveground: High-strength, low-alloy steel in accordance with AWWA C111.
2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
3. Flange design: Class D steel ring flange in accordance with AWWA C207 compatible with ANSI Class 125 and 150 bolt circles.
4. Coating and lining: Manufacturer’s standard fusion bonded epoxy, NSF 61 certified.

C. Flexible couplings:
1. Manufacturers: One of the following or equal:
a. Dresser, Inc., Style 38.
b. Smith-Blair, Inc., Series 411.
c. Romac Industries, Inc., Style 511 or Style 400.
2. Materials:

a. Center sleeve and follower flanges: Ductile iron or low carbon steel having a minimum yield strength of 30,000 pounds per square inch.
b. Bolts and hex nuts:
1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.

3. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.
4. Center sleeve dimensions: Provide center sleeves with lengths in accordance with following table:

Nominal Pipe Diameter	Sleeve Length
2-1/2 inch and smaller	Manufacturer's Standard
3 inch through 6 inch	7 inch
8 inch through 14 inch	7 inch
Greater than 14 inches	10 inch

D. Restrained flange coupling adapters:
1. Manufacturers: One of the following or equal:
a. Romac Industries, Inc., Style RFCA.
b. Star Pipe Products, 3200 StarFlange.
2. Materials:
a. Flange and flanged body: Ductile iron in accordance with ASTM A536.
b. Follower ring: Lug type restraint system.
1) Follower ring: Ductile iron in accordance with ASTM A536.
2) Restraining lugs: Ductile iron in accordance with ASTM A536.
(a) Designed to contact the pipe an apply forces evenly.
3) Restraining bolts: Ductile iron in accordance with ASTM A536. Bolt heads shall be designed to twist off when the proper torque has been applied.
c. Bolts and hex nuts:
1) Aboveground: High-strength, low-alloy steel in accordance with AWWA C111.
2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
3. Flange design: Class D steel ring flange in accordance with AWWA C207 compatible with ANSI Class 125 and 150 bolt circles.
4. Coating and lining: Manufacturer's standard fusion bonded epoxy certified in accordance with NSF 61.

E. Grooved joint couplings:
1. Model numbers from one manufacturer are shown to indicate type only. Equivalent products of other manufacturers may be submitted for approval.
2. Sizes through 12 inch:
a. Rigid type:
1) Housings shall be cast with offsetting angle-pattern bolt pads to provide rigidity and system support and hanging in accordance with ASME B31.1 and B31.9.
2) 2 inch through 6 inch: Installation-ready, for direct stab installation without field disassembly, with grade EHP gasket rated to plus 250 degrees Fahrenheit.
3) Manufacturer: One of the following or equal:
(a) Victaulic Style 107.
(b) Victaulic Zero-Flex Style 07.
b. Flexible type:
1) For use in locations where vibration attenuation and stress relief are required.
2) Three flexible couplings may be used in lieu of a flexible connector.
3) The couplings shall be placed in close proximity to the source of the vibration.
4) Couplings shall be compatible for process stream and material of pipe.

5) Manufacturer: The following or equal:
(a) Victaulic Style 77.

c. Flange adapter:
1) Flat face, ductile iron housings with elastomer pressure responsive gasket, for direct connection to ANSI Class 125 or 150 flanged components.
2) Manufacturer: The following or equal:
(a) Victaulic Style 741.

3. Sizes 14 inch through 24 inch:
a. Victaulic AGS series with lead-in chamfer on housing key and wide width FlushSeal® gasket.
b. Rigid type:
1) Housing key shall fill the wedge shaped AGS groove and provide rigidity and system support and hanging in accordance with ASME B31.1 and B31.9.
2) Manufacturer: The following or equal:
(a) Victaulic Style W07.
c. Flexible type:
1) Housing key shall fit into the wedge shaped AGS groove and allow for linear and angular pipe movement.
2) Manufacturer: The following or equal:
(a) Victaulic Style W77.
d. Flange adapter:
1) Flat face, ductile iron housings with elastomer pressure responsive gasket, for direct connection to ANSI Class 125 or 150 flanged components.
2) Manufacturer: The following or equal:
(a) Victaulic Style W741.

F. Bolted, split-sleeve couplings:
1. Provide bolted, split-sleeve couplings where indicated on the Drawings or as an alternative to flexible couplings when approved by the Buyer for each individual case.
2. Split-sleeve type pipe coupling with double arch cross section:
a. Coupling shall be designed to close around the pipe ends, confining the gaskets beneath the arches of the sleeve.
b. A watertight, axial seal is created by tightening the bolts to pull the coupling against the outside wall of the pipe.
3. Coatings:
a. Couplings shall be epoxy-coated on the inner diameter and outer diameter prior to delivery.
4. Couplings: Wall thickness that is adequate for the test pressure as specified in the Piping Schedule (Drawing No. 00-605).
a. Provide split-sleeve type coupling in an “expansion x expansion” configuration where indicated on the Drawings.
b. Where restrained pipe joints are required or are indicated on the Drawings, provide split sleeve type coupling in a “fixed x fixed” configuration.
1) Coordinate with coupling manufacturer and pipe supplier to provide restraint rings on pipe.
2) Coupling manufacturer to supply the restraint rings.
c. Where axial pipe expansion must be accommodated or where they are indicated on the Drawings, provide split-sleeve type coupling in a “fixed x expansion” configuration.
1) Coordinate with coupling manufacturer and pipe supplier to provide restraint ring on fixed side of coupling.
2) Coupling manufacturer to supply the restraint rings.
d. Axial restraint and angular deflection:

1) Where axial restraint is required to resist pipe thrust and angular deflection is required to provide flexibility in the piping or where they are indicated on the Drawings, provide split-sleeve type coupling in a "fixed x fixed modified" configuration.
2) Install coupling with manufacturer's recommended-gap between ends of piping with the shoulders of coupling bearing on the inner restraint rings that are welded to the piping at both ends of coupling.
3) Coupling shall be designed for an angular deflection of not less than the angular defection indicated in the following table.

Nominal Pipe Diameter	Allowable Angular Deflection
18 inch and smaller	3 degrees
20 inch	2.5 degrees
24 inch	2 degrees

5. Gaskets: The sealing members are comprised of 2 O-ring gaskets. Internal pressure shall not be required to affect the seal. For water service, the gasket supplied shall be Isoprene or Buna-N in accordance with ASTM D2000 for design pressure within temperature range of minus 20 to 180 degrees Fahrenheit.
   a. Elastomers shall have properties in accordance with ASTM D2000.
6. Manufacturers: One of the following or equal:
   a. "Fixed x fixed modified" configuration:
      1) Victaulic, Style 230 E x E.
7. Materials:
   a. Couplings: Steel in accordance with ASTM A36.
   b. Bolts and nuts: In accordance with ASTM A325 and ASTM A563.
8. Pipe preparation:
   a. Pipe ends shall be smooth for expansion or contraction requirements.
   b. Where thrust restraint is required or is indicated on the Drawings, pipe ends shall include restraint rings affixed for pipe end restraint requirements.
   c. The coupling manufacturer shall provide restraint rings that shall be shop welded to the pipe in accordance with the manufacturer's requirements.
      1) Follow coupling manufacturer's recommendation for size and amount of welding required to attach the restraint rings to the pipe.

2.04 PIPE COUPLINGS FOR STAINLESS STEEL PIPING

A. Flexible couplings:
   1. Manufacturers:
      a. Victaulic Style 77DX Duplex Stainless Steel Flexible Coupling
      b. Simple Tri-Clamps with PTFE Seals.
   2. Pipe ends shall be roll or cut grooved per flexible coupling manufacturer recommendations for expansion and contraction installation requirements.
   3. Pipe ends shall be smooth for installation expansion and contraction requirements.

2.05 PIPE SADDLES

A. Service Saddles
   1. Single or dual strap
   2. Minimum 150 psi rating
   3. Bronze or epoxy/nylon coated cast iron body
   4. Stainless steel straps or U-bolts
   5. Stainless steel nuts and washers
   6. Threaded NPT fitting
   7. NBR or Buna N Gasket
   8. Romac, Smith-Blair, Mueller, "or equal"

PART 3 EXECUTION

3.01 DELIVERY, STORAGE AND HANDLING

A. All couplings, adapter, restraints, and flexible connections shall arrive preassembled on the MBR Equipment Package.

B. Seller shall provide protection of any loose components and spares prior to Startup and Commissioning activities.

3.02 VERIFICATION OF CONDITIONS

A. Verify size, material, types, elevations, and horizontal location of products supplied that will be connected between upstream and downstream equipment and the MBR Equipment Package.

3.03 FIELD QUALITY CONTROL

A. Following delivery and installation of MBR Equipment Package on concrete pad,
   1. Inspect for damage to pipe lining or coating and for other defects that may be detrimental as determined by Buyer.
   2. Repair damaged piping or provide new, undamaged pipe.

END OF SECTION

SECTION 40 27 00
PROCESS PIPING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes materials, fabrication, testing, and installation of all piping and fittings for the MBR Equipment Package.

1.02 REFERENCES

A. Definitions
   1. Exposed pipe: Pipes that are located above ground and are not submerged in fluid.
   2. Underwater pipes: Pipes below the top of walls in basins or tanks containing water.

B. Reference Standards from the following organizations are referenced in this Specification Section:
   1. American Water Works Association:
   2. American Welding Society:
   3. ASME International:
   4. ASTM International:

1.03 SUBMITTALS

A. Provide submittals in accordance with Specification Section 01 30 00 – Administrative Requirements

B. Product Data:
   1. Manufacturer data and product sheets for pipe and fittings.
   2. Manufacturer installation instructions.

C. Shop Drawings:
   1. Indicate layout of piping systems, including connected equipment, dimensions, pipe sizes and fitting types.

D. Source Quality Control Submittals:
   1. Manufacturer factory test and inspection results.

E. Field Quality Control Submittals:
   1. Seller-furnished field tests and inspections of piping systems.

F. Delegated Design Submittal
   1. Submit signed and sealed Shop Drawings with design calculations and assumptions for pipe sizing methods and calculations used for piping systems designed by Seller.

1.04 QUALITY ASSURANCE

A. Qualifications:
   1. Submit qualifications for manufacturer, installer and all licensed professionals designing or supplying pipe systems specified in this Specification Section.
   2. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum five years' experience.
   3. Installer: Company specializing in performing work of this Section with minimum three years’ experience.
   4. Welder: AWS qualified within previous 12 months for employed weld types.

1.05 DELIVERY, STORAGE, AND HANDLING

A. All piping and appurtenances shall have been preassembled on the MBR Equipment Package. Piping systems removed for transportation shall be protected, reinstalled, and tested by the Seller prior to placing assembly into service.

B. Seller shall provide protection of any loose piping system components and spares prior to Startup and Commissioning activities.

PART 2 PRODUCTS

2.01 STAINLESS STEEL PROCESS PIPE AND TUBING

A. Stainless Steel Process Pipe and Fittings
   1. General Service Piping:
      a. Type:
         1) Seamless; comply with ASTM A813/A813M.
         2) Class: SW; comply with ASTM A814/A814M.
      b. Schedule: Specified by Seller, but no less than will produce a piping system rated for less than 150% of design service pressures.
      c. Grade: Type 316 or 316L for field welded applications.
      d. Dimensions: Comply with ASTM A312/A312M.
   2. Fittings:
      a. Type:
         1) Piping 2 Inches (50 mm) and Smaller: Socket welding.
         2) Piping 2-1/2 Inches (65 mm) and Larger: Butt welding.
      b. Dimensions: Comply with ASTM A312/A312M.
      c. Threaded Fittings:
         1) Comply with ASME B16.11 and ASTM A182.
         2) Grade: Type 316.
         3) Threads: Comply with ASME B1.20.1.
      d. Butt-Welding Fittings:
         1) Comply with ASTM A403/A403M.
         2) Grade: Type 316L.
         3) Class: comply with ASME B16.9.
      e. Socket-Welding Fittings:
         1) Comply with ASTM A403/A403M.
         2) Grade: Type 316L.
         3) Class: WP-S; comply with ASME B16.11.
      f. Flanged Fittings:
         1) Type: Welding neck or welded slip on
         2) Class: 150.
         3) Comply with ASTM A182/A182M.
         4) Grade: Type 316.
         5) Facing and Drilling: Comply with ASME B16.5,.
      g. Transition Fittings:
         1) To PVC where indicated:
            (a) Stainless Steel Sleeve Clamp
            (b) Repair Type with removable bolts
            (c) 150 psi
            (d) EPDM liner
            (e) Restrain as required

B. Stainless Steel Process Tubing and Fittings
   1. Tube:
      a. Type: Seamless.
      b. Comply with ASTM A269/A269MM.
      c. Grade: Type 316.
   2. Fittings:
      a. Threaded:

1) Comply with ASTM A182 and ASME B16.11.
2) Grade: Type 316.
3) Threads: Comply with ASME B1.20.1.

b. Butt-Welding Fittings:
1) Comply with ASTM A403.
2) Grade: Type 316L.
3) Class: CR.

c. Socket-Welding Fittings:
1) Comply with ASTM A403.
2) Grade: Type 316L.
3) Class: WP-S.

d. Flanged Fittings:
1) Type: Welding neck.
2) Class: 150.
3) Comply with ASTM A182.
4) Grade: Type 316.
5) Facing and Drilling: Comply with ASME B16.5.
6) Backing Flanges:
(a) Material: Stainless steel.
(b) Class: 150.
(c) Comply with ASTM A351/A351M.
(d) Type: Van stone.
(e) Drilling: Comply with ASME B16.1.
7) Bolting:
(a) Bolts: Comply with ASTM A193/A193M, Grade B5; hex head.
(b) Nuts: ASTM A194, hex head.
8) Cast-Iron Mating Flange on Valves or Equipment:
(a) Bolts: Comply with ASTM A193/A193M, hex head.
(b) Washers: Same material as bolts.

C. Accessories
1. Pipe-Thread Tape:
a. Material: PTFE.
b. Comply with ASTM D3308.
2. O-Ring Seals: EPDM.
3. Flange Gaskets:
a. Comply with ASME B16.5.
b. Nonmetallic Gaskets:
1) Material: EPDM, Teflon, Garlock, or Durlon
2) Comply with ASME B16.21.
c. Type:
1) Raised-Face Flanges: Flat ring.
2) Flat-Face Flanges: Full face.

2.02 DUCTILE IRON PROCESS PIPE

A. Ductile Iron Pipe and Fittings
1. Piping:
a. Comply with AWWA C115, C150 and C151.
b. Pressure Rating: Rated for 150% of design service pressures.
2. Fittings:
a. Material: AWWA C153, ductile iron.
b. Pressure Rating: Rated for 150% of design service pressures.
c. Mechanical Joints:
1) Comply with AWWA C110 and AWWA C111.

2) Glands: Ductile iron with asphaltic.
3) Push-on Joints: Comply with AWWA C111.

d. Restrained Joints: Comply with AWWA C111.
e. Flanged Fittings: Comply with ASME B16.1.
f. All pressure pipe fittings and joints shall be restrained.

3. Cement-Mortar Lining:
   a. Comply with AWWA C104.
   b. Thickness: Standard.
4. Outside Coating:
   a. Exposed Service: Provide rust resistant shop primer and two part epoxy coating system.
5. Flange Fittings
   a. On exposed pipes with pressures equal to or less than 150 psig:
      1) Bolts: ASTM A307, Grade B.
      2) Nuts: ASTM A563, Grade A.
      3) Bolts and Nuts: Hot-dip galvanized in accordance with ASTM F2329.
   b. On exposed pipes with pressures greater than 150 psig:
      1) Bolts: ASTM A193, Grade B.
      2) Nuts: ASTM A194, Grade 2H.
      3) Bolts and nuts: Hot-dip galvanized in accordance with ASTM F2329.
   c. On underwater pipes and pipes adjacent to wet walls:
      1) Bolts: ASTM A193, Grade B8M.
      2) Nuts: ASTM A194, Grade 8M.

B. Accessories
   1. Gaskets: Synthetic Rubber suitable for pipe service.

2.03 STEEL PROCESS PIPE

A. Steel Pipe and Fittings
   1. General Service Piping:
      a. Comply with ASTM A53/A53M; Grade A.
      b. Type: Welded.
      c. Schedule: Specified by Seller, but no less than will produce a piping system rated for less than 150% of design service pressures.
      d. Finish: Hot-dip galvanized.
   2. Water Piping:
      a. Comply with AWWA C200.
      b. Type: Fabricated pipe.
      c. Minimum Wall Thickness:
         1) Pipe Diameter 8 Inches and Smaller: 0.375 inch .
         2) Pipe Diameter Greater Than 8 Inches : 0.500 inch.
      d. Fittings and Special Sections: Comply with AWWA C208.
      e. Flanges:
         1) Comply with AWWA C207.
         2) Type: Slip on.
      f. Field Welding Materials: Comply with AWWA C206.
   3. Joints:
      a. Description: Butt welded.
   4. Fittings:
      a. Type:
         1) Piping 2 Inches and Smaller: Threaded.
         2) Piping 2-1/2 Inches and Larger: Welded or flanged.
      b. Dimensions: Comply with ASME B36.10M.
      c. Flanged Connections: As required to connect steel piping to fittings and equipment.

d. Threaded Fittings:
   1) Class: 150.
   2) Malleable Iron:
      (a) Comply with ASTM A47/A47M and ASME B16.3.
      (b) Type: Black; banded.
e. Rigid Steel Couplings: Comply with ASTM A865/A865M.
f. Butt-Welding Fittings:
   1) Comply with ASTM A105/A105M.
   2) Class: 150.
g. Socket-Welding Fittings:
   1) Comply with ASTM A105/A105M.
   2) Class: 150.
h. Flanged Fittings:
   1) On exposed pipes:
      (a) For ASME B16.5 Class 150 flanges and AWWA C207 Class D flanges:
         (1) Bolts: ASTM A307, Grade B.
         (2) Nuts: ASTM A563, Grade A.
         (3) Bolts and Nuts: Hot-dip galvanized in accordance with ASTM F2329.
      (b) For ASME B16.5 and B16.47 Class 300 flanges and AWWA C207 Class E and F flanges:
         (1) Bolts: ASTM A193, Grade B7.
         (2) Nuts: ASTM A194, Grade 2H.
   2) On underwater pipes and pipes adjacent to wet walls:
      (a) Bolts: ASTM A193, Grade B8M.
      (b) Nuts: ASTM A194, Grade 8M.
i. Mechanical Couplings: Comply with AWWA C606.
j. Unions:
   1) Piping 2 Inches and Smaller: Threaded.
   2) Piping 2-1/2 Inches and Larger: Threaded or flanged.

B. Internally Coated Steel Pipe and Fittings
   1. Polyurethane Liner:
      a. Description: Self-priming, plural component, 100 percent solids, and non-extended polyurethane.
      b. Comply with AWWA C222.
      c. Specified by Seller, but no less than will produce a piping system rated for less than 150% of design service pressures.
      d. Dry Film Thickness: 30 mils (0.76 mm).
   2. Spray-Applied Liquid Epoxy Liner:
      a. Description: Thermosetting, fusion-bonded, 100 percent solids, and dry powder epoxy resin.
      b. Comply with AWWA C210 and AWWA C550.
      c. Specified by Seller, but no less than will produce a piping system rated for less than 150% of design service pressures.
   3. Coat machined faces of flanges with temporary rust-inhibitive coating.

C. Accessories
   1. Pipe-Thread Tape:
      a. Material: PTFE.
      b. Comply with ASTM D3308.
   2. Flange Gaskets:
      a. Comply with ASME B16.5.
      b. Nonmetallic Gaskets:
         1) Material: EPDM

2) Comply with ASME B16.21.
c. Type:
1) Raised Face: Flat ring.
2) Flat Face: Full face.

