

OAK LODGE WATER SERVICES

BOARD OF DIRECTORS

REGULAR MEETING



January 19, 2021

“Enhancing Our Community’s Water Environment”



REMOTE MEETING

Board Attendance by Zoom Video/Telephone

Public Attendance by Telephone Only

January 19, 2021 at 6:00 p.m.

1. Call to Order and Meeting Facilitation Protocols

2. Call for Public Comment

Members of the public are welcome to testify for a maximum of three minutes on each agenda item.

3. Consent Agenda

a. December 2020 Financial Report

b. Approval of December 15, 2020 Board Regular Meeting Minutes

4. Monthly Update: Oak Lodge Governance Project

5. Appointment of 2021 Board Officers

6. Presentation of Clackamas River Water Providers' Annual Report

7. Designation of the 2021 SDAO Conference Voting Member

8. Second Reading of Proposed Ordinance No. 2021-04 Updating Water System Development Charges

9. Consideration of Resolution No. 2021-01 Adopting District Design and Construction Standards

10. Update on Procurement to Restore Sewer Treatment Plant Flow Capacity

11. Consideration of the 2021/2022 Communications Plan

12. Call for Public Comment

Members of the public are welcome to testify for a maximum of three minutes on each agenda item.

13. Department Reports

a. Finance

b. Technical Services

- c. Field Operations
- d. Plant Operations

14. Business from the Board

15. Recess to Executive Session

Convene executive session under ORS 192.660(2)(f) to consider information or records that are exempt by law from public inspection.

16. Adjourn Executive Session

If necessary, Board may take action on items discussed in Executive Session.

17. Adjourn Regular Meeting



AGENDA ITEM

Title	Call for Public Comment
Item No.	2
Date	January 19, 2021

Summary

The Board of Directors welcomes comment from members of the public.

Written comments may not be read out loud or addressed during the meeting, but all public comments will be entered into the record.

The Board of Directors may elect to limit the total time available for public comment or for any single speaker depending on meeting length.

Dear: Kevin Williams (President) and Oak Lodge Water Services District Board

Re: Thank you for expressing concerns about the Oak Lodge Governance Project

December 28, 2020

My friend lives in Oak Grove and is a customer of yours (Kathy gives her consent to be included in this letter). I live in the City of Milwaukie.

We very much appreciate the Board's letter sent to the Oak Lodge Governance Project (dated November 30, 2020). It very much expresses our concerns, too; and no doubt many of those residing in the Oak Grove and Jennings Lodge areas.

We especially concur with the letter's sentence: *"The Board is genuinely concerned about the transparency for our customers to understand what is going on, **why it is going on**, and that they have an opportunity to provide comment."*

We could not agree more with the Board's reticence about this Metro government funded study as it is currently structured.

My friend and I are very much **suspicious** of this Metro funded "**governance project.**" The study comes at a time when **two City councilors for the City of Milwaukie pressure the Clackamas Board of Commissioners to push along considerations of either allowing Milwaukie to annex the Oak Lodge area** or having the Oak Lodge area incorporate itself.

One of the members of the Governance project is a sitting Planning Commissioner for the City of Milwaukie.

There is also a **lingering distrust of Metro Government's intentions for the Oak Grove and Jennings Lodge area. In the mid-1990s Metro designated this area as a Town Center**, with intention to rezone its neighborhoods and encourage greater population densities. Oak Grove residents strongly protested Metro's intended designs. Subsequently, then Clackamas County Chair Judie Hammerstad sent a letter to Metro, requesting and getting Metro to remove the town center designation for the unincorporated Oak Grove/Jennings Lodge area.

Fast forward to this Fall 2020, and outgoing **Chair Jim Bernard is quoted as saying** about this current Governance Project: **"...it is necessary that this be a grassroots, community-led initiative."**

Obviously, the current approach is not a grass roots, community led effort; not when it is led by folks with past ties to Metro related projects and/or the City of Milwaukie.

Sincerely,
Elvis Clark
Ardenwald Neighborhood
Milwaukie, Oregon 97222

Kathy Najdek
[REDACTED]
Oak Grove, Oregon 97267



CONSENT AGENDA

To Board of Directors
From Sarah Jo Chaplen, General Manager
Title Consent Agenda
Item No. 3
Date January 19, 2021

Summary

The Board of Directors has a standing item on the regular monthly meeting agenda called "Consent Agenda." This subset of the regular agenda provides for the Board to relegate routine business functions not requiring discussion to a consent agenda where all included items can be acted upon by a single act.

The Consent Agenda includes:

- a. **December 2020 Financial Report**
- b. **Approval of the December 15, 2020 Board Regular Meeting Minutes**

Options for Consideration

- 1. Approve the Consent Agenda as listed on the meeting agenda.
- 2. Request one or more items listed on the Consent Agenda be pulled from the Consent Agenda for discussion.

Recommendation

Staff requests that the Board approve the items listed under the Consent Agenda.

Suggested Board Motion

"I move to approve the Consent Agenda."

Approved By _____	Date _____
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MONTHLY FINANCIAL REPORT

To	Board of Directors
From	Gail Stevens, Finance Director
Title	December 2020 Financial Reports
Item No.	3a
Date	January 19, 2021

Reports

- December 2020 Monthly Overview
- December 2020 Monthly Cash and Investment Balances Report
- December 2020 Budget to Actual Report
- December 2020 Budget Account Roll Up Report

**Oak Lodge Water Services
Monthly Overview
December 2020**

This report summarizes the revenues and expenditures for December 2020. Also incorporated in this report are account balances, including all cash and investment activity as well as checks and withdrawals.

The District's liquid cash and investment assets equal \$14.94 million as of the end of December 2020; consisting of \$1.13 million in checking, and \$13.81 million in the State Local Government Investment Pool (LGIP).

The District's checks, electronic withdrawals, and bank drafts total \$991 thousand for December 2020.

Below is a table identifying the District's three principal sources of service charges in each fund with a comparison between annual budget estimates and year-to-date service charge fees.

GL Account	Service Charge	Budget Estimate	Period Amount	Year-to-Date Amount	Percentage of Budget
10-00-4210	Water sales-CRW	\$ 32,000	\$ -	\$ 14,795	46.23%
10-00-4211	Water sales	4,038,000	309,854	2,203,658	54.57%
20-00-4212	Wastewater charges	8,270,000	723,323	4,067,101	49.18%
30-00-4213	Watershed protection	1,548,000	127,496	773,251	49.95%
	Subtotal	\$ 13,888,000	\$ 1,160,673	\$ 7,058,804	50.83%

The percentage of budget is calculated by dividing the ending balance by the budget. With respect to revenues, the percentage of budget is affected by seasonal variations. The expectation is that the District would recognize a greater percentage of revenue in the first half of the fiscal year than in the second half.

Review of revenue lines that are above 55% of budget:

1. **4220 System development charges** is at 201.59% of budget. In December, the District received payment of SDC charges for four single-family homes within the Lennar project.
2. **4230 Contracted Services** is at 73.5% of budget. This revenue line is under-budget based on current agreements.
3. **4240 Service installations** is at 145.27% of budget. This revenue is directly related to development in the District when new service connections are added.
4. **4290 Other Charges for Services** is at 274.89% of budget. This revenue is from inspection and plan review fees. There are several active building developments throughout the District.
5. **4320 State Grant** for CARES Act funds of \$16,836 received for reimbursement for payroll cost related to Emergency FMLA.
6. **4630 Miscellaneous Revenue** is at 103.08% of budget. This revenue is from title companies. Property sales activities are high due to low interest rates.

With respect to expenditures, at the end of December expenditures are overall 29.9% of budget. When excluding Contingencies, expenditures are 40.5% of budget, with 50.0% of the fiscal year completed.

Review of expenditure lines that are above 55% of budget:

1. **5130 Overtime** is at 57.94% of budget. Water Treatment budget is 71.2% of budget. This overage is consistent with FY2019-2020.
2. **5270 Workers Compensation** is at 99.59% of budget. This expense is paid in one lump sum in July.
3. **6120 Accounting & Audit Services** is at 108.21% of budget. This expense occurs in the first half of the fiscal year.
4. **6290 Other Utilities** is at 64.30% of budget. This line includes pass-through charges that the District pays to City of Milwaukie for residences that flow to Kellogg water treatment facility.
5. **6320 Buildings and Grounds** is at 64.1% of budget. This is due to improvements completed to the HVAC Systems of all buildings to include UV treatment to reduce the potential of COVID-19 outbreaks in OLWSD facilities.
6. **6350 Computer Maintenance** is at 57.71% of budget. This is due to procuring additional laptops for additional telework and IT security purposes.
7. **6390 Other Repairs & Maintenance** is at 56.32% of budget. This is due to contracted work on completed in conjunction with District work for customer. District invoices customer based on the final invoice.
8. **6560 Uniforms** is at 59.91% of budget. Uniforms budget line was reduced from prior years. This line may need to be reviewed in a later Supplemental Budget adjustment.
9. **6710 Water Purchases** is at 56.68% of budget. This concurs with Water Sales at 54.57% of budget.
10. **6715 Water Quality Program** is at 143.75% of budget. This is due to required lead and copper testing every three years.
11. **6770 Bank Charges** is at 61.4% of budget. This is due to the collection of SDC charges via credit card payments resulting in additional banking fees. SDC Revenues are currently at 201.59% of budget.
12. **6780 Taxes and Fees** is at 234.94% of budget. This line was not budgeted in Wastewater Treatment fund- needs to be included in next Supplemental Budget.

Low Income Rate Relief Program Overview

The District allows eligible customers to obtain a discounted rate on a portion of their bill. The District budgets resources to fund the revenue losses due to the program at the rate of 0.50% of budgeted service charge revenue. The budgeted amount serves as a cap to the program's cost which can only be exceed with approval from the District's Board of Directors.

Below is a table identifying the number of accounts in the program and an estimated monthly discount and year-to-date value based on a single-family residential account with a standard 20 GPM Water Meter and 6 CCF of water consumption per month.

Total Number of Accounts	Discount	Cap per Policy	Estimated Monthly Discount	Estimated Year-to-Date Discount	Estimated Percentage of Budget
141	Low Income Rate Relief	\$ 69,440	\$ 5,762	\$ 34,408	49.55%

Customer Time Payment Agreements (TPA)

The District extends TPA's to customers with delinquent balances to bring accounts current over time. Negotiation of a TPA is often the first step in working with a customer who may have trouble paying their utility bills.

The table below summarizes TPA activity for December 2020.

<u>Beginning of month</u>	<u>TPA Issued</u>	<u>TPA Completed</u>	<u>TPA Expired</u>	<u>End of month</u>
45	3	(0)	(2)	46

Of the total TPAs outstanding at December 30, 2020, 10 are current in their arrangements and 36 are delinquent. No TPAs completed with full payments received. Two TPAs expired in delinquent status. The District has mailed notices to delinquent TPA holders urging them to contact the District to make further arrangements.

Emergency Customer Assistance Program (ECAP)

The District's budget line item for the Emergency Customer Assistance Program (ECAP) is \$97 thousand through June 30, 2021. These monies are earmarked as direct assistance to District customers experiencing acute financial troubles related to COVID-19 and who do not necessarily qualify for the District's Low-Income Rate Relief Program. Staff will provide monthly information going forward on the use of these monies to benefit District customers.

<u>Beginning of month</u>	<u>Expended</u>	<u>End of month</u>
\$97,000	\$597	\$4,203

The above expenditures represent assistance to twenty-four (24) residential accounts and four (4) commercial accounts.

Oak Lodge Water Services District

Account Balances As of:		
December 31, 2020	Interest Rate	Balance
Account		
Wells Fargo Bank Checking-3552	0.25%	\$ 1,126,990.93
LGIP	0.75%	\$ 13,808,994.48
Total		\$ 14,935,985.41

General Ledger
Budget to Actual



User: jeff
Printed: 1/11/2021 1:31:28 PM
Period 06 - 06
Fiscal Year 2021

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
05	Administrative Services					
	NonDivisional					
	<i>Beginning Fund Balance</i>					
05-00-3500	Fund balance	335,000.00	0.00	598,700.78	0.00	178.72
	<i>Beginning Fund Balance</i>	<i>335,000.00</i>	<i>0.00</i>	<i>598,700.78</i>	<i>0.00</i>	<i>178.72</i>
	NonDivisional	335,000.00	0.00	598,700.78	0.00	178.72
	Fund Balance	335,000.00	0.00	598,700.78	0.00	178.72
	NonDivisional Revenue					
05-00-4320	State Grant Revenue	0.00	0.00	15,927.77	0.00	0.00
05-00-4610	Investment revenue	0.00	130.30	1,414.11	0.00	0.00
05-00-4630	Miscellaneous revenues	1,000.00	3,982.13	10,307.13	0.00	1,030.71
	<i>Revenue</i>	<i>1,000.00</i>	<i>4,112.43</i>	<i>27,649.01</i>	<i>0.00</i>	<i>2,764.90</i>
	NonDivisional	1,000.00	4,112.43	27,649.01	0.00	2,764.90
	Transfers & Contingencies					
	<i>Revenue</i>					
05-29-4910	Transfer in from Fund 10	1,908,000.00	159,000.00	954,000.00	0.00	50.00
05-29-4920	Transfer in from Fund 20	2,026,000.00	168,833.33	1,012,999.98	0.00	50.00
05-29-4930	Transfer in from Fund 30	635,000.00	52,916.67	317,500.02	0.00	50.00
	<i>Revenue</i>	<i>4,569,000.00</i>	<i>380,750.00</i>	<i>2,284,500.00</i>	<i>0.00</i>	<i>50.00</i>
	Transfers & Contingencies	4,569,000.00	380,750.00	2,284,500.00	0.00	50.00
	Revenue	4,570,000.00	384,862.43	2,312,149.01	0.00	50.59
	AdminFinance					
	<i>Personnel Services</i>					
05-01-5110	Regular employees	563,000.00	69,782.05	289,939.48	0.00	51.50
05-01-5120	Temporaryseasonal employees	5,000.00	0.00	0.00	0.00	0.00
05-01-5130	Overtime	5,000.00	686.28	5,216.44	0.00	104.33
05-01-5210	Healthdental insurance	115,000.00	8,318.38	47,463.97	0.00	41.27
05-01-5230	Social security	43,000.00	3,906.81	19,399.97	0.00	45.12
05-01-5240	Retirement	124,000.00	13,753.47	57,176.42	0.00	46.11
05-01-5250	TrimetWBF	4,000.00	549.14	2,288.07	0.00	57.20
05-01-5260	Unemployment	5,000.00	0.00	9,720.00	0.00	194.40
05-01-5270	Workers compensation	8,000.00	0.00	671.10	0.00	8.39
05-01-5290	Other employee benefits	5,000.00	38.75	3,473.15	0.00	69.46
	<i>Personnel Services</i>	<i>877,000.00</i>	<i>97,034.88</i>	<i>435,348.60</i>	<i>0.00</i>	<i>49.64</i>
	<i>Materials & Services</i>					
05-01-6110	Legal services	375,000.00	552.00	56,462.00	0.00	15.06
05-01-6120	Accounting and audit services	45,000.00	350.00	48,694.45	8,254.73	108.21
05-01-6155	Contracted services	248,000.00	7,116.15	58,960.85	0.00	23.77
05-01-6180	Dues and subscriptions	35,000.00	0.00	26,923.41	160.00	76.92
05-01-6220	Electricity	9,000.00	1,180.55	5,365.11	0.00	59.61
05-01-6240	Natural gas	1,000.00	329.45	765.54	0.00	76.55

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
05-01-6290	Other utilities	20,000.00	1,738.11	11,989.58	0.00	59.95
05-01-6310	Janitorial services	25,000.00	1,190.40	6,534.54	0.00	26.14
05-01-6320	Buildings and grounds maint	18,000.00	509.70	9,808.99	0.00	54.49
05-01-6410	Mileage	1,000.00	0.00	0.00	0.00	0.00
05-01-6420	Staff training	12,000.00	150.00	495.00	0.00	4.13
05-01-6440	Board expense	0.00	0.00	-886.06	0.00	0.00
05-01-6510	Office supplies	25,000.00	403.09	13,088.65	1,334.10	52.35
05-01-6530	Small tools and equipment	2,000.00	0.00	0.00	0.00	0.00
05-01-6560	Uniforms	500.00	0.00	0.00	0.00	0.00
05-01-6730	Communications	2,000.00	76.36	624.12	0.00	31.21
05-01-6740	Advertising	1,000.00	0.00	209.09	0.00	20.91
05-01-6750	Other Purchased Services	0.00	0.00	1,000.00	0.00	0.00
05-01-6760	Equipment rental	1,000.00	220.00	1,324.40	1,344.60	132.44
05-01-6770	Bank charges	125,000.00	14,948.46	79,252.82	53,559.59	63.40
05-01-6780	Taxes, fees, and other charges	1,000.00	569.94	1,604.87	0.00	160.49
05-01-6785	ECAP Payments	97,000.00	597.38	4,202.87	0.00	4.33
05-01-6900	Miscellaneous expense <i>Materials & Services</i>	1,000.00 <i>1,044,500.00</i>	0.00 <i>29,931.59</i>	0.00 <i>326,420.23</i>	0.00 <i>64,653.02</i>	0.00 <i>31.25</i>
	AdminFinance	1,921,500.00	126,966.47	761,768.83	64,653.02	39.64
	Human Resources					
	<i>Personnel Services</i>					
05-02-5110	Regular employees	152,000.00	18,593.60	79,730.26	0.00	52.45
05-02-5130	Overtime	5,000.00	0.00	676.00	0.00	13.52
05-02-5210	Healthdental insurance	26,000.00	1,720.66	10,324.52	0.00	39.71
05-02-5230	Social security	12,000.00	1,405.15	6,047.47	0.00	50.40
05-02-5240	Retirement	27,000.00	2,988.86	13,453.44	0.00	49.83
05-02-5250	TrimetWBF	1,000.00	145.97	524.02	0.00	52.40
05-02-5270	Workers compensation	2,000.00	0.00	174.96	0.00	8.75
05-02-5290	Other employee benefits <i>Personnel Services</i>	2,000.00 <i>227,000.00</i>	0.00 <i>24,854.24</i>	0.00 <i>110,930.67</i>	0.00 <i>0.00</i>	0.00 <i>48.87</i>
	<i>Materials & Services</i>					
05-02-6180	Dues and subscriptions	1,000.00	0.00	130.00	0.00	13.00
05-02-6230	Telephone	57,000.00	2,840.18	22,304.82	0.00	39.13
05-02-6410	Mileage	1,000.00	0.00	0.00	0.00	0.00
05-02-6420	Staff training	22,000.00	550.00	767.00	0.00	3.49
05-02-6440	Board Travel and Training	7,000.00	0.00	22.00	0.00	0.31
05-02-6510	Office supplies	1,000.00	-80.00	116.20	0.00	11.62
05-02-6540	Safety Supplies	1,000.00	252.18	252.18	0.00	25.22
05-02-6610	Board Compensation	2,500.00	0.00	0.00	0.00	0.00
05-02-6720	Insurance-General	240,000.00	19,484.00	19,274.00	0.00	8.03
05-02-6730	Communications	6,000.00	0.00	0.00	0.00	0.00
05-02-6740	Advertising	5,000.00	175.00	404.00	0.00	8.08
05-02-6785	ECAP Payments <i>Materials & Services</i>	0.00 <i>343,500.00</i>	0.00 <i>23,221.36</i>	0.00 <i>43,270.20</i>	0.00 <i>0.00</i>	0.00 <i>12.60</i>
	Human Resources	570,500.00	48,075.60	154,200.87	0.00	27.03
	Technical Services					
	<i>Personnel Services</i>					
05-03-5110	Regular employees	577,000.00	57,121.47	247,136.35	0.00	42.83
05-03-5130	Overtime	5,000.00	525.25	658.25	0.00	13.17
05-03-5210	Healthdental Insurance	112,000.00	6,904.57	47,225.92	0.00	42.17
05-03-5230	Social security	44,000.00	3,273.03	17,574.20	0.00	39.94
05-03-5240	Retirement	112,000.00	9,123.86	43,275.01	0.00	38.64
05-03-5250	TrimetWBF	4,000.00	452.57	1,938.51	0.00	48.46
05-03-5260	Unemployment	5,000.00	0.00	0.00	0.00	0.00
05-03-5270	Workers compensation	9,000.00	0.00	664.16	0.00	7.38
05-03-5290	Other employee benefits <i>Personnel Services</i>	5,000.00 <i>873,000.00</i>	0.00 <i>77,400.75</i>	0.00 <i>358,472.40</i>	0.00 <i>0.00</i>	0.00 <i>41.06</i>

