

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
BOARD OF DIRECTORS' REGULAR MEETING**  
*Minutes of July 16, 2020*

***This meeting was held virtually pursuant to the virtual meeting protocols as outlined in the President's Declaration of April 6, 2020.***

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

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

**2. ROLL CALL**

Secretary Gelos called the roll. All Directors were present.

Staff present: General Manager Scott Duffield, Office Supervisor/Board Secretary Kristen Gelos, District Engineer Steve Tanaka and District legal counsel Jeff Minnery and Jennifer Blackburn.

**3. PUBLIC COMMENT ON ITEMS NOT ON THE AGENDA**

No comments

**4. CONSENT ITEMS**

- a. **Meeting Minutes:** Receive/approve minutes of regular meeting of June 18 2020.
- b. **Warrant Register:** Receive/approve June 2020 warrants.
- c. **Treasurer's Report:** Receive/file June 2020 report.
- d. **Treasurer's Report:** Receive/file FY 2019/20 4<sup>th</sup> Quarter Report.
- e. **Treasurer's Report:** Receive/file FY 2019/20 Annual Report.
- f. **Fiscal Report:** Receive/file June 2020 status report.

Director Rowley made a motion to approve all consent items as presented. Director Cousineau seconded the motion. The motion passed by the following roll call vote:

Ayes: Barker, Burgess, Capps, Cousineau, Rowley

**5. PUBLIC HEARINGS**

- a. **Submittal for approval Resolution 20-10 providing for collection of delinquent solid waste charges and penalties to be collected on the tax roll in the same manner as property taxes.**

Manager Duffield provided a brief summary of the item and answered any questions the Board had.

Director Cousineau made a motion to approve Resolution 20-10 providing for collection of delinquent solid waste charges and penalties to be collected on the tax roll in the same manner as property taxes. Director Barker seconded the motion. The motion passed by the following roll call vote:

Ayes: Barker, Burgess, Capps, Cousineau, Rowley

**b. Submittal for approval Resolution 20-11 adopting a Fiscal Year 2020/21 Final Budget and Salary Schedule.**

Manager Duffield provided a brief summary of the item and answered any questions the Board had.

Director Barker made a motion to approve Resolution 20-11 adopting a Fiscal Year 2020/21 Final Budget and Salary Schedule. Director Rowley seconded the motion. The motion passed by the following roll call vote:

Ayes: Barker, Burgess, Capps, Cousineau, Rowley

**6. DISCUSSION ITEMS**

**a. Submittal for approval Resolution 20-12 adopting the San Luis Obispo County Multi-Jurisdictional Hazard Mitigation Plan Update 2019.**

Manager Duffield provided a brief summary of the item and answered any questions the Board had.

Director Cousineau made a motion to approve Resolution 20-12 adopting the San Luis Obispo County Multi-Jurisdictional Hazard Mitigation Plan Update 2019. Director Barker seconded the motion. The motion passed by the following roll call vote:

Ayes: Barker, Burgess, Capps, Cousineau, Rowley

**b. Request to approve draft contract documents for the Raw Water Vertical Intake No. 1 – Phase 1, and direct staff to finalize the documents to advertise for proposals.**

Manager Duffield provided a brief summary of the item and answered any questions the Board had.

Director Capps made a motion to approve draft contract documents for the Raw Water Vertical Intake No. 1 – Phase 1 and director staff to finalize the documents to advertise for proposals. Director Rowley seconded the motion. The motion passed by the following roll call vote:

Ayes: Barker, Burgess, Capps, Cousineau, Rowley

**c. Request to receive and file Photovoltaic System Project updates.**

Manager Duffield provided a brief summary of the item and answered any questions the Board had.

The report was received and filed.

**7. MANAGER'S REPORT**

The report was received and filed.

**8. STAFF REPORTS**

The reports were received and filed.

**9. COMMITTEE AND DIRECTOR REPORTS**

No comments

**10. ADJOURNMENT**

On a motion by Director Cousineau and seconded by Director Burgess, the meeting adjourned at 4:58 pm to the next scheduled regular meeting on Thursday, August 20, 2020.

**APPROVED:**

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**Dan Burgess, President  
Board of Directors**

**ATTEST:**

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**Kristen Gelos, Secretary  
Board of Directors**

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
JULY 2020  
WARRANT REGISTER**

<b>DATE</b>	<b>NAME OF PAYEE</b>	<b>ITEM AMOUNT</b>	<b>WARRANT AMOUNT</b>
7/3/2020	R. BRINK NET PAYROLL	2,537.98	\$ 2,537.98
7/3/2020	R. ARNOLD NET PAYROLL	2,235.84	\$ 2,235.84
7/3/2020	J. PRITCHETT NET PAYROLL	2,221.02	\$ 2,221.02
7/3/2020	M. HUMPHREY NET PAYROLL	1,873.33	\$ 1,873.33
7/3/2020	K. GELOS NET PAYROLL	2,323.75	\$ 2,323.75
7/3/2020	S. DUFFIELD NET PAYROLL	3,442.02	\$ 3,442.02
7/3/2020	CALPERS HEALTH BENEFITS EMPLOYER PAID HEALTH BENEFITS EMPLOYEE PAID HEALTH BENEFIT EMPLOYEE PAID HEALTH BENEFIT	9,796.40 819.88 819.88	\$ 11,436.16
7/6/2020	J.B. DEWAR. INC. FUEL & OIL	247.21	\$ 247.21
7/7/2020	INTERNAL REVENUE SERVICE FEDERAL WITHHOLDING TAXES MEDICARE	1,646.68 600.70	\$ 2,247.38
7/7/2020	EMPLOYMENT DEVELOPMENT DEPARTM SDI STATE WITHHOLDING	207.13 583.12	\$ 790.25
7/9/2020	PG&E ELECTRICITY	27,119.46	\$ 27,119.46
7/10/2020	CALPERS 457 DEFFERED COMP PROG PERS 457- DEFFERED COMP.	1,028.00	\$ 1,028.00

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
JULY 2020  
WARRANT REGISTER**

<b>DATE</b>	<b>NAME OF PAYEE</b>	<b>ITEM AMOUNT</b>	<b>WARRANT AMOUNT</b>
7/10/2020	CALPERS RETIREMENT SYSTEM		
	PERS RETIREMENT	2,298.31	
	PERS RETIREMENT TIER 2	962.32	
	PERS RETIREMENT PEPRA	282.94	
	SURVIVOR BENEFIT	5.58	\$ 3,549.15
7/14/2020	INTERNAL REVENUE SERVICE		
	FEDERAL WITHHOLDING TAXES	1,808.97	
	FEDERAL WITHHOLDING TAXES	2.20	
	FICA WITHHOLDING	74.40	
	MEDICARE	645.02	\$ 2,530.59
7/14/2020	EMPLOYMENT DEVELOPMENT DEPARTM		
	SDI	216.41	
	STATE WITHHOLDING	658.05	
	STATE WITHHOLDING	1.21	\$ 875.67
7/14/2020	STAPLES CREDIT PLAN		
	OFFICE SUPPLIES	50.61	\$ 50.61
7/14/2020	WALLACE GROUP		
	CONSULTING & ENGINEERING	1,313.75	
	PVS PROJECT	1,072.50	\$ 2,386.25
7/14/2020	SPECIAL DISTRICT RISK MANAGEME		
	PROPERTY/LIABILITY INSURANCE	689.21	\$ 689.21
7/14/2020	CLEATH-HARRIS GEOLOGISTS, INC.		
	VERTIVAL INTAKE PROJECT	1,307.50	\$ 1,307.50
	TELEPHONE & INTERNET	168.49	\$ 168.49
7/14/2020	READY REFRESH BY NESTLE		
	LAB TESTING	24.93	\$ 24.93
7/14/2020	FGL ENVIRONMENTAL		
	LAB TESTING	1,012.00	
	LAB TESTING	108.00	\$ 1,120.00
7/14/2020	WESTERN JANITOR SUPPLY		
	SUPPLIES	276.71	
	SUPPLIES	12.67	\$ 289.38

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
JULY 2020  
WARRANT REGISTER**

<b>DATE</b>	<b>NAME OF PAYEE</b>	<b>ITEM AMOUNT</b>	<b>WARRANT AMOUNT</b>
7/14/2020	FLUID RESOURCE MANAGEMENT PROFESSIONAL SERVICES	755.00	\$ 755.00
7/14/2020	ABALONE COAST ANALYTICAL, INC. LAB TESTING	1,269.00	\$ 1,269.00
7/14/2020	U.S. BANK CORPORATE PAYMENT SY TELEPHONE	235.61	
	OFFICE SUPPLIES	124.12	
	OFFICE SUPPLIES	182.31	
	OFFICE SUPPLIES	42.90	
	OFFICE SUPPLIES	31.09	
	TRAINING & TRAVEL	100.00	
	MAINTENANCE FIXED EQUIPMENT	1,450.08	\$ 2,166.11
7/14/2020	R&B COMPANY A CORE & MAIN COMP MAINTENANCE FIXED EQUIPMENT	49.16	\$ 49.16
7/14/2020	MICHAEL K. NUNLEY & ASSOCIATES CONSULTING & ENGINEERING	3,507.25	\$ 3,507.25
7/14/2020	DATA PROSE LLC JULY BILLING INSERTS	173.52	
	JUNE BILLING	1,120.68	\$ 1,294.20
7/14/2020	KENWOOD ENERGY PVS PROJECT	1,950.00	\$ 1,950.00
7/14/2020	STREAMLINE COMPUTER / SOFTWARE	200.00	
	COMPUTER / SOFTWARE	200.00	
	COMPUTER / SOFTWARE	200.00	
	COMPUTER / SOFTWARE	200.00	
	COMPUTER / SOFTWARE	200.00	
	COMPUTER / SOFTWARE	200.00	
	COMPUTER / SOFTWARE	200.00	\$ 1,400.00
7/14/2020	GREAT WESTERN ALARM ALARM & ANSWERING SERVICE	277.30	\$ 277.30
7/14/2020	SPECIAL DISTRICT RISK MANAGEME		

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
JULY 2020  
WARRANT REGISTER**

<b>DATE</b>	<b>NAME OF PAYEE</b>	<b>ITEM AMOUNT</b>	<b>WARRANT AMOUNT</b>
	W/C INSURANCE FY 2020-21	19,194.30	\$ 19,194.30
7/14/2020	BLAKES INC MAINTENANCE FIXED EQUIPMENT	71.98	\$ 71.98
7/14/2020	PASO ROBLES SAFE & LOCK STRUCTURES & GROUNDS	949.27	\$ 949.27
7/14/2020	NAPA AUTO PARTS VEHICLES	377.30	\$ 377.30
7/14/2020	JAMES A. PRITCHETT MEDICAL REIMBURSEMENT	120.00	\$ 120.00
7/14/2020	RIVAL TECHNOLOGY INC. COMPUTER / SOFTWARE	144.74	\$ 144.74
7/14/2020	STREAMLINE COMPUTER / SOFTWARE	200.00	\$ 200.00
7/14/2020	ALL WAYS CLEAN STRUCTURES & GROUNDS	400.00	\$ 400.00
7/14/2020	MID-STATE REPAIR SERVICE VEHICLES	521.08	\$ 521.08
7/14/2020	STAPLES & ASSOC. STRCT.GRNDS	4,179.28	\$ 4,179.28
7/14/2020	FOX HILL POOL & SPA CHEMICALS	430.78	\$ 430.78
7/14/2020	A&T ARBORISTS & VEGETATION MAN STRUCTURES & GROUNDS	9,200.00	\$ 9,200.00
7/17/2020	R. BRINK NET PAYROLL	2,318.56	\$ 2,318.56
7/17/2020	R. ARNOLD NET PAYROLL	2,427.30	\$ 2,427.30

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
JULY 2020  
WARRANT REGISTER**

<b>DATE</b>	<b>NAME OF PAYEE</b>	<b>ITEM AMOUNT</b>	<b>WARRANT AMOUNT</b>
7/17/2020	J. PRITCHETT NET PAYROLL	2,417.60	\$ 2,417.60
7/17/2020	M. HUMPHREY NET PAYROLL	2,022.33	\$ 2,022.33
7/17/2020	K. GELOS NET PAYROLL	2,390.74	\$ 2,390.74
7/17/2020	D. BURGESS NET PAYROLL	184.70	\$ 184.70
7/17/2020	B. BARKER NET PAYROLL	138.52	\$ 138.52
7/17/2020	M. ROWLEY NET PAYROLL	138.52	\$ 138.52
7/17/2020	R. COUSINEAU NET PAYROLL	92.35	\$ 92.35
7/17/2020	S. DUFFIELD NET PAYROLL	3,679.60	\$ 3,679.60
7/20/2020	T. PRITCHETT NET PAYROLL	630.73	\$ 630.73
7/20/2020	INTERNAL REVENUE SERVICE FEDERAL WITHHOLDING TAXES FICA WITHIHOLDING MEDICARE	24.11 89.04 20.82	\$ 133.97
7/20/2020	EMPLOYMENT DEVELOPMENT DEPARTM STATE WITHHOLDING	8.23	\$ 8.23
7/21/2020	AT&T TELEPHONE & INTERNET	168.49	\$ 168.49
7/23/2020	J.B. DEWAR. INC. FUEL & OIL	376.08	\$ 376.08



**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
JULY 2020  
WARRANT REGISTER**

<b>DATE</b>	<b>NAME OF PAYEE</b>	<b>ITEM AMOUNT</b>	<b>WARRANT AMOUNT</b>
7/24/2020	CALPERS RETIREMENT SYSTEM		
	PERS RETIREMENT U/L	6,642.76	
	PERS RETIREMENT U/L	250.10	
	PERS RETIREMENT U/L	191.00	\$ 7,083.86
7/24/2020	CALPERS 457 DEFFERED COMP PROG		
	PERS 457- DEFFERED COMP.	1,028.00	\$ 1,028.00
7/24/2020	CALPERS RETIREMENT SYSTEM		
	EMPLOYER'S CONTRIBUTION	15.27	
	PERS RETIREMENT	2,433.72	
	PERS RETIREMENT TIER 2	1,026.42	
	PERS RETIREMENT TIER 2	49.47	
	PERS RETIREMENT PEPR	307.25	
	SURVIVOR BENEFIT	5.58	\$ 3,837.71
7/28/2020	FGL ENVIRONMENTAL		
	LAB TESTING	1,278.00	\$ 1,278.00
7/28/2020	WESTERN EXTERMINATOR COMPANY		
	STRUCTURES & GROUNDS	86.00	\$ 86.00
7/28/2020	STAPLES CREDIT PLAN		
	OFFICE SUPPLIES	131.91	
	OFFICE SUPPLIES	22.79	
	OFFICE SUPPLIES	14.62	\$ 169.32
7/28/2020	GREAT WESTERN ALARM		
7/28/2020	ALARM / ANSWERING SERVICE	283.15	\$ 283.15
7/28/2020	ADAMSKI, MOROSKI, MADDEN, CUMB		
	LEGAL & ATTORNEY	1,934.50	\$ 1,934.50
7/28/2020	RYAN BRINK		
	CELL & INTERNET ALLOWANCE	80.00	\$ 80.00
7/28/2020	HACH COMPANY		
	MAINTENANCE FIXED EQUIPMENT	2,496.59	\$ 2,496.59
7/28/2020	CHARTER COMMUNICATIONS		
	INTERNET	84.99	\$ 84.99

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
JULY 2020  
WARRANT REGISTER**

<b>DATE</b>	<b>NAME OF PAYEE</b>	<b>ITEM AMOUNT</b>	<b>WARRANT AMOUNT</b>
7/28/2020	BRENNTAG PACIFIC, INC CHEMICALS	2,001.99	
	CHEMICALS	2,875.92	\$ 4,877.91
7/28/2020	FGL ENVIRONMENTAL LAB TESTING	73.00	\$ 73.00
7/28/2020	ROY ARNOLD CELL & INTERNET ALLOWANCE	80.00	\$ 80.00
7/28/2020	FLUID RESOURCE MANAGEMENT PROFESSIONAL SERVICES	691.75	\$ 691.75
7/28/2020	FOX HILL POOL & SPA CHEMICALS	279.07	\$ 279.07
7/28/2020	KRISTEN GELOS CELL & INTERNET ALLOWANCE	40.00	\$ 40.00
7/28/2020	JAMES A. PRITCHETT CELL & INTERNET ALLOWANCE	80.00	\$ 80.00
7/28/2020	BURT INDUSTRIAL SUPPLY SUPPLIES	45.11	\$ 45.11
7/28/2020	SCOTT DUFFIELD CELL & INTERNET ALLOWANCE	40.00	\$ 40.00
7/28/2020	RIVAL TECHNOLOGY INC. COMPUTER / SOFTWARE	383.08	\$ 383.08
7/28/2020	MARK HUMPHREY CELL & INTERNET ALLOWANCE	80.00	\$ 80.00
7/28/2020	MID-STATE REPAIR SERVICE VEHICLES	1,038.01	\$ 1,038.01
7/28/2020	POLLACK, CHRIS FINAL BILL CREDIT BALANCE - REFUND	48.58	\$ 48.58

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
JULY 2020  
WARRANT REGISTER**

<b>DATE</b>	<b>NAME OF PAYEE</b>	<b>ITEM AMOUNT</b>	<b>WARRANT AMOUNT</b>
7/31/2020	R. BRINK NET PAYROLL	2,589.07	\$ 2,589.07
7/31/2020	R. ARNOLD NET PAYROLL	2,297.21	\$ 2,297.21
7/31/2020	J. PRITCHETT NET PAYROLL	2,630.75	\$ 2,630.75
7/31/2020	M. HUMPHREY NET PAYROLL	1,725.24	\$ 1,725.24
7/31/2020	K. GELOS NET PAYROLL	2,390.74	\$ 2,390.74
7/31/2020	S. DUFFIELD NET PAYROLL	3,842.90	\$ 3,842.90
		<b>GRAND TOTAL FOR ALL WARRANTS \$177,673.19</b>	

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
TREASURER'S REPORT  
JULY 2020**

**SUMMARY REPORT OF ALL ACCOUNTS**

Beginning Balance:	\$ 5,170,064.98
Ending Balance:	\$ 5,174,482.79
Variance:	\$ 4,417.81
Interest Earnings for the Month Reported:	\$ 101.32
Interest Earnings Fiscal Year-to-Date:	\$ 79,325.84

**ANALYSIS OF REVENUES**

Total operating income for water and sewer was:	\$ 161,098.20
Non-operating income was:	\$ 20,740.10
Franchise fees paid to the District by San Miguel Garbage was:	\$ 6,573.44
Interest earnings for the P.P.B. checking account was:	\$ 3.83
Interest earnings for the P.P.B. DWR Loan Services account was:	\$ -
Interest earnings for the P.P.B. DWR Reserve account was:	\$ -
Interest earnings for the P.P.B. SRF Loan Services account was:	\$ -
Interest earnings for the Western Alliance account was:	\$ -
Interest earnings for the LAIF account was:	\$ 15,829.31

**ANALYSIS OF EXPENSES**

Pacific Premier Bank checking account total warrants, fees, and Electronic Fund Transfers was:	\$ 211,393.66
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**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 2020**

**BEGINNING BALANCE ALL ACCOUNTS** **\$ 5,170,064.98**

**OPERATING CASH IN DRAWER** **\$300.00**

**PACIFIC PREMIER BANK - CHECKING**

<b>BEGINNING BALANCE 06/30/2020</b>	\$120,635.78	
DEPOSIT REVENUE & MISCELLANEOUS INCOME	\$174,071.33	
INTEREST EARNED	\$3.83	
TOTAL CHECKS, FEES AND EFT'S	(\$211,393.66)	
TRANSFER TO LAIF ACCOUNT	\$0.00	
<b>ENDING BALANCE 07/31/2020</b>		<b>\$83,317.28</b>

**PACIFIC PREMIER BANK DWR LOAN REPAYMENT (1994-2029):  
LOAN SERVICES ACCOUNT**

<b>BEGINNING BALANCE 06/30/2020</b>	\$114.35	
QUARTERLY DEPOSIT	\$25,907.00	
INTEREST EARNED	\$0.00	
SEMI-ANNUAL PAYMENT	\$0.00	
<b>ENDING BALANCE 07/31/2020</b>		<b>\$26,021.35</b>

**PACIFIC PREMIER BANK DWR RESERVE ACCOUNT**

<b>BEGINNING BALANCE 06/30/2020</b>	\$113,230.73	
INTEREST EARNED	\$0.00	
<b>ENDING BALANCE 07/31/2020</b>		<b>\$113,230.73</b>

**PACIFIC PREMIER BANK SDWSRF LOAN SERVICES ACCOUNT**

<b>BEGINNING BALANCE 06/30/2020</b>	\$29,541.18	
QUARTERLY DEPOSIT	\$0.00	
INTEREST EARNED	\$0.00	
SEMI-ANNUAL PAYMENT	\$0.00	
<b>ENDING BALANCE 07/31/2020</b>		<b>\$29,541.18</b>

**WESTERN ALLIANCE**

**PVS PROJECT CAPITALIZED INTEREST FUND**

<b>BEGINNING BALANCE 06/30/2020</b>	\$51,324.44	
INTEREST EARNED	\$0.00	
<b>ENDING BALANCE 07/31/2020</b>		<b>\$51,324.44</b>

**LOCAL AGENCY INVESTMENT FUND (LAIF)**

<b>BEGINNING BALANCE 06/30/2020</b>	\$4,855,218.50	
INTEREST EARNED	\$15,829.31	
TRANSFER FROM PACIFIC PREMIER CHECKING	\$0.00	
TRANSFER TO PACIFIC PREMIER CHECKING	\$0.00	
<b>ENDING BALANCE 07/31/2020</b>		<b>\$4,871,047.81</b>

**ENDING BALANCE ALL ACCOUNTS** **\$5,174,482.79**

**DIFFERENCE FROM LAST MONTH** **Increase \$4,417.81**

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT - CONSOLIDATED BUDGET  
2020/21 Budget**

<b>OPERATING INCOME</b>	<b>Budget FY 20/21</b>	<b>Actual July</b>	<b>Actual Year to Date</b>	<b>Percentage Year to Date</b>	<b>Variance Explanation</b>
Water Fees	1,021,511	105,820	105,820	10%	
Sewer Fees	658,012	55,003	55,003	8%	
Hook-Up Fees	3,000	0	0	0%	Fluctuates based on activity
Turn on Fees	3,500	475	475	14%	
Late Fees	17,000	1,813	1,813	11%	
Plan Check & Inspection	10,000	0	0	0%	
Miscellaneous Income	2,000	33	33	2%	
<b>TOTAL OPERATING INCOME</b>	<b>\$1,715,023</b>	<b>\$163,144</b>	<b>\$163,144</b>	<b>10%</b>	

<b>FRANCHISE INCOME</b>					
Solid Waste Franchise Fees	66,984	7,237	7,237	11%	
<b>TOTAL FRANCHISE REVENUE</b>	<b>\$66,984</b>	<b>\$7,237</b>	<b>\$7,237</b>	<b>11%</b>	

<b>NON-OPERATING INCOME</b>					
Standby Charges	242,144	0	0	0%	
Property Tax	383,074	0	0	0%	
Interest	80,000	15,833	15,833	20%	Fluctuates based on activity
Connection Fees	70,580	0	0	0%	Fluctuates based on activity
<b>TOTAL NON-OPERATING INCOME</b>	<b>\$775,798</b>	<b>\$15,833</b>	<b>\$15,833</b>	<b>2%</b>	

<b>RESERVE REVENUE</b>					
Capital Reserves	646,396	0	0	0%	
Operating Reserves	1,491,694	0	0	0%	
<b>TOTAL RESERVE REVENUE</b>	<b>\$2,138,090</b>	<b>\$0</b>	<b>\$0</b>	<b>0%</b>	

<b>TOTAL ALL INCOME</b>	<b>\$4,695,895</b>	<b>\$186,214</b>	<b>\$186,214</b>	<b>4%</b>	
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**HERITAGE RANCH COMMUNITY SERVICES DISTRICT - CONSOLIDATED BUDGET  
2020/21 Budget**

**OPERATING EXPENSES**

<b>SALARIES AND BENEFITS</b>	<b>Budget FY 20/21</b>	<b>Actual July</b>	<b>Actual Year to Date</b>	<b>Percentage Year to Date</b>	<b>Variance Explanation</b>
Salaries	715,567	61,289	61,289	9%	
Health Insurance	103,862	5,966	5,966	6%	
Health Insurance - Retiree	48,451	3,950	3,950	8%	
PERS	126,097	11,440	11,440	9%	
Standby	14,000	1,438	1,438	10%	
Overtime	16,000	1,992	1,992	12%	Fluctuates based on need & staffing
Workers Comp. Ins.	19,194	19,194	19,194	100%	Paid Annually
Directors' Fees	12,000	600	600	5%	
Medicare/FICA	10,550	715	715	7%	
Car Allowance	3,000	250	250	8%	
SUI/ETT	1,500	0	0	0%	
Uniforms	5,000	0	0	0%	
<b>TOTAL SALARIES &amp; BENEFITS</b>	<b>\$1,075,221</b>	<b>\$106,835</b>	<b>\$106,835</b>	<b>10%</b>	

**UTILITIES**

Electricity	249,810	0	0	0%	
Propane	1,012	0	0	0%	
Water Purchase	23,114	0	0	0%	Paid Semiannually
Telephone/Internet	12,129	485	485	4%	
<b>TOTAL UTILITIES EXPENSE</b>	<b>\$286,065</b>	<b>\$485</b>	<b>\$485</b>	<b>0%</b>	

**MAINTENANCE & SUPPLIES**

Chemicals	76,000	5,157	5,157	7%	
Computer/Software	29,450	728	728	2%	
Equip. Rental/Lease	2,500	0	0	0%	
Fixed Equip.	142,000	2,569	2,569	2%	
Fuel & Oil	12,000	376	376	3%	
Lab Testing	41,000	73	73	0%	
Office Supplies	2,000	169	169	8%	
Parks & Recreation	0	0	0	#DIV/0!	
Struct./Grnds.	14,140	1,349	1,349	10%	
Small Tools/Equip.	3,000	0	0	0%	
Supplies	5,000	45	45	1%	
Meters/Equip.	5,000	0	0	0%	Fluctuates based on activity
Vehicles	6,500	1,936	1,936	30%	
<b>TOTAL MAINT. &amp; SUPPLY EXPENSE</b>	<b>\$338,590</b>	<b>\$12,403</b>	<b>\$12,403</b>	<b>4%</b>	

<b>GENERAL &amp; ADMINISTRATION</b>	<b>Budget FY 20/21</b>	<b>Actual July</b>	<b>Actual Year to Date</b>	<b>Percentage Year to Date</b>	<b>Variance Explanation</b>
Ads./Advertising	1,500	0	0	0%	Fluctuates based on activity
Alarm/Answering Service	4,000	560	560	14%	
Audit	8,200	0	0	0%	
Bank Charges/Fees	4,000	445	445	11%	Fluctuates based on activity
Consulting/Engineering	85,000	0	0	0%	
Dues/Subscription	8,750	0	0	0%	
Elections	1,000	0	0	0%	
Insurance	41,370	0	0	0%	Paid Annually
LAFCO	6,600	0	0	0%	Paid Annually
Legal/Attorney	25,000	1,935	1,935	8%	
Licenses/Permits	32,100	0	0	0%	
Plan Check & Inspection	10,000	0	0	0%	
Postage/Billing	20,000	0	0	0%	
Professional Service	36,900	692	692	2%	
Tax Collection	5,300	0	0	0%	
Staff Training & Travel	8,000	0	0	0%	
Board Training & Travel	1,000	0	0	0%	
<b>TOTAL G &amp; A</b>	<b>\$298,720</b>	<b>\$3,632</b>	<b>\$3,632</b>	<b>1%</b>	

#### **CAPITAL PROJECTS & EQUIPMENT**

Projects	2,053,089	0	0	0%	
Equipment	85,000	0	0	0%	
<b>TOTAL CAPITAL EXPENSE</b>	<b>\$2,138,089</b>	<b>0</b>	<b>0</b>	<b>0%</b>	

#### **DEBT**

State Loan Payment	103,629	0	0	0%	paid semiannually
State Loan Payment Phase II	58,740	0	0	0%	paid semiannually
<b>TOTAL DEBT</b>	<b>\$162,369</b>	<b>\$0</b>	<b>\$0</b>		

FUNDED DEPRECIATION	\$288,000	\$24,000	\$24,000	8%	
UNFUNDED DEPRECIATION	\$0	\$0	\$0	0%	

<b>TOTAL EXPENSE</b>	<b>\$4,587,054</b>	<b>\$147,354</b>	<b>\$147,354</b>	<b>3%</b>	
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CONNECTION FEES TRANSFER      \$70,580                      \$0                      \$0                      0%

SOLID WASTE FEES TRANSFER      \$30,924                      \$4,232                      \$3,607                      12%

<b>FUND TOTAL</b>	<b>\$7,337</b>	<b>\$34,628</b>	<b>\$35,252</b>		
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## HERITAGE RANCH COMMUNITY SERVICES DISTRICT

### MEMORANDUM

**TO:** Board of Directors

**FROM:** Scott Duffield, General Manager

**DATE:** August 20, 2020

**SUBJECT:** Submittal for approval Resolution 20-13 approving the Raw Water Vertical Intake No. 1 Project and declaring it to be categorically exempt from CEQA; and awarding Phase 1 of the Project to the lowest responsive bidder.