2.04 THERMOPLASTIC PROCESS PIPE

A. PVC Pipe and Fittings
1. Small Diameter PVC Pipe and Fittings:
a. Pipe:
1) Comply with ASTM D1785.
2) Schedule: Specified by Seller, but no less than will produce a piping system rated for less than 150% of design service pressures.
b. Joints:
1) Threaded, solvent welded or flanged.
2. AWWA C900 PVC Pipe and Fittings:
a. Pipe:
1) Comply with AWWA C900.
2) Dimension Ratio: Specified by Seller, but no less than will produce a piping system rated for less than 150% of design service pressures.
b. Fittings:
1) Material: Ductile iron.
2) Comply with AWWA C110 for standard fittings and AWWA C153 for compact fittings.
3) All pressure pipe fittings shall be restrained.
c. Joints:
1) Solvent-cement couplings are not permitted.
2) Push-on rubber gasketed type joints shall be in accordance with applicable requirements of AWWA C111.
3) All pressure pipe joints shall be restrained.
4) Externally Restrained Joints:
(a) Joint restraints for PVC bell joints shall consist of a split serrated ring installed on the plain end pipe and behind the bell. A sufficient number of restraining rods shall be used to connect the bell ring and the gripping ring. The combination of the restraints and fasteners shall have a pressure rating to the full pressure rating of the pipe. The restraint shall be Series 1600, as manufactured by EBAA Iron, Inc., Series 1390 as manufactured by The Ford Meter Box Company, or approved equal.
(b) Joint restraints for PVC at ductile mechanical and Push-on fittings shall consist of a split serrated ring installed on the plain end pipe. A sufficient number of restraining rods shall be used to connect the gripping ring to the ductile iron fitting. The combination of the restraints and fasteners shall have a pressure rating to the full pressure rating of the pipe. The restraint shall be Series 1300 as manufactured by The Ford Meter Box Company, or approved equal.
(c) Restrained joint fittings and the restraining components shall be Ductile Iron in accordance with applicable requirements of AWWA C110 and/or C153. Push-on joints for such fittings shall be in accordance with AWWA C111.
(d) All joint restraint shall be through the use of restrained joints; thrust blocks shall not be permitted.
5) Internally restrained joints
(a) Joint restraints for PVC bell joints shall consist of an internal joint system. Couplings shall be designed for use at or above the pressure class of the pipe with which they are utilized and shall incorporate elastomeric sealing

gasket meeting the requirements of ASTM F 477. Joints shall be designed to meet the zero leakage test requirements of ASTM D 3139.
(b) Installation shall meet the requirements of AWWA C605 and shall be in accordance with Manufacturer's instructions.
(c) Approved Manufacturers, or approved equal
(1) JM Eagle: Eagle Loc 900
(2) Diamond Plastics: Diamond Lok-21
(3) North America Pipe: Certa-Lok

d. Materials:
1) Comply with ASTM D1784.
2) Minimum Cell Classification: 12454

3. Non-Pressurized PVC Pipe and Fittings:
a. Pipe:
1) Comply with ASTM D3034.
2) SDR 35
b. Joints:
1) Per Manufacturer's recommendations

B. PE Pipe and Fittings
1. PE Pipe and Fittings:
a. Pipe: AWWA C906.
1) Dimension Ratio: Specified by Seller, but no less than will produce a piping system rated for less than 150% of design service pressures.
b. Fittings:
1) Comply with AWWA C906.
2) Type: Molded
c. Joints: Specified by Seller, but no less than will produce a piping system rated for less than 150% of design service pressures.
d. Materials:
1) Comply with AWWA C906.
2. PEX Tube and Fittings:
a. Tube:
1) Comply with AWWA C904.
2) Size and Wall Thickness:
(a) Specified by Seller, but no less than will produce a piping system rated for less than 150% of design service pressures.
(b) Comply with ASTM F876.
b. Fittings:
1) Type: Compression.
2) Materials: Suitable for application.
3) Buried Fittings: stainless steel crimp ring specifically for PEX piping.
c. Threads:
1) Type: Straight.
2) Comply with ASME B1.1.

C. Double Containment Pipe and Fittings
1. Double Containment PVC Pipe, Fittings and Accessories.
a. Pipe:
1) All double containment pipe shall be PVC containment pipe and PEX tube carrier pipe.
b. Provide self-regulating low temperature heat tracing cable lines for both exposed and buried Sodium Hydroxide piping to maintain liquid temperature above 60 degrees Fahrenheit. Heat tracing system shall be suitable for chemical resistance to sodium hydroxide (50% w/w).

1) Seller shall supply heat tracing cable rated for Class 1, Division 2 hazardous area installations.
2) Heat tracing cable shall be integrated with double containment piping system per manufacturer's recommendations as necessary to maintain liquid temperature as specified.

D. Flanged Fittings
1. On exposed pipes:
a. Bolts: ASTM A307, Grade B.
b. Nuts: ASTM A563, Grade A.
c. Bolts and Nuts: Hot-dip galvanized in accordance with ASTM F2329.
2. On underwater pipes and pipes adjacent to wet walls:
a. Bolts: ASTM A193, Grade B8M.
b. Nuts: ASTM A194, Grade 8M.

E. Accessories
1. PVC Piping:
a. Flange Bolting:
1) Hex-Head Bolts: Stainless steel; ASTM A193 Grade B8M Class 2.
2) Hex-Head Nuts: Stainless steel; ASTM A194 Grade B8M Class 2.
b. Flange Gaskets:
1) Type: Full faced.
2) Material: EPDM.
3) Comply with ASME B16.21.
c. Solvent Cement:
1) Comply with ASTM D2564.
2) Primers: Comply with ASTM F656.
2. PE Piping:
a. Insert Fittings: Comply with ASTM D2609.
b. Couplings: Comply with ASTM F1055.
c. Flange Bolting:
1) Hex-Head Bolts: Stainless steel; ASTM A193 Grade B8M Class 2.
2) Hex-Head Nuts: Stainless steel; ASTM A194 Grade B8M Class 2.
d. Flange Gaskets:
1) Type: Full faced.
2) Material: EPDM.
3) Comply with ASME B16.21.

2.05 GENERAL REQUIREMENTS

A. Piping
1. Seller is responsible for sizing piping systems based on flow rates between process areas upstream, downstream, and within the MBR Equipment Package.

B. Gaskets
1. Gaskets shall be suitable for the specific fluids, pressure, and temperature conditions.
2. Lubricant shall be supplied by pipe manufacturer.

C. Vent and Drain Valves
1. Pipeline 2-inch Diameter and Smaller – ½-inch vent, 1-inch drain, unless otherwise shown.
2. Pipeline 2-1/2-inch Diameter and Larger – ¾-inch vent, 1-inch drain, unless otherwise shown.

D. Finishes
1. Factory prepare, prime, and provide two part epoxy coating system on ductile iron, steel, and PVC piping and fittings.

2.06 SOURCE QUALITY CONTROL

A. Tests and Inspections
   1. All piping shall be hydrostatically tested prior to shipment to the site.

B. Non-conforming Work
   1. Any pipe or fitting that does not pass the hydrostatic test shall be replaced as soon as possible and retested prior to shipment to the site. This shall not incur any additional cost to the Buyer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions
   1. Verify size, material, joint types, elevation, and horizontal location of pipelines connecting to upstream and downstream equipment to be connected to MBR Equipment Package piping systems.

3.02 INSTALLATION / APPLICATION

A. For flanged joints, where 1 of the joining flanges is raised face type, provide a matching raised face type flange for the other joining flange.

B. Piping at pipe joints, fittings, couplings, and equipment shall be installed without rotation, angular deflection, vertical offset, or horizontal offset.

C. Do not transfer pipe loads and strain to equipment.

D. Provide unions, flexible couplings, flanged joints, flanged coupling adapters, and other types of joints or means which are compatible with and suitable for the piping system, and necessary to allow ready assembly and disassembly of the piping.

E. Restrain pressure piping at valves and at fittings where piping changes direction, changes sizes, and at ends:
   1. When piping is aboveground or underwater, use mechanical or structural restraints.
   2. Determine thrust forces by multiplying the nominal cross sectional area of the piping by design test pressure of the piping.

F. Connections between ferrous and nonferrous metals:
   1. Connect ferrous and nonferrous metal piping, tubing, and fittings with dielectric couplings especially designed for the prevention of chemical reactions between dissimilar metals.
   2. Nonferrous metals include aluminum, copper, and copper alloys.

G. Flanged connections between dissimilar metals such as ductile iron pipe and steel pipe:
   1. Provide stainless steel bolts with isolation bushings and washers, and full-face flange gaskets.

H. Install vents at all high point locations and drains on low point locations of all pipelines.

3.03 FIELD QUALITY CONTROL

A. Following delivery and installation of MBR Equipment Package on concrete pad:
   1. Inspect for damage to pipe lining or coating and for other defects that may be detrimental as determined by Buyer.
   2. Repair damaged piping or provide new, undamaged pipe.

END OF SECTION

SECTION 40 27 02
PROCESS VALVES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes materials, fabrication, testing, and installation of all interconnecting valves within the MBR Equipment Package.

1.02 REFERENCES

A. Reference Standards
   1. American Bearing Manufacturers Association
      a. ABMA 9 – Load Ratings and Fatigue Life for Ball Bearings.
      b. ABMA 11 – Load Ratings and Fatigue Life for Roller Bearings.
   2. American Water Works Association
      a. AWWA C500 - Metal-Seated Gate Valves for Water Supply Service.
      b. AWWA C504 - Rubber-Seated Butterfly Valves.
      c. AWWA C507-15 Ball Valves 6 In. Through 60 In.
      d. AWWA C508 - Swing-Check Valves for Waterworks Service, 2-In. Through 24-In. (50-mm Through 600-mm) NPS.
      e. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service.
      f. AWWA C517 - Resilient-Seated Cast-Iron Eccentric Plug Valves.
      g. AWWA C541 - Hydraulic and Pneumatic Cylinder and Vane-Type Actuators for Valves and Slide Gates.
      h. AWWA C542 - Electric Motor Actuators for Valves and Slide Gates.
      i. AWWA C550 - Protective Interior Coatings for Valves and Hydrants.
   3. ASME International
      a. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
      b. ASME B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard.
      c. ASME B16.11 - Forged Fittings, Socket-Welding and Threaded.
      d. ASME B16.42 - Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300.
      e. ASME B16.34 - Valves - Flanged, Threaded, and Welding End.
      f. ASME B1.20.1 - Pipe Threads, General Purpose, Inch.
   4. ASTM International
      a. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
      b. ASTM A536 - Standard Specification for Ductile Iron Castings.
      c. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings.
      d. ASTM B148 - Standard Specification for Aluminum-Bronze Sand Castings.
      e. ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications.
      f. ASTM D1784 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
      g. ASTM D3222 - Standard Specification for Unmodified Poly(Vinylidene Fluoride) (PVDF) Molding Extrusion and Coating Materials.
      h. ASTM D4101 - Standard Specification for Propylene Injection and Extrusion Materials.
   5. Manufacturers Standardization Society
      a. MSS SP-25 – Standard Marking System for Valves, Fittings, Flanges, and Unions.

b. MSS SP-67 – Butterfly Valves
c. MSS SP-110 – Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.
d. MSS SP-80 – Bronze Gate, Globe, Angle, and Check Valves.

6. National Electrical Manufacturers Association
   a. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
7. NFPA
   a. NFPA 70 - National Electrical Code (NEC).
8. SPPC – The Society for Protective Coatings
   a. SSPC SP 6 – Commercial Blast Cleaning.
9. UL
   a. Equipment Directory.

1.03 SUBMITTALS

A. Reference Section 01 30 00 – Administrative Requirements for submittal requirements and procedures.

B. Action Submittals
   1. Product Data
      a. Submit manufacturer information for actuator with model number and size indicated.
      b. Submit valve cavitation limits.
      c. Submit manufacturer's installation instructions and special requirements.
   2. Shop Drawings
      a. Indicate parts list, materials, sizes, position indicators, limit switches, control system, actuator mounting, wiring diagrams, and control system schematics.
      b. Submit valve schedule indicating valve type, location, number, tag number, and facility name/number or service where used.
      c. Submit actuator Shop Drawings with valve and gate submittal.
      d. Provide sizing calculations for throttle and modulating valves.

C. Informational Submittals
   1. Factory Test and inspection data.
   2. Operation and Maintenance Data as specified in Section 01 78 23 – Operations and Maintenance Manual.

D. Closeout Submittals
   1. Reference Section 01 70 00 – Closeout Procedures.
   2. Project Record Documents
      a. Record actual locations of valves and actuators.

1.04 QUALITY ASSURANCE

A. Qualifications
   1. Manufacturer shall have a minimum of five years' experience in manufacturing valves.

B. Manufacturer's Certificate
   1. Certify that products meet or exceed specified requirements.

C. Certification of Valves Larger than 12 Inches – Furnish certified copies of hydrostatic factory tests, indicating compliance with applicable standards.

D. Provide results of factory tests and inspections.

E. Ensure that materials of construction of wetted parts are compatible with mixed liquor.

1.05 DELIVERY, STORAGE, AND HANDLING

A. All valves shall be shipped already installed and tested with Seller's MBR Equipment Package. Valves removed from assemblies for shipping shall be protected from damage.

B. Any spare valves included with the system shall be stored according to manufacturer's instructions.

PART 2 PRODUCTS

2.01 VALVE SYSTEMS - GENERAL

A. Seller to provide valves, operators, actuators, handwheel, chainwheel, extension steam, floor stand, worm and gear operator, operating nut, chain, wrench, and other accessories as required to provide a complete valve system to operate the MBR Equipment Package per Seller's design intent.

B. General Description
   1. Factory mount operator, actuator, and accessories.
   2. Include manufacturer's name, pressure rating, and year of fabrication cast into the valve body.
   3. Valves to be same size as the adjoining pipe.
   4. Valve ends to be compatible with adjacent piping.
   5. All valves shall have no leakage in either direction at valve rated design pressure.
   6. Valves shall be rated to at least a maximum of 140 degrees Fahrenheit.
   7. Bonnets
      a. Clamped, screwed, or flanged to body and of same material and pressure rating as body.
   8. Stems and Stem Guides
      a. Bronze Valve Stems according to ASTM B62.
      b. Space stem guides 10 feet o.c.
      c. Submerged Stem Guides – Type 304 stainless steel.
   9. Nuts and Bolts
      a. High Strength stainless steel and dielectrically isolated from dissimilar metals.

C. Operation
   1. Open by turning counterclockwise; close by turning clockwise.
   2. Cast directional arrow on valve or actuator with OPEN and CLOSE cast on valve in appropriate location.

2.02 GATE VALVES

A. General Duty
   1. Description
      a. Comply with MSS SP-25.
      b. Stem – Non Rising.
      c. Bonnet – Bolted.
      d. Handwheel, OS&Y.
      e. Wedge Disc – Solid, encapsulated in EPDM rubber.
      f. End Connections – Threaded.
   2. Smaller than 2 inches
      a. Bronze, threaded end.
      b. Type – Crane "428UB", Fairbanks "U-0252", Jankins "47-U", Stockham "B-105" or equal.
   3. Materials
      a. Body – ASTM A536 ductile iron.
   4. Manufacturers
      a. American Series 2500 Resilient Wedge Gate Valve.
      b. Or Approved Equal.

B. Resilient-Wedge
   1. Description
      a. Comply with AWWA C509.
      b. End Connections – ASME B16.1, ASME B16.5, and ASME B16.42, flanged; Bell and spigot; Mechanical joint.
      c. Gear Actuators for manual valves shall comply with AWWA C509.

2. Operation
    a. Stem – Non-rising.
    b. Operating Nut – Square, open counterclockwise unless otherwise indicated.
    c. Handwheel – Removable; capable of operating square operating nut. For above ground installations only.
    d. Furnish gear operators for valves 8 inches and larger, and chainwheel operators for valves mounted over 8 feet above operating floor.
3. Materials
    a. Wedge – Resilient ASTM A126, cast iron, fully encapsulated with molded rubber.
    b. Body and Disc – ASTM A126, cast iron or ASTM A536, ductile iron, rubber coated.
    c. Stem, Stem Nuts, Glands, and Bushings – ASTM B584, bronze or copper alloy.
    d. Connecting Hardware – Type 316 stainless steel.
4. Manufacturers
    a. Mueller Co.
        1) Series A-2360 or A-2362.
    b. Clow Valve Co.
        1) Model 2639/2640.
    c. Or Approved Equal.

C. Resilient Seated Gate Valves
1. Description
    a. Body – Iron.
    b. ASME B16.1 Class 125 flanged ends.
        1) Outside screw and yoke in accordance with AWWA C509.
2. Materials
    a. Body and Disc – ASTM A536, ductile iron, rubber coated.
    b. Stem, Stem Nuts, Glands, and Bushings – ASTM B584, bronze or copper alloy.

2.03 PLUG VALVES

A. Description
1. Type – Non-lubricating eccentric type, in accordance with AWWA C517.
2. Plug Face – Resilient material that operates satisfactorily at a temperature of 180 degrees Fahrenheit continuous and 215 degrees Fahrenheit intermittent, except for valves in compressed air.
    a. Valves in Compressed Air Service – Resilient material suitable for continuous duty at 250 degrees Fahrenheit.
3. Compression Washer – Provide flat compression washer made of Teflon, or of a material having equal physical characteristics on valve stem between plug and bonnet.
4. Stem Seals – Provide stem seals serviceable without unbolting the valve bonnet assembly.
5. Grit Excluders – Provide PTFE grit excluders at upper and lower plug journals to prevent entry of foreign solids in bearing area.
6. Clearly mark valves to indicate their open and closed positions.
7. Groove End Body Valves
    a. Usage – Plug
    b. Grooved End Joint Design – In accordance with
8. 3” and larger flanged ends ASME B16.1 150.

B. Operation
1. 3 Inches and Smaller – Manual Lever.
2. Greater than 3 Inches – Worm Gear Manual Operators with Handwheel.
3. Furnish gear operators for valves 8 inches and larger, and chainwheel operators for valves mounted over 8 feet above operating floor.

C. Materials
1. Body and Plug – ASTM A126, Class B, cast-iron with plug face of neoprene or resilient material suitable for the intended service.
2. Exposed Nuts, Bolts, and Washers – Zinc Plated.
3. Steam Bearing – Lubricated Stainless Steel or Bronze.

2.04 BALL VALVES

A. Metal Body
1. Description
a. 6 Inches and Larger
1) Type – Non-lubricated, resilient seated and capable of sealing in either flow direction.
2) In accordance with AWWA C507.
3) ASME B16.1, Class 125 flanged ends.
4) Valve Actuator
5) Manually Operated Valves – Self-locking traveling nut or worm gear type actuator with position indicator. Permanently lubricate gearing. Provide adjustable screws to stop travel at both open and closed positions.
b. Less Than 6 Inches
1) Type – Non-lubricated, full port and capable of sealing in either direction.
2) End Connections
3) Threaded or solder ends for sizes 3-inch and smaller.
4) Class 150 flanged for sizes larger than 3-inch.
5) Flanges – In accordance with ASME B16.42 standards.
6) Stem Packing – Manually adjustable while valve is under pressure.
7) Shafts
8) Rigidly connected to the ball by a positive means.
9) Design connection to transmit torque equivalent to at least 75 percent of the torsional strength of the shaft.
10) Handles – Stainless steel handle with vinyl grip and stainless steel nut designed to open and close the valve under operating conditions.
2. Materials
a. 6 Inches and Larger
1) Body – ASTM A48 cast iron.
2) Ball – Ductile Iron ASTM A536 65-45-12 or cast iron ASTM A48, Class 40.
3) Shaft – Type 304 or 316 stainless steel.
4) Seats – PTFE resilient seated valves.
5) Stem Seals – PTFE or Viton.
b. 6 Inches and Smaller
1) Valves in steel and ductile iron piping – Ductile iron or cast steel body.
2) Valves in stainless steel piping – Stainless steel body, material type to match piping material as specified in Section 40 27 00.
3) Ball – Chrome Plated Brass, Type 304 or 316 stainless steel.
4) Seats – PTFE.
5) Stem Seals – PTFE or Viton.
6) Bearings – Self-lubricated, corrosion resistant material that will not contaminate potable water.
3. Manufacturers
a. 6 inches and Larger
1) Henry Pratt Co. – Resilient seated valve.
2) Valmatic Ener G Series #4000
3) Or Approved Equal
b. Less than 6 inches
1) Apollo Valves as manufactured by Conbraco Industries, Inc.