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
	<i>Materials & Services</i>					
05-03-6155	Contracted services	291,000.00	2,887.50	48,758.72	70,260.35	16.76
05-03-6180	Dues and subscriptions	10,000.00	750.00	750.00	0.00	7.50
05-03-6350	Computer maintenance	237,000.00	44,274.91	136,763.67	2,850.00	57.71
05-03-6410	Mileage	3,000.00	0.00	0.00	0.00	0.00
05-03-6420	Staff training	16,000.00	629.29	2,783.29	0.00	17.40
05-03-6430	Certifications	1,000.00	0.00	0.00	0.00	0.00
05-03-6510	Office supplies	3,000.00	5.29	113.27	0.00	3.78
05-03-6540	Safety supplies	8,000.00	0.00	383.99	0.00	4.80
05-03-6730	Communications	149,000.00	544.70	2,864.86	0.00	1.92
	<i>Materials & Services</i>	<i>718,000.00</i>	<i>49,091.69</i>	<i>192,417.80</i>	<i>73,110.35</i>	<i>26.80</i>
	Technical Services	1,591,000.00	126,492.44	550,890.20	73,110.35	34.63
	Vehicle Services					
	<i>Materials & Services</i>					
05-04-6330	Vehicleequipment maintenance	50,000.00	10.83	16,273.13	0.00	32.55
05-04-6520	Fuels and oils	71,000.00	3,349.42	15,169.72	0.00	21.37
	<i>Materials & Services</i>	<i>121,000.00</i>	<i>3,360.25</i>	<i>31,442.85</i>	<i>0.00</i>	<i>25.99</i>
	Vehicle Services	121,000.00	3,360.25	31,442.85	0.00	25.99
	Special Payments					
	<i>Special Payments</i>					
05-25-6990	Special Payments - PERS	552,000.00	0.00	552,000.00	0.00	100.00
	<i>Special Payments</i>	<i>552,000.00</i>	<i>0.00</i>	<i>552,000.00</i>	<i>0.00</i>	<i>100.00</i>
	Special Payments	552,000.00	0.00	552,000.00	0.00	100.00
	Transfers & Contingencies					
	<i>Transfers & Contingencies</i>					
05-29-9000	Contingency	139,000.00	0.00	0.00	0.00	0.00
	<i>Transfers & Contingencies</i>	<i>139,000.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>
	Transfers & Contingencies	139,000.00	0.00	0.00	0.00	0.00
05	Expense Administrative Services	4,895,000.00 10,000.00	304,894.76 79,967.67	2,050,302.75 860,547.04	137,763.37 -137,763.37	41.89 8,605.47
10	Drinking Water NonDivisional					
	<i>Beginning Fund Balance</i>					
10-00-3500	Fund balance	1,527,000.00	0.00	1,504,202.42	0.00	98.51
	<i>Beginning Fund Balance</i>	<i>1,527,000.00</i>	<i>0.00</i>	<i>1,504,202.42</i>	<i>0.00</i>	<i>98.51</i>
	NonDivisional	1,527,000.00	0.00	1,504,202.42	0.00	98.51
	Fund Balance NonDivisional Revenue	1,527,000.00	0.00	1,504,202.42	0.00	98.51
10-00-4210	Water Sales - CRW	32,000.00	0.00	14,794.58	0.00	46.23
10-00-4211	Water sales	4,038,000.00	309,853.68	2,203,657.95	0.00	54.57
10-00-4215	Penalties and late charges	20,000.00	-28.58	-156.37	0.00	-0.78
10-00-4220	System development charges	100,000.00	41,450.40	230,475.20	0.00	230.48
10-00-4230	Contract services	40,000.00	4,000.00	29,400.00	0.00	73.50
10-00-4240	Service installations	10,000.00	5,366.00	29,054.82	0.00	290.55

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
10-00-4280	Rents & leases	200,000.00	14,185.87	91,780.28	0.00	45.89
10-00-4290	Other charges for services	10,000.00	2,690.00	13,283.65	0.00	132.84
10-00-4610	Investment revenue	10,000.00	418.85	3,408.11	0.00	34.08
10-00-4630	Miscellaneous revenues	26,000.00	4,657.77	23,665.84	0.00	91.02
	<i>Revenue</i>	<i>4,486,000.00</i>	<i>382,593.99</i>	<i>2,639,364.06</i>	<i>0.00</i>	<i>58.84</i>
	NonDivisional	4,486,000.00	382,593.99	2,639,364.06	0.00	58.84
	Revenue	4,486,000.00	382,593.99	2,639,364.06	0.00	58.84
	Drinking Water					
	<i>Personnel Services</i>					
10-20-5110	Regular employees	607,000.00	95,924.58	341,192.73	0.00	56.21
10-20-5130	Overtime	35,000.00	1,552.53	17,785.04	0.00	50.81
10-20-5210	Healthdental insurance	140,000.00	11,428.77	68,574.89	0.00	48.98
10-20-5230	Social Security	47,000.00	6,982.08	26,534.34	0.00	56.46
10-20-5240	Retirement	132,000.00	19,355.83	72,611.93	0.00	55.01
10-20-5250	TrimetWBF	5,000.00	760.22	2,790.93	0.00	55.82
10-20-5260	Unemployment	8,000.00	0.00	0.00	0.00	0.00
10-20-5270	Workers compensation	9,000.00	0.00	16,936.29	0.00	188.18
10-20-5290	Other employee benefits	6,000.00	0.00	0.00	0.00	0.00
	<i>Personnel Services</i>	<i>989,000.00</i>	<i>136,004.01</i>	<i>546,426.15</i>	<i>0.00</i>	<i>55.25</i>
	<i>Materials & Services</i>					
10-20-6155	Contracted Services	20,000.00	0.00	0.00	0.00	0.00
10-20-6220	Electricity	27,000.00	717.49	14,714.86	0.00	54.50
10-20-6240	Natural gas	3,000.00	198.65	993.25	0.00	33.11
10-20-6290	Other utilities	0.00	0.00	677.99	0.00	0.00
10-20-6310	Janitorial services	0.00	0.00	-99.23	0.00	0.00
10-20-6320	Buildings & grounds	5,000.00	124.00	12,150.82	2,000.00	243.02
10-20-6340	Distribution system maint	200,000.00	6,689.03	115,525.31	11,740.15	57.76
10-20-6390	Other repairs & maintenance	35,000.00	475.22	21,788.29	17,524.78	62.25
10-20-6420	Staff training	10,000.00	0.00	415.00	0.00	4.15
10-20-6430	Certifications	2,000.00	89.00	712.00	0.00	35.60
10-20-6530	Small tools & equipment	9,000.00	-16.10	1,400.98	0.00	15.57
10-20-6540	Safety supplies	15,000.00	528.37	6,509.86	0.00	43.40
10-20-6550	Operational Supplies	2,000.00	34.30	2,201.53	0.00	110.08
10-20-6560	Uniforms	2,000.00	0.00	0.00	0.00	0.00
10-20-6710	Purchased water	1,084,000.00	73,442.61	614,375.03	0.00	56.68
10-20-6715	Water quality program	5,000.00	297.22	7,187.62	0.00	143.75
10-20-6760	Equipment Rental	3,500.00	0.00	0.00	0.00	0.00
10-20-6780	Taxes & fees	20,000.00	200.00	8,161.77	0.00	40.81
10-20-6900	Miscellaneous expense	1,000.00	0.00	78.59	0.00	7.86
	<i>Materials & Services</i>	<i>1,443,500.00</i>	<i>82,779.79</i>	<i>806,793.67</i>	<i>31,264.93</i>	<i>55.89</i>
	Drinking Water	2,432,500.00	218,783.80	1,353,219.82	31,264.93	55.63
	Debt Service					
	<i>Materials & Services</i>					
10-24-6815	Zions Bank loan-principal	179,000.00	0.00	0.00	0.00	0.00
10-24-6825	Zions Bank loan-interest	30,801.00	0.00	15,400.25	0.00	50.00
	<i>Materials & Services</i>	<i>209,801.00</i>	<i>0.00</i>	<i>15,400.25</i>	<i>0.00</i>	<i>7.34</i>
	Debt Service	209,801.00	0.00	15,400.25	0.00	7.34
	Transfers & Contingencies					
	<i>Transfers & Contingencies</i>					
10-29-8105	Transfer out - Fund 05	1,908,000.00	159,000.00	954,000.00	0.00	50.00
10-29-8171	Transfers out to Fund 71	500,000.00	41,666.67	250,000.02	0.00	50.00
10-29-9000	Contingency	962,699.00	0.00	0.00	0.00	0.00
	<i>Transfers & Contingencies</i>	<i>3,370,699.00</i>	<i>200,666.67</i>	<i>1,204,000.02</i>	<i>0.00</i>	<i>35.72</i>

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
	Transfers & Contingencies	3,370,699.00	200,666.67	1,204,000.02	0.00	35.72
10	Expense Drinking Water	6,013,000.00 0.00	419,450.47 -36,856.48	2,572,620.09 1,570,946.39	31,264.93 -31,264.93	42.78 0.00
20	Wastewater Reclam. NonDivisional					
	<i>Beginning Fund Balance</i>					
20-00-3500	Fund balance	1,842,000.00	0.00	1,807,252.47	0.00	98.11
	<i>Beginning Fund Balance</i>	<i>1,842,000.00</i>	<i>0.00</i>	<i>1,807,252.47</i>	<i>0.00</i>	<i>98.11</i>
	NonDivisional	1,842,000.00	0.00	1,807,252.47	0.00	98.11
	Fund Balance	1,842,000.00	0.00	1,807,252.47	0.00	98.11
	NonDivisional Revenue					
20-00-4212	Wastewater charges	8,270,000.00	723,323.05	4,067,100.57	0.00	49.18
20-00-4215	Penalties & late charges	10,000.00	-6.82	-6.82	0.00	-0.07
20-00-4220	System development charges	125,000.00	41,320.00	263,415.00	0.00	210.73
20-00-4240	Service installations	10,000.00	0.00	0.00	0.00	0.00
20-00-4290	Other charges for services	10,000.00	2,350.00	19,075.69	0.00	190.76
20-00-4320	State grants	0.00	0.00	908.00	0.00	0.00
20-00-4610	Investment revenue	5,000.00	77.88	1,043.66	0.00	20.87
20-00-4630	Miscellaneous revenues	5,000.00	0.00	43.30	0.00	0.87
	<i>Revenue</i>	<i>8,435,000.00</i>	<i>767,064.11</i>	<i>4,351,579.40</i>	<i>0.00</i>	<i>51.59</i>
	NonDivisional	8,435,000.00	767,064.11	4,351,579.40	0.00	51.59
	Revenue	8,435,000.00	767,064.11	4,351,579.40	0.00	51.59
	Wastewater-Plant Personnel Services					
20-21-5110	Regular employees	608,000.00	67,453.30	294,167.83	0.00	48.38
20-21-5120	Temporaryseasonal employees	35,000.00	0.00	0.00	0.00	0.00
20-21-5130	Overtime	45,000.00	10,962.16	32,268.47	0.00	71.71
20-21-5210	Healthdental insurance	179,000.00	12,269.28	73,617.63	0.00	41.13
20-21-5230	Social security	55,000.00	5,915.08	24,468.33	0.00	44.49
20-21-5240	Retirement	131,000.00	12,608.90	54,598.85	0.00	41.68
20-21-5250	TrimetWBF	5,000.00	614.20	2,543.67	0.00	50.87
20-21-5260	Unemployment	5,000.00	0.00	0.00	0.00	0.00
20-21-5270	Workers compensation	9,000.00	0.00	15,600.79	0.00	173.34
20-21-5290	Other employee benefits	6,000.00	0.00	0.00	0.00	0.00
	<i>Personnel Services</i>	<i>1,078,000.00</i>	<i>109,822.92</i>	<i>497,265.57</i>	<i>0.00</i>	<i>46.13</i>
	<i>Materials & Services</i>					
20-21-6155	Contracted services	133,000.00	12,336.59	48,543.09	67,573.86	36.50
20-21-6180	Dues & subscriptions	6,000.00	0.00	0.00	0.00	0.00
20-21-6220	Electricity	260,000.00	24,811.45	109,891.55	0.00	42.27
20-21-6240	Natural gas	1,000.00	272.99	395.86	0.00	39.59
20-21-6250	Solid waste disposal	81,000.00	2,327.07	16,768.83	17,672.93	20.70
20-21-6290	Other utilities	1,000.00	0.00	835.40	0.00	83.54
20-21-6310	Janitorial services	10,000.00	798.88	3,569.53	0.00	35.70
20-21-6320	Buildings & grounds	57,000.00	6,194.56	29,121.60	0.00	51.09
20-21-6342	WRF system maintenance	270,000.00	1,230.00	140,152.57	30,736.50	51.91
20-21-6410	Mileage	1,000.00	0.00	0.00	0.00	0.00
20-21-6420	Staff training	9,000.00	0.00	517.00	0.00	5.74
20-21-6430	Certifications	2,000.00	0.00	430.00	0.00	21.50
20-21-6520	Fuel & oils	0.00	0.00	594.30	0.00	0.00
20-21-6525	Chemicals	26,000.00	0.00	12,702.70	15,741.90	48.86
20-21-6530	Small tools & equipment	10,000.00	-2,356.79	802.84	0.00	8.03
20-21-6540	Safety supplies	20,000.00	0.00	3,649.95	0.00	18.25

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
20-21-6550	Operational supplies	14,000.00	1,164.13	3,572.86	3,143.86	25.52
20-21-6560	Uniforms	9,000.00	0.00	10,396.08	0.00	115.51
20-21-6590	Other supplies	10,000.00	15.56	285.59	0.00	2.86
20-21-6740	Advertising	0.00	0.00	496.30	0.00	0.00
20-21-6750	Other purchased services	15,000.00	0.00	0.00	0.00	0.00
20-21-6780	Taxes & fees	0.00	2,488.00	30,624.43	0.00	0.00
20-21-6900	Miscellaneous expense	1,000.00	3.55	3.55	0.00	0.36
	<i>Materials & Services</i>	<i>936,000.00</i>	<i>49,285.99</i>	<i>413,354.03</i>	<i>134,869.05</i>	<i>44.16</i>
	Wastewater-Plant	2,014,000.00	159,108.91	910,619.60	134,869.05	45.21
	Wastewater-Collections					
	<i>Personnel Services</i>					
20-22-5110	Regular employees	401,000.00	74,849.41	274,289.75	0.00	68.40
20-22-5130	Overtime	11,000.00	987.17	5,386.85	0.00	48.97
20-22-5210	Healthdental insurance	110,000.00	8,562.34	51,375.93	0.00	46.71
20-22-5230	Social security	32,000.00	5,400.39	20,942.04	0.00	65.44
20-22-5240	Retirement	70,000.00	13,897.87	51,735.50	0.00	73.91
20-22-5250	TrimetWBF	3,000.00	597.86	2,218.80	0.00	73.96
20-22-5260	Unemployment	5,000.00	0.00	0.00	0.00	0.00
20-22-5270	Workers compensation	7,000.00	0.00	9,149.34	0.00	130.70
20-22-5290	Other employee benefits	4,000.00	0.00	0.00	0.00	0.00
	<i>Personnel Services</i>	<i>643,000.00</i>	<i>104,295.04</i>	<i>415,098.21</i>	<i>0.00</i>	<i>64.56</i>
	<i>Materials & Services</i>					
20-22-6310	Janitorial services	0.00	0.00	-43.83	0.00	0.00
20-22-6320	Buildings & grounds	1,000.00	0.00	843.32	0.00	84.33
20-22-6342	Collection system maint.	50,000.00	3,571.00	12,009.09	1.25	24.02
20-22-6390	Other repairs & maintenance	5,000.00	546.75	740.91	0.00	14.82
20-22-6420	Staff training	8,000.00	0.00	0.00	0.00	0.00
20-22-6430	Certifications	2,000.00	0.00	0.00	0.00	0.00
20-22-6530	Small tools & equipment	25,000.00	720.92	1,851.13	0.00	7.40
20-22-6540	Safety supplies	4,000.00	0.00	1,327.77	0.00	33.19
20-22-6550	Operational supplies	5,000.00	258.89	625.53	0.00	12.51
20-22-6560	Uniforms	9,000.00	0.00	2,784.71	0.00	30.94
20-22-6780	Taxes & fees	0.00	0.00	8,946.42	0.00	0.00
20-22-6900	Miscellaneous expense	1,000.00	0.00	0.00	0.00	0.00
	<i>Materials & Services</i>	<i>110,000.00</i>	<i>5,097.56</i>	<i>29,085.05</i>	<i>1.25</i>	<i>26.44</i>
	Wastewater-Collections	753,000.00	109,392.60	444,183.26	1.25	58.99
	Transfers & Contingencies					
	<i>Transfers & Contingencies</i>					
20-29-8105	Transfers out to Fund 05	2,026,000.00	168,833.33	1,012,999.98	0.00	50.00
20-29-8140	Transfers out to Fund 40	812,000.00	0.00	812,000.00	0.00	100.00
20-29-8150	Transfers out to Fund 50	2,871,000.00	0.00	774,285.50	0.00	26.97
20-29-8172	Transfers out to Fund 72	1,000,000.00	83,333.33	499,999.98	0.00	50.00
20-29-9000	Contingency	801,000.00	0.00	0.00	0.00	0.00
	<i>Transfers & Contingencies</i>	<i>7,510,000.00</i>	<i>252,166.66</i>	<i>3,099,285.46</i>	<i>0.00</i>	<i>41.27</i>
	Transfers & Contingencies	7,510,000.00	252,166.66	3,099,285.46	0.00	41.27
	Expense	10,277,000.00	520,668.17	4,454,088.32	134,870.30	43.34
20	Wastewater Reclam.	0.00	246,395.94	1,704,743.55	-134,870.30	0.00
30	Watershed Protection NonDivisional					
	<i>Beginning Fund Balance</i>					
30-00-3500	Fund balance	410,000.00	0.00	436,465.50	0.00	106.46
	<i>Beginning Fund Balance</i>	<i>410,000.00</i>	<i>0.00</i>	<i>436,465.50</i>	<i>0.00</i>	<i>106.46</i>