#### **Recommendation**

It is recommended that the Board of Directors approve Resolution 20-13:

1. Approving the Raw Water Vertical Intake No. 1 (Project); and
2. Declaring it to be categorically exempt from CEQA; and
3. Awarding Phase 1 of the Project to the lowest responsive bidder.

#### **Background**

In 2012, your Board approved a preliminary engineering study for a vertical intake project that included soil borings and a siting recommendation. The approved 5-year Capital Improvement Program includes a vertical intake project. The design phase of the vertical intake project commenced during FY 2019/20. At the July 16<sup>th</sup> meeting your Board directed staff to advertise Phase 1 of the Project for public bidding.

#### **Discussion**

##### **Project approval and CEQA**

Approval of Resolution 20-13 will provide formal approval of the Project and adopt findings pursuant to the California Environmental Quality Act (CEQA). CEQA was enacted in 1970 as a system of checks and balances for land-use development and management decisions in California. In general, there are three main purposes of CEQA:

- To inform public decision-makers of potential adverse environmental impacts of public or private projects carried out or approved by them.
- To provide for public participation in the environmental review process.
- To identify and require the implementation of feasible alternatives or measures that would mitigate (reduce or avoid) a proposed project's adverse environmental impacts.

Any activity that may cause a physical change in the environment is a project subject to CEQA review. CEQA provides both categorical and statutory exemptions for certain types of projects.

The following findings support that the Project is consistent with these exemptions:

- Categorical Exemption: CEQA Guidelines Section 15301 Existing Facilities exempts projects that involve *“the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination.”*

Findings. The following findings support that the Project is consistent with this provision:

- The intake is an addition to existing structures and is not expected to increase its area, or to produce a significant additional quantity of water.

For the reasons described above, the Project is categorically exempt under CEQA. If approved by your Board staff will file a Notice of Exemption with the County Clerk and Office of Planning and Research to enter these findings into the record.

### Project Phase 1 award

The scope of Project Phase 1 is to drill the borehole, install the casing, and perform pump tests. The Engineer's Estimate was \$59,619. There were two bids received by the deadline as shown in the table below. Pursuant to California Public Contract Code award of the contract shall be to the lowest responsible bidder. All American Drilling is the apparent lowest responsible bidder.

Bidder	Amount
All American Drilling	\$58,700
Pacific Coast Well Drilling, Inc.	\$98,526

### Fiscal Considerations

The FY 2020/21 Budget includes \$192,303 for the construction phase of the Raw Water Vertical Intake No. 1 project. Staff will return to your Board if additional funding is needed.

### Results

Approval of the recommended action will initiate construction of Phase 1 of the Project to further the District's goal of improving water system resiliency, water quality, and water productivity.

Attachments: Resolution No. 20-13

File: Projects\_ Raw Water Vertical Intake No. 1

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
RESOLUTION NO. 20-13**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE HERITAGE RANCH  
COMMUNITY SERVICES DISTRICT APPROVING THE RAW WATER VERTICAL  
INTAKE No. 1 PROJECT AND DECLARING IT TO BE CATEGORICALLY EXEMPT  
FROM CEQA; AND AWARDING PHASE 1 OF THE PROJECT TO THE LOWEST  
RESPONSIVE BIDDER.**

**WHEREAS**, the Heritage Ranch Community Services District (the “District”), in the State of California (the “State”), is a community services district duly organized and existing pursuant to the constitution and laws of the State; and

**WHEREAS**, the Board of Directors of the District (the “Board”) is the governing body of the District; and

**WHEREAS**, the Board has determined that it is in the best interest of the District to make certain expenditures relating to certain water facilities of benefit to the District consisting of a vertical intake facility and all necessary piping to provide resiliency for the existing water intake infrastructure, to be located within the District on Well Road adjacent to Pump Station 1 (the “Project”).

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

**Section 1. Approval of Project and CEQA.** The Board approves the Project and declares the Project to be categorically exempt in accordance with Section 15301 of the CEQA Guidelines. The following findings support that the Project is consistent with these exemptions:

- Categorical Exemption: CEQA Guidelines Section 15301 Existing Facilities, exempts projects that involve *“the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination.”*

Findings: The following findings support that the Project is consistent with this provision:

- The intake is an addition to existing structures and is not expected to increase its area, or to produce a significant additional quantity of water.

**Section 2. Award of Project Phase 1.** The Board awards Phase 1 of the Project to the lowest responsive bidder.

**Section 3. Authorization.** The Board authorizes the General Manager to file a Notice of Exemption for the Project with the County Clerk and Office of Planning and Research, and to execute a construction agreement and issue a notice to proceed for Phase 1 of the Project to the lowest responsive bidder.

**Section 4. Effective Date.** This Resolution shall take effect upon its passage.

**PASSED, APPROVED AND ADOPTED** by the Board of Directors of the Heritage Ranch Community Services District on the 20<sup>th</sup> day of August 2020, by the following roll call vote.

**AYES:**

**NOES:**

**ABSTAIN:**

**ABSENT:**

**APPROVED:** \_\_\_\_\_  
**Dan Burgess, 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  
Steve Tanaka, District Engineer

**DATE:** August 20, 2020

**SUBJECT:** Request to approve the purchase and installation of improvements to the 2MG Tank mixing system in an amount not to exceed \$25,000 and authorize a corresponding budget adjustment from reserves.

### **Recommendation**

It is recommended that the Board of Directors approve the purchase and installation of improvements to the 2MG Tank mixing system in an amount not to exceed \$25,000 and authorize a corresponding budget adjustment from reserves.

### **Background**

On January 2, 2020, the District officially received a citation from the Division of Drinking Water for our treated water exceeding the haloacetic acids maximum contaminant level. Your Board has been updated regularly on this subject.

### **Discussion**

Staff, the District Engineer, and the District's consultant MKN & Associates have been researching and developing several options that may address the haloacetic acids issue (a disinfection byproduct or DBP). These options include but are not limited to enhanced coagulation treatment process, distribution system adjustments, distribution system improvements, a vertical intake facility, and granular activated carbon.

As suggested by the Division of Drinking Water, staff and the District Engineer have most recently focused on the distribution system for potential to address the DBP and have completed an evaluation of the hydraulic model of the distribution system (water age analysis). The associated memorandum dated July 27, 2020 is attached. In summary, the findings of that analysis are:

- Water in most of the system should be 4-days old or less
- Water in the 2MG Tank is probably 20-days old or more
  - Common inlet / outlet pipe ("last-in first-out")
  - Poor mixing inside the tank
  - Less than optimal water turnover at the tank
- Thus, batched water from the 2MG Tank into the rest of the system means water in the system could be 24-days old or more.

Before any large capital project or expenses are made, the Manager recommends the District implement more efficient, safe, and cost-effective options that may help the DBP issue. One of those options is improvements to the 2MG Tank mixing system.

The attached memorandum provides information on two tank mixing options. Costs for both options are shown in the table below:

Item	Medora	RedValve
Equipment/Shipping	\$ 15,000	\$ 67,937
Installation <sup>a</sup>	\$ 20,000	\$ 25,000
Tank Alteration <sup>b</sup>	\$ -	\$ 30,000
<a href="#">Contingency@5%</a>	\$ 1,750	\$ 6,147
TOTAL	\$ 36,750	\$ 129,084

<sup>a</sup>Installation for Medora/SolarBee unit may require additional power provisions to provide power at top of tank.  
<sup>b</sup>For RedValve installation, opening *must be cut into side of tank for installation.*

The Manager recommends the Medora system. The numbers in the table are based on what we knew at the time and some assumptions. The Manager reviewed the Medora option with staff and we have determined that we can install it ourselves (the Medora literature even states the same) which is a significant savings.

**Fiscal Implications**

The actual cost for the Medora equipment is less than the requested authority of \$25,000. If technical or contractor assistance is needed to support staff, then it will be obtained on a time and material basis via a purchase order within the requested authority.

This item is not included in the FY 2020/21 Budget and authorization of a corresponding budget adjustment from reserves is necessary.

**Results**

Approval of the recommended action will initiate an improvement to the water system that will help improve water quality.

Attachments: Memorandum DBP Water Quality – Distribution System Review dated July 27, 2020

File: Projects\_DBP 2020

# MEMORANDUM

## Heritage Ranch Community Services District Disinfection Byproducts (DBP) Analysis



**Date:** July 27, 2020  
**To:** Scott Duffield, General Manager  
**From:** Steven G. Tanaka, District Engineer  
**Subject:** DBP Water Quality – Distribution System Review

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WATER RESOURCES

This memorandum summarizes Wallace Group’s review of the District’s water distribution system relative to water circulation/water age as it relates to the creation of disinfection byproducts (DBPs) in the water distribution system. The District’s recent results show exceedance of the Locational Running Annual Average (LRAA) for haloacetic acids (HAA5) [60 ug/L] by 10+ug/L at the Black Horse Lane sample. The California maximum contaminant level (MCL) for total trihalomethanes (TTHMs) and HAA5s are 80 ug/L and 60 ug/L, respectively. Table 1 summarizes the DBP MCLs from the latest California Division of Drinking Water regulations.

**Table 1 (Table 64533-A from DDW Regulations)  
Maximum Contaminant Levels and Detection Limits for Purposes of Reporting  
Disinfection Byproducts**

Disinfection Byproduct	Maximum Contaminant Level (mg/L)	Detection Limit for Purposes of Reporting (mg/L)
Total trihalomethanes (TTHM)	0.080	
Bromodichloromethane		0.0010
Bromoform		0.0010
Chloroform		0.0010
Dibromochloromethane		0.0010
Haloacetic acids (five) (HAA5)	0.060	
Monochloroacetic Acid		0.0020
Dichloroacetic Acid		0.0010
Trichloroacetic Acid		0.0010
Monobromoacetic Acid		0.0010
Dibromoacetic Acid		0.0010
Bromate	0.010	0.0050 0.0010 <sup>1</sup>
Chlorite	1.0	0.020

<sup>1</sup> For analysis performed using EPA Method 317.0 Revision 2.0, 321.8, or 326.0

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Wallace Group's workplan approach to address water quality issues related to DBP in the water distribution system was to specifically focus on water circulation and water age throughout the water distribution system. The following general steps were outlined for this study:

1. Step 1. Update Water Model. We updated the District's water model using current water demands, based on current water demand data provided by the District. After formulating a plan to run fire flow tests for the purposes of model calibration, it was decided to forego the model calibration effort at this time.
2. Step 2. Using the WaterCAD water quality module, run the water quality model during winter demand and summer demand conditions. Summarize water age data graphically (in GIS) on a water system map depicting the various water pressure zones.
3. Step 3. Prepare a letter report with recommendations for addressing undesirable water age conditions in the distribution system, by pressure zone, and also in storage tanks.
  - Evaluate targeted distribution system pressure zones, and identify operational changes and/or physical changes (such as looping) that can be performed to enhance (reduce) water age.
  - Evaluate options for water tank mixing and dispersion of water inside the tank(s), including re-configuration of inlet/outlets, and industry available water tank mixing systems such as SolarBee and Red Valve mixing systems.

### **Water Model Update**

We updated the District's water model using current water demands. Two memoranda, dated May 20<sup>th</sup> and June 8<sup>th</sup>, are attached for reference. These water demands were used to update water model demands in the District's water system, and to run water age analyses under current average demand conditions. Winter and summer scenarios can also be modeled should it be desired. However, the current average demand conditions provide an up to date analysis of today's conditions.

Based on the District's most recent water sales data, the following water demands were derived:

- 4-Year Annual Average Demand (Sales), 363 AFY (324,000 gpd)
- Monthly Average Demand (Sales), 30.2 AF
- Overall Peak Summer Month Factor, 1.7
- Overall Low Winter Month Factor, 0.6

### **Disinfection Byproducts**

There are two classifications of disinfection byproducts regulated in a water system; 1) trihalomethanes (THMs) and 2) haloacetic acids (HAAs). Currently, the District is in occasional non-compliance with the HAA parameter of 60 ug/L. HAAs are a group of compounds that can form in the water distribution systems when chlorine used to disinfect drinking water reacts with naturally occurring organic matter in the source water. Haloacetic acids (HAAs) may form if humic acids are present and tend to decline over time within the distribution system.





The HAAs most commonly found in drinking water include monochloroacetic acid (MCA), dichloroacetic acid (DCA), trichloroacetic acid (TCA), monobromoacetic acid (MBA) and dibromoacetic acid (DBA). Haloacetic acid (HAA) levels can vary significantly over time, including seasonally, with factors such as the levels of organic matter in the raw water and temperature affecting levels. HAAs are not volatile, and thus cannot be stripped from water like trihalomethanes (THMs). However, tank mixing can reduce tank short-circuiting, improve overall tank water age and reduce temperature effects from thermal stratification.

### **Water Distribution System**

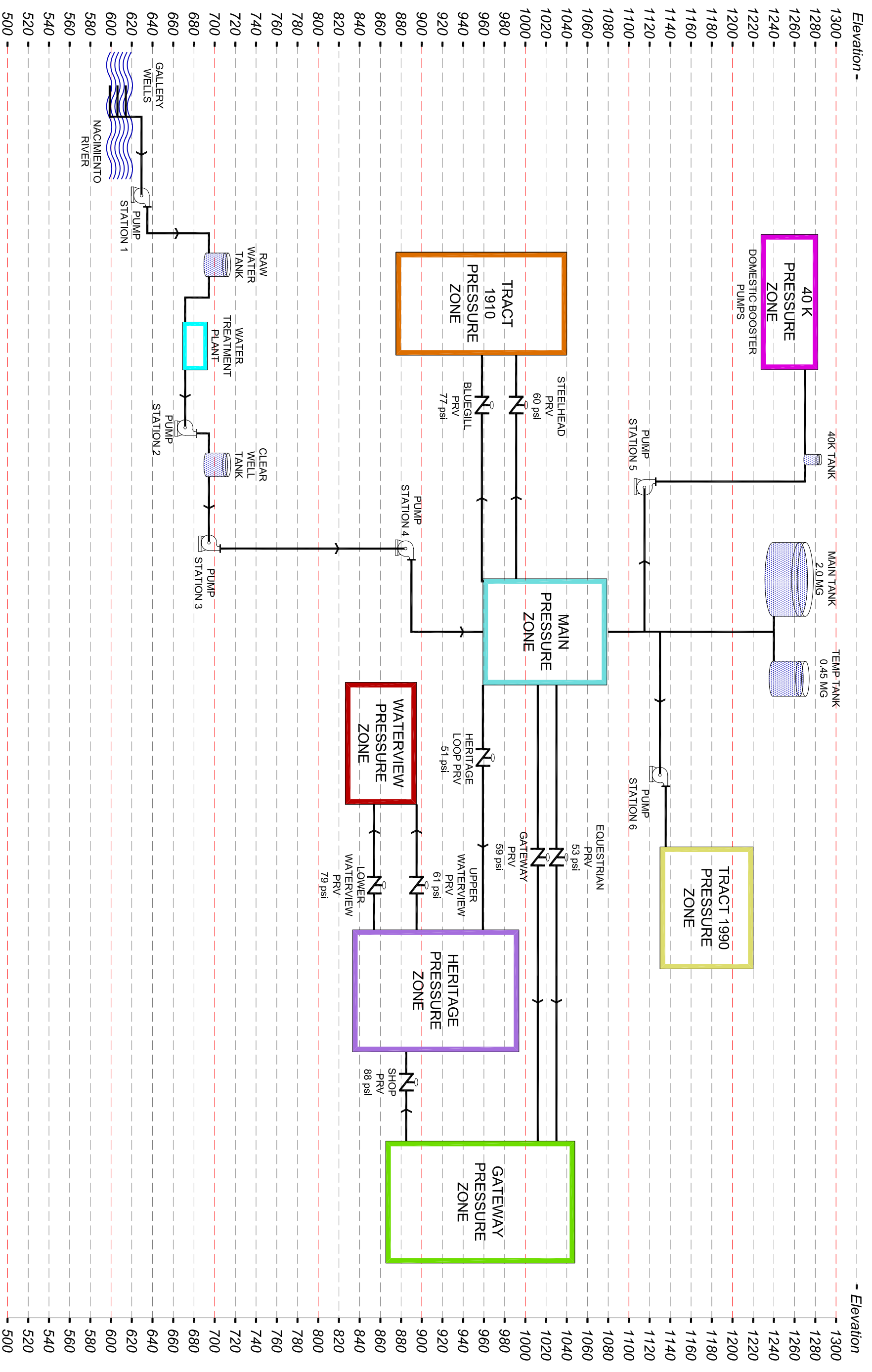
Using updated water demands, the existing hydraulic model was run during summer peak demand, and winter low demand. Excluding water age in the main zone tank, water traveling through the water distribution system was modeled to have a water age as high as 11 days; the majority of water age in the distribution system (again, excluding age of water coming from the main tank) is 4 days aged and less. There are a couple isolated reaches with water age over 11 days; this is the result of isolation reaches of water main that are infrequently used at an interface between pressure zone breaks. As described in the next section, some of the system water is much older, as it feeds from the main zone tank.

Figure 1 shows the water age in the distribution system (excluding consideration of the main zone tank). The water lines in the map are color coded, showing oldest water as red, medium aged water as yellow, and youngest water age as green. This exhibit represents current average water age based on average demand conditions. Consideration may be given to looping water mains where possible to improve circulation; however, given the layout of the District's water distribution system, looping of water mains will not help water age appreciably; and for the majority of the water system, water age is 4 days and less, thus looping water mains is not expected to have much impact on water age throughout the system. Where problem areas persist with DBPs, select water flushing in these specific areas may improve and lower DBP concentrations.

### **Main Tank**

The District has a 2.0 million gallon (MG) water tank, that is directly fed by distribution system pressure in the Main Pressure Zone, which in turn is fed by Pump Station 4. This tank maintains water supply/pressure in the Main Pressure Zone, which in turn feeds (via PRVs) Tract 1910 pressure zone, Gateway Pressure Zone, Heritage Pressure Zone. The Waterview pressure zone is fed by the Heritage Pressure Zone through the lower Waterview PRV. Figure 2 summarizes the water system hydraulic profile and pressure zones throughout the District's water system.

The Main Tank also directly feeds the Tract 1990 pressure zone via Pump Station 3, and the 40K Pressure Zone via Pump Station 5.



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## HERITAGE RANCH CSD WATER MASTER PLAN SYSTEM SCHEMATIC FIGURE 5-1

JOB No.: 0160-0001-0605  
DRAWING: FIG 5-1  
DRAWN BY: MJB  
DATE: 07/09/2008  
SCALE: NTS



The tank, base is at elevation 1,239', the overflow is set at 1,273', and the tank diameter is 97'. The tank has a set point of 1,271 (32 feet above base, or 2 feet below the overflow level).




The Main Tank is equipped with a single 12-inch diameter inlet/outlet, thus water that is "last in" is also "first out". This condition creates the worst-case situation for tank mixing and water age. The tank does have a small pump installed inside the tank that affords some degree of mixing, but it is not certain how effective this mixing is.

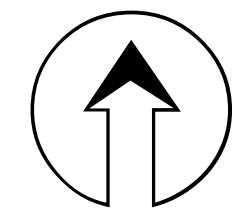
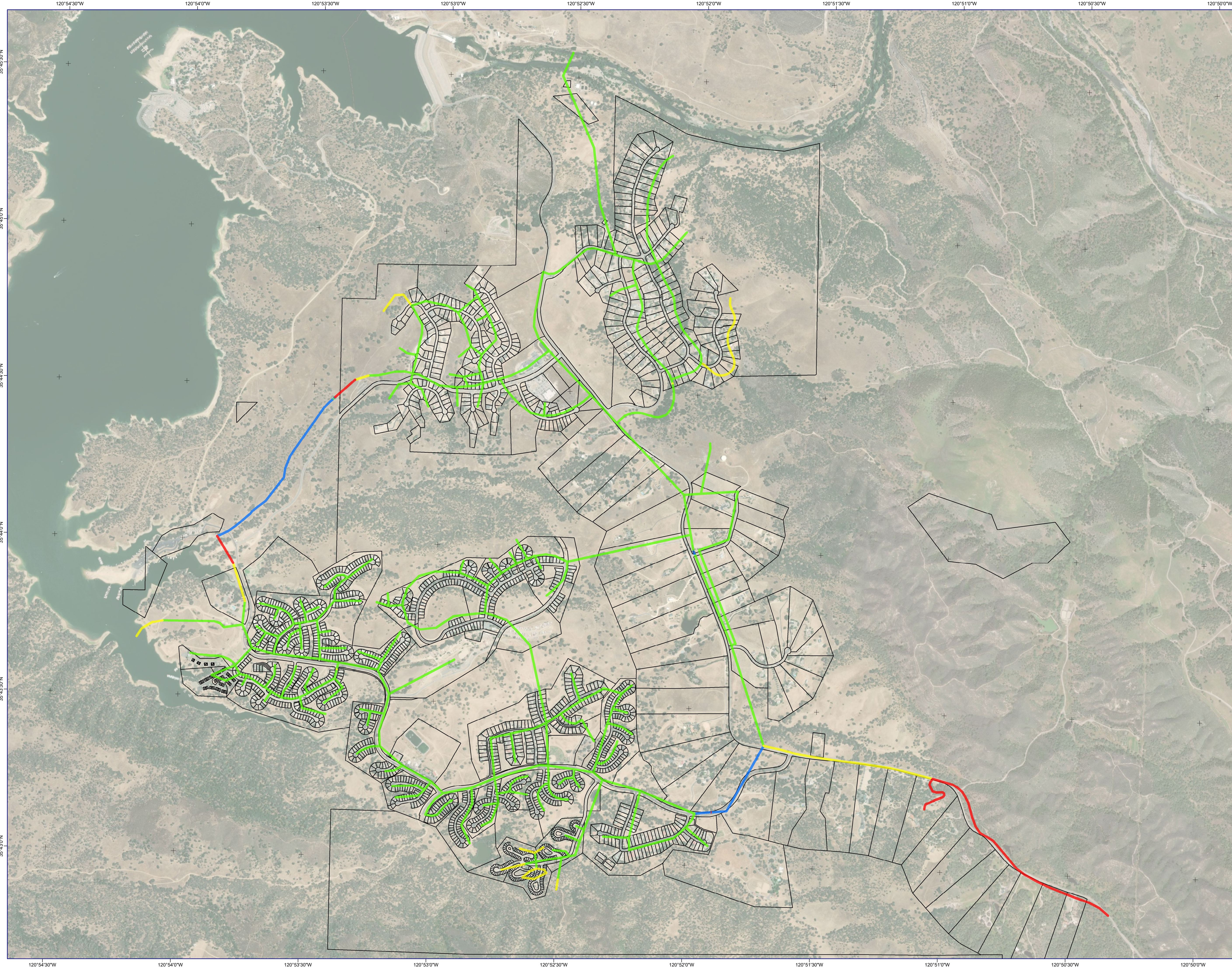
Based on input from District staff, the tank level fluctuates generally 5 feet total in a given day. The District begins pumping water into the main zone around 7 am each day when production begins at the water treatment plant. Throughout the day, the main zone feeds demand to the other pressure zones, and when PS 4 pumping rate (725 gpm) exceeds demand, the 2 MG water tank will fill. The main tank will thus fill and draw intermittently throughout the day; the District strives to "top off" the 2 MG water tank at elevation 1,271 by the end of the day when water production ceases at the WTP. During evening and night-time hours, all of the District's water demand is fed off of storage from the 2 MG water tank.

With the daily exchange of water in the 2 MG tank of 5 feet elevation, this equates to a tank volume of 276,000 gallons. This volume of water is 15% of the total usable tank volume. This means that water has a theoretical age of 7 days, and this would be under the ideal case if the tank were fully and completely mixed. Federal standards recommend that a minimum of 20 to 30% tank exchange occur to achieve a water age in the 3 to 5 day range. With assistance from RedValve and available water age charts, the true water age in the 2 MG water tank is on the order of 20 days, factoring in that the tank has no mixing capability. Thus, a portion of water that reaches the farthest branches in the water system is on the order of 24 to 30 days aged. Mixing the water in the 2 MG water tank will bring water age closer to the 7 day age. However, the degree to which HAAs may be reduced is not certain. Refer to Figure 3.

**HERITAGE RANCH CSD  
WATER SYSTEM WATER AGE**

***Legend***

- Water Age (Days)**
-  0-3.75
  -  3.75-7.5
  -  7.5-11.25
  -  >11.25



1" = 813'  
200 0 200 400 600 800 1,000 200 400 600 800 1,000 200 400 600 800 1,000 Feet

Information shown is approximate and should be used as a guideline for emergency response and preparation purposes.