2) Metso Automation/Jamesbury
3) NIBCO, Inc.
4) Flow-Tek, Inc.
5) Or Approved Equal.

B. Plastic Body
1. Description
a. Type – Non-lubricated and capable of sealing in either flow direction.
b. End Connections – True union; solvent or heat welded to piping.
c. Operator Handle – Lever.
2. Materials
a. Body – Polyvinyl Chloride (PVC).
b. Ball – Polyvinyl Chloride (PVC).
c. Seats – PTFE (Teflon).
d. O-rings – FKM (Viton) or EPDM.
3. Manufacturers
a. Asahi America.
b. Chemtrol Division, NIBCO, Inc.
c. Plast-O-Matic Valves, Inc.
d. CRANE ChemPharma & Energy.
e. Georg Fischer Piping Systems.
f. Or Approved Equal.

2.05 BUTTERFLY VALVES

A. Description
1. Rubber-Seated
a. Must meet or exceed the requirements outlined in AWWA C504.
b. Valves 2” and smaller shall comply with MSS SP-67-2022, Type I.
c. Class 150.
d. Style – Wafer.
e. Shaft – Self-lubricating.
f. Seats – Mounting on body.
g. Packing – Replaceable without dismantling valve.
h. End Connections
1) Flanged – Comply with ASME B16.42.
2) Mechanical Joint.

B. Operation
1. Disc shall have a 90 degree turn from full open to tightly closed.
2. Gear Actuators for Manual Valves – Comply with AWWA C504.

C. Materials
1. Body – Cast iron, ASTM A126 or Ductile Iron, ASTM A536.
2. Stem – Stainless steel.
3. Disc
a. Same material as valve bodies or type 316 stainless steel.
b. Type 316 stainless steel seating edge.
c. Connection to shaft shall be made with stainless steel pins or keyways. Compression type connections not allowed.
4. Seats
a. Type – Resilient and replaceable.
b. Material – EPDM or Buna N as recommended by Manufacturer for service.
5. Seating Surfaces – Type 316 stainless steel.
6. Packing – EPDM.
7. Bearings – PTFE or as otherwise recommended by manufacturer for seat material.

8. Connecting Hardware – Type 316 stainless steel.

D. Manufacturers
1. DeZurik.
2. Pratt.
3. Mueller Co.
4. Bray.
5. Or Approved Equal.

2.06 CHECK VALVES

A. Swing Check Valves
1. Description
a. Type – Swing, resilient seated, with outside lever and adjustable weight.
b. Size – 2 inches and larger.
c. Comply with AWWA C508.
d. Flow Area – Full open, equal to connecting nominal pipe diameter.
e. Mounting – Horizontal or vertical.
f. End Connections – Flanged, ANSI/ASME B16.1 Class 125/150.
2. Materials
a. Body and Cover – Ductile iron, ASTM A536 or Cast Iron ASTM A126 CL.B.
b. Disc – Ductile iron, ASTM A536 or Cast Iron ASTM A126 CL.B.
c. Seat – Field replaceable, Type 316 stainless steel or bronze.
d. Hinge Pin and Key – Stainless steel.
e. Connecting Hardware – Type 304 stainless steel.
3. Manufacturers
a. APCO Swing Check Valve CVS-250/250A
b. Mueller Co. No. A-2600 Series.
c. Or Approved Equal.

B. Silent Check Valves
1. Description
a. Type – Silent, wafer style check valve.
b. Size – 2 inches and larger.
c. End Connections – Flanged, ANSI/ASME B16.1.
2. Materials
a. Body – Ductile Iron, ASTM 536 or Cast Iron ASTM A126 CL.B.
b. Plug and Seat – Stainless Steel, ASTM A276 or ASTM A351.
c. Spring – Stainless steel, ASTM A276 or ASTM A313.
3. Manufacturers
a. APCO Wafer Style Series 300 Silent Check Valve.
b. Valmatic 1400A/1800 Silent Check Valve.
c. Or Approved Equal.

C. Plastic Ball Check
1. Description
a. Type – Thermoplastic ball check valve.
b. Size – ½” to 4”.
c. End Connections – Union or Threaded.
2. Materials
a. Body – PVC, ASTM D 1784.
b. Seats – EPDM or FKM (Viton).
c. Seals – EPDM or FKM (Viton).
3. Manufacturers
a. Asahi-America.
b. NIBCO, Inc. – Chemtrol Tru Union.

c. Or Approved Equal.

2.07 ACTUATORS FOR PROCESS VALVES

A. General
1. Furnish gear and power actuators with position indicators.
2. Actuators shall have the torque ratings equal to or greater than required for valve seating and dynamic torques, whichever is greater, and shall be capable of holding the valve in any intermediate position between fully-open and fully-closed without creeping or fluttering.
3. Actuator torque ratings for butterfly valves shall be determined in accordance with AWWA C504.
4. Wires of motor-driven actuators shall be identified by unique numbers.
5. Valve Actuators in NEC Class I, Group D, Division 1 or 2 Hazardous Locations – UL approved.

B. Manual Actuators
1. Unless otherwise indicated, valves shall be furnished with manual actuators.
2. Comply with AWWA C541-16.
3. Provide a direct acting lever or handwheel actuator of manufacturer's best standard design.
4. Provide worm gear actuators for valves submerged with gear-assistance and valves with pressure higher than 250 psi.
5. Provide chain actuators for shutoff valves mounted 8 feet above operating floor level.
6. Gear-Assisted Manual Actuators
   a. Provide totally enclosed gears.
   b. Maximum Operating Force – 60 lbf.
   c. Bearings – Permanently lubricated bronze.
   d. Packing – Accessible for adjustment without requiring removal of actuator from valve.
7. Chain Actuator
   a. Chain actuators for shutoff valves mounted 7 feet and greater above operating floor level.
   b. Valve manufacturer to provide chain drives with sprocket-rim chain wheels, chain guides, and operating chains.
   c. Wheel and chain guide material – ductile iron, cast iron, or steel.
   d. Chain guides and hot-dip galvanized operating chain extending to 5-1/2 feet (1.68 m) above operating floor level.
   e. Valve stem designed to compensate for the extra weight and chain pull.
   f. Chain Wheels – Sprocket-rim type.
   g. Furnish chain storage if chains may interfere with pedestrian traffic.
8. Floor Boxes
   a. Provided for operating nuts in or below concrete slabs.
   b. Material – hot-dip galvanized cast iron or steel.
   c. Covers – fit to slab thickness.
      1) Bronze-bushed cover for operating nuts in concrete slab.
9. Worm Gear Actuator
   a. Provide gearing on worm gear actuators that is self-locking with gear ratio such that torque in excess of 160 ft-lb will not need to be applied to operate valve at most adverse conditions for which valve is designed.
10. Traveling-Nut Actuator
    a. Actuator – Travelling nut with screw with two end bearings.
    b. Material
       1) Actuator – Weatherproof cast iron or steel housing with spur gear and minimum 12-inch diameter handwheel.
       2) Screw and Gear – Hardened alloy steel or stainless steel.
       3) Nut and Bushing – Alloy Bronze.

c. Self-locking.
d. Bearings and Gear – Grease-Lubricated Nipples.
e. Gearings – Designed at 100 percent overload.

C. Electric Motor Actuators
1. Description
a. Motor – Reduction gearing, reversing starter, torque switches, and limit switches.
1) Type
2) Reversing starter designed for minimum susceptibility to power lines surges and spikes.
3) Totally enclosed, non-ventilated, high starting torque, low starting current.
4) Power Supply – 480-volt, three-phase, 60-Hz Current with Class F insulation and motor frame with dimensions in accordance with the latest revised NEMA MG Standards.
5) Torque ratings equal to or greater than that required for valve seating and dynamic torques with a 25 percent factor of safety.
6) Rated for operating under the following conditions without exceeding temperature limits with ambient temperature of 40 degrees Celsius.
7) Continuous operation for 15 minutes or twice the open-to-close operating time (whichever is greater) at normal operating torque or 33 percent of maximum torque (whichever is greater).
8) 60 starts per hour minimum for open/close service.
9) Full-voltage starting.
10) Each electric motor actuator shall be provided with a local disconnect switch or circuit breaker to isolate power from the motor and controller during maintenance activities.
11) Motor Construction – Stator and rotor to be independent components from valve operation such that failure of either item will not require actuator disassembly or gearing replacement.
12) Electrical Characteristics
13) Actuator control – wall-mounted beneath valve at location approved by the Engineer.
14) Voltage per manufacturer requirements.
(a) Line voltage ranging between +/-10 percent the rated voltage, the motor shall develop full rated torque continuously for 15 minutes without causing the thermal contact protective devices imbedded in the motor windings to trip or the starter overloads to drop-out.
15) Motor conduit connections – Watertight.
16) Over-Temperature Damage – Provide two Class B thermal contacts or solid-state thermistors imbedded within the motor windings.
17) Moisture Intrusion – Actuator shall be hermetically sealed, non-breathing design with a separately sealed terminal compartment which prevents moisture intrusion.
b. Actuator – Single or double reduction units, spur or helical gears and worm gearing.
1) Spur or helical gears – hardened alloy steel.
2) Worm gears – alloy bronze.
c. Provide actuators complete and operable with all components and accessories required for operation.
d. Comply with AWWA C542.
e. Enclosure
1) Weather-proof NEMA 4 assembly
2) Mounting – Attached actuator housing using flanged motor adapter.
f. Open/Closed Operating Speed
1) Full close to full open or full open to full close operating travel time as recommended by manufacturer and as suitable for intended operation.

2) At a minimum, size the actuator to move valves at minimum 12 inches per minute under maximum load. Measure rate of closure for valves at maximum diameter of disc, plug, or ball.
3) Size actuator to move valves from full open to closed position within the time recommended by the manufacturer.

g. Reduction Gearing
1) Description – Single- or double-reduction unit of spur or helical gears and worm-gearing.
2) Lubrication – Power gearing grease or oil lubricated in the sealed housing.
3) Output speed – Mechanically changeable by removing motor and changing the exposed or helical gearset ratio without further disassembly.
4) Bearings
5) Provide with suitable seals to confine lubricant and prevent dirt/dust entrance.
6) Type
(a) Ball – comply with ABMA 9.
(b) Roller – comply with ABMA 11.

h. Limit Switches
1) Type – Heavy duty, open contact.
2) Actuation – Rotor cam.
3) Valve position sensed by 15-bit, optical, absolute position encoder.
4) Continuous measurement of valve position (motor and hand wheel operation).

i. Starting Device
1) Hammer Blow – Unit designed that a hammer blow is imparted to stem nut, except for modulated valves., when opening and closing a valve.
2) Stem nut allowed free movement prior to imparting the hammer blow.
3) Exception – Modulating valves.
4) Actuator motor must attain full speed before stem load encountered.

j. Handwheel Operation
1) Permanently attached handwheel provided for emergency manual operation.
2) Handwheel rotation not permitted during electrical operation.
3) Maximum torque – 60 lb-ft
4) Maximum force –60 lb on rim of the handwheel.
5) Arrow with appropriate direction to turn the handwheel to open or close shall be permanently affixed on handwheel.
6) Electric motor actuators 7-feet above the floor shall be provided with chain activator handwheels.
7) Clutch lever provided with a cable secured to the chain to allow disengagement for manual operation.

2. Manufacturers
a. Rotork Controls Inc.
b. Limitorque.
c. Auma Actuators, Inc.
d. Bettis
e. Asahi
f. Or Approved Equal.

2.08 FINISHES

A. Valve marking shall comply with MSS SP-25.

B. Valve lining and coating shall comply with AWWA C550.

C. Exterior safety isolation valves and lockout valves with handles, handwheels, or chain wheels shall be “safety yellow”.

D. When epoxy lining and coating are to be used:

1. Either two-part liquid material or heat-activated (fusion) material except only heat-activated material if specified as “fusion” or “fusion-bonded” epoxy.
2. Minimum 7-mil dry film thickness except where limited by valve operating tolerances.

2.09 ACCESSORIES

A. Handwheel
   1. Furnish permanently attached handwheel for emergency manual operation.
   2. Rotation – None during powered operation.
   3. Permanently affix directional arrow and cast OPEN and/or CLOSE on handwheel to indicate appropriate direction to turn handwheel.
   4. Maximum Operating Force – 60 lbf.

B. Tagging – 1-1/2 inch diameter heavy bass or stainless steel tag attached with No. 16 solid brass or stainless steel jack chain for each valve operator, bearing valve tag number coordinated with Engineer.

C. Limit Switch – Factory installed NEMA 4X limit switch by actuator manufacturer.

D. Chain Wheel and Guide
   1. Handwheel direct-mount type.
   2. Complete with chain.
   3. Galvanized or cadmium-plated.

2.10 SPARE PARTS

A. Provide all spare valves as listed in Section 43 32 56.

2.11 SOURCE QUALITY CONTROL

A. Reference Section 01 40 00 – Quality Requirements.

B. Tests and Inspections
   1. Test valves according to manufacturer’s standard testing protocol, including hydrostatic, seal, and performance testing.
   2. Certificate of Compliance
      a. If manufacturer is approved by authorities having jurisdiction, submit certificate of compliance indicating work performed at manufacturer’s facility conforms to Contract Documents.
      b. Specified shop tests are not required for work performed by approved manufacturer.
   3. Test gate valves in accordance with AWWA C509.
   4. Test butterfly valves 3-inches and larger according to AWWA C504 and valves 2-inches and smaller according to MSS SP-67-2017, Type I.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions
   1. Verify that piping system is ready for valve installation and that valve installation would be in accordance with Manufacturer’s recommendations.

3.02 INSTALLATION / APPLICATION

A. Special Techniques
   1. General
      a. Install valves, actuators, extensions, valve boxes, and accessories according to manufacturer instructions.
      b. Firmly support valves to avoid undue stresses on piping.
      c. Install valves with stems upright or horizontal, not inverted.
      d. Install valves so handles operate from fully open to fully closed without encountering obstructions.
      e. Valve location shall be chosen with routine operation and maintenance in mind.

f. Install ¾-inch ball valves with cap for drains at low points of piping and bases of vertical risers.
g. Install valves with clearance for installation of insulation and to allow access.
h. Install valves with clearance for removal, maintenance, and operation.

2. Gate and Ball Valves
   a. General
      1) Install operating stem vertical when valve is installed in horizontal runs of pipe having centerline elevations 4 feet 6 inches or less above finish floor.
      2) Install operating stem horizontal in horizontal runs of pipe having centerline elevations greater than 4 feet 6 inches above finish floor.
   b. Gate Valves
      1) Install valves in accordance with AWWA C509.
      2) Provide removal handwheel.
   c. Ball Valves
      1) Install valves in accordance with AWWA C507.
3. Plug Valves
   a. Install valves in accordance with AWWA C517.
   b. Horizontal Piping – Stem horizontal with plug swinging upwards.
   c. Vertical Piping – Plug at top when closed.
   d. Plugs – On top when open and on pressure side when closed.
4. Butterfly Valves
   a. Install valves in accordance with AWWA C504.
   b. Valves shall be installed at least 8 diameters downstream of a horizontal elbow or branch tee with shaft in horizontal position.
   c. When there is an elbow or branch tee immediately upstream of valve, install the valve with shaft in vertical position.
   d. For horizontal elbow or branch tee immediately upstream of valve, install valve with shaft in horizontal position.
   e. When installed immediately downstream of swing check, install valve with shaft perpendicular to swing check shaft.
   f. For free inlet or discharge into basins and tanks, install valve with shaft in vertical position.
5. Check Valve
   a. Install valves in accordance with AWWA C508.
   b. Install valve in vertical flow (up) piping only for gas services.
   c. Install swing check valve with shaft in horizontal position.
   d. Install double disc swing check valve to be perpendicular to flow pattern when discs are open.
   e. Dielectric Fittings – Provide between dissimilar metals.
6. Actuators for Process Valves
   a. Securely mount actuators using brackets or hardware specifically designed for attachment to valves.
   b. Install floor boxes in concrete floor with lid flush with floor.
   c. After installation of stem covers, mark stem covers at point where top of stems is at full-open position and at closed position.
   d. Attach floor stand to structure with anchor bolts.
   e. Install stem stuffing boxes where operating stems pass through intermediate concrete floor slabs.
   f. Extend chain actuators to 5-1/2 feet above operating floor level.
7. Install safety isolation valves on compressed air.
8. Torque Tube – Where operator for quarter-turn valve is located on floor stand, furnish extension stem torque tube of a type properly sized for maximum torque capacity of valve.

9. Chain Wheel and Guide – Install chain wheel and guide assemblies or chain lever assemblies on manually operated valves over 6 feet 9 inches above finished floor. Install chain to within 3 feet of finished floor. Where chains hang in normally travelled areas, use appropriate “L” type tie-back anchors. Install chains within operator horizontal reach of 2 feet 6 inches maximum, measured from normal operator standing location or station.

3.03 FIELD QUALITY CONTROL

A. Reference Section 01 40 00 – Quality Requirements.

B. Field Tests and Inspections
   1. Valves may be tested at the same time as the pipelines if desired.
   2. Test valves for proper alignment.
   3. Test that valves open and close smoothly under operating pressure conditions. Test this from both directions in two-way valves.
   4. Verify venting and seating are fully functional by inspecting the air and vacuum valves as pipe is filled.
   5. Count and record the number of turns required to open and close the valve. Account for any discrepancies with manufacturer's data.
   6. Set, verify, and record set pressures for relief and regulating valves.
   7. Automatic valves shall be tested at the same time as the control system. Set opening and closing speeds, limit switches, as required or recommended by Engineer.
   8. Field test equipment to demonstrate operation without undue noise, vibration, or overheating.

END OF SECTION

SECTION 40 91 00
PROCESS INSTRUMENTATION

PART 1 GENERAL

1.01 SUMMARY

A. At a minimum, provide all instruments shown on attached P&ID Drawing per each treatment train and as specified in this Specification Section. Seller shall provide any additional instrumentation necessary to control the MBR Equipment Package as a component of their Goods and Services.

B. Section Includes:
   1. Turbidity Sensor.
   2. Total Suspended Solids Probe.
   3. Dissolved Oxygen Probe.
   4. Electromagnetic Flowmeter.
   5. Level Transmitter.
   6. Pressure Transmitter.
   7. Ammonium and Nitrate Combination Sensor.
   8. Differential pH Sensor

1.02 REFERENCES

A. Abbreviations and Acronyms
   1. CPVC – Chlorinated Polyvinyl Chloride
   2. DO – Dissolved Oxygen
   3. ISE – Ion Selective Electrode
   4. LCP – Liquid Crystal Polymer
   5. NEC – National Electric Code
   6. NFPA – National Fire Prevention Association
   7. NTU – Nephelometric Turbidity Unit

1.03 SUBMITTALS

A. Prepare submittals in accordance with Section 01 33 00 – Submittal Procedures.

B. Prepare shop drawings in accordance with Section 26 05 00 – Electrical Work, General.

C. Prepare Operation and Maintenance Manuals in accordance with Section 01 78 23 Operations and Maintenance Manual.

1.04 **WARRANTY**

A. Warrant all equipment for at least two (2) years from the date of Substantial Completion.

B. Warranty shall include, but not limited to:
   1. Repair or replacement of damaged equipment returned for service.
      a. For equipment returned to Seller following service, the failure mode and method of correction must be identified.
   2. Replacement of equipment due to manufacturer defect.