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
	NonDivisional	410,000.00	0.00	436,465.50	0.00	106.46
	Fund Balance	410,000.00	0.00	436,465.50	0.00	106.46
	NonDivisional Revenue					
30-00-4213	Watershed protection fees	1,548,000.00	127,496.43	773,251.06	0.00	49.95
30-00-4215	Penalties & late charges	2,000.00	-0.67	-0.67	0.00	-0.03
30-00-4220	System development charges	20,000.00	0.00	0.00	0.00	0.00
30-00-4290	Other charges for services	5,000.00	2,550.00	36,362.55	0.00	727.25
30-00-4610	Investment revenue	0.00	121.77	835.91	0.00	0.00
30-00-4630	Miscellaneous revenues	1,000.00	0.00	0.00	0.00	0.00
	<i>Revenue</i>	<i>1,576,000.00</i>	<i>130,167.53</i>	<i>810,448.85</i>	<i>0.00</i>	<i>51.42</i>
	NonDivisional	1,576,000.00	130,167.53	810,448.85	0.00	51.42
	Revenue	1,576,000.00	130,167.53	810,448.85	0.00	51.42
	Watershed Protection Personnel Services					
30-23-5110	Regular employees	92,000.00	8,809.34	17,848.86	0.00	19.40
30-23-5120	Temporary/seasonal employees	2,000.00	0.00	0.00	0.00	0.00
30-23-5130	Overtime	1,000.00	0.00	0.00	0.00	0.00
30-23-5210	Health/dental insurance	8,000.00	1,452.40	2,917.35	0.00	36.47
30-23-5230	Social Security	7,000.00	662.86	1,329.83	0.00	19.00
30-23-5240	Retirement	20,000.00	1,389.42	2,919.76	0.00	14.60
30-23-5250	Trimet/WBF	1,000.00	68.97	138.78	0.00	13.88
30-23-5260	Unemployment	1,000.00	0.00	2,508.44	0.00	250.84
30-23-5270	Workers compensation	1,000.00	0.00	1,618.73	0.00	161.87
30-23-5290	Other employee benefits	1,000.00	0.00	0.00	0.00	0.00
	<i>Personnel Services</i>	<i>134,000.00</i>	<i>12,382.99</i>	<i>29,281.75</i>	<i>0.00</i>	<i>21.85</i>
	<i>Materials & Services</i>					
30-23-6155	Contracted Services	40,000.00	0.00	2,037.75	29,587.25	5.09
30-23-6310	Janitorial services	0.00	0.00	-66.78	0.00	0.00
30-23-6340	System maintenance	50,000.00	0.00	0.00	0.00	0.00
30-23-6420	Staff training	3,000.00	0.00	0.00	0.00	0.00
30-23-6530	Small tools & equipment	0.00	-102.15	1,096.77	0.00	0.00
30-23-6540	Safety supplies	500.00	0.00	0.00	0.00	0.00
30-23-6560	Uniforms	1,500.00	0.00	0.00	0.00	0.00
30-23-6730	Communications	10,000.00	0.00	15,493.61	0.00	154.94
	<i>Materials & Services</i>	<i>105,000.00</i>	<i>-102.15</i>	<i>18,561.35</i>	<i>29,587.25</i>	<i>17.68</i>
	Watershed Protection	239,000.00	12,280.84	47,843.10	29,587.25	20.02
	Debt Service					
	<i>Materials & Services</i>					
30-24-6814	Principal Payment-KS Statebank	54,233.00	0.00	54,233.33	0.00	100.00
30-24-6824	Interest Paid-KS Statebank	8,325.00	0.00	8,324.28	0.00	99.99
	<i>Materials & Services</i>	<i>62,558.00</i>	<i>0.00</i>	<i>62,557.61</i>	<i>0.00</i>	<i>100.00</i>
	Debt Service	62,558.00	0.00	62,557.61	0.00	100.00
	Transfers & Contingencies					
	<i>Transfers & Contingencies</i>					
30-29-8105	Transfers out to Fund 05	635,000.00	52,916.67	317,500.02	0.00	50.00
30-29-8173	Transfers out to Fund 73	500,000.00	41,666.67	250,000.02	0.00	50.00
30-29-9000	Contingency	549,442.00	0.00	0.00	0.00	0.00
	<i>Transfers & Contingencies</i>	<i>1,684,442.00</i>	<i>94,583.34</i>	<i>567,500.04</i>	<i>0.00</i>	<i>33.69</i>

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
	Transfers & Contingencies	1,684,442.00	94,583.34	567,500.04	0.00	33.69
30	Expense Watershed Protection	1,986,000.00 0.00	106,864.18 23,303.35	677,900.75 569,013.60	29,587.25 -29,587.25	34.13 0.00
40	WW GO Debt Service NonDivisional					
40-00-3500	<i>Beginning Fund Balance</i> Fund balance <i>Beginning Fund Balance</i>	333,000.00 333,000.00	0.00 0.00	333,918.79 333,918.79	0.00 0.00	100.28 100.28
	NonDivisional	333,000.00	0.00	333,918.79	0.00	100.28
	Fund Balance NonDivisional	333,000.00	0.00	333,918.79	0.00	100.28
40-00-4610	<i>Revenue</i> Investment revenue	7,000.00	323.46	1,692.59	0.00	24.18
40-00-4701	Interest Subsidy <i>Revenue</i>	111,000.00 118,000.00	0.00 323.46	0.00 1,692.59	0.00 0.00	0.00 1.43
	NonDivisional	118,000.00	323.46	1,692.59	0.00	1.43
	Transfers & Contingencies					
40-29-4920	<i>Revenue</i> Transfers in from Fund 20 <i>Revenue</i>	812,000.00 812,000.00	0.00 0.00	812,000.00 812,000.00	0.00 0.00	100.00 100.00
	Transfers & Contingencies	812,000.00	0.00	812,000.00	0.00	100.00
	Revenue	930,000.00	323.46	813,692.59	0.00	87.49
	Debt Service					
40-24-6811	<i>Materials & Services</i> 2010 IFA Loan Principal	375,273.00	0.00	375,273.00	0.00	100.00
40-24-6822	2010 IFA Loan Interest <i>Materials & Services</i>	262,828.00 638,101.00	0.00 0.00	262,827.30 638,100.30	0.00 0.00	100.00 100.00
	Debt Service	638,101.00	0.00	638,100.30	0.00	100.00
40	Expense WW GO Debt Service	638,101.00 624,899.00	0.00 323.46	638,100.30 509,511.08	0.00 0.00	100.00 81.53
50	WW Revenue Bond Debt Service NonDivisional					
50-00-3500	<i>Beginning Fund Balance</i> Fund balance <i>Beginning Fund Balance</i>	682,000.00 682,000.00	0.00 0.00	678,562.56 678,562.56	0.00 0.00	99.50 99.50
	NonDivisional	682,000.00	0.00	678,562.56	0.00	99.50
	Fund Balance NonDivisional	682,000.00	0.00	678,562.56	0.00	99.50
50-00-4610	<i>Revenue</i> Investment revenue <i>Revenue</i>	16,084.00 16,084.00	432.80 432.80	3,175.64 3,175.64	0.00 0.00	19.74 19.74
	NonDivisional	16,084.00	432.80	3,175.64	0.00	19.74
	Transfers & Contingencies					
	<i>Revenue</i>					

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
50-29-4920	Transfer in from Fund 20 <i>Revenue</i>	2,871,000.00 <i>2,871,000.00</i>	0.00 <i>0.00</i>	774,285.50 <i>774,285.50</i>	0.00 <i>0.00</i>	26.97 <i>26.97</i>
	Transfers & Contingencies	2,871,000.00	0.00	774,285.50	0.00	26.97
	Revenue Debt Service <i>Materials & Services</i>	2,887,084.00	432.80	777,461.14	0.00	26.93
50-24-6810	2010 SRF Loan Principal	910,550.00	0.00	453,101.00	0.00	49.76
50-24-6813	JPM Bank Loan Principal	1,356,000.00	0.00	0.00	0.00	0.00
50-24-6820	2010 SRF Loan Interest	327,958.00	0.00	133,897.00	0.00	40.83
50-24-6823	JPM Bank Loan Interest <i>Materials & Services</i>	374,576.00 <i>2,969,084.00</i>	0.00 <i>0.00</i>	187,287.50 <i>774,285.50</i>	0.00 <i>0.00</i>	50.00 <i>26.08</i>
	Debt Service	2,969,084.00	0.00	774,285.50	0.00	26.08
50	Expense WW Revenue Bond Debt Service	2,969,084.00 600,000.00	0.00 432.80	774,285.50 681,738.20	0.00 0.00	26.08 113.62
71	Drinking Water Capital NonDivisional <i>Beginning Fund Balance</i>					
71-00-3500	Fund balance <i>Beginning Fund Balance</i>	3,942,000.00 <i>3,942,000.00</i>	0.00 <i>0.00</i>	4,229,831.51 <i>4,229,831.51</i>	0.00 <i>0.00</i>	107.30 <i>107.30</i>
	NonDivisional	3,942,000.00	0.00	4,229,831.51	0.00	107.30
	Fund Balance NonDivisional <i>Revenue</i>	3,942,000.00	0.00	4,229,831.51	0.00	107.30
71-00-4610	Investment revenue <i>Revenue</i>	50,000.00 <i>50,000.00</i>	2,730.21 <i>2,730.21</i>	20,152.53 <i>20,152.53</i>	0.00 <i>0.00</i>	40.31 <i>40.31</i>
	NonDivisional	50,000.00	2,730.21	20,152.53	0.00	40.31
	Transfers & Contingencies <i>Revenue</i>					
71-29-4910	Transfer in from Fund 10 <i>Revenue</i>	500,000.00 <i>500,000.00</i>	41,666.67 <i>41,666.67</i>	250,000.02 <i>250,000.02</i>	0.00 <i>0.00</i>	50.00 <i>50.00</i>
	Transfers & Contingencies	500,000.00	41,666.67	250,000.02	0.00	50.00
	Revenue Drinking Water <i>Capital Outlay</i>	550,000.00	44,396.88	270,152.55	0.00	49.12
71-20-7540	Vehicles	35,000.00	0.00	0.00	0.00	0.00
71-20-7600	Capital Improvement Projects <i>Capital Outlay</i>	1,480,000.00 <i>1,515,000.00</i>	41,001.85 <i>41,001.85</i>	203,504.31 <i>203,504.31</i>	298,878.07 <i>298,878.07</i>	13.75 <i>13.43</i>
	Drinking Water	1,515,000.00	41,001.85	203,504.31	298,878.07	13.43
	Transfers & Contingencies <i>Transfers & Contingencies</i>					
71-29-9000	Contingency <i>Transfers & Contingencies</i>	2,977,000.00 <i>2,977,000.00</i>	0.00 <i>0.00</i>	0.00 <i>0.00</i>	0.00 <i>0.00</i>	0.00 <i>0.00</i>

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
	Transfers & Contingencies	2,977,000.00	0.00	0.00	0.00	0.00
71	Expense Drinking Water Capital	4,492,000.00 0.00	41,001.85 3,395.03	203,504.31 4,296,479.75	298,878.07 -298,878.07	4.53 0.00
72	Wastewater Reclamation Capital NonDivisional					
	<i>Beginning Fund Balance</i>					
72-00-3500	Fund balance	4,605,000.00	0.00	5,252,624.14	0.00	114.06
	<i>Beginning Fund Balance</i>	<i>4,605,000.00</i>	<i>0.00</i>	<i>5,252,624.14</i>	<i>0.00</i>	<i>114.06</i>
	NonDivisional	4,605,000.00	0.00	5,252,624.14	0.00	114.06
	Fund Balance	4,605,000.00	0.00	5,252,624.14	0.00	114.06
	NonDivisional Revenue					
72-00-4610	Investment revenue	75,000.00	3,488.15	24,885.04	0.00	33.18
	<i>Revenue</i>	<i>75,000.00</i>	<i>3,488.15</i>	<i>24,885.04</i>	<i>0.00</i>	<i>33.18</i>
	NonDivisional	75,000.00	3,488.15	24,885.04	0.00	33.18
	Transfers & Contingencies Revenue					
72-29-4920	Transfer in from Fund 20	1,000,000.00	83,333.33	499,999.98	0.00	50.00
	<i>Revenue</i>	<i>1,000,000.00</i>	<i>83,333.33</i>	<i>499,999.98</i>	<i>0.00</i>	<i>50.00</i>
	Transfers & Contingencies	1,000,000.00	83,333.33	499,999.98	0.00	50.00
	Revenue	1,075,000.00	86,821.48	524,885.02	0.00	48.83
	Wastewater-Plant Capital Outlay					
72-21-7300	Buildings & improvements	0.00	0.00	5,240.00	0.00	0.00
72-21-7520	Equipment	100,000.00	0.00	23,228.19	0.00	23.23
72-21-7540	Vehicles	20,000.00	0.00	19,706.90	0.00	98.53
72-21-7600	Capital Improvement Projects	2,330,000.00	409.00	236,047.02	705,102.12	10.13
	<i>Capital Outlay</i>	<i>2,450,000.00</i>	<i>409.00</i>	<i>284,222.11</i>	<i>705,102.12</i>	<i>11.60</i>
	Wastewater-Plant	2,450,000.00	409.00	284,222.11	705,102.12	11.60
	Transfers & Contingencies					
	<i>Transfers & Contingencies</i>					
72-29-9000	Contingency	3,230,000.00	0.00	0.00	0.00	0.00
	<i>Transfers & Contingencies</i>	<i>3,230,000.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>
	Transfers & Contingencies	3,230,000.00	0.00	0.00	0.00	0.00
72	Expense Wastewater Reclamation Capital	5,680,000.00 0.00	409.00 86,412.48	284,222.11 5,493,287.05	705,102.12 -705,102.12	5.00 0.00
73	Watershed Protection Capital NonDivisional					
	<i>Beginning Fund Balance</i>					

Account Number	Description	Budget	Period Amt	End Bal	Encumbered	% of Budget
73-00-3500	Fund balance	1,481,000.00	0.00	1,177,314.89	0.00	79.49
	<i>Beginning Fund Balance</i>	<i>1,481,000.00</i>	<i>0.00</i>	<i>1,177,314.89</i>	<i>0.00</i>	<i>79.49</i>
	NonDivisional	1,481,000.00	0.00	1,177,314.89	0.00	79.49
	Fund Balance	1,481,000.00	0.00	1,177,314.89	0.00	79.49
	NonDivisional					
	<i>Revenue</i>					
73-00-4610	Investment revenue	40,000.00	909.90	6,472.10	0.00	16.18
	<i>Revenue</i>	<i>40,000.00</i>	<i>909.90</i>	<i>6,472.10</i>	<i>0.00</i>	<i>16.18</i>
	NonDivisional	40,000.00	909.90	6,472.10	0.00	16.18
	Transfers & Contingencies					
	<i>Revenue</i>					
73-29-4930	Transfer in from Fund 30	500,000.00	41,666.67	250,000.02	0.00	50.00
	<i>Revenue</i>	<i>500,000.00</i>	<i>41,666.67</i>	<i>250,000.02</i>	<i>0.00</i>	<i>50.00</i>
	Transfers & Contingencies	500,000.00	41,666.67	250,000.02	0.00	50.00
	Watershed Protection					
	Revenue	540,000.00	42,576.57	256,472.12	0.00	47.49
	Watershed Protection					
	<i>Capital Outlay</i>					
73-23-7600	Capital Improvement Projects	465,000.00	530.50	1,869.50	0.00	0.40
	<i>Capital Outlay</i>	<i>465,000.00</i>	<i>530.50</i>	<i>1,869.50</i>	<i>0.00</i>	<i>0.40</i>
	Watershed Protection	465,000.00	530.50	1,869.50	0.00	0.40
	Transfers & Contingencies					
	<i>Transfers & Contingencies</i>					
73-29-9000	Contingency	1,556,000.00	0.00	0.00	0.00	0.00
	<i>Transfers & Contingencies</i>	<i>1,556,000.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>
	Transfers & Contingencies	1,556,000.00	0.00	0.00	0.00	0.00
	Watershed Protection					
	Expense	2,021,000.00	530.50	1,869.50	0.00	0.09
73	Watershed Protection	0.00	42,046.07	1,431,917.51	0.00	0.00
	Capital					
Revenue Total		25,049,084.00	1,839,239.25	12,756,204.74	0.00	0.5092
Expense Total		38,971,185.00	1,393,818.93	11,656,893.63	1,337,466.04	0.2991