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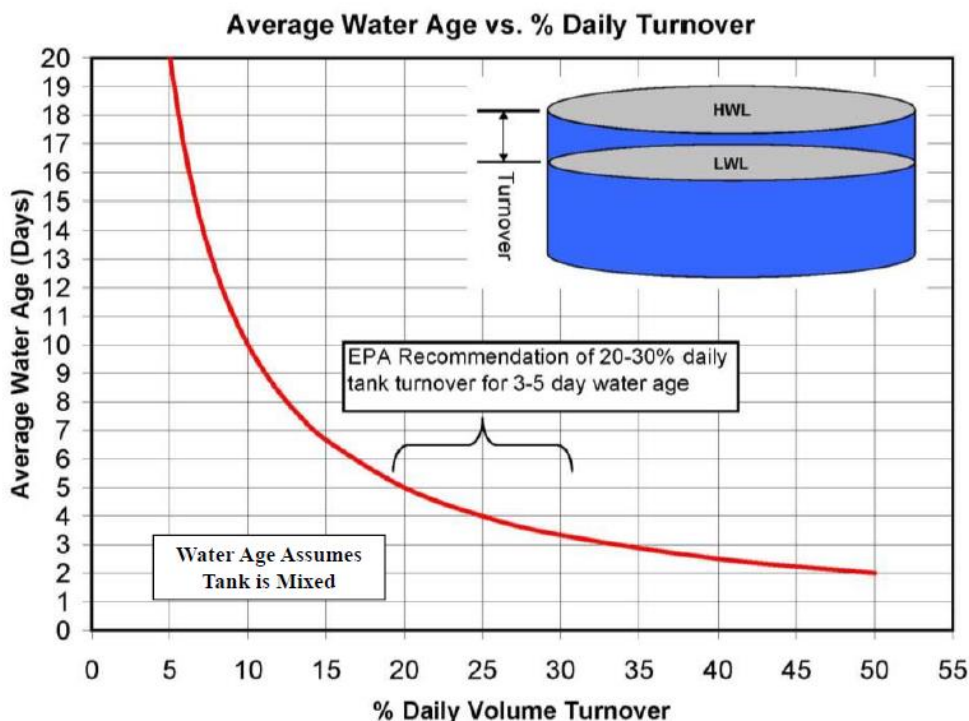


Figure 3. Water Age vs. Water Turnover in Storage Tank

In addition to water exchange in the main zone tank, the water tank is also subject to thermal stratification due to the lack of mixing. This means that warmer water rises to the top of the tank, while colder (and fresher water) hovers closer to the bottom of the tank. This can further extend water age in the tank, forcing warmer water towards the top of the tank, while fresher colder water is more prone to be “first in”, “last out” in the water tank.

Options. Tank mixing can be an effective way of reducing disinfection byproducts in solution. However, as noted, HAAs are not volatile and cannot be stripped from water (as can THMs). Reduction of DBPs can be enhanced with good tank mixing, by reducing overall tank age, reducing thermal stratification in the tank and thus minimizing concentrations of water with higher levels of DBP constituents. Tank mixing will not eliminate the formation of DBPs within the water system, but will help keep water quality more consistent while minimizing the effects of long water age/detention times in the tank. There are several different vendors that can provide mixing systems; the two most prominent vendors known are SolarBee/Medora and RedValve. Cut sheets and information provided by these vendors is included as attachments to this memorandum.

- SolarBee/Medora Mixing System. Medora offers a simple tank mixing system, that is designed for easy “drop-in” installation. For this tank, Medora recommends a Model GS-12 mixer, rated at 0.5 HP. This mixer unit rests on the bottom of the tank, and provides “sheet mixing” currents that circulate water along the tank bottom, up tank walls and over the tank water surface in a circular fashion (see Figure 4). The mixer requires a 12” wide opening at the top of the tank, and requires 120V OR 240V power service to the top of the tank. A portrayal of the mixing pattern is shown at right in Figure 3. According to Medora, this 3-foot long mixer can be positioned directly below the hatch opening (it does not need to be centered in the tank), with the inlet to the mixer directed toward the center of the tank. This will allow installation with no tank roof modifications other than penetration of the power cord. It is recommended that the standard control panel be purchased, and mounted at ground level near the other electrical control panel.

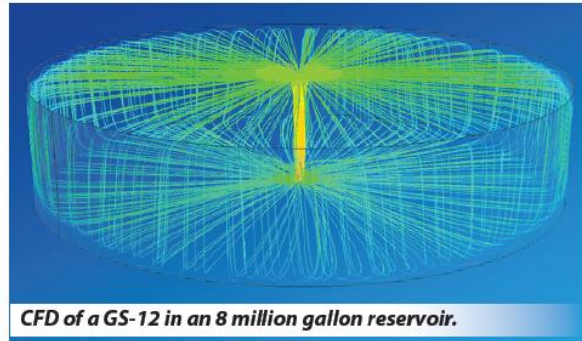


Figure 4. Medora/SolarBee Mixing Scheme

- RedValve Mixing System. The RedValve system does not require an additional power source, and operates off the existing water energy/pressure in the system. However, this mixing system induces a 2 foot headloss across the valves, thus still requires system (PS 4) energy to maintain the same tank levels the system currently operates under. This 2 foot headloss also can result in a loss of up to 100,000 gallons in usable storage. With the current maximum operating level at 2 feet below tank overflow elevation, this loss of storage can be overcome provided the added 2 feet of pumping head does not significantly reduce pumping capability of PS 4. The tank mixing system consists of internal piping that connects to the existing single inlet/outlet inside the tank, and the piping structure consists of a series of one-way wafer-check valves that only allow water to exit the tank near the tank bottom, and a series of pinch valves

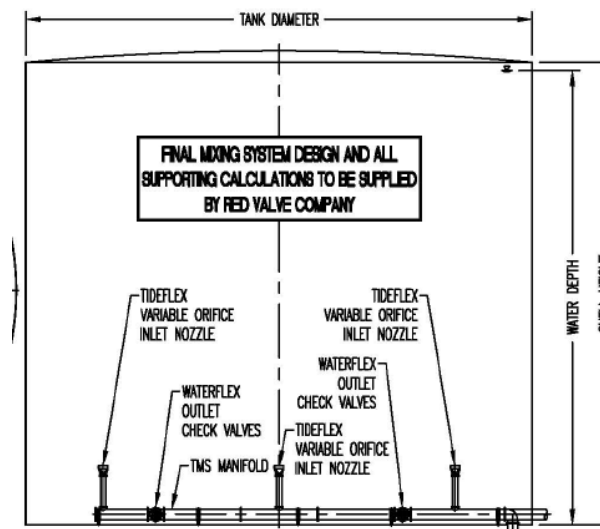


Figure 5. RedValve Tank Mixing System



that operate during the fill mode, with water jets directed up and at an angle to “swirl” and move water in a circular/rotational pattern in the tank. This system forces water upwards in the tank, thus breaking up thermal stratifications, and requiring the water to circulate better within the tank (see Figure 5). The piping system can be installed within several days; however, the tank must be taken out of service for installation, and a side entry door must be cut in the side of the tank to allow equipment access.

Costs of Tank Mixing.

**Table 2. Cost Summary – Mixing Systems**

The costs for these two tank mixing operations are summarized in Table 2. A 15% markup was added to equipment costs provided by Vendors, to anticipate public bidding if required.

Item	Medora	RedValve
Equipment/Shipping	\$ 15,000	\$ 67,937
Installation <sup>a</sup>	\$ 20,000	\$ 25,000
Tank Alteration <sup>b</sup>	\$ -	\$ 30,000
<u>Contingency@5%</u>	\$ 1,750	\$ 6,147
TOTAL	\$ 36,750	\$ 129,084

<sup>a</sup>Installation for Medora/SolarBee unit may require additional power provisions to provide power at top of tank.  
<sup>b</sup>For RedValve installation, opening *must be cut into side of tank for installation.*

In addition to the costs, for the RedValve mixing system, the tank would be required to be taken out of service for several days, and would

include draining the tank, cutting the tank opening and installing the mixing equipment, and re-disinfecting the tank after filling. The Medora tank mixing system is essentially lowered in place through the top opening of the tank.

Given the magnitude of cost differences between the two mixing system, we would recommend the District consider the Medora/SolarBee tank mixing system. The water system and tank can then be monitored to determine the effectiveness of water quality improvements in the system. As indicated earlier, the degree of HAA reduction due to better tank mixing is uncertain; however, the District’s storage and distribution system will still benefit from improved tank mixing.

**Recommendations**

We recommend proceeding with improvements to the District’s water system in a phased approach, as follows:

1. Implement Main Zone Tank mixing improvements, and monitor the water system and water quality improvements.
2. Should additional actions be warranted, consider focused water main flushing in and around the non-compliance areas.

Water Main Looping. We do not expect that looping any water mains in the distribution system will help the DBP/HAA non-compliance situation. In the areas of non-compliance, such as Black Horse Lane sampling location, the water reaching this area is already approximately 4 to 7 days (not accounting for added age in the main zone water tank). There are no opportunities to effectively loop water mains in this area that may significantly improve water age, and the physical layout of the District’s

Mr. Scott Duffield  
August 5, 2020  
Page 10 of 10

tracts does not create opportunities to loop the water system to improve water circulation.

SGT

**ATTACHMENTS:**

- A – May 20<sup>th</sup> and June 8<sup>th</sup> Memoranda (water demand updates)
- B – Medora/SolarBee Vendor Information
- C – RedValve Vendor Information





**ATTACHMENT A – MAY 20TH AND JUNE 8TH MEMORANDA  
(WATER DEMAND UPDATES)**

# MEMORANDUM

## Heritage Ranch Community Services District Disinfection Byproducts (DBP) Analysis

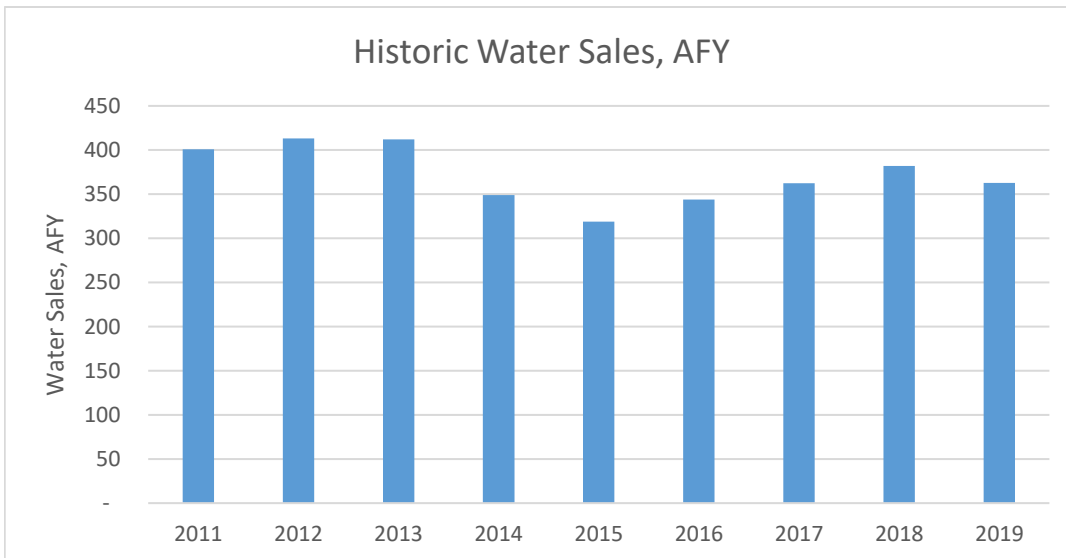


**Date:** May 20, 2020  
**To:** Scott Duffield, General Manager  
**From:** Steven G. Tanaka, District Engineer  
**Subject:** Review of Water Demands for Model Input, Calibration and Update

Based on the recent water data provided by the District, and also referencing data from the 2017 Water Allocation Study, we are providing you with a summary of water demands, and recommendations for updating the District's water model.

### Annual Demands

Figure 1 shows a historic summary of total water sales from 2011 through 2019. Please note this data is presented by calendar year. The dip in water sales is evident during recent drought years. The most recent years, 2018 and 2019, continue to be below earlier years of 2011 through 2013. For this update and study of water age/circulation in the District's system, it is recommended that the more recent, and lower water sales be used to update, calibrate and run the model.



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WATER RESOURCES

WALLACE GROUP  
A California Corporation

612 CLARION CT  
SAN LUIS OBISPO  
CALIFORNIA 93401

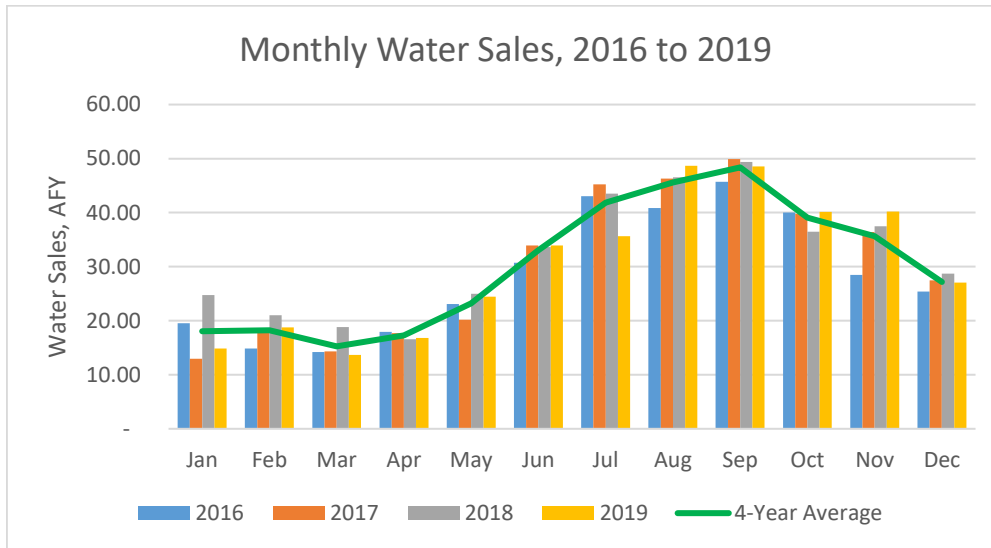
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F 805 544-4294

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### Monthly Variations in Water Sales

For years 2016 through 2019, a summary of monthly water sales is presented in Figure 2. This figure also depicts the 4-year monthly average of water sales. This data is also summarized as Table 1.



**Table 1. Summary of Monthly Water Sales, AF**

Month	Year				4-Yr Avg.
	2016	2017	2018	2019	
Jan	19.52	12.98	24.75	14.88	18.03
Feb	14.88	18.18	21.04	18.76	18.21
Mar	14.22	14.32	18.84	13.65	15.26
Apr	17.95	17.72	16.59	16.79	17.26
May	23.11	20.21	25.01	24.45	23.20
Jun	30.72	33.92	33.62	33.92	33.05
Jul	43.04	45.26	43.54	35.63	41.87
Aug	40.83	46.30	46.56	48.68	45.59
Sep	45.72	49.90	49.35	48.53	48.38
Oct	40.04	39.77	36.46	40.13	39.10
Nov	28.50	36.43	37.49	40.22	35.66
Dec	25.42	27.44	28.69	27.07	27.15
TOTAL	343.94	362.42	381.94	362.71	362.75



Based on this summary of water sales, the following additional water demands are derived:

- 4-Year Annual Average Demand (Sales), 363 AFY
- Monthly Average Demand (Sales), 30.2 AF
- Peak Month Factor, 1.7
- Low Month Factor, 0.4 (it is noted low monthly demand was January 2017, and this monthly value appears abnormally low compared to typical winter water sales)

If you concur with these recommended water sales figures, we will move forward with next steps. Water demands will be further summarized and broken down by Tract, and all non-residential accounts and residential demands will be assigned to the appropriate water pressure zone in the water model as part of the model update and calibration.

SGT:

# MEMORANDUM

## Heritage Ranch Community Services District Disinfection Byproducts (DBP) Analysis



**Date:** June 5, 2020

**To:** Kyle Anderson

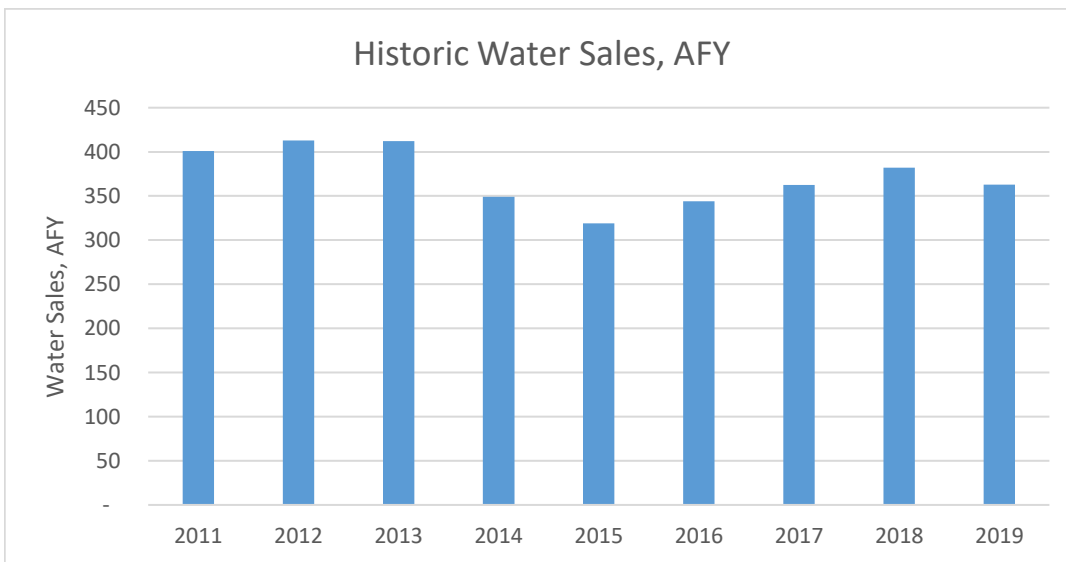
**From:** Steve Tanaka

**Subject:** Review of Water Demands for Model Input, Calibration and Update

Based on the recent water data provided by the District, and also referencing data from the 2017 Water Allocation Study, I am providing you with a summary of water demands, and recommendations for updating the District's water model. As you know, the District elected to not calibrate the model at this time.

### Annual Demands

Figure 1 shows a historic summary of total water sales from 2011 through 2019. Please note this data is presented by calendar year. The dip in water sales is evident during recent drought years. The most recent years, 2018 and 2019, continue to be below earlier years of 2011 through 2013. For this update and study of water age/circulation in the District's system, it is recommended that the more recent, and lower water sales be used to update, calibrate and run the model.



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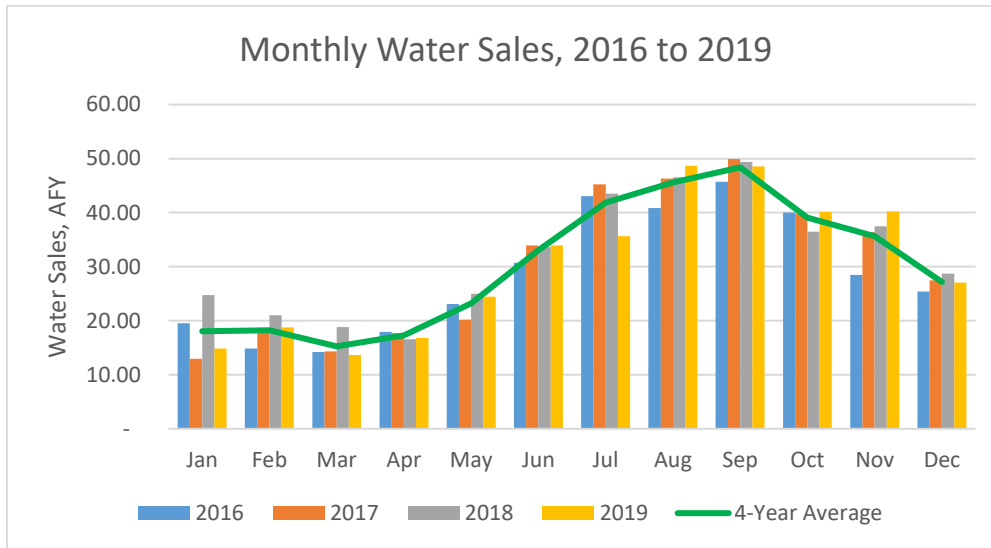
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TOTAL	343.94	362.42	381.94	362.71	362.75



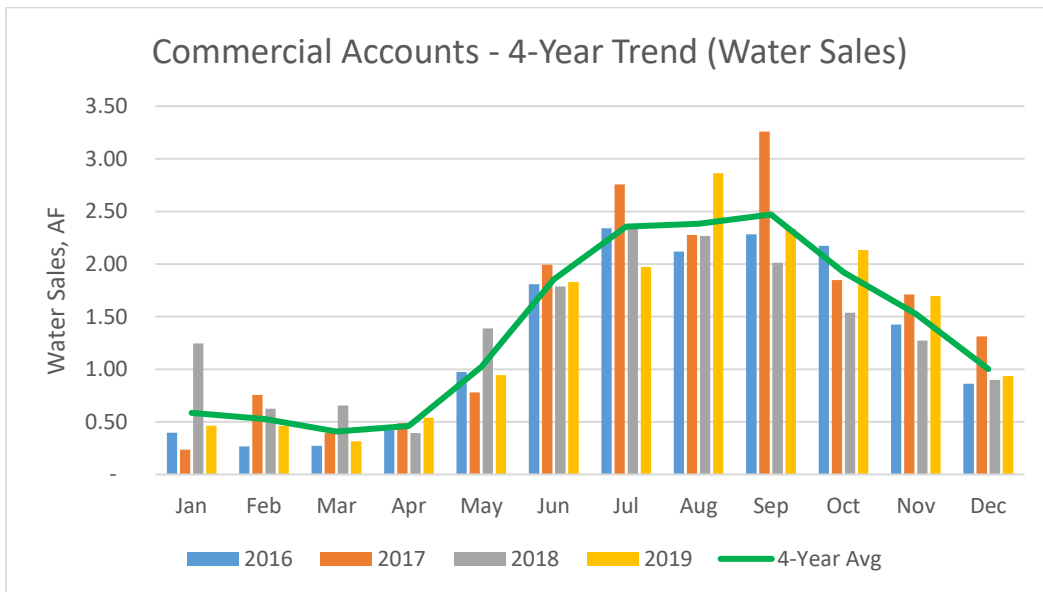
Based on this summary of water sales, the following additional water demands are derived:

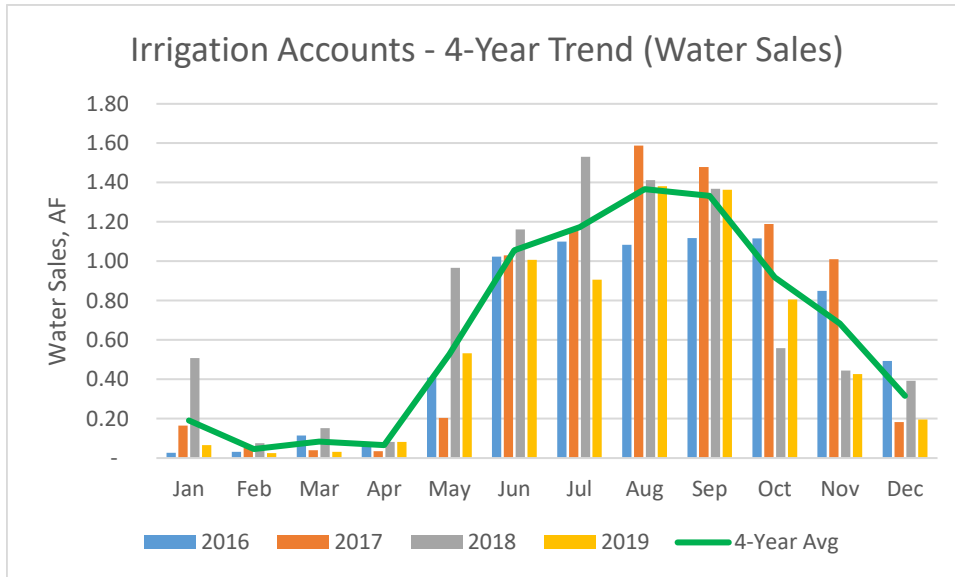
- 4-Year Annual Average Demand (Sales), 363 AFY
- Monthly Average Demand (Sales), 30.2 AF
- Overall Peak Month Factor, 1.7
- Overall Low Month Factor, 0.6 (it is noted low monthly demand was January 2017, and this monthly value appears abnormally low compared to typical winter water sales; thus, the 4-year average low month was used to calculate this factor)

### Commercial and Irrigation Demand Component

The commercial and irrigation components are summarized as follows:

- Using the most recent 4-year average, the combined commercial and irrigation component is 24.28 AFY, or about 7% of the demand.
  - Commercial: 16.52 AFY
  - Irrigation: 7.76 AFY
- Seasonal trends for commercial and irrigation and shown separately in the graphs that follow. I suggest using the 4-year average peaking factors derived as follows:
  - Commercial Peak Month Factor: 1.8
  - Commercial Low Month Factor: 0.3
  - Irrigation Peak Month Factor: 2.1
  - Commercial Peak Month Factor: .07





Commercial and irrigation demands for FY 2018/19 were summarized by Tract from the District's data, and adjusted to the 4-year average demand calculated (24.28 AFY). This demand table is summarized at right.

Tract	FY 2018/19			Adjusted 4-Yr Average
	Commercial	Irrigation	Total	
0050			-	-
424			-	-
446			-	-
447			-	-
452	0.06		0.06	0.06
474			-	-
475			-	-
693			-	-
720		3.51	3.51	3.82
721	0.22		0.22	0.24
466/999	8.69	3.85	12.54	13.62
1063	-		-	-
1094			-	-
1990	5.92	0.09	6.01	6.54
1910			-	-
<b>TOTAL</b>	<b>14.89</b>	<b>7.45</b>	<b>22.34</b>	<b>24.28</b>

Residential demands per lot were taken from the 2017 Water Allocation Study, and adjusted to the current total water demand calculated for the recent 4-year average. The residential demand per lot (adjusted), total residential demand per Tract, non-residential demand (commercial and irrigation), and total water demand are summarized in the table on the next page.