PART 2 PRODUCTS

2.01 **PRODUCTS**

A. Turbidity Sensor
   1. Manufacturers
      a. Hach Company Model TU5300sc.
      b. Endress and Hauser Turbimax CUS52D
      c. Or Approved Equal.
   2. Performance and Design Criteria
      a. Function – Continuously measure, indicate, and transmit a signal proportional to turbidity of a sample stream of process fluid.
      b. Method of Measurement – Light scatter detection measurement of a 90 degree angle in a 360 degree radius around the axis of the incident light beam.
      c. Parts – Element, transmitter (controller), interconnecting cable, mounting hardware, accessories, and expendables.
      d. Environmental Conditions
         1) Temperature – 32 to 122 degrees Fahrenheit.
         2) Relative Humidity – 5% to 95%, noncondensing.
      e. Performance
         1) Minimum Detection Limit – 0.002 NTU.
         2) Range of Measurement – 0 to 700 NTU.
         3) Accuracy
            (a) From 0 to 40 NTU – ±2% of reading or ±0.01 NTU, whichever is greater.
            (b) From 40 to 1000 NTU – ±10% of reading.
         4) Response Time – T90 < 45 seconds at 100 mL/min.
         5) Resolution – 0.0001 NTU.
         6) Repeatability – ±1% or ±0.002 NTU, whichever is greater.
         7) Interval of Measurement – Continuous.
   3. Operational Features
      a. Automated functions – self-cleaning device for in-situ conditions.
   4. Materials
      a. Body – Elastocon
      b. Sensor – Thermoplastic Elastomer
   5. Quantity
      a. One (1) per each permeate pump discharge.

B. Total Suspended Solids Probe
   1. Manufacturers
      a. Hach Company SOLITAX.
      b. Endress+Hauser Turbimax CUS51D.
      c. Or Approved Equal.
   2. Performance and Design Criteria
      a. Function – Measure, indicate, and transmit suspended solids signal continuously.
      b. Method of Measurement – Dual-beam infrared/scatted light photometer with Nephelometric and back-scatter photoreceptors, for turbidity and suspended solids, respectively.
      c. Environmental Conditions
         1) Sample Temperature – 32 to 104 degrees Fahrenheit.
         2) Max Pressure – 87 psi

3) Immersion Depth – Up to 30 feet.
d. Performance
1) Detection Limit
(a) Turbidity – 0.001 NTU.
(b) Suspended Solids – 0.001 mg/L.
2) Range of Measurement
(a) Turbidity – 0.001 to 4,000 NTU.
(b) Suspended Solids – 0.001 to 50,000 mg/L.
3) Accuracy
(a) Turbidity up to 1,000 NTU
(1) Without calibration – <5% of the measured value ±0.01 NTU.
(2) With calibration – <1% of the measured value ±0.01 NTU.
(b) Suspended Solids – less than 5% of reading.
4) Response Time – 1 second with signal averaging time adjustable from 1 to 300 seconds.
5) Repeatability
(a) Suspended Solids – less than 3%.
(b) Turbidity – less than 1%.
6) Interval of Measurement – Continuous.
3. Operational Features
a. Automated functions – self-cleaning device for in-situ conditions.
4. Materials
a. Body – Stainless Steel
b. Wiper Materials – Stainless Steel
c. Fittings – Stainless Steel
5. Quantity
a. One (1) per each membrane tank feed channel or per each membrane tank.

C. Dissolved Oxygen Probe
1. Manufacturers
a. Hach Company Luminescent Dissolved Oxygen.
b. Endress+Hauser Oxymax.
c. Or Approved Equal.
2. Performance and Design Criteria
a. Function – Continuously measure, indicated, and transmit signals proportional to dissolved oxygen in process fluid.
1) Shall be equipped with an integral temperature sensor.
b. Method of Measurement – Luminescent sensor technology with blue and red LED light emittance on a photo detector.
c. Environmental Conditions
1) Temperature – 32 to 122 degrees Fahrenheit.
2) Relative Humidity – 95%, non-condensing.
3) pH – 0 to 12.
4) Solids Concentration – Up to 10,000 mg/L.
5) Immersion Depth – Up to 30 feet.
d. Performance
1) Minimum Detection Limit – 0.01 mg/L
2) Range of Measurement – 0.01 to 20 mg/L DO.
3) Accuracy
(a) Less than 5 ppm – ± 0.1 ppm.
(b) Greater than 5 ppm – ± 0.2 ppm.
4) Response Time – Less than 60 seconds.
5) Resolution – 0.01 mg/L.
6) Interval of Measurement – Continuous.
3. Operational Features
a. Automated Features – Temperature correction for dissolved oxygen concentration in sample.
4. Materials
a. Body – CPVC and 316 stainless steel

b. Sensor – Polybutyl Methacrolate
5. Quantity
a. One (1) per each aerobic and anoxic tank.

D. Electromagnetic Flowmeter
1. Manufacturers
a. Endress+Hauser.
b. Siemens
c. Or Approved Equal.
2. Performance and Design Criteria
a. Function – Measure, indicate, and transmit the flow of a conductive process liquid in a full pipe.
b. Method of Measurement – Low-frequency, electromagnetic induction-type flow meter, producing a linear signal directly proportional to flow rate.
c. Environmental Conditions
1) Temperature
(a) Ambient – (-)5 to 140 degrees Fahrenheit.
(b) Process – (-)5 to 140 degrees Fahrenheit.
2) Immersion Depth – Up to 10 feet.
d. Performance
1) Accuracy – ±0.2% of rate for all flows resulting from pipe velocities of 3 feet to 30 feet per second.
2) Turndown Ratio – Minimum of 10 to 1 when flow velocity at minimum flow is at least 1 foot per second.
3. Operational Features
a. Zero stability feature to eliminate the need to stop flow to check zero alignment.
b. No obstructions to flow.
c. Very low pressure loss.
d. Measures bi-directional flow.
4. Materials
a. Meter Tube Material – Type 304 or Type 316 stainless steel.
b. Liner Material – EPDM or hard rubber.
c. Electrode Material – Type 316 stainless steel or Hastelloy C.
d. Grounding Ring – Type 316 stainless steel.
5. Quantity
a. One (1) per each permeate pump discharge.
b. One (1) per each RAS pump discharge.

E. Level Sensor
1. Manufacturers
a. Endress+Hauser Waterpilot FMX21.
b. Blue Ribbon.
c. Or Approved Equal.
2. Performance and Design Criteria
a. Function – Continuously measure, indicate, and transmit fluid levels, low levels, and high levels in process tanks.
b. Method of Measurement – Hydrostatic level measurement.
c. Environmental Conditions
1) Ambient Temperature: -58 to 176 degrees Fahrenheit.
d. Performance
1) Minimum Measurement: 1.5 feet.
2) Maximum Measurement: at least 12 feet or depth of tank sensor is installed in, whichever is greater.
3) Accuracy: ±0.1 inch.
4) Interval of Measurement: Continuous.
e. Provide mounting system or stilling well to prevent movement of sensor element in a submerged installation location.
3. Materials
a. Wetted Metallic Parts – Tyle 316 Stainless steel.

b. Wetted O-Rings – Glass filled TFE, graphite filled PTFE, or Viton.
c. Bolts and Nuts – Type 316 Stainless steel.
d. Fill Fluid – Silicone.

4. Quantity
   a. One (1) per each aerobic, anoxic, membrane, and backwash tank.

F. Pressure Sensor and Transmitter
1. Manufacturers
   a. Endress+Hauser.
   b. Siemens.
   c. Or Approved Equal.
2. Performance and Design Criteria
   a. Function: Measure pressure and transmit signal proportional to pressure.
   b. Method of Measurement: Electronic variable capacitance or silicon strain gauge.
   c. Suitable for installation in and measurement of fluid measured.
   d. Performance
      1) Range of Measurement – 0 to 100 psi.
      2) Accuracy – 0.5%
      3) Interval of Measurement – Continuous.
   e. Environmental Conditions
      1) Ambient Temperature: -40 to 175 degrees Fahrenheit.
      2) Process Temperature: 0 to 250 degrees Fahrenheit.
      3) Humidity: 0% to 100% relative humidity.
3. Operational Features
   a. Direct gauge measurement on instrument.
4. Materials
   a. Wetted Parts – Stainless steel.
5. Quantity
   a. One (1) per each pump suction and discharge line.
   b. One (1) per each process and air scour blower discharge line.

G. Ammonium and Nitrate Combination Sensor
1. Manufacturers
   a. Hach Company, ISE Sensor.
   b. Endress+Hauser, ISEmax.
   c. Or Approved Equal.
2. Performance and Design Criteria
   a. Function – Combination sensor for simultaneous and continuous measurement of both ammonium nitrogen and nitrate nitrogen.
   b. Method of Measurement – Potentiometric ion-selective electrode.
      1) Automatic interference compensation for potassium ion on ammonium measurements.
      2) Automatic interference compensation for chloride ion on nitrate measurements.
      3) pH differential reference electrode.
      4) Automatic interference compensation for temperature with integral temperature sensor.
   c. Environmental Conditions – Equipment and materials must be functional and suitable for installation subject to the following environmental conditions:
      1) Temperature
         (a) Air – 0 to 120 degrees Fahrenheit.
         (b) Sample – 36 to 104 degrees Fahrenheit.
      2) pH – 5 to 9.
      3) Max Pressure – 0.3 bar (4.4 psi).
      4) Immersion Depth – 1 to 10 feet.
      5) Solids Concentration – Up to 10,000 mg/L of suspended solids.
   d. Performance
      1) Minimum Detection Limit
         (a) Ammonium – 0.2 mg/L-N

(b) Nitrate – 0.2 mg/L-N
2) Range of Measurement
(a) Ammonium – 0.2 to 1,000 mg/L-N
(b) Nitrate – 0.2 to 1,000 mg/L-N
3) Accuracy
(a) Ammonium – ±5% of measured value + 0.2 mg/L.
(b) Nitrate – ±5% of measured value + 0.2 mg/L.
4) Response Time – Less than 3 minutes.
5) Repeatability – 5% of measured value + 0.2 mg/L ammonium and nitrate.
e. Interval of Measurement – Continuous.
3. Operational Features
a. Automated Functions
1) Matrix corrections for wastewater media.
2) Sensor shall have self-cleaning capabilities.
4. Materials
a. Body – Stainless steel.
b. Cleaning Unit – Stainless steel.
c. Cartridge – Stainless steel.
5. Quantity
a. One (1) per each aerobic tank or one (1) per common channel or tank downstream of aerobic tanks.

H. Differential pH Sensor
1. Manufacturers
a. Hach Company, Differential pH
b. Endress+Hauser, Memosens.
c. Or Approved Equal.
2. Performance and Design Criteria
a. Function – Sensor for continuous measurement of pH.
b. Method of Measurement – Differential pH measurement using ground electrode, reference electrode, and process sample electrode.
c. Environmental Conditions – Equipment and materials must be functional and suitable for installation subject to the following environmental conditions:
1) Temperature – 25 to 200 degrees Fahrenheit.
2) pH – 0 to 14
3) Max Pressure – 150 psi.
4) Solids Concentration – Up to 10,000 mg/L.
d. Performance
1) Detection Limit
(a) pH – 0
2) Range of Measurement
(a) pH – 0 to 14
3) Sensitivity
(a) Less than 0.005 pH
(b) Less than 0.5 mV for oxidation-reduction potential
4) Interval of Measurement - Continuous
3. Operational Features
a. Automated Features – Temperature correction for pH in sample.
4. Materials
a. Body – LCP
5. Quantity
a. One (1) per each aerobic and anoxic tank.

I. Mass Air Flow Meters
1. Manufacturers
a. Rosemount.
b. Fox Thermal.
c. Endress and Hauser.
d. Sierra.

e. Or Approved Equal.

2. Performance and Design Criteria
   a. Function – Continuously measure mass air flow of low pressure air in process and air scour piping.
   b. Method of Measurements – Fully compensated mass and energy flow calculations using differential and static pressures with temperature.
   c. Environmental Conditions - Equipment and materials must be functional and suitable for installation subject to the following environmental conditions:
      1) Ambient Temperature: 20 degrees Fahrenheit to 125 degrees Fahrenheit
      2) Fluid Temperature: -20 degrees Celsius to 300 degrees Celsius
   d. Performance
      1) Accuracy: 1.15%
      2) Turndown: 8:1 flow turndown
      3) Max Operating Pressure: 800 psia
   e. Interval of Measurement
      1) Continuous
   f. Mounting Type: Compression Threaded Connection
3. Operational Features
   a. Integral temperature measurement.
4. Materials
   a. Mountain Assembly: 316 Stainless Steel.
   b. Sensor: 316 Stainless Steel.
5. Quantity
   a. One (1) per each process and air scour blower discharge line.

J. Fabrication
   1. All submerged and unsubmerged analyzers, sensors, transmitters, and instrumentation equipment and materials shall be appropriately rated for operation in hazardous classification areas in accordance with NFPA 820.

2.02 **ACCESSORIES**

A. General
1. Provide the instrumentation cables in accordance with Specification Section 26 05 00 – Electrical Work, General.
2. Provide instrumentation and analyzer controller and transmitter sunshields in accordance with Specification Section 26 05 00 – Electrical Work, General.
3. Provide instrumentation and analyzer nameplates in accordance with Specification Section 26 05 00 – Electrical Work, General.
4. Calibration Kits.
5. Mounting Hardware
   a. Seller shall provide all mounting hardware necessary to mount the instruments and controllers, per manufacturer's recommendations.
      1) Provide float mount, rail mount, wall mount, or chain mount systems for fixture of probes and sensors, as directed by the Buyer.
6. Rough-In Equipment
   a. Furnish frames, anchors, supports, accessories, and closure trim for scheduled equipment. Rough-in equipment must be anchored in accordance with California seismic requirements.

B. Transmitters
1. Quantities: One transmitted per analyzer or sensor.
2. Total Suspended Solids Transmitter
   a. Type: Microprocessor-based sensor/analyzer controller.
   b. Channels: Two (2) minimum
   c. Outputs: Two (2) 0/4-20 mA, expandable up to five (5) total 4-20 mA outputs
   d. Display: LCD operator interface with LED backlighting.
      1) Instrument performance status.
      2) Time remaining until maintenance tasks are due.
   e. Enclosure Rating – NEMA 4X, rated IP66.
   f. Power Requirements: 24 VDC.
3. Dissolved Oxygen Transmitter
   a. Type: Microprocessor-based sensor/analyzer controller.
   b. Channels: Two (2) minimum
   c. Outputs: Two (2) 0/4-20 mA, expandable up to five (5) total 4-20 mA outputs
   d. Display: LCD operator interface with LED backlighting.
      1) Instrument performance status.
      2) Time remaining until maintenance tasks are due.
   e. Enclosure Rating – NEMA 4X, rated IP66.
   f. Power Requirements: 24 VDC.
4. Electromagnetic Flowmeter Transmitter
   a. Mounting – Integral to meter.
   b. Display – Digital LCD display indicating flow rate, total, and bi-directional flow (forward, reverse, and net totalization).
   c. Parameter Adjustments – Keyboard.
   d. Enclosure – NEMA 4X.
   e. Empty Pipe Detection – Drives display and outputs to zero when empty pipe is detected.
   f. Outputs
      1) Analog – Isolated 4 mA to 20 mA dc for load impedance from 0 ohm to at least 500 ohms minimum for 24V dc supply.
      2) Discrete – Two discrete outputs rated for up to 30 volts.
         (a) Programmable for the following typical parameters
            (1) Totalizer Pulse
            (2) High/Low Flow Rates
            (3) Percent of Range
            (4) Empty Pipe Zero
            (5) Fault Conditions
            (6) Forward/Reverse
5. Level Sensor Transmitter

a. Enclosure – NEMA 4X.
b. Power Supply – 120VAC.
c. Electrical Connection – ½ inch NPT.
d. Isolated Analog Output
1) One Minimum – 4 mA to 20 mA dc for load impedance of 0 ohm to 600 ohms.

6. Pressure Transmitter
a. Two-valve (isolate and vent) stainless steel manifold.
b. Enclosure
1) Type – NEMA 4X
2) Materials – Coated Aluminum
3) Mounting Bracket and Accessories – Stainless steel.
c. Electrical Connection – ½ inch FNPT with diaphragm seal.
d. Signal Interface – 4 mA to 20 mA dc output with digital signal based on HART protocol.

7. Ammonium and Nitrate Transmitter
a. Quantity – One (1)
b. Type – Microprocessor-based sensor controller.
c. Channels – Two (2).
d. Outputs – Two (2) 0/4-20 mA, expandable up to five (5) total 4-20 mA outputs.
e. Display – LCD operator interface with LED backlighting.
1) Instrument performance status.
2) Time remaining until maintenance tasks are due.
f. Enclosure Rating – NEMA 4X, rated IP66.
g. Sun Screen Shield – Provide for outside installations.
h. Weather Shield – Provide for outside installations.
i. Power Requirements – 24 VDC.

8. Transmitter
a. Differential pH Sensor output will be configured to spare available input on transmitter specified for combination ammonium and nitrate probe.

C. Spare Parts
1. All sensors and analyzers shall be provided with spare calibration kit and fluids to complete Manufacturer's standard and specified calibration procedures.
2. All sensors and analyzers shall be provided with spare seal kits and sensor caps, as applicable.
3. Turbidity Sensor and Total Suspended Solids Probe
a. Spare wiper blade for self-cleaning mechanism.
4. Dissolved Oxygen Probe
a. Spare sensor cap.
5. Ammonium and Nitrate Combination Sensor
a. Spare Calibration Cartridge.
b. Cleaning Brush.
6. Differential pH Sensor
a. Spare salt bridge.

2.03 **SOURCE QUALITY CONTROL**

A. Tests and Inspections
1. Calibration
a. Instruments shall be factory calibrated prior to delivery to the Buyer.
2. Certification
a. CE Approved.

PART 3 EXECUTION

3.01 **INSTALLATION**

A. Instruments and analyzers shall be installed at manufacturer's minimum required submergence depths for in-site instruments and analyzers.

B. The installed transmitters must perform analog communicate back to the Seller's supplied PLCs via 4-20mA communication.

C. Seller shall report instrumentation readings to the Plant's SCADA system but may alarm and use required instrumentation for PLC control functions.

D. Seller's Control Panels shall provide power to transmitters.

E. Total Suspended Solids Probe
   1. Install probe such that probe body is in a horizontal position during immersion.

F. Dissolved Oxygen Probe
   1. Install DO probes with rail pole mounts. Ball float mounts are not acceptable.

G. Ammonium and Nitrate Combination Sensor
   1. Install sensor such that the sensor body is oriented at a 45-degree angle (±10 degrees) during immersion.

H. Differential pH Sensor
   1. Install pH sensor in a vertical orientation using end of pipe connection, as recommended by manufacturer.

I. Transmitters
   1. Install transmitters on rail, panel, pedestal stand, or wall.
   2. Maximum distance from sensor or probe to controller is 200 feet.

3.02 FIELD QUALITY CONTROL

A. Manufacturer Services
   1. Provide the services of a manufacturer's representative to inspect, verify, and certify that the installation meets the manufacturer's requirements.

3.03 STARTUP AND COMMISSIONING

A. Seller shall perform startup and commissioning of analyzers, sensors, and controllers in accordance with Specification Section 01 75 16 – Startup Procedures. Startup and commissioning for products specified herein shall include training for Buyer for the following:
   1. In-situ or ex-situ calibration, as required.
   2. Review of controller display options and functions.
   3. Exporting of data to external storage directly from controllers.
   4. Maintenance demonstration for replacement of any normal wear parts.
   5. Performance of manufacturer's recommended preventive maintenance and operating procedures.

3.04 ADJUSTING

A. Following Startup and Commissioning activities, make all adjustments recommended by the manufacturer or Buyer, as necessary.