General Ledger
Account Roll up



User: jeff
Printed: 1/11/2021 1:31:22 PM
Period 06 - 06
Fiscal Year 2021

Sort Level	Description	Budget	Period Amt	End Bal	% ExpendCollect
Revenue	Revenue				
4210	Water Sales - CRW	32,000.00	0.00	14,794.58	46.23
4211	Water sales	4,038,000.00	309,853.68	2,203,657.95	54.57
4212	Wastewater Charges	8,270,000.00	723,323.05	4,067,100.57	49.18
4213	Watershed protection fees	1,548,000.00	127,496.43	773,251.06	49.95
4215	Penalties & late charges	32,000.00	-36.07	-163.86	-0.51
4220	System development charges	245,000.00	82,770.40	493,890.20	201.59
4230	Contract services	40,000.00	4,000.00	29,400.00	73.50
4240	Service installations	20,000.00	5,366.00	29,054.82	145.27
4280	Rents & leases	200,000.00	14,185.87	91,780.28	45.89
4290	Other charges for services	25,000.00	7,590.00	68,721.89	274.89
4320	State grants	0.00	0.00	16,835.77	0.00
4610	Investment revenue	203,084.00	8,633.32	63,079.69	31.06
4630	Miscellaneous revenues	33,000.00	8,639.90	34,016.27	103.08
4701	Interest Subsidy	111,000.00	0.00	0.00	0.00
4910	Transfer in from Fund 10	2,408,000.00	200,666.67	1,204,000.02	50.00
4920	Transfer in from Fund 20	6,709,000.00	252,166.66	3,099,285.46	46.20
4930	Transfer in from Fund 30	1,135,000.00	94,583.34	567,500.04	50.00
Revenue	Revenue	25,049,084.00	1,839,239.25	12,756,204.74	50.92
Expense	Expense				
5110	Regular employees	3,000,000.00	392,533.75	1,544,305.26	51.48
5120	Temporary/Seasonal employees	42,000.00	0.00	0.00	0.00
5130	Overtime	107,000.00	14,713.39	61,991.05	57.94
5210	Employee Ins	690,000.00	50,656.40	301,500.21	43.70
5230	Social Security	240,000.00	27,545.40	116,296.18	48.46
5240	Retirement	616,000.00	73,118.21	295,770.91	48.01
5250	Trimet	23,000.00	3,188.93	12,442.78	54.10
5260	Unemployment	29,000.00	0.00	12,228.44	42.17
5270	Workers compensation	45,000.00	0.00	44,815.37	99.59
5290	Other employee benefits	29,000.00	38.75	3,473.15	11.98
6110	Legal services	375,000.00	552.00	56,462.00	15.06
6120	Accounting & audit services	45,000.00	350.00	48,694.45	108.21
6155	Contracted Services	732,000.00	22,340.24	158,300.41	21.63
6175	Records Management	5,000.00	889.50	2,736.28	54.73
6180	Dues & subscriptions	52,000.00	750.00	27,803.41	53.47
6220	Electricity	296,000.00	26,709.49	129,971.52	43.91
6230	Telephone	57,000.00	2,840.18	22,304.82	39.13
6240	Natual gas	5,000.00	801.09	2,154.65	43.09
6250	Solid waste disposal	81,000.00	2,327.07	16,768.83	20.70
6290	Other utilities	21,000.00	1,738.11	13,502.97	64.30
6310	Janitorial services	35,000.00	1,989.28	9,894.23	28.27
6320	Buildings & grounds	81,000.00	6,828.26	51,924.73	64.10
6330	Vehicle & equipment maint.	50,000.00	10.83	16,273.13	32.55
6340	Distribution system maint	250,000.00	6,689.03	115,525.31	46.21
6342	Collection system maint.	320,000.00	4,801.00	152,161.66	47.55
6350	Computer maintenance	237,000.00	44,274.91	136,763.67	57.71
6390	Other repairs & maintenance	40,000.00	1,021.97	22,529.20	56.32
6410	Mileage	6,000.00	0.00	0.00	0.00
6420	Staff training	80,000.00	1,329.29	4,977.29	6.22
6430	Certifications	7,000.00	89.00	1,142.00	16.31
6440	Board travel & training	7,000.00	0.00	-864.06	-12.34
6510	Office supplies	29,000.00	328.38	13,318.12	45.92

Sort Level	Description	Budget	Period Amt	End Bal	% ExpendCollect
6520	Fuel & oils	71,000.00	3,349.42	15,764.02	22.20
6525	Chemicals	26,000.00	0.00	12,702.70	48.86
6530	Small tools & equipment	46,000.00	-1,754.12	5,151.72	11.20
6540	Safety supplies	48,500.00	780.55	12,123.75	25.00
6550	Operational Supplies	21,000.00	1,457.32	6,399.92	30.48
6560	Uniforms	22,000.00	0.00	13,180.79	59.91
6590	Other supplies	10,000.00	15.56	285.59	2.86
6610	Board compensation	2,500.00	0.00	0.00	0.00
6620	Election Costs	5,000.00	0.00	0.00	0.00
6710	Purchased water	1,084,000.00	73,442.61	614,375.03	56.68
6715	Water quality program	5,000.00	297.22	7,187.62	143.75
6720	Insurance	240,000.00	19,484.00	19,274.00	8.03
6730	Communications	167,000.00	621.06	18,982.59	11.37
6740	Advertising	6,000.00	175.00	1,109.39	18.49
6750	Other purchased services	15,000.00	0.00	1,000.00	6.67
6760	Equipment Rental	4,500.00	220.00	1,324.40	29.43
6770	Bank charges	125,000.00	14,948.46	79,252.82	63.40
6780	Taxes & fees	21,000.00	3,257.94	49,337.49	234.94
6785	ECAP Payments	97,000.00	597.38	4,202.87	4.33
6810	2010 SRF Loan Principal	910,550.00	0.00	453,101.00	49.76
6811	2010 IFA Loan Principal	375,273.00	0.00	375,273.00	100.00
6813	JPM Bank Loan Principal	1,356,000.00	0.00	0.00	0.00
6814	Principal Payment-KS Statebank	54,233.00	0.00	54,233.33	100.00
6815	Zions Bank loan-principal	179,000.00	0.00	0.00	0.00
6820	2010 SRF Loan Interest	327,958.00	0.00	133,897.00	40.83
6822	2010 IFA Loan Interest	262,828.00	0.00	262,827.30	100.00
6823	JPM Bank Loan Interest	374,576.00	0.00	187,287.50	50.00
6824	Interest Paid-KS Statebank	8,325.00	0.00	8,324.28	99.99
6825	Zions Bank loan-interest	30,801.00	0.00	15,400.25	50.00
6900	Miscellaneous expense	4,000.00	3.55	82.14	2.05
6990	Special Payments	552,000.00	0.00	552,000.00	100.00
7300	Buildings & improvements	0.00	0.00	5,240.00	0.00
7520	Equipment	100,000.00	0.00	23,228.19	23.23
7540	Vehicles	55,000.00	0.00	19,706.90	35.83
7600	Capital Improvement Projects	4,275,000.00	41,941.35	441,420.83	10.33
8105	Transfers out to Fund 05	4,569,000.00	380,750.00	2,284,500.00	50.00
8140	Transfers out - Fund 40	812,000.00	0.00	812,000.00	100.00
8150	Transfers out - Fund 50	2,871,000.00	0.00	774,285.50	26.97
8171	Transfers out - Fund 71	500,000.00	41,666.67	250,000.02	50.00
8172	Transfers out - Fund 72	1,000,000.00	83,333.33	499,999.98	50.00
8173	Transfers out - Fund 73	500,000.00	41,666.67	250,000.02	50.00
9000	Contingency	10,215,141.00	0.00	0.00	0.00
Expense	Expense	38,981,185.00	1,394,708.43	11,659,629.91	29.91
Grand Total		-13,932,101.00	444,530.82	1,096,574.83	-0.0787
Fund Balance Total		0.00	0.00	0.00	0
Revenue Total		25,049,084.00	1,839,239.25	12,756,204.74	0.5092
Expense Total		38,981,185.00	1,394,708.43	11,659,629.91	0.2991



AGENDA ITEM

To	Board of Directors
From	Laural Casey, District Recorder
Title	Approval of Meeting Minutes
Item No.	3b
Date	January 19, 2021

Summary of Minutes for Approval

- December 15, 2020 Regular Meeting Minutes



**BOARD OF DIRECTORS
[REMOTE] REGULAR MEETING MINUTES – 6:00 P.M.
December 15, 2020**

Board of Directors – Members Present via Zoom:

Kevin Williams	President
Paul Gornick	Secretary/Vice President
Mark Knudson	Treasurer
Susan Keil	Director
Ginny Van Loo	Director

Oak Lodge Water Services Staff – Present via Zoom:

Sarah Jo Chaplen	General Manager
Jason Rice	District Engineer
Aleah Binkowski-Burk	Human Resources/Payroll Manager
Gail Stevens	Finance Director
David Mendenhall	Plant Operations Manager
Todd Knapp	Field Operations Manager
Brad Lyon	Field Operations Supervisor
Laural Casey	District Recorder
Alexa Morris	Outreach and Communications Specialist

Consultants & Presenters – Present via Zoom:

Laura Westmeyer	Cable Huston
Keith Simovic	Moss Adams
Laurel Stevens	Moss Adams

1. Call to Order & Meeting Facilitation Protocols

President Williams called the meeting to order at 6:00 p.m.

General Manager Chaplen welcomed everyone and asked District Recorder Casey to facilitate a roll call. District Recorder Casey facilitated the roll call of Board members, staff, and consultants.

General Manager Chaplen introduced Sherry French, President of the Clackamas River Water Board of Commissioners, visiting in an official capacity.

General Manager Chaplen overviewed the general protocols of a virtual meeting due to the COVID-19 pandemic.

2. Retirement Celebration: Todd Knapp

Field Operations Manager Todd Knapp was thanked for his thirty-seven years of service to the community. General Manager Chaplen spoke on his long tenure, valuable experience, and

dedication to the community. President Williams presented him with service awards. Field Operations Supervisor Lyon, Valerie Knapp, and Director Keil recounted memories of working with Field Operations Manager Knapp. Treasurer Knudson thanked his family for their commitment and support. Field Operations Manager Knapp thanked the District and the Oak Lodge community.

3. Call for Public Comment

President Williams asked District Recorder Casey if any written comments had been submitted. District Recorder Casey stated there were two letters that had been distributed to the Board.

President Williams asked District Recorder Casey if there were any members of the public in attendance. District Recorder Casey stated there was one.

Thelma Haggenmiller congratulated Field Operations Manager Knapp on his retirement.

4. Consent Agenda

Secretary/Vice President Gornick asked for staff reports related to contracts to include whether the item had been budgeted and where to find it in the budget document.

Regarding the Insurance Renewal, Treasurer Knudson disclosed his professional relationship with the Special Districts Association of Oregon (SDAO), the parent organization of Special Districts Insurance Services (SDIS). Human Resources/Payroll Manager Binkowski-Burk reported she had received the insurance proposal and could present the numbers if requested.

Treasurer Knudson acknowledged staff for the successful cooperative procurement approach for SCADA services. There was discussion regarding economies of scale and Plant Operations Manager Mendenhall explained the rates.

Director Keil noted the Emergency Customer Assistance Program (ECAP) did not seem well utilized. Finance Director Stevens agreed but noted there had been more interest recently. There was discussion regarding the parameters of the program. Finance Director Stevens highlighted future communication outreach efforts. There was discussion regarding the rising number of delinquent accounts. Finance Director Stevens explained the anticipation of greater demand on the ECAP program as the District resumed normal operations and began expanding customer communication efforts.

Director Keil inquired about the General Ledger's special payment line. Finance Director Stevens confirmed a payment to the PERS side account in November.

Finance Director Stevens noted an edit to the Monthly Overview stating, "at the end of November expenditures were 26.33% of budget and, when excluding Contingencies, expenditures are 35.7% of budget with 41.7% of the fiscal year completed."

Director Van Loo asked why so many budget lines seemed above budget for the year. Finance Director Stevens explained some budget lines were paid early in the fiscal year and a perceived

overage could be dependent on the timing of the expenditure. The presented report divided expenditures into equal twelve-month units while actual expenditures may occur in a different pattern. She noted some lines were indeed above budget due to COVID-19 improvements or new County requirements. Finance Director Stevens noted some lines would be corrected by a supplemental budget later in the fiscal year.

Secretary/Vice President Gornick moved to approve the Consent Agenda with Finance Director Stevens' correction to the Monthly Overview. Treasurer Knudson seconded. President Williams asked District Recorder Casey to conduct a roll call vote to approve the Consent Agenda. Voting Aye: President Williams; Secretary/Vice President Gornick; Treasurer Knudson; Directors Keil and Van Loo.

MOTION CARRIED

5. Consideration of 2021/2022 Budget Calendar

Finance Director Stevens overviewed the proposed calendar.

There was discussion about starting the Budget Committee process earlier. Finance Director Stevens stated she would be open to evolving the process.

Treasurer Knudson moved to approve the proposed budget calendar for the 2021/2022 fiscal year budget and encouraged the General Manager to work with the Finance Director to look for opportunities to bring background information to the Board and Budget Committee and noted a scrivener's error noting that April 27 is a Tuesday. District Engineer Rice also noted the dates should be changed to 2021. Director Keil seconded. President Williams asked District Recorder Casey to conduct a roll call vote to approve the Consent Agenda. Voting Aye: President Williams; Secretary/Vice President Gornick; Treasurer Knudson; Directors Keil and Van Loo.

MOTION CARRIED

6. Appointment of 2021/2022 Budget Officer

Finance Director Stevens overviewed the staff recommendation to appoint herself as the Budget Officer for the 2021/2022 fiscal year.

Director Keil moved. Secretary/Vice President Gornick seconded. President Williams asked District Recorder Casey to conduct a roll call vote to approve the Consent Agenda. Voting Aye: President Williams; Secretary/Vice President Gornick; Treasurer Knudson; Directors Keil and Van Loo.

MOTION CARRIED

7. Appointment of Budget Committee Members

Finance Director Stevens overviewed the open positions on the Budget Committee and the recommended appointment of Ann-Marie Cordova and reappointment of Joseph Healy.

Director Keil moved to appoint Ann-Marie Cordova to position number one and Joseph Healy to position number five for three-year terms ending June 30, 2023. Secretary/Vice President Gornick seconded. President Williams asked District Recorder Casey to conduct a roll call vote to approve the Consent Agenda. Voting Aye: President Williams; Secretary/Vice President Gornick; Treasurer Knudson; Directors Keil and Van Loo.

MOTION CARRIED

Director Keil noted the Budget Committee alternate position was open. There was discussion regarding potential candidates.

General Manager Chaplen requested President Williams to sign a thank you letter on behalf of the Board to outgoing Budget Committee member John Klum for his service.

Treasurer Knudson asked that President Williams reach out to the Budget Committee members about serving as Chair and Secretary/Vice Chair before the first Committee meeting.

8. Moss Adams' Presentation of Audited 2019/2020 Financial Statements

Consultants Simovic and Stevens reported on the 2019/2020 audit results highlighting the nature of services provided, significant audit areas, audit opinion, audit adjustments, and audit observations and recommendations.

Director Keil asked about the estimated inventory misstatements. Finance Director Stevens explained that the cost per inventory item was not updated with the most recent purchase. She noted District inventory is one of the next process improvement projects to be performed.

Consultant Simovic continued to outline internal control recommendations: resolved, partially resolved, control deficiency, and best practices.

There were questions regarding the purchase order process for non-inventory items. Consultant Simovic and Finance Director Stevens discussed recommended guidelines and current policy.

Consultants Simovic and Stevens reported on significant improvements in the areas highlighted by the last financial audit, including the District's public procurement process. They covered new recommendations including annual review of doubtful accounts and inventory valuation. They reported no internal weaknesses in the 2019/2020 fiscal year.

Director Keil thanked the financial auditors for their thorough audit. Treasurer Knudson agreed.

9. Second Reading of Proposed Ordinance No. 2020-03 Revising the Rules and Regulations

Secretary/Vice President Gornick moved to read the ordinance by title only. Director Keil seconded. President Williams asked District Recorder Casey to conduct a roll call vote. Voting Aye: President Williams; Secretary/Vice President Gornick; Treasurer Knudson; Directors Keil and Van Loo.

MOTION CARRIED

President Williams read the Ordinance by title.

District Engineer Rice overviewed proposed changes to the Industrial Pretreatment Program, Backflow Prevention Program, and general housekeeping items throughout the District's Rules and Regulations. He notified the Board that there had been no additional public comment regarding the proposed changes since the public hearing on November 17, 2020.

Director Keil moved to approve Ordinance No. 2020-03. Treasurer Knudson seconded. President Williams asked District Recorder Casey to conduct a roll call vote. Voting Aye: President Williams; Secretary/Vice President Gornick; Treasurer Knudson; Directors Keil and Van Loo.

MOTION CARRIED

10. Public Hearing: Water System Development Charges Update

President Williams stated the purpose of the public hearing and opened the hearing for public testimony.

President Williams asked District Recorder Casey if any written comments had been submitted. District Recorder Casey stated there were none.

President Williams asked District Recorder Casey if there were any members of the public in attendance. District Recorder Casey confirmed that there were two.

There were no comments.

Hearing no further testimony, President Williams closed the public hearing.

Director Keil asked what measures had been taken to gather public input. District Engineer Rice explained the State requirements and the District's process, including noticing all Permitting contacts and the Homebuilders Association.

11. First Reading of Proposed Ordinance Updating Water System Development Charges

Director Keil moved to read the ordinance by title only. Director Van Loo seconded. President Williams asked District Recorder Casey to conduct a roll call vote. Voting Aye: President Williams; Secretary/Vice President Gornick; Treasurer Knudson; Directors Keil and Van Loo.

MOTION CARRIED

President Williams read the Ordinance by title.

District Engineer Rice outlined the proposed changes to the District's System Development Charges (SDCs).

Directors Van Loo and Keil noted concern about the six thousand dollars increase in fees. District Engineer Rice explained the District was currently missing about fifty percent of SDC fees because not all three types of SDCs were in place. He overviewed the SDC Comparison Chart in which the full amounts were charged.

There was discussion regarding local growth expectations and projects covered by improvement fees. Director Keil inquired how Accessory Dwelling Units (ADUs) were calculated. District Engineer Rice explained the current rules and that the upcoming Sanitary Sewer Master Plan would identify options for calculating fees associated with ADUs.

Secretary/Vice President Gornick had questions regarding SDC eligibility and capital improvement project costs. District Engineer Rice explained the requirements for both.

12. Consideration of 2019 Interim Sewer Intergovernmental Agreement Extension with the City of Gladstone

General Manager Chaplen provided an update on the process to create a long-term agreement with the City of Gladstone and asked for approval of the proposed extension.

Treasurer Knudson moved. Director Keil seconded.

Director Van Loo asked what would happen if the extension was not approved. General Manager Chaplen explained the two entities would revert back to an agreement made in 1971.

President Williams asked District Recorder Casey to conduct a roll call vote. Voting Aye: President Williams; Secretary/Vice President Gornick; Treasurer Knudson; Directors Keil and Van Loo.

MOTION CARRIED

13. Business Oregon Infrastructure Bond Refinancing

Finance Director Stevens overviewed the status of the current bond refinancing.

Treasurer Knudson disclosed his relationship with the Infrastructure Finance Authority who has approved the refinancing effort.

Director Keil moved to approve Resolution No. 2020-16. Director Van Loo seconded. President Williams asked District Recorder Casey to conduct a roll call vote. Voting Aye: President Williams; Secretary/Vice President Gornick; Treasurer Knudson; Directors Keil and Van Loo.

MOTION CARRIED

14. Call for Public Comment

President Williams asked District Recorder Casey if there were any members of the public still in attendance. District Recorder Casey confirmed there were two.

Jane Civiletti asked why the public was not invited to participate via videoconference. District Recorder Casey explained the District's public meeting procedures following State and Federal guidelines and attorney direction.

15. Departments Reports

Due to time, President Williams did not facilitate verbal department reports noting the written Department Reports published in the meeting packet.

Finance Director Stevens reported on current delinquent accounts and Board consensus was given to move forward with a new communication strategy to reach customers before hanging red tags and reinstating water shut offs. Outreach and Communication Specialist Morris highlighted her efforts to create a press release for publication in January.