Tract	No. Lots	Residential Demand/Lot	Adj. Res. Demand/Lot	Total Res. Demand	Non-Res. Demand	Total Demand
0050	25	0.95	0.93	23.18	-	23.18
424	126	0.18	0.18	22.32	-	22.32
446	289	0.10	0.10	28.15	-	28.15
447	176	0.03	0.03	4.82	-	4.82
452	251	0.16	0.16	39.08	0.06	39.14
474	42	0.16	0.16	6.75	-	6.75
475	178	0.12	0.11	20.29	-	20.29
693	78	0.34	0.34	26.22	-	26.22
720	48	0.03	0.03	1.37	3.82	5.19
721	130	0.29	0.29	37.32	0.24	37.56
466/999	30	0.20	0.19	5.75	13.62	19.38
1063	22	0.90	0.88	19.38	-	19.38
1094	189	0.17	0.17	31.61	-	31.61
1990	122	0.20	0.20	24.38	6.54	30.92
1910	115	0.43	0.42	48.27	-	48.27
TOTAL	1821			338.90	24.28	363.17

The two excel files to reference for the water model/water age study are as follows:

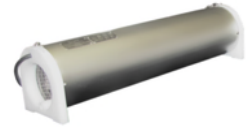
- “Consumption History 2011-2019.xlsx, located here: M:\160-Heritage Ranch CSD\160-001 District Engineer\Disinfection Byproduct Rule\Water Use Data from District
- “Consumption History 2011-2017\_SGT Update.xlsx”, located here: M:\160-Heritage Ranch CSD\160-001 District Engineer\Disinfection Byproduct Rule\From Water Allocation Study

SGT:

## **ATTACHMENT B – MEDORA/SOLARBEE VENDOR INFORMATION**



**Budget Estimate - ( Bid Specs Vary, Do Not Use for Bid Pricing )**  
**GS-12 / GS-9 Electric Potable Water Tank Mixers**  
 Last Updated: March 9, 2020 - Note: International Pricing Will Vary



**Performance Guaranteed or your Money Back.** The GS Mixers are the most effective and competitively priced mixers on the market, with the lowest life cycle cost and the best warranty. Specifications are available at [www.MedoraCo.com](http://www.MedoraCo.com)  
 Installing the mixer is well within the capabilities of most cities and contractors. Usually the unit is installed directly under the hatch, no need to center it in tank. A GS Series Electric Mixer 11 minute Installation Video is available at: <http://potablewater.medoraco.com/mixers/gridbee-electric>

Description	GS-12	GS-9
GS Submersible Electric Mixer: with 75 ft of in-tank submersible electrical cable	<b>\$9,780</b>	<b>\$7,300</b>
GS Submersible Electric Mixer: with 150 ft of in-tank submersible electrical cable	<b>\$10,180</b>	<b>\$7,700</b>
Freight cost for each basic system:	<b>\$100</b>	<b>\$80</b>
Horsepower, Voltage, Phase: GS Mixers are available on request at the same price: 240vAC 1PH and 460vAC 3PH	0.50 hp, 120vAC, 1PH Other voltage / ph available	
Mixer length x diameter, inches: 12" or larger hatch size required, no need to enter or drain the tank	36" x 10"	24" x 10"
Weight: submersible mixer only	75 lbs	65 lbs
Maximum recommended tank volumes for moderate conditions:*	8 MG	3 MG
* The GS-12 is recommended for higher turnover rate, or ice issues, or areas with high heat.	(million gallons)	(million gallons)

**Options**

**Mix-Guard** Replacement Program: Covers beyond the warranty, it replaces the mixer for Acts of God, lightning, vandalism, power problems, handling damage or any other issue.  
**Annual Cost: While in 5 year warranty: GS-12 \$500, GS-9 \$400 - When beyond the 5 year warranty: GS-12 \$900, GS-9 \$750**

100217 Chemical injection interior hose: per 100 ft	<b>\$250</b>
100321 Chemical injection hose penetration thru fitting: for steel tanks	<b>\$460</b>
Chemical injection exterior hose kit: includes 50 ft SS braided hose and valve termination	<b>\$725</b>
Additional - Chemical injection exterior hose: price per ft	<b>\$7.20 per ft</b>

Control Box 101846 (120v): UL listed, NEMA 4, 120vAC/1ph, with SCADA monitoring, HOA switch, indicator light, locking latch	<b>\$1,500</b> Shipped with mixer for electrical contractor installation
Control Box 101847 (240v): UL listed, NEMA 4, 240vAC/1ph, with SCADA monitoring, HOA switch, indicator light, locking latch	<b>\$1,800</b> Shipped with mixer for electrical contractor installation
Control Box 100264 (120v): UL listed, NEMA 4X, 120vAC/1ph, with timer but No SCADA, on/off switch, indicator light, locking latch	<b>\$800</b> Shipped with mixer for electrical contractor installation

Factory Delivery and Placement: Installing the above mixer is within the scope of work that most cities and contractors can perform	<b>\$13,000</b> Varies with tank height and tank construction
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STH-8400 Submersible Electric Potable Water Tank Heater: 316 SS, includes a control panel, float switch, 50' of electrical cable, chain, etc. Fits through 12" or larger roof opening. Nominal 240VAC/1PH	<b>\$7,300 + \$450 Freight</b> Typically used in cold climates when the tank has less than 10% turnover
---	--

DBS - Portable Disinfectant Boost System: An electric or engine-driven air compressor (4 cfm @ 60 psi) is required to operate the air-powered diaphragm pump; air compressor is <u>not</u> included	<b>\$9,070</b> <b>+ \$450 Freight</b>
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# GridBee® GS Series Submersible Mixers

**Effective. Efficient. Affordable.**

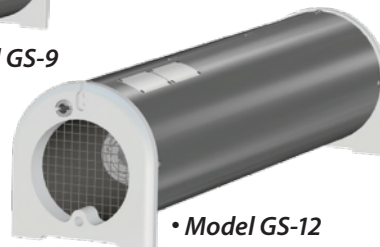
Reliable 24-hour active mixing with the lowest life-cycle cost. The benefits are immediate!

## Benefits

- Prevents stagnation, thermal stratification & short-circuiting.
- Provides uniform water age & equal distribution of disinfectant.
- Minimize chemical disinfectant usage & disinfection by-products.
- Increases contact time (baffle factor) in clearwells.
- Reduces nitrification in chloraminated systems.
- Eliminate energy intensive & costly deep-cycling and/or flushing of tanks.
- Reduces ice buildup & tank damage in cold climates.



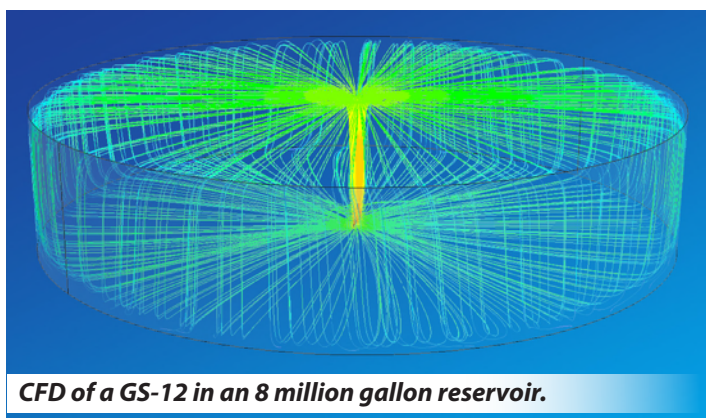
• Model GS-9



• Model GS-12



• Model GS-12-Air



CFD of a GS-12 in an 8 million gallon reservoir.

## Performance Guaranteed.

### Features

- Engineered for easy deployment.
- No tank entry required.
- Utilizes efficient sheet mixing technology.
- 316SS Construction.
- Certified to NSF/ANSI 61 and NSF/ANSI 372.
- 120VAC 1Ph Standard.
- 240VAC 1PH or 460vAC 3PH available. (for GS-9 and GS-12 models only)
- 5-Year Warranty.
- Liquid disinfectant boosting port.

### NSF / ANSI Standard 61 Certified By

	NSF	UL	CSA
GS Mixer	X		
GS Motor		X	X

### NSF / ANSI Standard 372 Certified By

	NSF	UL	CSA
GS Mixer	X		
GS Motor		X	X

**Effective mixing for any tank size, any tank build.**





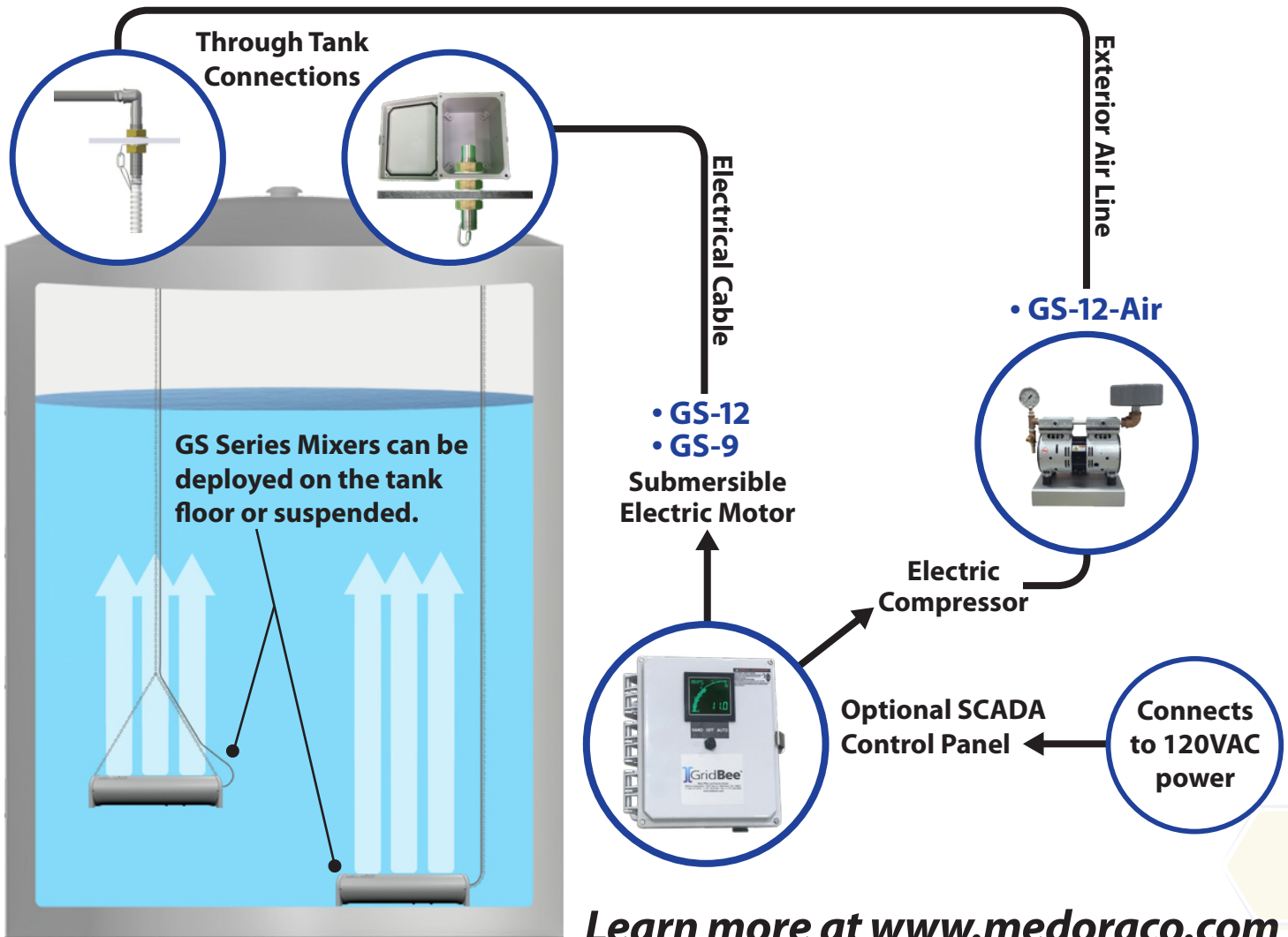
# GridBee® GS Series Deployment Overview

GridBee® GS Series Submersible Tank Mixers are easily deployed through a hatch, vent, or other tank opening twelve (12) inches or larger in diameter. The "GS" thoroughly mixes the entire tank volume from tank floor to water surface resulting in consistent disinfectant residuals, even temperature profiles and uniform water age.

## Assembled Machine Dimensions

	Length	Diameter	Weight
GS-9	24 in. (61 cm)	10 in. (25 cm)	65 lbs. (29 kg)
GS-12	36 in. (91 cm)	10 in. (25 cm)	75 lbs. (34 kg)
GS-12-Air	36 in. (91 cm)	10 in. (25 cm)	50 lbs. (23 kg)

**Everything you need for a fast & efficient deployment is included!**



# GridBee GS-12

120V Single Phase  
Operation & Maintenance Manual



# GridBee GS-12

120V Single Phase  
Operation & Maintenance Manual

## Table of Contents

---

Safety Instructions	1
Package Contents	4
Machine Requirements	5
Top of Tank Junction Box	6
Placement	9
Final Checklist	12
Troubleshooting	13
Technical Specifications	15
Warranty	16
Customer Service	17

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### About Ixom

Ixom combines knowledge and experience from across the water quality spectrum to help solve real-world problems. Whether in Lakes, Stormwater Retention Ponds, Raw Drinking-Source Reservoirs, Water Treatment Plants, Potable Storage Tanks, or Wastewater Treatment Processes, Ixom equipment continues to be at the forefront as the #1 world leader for in-situ water body treatment.

Safety

# IMPORTANT

**YOU MUST COMPLETELY  
READ AND FULLY  
UNDERSTAND THESE  
INSTRUCTIONS BEFORE  
INSTALLING, OPERATING,  
OR SERVICING THIS UNIT.**

**Be sure you have read all installation, operation, maintenance and safety instructions before you install, service or begin to operate this unit.**

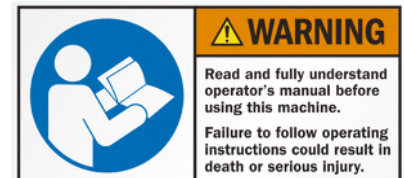
Accidents occur every year because of careless use of industrial equipment. You can avoid hazards by following these safety instructions, and applying some ordinary common sense when operating or servicing this unit.

Keep in mind that **full operator attention and alertness** are required when operating or servicing this unit.

**USE COMMON SENSE!!** Most accidents can be avoided by using **common sense and concentration** on the job being done.



Carefully read safety information when you see any safety symbols.





## Safety

### IMPORTANT

**YOU MUST COMPLETELY READ AND FULLY UNDERSTAND THESE INSTRUCTIONS BEFORE INSTALLING, OPERATING, OR SERVICING THIS UNIT.**

Identify all possible hazards. Determine what safeguards are needed and implement them. **Only you, the user,** understand your product and system characteristics fully. *The ultimate responsibility for safety is with you. Your safety ultimately rests in your hands.* Do your part and you will enjoy safe, trouble free operation for years to come. This instruction manual is not intended to include a comprehensive listing of all details for all procedures required for placement, operation and maintenance. If you have a question about a procedure or are uncertain about any detail, **Do Not Proceed.** Please contact Ixom Customer Service at **866-437-8076** to speak to a representative.



### **IMPORTANT!!!**

Follow all federal and state laws in regards to safety regulations of working at heights, confined spaces, rescue, etc. as required by the U.S. Department of Labor, Occupational Safety and Health Administration. Use necessary PPE when placing and servicing this unit.



### Thin Ice Hazard

**WARNING:** ICE SURROUNDING MACHINE MAY NOT SUPPORT WEIGHT, KEEP CLEAR OF THIN ICE.



### ELECTRICAL HAZARD

**WARNING:** THIS EQUIPMENT CONTAINS HIGH VOLTAGE! ELECTRICAL SHOCK CAN CAUSE SERIOUS OR FATAL INJURY. ONLY QUALIFIED PERSONNEL SHOULD ATTEMPT PLACEMENT, OPERATION AND MAINTENANCE OF ELECTRICAL EQUIPMENT. REMOVE ALL SOURCES OF ELECTRICAL POWER BEFORE PERFORMING ANY SERVICE WORK TO THE MACHINE. USE PROPER LOCKOUT TAGOUT (LOTO) PROCEDURES TO ENSURE A SAFE WORK ENVIRONMENT.



### Crush Hazard

**WARNING:** DO NOT REMOVE ANY FLOAT ASSEMBLY BOLTS OR PINS WHILE EQUIPMENT IS FLOATING IN WATER. EQUIPMENT MUST BE SECURELY SUPPORTED BEFORE PERFORMING SERVICE.



### Rotating Hazard

**CAUTION:** KEEP BODY APPENANDAGES OR LOOSE CLOTHING AWAY FROM EQUIPMENT WHILE OPERATING. ENSURE EQUIPMENT IS OFF BEFORE ATTEMPTING SERVICE.



### Entanglement Hazard

**WARNING:** ENSURE THAT PERSONNEL ARE CLEAR OF THE ELECTRIC CORD AND CHAIN TO AVOID ENTANGLEMENT.



### Laceration Hazard

**CAUTION:** EDGES MAY BE SHARP AND CAUSE LACERATION IF PROPER CARE IS NOT USED.

## Safety

### Protect Yourself

It is important that you comply with all relative OSHA and local regulations while installing and performing any maintenance to the mixer circulation equipment.

Key OSHA Compliance Standards that must be followed (and not limited to) are:

- **1910.146 Permit-required confined spaces**
- **1910.147 Lockout/Tagout**
- **1926.500 Fall Protection**

### Fall Protection Tips

- Identify all potential tripping and fall hazards before work starts.
- Look for fall hazards such as unprotected floor openings/edges, shafts, open hatches, stairwells, and roof openings/edges.
- Inspect fall protection and rescue equipment for defects before use.
- Select, wear, and use fall protection and rescue equipment appropriate for the task.
- Secure and stabilize all ladders before climbing.
- Never stand on the top rung/step of a ladder.
- Use handrails when you go up or down stairs.
- Practice good housekeeping. Keep cords, welding leads and air hoses out of walkways or adjacent work areas.

Refer to 29 CFR 1926.500 for complete regulations set by OSHA. Refer to your state's regulations if your state established and operates their own safety and health programs approved by OSHA.

### Lockout Tagout

When the On/Off switch is in the "ON" position, the mixer may start up at any time if not already operating. The mixer's On/Off switch can be locked out by placing a pad lock thru the door latch of the controller after the switch has been turned to the "OFF" position. The On/Off switch is to be used as the emergency stop.



### Permit-Required Confined Spaces

A confined space has limited openings for entry or exit, is large enough for entering and working, and is not designed for continuous worker occupancy. Confined spaces include underground reservoirs, ground storage tanks, elevated tanks, silos, manholes, and pipelines.

### Confined Space Tips

- Do not enter permit-required confined spaces without being trained and without having a permit to enter.
- Review, understand and follow employer's procedures before entering permit-required confined spaces and know how and when to exit.
- Before entry, identify any physical hazards.
- Before and during entry, test and monitor for oxygen content, flammability, toxicity or explosive hazards as necessary.
- Use fall protection, rescue, air monitoring, ventilation, lighting and communication equipment according to entry procedures.
- Maintain contact at all times with a trained attendant either visually, via phone, or by two-way radio. This monitoring system enables the attendant and entry supervisor to order you to evacuate and to alert appropriately trained rescue personnel to rescue entrants when needed.

Refer to 29 CFR 1910.146 for complete regulations set by OSHA. Refer to your state's regulations if your state established and operates their own safety and health programs approved by OSHA.

## GS Series



GS Core Unit  
75' or 150' Electric Cord  
(Not Pictured)



Cord Fixture



Chain Grab Tools



Lexel  
Sealant Tube



Kellem Grip  
Cord Strain Relief



1 5/16" Hole Saw



75' or 150'  
Stainless Steel  
Chain



Top of Tank  
Junction Box



Cord Seal

## Requirements

### GS Series

#### Hatch Requirement

A 12 inch (305 mm) diameter hatch opening is required to fit the GS Mixer through.

#### Power Requirement

120 VAC, 20 amp GFCI protected service and means of quick power disconnect recommended.

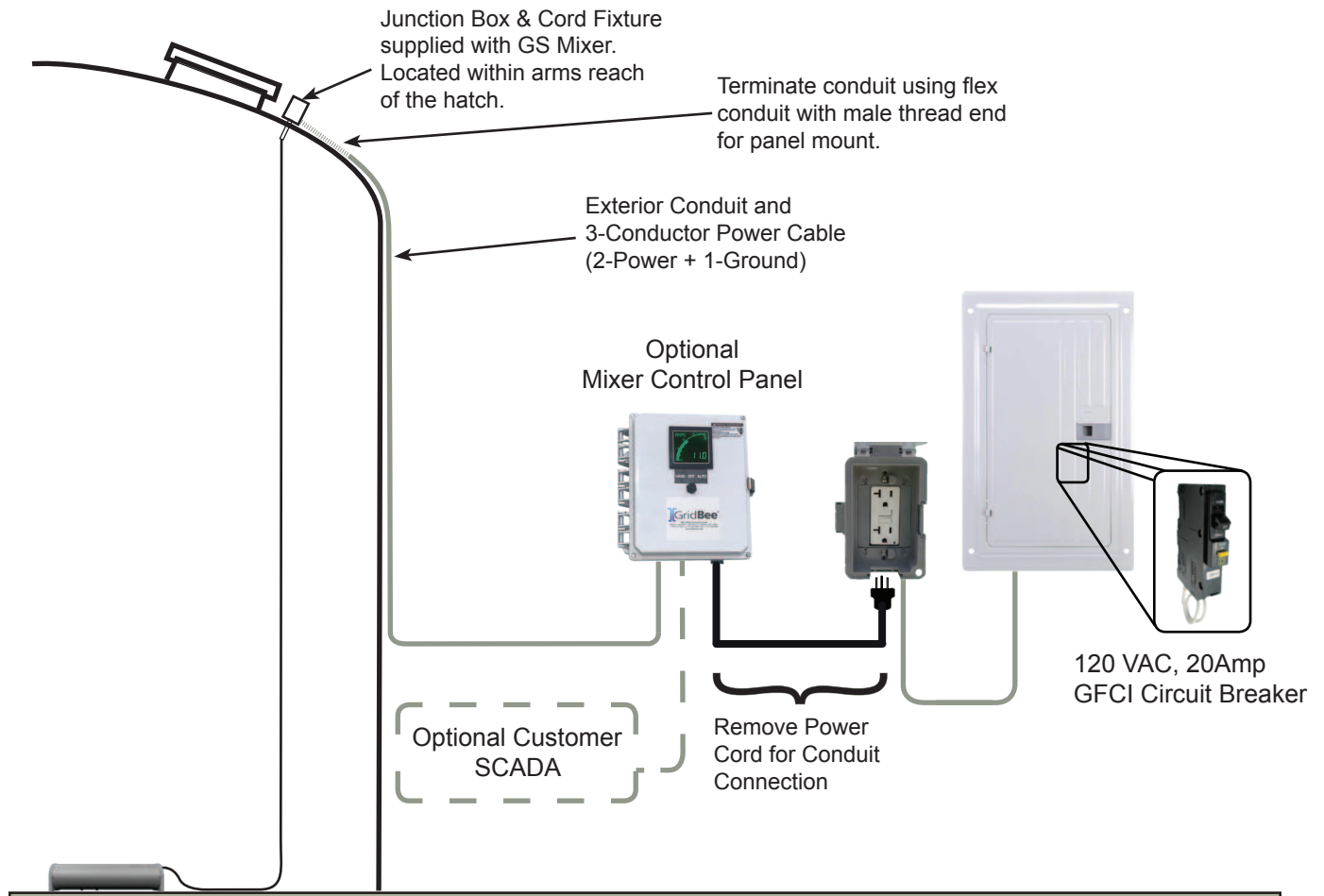


Figure 1: Typical GS Placement

RATING					FULL LOAD		MAXIMUM LOAD		WINDING (1)	EFFICIENCY		POWER FACTOR %		LOCKED ROTOR AMPS	KVA CODE
HP	KW	VOLTS	HZ	S.F.	(2) AMPS	WATTS	(2) AMPS	WATTS	RES. IN OHMS	F.L.	S.F.	F.L.	S.F.		
1/2	0.37	115	60	1.6	7.9	910	9.8	1120	M=MAIN RES. S=START RES.	42	54	99	99	28	H

Service Entrance to Motor - Maximum Length In Feet  
Based on Service Factor Amps, and 5% Voltage Drop

Motor Rating			60° C and 75° C Insulation - AWG Copper Wire Size												
Volts	HP	kW	14	12	10	8	6	4	3	2	1	0	00	000	0000
115	1/2	0.37	100	160	250	390	620	960	1190	1460	1780	2160	2630	3140	3770

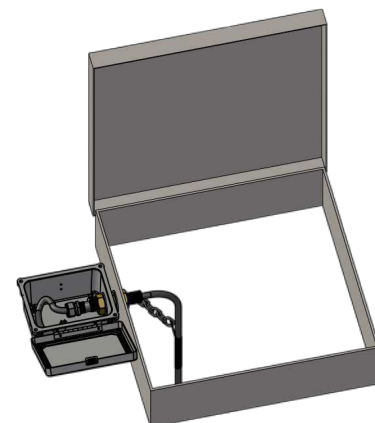
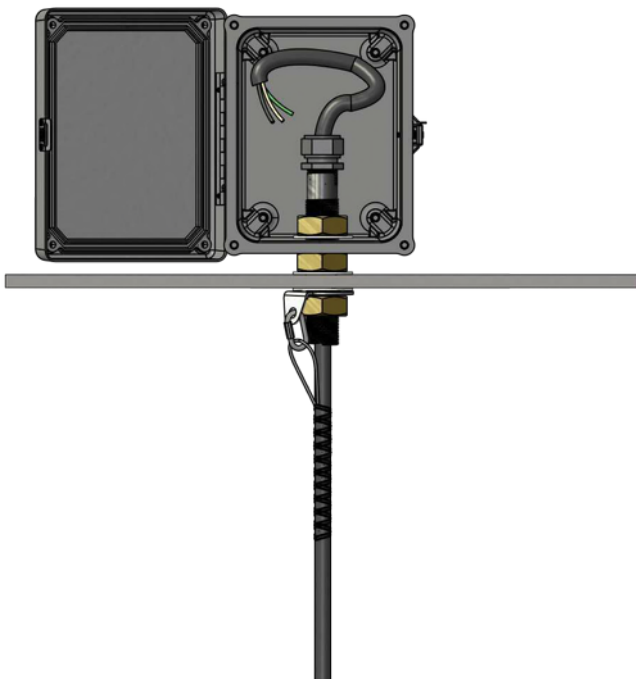
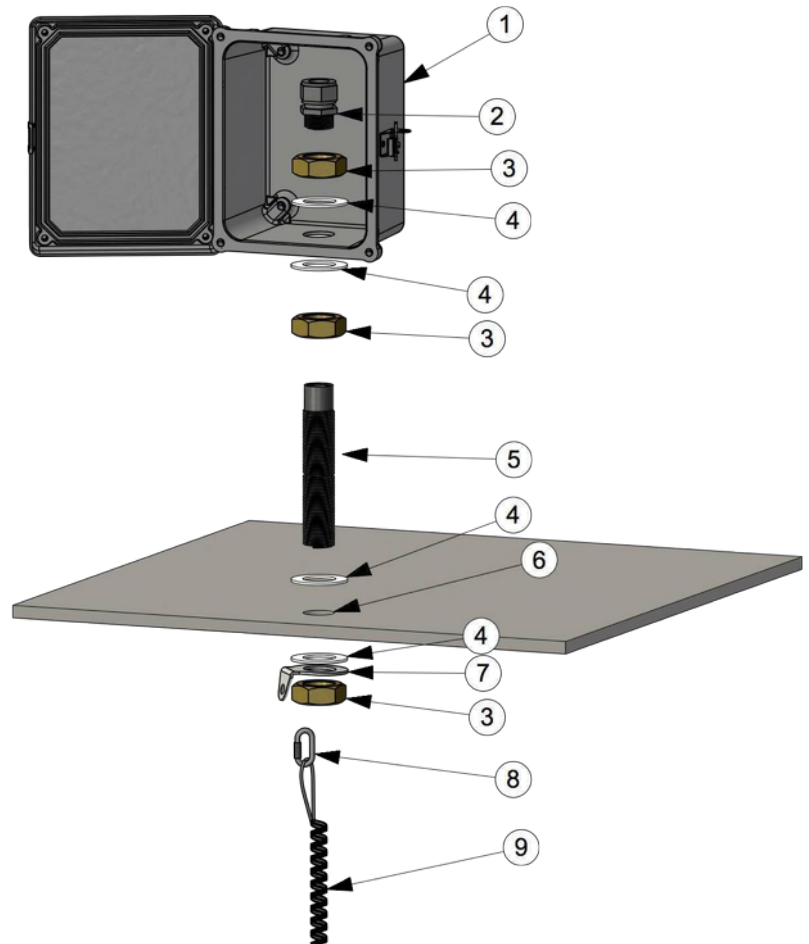
## Steel Roof

### GS Series

#### General Notes:

1. Top of tank junction box.
2. Cord seal fitting.
3. Brass nut.
4. Plastic seal washer with Lexel.
5. Tank penetration fitting.
6. A 1-5/16" dia. hole to be drilled into tank roof. Sealed with Lexel to protect from corrosion.
7. Strain Relief Washer.
8. Quick link for connecting retrieval chain and kellem grip to strain relief washer.
9. Kellem grip to support cable weight and to provide strain relief.