3.05 ATTACHMENTS

A. Representative MBR Equipment Package P&ID.

END OF SECTION

SCADA

REFERENCE SPECIFICATION SECTIONS 26 05 00 AND 43 32 56 FOR SCADA COMMUNICATION REQUIREMENTS FROM MBR EQUIPMENT PACKAGE

FIELD

MBR EQUIPMENT PACKAGE CONTROL PANEL

PROVIDED BY BUYER

MBR EQUIPMENT PACKAGE PROVIDED BY SELLER

AIT – AE – PH

LIT – LE – LEVEL

AIT – AE – DO

AIT – AE – PH

AIT – AE – AMM NITRATE

LIT – LE – LEVEL

AIT – AE – DO

LIT – LE – LEVEL

AIT – AE – TSS

DIVERSION TO EQUALIZATION BASIN

FROM INFLUENT SPLITTER BOX

FROM EQUALIZATION BASIN

FINE SCREEN

ANOXIC MIXER

ANOXIC TANK

AEROBIC TANK

MEMBRANE TANK

PIT – FIT – FE – RAS PUMP

PIT – FIT – FE – PERMEATE PUMP

AIT – AE – TURBIDITY

TO EFFLUENT PUMP STATION

TO WAS PUMPS (BY DW SUPPLIER)

PROCESS BLOWER

PIT – FIT

AIR SCOUR BLOWER

PIT – FIT

DRAFT - NOT FOR CONSTRUCTION

REV	DATE	BY	DESCRIPTION

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

DESIGNED EKW
DRAWN PMD
CHECKED MNR
SCALE NO SCALE

PREPARED BY:
JOHN CALTON, PE
No.: E14099
DATE

REGISTERED PROFESSIONAL ENGINEER JOHN C. CALTON No. E 14099 Exp. 6-30-25 ELECTRICAL STATE OF CALIFORNIA

WSC
805 AEROVISTA PLACE, SUITE 201 SAN LUIS OBISPO, CA 93401
PHONE: (805) 457-8833 FAX: (805) 888-2764

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
4870 HERITAGE ROAD
PASO ROBLES, CA 93446

APPROVED:
_____ – _____ – POSITION DATE

WATER RESOURCE RECOVERY FACILITY UPGRADE
INSTRUMENTATION
REPRESENTATIVE MBR EQUIPMENT PACKAGE P&ID

DRAWING
04-N601
SHEET X OF X
PROJECT # –

W:\3.0 Clients\Heritage Ranch Community Services District 1029\10090 WRF Upgrade Design\6.0 Working Files\0-CAD\1-SHEET FILES\G-HRCSD-WWTP – Instru.dwg 8/7/2023 6:32 PM Paul D'Santi

SECTION 43 32 56
MEMBRANE BIOREACTOR EQUIPMENT

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
1. Equipment, materials, spare parts, and design services to be furnished by Seller under this Contract between the Buyer and the Seller for the MBR Equipment Package for the Heritage Ranch Community Services District Water Resource Recovery Facility (WRRF).
2. MBR Equipment Package design criteria and performance requirements.
3. Warranty requirements and MBR Equipment Package guarantees.
4. MBR Equipment Package installation requirements.

1.02 REFERENCES

A. Definitions
1. Aerobic Tank: Designated process space for providing dissolved oxygen concentrations sufficient for facilitating oxidative reactions (i.e. BOD-removal and nitrification)
2. Anoxic Tank: Designated process space for providing low dissolved oxygen concentrations to facilitate denitrification.
3. Backwash: Pumping of a fluid through the membrane surface in the reverse direction by which permeate flow.
4. Design Flow: The net flow rate of permeate in million gallons per day (mgd), over a 24-hour period of continuous operation, calculated as flow produced minus backwash and cleaning water, and accounting for periods of relaxation, backwashing, and cleaning.
5. Duty: Operating as a primary mode for performing a prescribed function.
6. Fine Screen: Unit capable of providing mechanical protection of membrane elements through screening of solids greater than 2mm upstream of membrane tanks.
7. Flux: Flow per unit membrane area in gallons per square foot per day (gpd/sf).
8. Instantaneous Flux Rate: The amount of permeate filtered through a collection of membranes at a given moment, divided by the total surface area of membranes in service at that moment.
9. Large Membrane Subunit: An assembly of Small Membrane Subunits, supported by a common support structure and connected to a common permeate manifold.
10. Maintenance Clean: Short-duration cleaning cycle of a Large Membrane Subunit in service, occurring in between permeate pumping cycles.
11. Membrane Tank: Designated physical process space for containing the submerged Large Membrane Subunits which comprise a single Membrane Train.
12. Membrane Train: An assembly of Large Membrane Subunits intended to function as one integral unit, sharing permeate piping and manifolds and control equipment.
13. Membrane Unit: The integrated equipment comprised of Small Membrane Subunits and a Large Membrane Subunit that provides a complete and functioning membrane unit when assembled to Permeate pumps and Air Scour air supply.
14. MGD: million gallons per day.
15. MBR Equipment Package: Complete and functioning membrane bioreactor treatment system with aerobic and anoxic process tanks, membrane tanks, large membrane subunits, piping, equipment, instrumentation, control, and appurtenances.
16. Permeability: Ratio of Flux to Transmembrane Pressure
17. Permeate: Treated effluent flow.
18. ppd: pounds per day.
19. Recovery Clean: Long-duration cleaning cycle that requires a Large Membrane Subunit to be taken out of service.
20. Relaxation: When a membrane train is taken offline by stopping the permeate pump.

21. Small Membrane Subunit: The smallest arrangement of the microfiltration or ultrafiltration unit that can be replaced as an integral piece, and when integrated with a Large Membrane Subunit provides a complete and functioning membrane unit.
22. Standby: Mode of intermittent shutdown during normal equipment rotation operations or operated as a support system for prescribed function in event of Duty unit failure (secondary to Duty unit).
23. Transmembrane Pressure: The pressure difference across the membrane.

B. Reference Standards
   1. State of California Department of Industrial Relations
      a. Cal/OSHA
   2. California Code of Regulations
      a. Title 22 Code of Regulations - Regulations Related to Recycled Water
   3. National Fire Protection Association
      a. NFPA 820 – Standard for Fire Protection in Wastewater Treatment and Collection Facilities

1.03 SUBMITTALS

A. Reference Section 01 30 00 – Administrative Requirements for submittal requirements and delegated design submittals for MBR Equipment Package.

1.04 QUALITY ASSURANCE

A. Performance Requirements
   1. The Seller must be capable of providing MBR Equipment Package that can continuously meet the performance criteria as outlined in Part 2.
   2. Membrane Manufacturing
      a. All membrane units furnished under this Section shall be new and unused and shall be the standard products of a Membrane Manufacturer having a successful record of manufacturing the proposed membrane technology for a minimum of five (5) years.

B. Qualifications and Experience
   1. Seller must have ten (10) years' experience in manufacturing, supply, startup, commissioning of MBR Equipment Packages with five (5) currently operating North American-based systems meeting all the following requirements:
      a. Installed systems designed for and currently treating municipal wastewater.
      b. Operating with the same membrane type and membrane materials as what is being proposed by Seller for this Project.
      c. Seller's scope of supply for the installations included manufacturing, supply, startup, and commissioning.
   2. Reference EJCDC P-400 – Bid Form for Bidder Qualifications section to be completed by Seller.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Seller is responsible for delivery to the site and shall coordinate shipping and delivery with the WRRF Contractor to occur only when the site is ready for the equipment in accordance with Article 3.02.

B. Seller will be responsible for delivery of equipment using access and egress ways as stipulated by the Buyer.

C. Seller to provide storage and handling requirements for WRRF Contractor for MBR Equipment Package during construction and prior to startup. Any loose equipment will be stored at a location chosen by the Buyer. Should loose equipment require protection during storage from atmosphere, weather, dust, or flooding, Seller is responsible for providing equipment and materials necessary to appropriately store equipment.

1.06 FIELD CONDITIONS

A. Location

1. MBR Equipment Package will be located at the Buyer's Water Resource Recovery Facility at 4870 Heritage Road, Paso Robles, CA 93446 with an approximate elevation of 900 feet above mean seal level.

B. Ambient Conditions
   1. MBR Equipment Package shall continually operate in ambient air temperatures ranging from 20 degrees Fahrenheit to 125 degrees Fahrenheit without failure or damage to equipment or materials.
   2. MBR Equipment Package will be installed outdoors exposed to atmosphere and without any overhead shade structure.

C. Geotechnical Conditions
   1. Geotechnical Conditions can be referenced in the Heritage Ranch CSD WRRF Upgrade Geotechnical Report which is available as a reference document upon request.

1.07 WORK BY OTHERS

A. The following work is performed by the Buyer:
   1. Mechanical interconnections to Seller supplied fine screening flange connection.
   2. Electrical interconnections between Seller supplied MBR Equipment Package control panels.
   3. Solids dewatering interconnections between Seller supplied waste activated sludge process connections.
   4. Proximal utility water service connections for general operation and maintenance activities.
   5. Startup and Commissioning:
      a. Seed for activated sludge system startup and commissioning.
      b. Chemicals and raw water for equipment testing and startup.
      c. Water quality laboratory services for monitoring performance of the MBR Equipment Package during commissioning.
      d. Operation and maintenance labor and staff time for operational activities related to seeding of the activated sludge system, and configuration and operation of process equipment upstream and downstream of the MBR Equipment Package.

1.08 GUARANTEE AND WARRANTY

A. Guarantees
   1. Seller shall provide a guarantee in their Bid documents for the following:
      a. Replacement pricing and intervals for each large membrane subunit and each small membrane subunit.
      b. Cleaning cycle intervals for all maintenance cleans, recovery cleans, and other Seller specified cleaning methods.
      c. Membrane flux operational parameters.
         1) Seller to provide certification and guarantee of production capacity based on proposed design and documented permeate production and operational flux rates from three (3) installation per Flux Rate Forms Attachment of this Specification Section.
      d. All warrantied materials, equipment, and supplies will be available to the Buyer for a minimum of 10 years from the date of Substantial Completion.
      e. In the event Seller's product is sold or acquired to another party, all guarantees, warranties, bonds, operational support services, and original costs of services will be transferred and retained for a minimum of 10 years from the date of Substantial Completion, at no additional cost to the Buyer.
      f. MBR Equipment Package is guaranteed to perform in accordance with specified performance requirements in Part 2 of this Specification Section.
         1) Operating parameters outside of the specified ranges flow and load characteristics (Article 2.02C) will not void the membrane subunit warranties. If Seller claims operation outside the operational parameters is impacting ability to

meet specified performance requirements, the membrane subunits will not be eligible for warranty replacement during operation outside of the operational parameters. Once operational parameters return to within specified ranges, the membrane subunit warranties are reinstated. Seller will have the opportunity to review the operating conditions and the condition of the membranes to determine if the warranty can be reinstated based on Seller's proposed methods, testing, and procedures establishing how eligibility will be determined, to be negotiated with the Buyer.

B. Warranties
   1. Large Membrane Subunits
      a. Seller shall warrant and replace Large Membrane Subunits, minus the small subunits, under the ancillary equipment warranty for defects.
   2. Small Membrane Subunits
      a. At no cost to the Buyer, Seller shall warrant, repair and/or replace Small Membrane Subunits for any of the following failures that occur within ten (10) years from the date of Substantial Completion:
         1) Inadequate performance against performance requirements specified in this Specification Section.
         2) Inability to meet cleaning cycle intervals guaranteed by the Seller in their Bid documents.
         3) Inability to meet membrane flux specifications guaranteed by the Seller in their Bid documents.
      b. If Seller cannot remedy the failures and successfully repeat performance and commissioning testing by repair or replacement of Small Membrane Subunits during the ten (10) year period from the date of Substantial Completion, Seller shall be responsible for all costs needed for removal of nonperforming system and subsequent installation of an MBR Equipment Package that meets the specified performance requirements, including by not limited to, equipment, demolition, materials, labor, professional services, freight and transportation, and sitework.
   3. Equipment, Piping, and Valving
      a. Seller shall warrant and replace all pumps, blowers, control panels, mixers, permeate headers, piping, diffusers, manual valves, and compressors including the Large Membrane Subunits, under warranty for defects and inadequate performance for a period of no less than one (1) year from the date of Substantial Completion.
   4. Actuated Valves
      a. Seller shall warrant and replace all actuated valves and associated actuators under warranty for defects and inadequate performance for a period of no less than two (2) years from the date of Substantial Completion.
   5. Stainless Steel Tanks
      a. Seller shall warrant and replace all stainless steel process tanks and stainless steel membrane tanks for corrosion or defects for a period of no less than twenty (20) years, with an additional (20) year prorated warranty.

C. Repairs and Replacements
   1. Cause for Replacement
      a. Any membrane units, equipment, piping, valves, and materials that fail more than twice or cannot meet the performance criteria through repairs or membrane maintenance operations within 30 days of Buyer's written notice to Seller shall be cause for replacement, without exception.
   2. Large Membrane Subunits
      a. Repairs or replacements required per the warranty requirements specified in this Specification Section shall start within 10 days after Buyer provides written notice to Seller and be completed within 30 days after Buyer provides written notice to Seller.
   3. Small Membrane Subunits

a. If Buyer and Seller cannot resolve failures or defects of the Small Membrane Subunits through a mutually agreeable resolution within 30 days of Buyer's written notice to Seller, Seller shall repair or replace the Small Membrane Subunits in accordance with warranty requirements of this Specification Section.
b. Repairs or replacements required per the warranty requirements specified in this Specification Section shall start within 30 days after Buyer provides written notice to Seller and within 45 days after Buyer provides written notice to Seller.

4. Equipment, Piping, Valves
   a. Repairs or replacements required per the warranty requirements specified in this Specification Section shall start within 30 days after Buyer provides written notice to Seller within 45 days after Buyer provides written notice to Seller.
5. Stainless Steel Tanks
   a. Repairs or replacement shall start no later than 120 days after Buyer provides written notice to Seller and shall be complete to Buyer's approval no later than one year after Buyer provides written notice to Seller.
6. Buyer Corrections
   a. If the Seller cannot perform repairs or replacements in accordance with the warranty requirements and time for repairs and replacements as specified in this Specification Section, the Buyer will perform, or have performed by a third party, the work necessary to resolve the failure, defect, or necessary correction with all costs borne by the Seller. The original warranty terms will remain in effect.

D. Replaced Equipment
   1. All membrane subunits, equipment, piping, valves, materials, and supplies warrantied and replaced by Seller shall restart the warranty period as specified above with all relevant terms applied to the item, materials, or supplies replaced.

E. Change in Contract Condition
   1. Seller shall provide proposed methods, workflow, procedure for continuing the warranty due to a change in contract conditions, such as flows and loads outside the specified ranges. To support proposed conditions, Seller must provide data to support the relevance of each change in contract condition or parameter in relation to the given warranty condition. These methods, workflows, and procedures are subject to the Buyer's approval and may be negotiated with the Seller prior to executing the Contract.

PART 2 PRODUCTS

2.01 BUYER-FURNISHED PRODUCTS

A. Mechanical Process Connections:
   1. Influent piping, supports, and valving to provide connection from screened influent piping to Seller supplied fine screen flange connection.
   2. Permeate piping and supports to provide connection from Seller supplied permeate pump discharge piping to effluent pump station.
   3. Chemical feed piping, supports, valving and leak detection boxes to provide connection from chemical storage area to Seller supplied chemical pumps and chemical dosing piping connections.
   4. Waste activated sludge piping, supports and valving to provide connection from Dewatering unit to Seller supplied WAS flanged connection.
      a. Seller supplied WAS flanged connection must be 4-inches diameter or larger.

B. Chemicals:
   1. Bulk chemicals and chemical storage for membrane cleaning chemical feeds.

C. Electrical:
   1. Electrical conductors and conduit for providing power from site electrical to Seller supplied MBR Equipment Package control panels.
   2. Plant Control System/SCADA (Ignition).

3. Motor control centers (MCCs), panel boards, transformers, backup power generators and other equipment necessary to provide power distribution to MBR Equipment Package and control signals from SCADA system and MCCs to MBR Equipment Package Control Panels.
4. Ethernet communication connections between the Buyer's Plant Control System/SCADA and MBR Equipment Package Control Panels.
5. Variable Frequency Drives (VFDs).

2.02 PRODUCT REQUIREMENTS

A. Equipment shall be new and unused and the Seller's most current commercially available product line.

B. Equipment shall be furnished as a complete, operable, and maintainable system including but not limited to all membrane subunits, equipment, hydraulic control structures, instruments, devices, valves, and actuators.

C. All equipment shall be fully automated with manual operation switches available for pumps, blowers, compressors, and valves.

D. All membrane cleaning operations shall be fully automated except for single action operator approvals to initiate clean-in-place cleaning sequences.

E. All equipment shall be tagged to match the Buyer's tag numbering convention as shown on Drawings and as listed in Specifications, no exceptions.

2.03 MBR EQUIPMENT PACKAGE SYSTEM

A. Manufacturers
   1. MBR Equipment Package
      a. Cloacina.
      b. Ovivo.
      c. Smith & Loveless.
      d. Veolia.
      e. Or Approved Equal.
   2. Membranes
      a. Ovivo.
      b. Veolia.

B. Compliance Requirements
   1. MBR Equipment Package shall comply with the strictest of the California and Federal OSHA requirements.
   2. MBR Equipment Package shall comply with the current Title 22 regulations for filtered wastewater:
      a. Has been passed through microfiltration, ultrafiltration, nanofiltration, or reverse osmosis membrane so that the turbidity of the filtered wastewater does not exceed any of the following:
         1) NTU more than 5 percent of the time within a 24-hour period; and
         2) NTU at any time.
   3. All submerged and unsubmerged equipment, instrumentation, controllers, and materials shall be appropriately rated for operation in the area installed including hazardous classification areas in accordance with NFPA 820.

C. Design Criteria
1. The influent wastewater to the HRCSD WRRF is predominantly domestic wastewater flow from residential communities and is expected to follow normal diurnal flow patterns including potential periods of low or no flows.
2. The MBR Package Equipment shall be designed to meet performance requirements for influent MW flows and loads.
   a. Flows more than MW flow will be equalized upstream of the MBR Package Equipment by Buyer and conveyed to MBR when peak flows have reduced below MW flow conditions.
   b. Any process equalization for MW flows and loads and below shall be provided by Seller as part of the MBR Package Equipment system.
3. The MBR Package Equipment shall be designed to meet all performance requirements at Minimum Day and Minimum Week flow and load conditions.
4. The raw influent flow and load wastewater characteristics (i.e., from collection system, upstream of coarse screens), including the MW MBR Package Equipment design condition, for the HRCSD WRRF are as follows:

Parameter	Units	AA	MM	MW	Max Day	Min Day	Min Week
Flow	MGD	0.24	0.46	0.55	0.88	0.15	0.19
	PF (to AA)	1.0	1.9	2.3	3.7	0.6	0.8
TSS	ppd	790	1,110	1,350	1,580	320	480
	mg/L	395	289	294	215	256	303
BOD	ppd	780	1,170	1,330	1,640	320	470
	mg/L	390	305	290	223	256	297
Ammonia as Nitrogen	ppd-N	100	150	160	200	40	60
	mg/L-N	50	39	35	27	19	36
TKN as Nitrogen	ppd-N	140	200	230	280	60	80
	mg/L-N	70	52	50	38	48	50
Alkalinity	mg/L as CaCO3	285 – 373					
Temperature	°C	15 – 30					

5. The MBR Equipment Package shall be designed in accordance with the following design criteria.

Parameter[1]	Value	Units
Maximum Anoxic Tank Dissolved Oxygen	0.2	mg/L
Minimum Aerobic Tank Dissolved Oxygen	1.5	mg/L
RAS Pumps	N + 1	Pumps
Process Blowers for Nitrification-Denitrification Process	N + 1	Blowers
Large Membrane Subunits	N + 1	Membrane Subunits
Air Scour Blowers for Membrane Operation	N + 1	Blowers
Fine Screening	N + 1	Screens

Notes:
[1] For “N+1” requirements, N represents the number of duty units online which together can treat and convey the influent flow and loads at the specified averaging period while meeting performance requirements. The “1” denotes the number of units available for standby and shall be sized identically to the “N” duty units.