16. Business from the Board

Treasurer Knudson provided an update on his presentation regarding the District during an Oak Grove Community Council meeting. He also reported on the Regional Water Providers Consortium meeting.

Secretary/Vice President Gornick overviewed the recent Sunrise Water Authority and C4 meetings.

Director Keil reported on North Clackamas County Chamber Public Policy Committee meeting at which she and Director Van Loo gave a presentation regarding the District.

Director Van Loo discussed an email she received asking for links to be added to our website. There was discussion about current District practice and General Manager Chaplen stated staff would reach out to the member of the public.

President Williams reported on the Jennings Lodge Community Planning Organization and Clackamas River Water meetings.

General Manager outlined the two letters received by the Board since the last meeting. There was discussion regarding the letter from the Oak Lodge Governance Project (OLGP). In response to OLGP's request to post their letter on the District website, it was decided that the letter would be included in the meeting packet. Treasurer Knudson highlighted Mr. Elliott's letter requesting periodic in-depth conversations with OLGP. The Board also asked General Manager Chaplen to draft a letter to OLGP inviting them to participate in the monthly meetings. President Williams proposed that the entire Board signed the letter. Everyone agreed.

17. Adjourn Meeting

President Williams adjourned the meeting at 9:27 p.m.

Respectfully submitted,

Kevin Williams
President, Board of Directors

Date: _____

Paul Gornick
Secretary/Vice President, Board of Directors

Date: _____



AGENDA ITEM

Title	Monthly Update: Oak Lodge Governance Project
Item No.	4
Date	January 19, 2021

Summary

The Board of Directors has extended an invitation to the Oak Lodge Governance Project for a monthly update to assure the availability of current and accurate information to the District's customers.



STAFF REPORT

To Board of Directors
From Sarah Jo Chaplen, General Manager
Title Appointment of 2021 Board Officers
Item No. 5
Date January 19, 2021

Summary

The Board of Directors self-appoints officers for the following positions: President, Secretary/Vice President, and Treasurer.

Background

As a consolidated special district, Oak Lodge Water Services District (OLWSD) has the powers and authorities granted to both Water Districts and Sanitary Districts pursuant to ORS Chapter 264 and ORS Chapter 450, respectively. Both statutes provide that Officer elections shall occur at the first business meeting in January of each year.

Past Board Actions

December 19, 2017 The Board identified and reaffirmed the Board Officer positions to be filled as the following: President, Secretary/Vice President, and Treasurer.

January 21, 2020 The Board appointed the following members to Officer positions: Kevin Williams as President, Paul Gornick as Secretary/Vice President, and Mark Knudson as Treasurer.

Suggested Board Motions

"I move to appoint _____ as President for 2021."

"I move to appoint _____ as Secretary/Vice President for 2021."

"I move to appoint _____ as Treasurer for 2021."



AGENDA ITEM

Title	Presentation of Clackamas River Water Providers' Annual Report
Item No.	6
Date	January 19, 2021

Summary

“The Clackamas River Water Providers is a coalition of the municipal water providers that get their drinking water from the Clackamas River who are working together on water resource issues. The purpose of the organization is to fund and coordinate efforts regarding source water protection and public outreach and education around watershed issues, drinking water, and water conservation, so that we can preserve the Clackamas River as a high-quality drinking water source and minimize future drinking water treatment costs, while being good stewards of the river.

The organization is made up of representatives from Clackamas River Water (District), City of Estacada, the City of Lake Oswego, City of Tigard, the North Clackamas County Water Commission (City of Gladstone and Oak Lodge Water Services), South Fork Water Board (Oregon City and West Linn), and Sunrise Water Authority (Happy Valley and Damascus).”¹

Tonight, Water Resource Manager Kimberly Swan will overview the FY 2019-2020 Annual Report and the programs CRWP is currently working on to conserve and protect our watershed.

Attachments

1. PowerPoint Presentation
2. CRWP Annual Report

¹ This information was provided by the Clackamas River Water Providers website: <https://www.clackamasproviders.org/>

Clackamas River Water Providers Update

*Working together to protect and conserve our drinking
water*



Clackamas River Water Provider Members

*Conservation programs and services are provided to these members

*



*



*



*



*



(Oregon City and West Linn)

FY 2019-20



Working together to protect and conserve our drinking water.



Annual Report

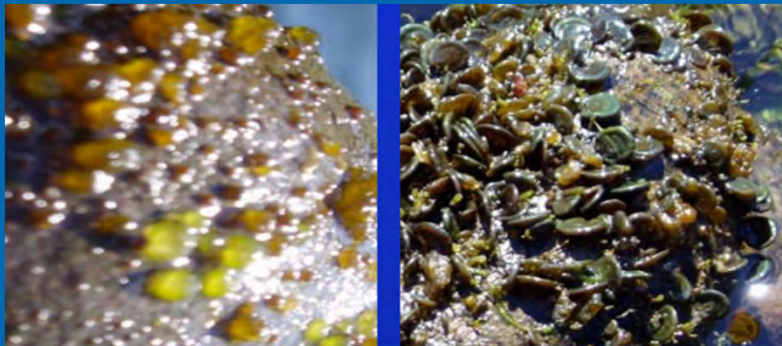
For Fiscal Year 2019-20

September 2020



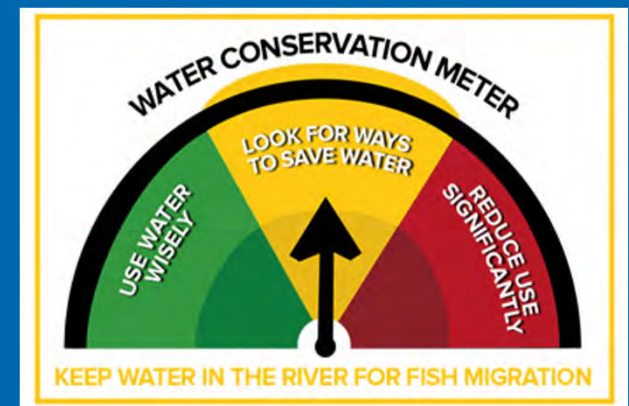
Highlights - Watershed

- USGS Blue Green Algae and Groundwater Study
- Regroup notification system



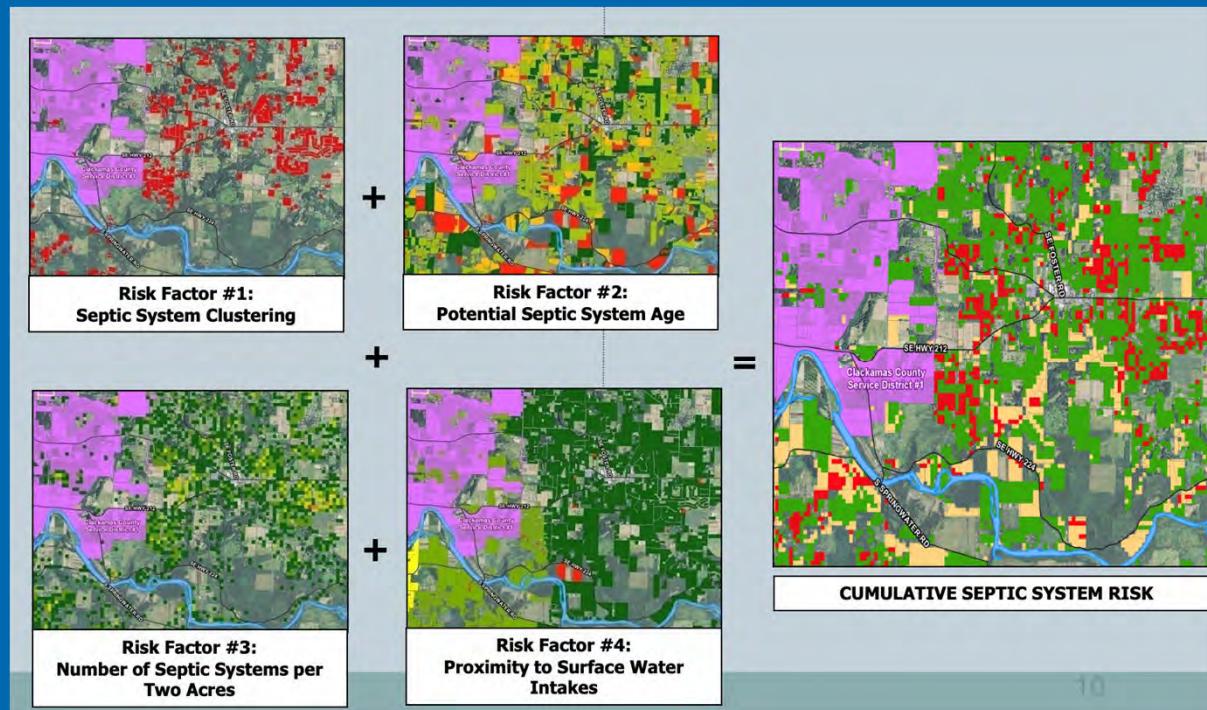
Highlights – Public Outreach

- Annual Water Conservation Calendar
- Flume Smart Water Monitoring Device
- Fish on the Run Campaign



FY 2020-21 – Watershed

- NRCS – National Water Quality Initiative grant
- Updating GIS Risk Analysis



FY 2020-21 – Public Outreach

- Teachers Resources
- Video tours
- Facebook Page

Virtual Drinking Water Treatment Plant Tours

We have five water treatment plants on the Clackamas River where water is taken out of the river and treated before it is used as drinking water. Water treatment is the process of removing undesirable chemicals, biological contaminants, suspended solids and gases from the raw water. The goal is to produce water fit for human consumption, or Drinking Water.

Water at these treatment plants is treated to meet legal limits set by the Environmental Protection Agency (EPA) on the levels of certain contaminants in drinking water under the Safe Drinking Water Act (SDWA). These legal limits reflect both the level that protects human health and the level that water systems can achieve using the best available technology.

See first hand how we take water from the Clackamas River, clean it, and treat it, so it is ready to be used in the community by watching the video below for the water treatment plant that your water comes from. Don't know which video to watch contact our Public Outreach and Education Coordinator at christine@clackamasproviders.org.

TREATMENT PLANT TOUR VIDEOS:

City of Estacada Treatment Plant Video: [Click Here](#).

Clackamas River Water Treatment Plant Video: [Click Here](#)

North Clackamas County Water Commission Treatment Plant Video: [Click Here](#).

South Fork Water Board Treatment Plant Video: [Click Here](#).

Lake Oswego-Tigard Water Partnership Treatment Plant Video "The Path to Clean Water": [Click Here](#).

City of Estacada



South Fork Water Board



Clackamas River Water Treatment



North Clackamas County Water Commission

Video Coming Soon

Lake Oswego-Tigard Water Partnership



Visit the Lake Oswego/Tigard website [HERE](#) to see their Water Treatment Video, *The Path to Pure Water*.

Visit us at www.clackamasproviders.org



Working together to protect and conserve our drinking water.

[Home](#) [About](#) - [Watershed Protection](#) - [Water Conservation](#) - [News and Resources](#) - [Contact](#)



Who is my water provider?

Type your address here to check

This lookup tool only works for customers whose water providers are members of the Regional Water Providers Consortium.

Riverside Fire & Water Quality

CRWP members provide drinking water to the following areas: Clackamas River Water, City of Estacada, City of Gladstone, City of Lake Oswego, City of Tigard, Oak Lodge Water Services, South Fork Water Board (the City of Oregon City and West Linn), Sunrise Water Authority (Damascus and Happy Valley). Collectively provide drinking water to over 300,000 people.

We have five water treatment plants on the Clackamas River where water is taken out of the river and treated to State and Federal drinking water standards before it is distributed through water mains to our communities. Water treatment is the process of removing undesirable chemicals, biological contaminants, suspended solids and gases from the raw river water. Our Water Treatment Plants are fully functional and continue to provide safe clean drinking water.

In the near-term (next couple of months) as it starts raining, as a result of the Riverside Fire, we expect to see increased levels of turbidity (suspended solids) due to erosion and ash, Total Organic Carbon, Dissolved Organic Carbon, metals and nutrients in our source water. Our water treatment plants are all designed and operated to constantly monitor and remove these constituents in our water. We are working together along with USGS and other partners to conduct additional water quality monitoring to enhance our water treatment plants ability to adjust their water treatment process accordingly if needed.

For more information about the Riverside Fire go to <https://www.clackamas.us/wildfires>

New Pilot Water Conservation Rebate

Flume Smart Home Water Monitor \$100 Maximum. Flume, a first-of-its-kind, easily installed household device that puts the power of water monitoring into the hands of homeowners. [Click Here](#) for more information.

In an effort to help slow the spread of COVID-19 and support the health of our communities, we are working from home until further notice. We will continue to be accessible online and by phone. [Click here](#) for more information about how the CRWP members are keeping your drinking water safe.

Kim Swan
503.723.3510
kims@clackamasproviders.org

Christine Hollenback
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christine@clackamasproviders.org



Kimberly Swan

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Working together to protect and conserve our drinking water.



Annual Report

For Fiscal Year 2019-20



September 2020

Annual Report

For Fiscal Year 2019-20

Background

The Clackamas River Water Providers (CRWP) is a coalition of water providers that get their drinking water from the Clackamas River. The organization is made up of representatives from the City of Estacada, City of Lake Oswego, City of Tigard, Clackamas River Water, the North Clackamas County Water Commission (Oak Lodge Water Services, City of Gladstone), South Fork Water Board (City of Oregon City, City of West Linn), and Sunrise Water Authority (City of Happy Valley, Damascus area). It includes two staff people, a Water Resource Manager and a Public Outreach & Education Coordinator. Combined we serve water to over 300,000 people in Clackamas and Washington Counties.

The CRWP was created by an Intergovernmental Agreement in the Fall of 2007 to coordinate efforts regarding source water protection and public outreach and education around watershed issues, drinking water, and water conservation. Our goal is to preserve the Clackamas River as a high quality drinking water source and minimize future drinking water treatment costs, while being good stewards of the river.

Through these efforts we have been working together for more than ten years to jointly fund projects and studies that would be too expensive to do individually, to foster closer relationships with each other as intra-basin water suppliers, and to speak in one voice when working with other stakeholders in the basin such as PGE. This has allowed us to realize the economies of scale and save money by sharing in the costs of staff people to manage and coordinate programs that benefit all our agencies.

The following is a look at the year in review.

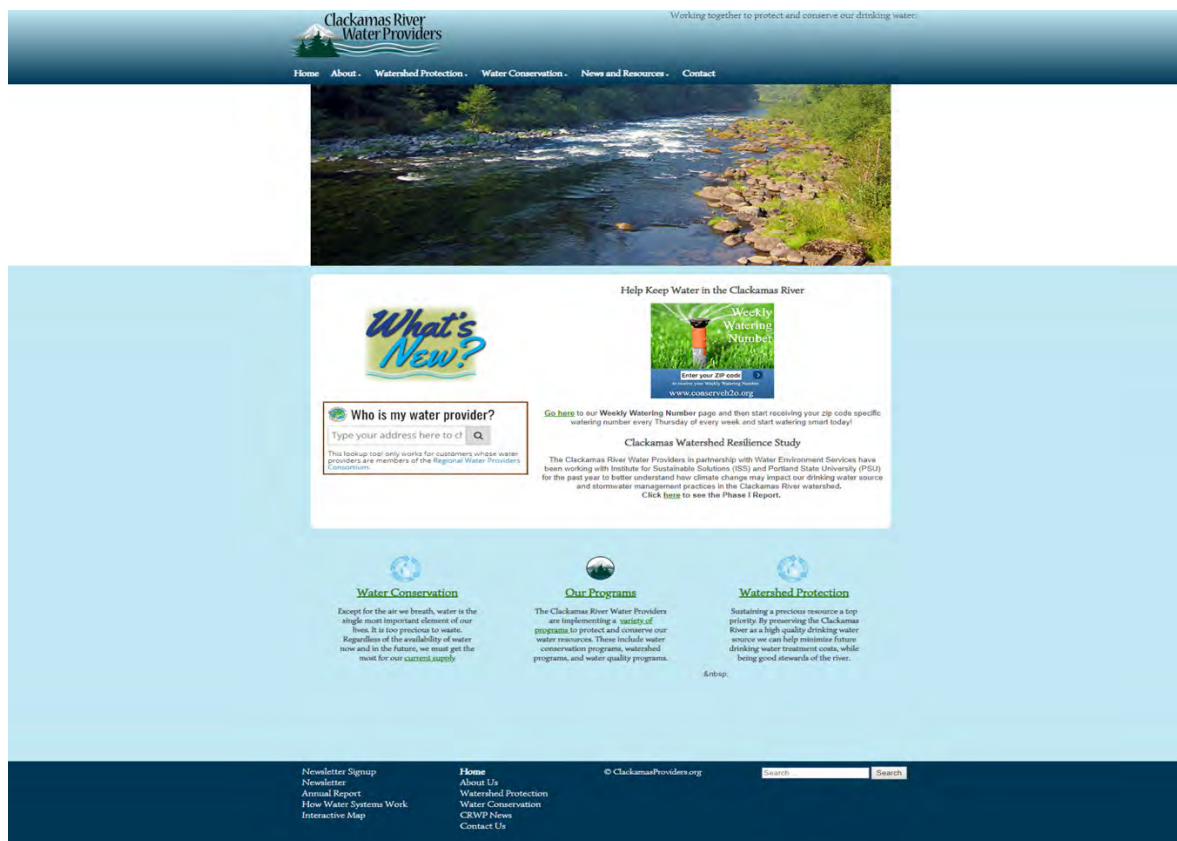
COVID 19

In March of 2020 COVID 19 changed how we do things and how we are interacting with our members, citizens, and watershed partners. Through this process we are doing most our work online and looking at ways to expand the programs that we implement into the virtual world. Due to the COVID-19 pandemic and the Stay Home, Stay Safe initiative and the following social distancing requirements many of the presentations and events that the CRWP typically participates in were canceled.

CRWP Website

The Clackamas River Water Providers website continues to be updated on a regular basis. The site includes information about CRWP members, our source water protection programs, and public outreach and water conservation programs, and is used as a tool for the Conservation Rebate and Landscape Audit Program. The Resources and Documents page contains CRWP outreach material, plans, and reports that can be downloaded. Go to www.clackamasproviders.org to visit the site.

CRWP Website Homepage



Source Water Protection Programs

In 2010 the CRWP completed the development of a Drinking Water Protection Plan for the Clackamas River watershed. This Plan acts as a road map of potential strategies and programs to implement over the next decade and beyond to preserve the Clackamas River as a high-quality drinking water source and to minimize future drinking water treatment costs. The CRWP continues to work on implementing elements of the Plan. The descriptions below describe the CRWP efforts for the 2019-20 fiscal year.