**NOT DESIGNED AS A SUBMERSIBLE PENETRATION.**



**Alternative Method:**  
Penetration through hatch neck

## Concrete Roof

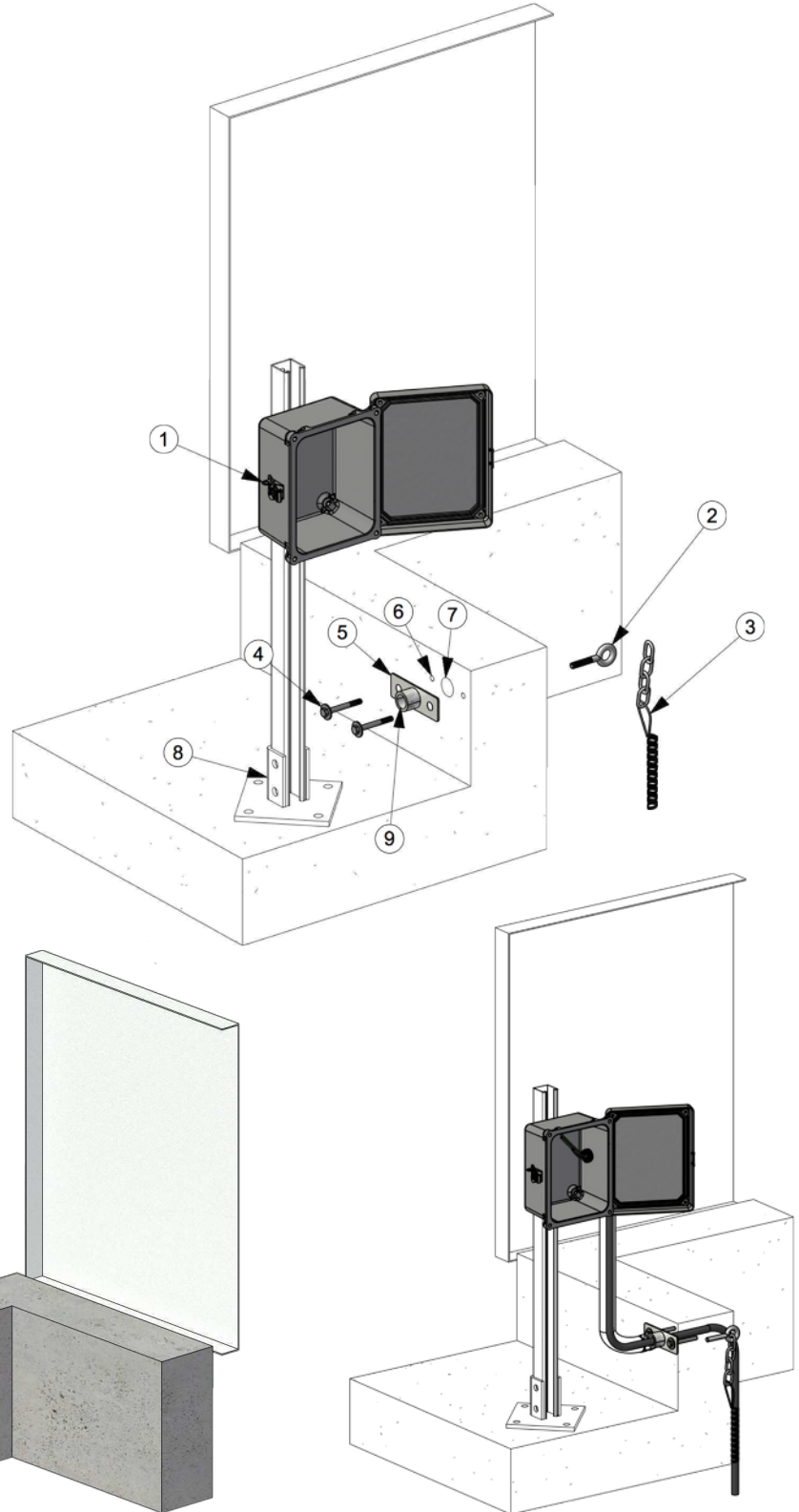
### GS Series

#### General Notes:

1. Top of tank junction box.
2. Eye-bolt, epoxied into hatch neck, for retrieval chain and kellem grip.\*
3. Kellem grip.
4. Bolts, epoxied into hatch neck to secure concrete penetration fitting.
5. Concrete penetration fitting.\*
6. Small bores drilled into hatch neck the length of the bolts, 1/2" dia. typical, filled with concrete epoxy. Follow concrete epoxy manufacture's preparation and installation guidelines.
7. A 3/4" dia. minimum to 1-1/4" dia maximum hole drilled through hatch neck for electrical cord.
8. Junction box mounted to existing or new structure. Structure not included.
9. 3/4" NPT electrical conduit connection: conduit to junction box not included.

**\*Not included in standard contents  
Contact Ixom for  
exchange.**

**NOT DESIGNED AS A SUBMERSIBLE  
PENETRATION.**



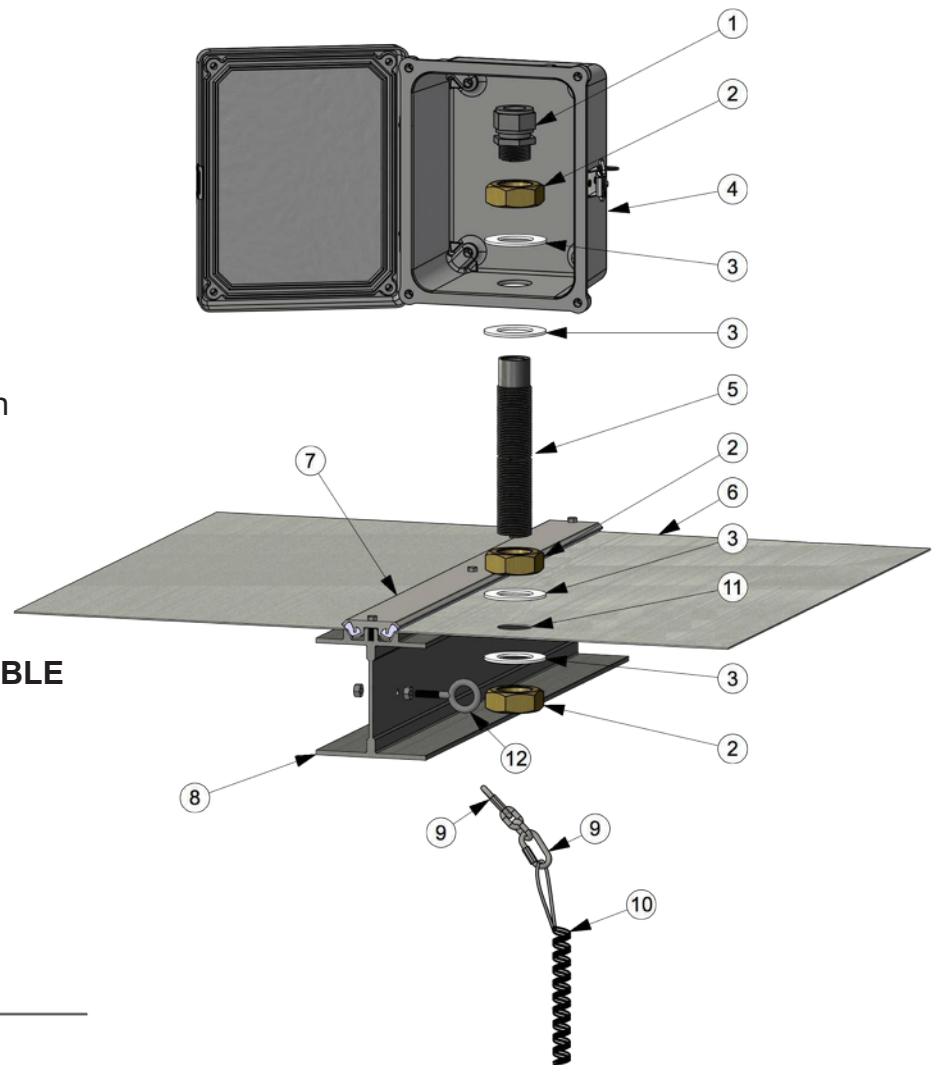
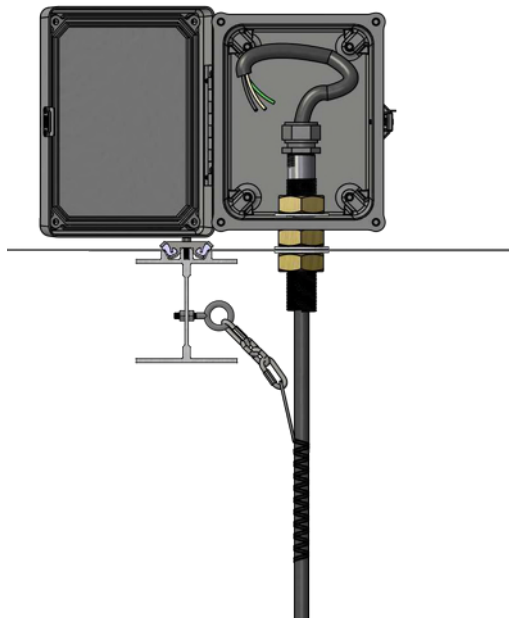
## Aluminum Geodesic Dome Roof

### GS Series

#### General Notes:

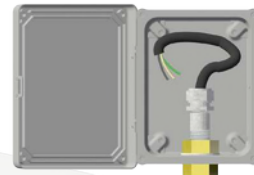
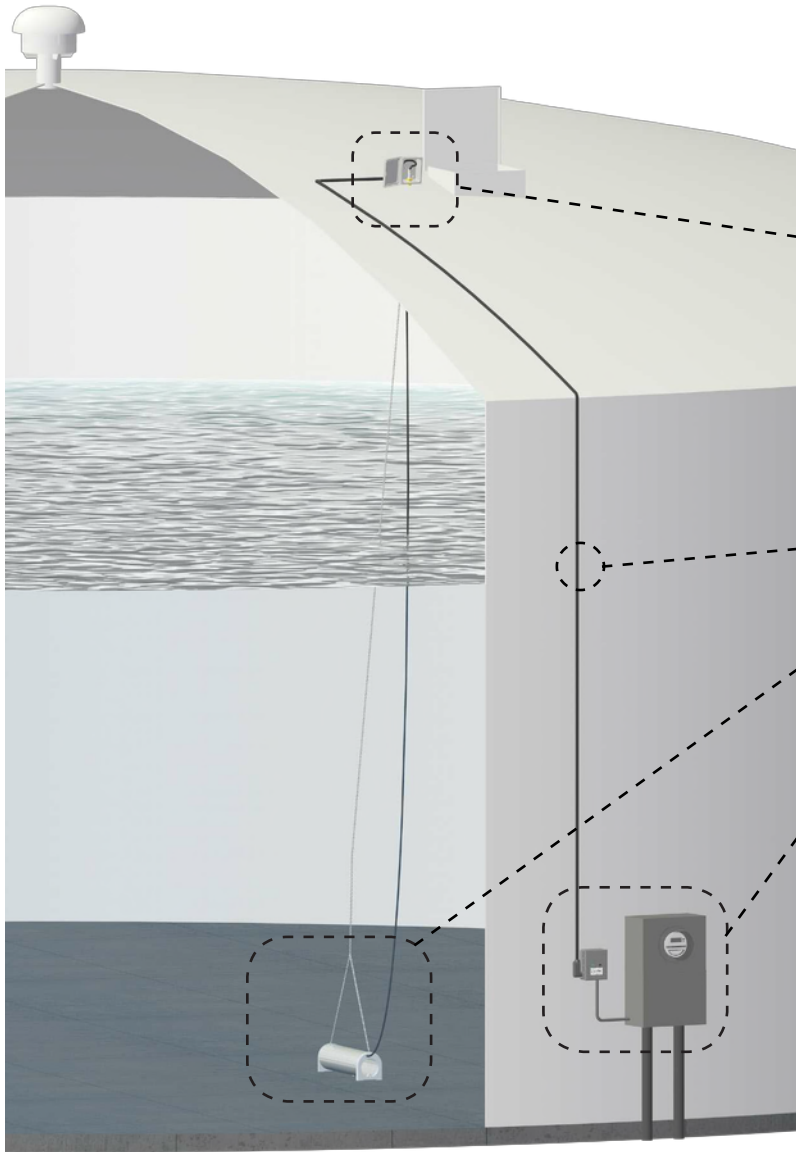
1. Cord seal fitting.
2. Brass nut.
3. Plastic seal washer with Lixel.
4. Top of tank junction box.
5. Penetration fixture.
6. Aluminum geodesic dome panel.
7. Aluminum geodesic dome batten bar.
8. Support I-beam.
9. Quick link.
10. Kellem grip.
11. A 1-5/16" dia. hole drilled through panel and sealed with Lixel. Locate penetration within arms reach of an access point.
12. Eyebolt drilled through support I-beam to support kellem grip and retrieval chain. Eyebolt not included.

**NOT DESIGNED AS A SUBMERSIBLE PENETRATION.**



## Floor Configuration

GS Series



Junction box & roof mount cable fixture supplied with GS mixer and located within arms reach of the hatch.

Terminate conduit using flex conduit with male thread end for panel mount  
Chain and cable attached to quick link  
Cord ran through cord seal.

Exterior Conduit and 3-Conductor Power Cable (2-Power + 1-Ground)

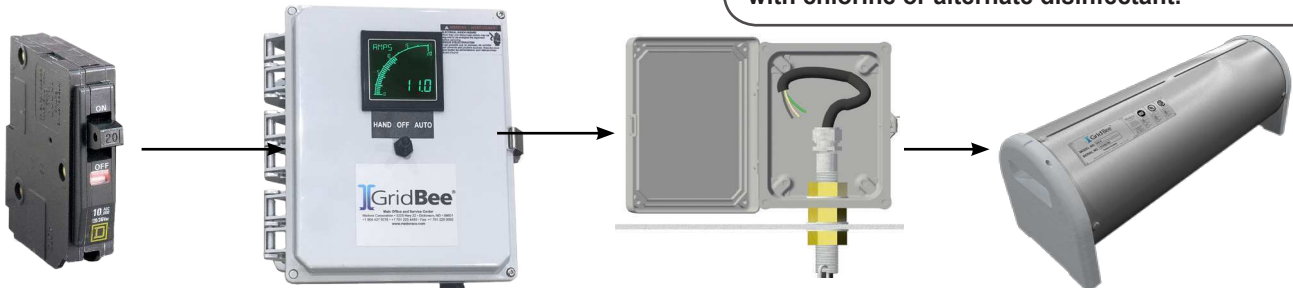
GS mixer resting on tank floor under hatch. Retrieval chain attached to mixer. Slots aligned parallel with line extending from center of tank to tank wall.

Locate power source receptacle and flex conduit termination at customer preferred location of mixer control panel

Terminate conduit using flex conduit with male thread end for panel mount

### IMPORTANT

It is important to disinfect all components in contact with potable water. There may be additional decontamination procedures required, so it is important to understand what procedures are acceptable. Decontamination should be performed right before the unit is lowered through the hatch. The mixer should be immersed in water shortly after having been decontaminated to prevent corrosion caused by contact with chlorine or alternate disinfectant.



GFCI Protected Source Power

Optional Mixer Control Panel

Junction Box & Tank Penetration

GS Mixer



## Suspended Configuration

GS Series

### Suspended Configuration

The suspended configuration is primarily used on tanks without a flat bottom. This method of installation is different with aluminum roofs or geodesic domed roofs.

### Installation Procedures

#### Step 1:

Attach the retrieval chain to the GS mixer at the pre-located quick link. Tighten the quick link with a wrench/pliers. Plan out a safe procedure and hoist the GS Mixer to the top of the tank near the hatch opening. Use the chain and submersible cable attached to the GS Mixer for lifting and supporting the weight. Keep clear of chain and electric cord to avoid entanglement.

#### Step 2:

Tie off the tail end of the retrieval chain and electric cord strain relief to the quick link at the bottom of the tank penetration fitting.

#### Step 4:

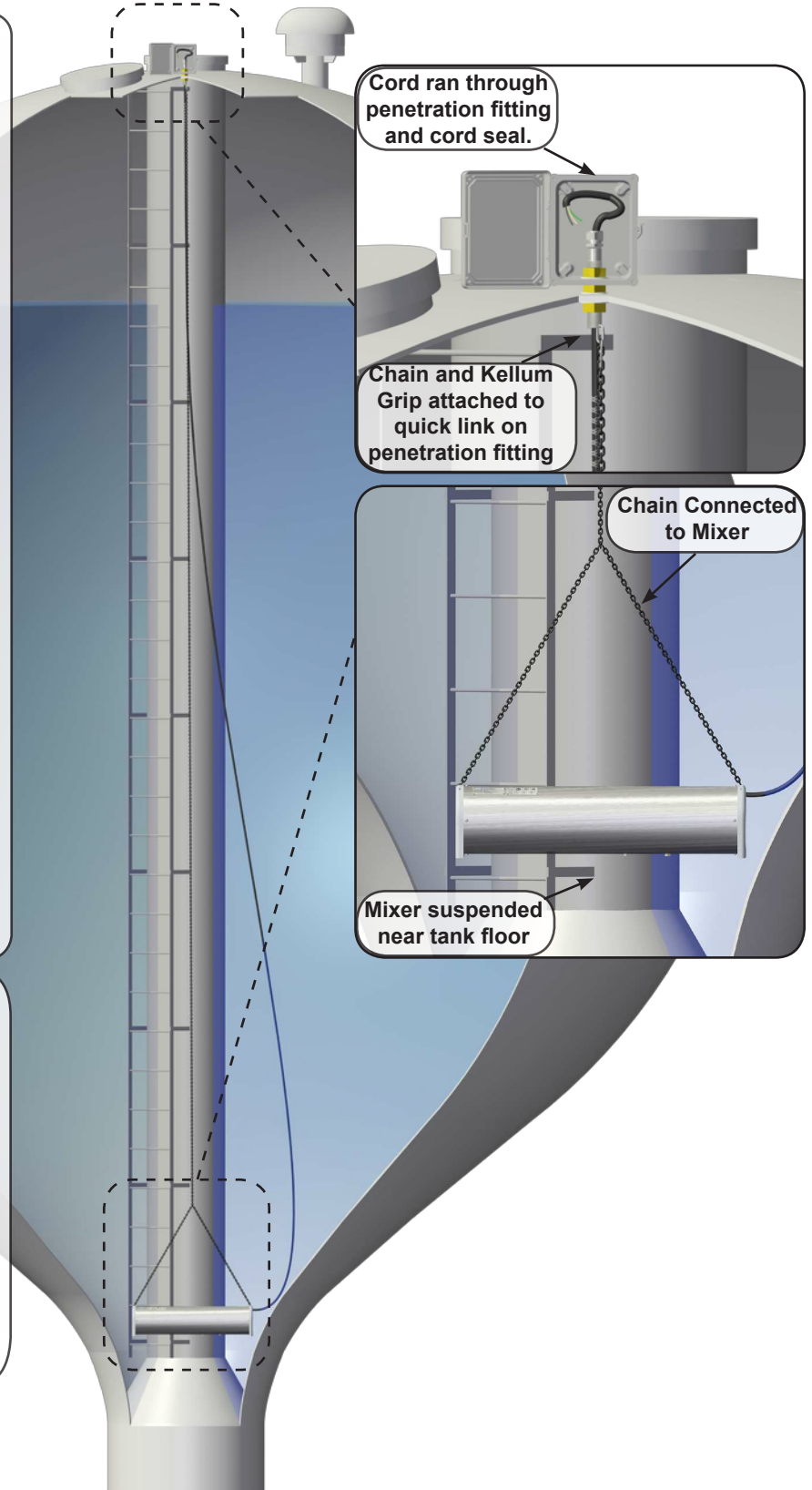
Pull the retrieval chain up until it is taught, then mark off the desired distance the GS Mixer is to be suspended above the floor, placing the quick link that desired distance down the retrieval chain below the tank penetration fitting.

#### Step 5:

Slowly pull up the GS Mixer and connect the quick link to the tank penetration fitting.

### IMPORTANT

It is important to disinfect all components in contact with potable water. A common practice is to use a minimum 200ppm chlorine or alternate disinfectant solution in water to spray all components that will contact the drinking water. There may be additional decontamination procedures required, so it is important to understand what procedures are acceptable. Decontamination should be performed right before the unit is lowered through the hatch. The mixer should be immersed in water shortly after having been decontaminated to prevent corrosion caused by contact with chlorine or alternate disinfectant.



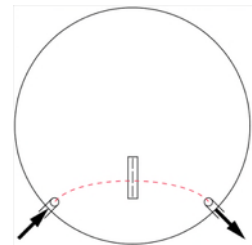
## MIXER PLACEMENT GUIDELINES

For GS Series Mixers

In many cases, mixer deployment just below the main access hatch is sufficient. However, consider the below recommendations, where practical, for guidelines of mixer placement.

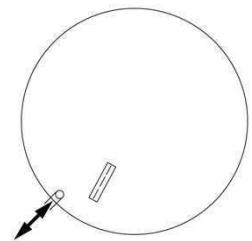
### Short circuit path:

Ideally, the mixer should be placed in the short circuit path between the inlet and outlet of the tank. This provides the mixer the best opportunity to blend all incoming water with the tank volume prior to water exiting the outlet.



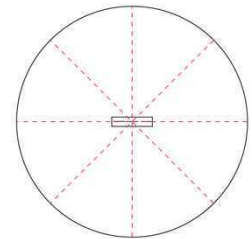
### Common Inlet / Outlet:

The mixer should be favored toward a common inlet / outlet pipe to prevent short circuiting. This provides the mixer the best opportunity to blend all incoming water with the tank volume prior to water exiting the tank. However, the mixer should stay clear at least 10-15ft away from a common inlet/outlet pipe.



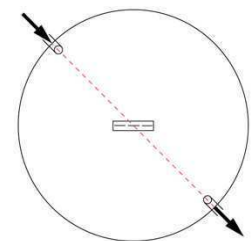
### Radial Orientation:

It is best to orientate the mixer so the discharge slots are radial with the tank. This is most critical if the mixer is placed near a sidewall of the tank.



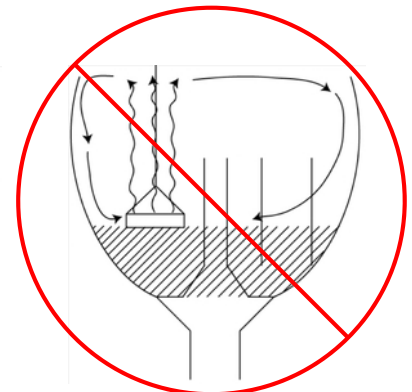
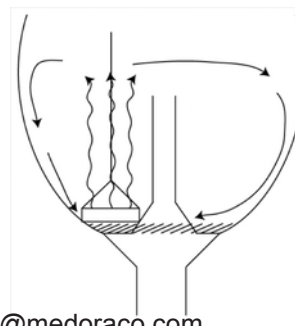
### Center Tank Placement:

A mixer is often positioned at the tank center when a separate inlet and outlet are positioned at or approximately 180° apart. It is most critical for the mixer to be along a short circuit path.



### Mixer Elevation:

The mixer should be located in the lowest elevation of the tank, and resting or supported in a horizontal position with discharge slots pointed vertical. Water below the mixer will not be circulated.



## Final Checklist

### Installation Checks

Before starting the GS Series mixer a few checklist items are recommended to confirm the installation is correct.

Installation Checks	Check
Is the mixer placed correctly with slots facing up? (Placement)	
Is the mixer retrieval chain connected securely? (Placement)	
Is the kellum grip supporting the weight of the cord/hose? (Placement)	
Is the cord/hose ran through the cord seal in the top of tank junction box? (Placement)	
Is the Tank Penetration fitting sealed with Lexel? (Top of Tank Junction Box)	
Are the top of tank junction box splices correct and each splice individually sealed to protect from corrosion? (Top of tank Junction Box) <b>(Not applicable for GS-12-Air)</b>	
Is the field wiring correct? (Requirements)	
Is the mixer submerged with at least 2' (0.75m) of water above the discharge slots?	

Pre Operation Checks	Reading						
Continuity Check	<table border="1"> <tr> <td>Line to Neutral:</td> <td></td> </tr> <tr> <td>Line to Ground:</td> <td></td> </tr> <tr> <td>Neutral to Ground:</td> <td></td> </tr> </table>	Line to Neutral:		Line to Ground:		Neutral to Ground:	
Line to Neutral:							
Line to Ground:							
Neutral to Ground:							
Source Voltage Reading							

### Operation Checks

The following checklist items are recommended to confirm proper operation.

Operation Check (While Mixer is Running)	Reading / Observation
Source Voltage Reading	
Amperage Reading Normal Operating Range: (7.5 amps to 10.0 amps)	
Flow Check Auditory	
Flow Check Visual	

## Troubleshooting

GS Series

(For Optional Mixer Control Panel)



### Voltage (V̄)

To measure the voltage follow these steps.

1. Set the voltmeter on Volts AC.
2. Place the positive probe on the black wire and the negative probe on the white wire on the top of the contactor (source side).
3. Record the reading.

### Amperage (Ā)

To Measure the Amperage follow these steps.

1. Use a clamp type ammeter, set to Amps AC.
2. Clamp around the black wire on the bottom of the contactor (load side). Marked Load 1 (L1).
3. Record the reading with mixer turned on.

### Ohms (Ω)

To Measure the Ohms follow these steps.

1. Turn off the circuit breaker feeding the control panel and follow lock out tag out procedures.
2. Measure the Voltage to confirm that the power is removed.
3. Disconnect the black and white wires from the bottom of the contactor (load side). Marked Load 1 (L1) and Neutral (N).
4. Set the Voltmeter to Ohms.
5. Place the positive probe on the black wire and the negative probe on the white wire that were disconnected.
6. Record the reading.

Depending on the length and gauge of wires to the mixer the ohms should be approximately:

1-4 Ohms, 120V and 6-10 Ohms, 230V.