D. Performance Requirements
1. The Seller must guarantee the MBR Equipment Package system can meet all of the following water quality requirements at all design conditions and flow and load conditions stated in Article 2.03C:

Water Quality Parameter	Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD (mg/L)	-	-	-	<10
TSS (mg/L)	-	-	-	<10
Unionized Ammonia (mg/L-N)	0.025	-	-	-
Total Ammonia Nitrogen (mg/L-N)	0.20			
Nitrate (mg/L-N)	-	<10	-	-
pH	-	-	6.0	8.3
Settable Solids (mL/L)	-	0.1	-	-
Oil and Grease (mg/L)	10	20	-	-

E. Process Design
1. Controls
   a. The MBR Equipment Package system shall be controlled per Section 26 05 00 – Electrical Work, General.
   b. The minimum instrumentation instruments and controls shall be as specified in Specification Section 40 91 00 – Process Instrumentation. Seller may provide additional controls as required for the operation of their system as a component of their Bid.
   c. Seller shall configure control systems to monitor and troubleshoot MBR Equipment Package system operations from a remote location.
   d. MBR Equipment Package control system shall be fully open for operational control.
2. Operation
   a. The MBR Equipment Package system shall be configured to provide the following operational sequence in series per treatment train:
      1) Fine screening of coarse screened influent wastewater.
      2) Secondary wastewater treatment for BOD and nitrogen removal.
      3) Tertiary wastewater treatment to separate filtered wastewater from activated sludge mixed liquor through microfiltration or ultrafiltration membranes.
      4) Tertiary treatment shall be designed to meet California Title 22 requirements for Disinfected tertiary recycled water.
   b. MBR Equipment Package shall perform microfiltration or ultrafiltration through submerged membrane subunits, which are continuously exposed to Mixed Liquor.
   c. Permeate shall be withdrawn from the membranes with Permeate Pumps with water quality characteristics suitable for chlorine disinfection with sodium hypochlorite or disinfection via exposure to Ultraviolet Light.
   d. The Large Membrane Subunits in the Membrane Tanks shall be aerated with the air scour system to mitigate solids buildup on the membrane surface.
      1) The air delivered to the Membrane Tank also provides oxygen demand for the biological process and may be used as oxygen credit.

3. Configuration
    a. The system shall be comprised of Nitrification-Denitrification with Anoxic and Aerobic Tanks in-series. The Seller is responsible for proposing a singular activated sludge process design capable of meeting the Performance Requirements stated herein, and shall not include alternative treatment process designs or operational schemes in their Bid documents.
    b. The number and configuration of membrane tanks and membrane subunits to be provided shall be recommended by Seller.
    c. The Mixed Liquor from the Membrane Tank shall be pumped as return activated sludge as part of the integrated MBR Equipment Package system supplied by the Seller. Design of RAS flowrates at different design conditions to maintain Seller's targeted Mixed Liquor concentrations while meeting performance requirements are the responsibility of the Seller. Operators should be able to set RAS targets as a variable within the control system within the range allowed by the Seller.
    d. The configuration and orientation of the MBR Equipment Package system is the responsibility of the Seller. The configuration of the system shall be no more than 9,000 square feet.
    e. Provide clear passage of floatables to a single point of removal by surface wasting of mixed liquor. Provide provisions for and standard operating procedures for foam control within the system.
    f. Provide all necessary ancillary systems to facilitate in-situ chemical cleaning of membranes to mitigate fouling and scaling without removal of membrane subunits from the basins, including drain pumps, backwash pumps and chemical injection points.
4. Chemical Use and Application
    a. Seller is responsible for determining if supplemental carbon for denitrification or an external alkalinity source is required to meet the Performance Requirements stated herein.
        1) Seller may not propose or include design provisions for the use of methanol as an external carbon source.
        2) If Seller determines an external alkalinity source is required for their design, sodium hydroxide must be used as the alkalinity source.
    b. Seller shall propose a singular process design approach in regard to chemical use and application.
        1) Optional chemical addition treatment process schemes are not allowable in the proposed design.

F. Assembly and Fabrication
1. MBR Equipment Package system shall be prefabricated, preassembled, and factory tested before shipment to Site.
2. If parts of the system must be disassembled prior to shipment to Site, Seller is responsible for disassembly prior to shipment and subsequent assembly at the Site during installation to provide an integrated and functioning system (exclusive of electrification from Site electrical power distribution and mechanical connections by others).

2.04 MBR EQUIPMENT PACKAGE COMPONENTS

A. Structural
1. Membrane Tanks
    a. Membrane tanks shall be included in the package and be constructed of Type 304 stainless steel or mild steel with epoxy coating.
    b. All welds shall be continuous seam welds. Stich welding is not acceptable.
2. Process Tanks
    a. Process tanks shall be included in the package and be constructed of Type 304 stainless steel or mild steel with epoxy coating.
    b. All welds shall be continuous seam welds. Stich welding is not acceptable.

3. Access platforms and stairs to process tanks and membrane tanks shall be provided by Seller and integral to the tanks. Loose access platforms and stairs are allowable. Platforms and stairs shall be of non-corrosive materials including FRP, aluminum, or stainless steel.

B. Membranes
   1. Membrane Subunits
      a. Material: Polyvinylidene fluoride (PVDF), polyethylene terephthalate (PET), or silicon carbide.
      b. Maximum pore size: 0.1 microns
      c. Chemical resistance to concentrated sodium hypochlorite and citric acid.
      d. Cleaning pH range: 2- 13
      e. Operating pH range: 5 - 9
      f. MLSS exposure: 1,000 – 12,000 mg/L.
   2. Small Membrane Subunits
      a. Membranes shall be assembled into a housing unit called a small membrane subunit.
      b. The small membrane subunit shall be constructed with the membranes held vertically or horizontally and bonded at the top, bottom and/or sides of the subunit.
      c. The materials used to hold the membranes in place shall be chemical resistant that can withstand washing using highly concentrated sodium hypochlorite and low pH solutions.
      d. The top and bottom sections of the small membrane subunit shall be connected with corrosion resistant materials and allow permeate to be withdrawn from one or both ends of each small membrane subunit.
      e. The base of each small membrane subunit shall use diffusers to allow scour air to escape and travel upwards past and between the membrane subunits.
   3. Large Membrane Subunits
      a. The small membrane subunits shall be assembled into large membrane subunits.
      b. Each large membrane subunit shall be supported within a frame or support rails manufactured of chemically resistant Type 316L or 304 stainless steel materials.
      c. There shall be a complete support system for installation in stainless steel tanks, consisting of beams, frames, anchor bolts, and brackets.
      d. There shall be isolation valves on permeate, air scour and any other process piping in the membrane tanks to allow for removal the large membrane subunits without draining or taking the associated membrane tank offline.
      e. Each frame shall have a minimum of two lifting eyes on opposite ends to allow the entire large membrane subunit to be lifted into and out of the membrane train without having to remove adjacent equipment, membrane subunits, or hard piping. A lifting bracket that connects to the frame at multiple points and is lifted at one point is also acceptable.
      f. All fasteners, including nuts, bolts, screws, cables, washers, and other appurtenances, associated with the large membrane subunits and housing shall be manufactured from Type 316 or 304 stainless steel. Sufficient isolation shall be provided to prevent galvanic corrosion between fasteners and the frame/support rails.
      g. Special lifting racks or tools if required are an element of the Seller’s Goods and Services.

C. Screening Equipment
   1. Fine Screens
      a. Fine screens shall be provided upstream of the MBR Equipment Package, either directly integrated into the MBR Equipment Package or as a standalone unit. Fine Screens shall be capable of passing Maximum month flows in an N+1 redundant configuration. The screening system will be designed such that all flow entering the MBR Equipment Package is screened.
      b. Seller to provide Fine Screens, Washer Compactor, and Screenings Conveyor in accordance with Specification Section 46 05 10 – Mechanical Equipment.

D. Pumping Systems and Mixers
   1. Permeate Pumping System
      a. Permeate Suction Piping
         1) Each membrane train shall have a suction header for permeate collection. This header shall have a connection for a pressure/vacuum gauge at each end. This header is an element of the Seller's Goods and Services.
         2) All large membrane subunits shall be connected to the suction header in the membrane train.
         3) The pipe connections shall be capable of operating at the positive and negative pressures expected for the system.
      b. Permeate Pumps
         1) Seller to provide Permeate Pumps in accordance with Specification Section 46 05 10 – Mechanical Equipment.
         2) Permeate pumps shall serve a dual function as backwash pumps for the membrane cleaning procedures.
         3) Rated capacity of the permeate pumps shall be able to pump the maximum flow with all duty large membrane subunits in service taking in consideration the required permeate flow while accounting for additional permeate required for maintenance cleans of online duty large membrane subunits.
         4) Permeate pump totalized flow shall be available to WRRF SCADA system for control of downstream processes.
   2. Process Mixed Liquor Pumping Systems
      a. Seller to provide Process Mixed Liquor Pumps in accordance with Specification Section 46 05 10 – Mechanical Equipment.
      b. The Process Mixer Liquor pumping systems shall include all necessary associated valves, piping, and instruments as necessary to provide a functional mixed liquor flow scheme as defined by the Seller.
      c. The WAS pumps and piping will be provided by the Buyer to integrate with Buyer supplied dewatering system. RAS pumping systems may be used to provide wasting a portion of the RAS stream and conveyance of Waste Activated Sludge to Buyer supplied dewatering system via automatic valving.
   3. Chemical Pumping System
      a. Seller to provide Chemical Pumps in accordance with Specification Section 46 05 10 – Mechanical Equipment.
      b. A peristaltic dosing pump shall be provided for each chemical required for maintenance and recovery membrane cleaning.
      c. The system shall be capable of performing a chemical backwash.
      d. The system shall include all associated mixing devices, injection points, controls and connection points, instruments, valves, and piping.
      e. Chemical pump will be located at the Chemical Storage Area in a location proximal to the MBR Equipment Package. Buyer will be responsible for providing conductors and conduit for power and signals between the chemical pumps and the Seller's MBR Equipment Package control panel, and piping connections between the Chemical Storage Area and the MBR Equipment Package.
      f. Seller shall be responsible for control of the MBR Equipment Package chemical cleaning processes and pumps.
      g. Buyer will be responsible for piping connections between the Chemical Storage Area and the MBR Equipment Package.
   4. Submersible Mixers
      a. Seller to provide Submersible Mixers for the anoxic process tank(s) in accordance with Specification Section 46 05 10 – Mechanical Equipment.
      b. Mixers shall provide adequate mixing to keep all mixed liquor suspended solids in suspension within each tank they are installed in.

E. Blowers and Diffusers

1. Aeration System
    a. Provide the aeration system which includes the blowers, controls, valves, inlet filters, check valves, flowmeters, pressure gauges, discharge pressure safety valves, low flow switches, and high pressure switches as required by Seller to provide nitrification in the Aerobic Tank.
    b. Aeration System Blowers shall be provided in accordance with Specification Section 46 05 10 – Mechanical Equipment.
    c. Provide air distribution header(s) and diffusers for each Aerobic Tank.
    d. The proper amount of air diffusers shall be included and the configuration designed to maintain well mixed aeration throughout the entire tank.
2. Air Scour System
    a. Provide the air scour system which includes the blowers, controls, valves, inlet filters, check valves, flowmeters, pressure gauges, discharge pressure safety valves, low flow switches, and high pressure switches as required by Seller to control fouling and assist in suspending mixed liquor.
    b. Air Scout System Blowers shall be provided in accordance with Specification Section 46 05 10 – Mechanical Equipment.
    c. Provide air distribution header(s) and diffusers for each membrane train.
3. Air Extraction System
    a. An air extraction system shall be provided to remove air bubbles generated during the permeate extraction process.
    b. The system shall consist of an eductor mounted to the high point of the permeate piping system, level sensors, and control valves unless otherwise specified by Seller. If eductor is used, the eductor may utilize instrument air or plant water.
    c. Air Separation Column (if required)
        1) Seller shall size column to provide adequate residence time to ensure satisfactory air removal from the permeate.
        2) Column shall be Type 316 stainless steel.
        3) Provide one column per membrane train.
        4) The air outlet of the air separation column eductors and/or control valves shall be connected to a drain with piping provided by others or be configured to drain back into the MBR Equipment Package process.
        5) Each air separation column shall be equipped with a level sensor. Apart from the normal operating control loops, the level sensor will include a Level-Alarm-Low level. Should the liquid level in the vessel drop to this level, an alarm will be generated.

F. Instrument Air Systems
    1. Seller to provide air compressor system in accordance with Specification Section 46 05 10 – Mechanical Equipment to provide compressed air to all equipment, valving, and accessories requiring high pressure air for operation.

G. Electrical and Control Systems
    1. Electrical and control components shall be provided in accordance with section 26 05 0 – Electrical Work, General.

H. Seller shall provide summary of all major equipment in the Equipment Form attachment of this Specification Section.

2.05 ACCESSORIES

A. Provide Process Instrumentation as part of the MBR Equipment Package system in accordance with Specification Section 40 91 00 – Process Instrumentation.

B. Provide any special tools or load spreading bars required for the routine repair and maintenance of the Seller's provided equipment.

C. Buyer will supply regular hand tools such as sockets, wrenches, screw drivers, etc. limiting Seller's scope to special, custom, or proprietary tools.

2.06 SPARE PARTS

A. Provide the following spare parts, at a minimum, in addition to manufacturer's standard spare parts:
   1. One repair kit for sealing off damaged membrane fibers, equivalent amount for repair of 5 percent of supplied membranes.
   2. Membrane replacement components for one complete membrane unit refurbishment. Components to include:
      a. A full set of membrane modules, cassettes, or plates.
      b. O-rings.
      c. Diffuser.
      d. The Seller shall guarantee the shelf life of membrane spares. If shelf life is less than the first 48 months of the warranty period, the Seller shall provide a new set of spares on the expiration date of each shelf life period up until the completion of the first 48 month warranty period. For example, if a shelf life is one (1) year, the Seller provides a new set of spares at year one, year two, and year three.
   3. Submersible Mixer Seal Kit (1 per mixer supplied)
   4. Peristaltic Pump Replacement Tubing
   5. Peristaltic Pump Replacement Roller
   6. Pump Seal Kits (2 per pump supplied)
   7. Rotary Lobe Pump Lobe Kit (1)
   8. Rotary Lobe Pump Wear Plate (1)
   9. Blower Air Inlet Filter Cartridge (1 year supply)
   10. Regenerative Blower Repair Kit (3 – 1 per blower)
   11. Fine Diffusers (15% of total amount supplied with system)
   12. Air Compressor Air Filters (2) and Oil (1 quart)
   13. Electrical Panel Kit (1) with the following parts:
      a. Single/Double-Pole Relays with Bases
      b. Interposing Relay
      c. HOA Selector and Contacts
      d. Air Conditioning Replacement Filter(s)
      e. Single/Double/Three-Pole Breakers
      f. Current Switch
      g. Terminal Blocks

2.07 SOURCE QUALITY CONTROL

A. Tests and Inspections
   1. Seller to perform factory testing of MBR Equipment Package in accordance with Specification Section 01 75 16 – Startup Procedures.

PART 3 EXECUTION

3.01 SERVICES DURING DESIGN

A. Services during design shall be in accordance with Section 01 30 00 - Administrative Requirements.

B. Seller shall assist the Buyer and Engineer by reviewing and evaluating the site, structure, piping and equipment layouts, interfaces with MBR Equipment Package processes and facilities, and other components to develop a design that best serves the Buyer.

C. Seller shall review the Engineer’s Contract Documents and Specifications for construction of the Heritage Ranch Community Services District Water Resource Recovery Facility to ensure these documents are consistent with the Seller’s MBR Equipment Package scope of work and are appropriate for construction of facilities that interface with the MBR Equipment Package. Within 14 calendar days of receipt, the Seller will submit any comments to the Engineer for

revision if needed to accommodate design features and interfaces with the Seller's MBR Equipment Package.

D. Seller shall assist the Engineer with any bidder questions that may arise from bidders during advertisement of the Water Resource Recovery Facility construction contract related to their Goods and Services.

E. Design Workshops and Submittals:
   1. Seller shall assist in final design coordination between Water Resource Recovery Facility construction and the Seller's MBR Equipment Package design through all day in-person workshops:
      a. 60% Design Submittal Workshop with Buyer and Engineer.
      b. 90% Design Submittal Workshop with Buyer and Engineer.
      c. Draft Bid Design Submittal Workshop with Buyer and Engineer.
      d. Up to three (3) MBR Equipment Package Submittal Workshops with Buyer and Engineer.

F. Seller's submittals will be used to initiate the design process at the System Integration Workshop which will occur within 10 working days after WRRF Contractor Contract execution. This workshop will be conducted by Seller and Engineer to:
   1. Review Proposal Submittals.
   2. Review PLC and Digital System Block Diagram.
   3. Review PLC Programming Orientation.
   4. Review draft process control narratives.
   5. Review alarms, power failure scenarios, and any events or alarms that cause a train to shutdown.
   6. Identify details of air flow requirements including flows, duration, pressure, and variation.
   7. Review approach to HMI graphical emulation and control.
   8. Review data transfers required to perform graphical emulations and control.

G. Submittal Review and Coordination Workshops: Within 5 working days after final submittal submission, Seller shall conduct a workshop to receive comments.

3.02 PREPARATION

A. Site Evaluation
   1. Seller shall perform a site visit prior to MBR Equipment Package arriving onsite to review access and egress with the Buyer, become familiar with existing site conditions and construction operations, select equipment storage locations as applicable, and evaluate any potential impacts to delivering and offloading the MBR Equipment Package.
      a. Potential impacts to delivering and offloading shall be communicated to the Buyer during the site visit.

B. Seller is responsible for providing Buyer access and egress width and turnaround requirements for offloading their equipment, as well as the delivery truck weight.

C. Seller shall perform a site visit during construction to review electrical and mechanical piping stub-up locations with Buyer to confirm locations prior to concrete pour of MBR Equipment Package concrete pad.

D. Once notification is provided by the Buyer, the Seller shall perform a site visit to inspect the MBR Equipment Package concrete pad(s) after its cure time has elapsed to notify the Buyer of any potential constraints or issues for placement of the MBR Equipment Package on the concrete pad.
   1. Potential impacts to placement of the MBR Equipment Package on the concrete pad(s) shall be communicated to the Buyer during the site visit.

3.03 INSTALLATION

A. Seller shall be responsible for offloading and placing MBR Equipment Package tanks, equipment, and systems at the WRRF Project Site.

1. MBR Equipment Package shall be placed by the Seller directly on the WRRF Contractor constructed concrete slab.
2. Seller shall place MBR Equipment Package within a 2-inch tolerance of WRRF Contractor marked concrete pad anchorage points.

B. Seller shall observe WRRF Contractor installation of mechanical and electrical interfaces between the MBR Equipment Package and upstream and downstream processes to ensure proper connection.

C. Seller shall ensure proper preparation of mechanical, electrical, and instrumentation equipment for Buyer to integrate upstream and downstream treatment processes, including but not limited to access to interconnection points and surface preparations where required.

D. Protection of In-Place Conditions
1. Seller is responsible for protecting in place conditions, existing facilities, new construction, exposed utilities, landscaping, fencing, and construction materials while onsite during the mobilization, offloading, and installation of the equipment.
a. Any damage shall be repaired, restored, replaced or reinstalled at the Seller's expense, as directed by the Buyer.

E. Protection of Equipment
1. Seller is responsible for protecting the MBR Equipment Package during mobilization, offloading, and installation onto concrete pad.
a. Any damage or material impact to the equipment that can impact its structural integrity or operational performance shall be repaired, restored, replaced, or reinstalled at the Seller's expense.

3.04 STARTUP, TRAINING, AND COMMISSIONING

A. Startup, training, and commissioning shall be performed by Seller in accordance with Section 01 75 16 – Startup Procedures.

3.05 CLEANING

A. Waste Management
1. Seller is responsible for off hauling any debris, materials, and waste from unpacking and mobilization of MBR Equipment Package brought from offsite.

3.06 ATTACHMENTS

A. Equipment Form

B. Large Membrane Subunit Form

C. Flux Rate Forms

D. HRCSD WRRF Draft Hydraulic Profile

E. HRCSD WRRF Draft Process Flow Diagram

END OF SECTION

Attachment: Equipment Form

Seller shall list all major equipment in the form below including pumps, compressors, fine screens, blowers, diffuser systems, and mixers. Use additional tables or space as needed, without adding or removing headings. Seller to provide completed forms within three (3) business days of Bid date.

Major Equipment	Description	Manufacturer	Estimated Lead Time (months)

Attachment: Large Membrane Subunit Form

Seller shall list description and details of Large Membrane Subunits proposed for this Project in the Form below. Seller to provide completed forms within three (3) business days of Bid date.