Basin Analysis: Studies, GIS, Modeling and Water Quality Monitoring

Monitoring Contract with USGS

In August of 2016 the CRWP signed a Joint Funding Agreement with USGS to continue the data-collection program and provide the funding mechanism for the USGS to: (1) operate three continuous water-quality monitors in the Clackamas River (at Oregon City, Estacada, and Carter Bridge), and (2) operate a streamflow gage in the Clackamas River at Oregon City for a five-year period from October 2016 through September 2021.

These stations are strategically placed in the basin to provide a holistic view of water quality as water flows through the watershed. Although each station provides important information on their own, when used in combination the WQ monitors can pinpoint where turbidity sources originate (upper basin, middle basin, lower basin), help pinpoint changes in water quality based on land use in different parts of the basin, and can help identify where to start looking if a spill occurs.

These monitoring stations continuously log pH, specific conductivity, dissolved oxygen, temperature, and turbidity. The Estacada and Oregon City gauges also records chlorophyll and streamflow. In addition to the monitoring contract, the CRWP paid for replacement probes, solutions and cables, as well as the utility fees for the real time data signals associated with the USGS monitoring sites. The water quality data can be accessed via the web at <https://or.water.usgs.gov/clackamas/monitors/>

Macroinvertebrate Sampling

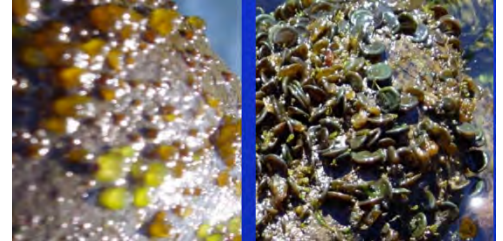
In 2012-13 the CRWP entered into a contract with Cole Ecological, Inc. to develop a long-term macroinvertebrate monitoring plan for the lower Clackamas River and its tributaries. This plan called for sampling from the lower mainstem Clackamas River and its major tributaries on a regular basis in order to produce a robust dataset necessary to identify changes in biological conditions when they occur. In September of 2019 the CRWP conducted another round



of macroinvertebrate sampling at five sites designated in the 2013 plan in the lower Clackamas River between river miles 0.5 and 20. These sites were selected to bracket the four drinking water points of diversion between river miles 0.8 and 3.1, and the Deep Creek sub watershed. A copy of this final report can be found by going to https://www.clackamasproviders.org/wp-content/uploads/2020/04/19-128_CRWP_Macros_Final_Rpt_4-6-20.pdf

USGS Blue Green Algae Study

In July of 2017 the CRWP and the U.S. Geological Survey (USGS) entered into a three-year joint-funding-agreement to assess the effects of harmful algal blooms on drinking water resources in the Clackamas River Basin. The study has 4 objectives:



1. Determine if benthic cyanobacterial populations are producing cyanotoxins.
2. Determine the presence/absence of cyanotoxins in key locations including at selected drinking water intakes using time-integrating Solid-Phase Algal Toxin Trackers (SPATTs).
3. Evaluate the occurrence of cyanotoxins in drifting algae at key locations, including at selected drinking water intakes.
4. Preparation of a peer reviewed interpretive report.

Sampling activities took place during the summers of 2017 and 2018. During 2019 and 2020 USGS will be writing up their findings in an interpretive report that will be shared with the CRWP in the fall of 2020.

Flow Calculator

The CRWP worked with the consulting firm Geosyntec to develop a web-based tool that automatically calculates and displays water provider withdrawals and river flows. The purpose of this tool was to provide CRWP members with a flexible platform that displays allowable withdrawals with real time river flows, which is adaptable as calculations, and data input changes while reducing user error. This web-based approach is customizable and will allow for additional features such as text message or email alerts in the future. During 2019-20 the calculator was updated to include Lake Oswego withdrawals into the tool since their withdrawals occur below the Oregon City gauge.

Groundwater Study

The CRWP contracted with Geosyntec Consultants to conduct a Groundwater Baseflow Study. The goal of this study was to see if we could identify relationship(s) between

snowpack, groundwater, and/or streamflow in the Clackamas River. As snowpack changes in the future due to climate change we strive to understand how resilient our watershed is to these changes to help inform drinking water management. The study found that: 1) More than 50% of the variability of the late-summer flow at the Estacada stream gauge is accounted for by the winter snow water equivalent for that same water year. 2) That this relationship does not provide the desired level of predictive power that would be useful for managing downstream flow requirements. 3) Data limitations (lack of groundwater information) and confounding factors in the watershed present obstacles to further statistical analysis.

Education and Research Assistance

Portland State University - Summer Watering Campaign Assessment

During 2019-20 the CRWP worked with Portland State University graduate students to conduct a focus group and survey of CRWP member citizens around the CRWP's *Fish on the Run. Irrigation Done!* campaign. The purpose of this work was to determine how the CRWP should adjust the campaign based on the finding of this work to help create large-scale behavior change. The Assessment recommendations included: 1) continuing to increase awareness and connection to the watershed, 2) increase personal efficacy by removing barriers to conserving water, and 3) ensure that the campaign address different audiences with different values.

Point Source Evaluation and Mitigation

Tracking, evaluating, and monitoring point sources (water quality and other permits)

The CRWP continues to review water quality permits that come up for renewal to see if there could be an impact on drinking water quality, and if there is an opportunity to provide public comment on these permits. The CRWP comments generally look at ways to enhance permit requirements and ways to better notify CRWP members of spills, overflows, or contamination events. In addition, this is another tool to help educate and remind permittees that the Clackamas River is an important drinking water source.

Portland General Electric (PGE) Blue Green Algae Team/Mitigation Fund Committee

The CRWP continues to be an active participant in PGE's Blue Green Algae Team which oversees PGE's Blue Green Algae Monitoring Program, and the PGE Mitigation Fund Committee. This year the Blue-Green Algae Team reviewed the 2019 Annual Blue-Green Algae Report, which included results from the yearly monitoring program. Monitoring was

conducted from early May through the end of September 2019. No blooms were observed at either Timothy Lake or North Fork Reservoir during the 2019 monitoring season, and no suggested changes were made for the 2020 monitoring.

In 2019, PGE's Mitigation Fund Committee receive an update on the projects from the 2015 funding cycle and approved full or partial funding for 6 projects for the \$1,841,000 available funds in the 2019 funding cycle. These included the following:

- Eagle Creek Large Wood Enhancement – Clackamas River Basin Council (CRBC)
Kingfisher Side Channel – CRBC
- Shade Our Streams – CRBC
- Clackamas River Invasive Species Program – Clackamas Soil & Water Conservation District
- Suter Creek Fish Passage – David Bugni
- Upper North Fork Reservoir Large Wood Fish Habitat – Oregon Wildlife Foundation

Nonpoint Source Evaluation and Mitigation

Eco Biz Certification Support

The CRWP continues to look at ways to support the EcoBiz certification program. This certification program recognizes businesses that go beyond compliance with local environmental requirements and implement pollution prevention efforts in their work sites. Businesses are certified through an intensive application and evaluation process <http://ecobiz.org/>. The CRWP continues to provide funding to purchase EcoBiz Chinook Book Ads. See Appendix A.

Septic System Workshops

One septic system workshop was conducted in FY 2019-20 for 13 people at the Boring/Damascus Grange. The CRWP partners with DEQ, Clackamas County and the Clackamas Soil and Water Conservation District to put on these kinds of workshops. The purpose of the workshop is to provide information on how septic systems work, and why they need to be maintained, along with information on the financial assistance the CRWP provides for septic system owners in the Clackamas River watershed. See Appendix B.

Septic System Financial Assistance Program

The CRWP continued to offer septic system owners that live within the Clackamas River watershed financial assistance for septic system inspections and repairs. To be eligible for the program septic system owners had to live in the watershed upstream from CRWP drinking water intakes and use a DEQ Oregon Septic Smart certified business/contractor. A total of six cost share reimbursements for septic system repairs were processed for a

total of over \$5,200 in financial assistance.

Down the River Clean Up Sponsorship

For the eleventh year in a row the CRWP has provided funding to We Love Clean Rivers, Inc. to support the Annual Clackamas Down the River Clean Up which took place in September of 2019. The 17th Annual Down the River Clean Up included 170 volunteers who cleaned up 1.25 TONS of trash and recyclable materials from the Clackamas River. Since this event began 17 years ago, we've been able to remove over 29 tons of trash from the Clackamas River with the help of almost 3,800 volunteers. As an event sponsor the CRWP's logo is placed on event marketing and outreach material. See [Appendix C](#).



Hazardous Material Spill Response Program

The CRWP continues to work the Pollution Prevention Resource Center (PPRC), a nonprofit organization that is one of the Northwest's leading sources of high quality unbiased pollution prevention information, to implement both our technical and financial assistance for spill prevention efforts to businesses located within the Clackamas Industrial area. Due to COVID 19 the Facility Site Checklist which is typically done onsite was put online to so that facilities could fill it out and submit it remotely. Click on the following link to see which business we worked with https://www.clackamasproviders.org/wp-content/uploads/2020/09/CRWP-PPRC-19_20-Final-Report.pdf

Pesticide Reduction Efforts with the Clackamas Soil & Water Conservation District

The CRWP continues to support the Conservation District Windsock and Pesticide Sprayer programs. In October of 2019 the CRWP worked with the CSWCD and the Oregon Department of Agriculture (ODA) to coordinate a Free Pesticide Collection Event for agricultural users. This event collected 12,790 lbs pesticides for disposal. In addition, in the spring of 2020 the CRWP and CSWD created a Stop the Drift webpage to provide a place where growers could find more information on how to reduce pesticide drift. See [Appendix D](#).

Pesticide Reduction Efforts with the Clackamas River Basin Council

For the 12th year in a row the CRWP has worked with Clackamas River Basin Council to support an outreach program for voluntary pesticide reduction through two mechanisms. One, is through the implementation of a Pesticide Pledge Program. This program is designed to educate property owners about the wise use of pesticides and to empower

them to use alternatives to pesticides. Pledge participants then have the opportunity to display a basin-specific yard sign that acts as a reminder of the steps they are taking to promote and enhance watershed health. 15 households participated in the program during the 2019-20 fiscal year. Second, is the distribution of 9 educational pesticide reduction fact sheets. These fact sheets were distributed by CRBC at landowner site visits, at community tabling events, as well as at Shade Our Streams graduated landowner site visits. The last four of these fact sheets were updated this year. See [Appendix E](#) or visit the <http://www.clackamasproviders.org/pesticide-reduction-efforts/> to see CRBC report for FY 19-20 or to download the fact sheets.



CRBC Financial Support

The CRWP continues to provide funding for operational support for the Clackamas River Basin Council. The Clackamas River Basin Council is working to protect and improve water quality, and fish and wildlife habitat in the Clackamas River basin.

Clackamas Partnership

The Clackamas Partnership formally came together in 2015 through an Oregon Watershed Enhancement Board (OWEB) Focus Investment Partnership Capacity and Strategic Planning grant with the goal of increasing the pace, scale, and complexity of restoration project implementation in the Clackamas watershed. In January of 2019 the Partnership was informed that they were awarded a 6-year Implementation Grant totaling \$8,744,080

to support fish habitat restoration in the Clackamas River Basin benefitting Chinook salmon, coho salmon, steelhead, and other native fish species.

The CRWP is recognized as a Supporting Partner who provides technical support, participates in project prioritization and planning through the technical advisory committee (TAC), supports implementation through funding, technical assistance and other means, and participates in the Partnership's governance and decision-making. The CRWP is also part of OWEB's Technical Review Team reviewing all of the individual grant projects for the Clackamas Focused Investment Partnership. In 2019-20 the Technical Review Team reviewed two rounds of project applications.

Disaster Preparedness and Response

The Clackamas Spill Committee

The CRWP convenes an Annual Clackamas Spill Committee meeting with stakeholders (staff from DEQ, Clackamas County, ODOT, as well as local hazmat and first responders) to talk about hazardous material spills and spill response. Due to COVID 19 the Committee did not convene in 2019-20. The CRWP continues to work with spill response partners to find more effective ways of communicating and responding to hazardous material spills and plans on convening a meeting during the fall of 2020.

Clackamas Basin Emergency Communications

Rather than conducting a Table Top Exercise this year the CRWP members chose to hold a communication workshop instead that would focus on inter basin communication around water related events involving one or all CRWP member organizations. Due to COVID 19 a larger scale workshop that would have included CRWP board members and member agency staff was change to a smaller online format. Due to a number of factors this workshop will not take place until October 2020.

In addition, in the spring of 2020 the CRWP entered into a three-year agreement with Regroup Mass Notification. This notification system allows Clackamas water providers to quickly and efficiently communicate if there are water related incidents or events by allowing us to send and receive messages via email, text/SMS, push notifications, desktop alerts, and voice calls. This system also allows us to address a long-term complaint from our first responder stakeholders (CFD#1 and CCOM) that the water providers do not have "one number" for notification in the case of an incident. This platform resolves this issue once our stakeholders were trained on how to use the platform to communicate with the water providers.

Public Outreach and Information Sharing

See the Public Outreach & Education Program section for additional information.

Annual Watershed Tour

The Annual CWRP Watershed Tour was held on Saturday, October 5th, 2019. This year's tour focused on the upper Clackamas watershed and included talks by the USFS, PGE and ODFW. The tour included a stop at the Fish Creek Campground and Cater Falls to talk with the Forest Service about Wild and Scenic River designations, the impacts of dispersed camping on the forest, and development of a new recreation site at Carter Falls. We also stopped in Milo McIver State Park to learn about a PGE side channel restoration project and how they are adding gravel back into the river system, and ODFW gave us a tour of the Clackamas Fish Hatchery and talked about some of upgrades they have been making to the hatchery.

2019 Watershed Tour



Source Water Protection Presentations

CRWP staff gave a number of presentations this year regarding how the Clackamas River Water Providers operate and function, and the source water protection and public outreach and education programs that we implement. See [Appendix F](#).

Other Water Resource Activities

Stored Water Agreement with PGE

The CRWP continues to implement the Stored Water Agreement with PGE, providing us with the ability to call for water to be release from Timothy Lake at certain times of year for municipal water use.

Water Resource Related Committees

The Water Resource Manager continues to represent the interests of the CRWP on a number of different water resource related committees. These include: the Oregon Water Utilities Council, Clackamas County Local Emergency Planning Committee, the Clackamas Stewardship Partners, the Clackamas Partnership, Clackamas Technical Basin Workgroup, EcoBiz Pollution Prevention Outreach Team, the Drinking Water Source Protection Group, the PNWS-AWWA Water Resource Committee, and the American Water Works Association Source Water Protection Committee.

Public Outreach & Education Program

This program provides public outreach and education, as well as conservation services and programs to CRWP members. Some of the activities described below are not provided for the City of Lake Oswego or the City of Tigard. The primary focus of the program is on education and outreach efforts to the public regarding source water protection and watershed issues, drinking water treatment and distribution, indoor and outdoor water use, and water conservation. This allows us to provide a holistic view of how our water resources are connected and why it is important to protect and conserve the water we get from the Clackamas River. There are a number of individual programs or components that provide awareness, information, motivation and action for our customers. The following is a summary of what the public outreach and education program accomplished this past year.

Youth Education, Presentations, and Assembly Programs

The CRWP youth education program is an integral part of our outreach and education efforts. The goal of this program is to educate students about the Clackamas River watershed, the process for treating and distributing public drinking water, and water conservation issues so they develop overall awareness and water changing behaviors. The secondary goal is for students to take this information back to their parents.

The CRWP programs are offered at no cost to the schools and range from classroom presentations done by staff, assembly programs performed by contractors, as well as education resources for teachers. A total of 46 classroom presentations, assembly programs, and treatment plant tours were provided to approximately 3,368 students between July 1, 2019 and March of 2020 (these numbers do not include the Children's Clean Water Festival and the CCWET Celebrating Water Event). Due to COVID 19 and the remainder of the school being canceled, 5 scheduled stage shows were canceled.

See [Appendix G](#) for a list of CRWP schools. See [Appendix H](#) for a breakout by CRWP member of where these programs were completed.

Treatment Plant Tours

The Public Outreach & Education Program coordinates water treatment plant tours for the general public and CRWP member area schools. This year six tours of the South Fork Water Board drinking water treatment plant were given to 4th and 5th grade students from Bolton Primary located in the city of West Linn.

Mini Water Education Grants for Teachers

The youth education program offers Mini Water Education Grants to teachers. These grants of up to \$250 are intended to provide supplemental funding for water related projects or field trips to encourage water education in the schools. We processed 9 grants for 33 teachers this past year. See [Appendix I](#) for more detailed information.

Water Conservation Calendar

The Annual Water Calendar is a collaborative project with CRWP grade schools where local students participate in a coloring contest with a water education theme. The theme for the 2021 Calendar was “Healthy River, Happy Fish, Happy People”. Because of the COVID-19 pandemic and students being taught from home submitting pictures for the calendar posed some challenges. This year 19 classes from 10 different schools participated in the contest with approximately 200 entries.



Thirteen pictures were chosen from all the entries submitted and were posted on the CRWP website for one week (May 25th – June 1st,) so students, their teachers, families and friends, and the general public could vote for which one of the 13 pictures would be on the cover of the 2021 calendar. Each school that had at least one class participate in the contest will receive a box (125) of calendars to give out to family and friends or to use as fundraisers. Additional calendars are available to teachers, families, and the general public upon request. See [Appendix J](#) for a list of schools that participated in the project this year.

15th Annual Clackamas County Water Education Team (CCWET) Celebrating Water Festival

CRWP staff continues to Chair the CCWET. Made up of organizations working together on environmental, water and watershed related issues in Clackamas County. These community groups and local agencies promote programs and resources that included watersheds, water quality, water conservation, micro-watersheds, drinking water, salmon, enhancement, restoration and stewardship to help take care of our drinking water and our natural heritage of fish and wildlife in Clackamas County that depend on a healthy watershed.

While supporting each other's public education goals and efforts throughout the year the CCWET organizes an annual Celebrating Water event held at Clackamas Community College which host a day of water and environmental learning to approximately 500 4th and 5th grade students, their teachers, and chaperones from the Clackamas County area. The event includes an exhibit hall with more than 25 hands on exhibits, as well as 2 stage shows highlighting storyteller Will Hornyak, and Recycleman and The Dumpster Divers providing water and environmental education to the event attendees.

Because of the COVID-19 pandemic and the Stay Home, Stay Safe initiative, for the first time in event history the 2020 Celebrating Water Festival was canceled in order to ensure the health and safety of all who are involved in organizing and presenting the festival, the students, their teachers, and chaperones who would have attended the event.