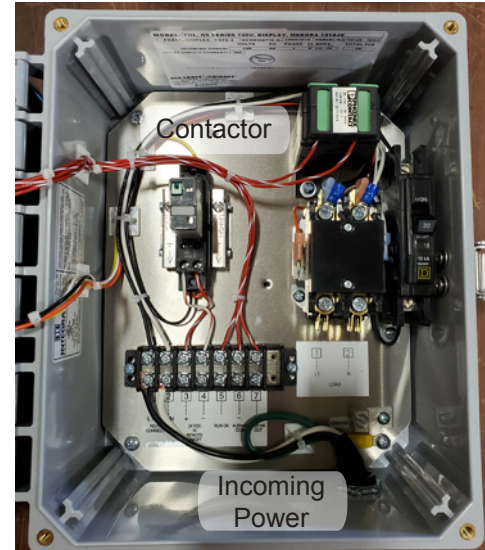


Figure 1: SCADA Control Panel



Figure 2: Disconnect Control Panel

Troubleshooting Information	
Serial Number	
Location Name	
Tank Name	
Distributor Name (if applicable)	
Voltage Reading	
Amperage Reading	
Ohm Reading	

Problem	Possible Cause
Mixer Intermittently Tripping Circuit Breaker	Multiple GFCI on Circuit Source Power Fluctuation
Mixer Quickly Tripping Circuit Breaker	Short to Ground Locked Rotor on Motor
Mixer Not Operating but Circuit Breaker not tripped	Loose or Loss of Connection
Mixer Making Loud Noise	Motor Bearing Failure Impeller Misalignment

## Troubleshooting GS Series

### GS Mixer End Plate Removal and Impeller Visual

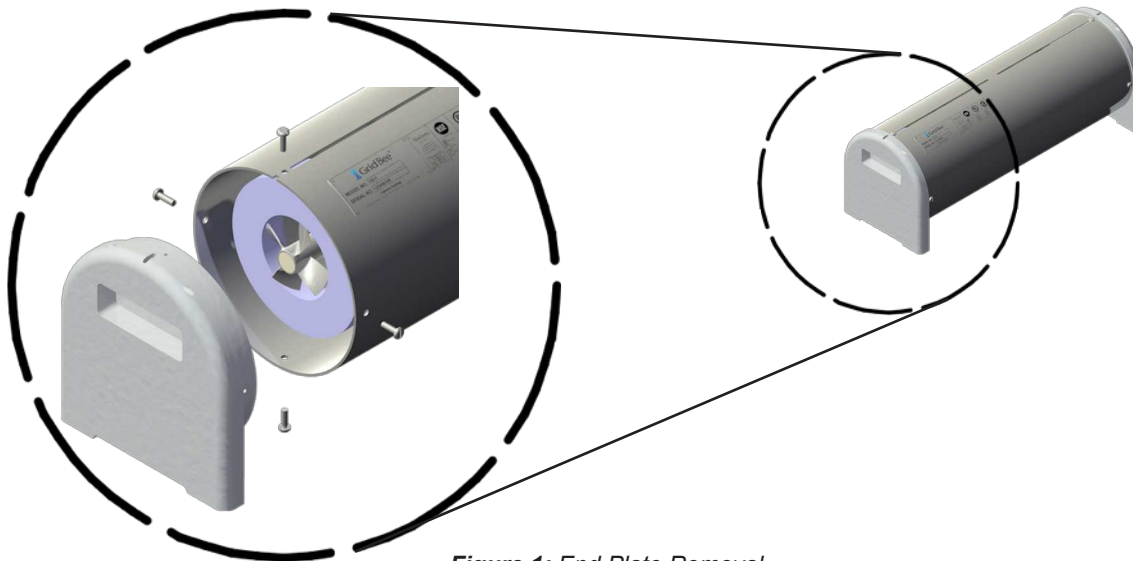


Figure 1: End Plate Removal

#### Step 1

Isolate power to the GS mixer to prevent it from turning on during inspection. The mixer must be off to perform this inspection safely.

#### Step 2

Remove white end plate on the end of GS Mixer. The side that should be removed is the side without the screen on it. You will find four (4) screws that will need to be removed in order for the end plate to become free from the mixer. (See Figure 1)

#### Step 3

Visually inspect the impeller for debris or build up. You should be able to move the impeller freely with no resistance. (See Figure 2)

#### Step 4

Remove any debris if necessary.

#### Step 5

Place the white end plate back on the GS Mixer, ensuring to line up the notch on the top side of the mixer. The four screws that were removed in Step 2 should be put back in place at this point as well.

#### Tools Needed

1. Electric Drill
2. #3 Phillips drill bit

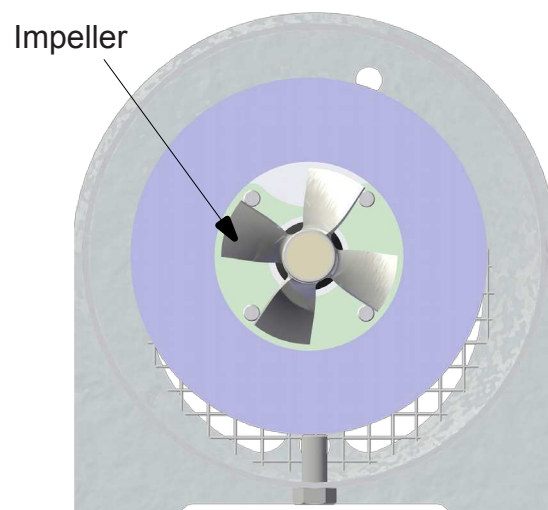


Figure 2: Impeller View

## GS-12

**Technology Description-** GridBee® electric submersible water circulation equipment, designed for continuous operation. Constructed with T316 stainless steel shell and safe materials for contact with potable drinking water. Designed to be placed into service through roof hatch without tank entry.

**Materials of Construction** - T316 stainless steel shell and hardware construction. UHMW-PE end plates for worry-free safe contact with all tank surfaces. See certifications section below.

75 ft (22 m) or 150 ft (44 m) of T316 stainless steel retrieval chain included for machine installation and retrieval without requiring tank entry.

**Minimum Access Opening** - Machine can be placed through 12 inch (30 cm) diameter opening.

**Minimum Water Depth** - The mixer requires at least 2 feet (0.6 meters) of water above the discharge slots to prevent pump cavitation and motor damage. Shut the mixer off if water surface is less than 2ft from the mixer slots.

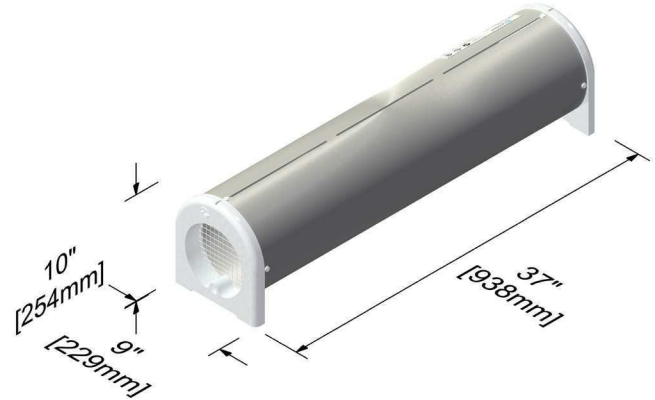


Figure 1: GS-12

**Intake** - Intake draws water in a horizontal layer within 2 inches (5.08 cm) of the tank or reservoir floor. Chlorine boost connection point on machine via 3/8" NPT female thread for adapting to 1/2" (13mm) hose for fast chlorine dispersion during in-reservoir boosting.

**Electrical Requirements** - 120VAC motor requires 120VAC/1PH power source outlet (**minimum 20 Amp service**). The GS-12 draws approximately 11.0 Amps @ 120VAC / 60Hz. Nominal power consumption of 800 Watts.

**Motor** - 1/2 HP stainless steel submersible, designed for continuous operation, low power requirement, direct drive, no gearbox and no lubrication schedule required. Automatic reset, on-winding thermal overload protection and surge arresters built in. Mounted in flow sleeve for superior cooling and long motor life in submerged temperatures up to 122 F. See certifications section below. 120VAC/1PH standard, other voltages available as special order.

**Wiring** - Includes either 75 ft (22 m) of 12AWG or 150 ft (44m) of 10AWG submersible power cable to terminate within junction box at top of tank. Junction box included.

**Sealed Penetration Fitting** - T316 stainless steel tank fitting and cord grip included for sealed cord entry through tank roof. Not designed as a submersible penetration.

**Optional Accessories** - (1) Portable Chlorine Boost Hose and Boost Pump System, (2) Dual Injection Kit, (3) Control and SCADA Panel

### Shipping Size / Weight

**75 ft unit** - Box 1 of 2: 44x16x12 in. / 88 lbs, Box 2: of 2: 17x13x8 in. / 25 lbs: Total shipment weight: 113 lbs

**150 ft unit** - Box 1 of 2: 44x16x12 in. / 127 lbs, Box 2: of 2: 17x13x8 in. / 41 lbs: Total shipment weight: 168 lbs

**Certifications** - Ixom's potable water products are certified to ANSI/NSF Standard 61, and 372 for lead-free content. Learn more at: [www.medoraco.com/std61](http://www.medoraco.com/std61)

**Maintenance / Warranty** - Limited maintenance. Limited 5-year parts and labor warranty. See Warranty Statement for details.

## GridBee GS Submersible Mixer Limited Replacement Warranty

**GridBee GS Mixers.** The GridBee Series GS mixers are warranted to be free of defective parts, materials, and workmanship for a period of five years from the date of purchase. This warranty is valid only for use of the equipment in accordance with the owner's manual and any initial and ongoing factory recommendations. This warranty is limited to the repair or replacement of defective components only and does not apply to normal wear and tear. If the factory's service crews performed the original on-site placement and startup, then this warranty also includes labor. Where labor is included, in lieu of sending a factory service crew to the site for minor repairs, Ixom may choose to send the replacement parts to the owner postage-paid and may pay the owner a reasonable labor allowance, as determined solely by Ixom, to install the parts. There is no liability for consequential damages of any type. The warranty that is submitted and provided with the purchased equipment is the valid warranty.

**GridBee control panels, cold weather hose kits, air compressors and any optional accessories.** These items are considered "buyout" items for Ixom, and as such include a warranty against defects in material and workmanship for one year from the date of purchase. This warranty covers parts only, not labor. Parts that are determined by Ixom to be defective in material or workmanship under normal use during the one year warranty period will be repaired or replaced. Shipping charges are the responsibility of the customer.

**Terms applicable to all equipment.** This Limited Replacement Warranty is subject to the terms of Ixom's General Terms and Conditions of Sale. In the event of any inconsistency between the terms of this Limited Replacement Warranty and Ixom's General Terms and Conditions of Sale, the terms of this Limited Replacement Warranty shall prevail to the extent of that inconsistency.

## Ixom Service & Support

Ixom employs qualified highly trained Service and Placement Technicians certified to perform the necessary tasks required to install or remove SolarBee and GridBee circulation equipment

Ixom's specialized Service and Placement Technicians are trained in Confined Space, Fall Protection, and other related subjects as required by OSHA to perform the necessary work to install or remove SolarBee and GridBee equipment, and are knowledgeable in the regulations and standards of OSHA.

If you feel the need to service your SolarBee or GridBee circulation equipment, please contact Ixom's Customer Service Department at:

---

**+1 866 437 8076**

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MEDORA  
is now part of **IXOM**

**GridBee® SolarBee®**



## **ATTACHMENT C – REDVALVE VENDOR INFORMATION**

# TIDEFLEX MIXING SYSTEM (TMS)

## PRELIMINARY DESIGN REPORT

### **Tank Name: Main 2.0MG Reservoir**

**Water Utility/Owner: Heritage Ranch CSD, CA**

**Consultant: Wallace Group**

#### CONTENTS

**TMS - GENERAL ARRANGEMENT DRAWING**

**REPRESENTATIVE CFD MODELING**

**TMS - MIXING ANALYSIS**

**WATER AGE ANALYSIS**

**MANIFOLD HYDRAULICS / SYSTEM HEAD CURVE- FILLING CYCLE**

**MANIFOLD HYDRAULICS / SYSTEM HEAD CURVE- DRAW CYCLE**

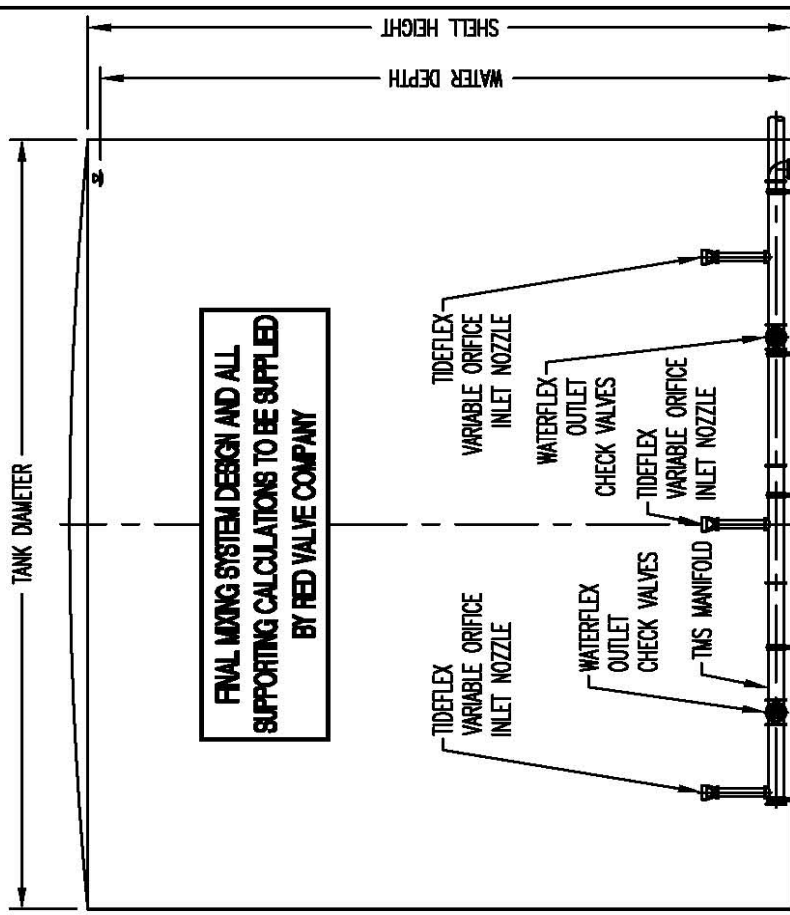


**Analysis by:  
Michael Duer, P.E.**

**Tideflex**<sup>®</sup>  
Technologies  
A Division of Red Valve Company, Inc.

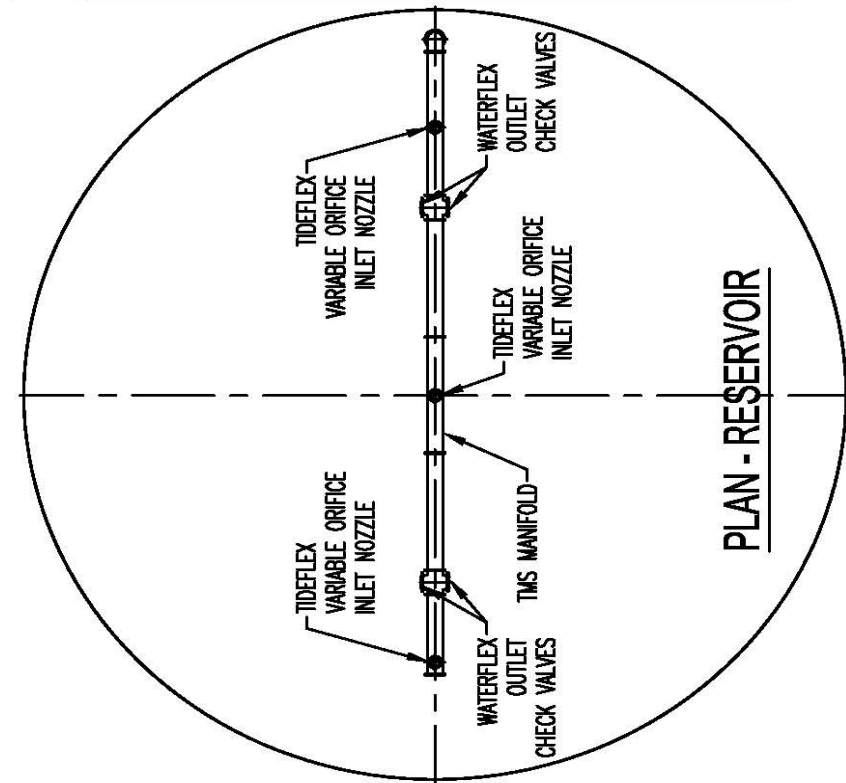
July 11, 2020





**ELEVATION - RESERVOIR**

- NOTES:
1. DO NOT USE THIS DRAWING FOR CONSTRUCTION. DRAWING INTENDED AS A GENERAL REPRESENTATION ONLY.
  2. QUANTITY, SIZE, ELEVATIONS, LOCATIONS, AND DISCHARGE ANGLES OF TIDEFLEX INLET NOZZLES AND/ OR OUTLET CHECK VALVES ARE TANK-SPECIFIC BASED ON HYDRAULICS, MIXING AND TURNOVER CRITERIA.
  3. CARBON AND STAINLESS PIPE SECTIONS MAY BE SUPPLIED WITH PLAIN ENDS TO BE BUTT WELDED IN THE FIELD.



**PLAN - RESERVOIR**

UNITED STATES PATENT NUMBER: 7,104,279 | CANADIAN PATENT NUMBER: 2,409,009

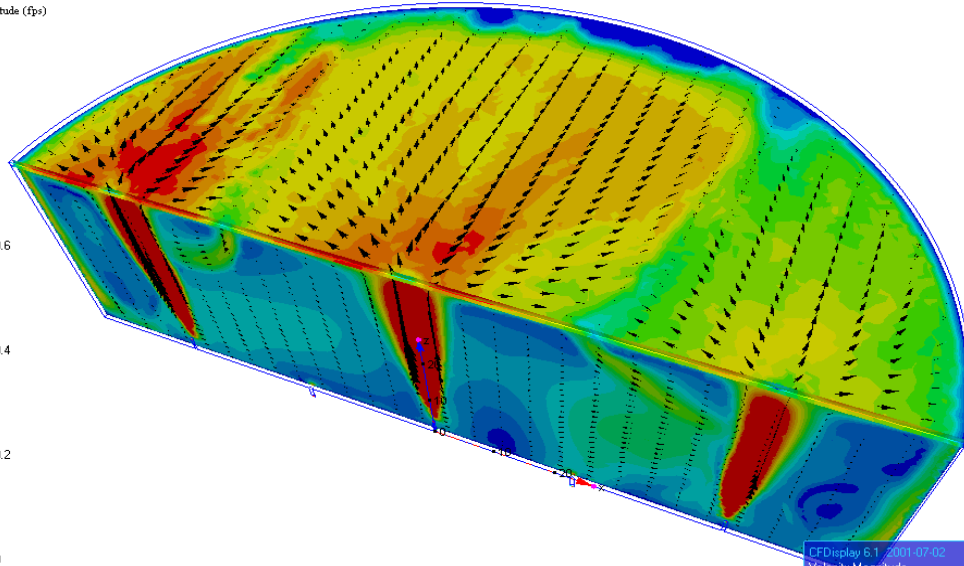
<p>THE DESIGN INFORMATION WITHIN THESE DOCUMENTS IS THE INTELLECTUAL PROPERTY OF RED VALVE COMPANY/TIDEFLEX TECHNOLOGIES. THESE DOCUMENTS SHALL NOT BE USED TO CONSTRUCT DUPLICATE SYSTEMS; USE OF THESE DOCUMENTS AND/OR CONSTRUCTION OF DUPLICATE SYSTEMS SHALL VIOLATE THE COPYRIGHT AND PATENT PROTECTION LAWS ASSOCIATED WITH THIS PATENTED PRODUCT. THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF RED VALVE COMPANY/TIDEFLEX TECHNOLOGIES AND ARE DISTRIBUTED FOR THE SOLE PURPOSE OF COORDINATING THE INSTALLATION OF THE SYSTEM(S) PROVIDED BY RED VALVE COMPANY / TIDEFLEX TECHNOLOGIES.</p>		<p><b>S.O.#:</b></p>	<p><b>QUOTE #:</b></p>
<p><b>NOT FOR CONSTRUCTION</b></p>		<p><b>TIDEFLEX TECHNOLOGIES</b>  <b>TIDEFLEX MIXING SYSTEM</b>          700 N. BELL AVENUE          CARLEISLE, PA 15106 USA          PHONE: 412-278-3044          FAX: 412-278-5410          WEBSITE: WWW.TIDEFLEX.COM          EMAIL: INFO@TIDEFLEX.COM</p>	
<p><b>TMS GENERAL ARRANGEMENT FOR GROUND LEVEL CIRCULAR RESERVOIRS AND BOLTED COMPOSITE ELEVATED TANKS</b></p>			
<p>CONSULTANT:</p>			
<p>APPLICATION: (TMS) TIDEFLEX MIXING SYSTEM</p>			
<p>SCALE: FULL</p>			
<p>DWG. NO.</p>		<p>DATE: 11-3-03</p>	
<p>DWG. BY: GJG</p>		<p>PLOT:</p>	
<p>REV</p>		<p>DESCRIPTION</p>	
<p>BY</p>		<p>DATE</p>	
<p>TMS-CIR7</p>		<p>SHEET 1 OF 1</p>	

# Computational Fluid Dynamics (CFD) Modeling

Below are CFD images showing representative velocity magnitude contour and vector images of this TMS configuration in a circular reservoir.

CFDesign 4.1

Velocity Magnitude (fps)

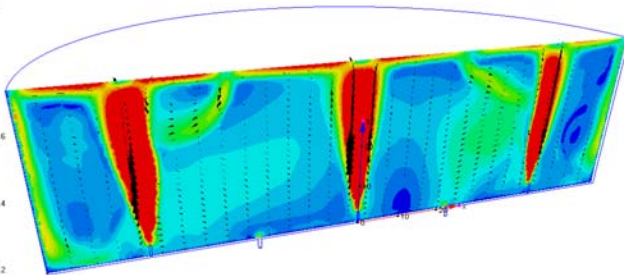
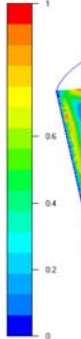


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Velocity Magnitude  
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Velocity Vector  
VMN = 0.000e+000 VMX = 2.236e+001

Iteration 194

CFDesign 4.1

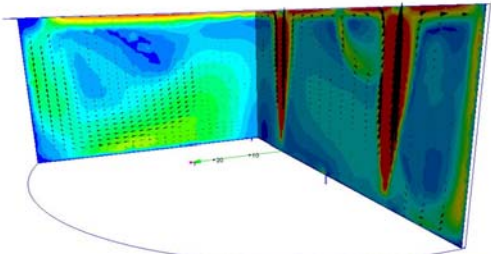
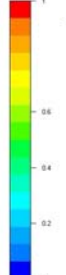
Velocity Magnitude (fps)



CFDisplay 5.1 2001-07-02  
Velocity Magnitude  
SMN = 0.000e+000 SMX = 2.236e+001  
Velocity Vector

CFDesign 4.1

Velocity Magnitude (fps)



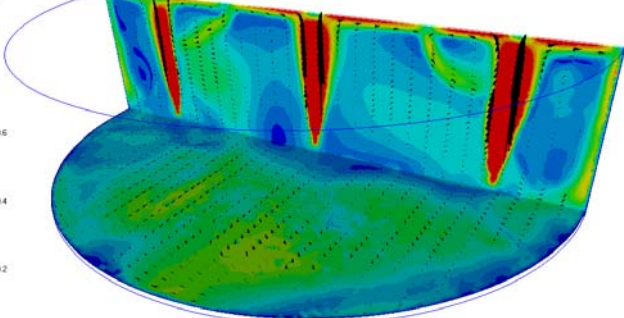
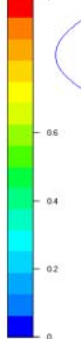
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Velocity Magnitude  
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Velocity Vector  
VMN = 0.000e+000 VMX = 2.236e+001

Iteration 194

Iteration 194

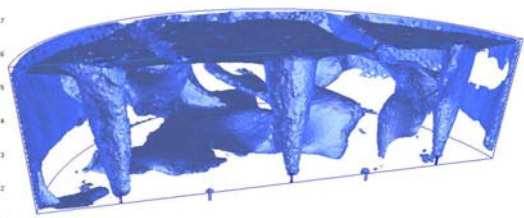
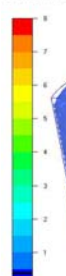
CFDesign 4.1

Velocity Magnitude (fps)



CFDisplay 5.1 2001-07-02  
Velocity Magnitude  
SMN = 0.000e+000 SMX = 2.236e+001  
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VMN = 0.000e+000 VMX = 2.236e+001

CFDesign for Windows 5.0



CFDisplay 5.1 2001-07-02  
Velocity Magnitude  
SMN = 0.000e+000 SMX = 2.236e+001  
Velocity Vector  
VMN = 0.000e+000 VMX = 2.236e+001

Iteration 200

**Tideflex**  
Technologies  
A Division of Red Valve Company, Inc.

# TIDEFLEX RESERVOIR MIXING ANALYSIS

## Main 2.0MG Reservoir Heritage Ranch CSD, CA

The Reservoir Mixing Analysis (RMA) is to be supplied to the water utility/owner as it provides guidance on the tank turnover/fluctuation required to ensure complete mixing with the TMS installed. Maintaining water quality in tanks and reservoirs is a combination of achieving complete mixing AND tank turnover to minimize water age. It is critical to achieve complete mixing to prevent a localized increase in water age (and associated water quality problems) due to short-circuiting and dead zones.

The RMA calculates the dependent variables and uses the mixing time formula to calculate the "Theoretical Mixing Time" (MT) at various filling flow rates. The MT is the fill time required to achieve complete mixing. The required drawdown (in feet), % turnover, and the required volume exchange (in gallons) are calculated based on these mixing times. These values are shown in the "Guide to Tank Fluctuation and Turnover" section of the RMA. A slightly greater drawdown/turnover is typically recommended to be conservative.

Within the "Guide to Tank Fluctuation and Turnover" is a "Minimum Tank Fluctuation Target". This is applicable for tanks that operate in fill-then-draw. This is the minimum amount the tank should be drawn down on the draw cycles to ensure complete mixing on the fill cycles. This data is intended to be used by operators in conjunction with SCADA and strip charts (where applicable) to verify adequate tank turnover and to determine "pump on" and "pump off" set points (where applicable). For tanks that operate in simultaneous fill and draw, the "Theoretical Mixing Time" (fill time required to achieve complete mixing) should be used to ensure the minimum fill time required is achieved.

The RMA also provides data on the time required to draw down the tank, at various draw rates, to the required level as determined by the mixing time calculations.

Note, the data provided on the required drawdown, % turnover and volume exchange are to ensure complete mixing of the tank volume to prevent water quality problems associated with short-circuiting, incomplete mixing, and increased water age. A water age evaluation of the entire distribution system may dictate greater tank turnover than provided with the RMA. As long as the actual tank turnover/fluctuation is equal to or greater than that provided with the RMA, the tank will be completely mixed.