Large Membrane Subunit Information	
Manufacturer and Model	
Components of Large Membrane Subunit	
Membrane Surface Area per Large Membrane Subunit (sf)	
Membrane Material	
Membrane Pore Size (µm)	
Manufacturing Country of Origin	
Number of Total Units to Comprise 100% of total MBR Equipment Package Capacity	

Attachment: Flux Rate Forms

Seller shall complete this form with answers to questions and guaranteed net flux rates in gallons per square foot per day (gfd). Seller to provide completed forms within three (3) business days of Bid date.

1. Will the Seller's performance guarantees for membrane production and water quality be restored by chemical cleanings that follow any preceding peak flow or loading events that exceed normal operating parameters? If "No", provide attached explanation.

   _____ Yes _____ No

2. What is the maximum flow that can be produced for at least 24 continuous hours under the following conditions?
   a. All Membrane Trains in service, including standby trains.

      _____ mgd

   b. All Duty Membrane Trains in service, excluding standby trains.

      _____ mgd

3. What are the Seller's Guaranteed Flux Rates at the following Flow and Load conditions (per Article 2.03C.4 of this Specification Section), assuming the minimum process temperature of 15 degrees Celsius and all standby Membrane Tanks out of service?

   Minimum Week: _____ gfd

   Average Annual: _____ gfd

   Max Month: _____ gfd

   Max Week: _____ gfd

Using the attached forms, provide three (3) references for full scale installations where these flux rates (temperature adjusted to 15 degrees Celsius) have been produced for a continuous period of at least 180 days.

Flux Rate and Production Reference Form No. 1

Owner _____

Facility Name _____

Location (Country, State, City) _____

Contact Person _____

Name _____

Phone _____

E-mail _____

Commissioning Date _____

Design Conditions

AA Flow (mgd) _____

AA BOD Loading (ppd) _____

AA Ammonia Loading (ppd-N) _____

MM Flow (mgd) _____

MM BOD Loading (ppd) _____

MM Ammonia Loading (ppd-N) _____

MD Flow (mgd) _____

PH Flow (mgd) _____

Production and Process Data

Average Annual _____

Flux Rate (gfd) _____

MLSS (mg/L) _____

Max Month _____

Flux Rate (gfd) _____

MLSS (mg/L) _____

Max Day _____

Flux Rate (gfd) _____

MLSS (mg/L) _____

Peak Hour _____

Flux Rate (gfd) _____

MLSS (mg/L) _____

Wastewater Temperature Range (Minimum - Max, deg F) _____

Flux Rate and Production Reference Form No. 2

Owner _____

Facility Name _____

Location (Country, State, City) _____

Contact Person _____

Name _____

Phone _____

E-mail _____

Commissioning Date _____

Design Conditions

AA Flow (mgd) _____

AA BOD Loading (ppd) _____

AA Ammonia Loading (ppd-N) _____

MM Flow (mgd) _____

MM BOD Loading (ppd) _____

MM Ammonia Loading (ppd-N) _____

MD Flow (mgd) _____

PH Flow (mgd) _____

Production and Process Data

Average Annual _____

Flux Rate (gfd) _____

MLSS (mg/L) _____

Max Month _____

Flux Rate (gfd) _____

MLSS (mg/L) _____

Max Day _____

Flux Rate (gfd) _____

MLSS (mg/L) _____

Peak Hour _____

Flux Rate (gfd) _____

MLSS (mg/L) _____

Wastewater Temperature Range (Minimum - Max, deg F) _____

Flux Rate and Production Reference Form No. 3

Owner _____

Facility Name _____

Location (Country, State, City) _____

Contact Person _____

Name _____

Phone _____

E-mail _____

Commissioning Date _____

Design Conditions

AA Flow (mgd) _____

AA BOD Loading (ppd) _____

AA Ammonia Loading (ppd-N) _____

MM Flow (mgd) _____

MM BOD Loading (ppd) _____

MM Ammonia Loading (ppd-N) _____

MD Flow (mgd) _____

PH Flow (mgd) _____

Production and Process Data

Average Annual _____

Flux Rate (gfd) _____

MLSS (mg/L) _____

Max Month _____

Flux Rate (gfd) _____

MLSS (mg/L) _____

Max Day _____

Flux Rate (gfd) _____

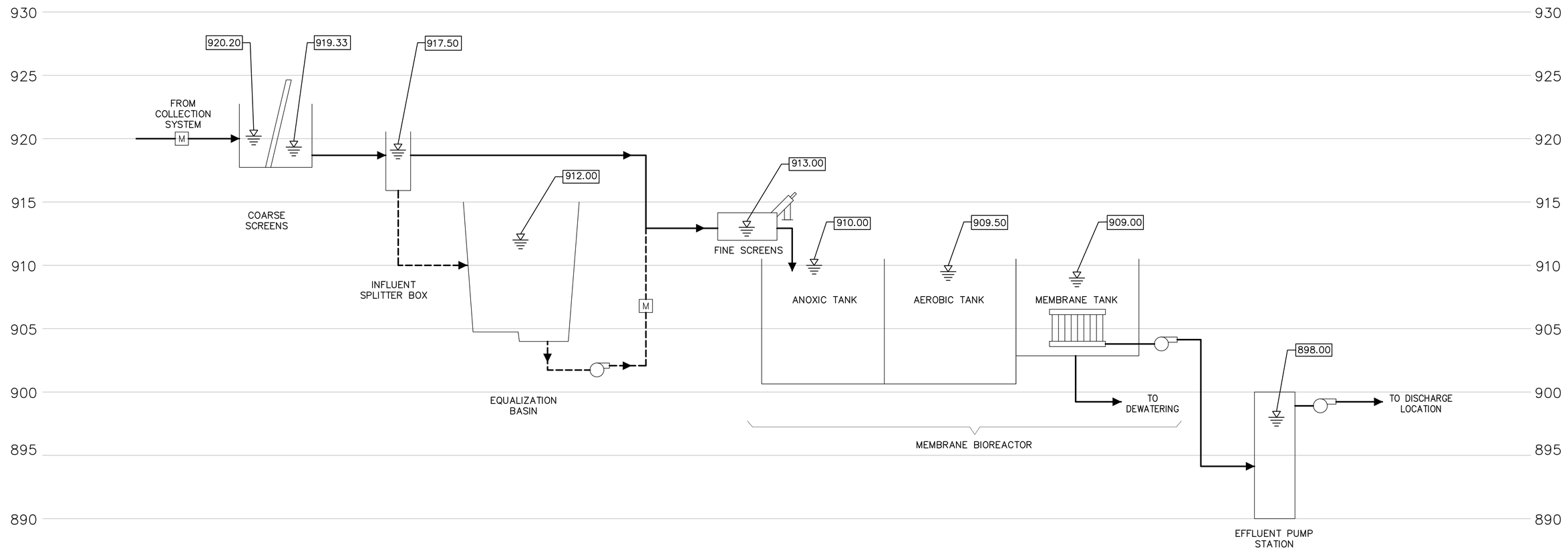
MLSS (mg/L) _____

Peak Hour _____

Flux Rate (gfd) _____

MLSS (mg/L) _____

Wastewater Temperature Range (Minimum - Max, deg F) _____



LEGEND:

AA WS EL (FT)

AA = 0.24 MGD

PROCESS FLOW

EQUALIZED FLOW

DRAFT - NOT FOR CONSTRUCTION

REV	DATE	BY	DESCRIPTION

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

DESIGNED MNR
DRAWN PMD
CHECKED DSW
SCALE NO SCALE

PREPARED BY:
MATTHEW N. RODRIGUES DATE
RCE No.: 84311

REGISTERED PROFESSIONAL ENGINEER MATTHEW N. RODRIGUES NO. C84311 CIVIL STATE OF CALIFORNIA

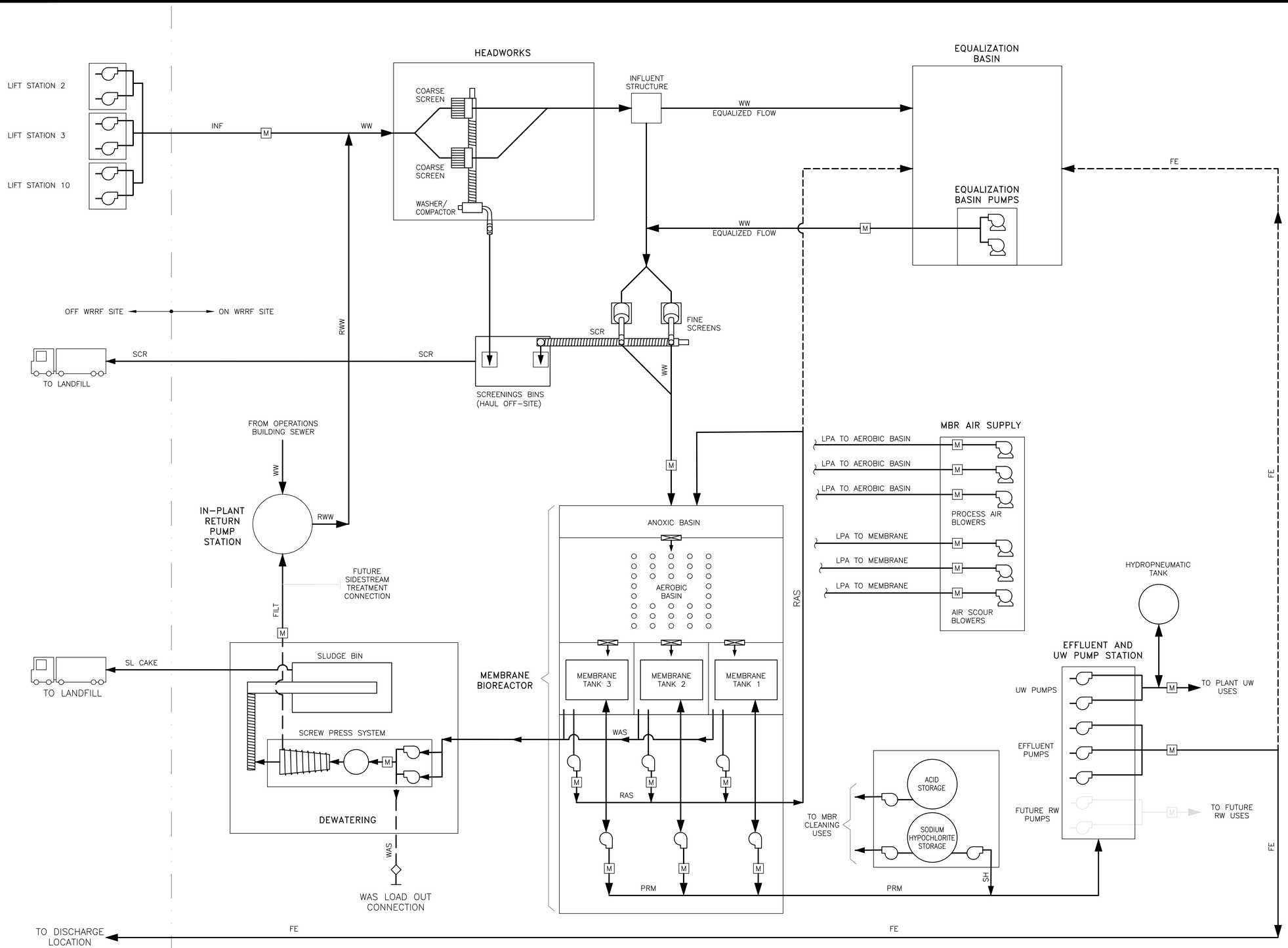
WSC
805 AEROVISTA PLACE, SUITE 201 SAN LUIS OBISPO, CA 93401
PHONE: (805) 457-8833 FAX: (805) 888-2764

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
4870 HERITAGE ROAD
PASO ROBLES, CA 93446

APPROVED:
POSITION DATE

WATER RESOURCE RECOVERY FACILITY UPGRADE
GENERAL
HYDRAULIC PROFILE

DRAWING
G-602
SHEET X OF X
PROJECT #



LEGEND

- PROCESS FLOW
- RETURN STREAM
- BYPASS
- FUTURE
- GATE
- M — FLOW MEASUREMENT
- MIXER

ABBREVIATIONS

BYP	BYPASS
FE	FINAL EFFLUENT
FILT	FILTRATE
INF	INFLUENT
LPA	LOW PRESSURE AIR
PRM	PERMEATE
RAS	RETURN ACTIVATED SLUDGE
RW	RECYCLED WATER
RWW	RETURN WASTEWATER
SCR	SCREENINGS
SL	SLUDGE
UW	UTILITY WATER
WAS	WASTE ACTIVATED SLUDGE
WW	WASTEWATER

DRAFT - NOT FOR CONSTRUCTION

REV	DATE	BY	DESCRIPTION

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

DESIGNED EKW
DRAWN PMD
CHECKED MNR
SCALE NO SCALE

PREPARED BY:
MATTHEW N. RODRIGUES DATE
RCE No.: 84311

REGISTERED PROFESSIONAL ENGINEER · MATTHEW N. RODRIGUES · NO. C84311 · CIVIL · STATE OF CALIFORNIA

WSC
805 AEROVISTA PLACE, SUITE 201 SAN LUIS OBISPO, CA 93401
PHONE: (805) 457-8833 FAX: (805) 888-2764

HERITAGE RANCH COMMUNITY SERVICES DISTRICT
4870 HERITAGE ROAD
PASO ROBLES, CA 93446

APPROVED:
_____ _ _____ POSITION DATE

WATER RESOURCE RECOVERY FACILITY UPGRADE
GENERAL

PROCESS FLOW DIAGRAM

DRAWING
G-603
SHEET X OF X
PROJECT # —

W:\3.0 Clients\Heritage Ranch Community Services District 1029\10090 WRF Upgrade Design\6.0 Working Files\0-CAD\1-SHEET FILES\G-HRCSD-WWTP - Gen_1_14810_da414138.sv$.dwg 8/7/2023 7:03 PM Paul D'Santi

SECTION 460510
MECHANICAL EQUIPMENT

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Material, design and performance requirements for the following equipment supplied as part of the MBR Equipment Package:
   1. Fine Screens.
   2. Permeate Pumps.
   3. Process Mixed Liquor Pumps.
   4. Chemical Pumps.
   5. Submersible Mixers.
   6. Process and Air Scour Blowers.
   7. Air Compressor System.

1.02 REFERENCES

A. Abbreviations and Acronyms
   1. psia: pounds per square inch absolute pressure
   2. psig: pounds per square inch gauge pressure
   3. scfm: standard cubic foot per minute

B. Definitions
   1. scfm: volumetric air flow rate at standard conditions of 68 degrees Fahrenheit, 14.7 psia, and 36 percent relative humidity.

C. Reference Standards
   1. American Bearing Manufacturers' Association (ABMA)
   2. American Gear Manufacturers Association (AGMA)
   3. American Iron and Steel Institute (AISI)
   4. American National Standards Institute (ANSI)
   5. ASTM International (ASTM)
      a. A48/A48M, Standard Specification for Gray Iron Castings.
      b. A395/A395M, Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures.
      c. ASTM D2240, Standard Test Method for Rubber Property – Durometer Hardness.
   6. Hydraulic Institute Standards
      a. .4, Rotodynamic Pumps for Vibration Analysis and Allowable Values
   7. Occupational Safety and Health Administration (OSHA)

1.03 SUBMITTALS

A. Refer to Section 01 30 00 – Administrative Requirements for all submittal procedures and requirements.

B. Action Submittals
   1. Product Data:
      a. Submit manufacturer information for:
         1) Drive assemblies, pumps, tanks, mixers, panels, and other major components.
         2) Schematics, diagrams, panel layouts, ladder diagrams, and sequence of operation.
         3) Electric motors and variable-frequency drives.
         4) Recommendations for equipment foundations and anchorage.
         5) Recommendations for size and type of equipment couplings for driven equipment.
         6) External utility requirements such as air, water, power, and drain.

2. Shop Drawings:
    a. Indicate assembly, foundation, and installation with location including critical dimensions, sizes, and support locations.
    b. For multi-speed service, indicate characteristic curves for maximum and minimum speeds.
    c. Equipment name, identification tag number, and related Specification Section number.
    d. Elevation of local control panel, indicating panel-mounted devices, power single-line diagram, and input/output list.
    e. Electrical schematic diagram and wiring diagram of field connections, including terminals and numbers.
    f. Nametag data and layout.
3. Certificates:
    a. Manufacturer certification that mechanical equipment meets or exceed specified requirements.
    b. Manufacturer certification that the mechanical equipment has been properly installed and commissioned.
    c. Manufacturer certification approving installer of equipment.
4. Delegated Design Submittals:
    a. Submit signed and sealed Shop Drawings with design calculations and assumptions for horizontal and vertical load carrying capacity of all equipment supports and anchorage design demonstrating the static and dynamic forces and distribution of forces resulting from normal operations combined with the greater of wind or seismic forces in accordance with California Building Code requirements.
        1) Indicate calculations used to determine load carrying capacity of all equipment supports, and anchorages.
        2) Submit calculations sealed by a registered professional engineer.
    b. Submit manufacturers equipment sizing calculations based on information provided in Contract Documents.
5. Qualification Statements
    a. Manufacturer qualifications for mechanical equipment.

C. Information Submittals
1. Source Quality Control
    a. Submit results of factory tests and inspections.
    b. Manufacturer’s recommend vibration limits.
    c. Manufacturer’s recommended installation instructions.
2. Field Quality Control
    a. Equipment Commissioning Tests:
        1) Submit manufacturer’s installation certificate for field observation and test results for pumps and mechanical equipment.
    b. Noise Level Tests:
        1) Submit noise level measurements to demonstrate that when in operation no single piece of equipment exceeds OSHA noise level requirements.

D. Maintenance Material Submittals
1. Submit operations and maintenance data in accordance with Specification Section 01 78 23 – Operations and Maintenance Manual.
2. Submit list of manufacturer’s recommended spare parts and tools.

1.04 QUALITY ASSURANCE

A. Qualifications
1. Manufacturer: Company specializing in manufacturing mechanical equipment specified in the Contract Documents with minimum five years' documented experience.
2. Installer: Company specializing in performing work of this Specification Section with minimum three years’ experience and approved by manufacturer.

1.05 STORAGE AND HANDLING

A. Provide protection after delivery of the MBR Equipment Package and prior to startup of the MBR Equipment Package according to manufacturer instructions.

1.06 FIELD CONDITIONS

A. Reference Specification Section 43 32 46 – Membrane Bioreactor Equipment for Field Conditions.

1.07 WARRANTY

A. Seller to warrant mechanical equipment specified in this Specification Section per Specification Section 43 32 56 – Membrane Bioreactor Equipment.

PART 2 PRODUCTS

2.01 PERFORMANCE AND DESIGN CRITERIA

A. Provide equipment designed and constructed for continuous service within specified range of operation, without overheating, excessive wear, or excessive vibration.

B. For equipment with motors, nameplate ratings of motors shall not be exceeded, nor shall design service factors be reduced when pump is operating within its operating range per manufacturer's design pump curve, including maximum flows or conditions.

2.02 MECHANICAL EQUIPMENT

A. Fine Screens
   1. Type: Perforated Plate
   2. Manufacturers:
      a. Or-Tec.
      b. Ovivo.
      c. Lakeside.
      d. Or Approved Equal.
   3. Design Requirements:
      a. Designed to filter raw influent screened with upstream ¼" spacing coarse screen.
      b. Maximum Opening Size: 2 mm.
      c. Minimum Capture Rate: 95%.
      d. Independent, enclosed, tank mounted system.
      e. Supported directly on MBR Equipment Package platforms or installed on a pedestal mounted support system with stair and platform access.
         1) Seller responsible for any pumping, hydraulic control units, piping, and/or valving between fine screen unit and MBR Equipment Package process inlets to convey process flows.
      f. Provide independent inlet locations for up to two (2) 8" Class 53 ductile iron pipes.
      g. Self-cleaning with integral spray wash system for screenings located on perforated plate.
   4. Materials:
      a. Body: 304 SS
      b. Wetted Parts: 304 SS or 316 SS.
      c. Screening Mechanism: 304 SS or 316 SS.
      d. Augurs, drums, or screws: 304 SS or 316 SS.
   5. Supporting Components:
      a. Washer Compactor or integrated compaction design feature to compact and wash solids prior to conveyance for disposal.
         1) Open outlet design to prevent blockages.
         2) Internal compaction zone accessible through maintenance hatch which automatically shuts down screen operation when opened.
         3) Integrated spray wash system with connection for Buyer supplied utility water (disinfected tertiary effluent from treatment process).

b. Screenings Conveyor
   1) If not provided as integrated component of washer compactor, a screening conveyor shall be supplied to convey compacted and washed screenings to a screenings bin located outside the MBR Equipment Package footprint and accessible for off hauling by a trash collection vehicle.