27th Annual Clean Water Festival

CRWP staff is an active member of the Children's Clean Water Festival organization committee. The Children's Clean Water Festival is a free, day-long environmental education event engaging over 1,400 fourth-grade students from throughout the Portland, Oregon metro area. Each year, students come to a college campus for a day of learning and fun that includes more than 40 hands-on, water-focused activities, classroom presentations, and stage shows that reinforce STEM, Common Core, and Next Generation Science concepts. Because of the COVID-19 pandemic and the Stay Home, Stay Safe initiative, for the first time in festival history the 2020 Children's Clean Water Festival was also canceled in order to ensure the health and safety of all who are involved in organizing and presenting the festival, the students, their teachers, and chaperones who would have attended the one-day event.

Support of Clackamas County Sustainability Outreach to Businesses

The CRWP continues to partner with Clackamas County to support the Sustainability and Solid Waste Business Outreach Team by providing the County with bathroom/kitchen faucet aerators, industrial pre-rinse spray nozzles, and a number of water conservation

brochures to help business owners within the CRWP service areas learn how to be more efficient with their water and earn their “Leaders in Sustainability” certification. This year the Sustainability & Solid Waste business outreach team provided assistance to over 1000 businesses throughout the county, 16 businesses became certified or recertified representing over 1,700 staff as a Leader in Sustainability getting recognized for their efforts in waste and toxics reduction, green purchasing, corporate social responsibility, energy and water conservation. Overall, the County’s Sustainability and Solid Waste Business Outreach Team provided businesses in our service areas with 40 - 1.5 GPM kitchen faucet aerators, 25 - 1gpm bathroom faucet aerators, and 10 pre-rinse kitchen spray nozzles.

Clackamas Community College Horticultural Department Water Efficient Demonstration Garden Restoration and Maintenance and IA courses

This past year the CRWP continues to work with Clackamas Community College Horticultural Department in supporting the update of the Water Efficient Demonstration Garden located at CCC which was originally installed in 2003. The CRWP financial support this past year paid for new plants and contracted demolition needed for the new gardens to be put in place. All other man power needed for the garden update is being provided by the students. The garden rehabilitation will progress in sections as to be relevant to student learning and time of year.

The CRWP has also collaborated with the Horticultural Department and the City of Lake Oswego to bring 3 of the Irrigation Association's certification classes to the college. The first class, a one-day Irrigation System Install and Maintenance class was held April 13th. Twenty - four landscape professionals attended the 8-hour class. The 2-day Irrigation and Design class held in the fall of 2019 had 14 participants. The second Irrigation System Install and Maintenance class scheduled for the spring of 2020 was canceled due to COVID 19.

Water Efficient Mobile Garden

In 2014, the CRWP entered into a MOU with a number of other water resource organizations in Clackamas County for the maintenance and care of the mobile water efficient demonstration garden. The group continues to take the garden to various events throughout the spring and summer to educate the public about native and water efficient gardening. This year the mobile garden visited the Stafford Family Festival in September of 2019. Because of the COVID-19 pandemic and the Stay Home, Stay Safe initiative, the garden did not visit the following annual public events: the Clackamas Lavender Festival, the Clackamas Master Gardener's Spring Plant Sale, the Clackamas County Fair, and various farmers markets within our collective areas.

Community Events

CRWP staff participated in a total of 7 community events within the CRWP service areas providing conservation, source water protection, drinking water information, and promotional items at these events. This gave staff the opportunity to engage in one on one conversation about water conservation and watershed issues with our customers. Because of the COVID-19 pandemic and the Stay Home, Stay Safe initiative the following public events were canceled: The Estacada Earth Day Event, The Home and Garden Event, and the City of Gladstone Public Works Event. [See Appendix K](#) for the list of events.

Adult Presentations

CRWP staff offer free presentations to adult audiences. These presentations give staff the opportunity to talk to members of our community as well as peers regarding the Clackamas River Water Providers group and how we operate, where our water comes from, how we treat the river water for public use and why watershed protection and water conservation are so important. The goal of this program is to continue outreach to neighborhood associations, CPO's, local garden groups, or other civic groups interested in learning about our drinking water. This year staff gave 6 adult presentations/interviews. [See Appendix L](#) for a detailed list.

Newsletters & Websites

CRWP staff continues to send CRWP public education and outreach member agencies articles and information throughout the year for their newsletters and websites. Topics ranged from general water conservation, indoor conservation, to outdoor conservation tips, watershed and water resource issues, emergency preparedness as well as resources that are available through the CRWP such as the rebate and landscape water audit programs. In addition, the CRWP has a quarterly E-newsletter that it distributes to CRWP customers, members and interested parties, as well as being posted on the CRWP website. [See Appendix M](#) for an example of our quarterly E newsletter.

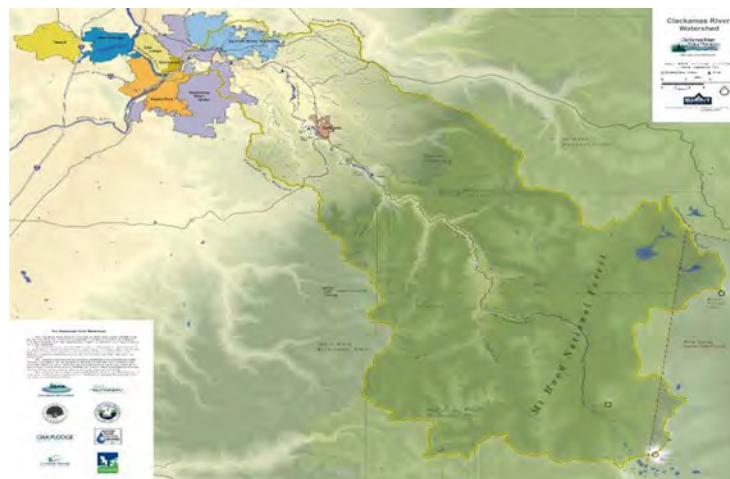
Conservation Outreach Materials

The CRWP continues to develop outreach materials and use a number of promotional items with the CRWP logo and contact information on them such as shower timers, pencils, paper bags, indoor water audit kits and brochures. These were passed out to citizens at events, member offices and city halls, through the school programs, and mailed to customers upon request. This year the Teacher Flyer, CRWP Activity Book, and Rebate brochures were reprinted. Due to COVID all items materials are available upon request and/or are posted on the CRWP website where they can be downloaded. A more detailed description of new outreach pieces created this year are below.

Clackamas River Watershed Display Model

In late 2018 the CRWP was awarded a \$15,000 SRF Drinking Water Source Protection grant to create a 3-D topographical display map of the Clackamas River Watershed and the areas which receive the Clackamas River water as a drinking water source. The purpose of the grant was to create a portable, interactive, and place-based model that the CRWP can use for public outreach and education efforts around where our drinking water comes from, and the importance of protecting our drinking water source. In addition to using the grant funding to design and produce a watershed display model for public outreach, in late 2019 the following CRWP member offices and treatment plants received a framed and mounted copy of the model for display: City of Estacada, City of Gladstone, City of Oregon City, City of Tigard, City of West Linn, Clackamas River Water, Lake Oswego Tigard Partnership, North Clackamas County Water Commission, Oak Lodge Water Services, South Fork Water Board, and Sunrise Water Authority.

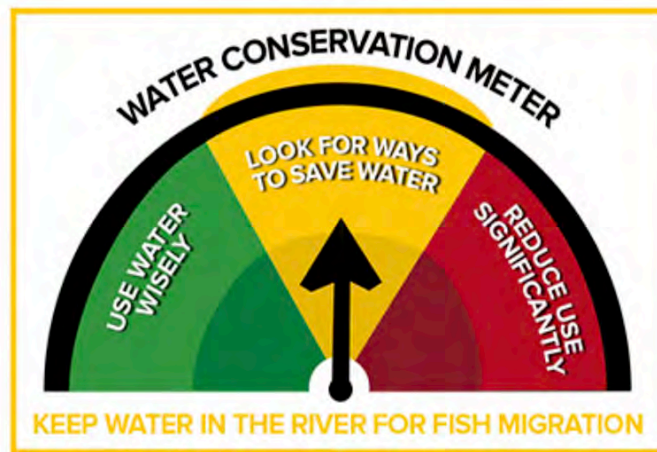
Picture of Clackamas River Watershed Display 3-D Model



Fish on the Run, Irrigation Done. Summer Watering Campaign

This was the second year of the CRWP summer *Fish on the Run. Irrigation Done!* watering campaign created to encourage CRWP member customers to reduce outdoor water use starting in mid-August and to discontinue outdoor water use by mid-September so that we can leave more water in the river for the fall Chinook and Coho fish migrations. The campaign included webpages created for the CRWP website specific to this campaign that provide customers with more information, conservation articles, audio PSAs, as well as the ability to take the Fish on the Run pledge online. Seven customers filled out the pledge and received yard signs. Signs were also delivered to CRWP member organization to post in their city parks.

In an effort to enhance the campaign the CRPW added a new River Level/Conservation Meter component. The new meter is a visual meter either RED, YELLOW, or GREEN is evaluated weekly throughout the late summer and notifies us the severity of the river conditions and how much we should be conserving. Customers are encouraged to visit our website and the Fish on Run webpage for specific conservation information, tips, and actions when the meter is at stage Orange or Red.



In addition to the webpage and outreach materials the CRWP worked with Pamplin Media Group to place a press release, digital ads and print ads in the following CRWP member area newspapers: Clackamas, Estacada, Lake Oswego, Oregon City, Tigard, and West Linn.

The intent is that this campaign will run from August to October each year. [See Appendix N](#) for more details.

NEW Flume Smart Water Monitoring Device Pilot Program

During the 2019-20 fiscal year the Clackamas River Water Providers began working with FLUME to offer a pilot \$100 rebate to eligible CRWP customers if they purchase a new Flume Smart Water Monitor device. Flume is a first-of-its-kind, easily installed household device that puts the power of water monitoring into the hands of homeowners. The Flume device detects small leaks before they cost money and cause damage, allows customers to receive push notifications on suspicious water activities, set water usage goals and water budgets, and gain real-time information on household water consumption. To provide customers with more information on the new Flume pilot rebate program the CRWP developed a brochure and a new webpage. [See Appendix O](#) for more details and a copy of the Flume brochure and webpage.

Technical and Financial Assistance Programs

Water Efficient Landscape Audit Program

In May of 2017 the CRWP kicked off a Residential Landscape Water Audit program for CRWP members who support the Outreach and Public Education program. The CRWP contracted with a landscape and irrigation professional to perform the audits. The Audits consist of a complete onsite overview of the customer's landscape starting with the location of the customer's meter, checking for leaks, an inspection of the customer's irrigation system, and a full walk through of the customer's yard, garden, and lawn areas.

The customers are invited to use this time with the Auditor to answer any questions and address any landscape and watering concerns they might have. When the onsite audit is complete the customer receives a full written report with water efficient recommendations. The program is marketed through the distribution of a brochure at CRWP member's offices, at summer events, as well as through the CRWP website. Twenty-six customers took advantage of the audits this year. [See Appendix P](#) for more details and a copy of the brochure.

Water Conservation Rebate Program

The CRWP public outreach and education program completed its tenth year of administering the Water Conservation Rebate Program. This year the program processed more rebates in three months than in a normal year and ran out of money in October of 2019. A total of 218 rebate applications were processed with a total 242 rebates this past year. The Program offers a range of rebates for toilets, clothes washers, smart irrigation controllers, hose bib timers and/or irrigation rain switch, and irrigation spray nozzles. The program is marketed through the distribution of a brochure at CRWP member's offices, and at local Home Depots and Lowes, and to the public at summer events as well as through the CRWP website. [See Appendix Q for details.](#)

Other Public Education and Outreach Activities

Conservation Related Committees

CRWP staff continues to attend meetings and represent the CRWP interests on a number of different public outreach and conservation related committees. These include the Regional Water Provider's Consortium Conservation and Communicators Network Committees, the Children's Clean Water Festival Planning Committee, Chair of the Clackamas County Water Education Team (CCWET), a member of the Clackamas Sustainability Cooperative, and a member of the PNWS-AWWA Conservation Committee, and Chair of the Northwest Oregon subsection Waterworks School organization committee.

Appendix A - EcoBiz Chinook Book Ads

Does your Auto Mechanic Help keep Oregon green?



\$20 GIFT CARD for successfully referring your mechanic to receive a FREE EcoBiz assessment!*

For more info, email BWendell@pprc.org

*Restrictions apply. Limited number available only in certain communities throughout Portland Metro region.

EcoBiz is sponsored by the Pollution Prevention Outreach team, whose members include:



Does your Landscaper Help keep Oregon green?



\$20 GIFT CARD for successfully referring your landscaper to receive a FREE EcoBiz assessment!*

For more info, email BWendell@pprc.org

*Restrictions apply. Limited number available only in certain communities throughout Portland Metro region.

EcoBiz is sponsored by the Pollution Prevention Outreach team, whose members include:



Appendix B - Septic System Workshop

FREE Septic System Workshop

Learn how to Check it, Fix it, Maintain it!

Thursday, November 14, 2019

6:00 - 8:00 pm

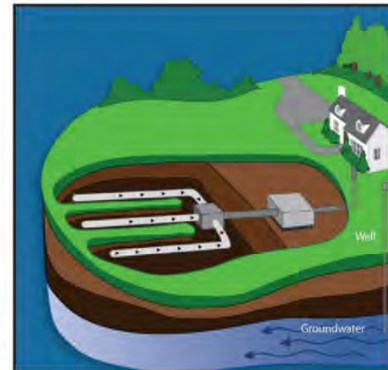
Boring-Damascus Grange

27861 SE Grange Street in Boring, Oregon

Save the Date!

The workshop will cover:

- how septic systems work
- operation and maintenance
- signs of failure, codes, and permits
- financial and technical assistance
- also includes free well water nitrate screening



Class size is limited, so registration is required.

To register: contact Tami at Clackamas Soil and Water Conservation District
(503) 210-6000 or tguttridge@conservationdistrict.org

Sponsored by: Clackamas River Water Providers, Clackamas Soil and Water Conservation District, Clackamas County, and Oregon Department of Environmental Quality

Appendix C – Down the River Clean Up



**JOIN US
FOR THE 17TH ANNUAL**

DOWN THE RIVER CLEAN UP
ON THE BEAUTIFUL CLACKAMAS RIVER
SUNDAY, SEPTEMBER 8TH, 2019

A VOLUNTEER CLEANUP AND BOATING EVENT, FOLLOWED BY A
FREE BBQ WITH MUSIC, RAFFLE, AND SILENT AUCTION

ONLINE REGISTRATION REQUIRED at WWW.WELOVECLEANRIVERS.ORG
VISIT THE WEBSITE FOR MORE DETAILS AND VOLUNTEER ROLE DESCRIPTIONS

  MANY THANKS TO: CLACKAMAS RIVER WATER PROVIDERS, DANNER, METRO, SOLVE, CLACKAMAS COUNTY, CLACKAMAS COUNTY PARKS, CLACKAMAS COUNTY SHERIFF, OREGON STATE PARKS, AMERICAN MEDICAL RESPONSE, eNRG KAYAKING, OREGON CITY BREWING COMPANY, WILD SPIRIT RIVER COMPANY, CLACKAMAS RIVER OUTFITTERS, NW STEELHEADERS, AND MANY MORE!!

Appendix D - Pesticide Reduction with CSWCD
Pesticide Collection Event

FREE Agriculture Pesticide Collection Event
Saturday, October 26, 2019 in Clackamas Oregon
by appointment only

- **Free** disposal of old restricted pesticides or other unusable pesticides
- Anonymous collection event
- Triple-rinsed or pressure-washed plastic pesticide containers collected FREE - no registration needed for empty containers
- **Must pre-register for appointment to drop off pesticide**

Pre-register: Contact Charles Lamb of Clean Harbor Environmental Services at 971-202-3825 or lamb.charlesT@cleanharbors.com by October 17.

After October 17 call Clean Harbors to see if room is available!

Registration forms and more information available at www.clackamasproviders.org or www.conservationdistrict.org

Limited funding! So register early!

Sponsored by: Clackamas River Water Providers, Clackamas Soil and Water Conservation District, Oregon Department of Environmental Quality, and Oregon Department of Agriculture

Appendix D -Stop the Drift webpage



PESTICIDE DRIFT REDUCTION PRACTICES

Low levels of pesticides continue to be detected in the Clackamas River and its tributaries. This is due to the uses of these chemicals in the urban, right of ways, and agricultural areas. Pesticide drift is one of the contributing factors to these detections. Pesticide drift is the movement of pesticide dust or droplets through the air to any site other than the area intended to be treated. Learn how you can better manage pesticide drift while improving your bottom line and reducing pesticides in our streams and rivers.

These activities will provide benefits to your bottom line and reduce the potential for airborne chemical drift. It is a win-win situation for you, wildlife, and the 300,000+ people who get their drinking water from the Clackamas River.

HEDGEROWS



Illustration by: Gary Bentrup, [USDA National Agroforestry Center](#)

In addition to acting as low maintenance fencing once established, hedgerows can also be designed to filter pesticide drift. Attaining the correct porosity for proper filtration is key to a successful installation.

WINDSOCKS

Wind speed is an important weather factor influencing the movement of pesticides through drift. Use tools such as windsocks to monitor wind speed while you are applying pesticides. This practice will ensure that wind does not blow pesticides out of the treatment area, wasting chemicals, money, and time. Calibrated windsocks indicate wind speed from 2 to 12 miles per hour and can help agricultural producers make good decisions in the field to avoid losing chemicals to drift from wind. It is recommended to spray at wind speeds between 2-9 miles per hour. Never spray when wind speed is greater than 9 miles per hour.



Learn More:

<https://conservationdistrict.org/2014/windsocks-help-reduce-pesticide-drift.html?highlight=windsocks>

<https://www.clackamasproviders.org/wp-content/uploads/2014/05/Windsock-handout.pdf>



(EFFICIENT) SPRAYERS

Improving the efficiency of your sprayer provides benefits to your operation AND reduces the chance of pesticides leaving your fields. Better application of the chemical makes it more effective in correcting the problem, saving time, money, and labor. There are many ways to improve the efficiency of your sprayer. For instance, choosing the correct nozzle for the type of application can avoid over or under application of chemicals. While nozzles seem like a very small part of your sprayer they are very important and worth the time and money it takes for proper selection and replacement.

Calibration is also vitally important to make sure your sprayer is applying chemicals as effectively and efficiently as possible. Please also remember to time your applications when rain is not predicted for the next 24 hours.

One last option is the opportunity to retrofit your current air blast sprayer to be an intelligent sprayer. After many years of research and field testing, the intelligent sprayer technology is available. Research confirms up to 87% less airborne drift and 40-87% reduction in spray loss beyond tree canopies.

Appendix E - Pesticide Reduction Outreach Program with CRBC

Pesticide flyers updated

Protect our River Integrated Pest Management

Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices. IPM can be used in agriculture, at home, in the garden or in the workplace.

How do IPM programs work?

IPM is not a single pest control method but a series of pest management evaluations, decisions and controls. In practicing IPM, growers, homeowners and businesses use these five steps to minimize pest damage.