**RESERVOIR / TANK NAME:**

**Main 2.0MG Reservoir**

**CONSULTANT:** Wallace Group  
Contact: Steven Tanaka, P.E.  
Address:

**UTILITY / OWNER:** Heritage Ranch CSD, CA  
Contact: Scott Duffield  
Address:

phone  
fax  
email

phone  
fax  
email

**RED VALVE REP.:** Misco  
Contact: Roger Antonie

**ANALYSIS BY:** Michael Duer, P.E.



RESERVOIR / TANK DATA			INLET / OUTLET PIPES		FILL / DRAW RATES		
Tank Diameter	97	ft	Outlet Dia. =	12	in	Fill Rates (gpm)	Draw Rates (gpm)
Tank Depth (SWD) to HWL	32	ft	* Effective Diameter of TMS (See Note 1)				
Depth to LWL	27	ft	Effec. Dia (in) =	AT	→	50	100
			Effec. Dia (in) =	AT	→	100	500
			Effec. Dia (in) =	AT	→	400	1500
			Effec. Dia (in) =	AT	→	725	2500
Tank Volume	1,768,948	Gallons					
Tank Volume	236,474	ft³					
Gallons Per Foot =	55,280						

FILL	Time to Fill Tank from Empty to H.W.L.		Time to Fill to 1' Depth		Input Fill Time (Hours)	Resulting Increase in Water level (ft)	Volume Change (gallons)
	(Hours)	(Days)	(Minutes)	(Hours)			
<b>INLET FLOW RATES (gpm)</b>							
50.0	589.65	24.57	1105.59	18.43	19.8	1.1	59,390.45
100.0	294.82	12.28	552.80	9.21	11.8	1.3	70,599.92
400.0	73.71	3.07	138.20	2.30	4.2	1.8	99,610.60
725.0	40.67	1.69	76.25	1.27	2.7	2.1	115,289.08

**PROPRIETARY NOTICE**  
THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION OF TIDEFLEX TECHNOLOGIES. IT IS LOANED BY TIDEFLEX TECHNOLOGIES, SUBJECT TO THE CONDITIONS THAT IT AND THE INFORMATION EMBODIED THEREIN SHALL BE USED ONLY FOR RECORD AND REFERENCE PURPOSES. IT SHALL NOT BE USED OR CAUSED TO BE USED IN ANY WAY PREJUDICIAL TO THE INTERESTS OF TIDEFLEX TECHNOLOGIES. IT SHALL NOT BE REPRODUCED OR COPIED IN WHOLE OR IN PART, OR DISCLOSED TO ANYONE WITHOUT THE DIRECT WRITTEN PERMISSION OF TIDEFLEX TECHNOLOGIES AND SHALL BE RETURNED UPON REQUEST.

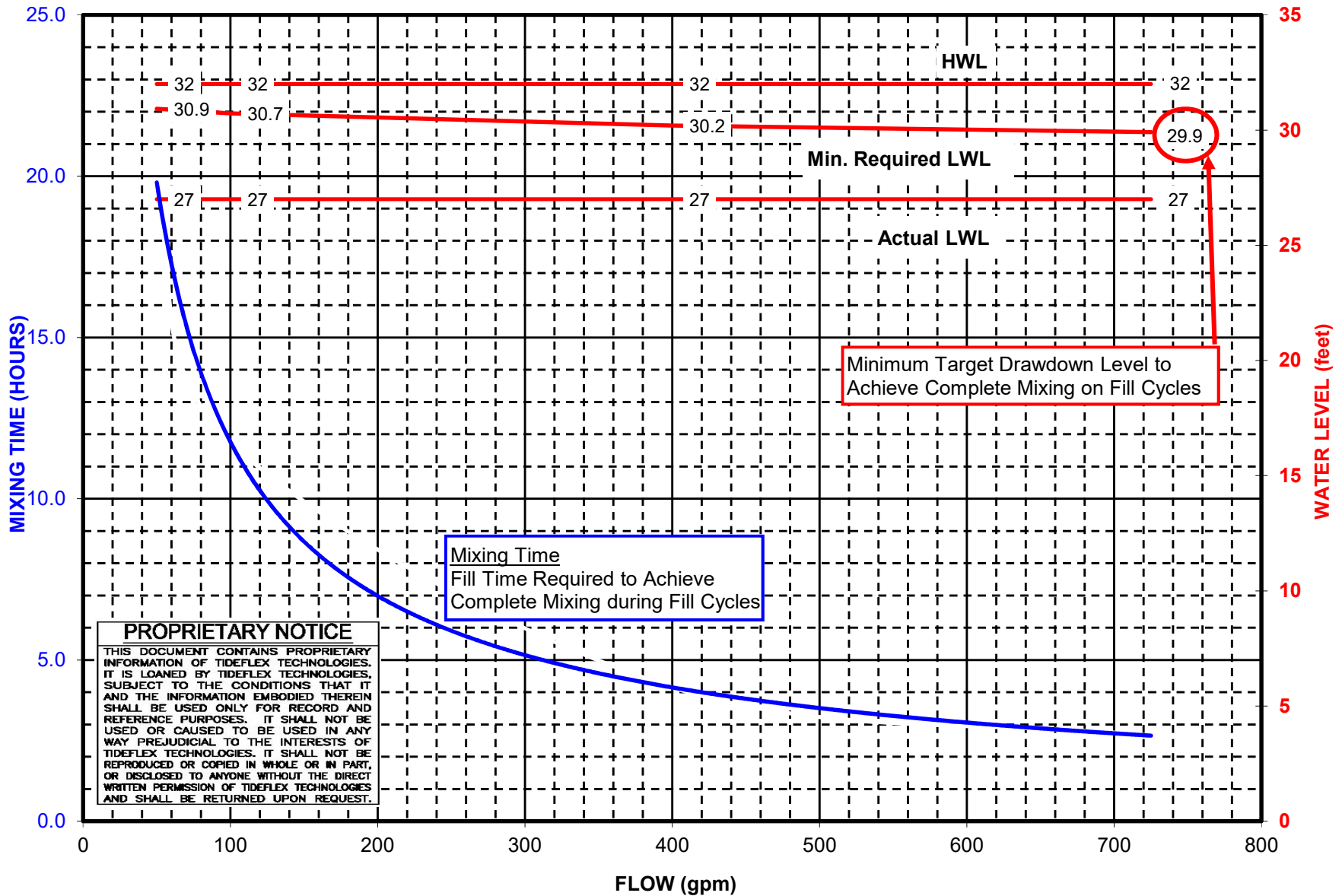
FILL	Jet Velocity (fps)	JV² / 2g (feet)	Reynold's Number	Inlet Momentum (ft⁴ / min²)	Velocity Gradient, G (1/sec)	Theoretical Mixing Time (Fill Time Req'd for Complete Mixing) MT = K * V^(2/3) / M^(1/2)		Req'd Drawdown on Previous Draw to Mix on Next Fill (feet)	% Turnover Required (%)	Volume Exchange Required (gallons)
						(Minutes)	(Hours)			
<b>INLET FLOW RATES (gpm)</b>								(SEE NOTE 2)	(SEE NOTE 2)	(SEE NOTE 2)
50.0	2.68	0.11	76,372	1,077	0.37	1187.8	19.8	1.1	3.4	60,144
100.0	3.80	0.22	128,492	3,047	0.75	706.0	11.8	1.3	4.0	70,758
400.0	7.63	0.91	364,281	24,493	3.00	249.0	4.2	1.8	5.6	99,061
725.0	10.33	1.66	570,468	60,066	5.47	159.0	2.7	2.1	6.5	114,982
<b>MINIMUM TANK FLUCTUATION TARGET</b>										

DRAW	TIME TO DRAW TANK FROM FULL TO EMPTY		Time to Draw Down 1' Depth		Pipe Velocity (fps)	Volume Exchange Required (gallons)	Draw Time Required (Hours)
	(Hours)	(Days)	(Minutes)	(Hours)			
<b>OUTLET FLOW RATES (gpm)</b>							
100	294.82	12.28	552.80	9.21	0.28	114,982	19.2 @ 100 gpm Draw Rate
500	58.96	2.46	110.56	1.84	1.42	114,982	3.8 @ 500 gpm Draw Rate
1500	19.65	0.82	36.85	0.61	4.25	114,982	1.3 @ 1500 gpm Draw Rate
2500	11.79	0.49	22.11	0.37	7.08	114,982	0.8 @ 2500 gpm Draw Rate

**\* NOTE: 1. TIDEFLEX VALVES ARE INHERENTLY A VARIABLE ORIFICE SO THE TMS EFFECTIVE DIAMETER VARIES WITH FLOW RATE**  
**2. MIXING TIME EQUATIONS DO NOT ACCOUNT FOR DIFFERENCES IN TEMPERATURE BETWEEN INLET WATER AND TANK (BUOYANT JETS)**  
**THESE CALCULATIONS MAY UNDERESTIMATE THE FILL TIME REQUIRED FOR MIXING.**

# TMS - Mixing Time and Minimum Required Drawdown

## Main 2.0MG Reservoir



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Mixing Time  
 Fill Time Required to Achieve  
 Complete Mixing during Fill Cycles

Minimum Target Drawdown Level to  
 Achieve Complete Mixing on Fill Cycles

**Actual/Predicted Daily Turnover and Water Age**

High Water Level (HWL) = 32 ft	<b>Turnover = 5.0 feet</b>	<b>Ave. Water Age = 6.4 days</b>
Low Water Level (LWL) = 27 ft	15.6 %	<i>(Assumes tank is mixed. CAUTION: A single inlet pipe often does not mix. Water age could be much higher)</i>
	276,389 gal	

**Turnover Required for TMS to Achieve Complete Mixing**

(GOAL: For Required Turnover for Complete Mixing to be Less Than Actual/Predicted Turnover)

The TMS will mix the tank with Turnover = 2.1 feet	<b>Ave. Water Age = 15.3 days</b>
(see Mixing Analysis)	<i>(Water age if tank turnover was the minimum required to achieve complete mixing)</i>
	6.5 %
	115,285 gal

**RESULT**

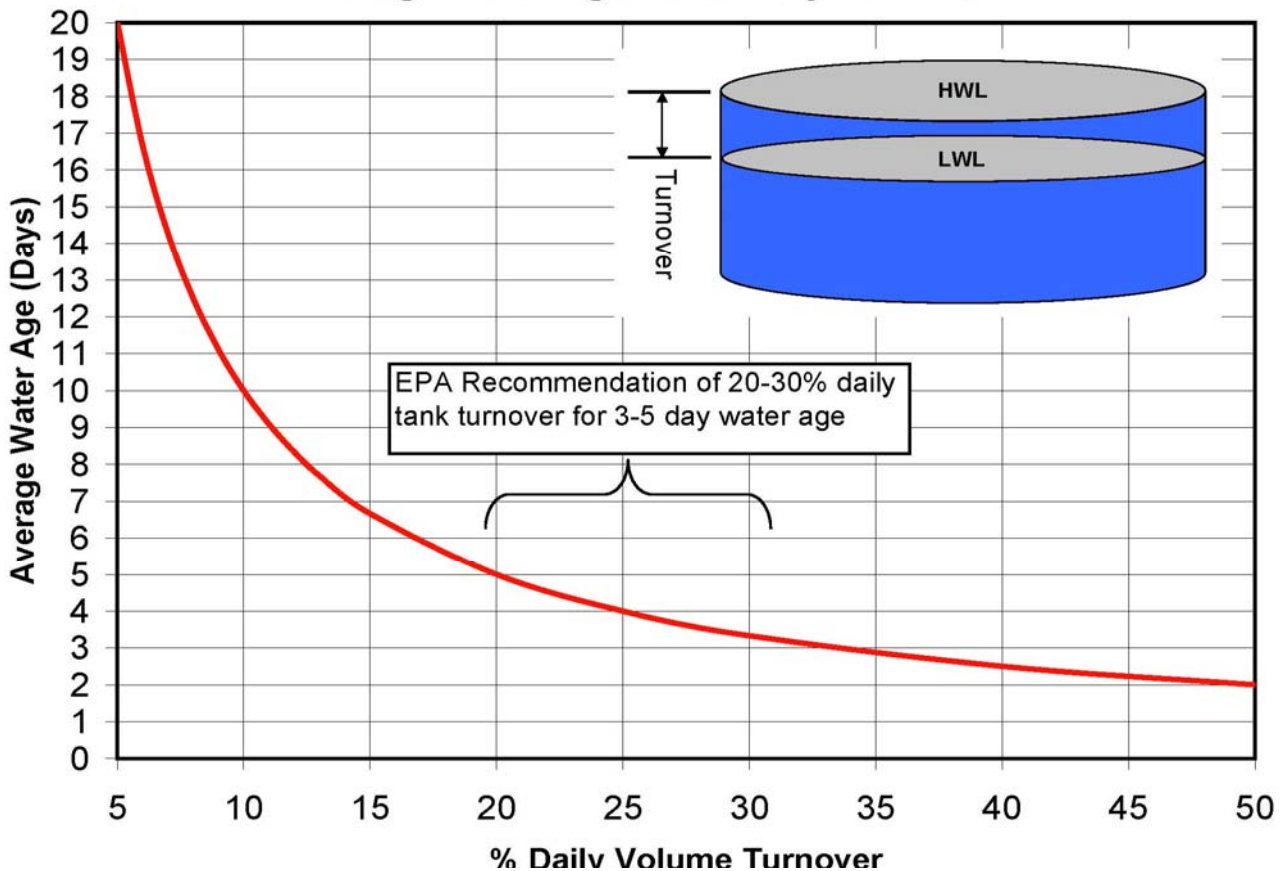
**Is Actual Turnover Greater than Required Turnover to Mix with TMS? YES**

If Yes, the TMS will Completely Mix the Tank. Applicable Water Age is from Actual/Predicted Turnover  
If No, Tank May not be Completely Mixed but Will Not Short-Circuit. The TMS Separates the "Inlet" and "Outlet" and will Draw the Oldest Water from the Tank First

**WATER QUALITY:**

- \* Maintaining storage tank water quality is a function of:
  - 1) Maximizing volume turnover to minimize water age. See Water Age vs. Turnover Guideline below.
  - 2) Achieving complete mixing to avoid a localized increase in water age due to incomplete mixing and short-circuiting
- \* The TMS design addresses #2. Consultant and/or Owner to address #1 by looking at the "operation" of the distribution system and tank in order to maximize turnover. See Water Age vs. Turnover Guideline below.

**Average Water Age vs. % Daily Turnover**





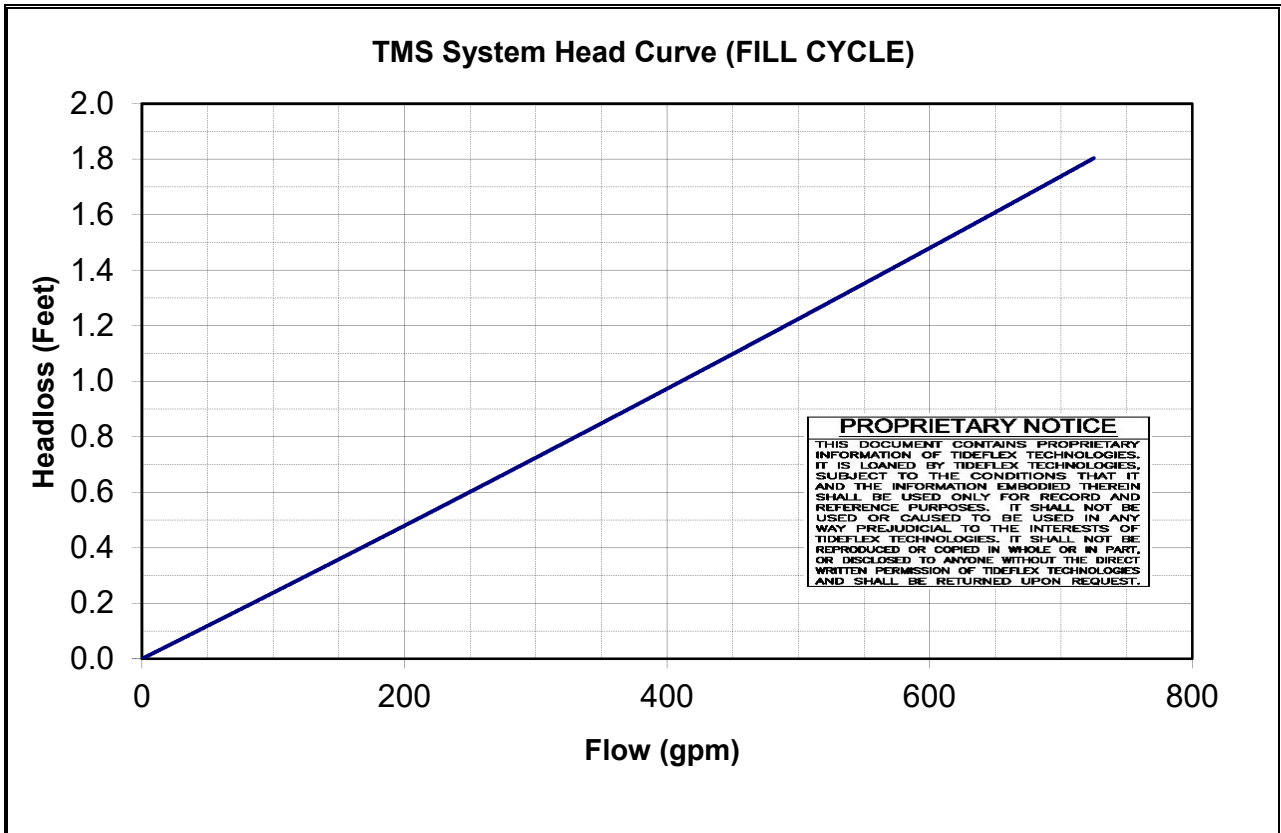


# TMS Manifold Hydraulics (FILL CYCLE)

Reservoir Name: **Main 2.0MG Reservoir**  
Reservoir Size: **97' Dia. x 34'**  
Reservoir Capacity: **2.0 MG**  
End User: **Heritage Ranch CSD, CA**  
Consultant: **Wallace Group**

Ambient Density = **62.4 lbm/ft<sup>3</sup>**  
Effluent Density = **62.4 lbm/ft<sup>3</sup>**  
dS/S = **0**  
C = **100 Hazen Williams Coeff.**  
Cd = **0.95 Cd**

Flow Rate (gpm)	Jet Velocity (fps)	Friction Headloss (ft)	Total Headloss (ft)
50.0	2.7	0.00	0.1
100.0	3.8	0.00	0.2
400.0	7.6	0.02	1.0
725.0	10.3	0.07	1.8





# TMS Manifold Hydraulics (DRAW CYCLE)

Reservoir Name: **Main 2.0MG Reservoir**

Reservoir Size: **97' Dia. x 34'**

Reservoir Capacity: **2.0 MG**

End User: **Heritage Ranch CSD, CA**

Consultant: **Wallace Group**

Ambient Density = **62.4 lbm/ft<sup>3</sup>**

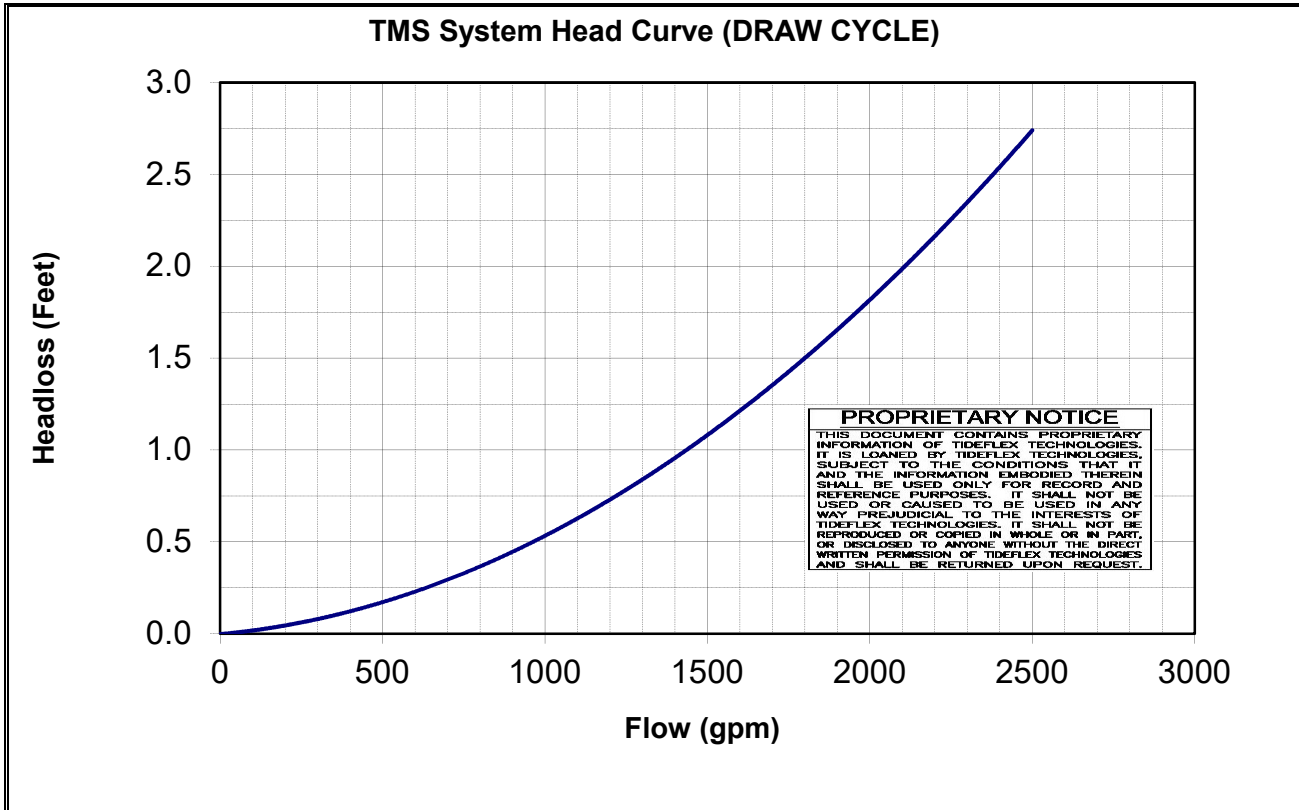
Effluent Density = **62.4 lbm/ft<sup>3</sup>**

dS/S = **0**

C = **100 Hazen Williams Coeff.**

Cd = **0.95 Cd**

Flow Rate (gpm)	WF-3 Headloss (ft)	Friction Headloss (ft)	Total Headloss (ft)
100.0	0.0	0.00	0.0
500.0	0.1	0.05	0.2
1500.0	0.7	0.36	1.1
2500.0	1.8	0.93	2.7





# QUOTE

## 97804

Quote Date: 7/22/2020

Expiration Date: 8/21/2020

Please reference Red Valve Quote Number when Placing Order.

**Quote To:**

Roger Antonie  
Misco Water - Foothill  
2701 Burbank, Suite B  
Foothill Ranch CA 92610  
USA

Email: rantonie@miscowater.com  
Phone: 949-458-5555  
Fax: 949-458-5500

**Red Valve Sales Agent:**

Kirt Lecocq  
Red Valve Company, Inc.  
750 Holiday Drive  
Building 9, Suite 400  
Pittsburgh, PA 15220

Email: klecocq@redvalve.com  
Phone: 412-279-0044 ext 218  
Fax: 412-279-7878

**2.0MG RESERVOIR - HERITAGE RANCH CSD, CA****TIDEFLEX MIXING SYSTEM (TMS) PATENT NO. 7,104,279**

Part	Description	Qty	Unit Price	Ext Price
1: Q-RSTMS-INLET	8" TIDEFLEX VARIABLE ORIFICE INLET NOZZLES NSF-61 Certified, EPDM Elastomer Complete with 316 Stainless Steel Retaining Rings for Inlet Valves Flange Drilling: ANSI 125/150#	3 EA		
2: Q-RSTMS-OUTLET	INCLUDED 12" WATERFLEX WF-3 OUTLET CHECK VALVES NSF-61 Certified, EPDM Elastomer Complete with 304 Stainless Steel Disc, Rods and Fasteners Flange Drilling: ANSI 125/150#	2 EA		
3: Q-RSTMS-PIPE	*INCLUDED MANIFOLD PIPING Approximately 80' of 12" PVC Schedule 80 Flanged and Socket Welded Manifold Pipe [(8) Approx. 10' Fanged Sections] Carbon Steel Studded Mating Flange PVC Schedule 80 Cross PVC Schedule 80 - 45° Elbows PVC Schedule 80 Inlet Tees PVC Schedule 80 Outlet Tees PVC Schedule 80 Reducers Various sizes and quantities of PVC Schedule 80 Van Stone Flanges **Hardware- Flanged Mounting Kit- including 304 Stainless Steel Bolts, Nuts, Washers and NSF-61 Gaskets	1 EA		
4: Q-RSTMS-SUPPORTS	INCLUDED ADJUSTABLE PIPE SUPPORTS Carbon Steel Pipe Supports with 304 Stainless Steel U-Bolts	1 EA		
5: Q-RSTMS-LICENSE	INCLUDED LICENSE AGREEMENT FOR TIDEFLEX TECHNOLOGIES PATENT NO. 7,104,279	1 EA		
6: Q-RSTMS-NSF61-CERT	INCLUDED NSF-61 CERTIFICATION FOR ABOVE VALVES	1 EA		



Red Valve Company, Inc.

RKL Controls

# QUOTE

## 97804

Quote Date: 7/22/2020

Expiration Date: 8/21/2020

Please reference Red Valve Quote Number when Placing Order.

7: Q-RSTMS-ANALYSIS	INCLUDED MANIFOLD HYDRAULIC ANALYSIS, MIXING TIME AND WATER AGE ANALYSIS	1 EA
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8: Q-RSTMS-CFD-REP	INCLUDED COMPUTATIONAL FLUID DYNAMICS (CFD) A "Representative" CFD Model Evaluation of the Proposed HMS System Configuration Applied within a Reservoir of Similar Geometry	1 EA
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9: Q-RSTMS-DWG-CS	INCLUDED COMPLETE SYSTEM INSTALLATION DRAWINGS FOR CONSTRUCTION	1 EA
-------------------	--	------

10: Q-RSTMS-INSPECTION	INCLUDED PRE-START UP INSPECTION A Pre Start Inspection of the Installed TMS System to be Performed by Tideflex Technologies Factory Representative or a Tideflex Technologies Approved Inspector. For Elevated Tanks, the Contractor Shall be Responsible for Taking Photographs of the Installed TMS and Submitting to the Factory Representative for Review and Approval. TMS WILL NOT BE WARRANTED WITHOUT INSPECTION.	1 EA
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11: Q-RSTMS-NOTES	NOTES	1 EA
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### Special Conditions

- After the Purchase Order is received for a "Complete System", Tideflex Technologies will send a complete set of submittals that includes detailed installation plans, hydraulic calculations and charts, mixing analysis, water age analysis, and IOM's.
- Purchaser shall send the latest inspection report with digital photos (if available) and tank detail drawings showing the tank dimensions and inlet and outlet pipe details.
- Submittals shall be sent approximately 3 weeks after acceptance of purchase order. Submittal drawings and Installation Manuals for the review process will be provided in digital format. If hard copies are required an additional fee will be applied.
- Receipt of approved drawings is required for release to production.
- WARRANTY: TMS WARRANTY WILL NOT BE INVOKED UNTIL AN AUTHORIZED TMS REPRESENTATIVE VISITS THE SITE TO INSPECT THE TMS INSTALLATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE REPRESENTATIVE, WHO IS LISTED ON THE FRONT PAGE OF THIS QUOTATION, TO MAKE ARRANGEMENTS FOR THEIR SITE VISIT. Equipment Warranty period shall be effective for a period of one (1) year from the date of system installation certification. Final inspection of the installed system to be conducted by a factory trained representative. In the case of elevated tanks, digital photos to be provided by contractor for review and approval of installation.

### Notes (PVC)

- 1) Following installation of TMS, all carbon steel components (pipe supports, bolt kits, etc.) to be surface prepared and coated in accordance with the interior tank specification. Surface preparation and painting to be done by others.

### General Notes

- 1) Installation by others.
  - 2) Contractor responsible for verifying that all components of TMS can be inserted into tank without interference.
  - 3) Contractor responsible for verifying that the TMS Piping System will not interfere with internal components of the tank.
  - 4) Due to the fluctuation in metal prices, the above items are subject to re-quoting or escalation at time of order, and when the items purchased are formally released to manufacturing.
- \* Best Available (Foreign and/or Domestic) Material.