B. Permeate Pumps
   1. Type: Positive Displacement Rotary Lobe
   2. Manufacturers:
      a. Goulds Pumps, Inc.
      b. Grundfos.
      c. Vogelsang.
      d. Boerger.
      e. Or Approved Equal.
   3. Design Requirements:
      a. Seller shall be responsible for pump selection to be in accordance with the Hydraulic Institute Standards. The pump's application, design, and installation shall meet the operation requirements of the MBR Equipment Package.
         1) Pump shall not operate outside of manufacturer's recommended continuous duty operating design points.
         2) Pump shall not cavitate when operating within operating design points.
      b. Designed and fabricated for 24-hour duty operation at any and all points in range of operation without overheating and without excessive vibration or strain.
      c. Working parts of pumps and motors such as bearings, wearing rings, shaft, and sleeves shall be interchangeable between similar units.
      d. Lubrication fittings shall be on the outside of the equipment to improve access for maintenance.
      e. The permeate pumps shall be sized to provide a minimum of 10-ft of total dynamic pressure head for conveyance to downstream processes, exclusive of pressures required to pump permeate from the membrane tanks. System losses will be confirmed as design progresses.
      f. Noise level of pump system shall not exceed limits established by Hydraulics Institute Standards.
      g. Mechanical seals, rotors, and wear plates shall be replaceable without obstruction by removing covers from pump unit within requiring removal of adjacent equipment or connected piping system.
      h. Inlet and outlet ports shall be horizontally configured and shall not be offset.
      i. Pumping unit shall be mounted on structural steel baseplate.
      j. Motors
         1) Each motor shall have a brake horsepower output equal to or greater than the horsepower required to operate the pump at any point on the head capacity curve, while pumping process fluid. The motor service factor shall not be used to meet this requirement.
      k. Wear Plates
         1) Provide wear plates for internal pump rotor casing and pump front cover with a minimum Brinell hardness of 500.
         2) Securing bolts material: stainless steel.
      l. Rotors:
         1) Helical with three of four lobes to achieve near pulseless flow.
      m. Shafts:
         1) Protected from wetting by pumped fluid.
      n. Mechanical Seals:
         1) Packing glands or external flushing lubrication or cooling are not allowable.
      o. Flanges:

1) ANSI 125- or 150-pound rated, minimum.
2) Bolted directly to rectangular ports of rotary lobe pump.

p. Bearings:
1) Designed for maximum radial or axial load carried by shafts at continuous duty.
2) Life (ABMA L10 compliant):
(a) Constant Speed: 100,000 hours
(b) Variable Speed: 50,000 hours

4. Materials:
a. Pump Casing: ASTM A48, Class 30 or higher cast iron.
b. Rotors: Cast iron covered with Buna-N per ASTM D2240, or with replacement Buna-N 70 durometer tips.
c. Shafts:
1) Alloy steel per AISI A4140.
d. Mechanical seals:
1) Faces: Silicon carbide.
2) Holders: Corrosion and chemical resistant.
e. Flanges:
1) Inlet and outlet ports: Grey iron

5. Accessories:
a. Spare Parts
1) Set of bearings.
2) Set of gaskets and seals.
3) Set of shaft sleeves.
4) One pair of rotos or rotor tips for each rotor.
5) Mechanical seal kit.
6) Manufacturer’s recommended special tools required for operation and maintenance activities.

C. Process Mixed Liquor Pumps
1. Type: Centrifugal
2. Manufacturers:
a. Goulds Pumps, Inc.
b. Grundfos
c. Vogelsang
d. Wilo
e. Flygt
f. Or Approved Equal
3. Design Requirements:
a. Seller shall be responsible for pump selection to be in accordance with the Hydraulic Institute Standards. The pump’s application, design and installation shall meet the operation requirements of the MBR Equipment Package.
1) Pump shall not operate outside of manufacturer’s recommended continuous duty operating design points.
2) Pump shall not cavitate when operating within operating design points.
b. Designed and fabricated for 24-hour duty operation at any and all points in range of operation without overheating and without excessive vibration or strain.
c. Working parts of pumps and motors such as bearings, wearing rings, shaft, and sleeves shall be interchangeable between similar units.
d. Lubrication fittings shall be on the outside of the equipment to improve access for maintenance.
e. Noise level of pump system shall not exceed limits established by Hydraulic Institute Standards.
f. Maximum solids pump can pass: 1 inch minimum.
g. Motors

1) Each motor shall have a brake horsepower output equal to or greater than the horsepower required to operate the pump at any point on the head capacity curve, while pumping process fluid. The motor service factor shall not be used to meet this requirement.

h. Mechanical Seals:
1) Packing glands or external flushing lubrication or cooling are not allowable.

i. Flanges:
1) ANSI 125- or 150-pound rated, minimum.

j. Bearings:
1) Designed for maximum radial or axial load carried by shafts at continuous duty.
2) Life (ABMA L10 compliant):
(a) Constant Speed: 100,000 hours
(b) Variable Speed: 50,000 hours

4. Materials:
a. Pump Casing and flanges: ASTM A48, Class 30 or higher cast iron.
b. Shafts:
1) Alloy steel per AISI A4340.
c. Shaft Sleeve:
1) AISI 316 SS.
d. Mechanical seals:
1) Holders: Corrosion and chemical resistant.
e. Baseplate:
f. Carbon Steel per AISI Type 1045.

5. Accessories:
a. Spare Parts
1) Set of bearings.
2) Set of gaskets and seals.
3) Set of shaft sleeves.
4) One pair of rotos or rotor tips for each rotor.
5) Mechanical seal kit.
6) Manufacturer’s recommended special tools required for operation and maintenance activities.

D. Chemical Pumps
1. Type: Peristaltic
2. Manufactures:
a. Blue-White Industries.
b. Prominent.
c. Or Approved Equal.
3. Design Requirements:
a. Seller shall be responsible for pump sizing and selection to provide operable and functioning chemical cleaning system for MBR Equipment Package operation.
b. Self-priming, including when maximum pressure is in pump line.
c. Brushless variable speed motor.
d. Pump head chemical exposure sensing for automated fail output and shutoff.
e. 2500:1 turndown ration.
f. 4-20mA inputs and outputs.
g. Provide squeeze rollers with accompanying alignment rollers.
h. Single piece rotors without springs or hinges.
i. Bi-directional flow at maximum pump pressures.
j. Maximum Fluid Viscosity: 12,000 Centipose.
k. Maximum Suction Lift: 30-feet water at 0 psig.
l. VGA backlit LCD display with UV resistance.
m. NEMA 4X enclosure.

4. Materials:
    a. Pump Tube Assembly:
        1) Norprene®
        2) Adapters: PVDF
    b. Injection/Back-Flow Check Valve
        1) Body: PVDF
        2) Check Ball: Ceramic
        3) Spring: Hastelloy C-276
        4) Ball Seat O-ring: Viton®
        5) Static Seat O-ring: Viton®
    c. Suction Strainer:
        1) Body: PVDF
        2) Check Ball: Ceramic
        3) Ball Seat O-ring: Viton®
    d. Pump Head:
        1) Valox®
    e. Pump Head Cover:
        1) Polycarbonate
    f. Cover Screws
        1) Stainless Steel
    g. Roller Assembly:
        1) Roto: Valox®
        2) Rollers: Nylon
        3) Roller Bearing: Stainless Steel
    h. Motor Shaft:
        1) Chrome plated steel
5. Accessories:
    a. Spare tubing for 6-months operation at continuous duty.
    b. Spare injection/back-flow check valve
    c. Spare roller assembly.

E. Submersible Mixers
1. Type: Submersible Multiple Blades
2. Manufacturers:
    a. Sulzer.
    b. Wilo.
    c. Flygt.
    d. Or Approved Equal.
3. Design Requirements:
    a. Pressure tight.
    b. Integral bracket for use on guide rail.
        1) Provide associated guide rail for each mixer supplied.
    c. Maximum submergence: 60-feet.
    d. Maximum fluid temperature: 104 degrees Fahrenheit.
    e. Minimum number of blades: Two (2).
    f. Self-cleaning and de-ragging functions.
    g. Bearings:
        1) Life: 100,000 hours.
        2) Upper Bearing: Pre-Loaded and permanently lubricated
    h. Sealing System: Dual mechanical seals with respective oil chambers.
    i. Integrated seal failure monitoring system.
    j. Integrated temperature monitoring system.
4. Materials:

a. Motor Housing: 316L SS
b. Propeller: 329 SS
c. Fasteners: 316 SS
d. Sliding Bracket: 316 SS
e. Lifting Bracket and Band: 316L SS
f. Sealing Systems: Silicon carbide
g. O-Rings and Cable Glands: Nitrile (Buna-N)

5. Accessories:
   a. Provide one (1) spare lifting band per mixer supplied.

F. Process and Air Scour Blowers
1. Type: Rotary Lobe.
2. Manufacturers:
   a. FPZ
   b. Gardner Denver
   c. Aerzen
   d. Or Approved Equal
3. Design Requirements:
   a. Seller is responsible for blower sizing and selection to provide operable and functioning biological process air system and membrane air scour system for MBR Equipment Package operation.
      1) Size blowers for water surface depth at top of membrane tank wall.
   b. Blower design shall be determined with regards to safety of operation, accessibility, and durability of parts.
      1) Blowers shall comply with applicable OSHA, state, and local safety regulations.
   c. Blowers shall suction air from outdoor atmosphere and discharge into main air header.
   d. Blowers shall start no more than four (4) times per hour when operating intermittently.
   e. Blowers shall operate under a VFD with variable speed range of 25 percent to 100 percent of operating speed.
   f. Equipped with removal panel that can be easily removed without removing adjacent equipment or piping systems.
      1) Provide minimum 30-inches of working space in front of removable panel.
   g. Blower unit must be installed on base frame that can be lifted and moved with lifting eyes or forklift.
   h. V-belt driven with OSHA compliant guard.
   i. Blower package must include discharge pressure and temperature sensors and automatic shutoff controls for high pressure and high temperature signals.
   j. Blowers must be equipped with integral:
      1) Air Inlet Filters
         (a) 98% removal efficiency for particles 10 microns and bigger.
      2) Inlet and discharge silencers
      3) Inlet and outlet pressure gauges.
      4) Discharge high pressure switch.
      5) Discharge temperature sensor and switch.
      6) Temperature Sensors
         (a) Rated NEMA 4
         (b) Located after each blower discharge.
      7) Noise enclosure
         (a) Provide blower enclosures with maximum sound pressure level of 80 dBA with inlet and discharge silencers measured 3-feet from enclosure.
      8) Vibration isolation pads
      9) Discharge relief valves.
      10) Discharge check valves.

11) Cooling fan.
(a) Shaft driven.
12) Flex connectors/expansion joints with 150-pounds flange for discharge piping.

4. Accessories:
a. Spare Parts:
1) Spare V-Belt per blower supplied.

G. Air Compressor System
1. Manufacturers:
a. Ingersoll-Rand.
b. Quincy.
c. Gardner Denver.
d. Or Approved Equal.
2. Performance and Design Requirements:
a. Provide air compressor system as a complete system with compressor, motor, controls.
b. Provide one duty and one spare compressor with dedicated air receivers and desiccant air dryers for each compressor.
1) Each compressor, air receiver, and air dryer shall be sized to simultaneously provide compressed air to all duty instruments, eductors, valves, and other equipment that require compressed air. Sizing shall accommodate system losses of no less than 15% system leakage.
c. Seller is responsible for determining capacity, operating pressure ranges, and automation requirements for all air compressor system components to operate MBR Equipment Package per Seller's design strategy.
3. Components:
a. Compressor:
1) Type: Two-Cylinder, Two-Stage Reciprocating
2) Air cooled.
3) Oil pressure lubricating system.
(a) Provide oil removal filter in air piping with:
(1) 9 percent removal of 0.3-micron lubricating oil at 100 psig conditions.
(2) 5-micron cleanable prefilter.
(3) Automatic drain valves.
(4) Replaceable filter elements without removal of adjacent equipment or piping.
(5) Provide one spare filter per filter unit.
4) Automatic unloading during startup.
5) Common steel base mount for compressor and motor.
6) V-belt drive system between compressor and motor with drive guard.
7) Belt tensioning shall be easily accessible without removal of adjacent equipment.
8) Cyclical ON/OFF operation.
9) Automated shutdown for low oil pressure with indicating light and pressure gauge.
10) Control Panel shall be mounted in location where it can be easily accessed without removal of adjacent equipment.
11) Control components shall be prewired and operated with 120V AC power.
b. Air Receiver:
1) Horizontal or Vertical welded steel.
2) ASME code rated.
3) Corrosion Allowance: 1/16 inch.
4) Maximum safety relief valve setting: 130 psig.
5) Equipped with:

(a) Pressure gauge and gauge cock.
(b) Automated condensate drain valve with dedicated isolation valve.
(c) Manual blowdown valve located at lowest point of air receiver tank.

c. Aftercooler
1) Mounted to air receiver, between compressor discharge and air receiver.
2) Cooling Capacity: Within 15 degrees of water temperature.
3) Equipped with downstream moisture separator and automated trapped drain.

d. Air Dryer:
1) Skid mounted.
2) ASME code rated dual drying chambers and control systems.
3) Desiccant supported by stainless steel support to prevent air channeling.
4) Drain and fill ports for towers that can be accessed without removal of appurtenances or piping.
5) Provide air purging device for tower drying.
6) Equipped with safety relief valves and pressure gauges for desiccant towers.
7) Check valves on each tower discharge line and a four-way switching valve on inlet piping for alternating between drying mode and regeneration mode.
8) Automatic cycling between towers for regeneration without interruption to air supply at constant pressures.
9) Provide coalescing prefilter capable of removing 100 percent of aerosols 0.75 micron and learge and 100 percent of 0.3 mincron solid particles.
(a) Equip with automatic float drain.
10) Provide particulate postfilter capable of removing 100 percent of 1 micron and large particles.

2.03 FINISHES

A. Provide epoxy or enamel coating system per manufacturer's standard recommendations for outdoor installations and ultraviolet sun exposure.

2.04 ACCESSORIES

A. Nameplates
1. Each individual piece of equipment shall bear a stainless-steel nameplate attached with stainless steel screws. The nameplate shall be engraved with the following information:
a. Manufacturer's name or trademark.
b. Manufacturer's serial and model numbers.
c. Equipment rated flow, head, and rpm.
d. Flow direction.
e. Maximum allowable working pressure and hydrotest pressure for pumps.

B. Lifting Points
1. Provide secure lifting eyes for equipment in excess of 75 pounds.

C. Supply all equipment with OSHA-approved coupling guards for direct coupled or belt driven pumps and blowers.

2.05 SPARE PARTS

A. Provide one set of manufacturer's recommended spare parts.

B. Furnish one complete change of equipment lubricants after start up.

2.06 SOURCE QUALITY CONTROL

A. Tests and Inspections
1. Certified Shop Tests
a. Perform at factory before shipment.
b. Operate equipment to check for alignment, faulty equipment, piping leaks, seals, proper wiring, and overall operation.
2. Performance Tests in accordance with the Hydraulic Institute.

a. Test for total dynamic head, capacity, efficiency, and power requirements at six (6) operating points plus shut-off head for the selected impeller diameter of which the design capacity operating point shall be included.

PART 3 EXECUTION

3.01 EXAMINATION

A. Perform Factory Testing of all mechanical equipment prior to shipment to Site in accordance with Specification Sections 01 30 00 – Administrative Requirements and 01 43 34 – Special Services.

3.02 INSTALLATION

A. Install equipment in accordance with manufacturer's instructions.

B. Ensure that equipment is securely in position and anchored before installing competent piping and performing field tests.

C. Provide and connect piping, power and control conduit, and wiring to make system operational and ready for startup.

D. Equipment Supports:
   1. Construct supports of steel members, formed steel channel, steel pipe and fittings, or reinforced concrete as appropriate.
   2. Brace and fasten with flanges bolted to equipment structure.
   3. Provide flexible connections as required to isolate equipment from piping.

E. Lubricants: Provide necessary oil and grease for initial operation.

3.03 FIELD QUALITY CONTROL

A. Following offloading and installation of MBR Equipment Package onto concrete pad:
   1. Ensure that equipment has been installed correctly and that there are no abnormal or excessive heat or vibration.
   2. Check equipment for motor alignment, proper motor rotation, and proper lubrication.

B. Field Tests
   1. General
      a. Start control system by energizing system equipment and testing operation of hardware and process control logic under supervision of manufacturer's representative and in presence of Engineer.
   2. Pumps
      a. Operate pump on clear water at design point for continuous period of two hours, under supervision of manufacturer's representative and in presence of Engineer.
      b. Verify pump performance by performing time-drawdown test or time-fill test.
   3. Blowers
      a. Operate blower to ensure correct rotation, proper alignment and connection, quiet operation, and satisfactory performance.
   4. Mixers
      a. Operate mixers in submerged condition consistent with intended operational design depth in clean water. Operate continuously for two (2) hours at full speed to confirm temperature or seal failures do not occur.
   5. Chemical Pumps
      a. Operate chemical pumps through operational ranges at five (5) operating points include minimum and maximum speeds with clean water supplied by Buyer.
      b. Verify leak free suction and discharge lines through all test operating speeds.
      c. Verify chemical pump performance by performing time-drawdown test or time-fill test.
   6. Compressed Air System
      a. Operate compressed air system to identify and correct leaks, test pressure gauges and relief valves, vibration free operation, and satisfactory performance.

C. Non-Conforming Work

1. Adjust, repair, modify, or replace components failing to perform as specified and rerun tests as necessary.

D. Manufacturer Services
   1. Furnish services of manufacturer's representative experienced in installation of products furnished under this Specification Section on Site for installation, inspection, startup, field testing, and instructing Buyer's personnel in operation and maintenance of equipment.
   2. Require manufacturer to inspect system before initial start-up and certify that system has been correctly installed and prepared for start-up.

3.04 STARTUP AND COMMISSIONING

A. Startup and commissioning of mechanical equipment and any necessary subsequent adjustments and retests shall be in accordance with Specification Section 01 75 16 - Startup Procedures.

B. Startup and commissioning for all mechanical equipment specified in this Specification Section shall be started up, tested, and commissioned in coordination with Startup and Commissioning period per Specification Section 01 75 16 - Startup Procedures.

END OF SECTION

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

General Manager Report
For the Month of September 2023

In addition to normal administrative, engineering, and operations duties, below are points for several areas of work:

Administration

- The General Manager attended a webinar training sponsored by the EPA regarding wildfire and the effects on the watershed.

- The General Manager met with representatives of Senator Laird and Congressman Panetta at their request so they could become more familiar with our District.

- The General Manager along with other colleagues, met with Congressman Panetta to discuss a couple of initiatives the CSDA is working on, a national definition of a Special District, and water availability for firefighting.

- The General Manager attended the CSDA Annual Conference and Exhibitor Showcase.

- The General Manager attended the September Water Resource Advisory Committee meeting.

Solid Waste

- The General Manager understands that SLO County has submitted a request to the SLO County Integrated Waste Management Authority (IWMA) to re-join IWMA. In 2022 the County left IWMA, which is formed under a Joint Powers Authority or JPA, which necessitated adjustments for the remaining members, such as voting rights, rates and funding, etc. Additional updates will be reported as they become available.

Development

- The Development Agreement and will-serve for the Snug Harbor development project has been fully executed.

Reservoir Status

- As reported by Monterey County Water Resources Agency (MCWRA), as of September 11, 2023 the reservoir was at approximately 775.85 feet in elevation, 67% of capacity, or 253,460-acre feet of storage. MCWRA water releases were shown as 510 cfs.