### Shipping Notice

- In the event that the delivery of a TMS System order is delayed by the customer, it is imperative that the customer notify Tideflex of the delay immediately. Tideflex will not be responsible to store the product or make arrangements to have it stored. It is the customer's responsibility to take immediate possession of the order, or make arrangements to have it stored.

**From:** [Roger Antonie](#)  
**To:** [Steven Tanaka](#)  
**Subject:** Heritage Ranch CSD- 2 MG Reservoir- Tideflex Mixing System  
**Date:** Thursday, July 23, 2020 12:16:51 PM  
**Attachments:** [SKMBT\\_C45420072312250.pdf](#)

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Hi Steve,

I hope you are doing well. Your inquiry for a Tideflex reservoir mixing system is appreciated. Attached is a scope of supply developed from the information provided and the Preliminary Design Report of July11.

Total budget price...\$54,700.00. Included are freight and onsite service. Tax has not been included.

Best Regards, Roger Antonie

Cell 949/300-1354

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**From:** Miscoswscanner@miscowater.com <Miscoswscanner@miscowater.com>  
**Sent:** Thursday, July 23, 2020 12:26 PM  
**To:** Roger Antonie <rantonie@miscowater.com>  
**Subject:** Message from KMBT\_C454

## HERITAGE RANCH COMMUNITY SERVICES DISTRICT

### MEMORANDUM

**TO:** Board of Directors

**FROM:** Scott Duffield, General Manager

**DATE:** August 20, 2020

**SUBJECT:** Request to receive and file Photovoltaic System Project updates.

#### **Recommendation**

It is recommended that the Board of Directors receive and file Photovoltaic System Project updates.

#### **Background**

Your Board approved the Photovoltaic System Project (Project) at the January 16, 2020 meeting and selected Stockman's Energy, Inc. as the most qualified proposer. The Notice to Proceed was issued March 3, 2020.

#### **Project Updates**

##### Project Scope

Site work has not commenced, and the contractor is generally working on permits and managing the PG&E interconnection process. Project meetings occur weekly. A three-week timeline is used for discussion during these meetings. Listed below are the status of some of the specific work items:

Prior Week (August 3):

- PG&E Interconnection Estimating Process for WWTP continued. Results are expected 8/31.
- PG&E WTP SIS continued. Results are still expected 10/21.
- Stockman's requested a call with PG&E Engineer to discuss unanswered questions. Have not heard back yet. Reached out to our interconnection team to see how long we need to wait before we are permitted to ping Ryan again regarding this request.
- SLO County Permit Review continued this week for the WWTP. Matt is on vacation this week and we are just waiting on his and planning to complete their respective reviews. I will reach out Monday 8/10 if I don't get feedback.

- Stockman's will complete all but one of the County Review comments for WTP. We discussed this on Wednesday's call.
- Stockman's is working with a local QSP to create and submit SWPPP to the state. County is requiring this due to the size of the project ground disturbance. This is the item holding up the return of WTP comment responses to SLO County.

Current Week (August 10):

- PG&E Interconnection Estimating Process for WWTP continues. Results are expected 8/31.
- PG&E Interconnection WTP System Impact Study continues for WTP. Results are expected 10/21.
- SLO County Permit Review is completed for WWTP 8/11. Review Comments are being completed and will be returned to the County by 8/12.
- Stockman's is still working with QSP to acquire SWPPP WDID # from the state for permit requirements.
- An updated schedule has been completed and placed on the dropbox this week that splits WWTP and WTP into two schedules as discussed during the Conference Call on 7/29.
- Stockman's still received no response from Ryan of PG&E to set up a call to discuss unanswered questions. A supervisor has been looped in on 8/11 and said we will get a response ASAP.

Next Week (August 17):

- PG&E Interconnection Estimating Process for WWTP to continue. Results are expected 8/31.
- PG&E Interconnection WTP System Impact Study to continue for WTP. Results are expected 10/21.
- SLO County Permit Review will check returned comments and approve.
- Stockman's hopes to get SWPPP approval from the State, acquire a WDID # to place on plans and return corrections to SLO County.

Work changes we are tracking include:

- Land survey work at the WTP site – additive change to price, no change to time
- Revised fencing at WTP site – deductive change to price, no change to time
- Crushed rock under and around arrays – additive change to price, no change to time

Project Schedule

Due to the different paths the two sites are having to navigate the schedule has been separated into two; one for the WWTP and one for the WTP. Both schedules dated 8/12/20 are attached.

The WWTP site is progressing expectedly through the PG&E and County process and we should be able to start site work around the end of August / beginning of September. The PG&E service upgrade process is currently anticipated to start September 1<sup>st</sup>. Commissioning of the WWTP system is currently shown as February 2021.

The WTP site is having to move through additional PG&E review steps as shown in the table below. These additional steps have added time to the schedule and there are still unknowns until the interconnection process is completed. Commissioning of the WTP system is currently shown as June 2021, which assumes we can deliver the WTP system as designed.

PG&E Interconnection Process Steps	Expected Duration (days)	Completed
Supplemental Review	30	✓
Electrical Independence Test	20	✓
System Impact Study	60	

The WWTP is moving through the County process well and we will probably be waiting for the PG&E interconnection process to finish before site work will start.

Project Budget

The Project is currently within budget.

PG&E direct costs (separate from construction agreement) include:

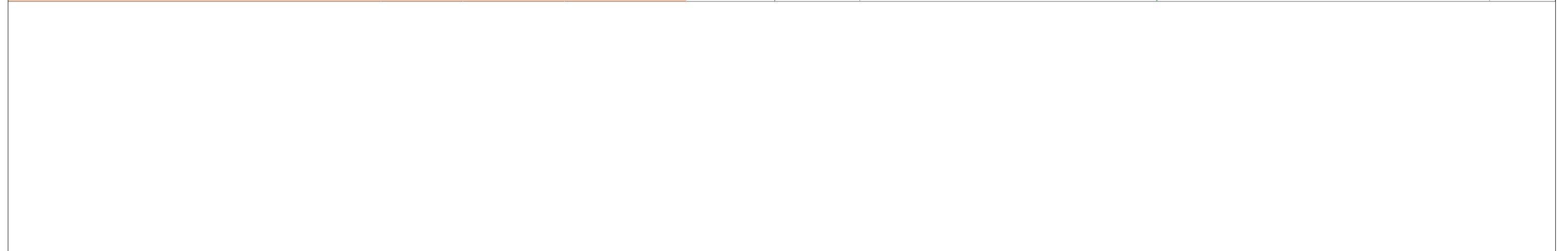
- Upgrades for WWTP – Total estimated cost from PG&E = \$66,617.41
- Upgrades for WTP – TBD

Attachments: Project Schedules dated 8/12/20

File: Projects\_PVS

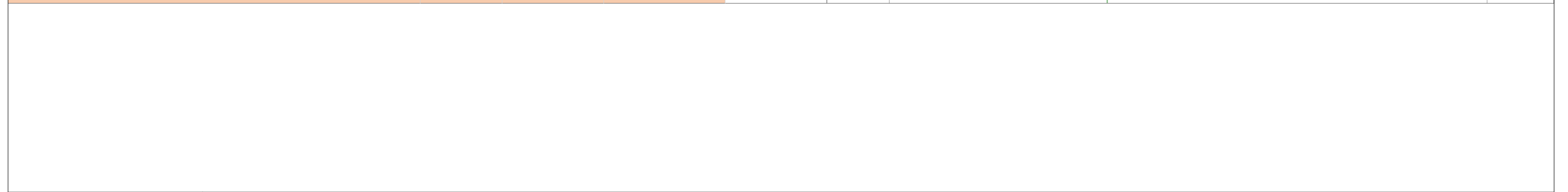


Task Name	Duration	Start	Finish	Status	Qtr 1, 2020			Qtr 2, 2020			Qtr 3, 2020			Qtr 4, 2020			Qtr 1, 2021		
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Utility Locate 811	104 days	Thu 2/20/20	Tue 7/14/20	Complete															
Gather and Present Submittals to District for Approval	44 days	Tue 3/3/20	Fri 5/1/20	Complete															
Create Permit Packages and Submit to County	86 days	Tue 3/3/20	Tue 6/30/20	Complete															
Solar Panels Ordered	1 day	Fri 3/6/20	Fri 3/6/20	Complete															
Survey Water Treatment Plant	2 days	Tue 3/24/20	Wed 3/25/20	Complete															
Pull Testing and Geotech	1 day	Tue 3/24/20	Tue 3/24/20	Complete															
Solar Panels Delivered	3 days	Fri 3/27/20	Tue 3/31/20	Complete															
District Permit Review	45 days	Mon 3/30/20	Fri 5/29/20	Complete															
Submit Documents to Initiate Interconnection Process	1 day	Wed 4/1/20	Wed 4/1/20	Complete															
PG&E Interconnection Process: Initial Review	10 days	Thu 4/2/20	Wed 4/15/20	Complete															
PG&E Interconnection Process: Engineering Review WWTP	18 days	Thu 4/16/20	Mon 5/11/20	Complete															
PG&E Interconnection Process: Service Planning WWTP	40 days	Tue 5/12/20	Mon 7/6/20	Complete															
County Permit Review Process	33 days	Wed 7/1/20	Fri 8/14/20	On Schedule															
PG&E Interconnection Process: Estimating Process WWTP	35 days	Tue 7/7/20	Mon 8/24/20	On Schedule															
Order Racking and Balance of System	1 day	Mon 8/17/20	Mon 8/17/20	Future Task															
Mobilize	1 day	Mon 8/17/20	Mon 8/17/20	Future Task															
Site Preparation	16 days	Mon 8/17/20	Mon 9/7/20	Future Task															
Balance of System Delivery Date	1 day	Mon 8/24/20	Mon 8/24/20	Future Task															
Trenching and Conduit Installation	10 days	Mon 8/24/20	Fri 9/4/20	Future Task															
District Reviews & Executes Contract with PG&E, WWTP	5 days	Tue 8/25/20	Mon 8/31/20	Future Task															
PG&E Service Upgrades: WWTP	6 mons	Tue 9/1/20	Mon 2/15/21	Future Task															
Racking Delivered	1 day	Thu 9/3/20	Thu 9/3/20	Future Task															
Solar Racking Installation	15 days	Thu 9/3/20	Wed 9/23/20	Future Task															
Install Solar Panels and Mount Electrical Equipment	10 days	Thu 9/24/20	Wed 10/7/20	Future Task															
Finish Remaining Wiring Connections	5 days	Thu 10/8/20	Wed 10/14/20	Future Task															
County Final Inspections: Date of Substantial Completion	10 days	Thu 10/15/20	Wed 10/28/20	Future Task															
Submit Final Documents for Interconnection with PG&E	1 day	Thu 10/29/20	Thu 10/29/20	Future Task															
Commissioning of System: WWTP	5 days	Tue 2/16/21	Mon 2/22/21	Future Task															



Heritage Ranch CSD WWTP Solar Project 2020 Wed 8/12/20	Task		Project Summary		Manual Task		Start-only		Deadline	
	Split		Inactive Task		Duration-only		Finish-only		Progress	
	Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
	Summary		Inactive Summary		Manual Summary		External Milestone			

Task Name	Duration	Start	Finish	Status	Qtr 1, 2020			Qtr 2, 2020			Qtr 3, 2020			Qtr 4, 2020			Qtr 1, 2021			Qtr 2, 2021			Qtr 3, 2021
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Utility Locate 811	104 days	Thu 2/20/20	Tue 7/14/20	Complete																			
Gather and Present Submittals to District for Approval	44 days	Tue 3/3/20	Fri 5/1/20	Complete																			
Create Permit Packages and Submit to County	86 days	Tue 3/3/20	Tue 6/30/20	Complete																			
Solar Panels Ordered	1 day	Fri 3/6/20	Fri 3/6/20	Complete																			
Survey Water Treatment Plant	2 days	Tue 3/24/20	Wed 3/25/20	Complete																			
Pull Testing and Geotech	1 day	Tue 3/24/20	Tue 3/24/20	Complete																			
Solar Panels Delivered	3 days	Fri 3/27/20	Tue 3/31/20	Complete																			
District Permit Review	45 days	Mon 3/30/20	Fri 5/29/20	Complete																			
Submit Documents to Initiate Interconnection Process	1 day	Wed 4/1/20	Wed 4/1/20	Complete																			
PG&E Interconnection Process: Initial Review	10 days	Thu 4/2/20	Wed 4/15/20	Complete																			
PG&E Interconnection Process: Engineering Review WTP	20 days	Thu 4/16/20	Wed 5/13/20	Complete																			
PG&E Interconnection Process: Supplemental Review WTP	28 days	Mon 5/18/20	Wed 6/24/20	Complete																			
PG&E Interconnection Process: Electrical Independence Test WTP	25 days	Thu 6/25/20	Wed 7/29/20	Complete																			
County Permit Review Process	38 days	Wed 7/1/20	Fri 8/21/20	On Schedule																			
PG&E Interconnection Process: System Impact Study WTP	61 days	Thu 7/30/20	Thu 10/22/20	On Schedule																			
Order Racking and Balance of System	1 day	Mon 8/24/20	Mon 8/24/20	Future Task																			
Mobilize	1 day	Mon 8/24/20	Mon 8/24/20	Future Task																			
Site Preparation	16 days	Mon 8/24/20	Mon 9/14/20	Future Task																			
Trenching and Conduit Installation	10 days	Mon 8/31/20	Fri 9/11/20	Future Task																			
Balance of System Delivery Date	1 day	Mon 8/31/20	Mon 8/31/20	Future Task																			
Fence Installation at Water Treatment Plant	15 days	Thu 9/3/20	Wed 9/23/20	Future Task																			
Racking Delivered	1 day	Thu 9/10/20	Thu 9/10/20	Future Task																			
Solar Racking Installation	15 days	Thu 9/10/20	Wed 9/30/20	Future Task																			
Install Solar Panels and Mount Electrical Equipment	10 days	Thu 10/1/20	Wed 10/14/20	Future Task																			
Finish Remaining Wiring Connections	5 days	Thu 10/15/20	Wed 10/21/20	Future Task																			
County Final Inspections: Date of Substantial Completion	10 days	Thu 10/22/20	Wed 11/4/20	Future Task																			
PG&E Interconnection Process: Estimating Process WTP	35 days	Fri 10/23/20	Thu 12/10/20	Future Task																			
Submit Final Documents for Interconnection with PG&E	1 day	Thu 11/5/20	Thu 11/5/20	Future Task																			
District Reviews & Executes Contract with PG&E: WTP	5 days	Fri 12/11/20	Thu 12/17/20	Future Task																			
PG&E Service Upgrades: WTP	6 mons	Fri 12/18/20	Thu 6/3/21	Future Task																			
Commissioning of System: WTP	5 days	Fri 6/4/21	Thu 6/10/21	Future Task																			



Heritage Ranch CSD WTP Solar Project 2020 Wed 8/12/20	Task		Project Summary		Manual Task		Start-only		Deadline	
	Split		Inactive Task		Duration-only		Finish-only		Progress	
	Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
	Summary		Inactive Summary		Manual Summary		External Milestone			

## HERITAGE RANCH COMMUNITY SERVICES DISTRICT

### MEMORANDUM

**TO:** Board of Directors

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

**DATE:** August 20, 2020

**SUBJECT:** Submittal for approval Resolution 20-14 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 19-07 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 least 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 2021 to be covered by the District pursuant to District policy are shown in the table below.

<b>2021</b>	
<b>Members</b>	<b>Health Plan Region 2</b>
Basic Enrollments	PERS Select
Medicare Enrollments	UnitedHealthcare
Combination Enrollments	PERS Select

**Fiscal Considerations**

The FY 2020/21 Budget includes health coverage costs.

**Results**

Approval of Resolution 20-14 will provide CalPERS with the documentation required to maintain District provided health coverage.

Attachments: Resolution 20-14

FILE: CalPERS

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
RESOLUTION NO. 20-14**

**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:

<b>2021</b>	
<b>Members</b>	<b>Health Plan Region 2</b>
Basic Enrollments	PERS Select
Medicare Enrollments	UnitedHealthcare
Combination Enrollments	PERS Select

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 20<sup>th</sup> day of August 2020, by the following roll call vote.

**AYES:**  
**NOES:**  
**ABSTAIN:**  
**ABSENT:**

**APPROVED:** \_\_\_\_\_  
**Dan Burgess, 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  
Kristen Gelos, Office Supervisor

**DATE:** August 20, 2020

**SUBJECT:** Submittal for approval Resolution 20-15 adopting an updated Customer Service Fee Schedule.

#### **Recommendation**

It is recommended that the Board of Directors approve Resolution 20-15 adopting an updated Customer Service Fee Schedule.

#### **Background**

Government Code § 61115 expressly authorizes community service districts to establish rates or other charges for services and facilities that the district provides by either resolution or ordinance. The Board of Directors approved Resolution 14-06 determining that it is more appropriate and provides greater flexibility to adopt the District's customer service fees by resolution.

#### **Discussion**

The Customer Service Fee Schedule has not been updated since 2014. The proposed updates to the Customer Service Fee Schedule are based on current weighted labor rates, vehicle rates, and the need (or lack of need) to provide certain services.

#### **Fiscal Considerations**

A Customer Service Fee Schedule based on current costs will more fully reimburse the District for providing those services.

#### **Results**

Approval of Resolution 20-15 promotes responsible fiscal management of the District.

Attachments: Resolution 20-15

FILE: Customer Service Fees

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
RESOLUTION NO. 20-15**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE  
HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
ADOPTING AN UPDATED CUSTOMER SERVICE FEE SCHEDULE**

**WHEREAS**, Government Code § 61115, expressly authorizes community service districts to establish rates or other charges for services and facilities that the district provides by either resolution or ordinance; and

**WHEREAS**, the Board of Directors has determined that it is more appropriate, and provides greater flexibility to facilitate any needed changes, to adopt fees and charges for services by resolution; and

**WHEREAS**, the customer service fees and charges should be updated regularly to reflect the District's current cost of providing those services; and

**WHEREAS**, the Board of Directors has determined that adoption of the revised Customer Service Fee Schedule for various services is appropriate and necessary in order to reasonably recover the cost of providing those services.

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

1. The above recitals are true and correct and are incorporated herein by this reference.
2. The Customer Service Fee Schedule for various services, attached hereto as Exhibit "A" and incorporated herein by this reference, is hereby adopted.
3. The fees and charges set forth in Exhibit "A" shall go into effect September 1, 2020.

**PASSED, APPROVED AND ADOPTED** by the Board of Directors of the Heritage Ranch Community Services District on the 20<sup>th</sup> day of August 2020, by the following roll call vote.

**AYES:**  
**NOES:**  
**ABSTAIN:**  
**ABSENT:**

**APPROVED:** \_\_\_\_\_  
**Dan Burgess, President**  
**Board of Directors**

**ATTEST:** \_\_\_\_\_  
**Kristen Gelos, Secretary**  
**Board of Directors**



Exhibit "A"

## Heritage Ranch Community Services District Customer Service Fee Schedule

Name	Current Fee	Proposed Fee
Account Start-up	\$25.00	\$25.00
Returned check charge		
1 <sup>st</sup> returned check	\$25.00	\$25.00
Each subsequent returned check	\$35.00	\$35.00
Delinquent Penalty <i>Fee can be waived one time each calendar year</i>	10% of unpaid balances over \$30	10% of unpaid balances over \$30
Intent to Disconnect Notice	\$10.00	\$10.00
Service Disconnection	\$30.00	\$50.00
Reconnection after normal working hours	\$120.00	\$150.00
Cut Lock	\$140.00	\$140.00
Meter pull due to tampering	\$100.00	\$100.00 + actual costs
Account returned from collection agency reactivation	40% of assigned balance	40% of assigned balance
Meter test deposit	\$40.00	< 1" = \$75; > 1" = \$100
Temporary hydrant meter	\$35.00 weekly rental fee + water use at current unit rates	\$35.00 weekly rental fee + water use at current unit rates
Temporary hydrant meter deposit (may be waived for repeat customers)	\$100.00	\$100.00
Hydrant Pressure Check	\$35.00	\$55.00
Will Serve Letter – No connection fees paid	\$25.00	\$25.00
Will Serve Letter – Connection fees paid	Fee waived	Fee waived
Service call response	Not on fee schedule	Actual cost straight time rate
Service call response after hours	\$70.00	Actual cost overtime (1½) rate 2 hour minimum
Sewer Connection Inspection	\$35.00	\$55.00
Request for information photocopies 8½ x 11 B&W	\$0.30 per page	\$0.30 per page
Drawings & Maps (outsourced)	\$2.00/page	Actual costs + \$55.00 w/deposit
Request for information production – staff	\$40 per hour	\$55.00 per hour w/deposit
Request for information production – legal counsel/engineer	Cost + 10%	Actual cost + 10% w/deposit
<b>Equipment / Labor</b>		
Backhoe – (includes 1 operator)	\$150.00 per hour	Delete
Skip loader – (includes 1 operator)	\$100.00 per hour	Delete
Service truck – (includes 1 operator)	\$75.00 per hour	Delete
Evacuator – (includes 2 operators)	\$175.00 per hour	Delete
Sewer Camera – (includes 2 operators)	\$150.00 per hour	Delete
Welder/Generator	\$65.00 per hour	Delete
Labor – 1 worker	\$35.00 per hour	Delete

## HERITAGE RANCH COMMUNITY SERVICES DISTRICT

### Manager Report For the Month of August 2020

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

#### Administration

- Staff is already working with the new District Auditor on the FY 2019/20 audit. The first field work is scheduled for later this month. Additional field work is anticipated in the Fall with presentation of the Audit to the Board at the December 2020 meeting.

#### Operations

- Prepared and submitted the Disinfection Byproduct Monthly Report.
- Prepared and submitted the Water Treatment Plant Monthly Report.
- Submitted the Wastewater Treatment Plant Self-Monitoring Reports.
- Additional updates regarding operations can be found in the Operations Report.

#### Solid Waste

- The Manager volunteered to serve as the Special District's representative on an Integrated Waste Management Authority Local Task Force. The purpose of the Task Force is to provide input necessary to update the Integrated Waste Management Plan and to also share information on other solid waste issues like SB 1383, CRV, IWMA JPA, etc. The first virtual meeting was this month and will initially be held every other month going forward.

#### Reservoir Status

- As reported by Monterey County Water Resources Agency (MCWRA), as of August 12, 2020, the reservoir was at approximately 743.2 feet in elevation, 34% of capacity, or 129,160-acre feet of storage. MCWRA water releases were shown as 390 cfs. The high flow releases will be reduced to 60 cfs by around September 15<sup>th</sup>. The water surface elevation is predicted to be about 730' on October 1, 2020.

#### Capital Improvement Program

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

- PVS: see separate agenda item.
- Vertical Intake: see separate agenda item.

- Wastewater project x design phase: The District's consultant MKN is working on preliminary engineering related to the wastewater system / Time Schedule Order / Waste Discharge Requirements Order. A project will most likely need to be constructed next fiscal year to comply with our regulatory requirements. Staff will update the Board regularly.
- Lift Station 1-5 rehabilitation design phase: Development of contract documents underway by the District Engineer.
- Vehicle / Equipment replacement: Developing purpose and need statements and specifications list.

### Development

- Nothing significant to report.

### Public Relations and Community

- The Manager Attended a Zoom workshop for the Adelaida Area Groundwater Study hosted by the Upper Salinas Las Tablas Resource Conversation District (RCD). The San Luis Obispo County Flood Control and Water Conservation District is coordinating with the [U.S. Geological Survey \(USGS\)](#) and the [Upper Salinas-Las Tablas Resource Conservation District \(RCD\)](#) to conduct a groundwater study in the Adelaida area west of the City of Paso Robles ([click here to view an interactive map of the preliminary study area](#)). The goal of this study is to provide a better understanding of the groundwater conditions in the Adelaida area so that informed decisions can be made about managing local water resources.

The RCD will be hosted the online community meeting where USGS provided an update on the study and detailed how the community can participate in the initial data collection process. Data of interest for the study includes well construction information, groundwater level data, water use information, groundwater chemistry data, and geological data. All members of the public who can provide information regarding current or historical groundwater conditions in the Adelaida area are encouraged to participate.

This is not a District project.

The public can participate and/or get more information from the websites below:

<https://www.us-ltrcd.org/adelaida-hydrology-study>

<https://www.slocounty.ca.gov/Departments/Public-Works/Current-Public-Works-Projects/Adelaida-Area-Hydrogeologic-Study.aspx>

- Coordinated with the County Clerk-Recorder Office in planning for the November 3<sup>rd</sup> elections that will be held in the Board room over a four-day period.

## Human Resources

- We currently have open recruitments for one Maintenance Worker Temporary / Seasonal position, and one Treatment Operator Regular / Full Time position.

## Board Member & Staff Information and Learning Opportunities

- Nothing significant to report.

\* \* \*

**HERITAGE RANCH COMMUNITY SERVICES DISTRICT  
JULY 2020 OFFICE REPORT**

**Water & Sewer**

On August 1<sup>st</sup>, we processed 1,918 bills for a total dollar amount of \$171,373 for water and sewer user fees for the month of July. The number of Automatic Drafts processed was 528 for a total dollar amount of \$37,378. On July 26<sup>th</sup> we processed 212 delinquent account penalties.

**San Miguel Garbage Franchise Fees**

Each month, the District receives franchise fees from the previous month. The breakdown is as follows:

Month of June

Garbage Collection (10%) - \$ 6,857.55

Roll-Off Collection (10%) - \$379.47

Total Franchise Fees Collected - \$ 7,237.02

**Service Orders Completed**

Staff completed a total of 69 service orders for the month of July. Below is a breakdown by job code.

OCCUPANT CHANGE	22	SWAP/PULL METER	23
SERVICE CHANGE	1	HYDRANT METER	1
LEAK	5	MISC-W/O METER INFORMA	1
CALL OUT	2	TURN-OFF ANGLE STOP	2
USA	13		

## HERITAGE RANCH COMMUNITY SERVICES DISTRICT

### Operations Report For the Month of July 2020

In addition to normal operations duties, below are other tasks / updates for several areas of work:

#### Water treatment

- Repaired air vac on pump 2 at pump station 2.
- Drained and cleaned interior of plate settler
- Adjusted bowl heights at pump station 1 to achieve greater yield.
- Worked with Matt Butler from CS Amco to repair actuating valves.
- Acid washed interior of all four filters.
- Finished anthracite addition project with filter 1.

#### Water distribution

- Replaced meter registers with warrantied registers from Master meter
- Repaired service line leak on Cascade Lane.
- Replaced 1" service line on Moccasin Lane.
- Replaced 1" angle stop valve on Barn Road.
- Replaced level transducer on 2-million-gallon tank.
- Flushed multiple locations in distribution system weekly to combat formations of disinfection byproducts
- Took 3<sup>rd</sup> quarter DBP samples.

#### Wastewater collection

- Conducted monthly checks at all lift stations, amps, volts, etc.
- Replaced motor saver for pump 1 at lift station 3.
- Temporary repair of manhole collar on equestrian road.

#### Wastewater treatment

- Replaced chlorine disinfection pump.
- Took semiannual and copper samples.
- Replaced broken sprinkler heads in sand filters.

#### Vehicles and equipment

- Midstate repair replaced rear brakes on service truck.
- Midstate repair also replaced all brakes on Vermeer vac trailer.