- 1. Identify and Monitor Pests**
Not all insects, weeds, and other living organisms require control. Know which pests are present that can cause damage.
- 2. Evaluate the Situation**
Determine if pests are at a level to create problems and identify options to prevent or control them.
- 3. Prevent Pest Damage**
Native plants are adapted to be resistant to common pests. Be sure to plant in locations where sun and soil types are appropriate. Plant early, use barriers against climbing pests and rotate crops.
- 4. Use Effective and Less Risky Controls**
Mechanical controls such as hoeing or weeding may minimize risk to the environment. Targeted hormones, such as pheromones disrupt pest mating, and targeted spraying of pesticides limits risks and cost.
- 5. Monitor for Impact**
Further monitoring is needed to see if controls are working. If additional pest control methods are needed, use a targeted and least risky approach. Broadcast spraying of non-specific pesticides should be evaluated carefully for specific sites and pests.

Why use IPM?

Reduce Health Risks
Misuse of pesticides can be toxic to humans, pets and wildlife.

Minimize Pesticide Loss
Misuse of pesticides can cause die offs of beneficial insects like pollinators.

Reduce Pesticide Resistance
Overuse of pesticides can cause species to evolve via natural selection to survive.

Pesticides can contaminate the environment including air, ground and surface water. Many natural enemies of pests are killed by pesticides, and pests can become resistant to pesticides, increasing control costs, crop losses or other pest damage. Integrated Pest Management reduces hazards by reducing overall pesticide use.

Clackamas River Basin Council | P.O. Box 1869 | Clackamas, OR 97015 | 503.303.4372 | info@clackamasriver.org | www.clackamasriver.org

Protect our River Integrated Pest Management

Pesticides carried by stormwater runoff, wind and irrigation can contaminate streams and drinking water. Reduce pesticide use by practicing Integrated Pest Management.

Prevent pests:

Plant native trees and shrubs that are adapted to the local climate and are more resistant to pests and disease. Improve soil before planting to give young plants a healthy start. Plant a variety of plants to ensure blooming from spring to fall to attract beneficial insects. Mulch plants or plant spreading native groundcovers to reduce weeds. Water only as needed.

Plant natives

Attract beneficial insects

Mulch or plant groundcover

Mechanical Controls:

Some weeds and pests can be controlled by using tools for weeding, hoeing and raking. In addition, pests can be managed through mowing, or by aerating or tilling the soil. Use methods that minimize soil disturbance and erosion.

Biological Controls:

Biopesticides are naturally occurring chemicals, microbes, or plant-produced chemicals that fight pests. Many are regulated by the EPA, so be sure to follow label instructions. Predatory insects like lady bugs or preying mantises will control populations. Pheromone traps can be used to help monitor and control insect infestations.

Biopesticides
Control pests using things found in nature

Predatory Insects
Feed on insect pests, eggs and larvae

Pheromones
Attract pests for identification

Resources:

Clackamas River Basin Council
www.clackamasriver.org/resident-resources/pesticide-reduction
Clackamas River Water Providers
www.clackamasriver.org
Clackamas Soil and Water Conservation District
www.conservatondistrict.org
Metro/Grow Smart, Grow Safe
www.growsmartgrow-safe.org
National Pesticide Information Center
www.npic.orst.edu
EPA Agriculture Management for Water Quality Module
https://efpub.epa.gov/watertrain/pdf/modules/Agriculture.pdf
OSU Extension
www.extension.oregonstate.edu
US Department of Agriculture
Clackamas River Basin Council | P.O. Box 1869 | Clackamas, OR 97015 | 503.303.4372 | info@clackamasriver.org | www.clackamasriver.org

www.nrcs.usda.gov
Oregon Department of Agriculture
www.oregon.gov/ODA/programs/Pesticides
Clackamas Basin Pesticide Stewardship Partnership
www.conservatondistrict.org/programs

Parting with Pesticides is a joint program funded by Clackamas River Water Providers with outreach and programming through Clackamas River Basin Council.

Photos: © Vectorstock, Entomological Society of America, USDA

Protect our River Pesticide Application

Some pesticides are highly regulated in Oregon. If you are applying pesticides, be aware of licensing requirements.

Do I need an applicators license?

When licensing is not needed:

- When applying pesticides, other than Restricted Use Pesticides (RUPs), to property owned by you or your employer
- Applications of general use pesticides by public employees with non-powered equipment, except on school properties
- Advising others on general use pesticides
- Applying pesticides as a part of landscape maintenance under specific conditions

When licensing is needed:

- Buying, applying, or supervising the use of Restricted Use Pesticides (RUPs) (Restricted Use Pesticides are not available to the general public)
- Advising others on the use of RUPs
- Applying pesticides to someone else's property (private or public land)
- Applying pesticides as a public employee using machine-powered equipment and/or applying RUPs
- Applying pesticides on school properties

WARNING
Restricted Use Pesticide License Required

What are Restricted Use Pesticides?

Certain pesticides have been identified to have the potential to cause adverse effects to the environment and injury to applicators or bystanders. The "Restricted Use" classification restricts a product to use by a certified applicator or someone under the certified applicator's direct supervision.

Protect yourself and the environment:

Applicators should be trained before they apply any chemicals and use personal protective equipment while making applications with Restricted Use Pesticides, as specified on the label, even during warm weather.

Always read the labels before using pesticides. Make sure you know how, when and where to use a particular product. Labels point out risks, how to prevent problems and requirements for use. Following the instructions is required by state and federal law. The Directions for Use include specific information on how much pesticide should be mixed and applied, and where it may be used.

Information on how the product can affect the environment is listed under Environmental Hazards.

Labels provide key information on product use.

Product Name
Intended Use
Ingredients
Signal Word
Directions for Use
Precautions
First Aid
Environmental Hazards
Safety & Storage

Clackamas River Basin Council | P.O. Box 1869 | Clackamas, OR 97015 | 503.303.4372 | info@clackamasriver.org | www.clackamasriver.org

Protect our River Pesticide Application

Pesticides carried by stormwater runoff, wind and irrigation can contaminate the Clackamas River and its tributaries, a drinking water source for 360,000 people.

What's in the river?

A 2013 study of Clackamas streams published in the journal *Environmental Monitoring and Assessment*, detected 33 pesticides, including insecticides, fungicides and herbicides. Nearly all streams tested contained at least one pesticide at levels exceeding benchmarks set to protect fish and invertebrates. Two insecticides approved for agriculture or residential use, bifenthrin and fipronil, were found in many samples. Aquatic ecosystems contaminated by insecticides threaten the health of aquatic insects and fish and the safety of drinking water. Once in the water, pesticides can be difficult or impossible to remove.

How pesticides get into our water:

- Pesticides may enter waterways through runoff when they are applied near surface water.
- Pesticides applied just before or during rain storms can wash into waterways.
- Pesticides can drift when sprayed in warm or windy conditions, and can contaminate adjacent land and streams.
- Groundwater can be contaminated when pesticides are carried through soil by rain or irrigation water.

How you can help:

If pesticide use is unavoidable, be sure to use them responsibly following directions.

Check your sprayer — is it clean, well-maintained and properly calibrated?

Read the instructions — when possible, use pesticides that are approved for the specific pest, plant or area, rather than broad spectrum pesticides. Mix only the amount needed for your job.

Check the weather — rain can wash pesticides away before they have a chance to act. Wind or warm temperatures can cause sprayed pesticides to drift onto non-target plants.

Research new or existing products — when possible, select a product that has a lower toxicity, shorter persistence, lower potential to be carried in runoff, and lower potential to leach into groundwater.

Practice proper disposal — Follow label guidelines or triple-rinse empty containers prior to recycling. Do not dispose of leftover products by pouring them down a sink, flushing down the toilet, or dumping down a storm drain.

Recycling Resources: Metro Recycling - 503.234.3000
www.oregonmetro.gov/tools/living/garbage-and-recycling
Outside the Metro tri-county area - 1.800.732.9253

Parting with Pesticides is a joint program funded by Clackamas River Water Providers with outreach and programming through Clackamas River Basin Council.

Clackamas River Basin Council | P.O. Box 1869 | Clackamas, OR 97015 | 503.303.4372 | info@clackamasriver.org | www.clackamasriver.org

Protect our River Tree Grower Tips

Oregon is the largest Christmas tree producer in the nation, and much of the Christmas tree industry is concentrated along the Clackamas River watershed, a drinking water source for over 360,000 Oregonians and a wild salmon stronghold.

Pesticide Use on Tree Farms:

Many tree growers apply herbicides, like Roundup, to control weeds. They apply insecticides, such as Lorsban, to kill damage causing aphids. Growers also use fungicides to control diseases. The Oregon Department of Environmental Quality has found many toxic pesticides at levels exceeding EPA benchmarks in the Clackamas watershed. At least two of these – chlorpyrifos and chlorothalnil – are used by growers.

Pesticides can cause health risks:



Herbicides
Atrazine
Weed Killer Spray




Insecticides
Chlorpyrifos
Sprays & Granules




Fungicides
Chlorothalnil
Mold & Mildew Spray

Prevention and Monitoring:

To minimize use of pesticides, plant tree species well-suited for your specific site conditions, especially soil type and drainage. Contact Oregon State University's Natural Resource Conservation Service Field Office or Clackamas Soil and Water Conservation District to find out what soil type you have and which trees might be most appropriate. Once planted, check your trees often for pests and disease. Catching an infestation early enables you to contain the problem quickly, keeping damage to a minimum.



Pine Trees
Sandy or sandy loam soil
Porous, drains quickly



Fir and Spruce Trees
Fine-texture loams and clay loam
Holds more water

Hedgerows and Buffers:

One of the best ways to keep pesticides out of waterways is to leave a vegetative buffer strip along the stream. Buffers help protect waterways from drifting pesticide spray and trap sediments, pesticides and pollutants carried by runoff. Buffers also minimize stream bank erosion by holding soil in place. For technical assistance with erosion control or prevention, contact the Clackamas Soil and Water Conservation District.



Clackamas River Basin Council | P.O. Box 1869 | Clackamas, OR 97015 | 503.303.4372 | info@clackamasriver.org | www.clackamasriver.org

Protect our River Tree Grower Tips

Pesticides carried by stormwater runoff, wind and irrigation can contaminate streams and the Clackamas River, threatening the health of aquatic life and the safety of drinking water.

Learn about pesticide best practices:

Agricultural producers such as Christmas tree growers are facing possible regulation if pesticide levels in streams are not reduced.

Work with Clackamas River Basin Council, Clackamas Soil and Water Conservation District and Oregon State University to create a plan for the Clackamas Watershed to voluntarily reduce or eliminate pesticides of concern, leaving growers free from excessive regulation and reporting requirements.



Integrated Pest Management:

Programs and information are available for growers who want to minimize environmental impacts by practicing integrated pest management. The Clackamas Basin Pesticide Stewardship Partnership offers many resources.

IPM is not a single pest control method but a series of pest management evaluations, decisions and controls. IPM plans describe potential pests and define the critical threshold for the pest to be classified as a problem. Early detection can control pests before damage is severe.

Resources:

- Clackamas River Basin Council
www.clackamasriver.org/resident-resources
- Clackamas River Water Providers
www.clackamasriver.org
- Clackamas Soil and Water Conservation District
www.conservatondistrict.org
- MetroGrow Smart, Grow Safe
www.growersgrowstate.org
- OSU Extension Christmas Tree Program
www.extension.oregonstate.edu/forests/christmas-trees
- North Willamette Research and Extension Center
www.extension.oregonstate.edu/forests/christmas-trees
- US Department of Agriculture
www.nrcs.usda.gov

- Oregon Department of Agriculture
www.oregon.gov/ODA/Programs/Pesticides
- Clackamas Basin Pesticide Stewardship Partnership
www.conservatondistrict.org/programs

Partnering with Pesticides

is a joint program funded by Clackamas River Water Providers with outreach and programming through Clackamas River Basin Council



Images: © 123RF, Freepress, Entomological Society of America

Clackamas River Basin Council | P.O. Box 1869 | Clackamas, OR 97015 | 503.303.4372 | info@clackamasriver.org | www.clackamasriver.org

Protect our River Nursery Grower Tips

Clackamas is among the top three nursery growing counties in Oregon. Many nurseries are located within the Clackamas River Watershed, a drinking water source for over 360,000 Oregonians and a spawning and rearing area for threatened and endangered salmon species.

Integrated Pest Management (IPM):

Programs and information are available for nursery growers who want to minimize environmental impacts by practicing integrated pest management. Oregon State University offers many resources.

IPM is not a single pest control method but a series of pest management evaluations, decisions and controls. IPM plans describe potential pests and define the critical threshold for the pest to be classified as a problem. Early detection of pest problems often results in pest control before damage is severe.



Pest scouting and diagnosis:



Scout
Use a standardized sampling plan



Diagnose
Use clinics or online identification tools



Record
Build a history of pest emergence and treatment

Scouting for and identifying insects, weeds and diseases is critical in preventing or managing infestations in nurseries. Insects may pose a threat only during certain stages of their development. Weather and growing degree days can provide information on when pests might harm plants. Permanent records of scouting and monitoring will allow growers to begin building patterns of pest behavior at the nursery that could be used to prevent or reduce pest populations in the future.

Hedgerows and buffers:

One of the best ways to keep pesticides out of waterways is to leave a vegetative buffer strip along the stream. Buffers protect waterways from drifting pesticide spray and trap sediments, pesticides and pollutants carried by runoff. Buffers also minimize stream bank erosion by holding soil in place. For technical assistance with erosion control or prevention, contact the Clackamas Soil and Water Conservation District at www.conservatondistrict.org.



Clackamas River Basin Council | P.O. Box 1869 | Clackamas, OR 97015 | 503.303.4372 | info@clackamasriver.org | www.clackamasriver.org

Protect our River Nursery Grower Tips

Pesticides carried by stormwater runoff, wind and irrigation can contaminate streams and the Clackamas River, threatening the health of aquatic life and the safety of drinking water.

Water management best practices:

Nursery operations offer great potential for water conservation and pesticide management. Best practices include:

- Locate storage facilities for fertilizer, or pesticides away from any watercourse.
- Plan facilities to separate and disinfect irrigation or wash water so that the water can be reused.
- Construct greenhouse foundations and floors to permit recovery of leached irrigation water.

- Use efficient drip irrigation systems.
- Reduce runoff by using well-drained gravel in outdoor areas, keeping impervious pavement to a minimum.
- Group plants together by water requirements and container size.



Be part of the solution:

Agricultural producers, such as nursery growers, face possible regulation. Work with Clackamas River Basin Council, Clackamas Soil and Water Conservation District and Oregon State University to create a plan for the Clackamas Watershed to voluntarily reduce or eliminate pesticide concerns. This partnership, including local growers, is developing solutions focused on local issues. By implementing these solutions growers can reduce or avoid regulation and reporting requirements.

Resources:

- Agricultural Plastic Waste Recycling
www.agricplastic.com
- Clackamas River Basin Council
www.clackamasriver.org/resident-resources
- Clackamas River Water Providers
www.clackamasriver.org
- Clackamas Soil and Water Conservation District
www.conservatondistrict.org
- Clackamas County Master Gardeners
www.clackamascountymastergardeners.org
- National Pesticide Information Center
www.npic.orst.edu
- OSU Extension
www.extension.oregonstate.edu/clackamas

- Oregon Department of Agriculture
www.oregon.gov/ODA/Programs/Pesticides
- Clackamas Basin Pesticide Stewardship Partnership
www.conservatondistrict.org/programs/pesticide-stewardship-partnership

Partnering with Pesticides

is a joint program funded by Clackamas River Water Providers with outreach and programming through Clackamas River Basin Council



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Appendix F – Source Water Protection Presentations

Date	Presentation	Organization
August 2019	<i>Spill Response – Protecting our Drinking Water</i>	CFD#1 Operations Group
October 2019	<i>Water Providers Working with Emergency Management Agencies to Protect Drinking Water</i>	Oregon Emergency Management Association Annual Conference
October 2019	<i>Resilient Water Resource Governance in the Pacific NW; Clackamas Watershed Resilience Project</i>	NW Climate Conference
October 2019	<i>Clackamas Watershed Resilience Project</i>	PSU School of Environment Speaker Series
November 2019	<i>CRWP overview and update</i>	City of Estacada City Council
December 2019	<i>CRWP overview and update</i>	Oak Lodge Water Service Board Meeting
April 2020	<i>Pesticides and Drinking Water</i>	Pesticide Strategic Planning Advisory Council

Appendix G - CRWP Schools

There are 52 schools from 4 different school districts in the Clackamas River Water Providers combined service area that were offered CRWP youth education programs. Below is a list of these schools.

City of Estacada Schools

- Clackamas River Elementary
- River Mill Elementary
- Estacada Jr. High School
- Estacada High School

City of Gladstone Schools

- John Wetten Elementary
- Kraxberger Middle School
- Gladstone High school

Clackamas River Water Schools

- Beaver Creek Elementary
- Bilquist Elementary
- Redland Elementary
- Lot Whitcomb Elementary
- Linwood Elementary
- Sojourner School
- Cascade Heights Public Charter School
- Alder Creek Middle School
- Ogden Middle School
- La Salle High School
- Sabin - Schellenberg Professional Technical Center

Oak Lodge Water Services Schools

- Candy Lane Elementary
- Jennings Lodge Elementary
- Oak Grove Elementary
- Riverside Elementary
- View Acres Elementary
- Rex Putnam High School

South Fork - Oregon City Schools

- Gaffney Lane Elementary
- Holcomb Elementary

- John McLoughlin Elementary
- Gardiner Middle School
- Oregon City High School
- Spring Water Environmental Sciences School
- Alliance Charter Academy

South Fork - West Linn Schools

- Bolton Primary
- CedarOak Park Primary
- Sunset Primary
- Trillium Creek Primary
- Willamette Primary
- Rosemount Ridge Middle School
- West Linn High School
- 3 River Charter School

Sunrise Water Authority Schools

- Beatrice Morrow Cannady Elementary
- Deep Creek Damascus K-8
- Happy Valley Elementary
- Mt. Scott Elementary
- Oregon Trail Elementary
- Spring Mountain Elementary
- Sunnyside Elementary
- Verne Duncan Elementary
- Lewis and Clark Montessori Public Charter School
- Scouters Mountain Middle School
- Rock Creek Middle School
- Happy Valley Middle School
- Damascus Middle School
- Clackamas High School

Appendix H - Youth Education Program & Presentation

A total of 60 classroom presentations and assembly programs were completed between July of 2019 and March of 2020. Below is a breakdown of where these programs and presentations were completed.

Clackamas River Water
Total # presentations = 6

Oak Lodge Water Services
Total # presentations = 6

South Fork Water Board
Oregon City = 3
West Linn = 26

Sunrise Water Authority
Total # presentations = 5

The table below does not reflect the number of total presentations.

Date	School	Program	# Students	Service Area
7/11/2019	West Linn Summer Camps	So You Want to Be a Salmon	38	SF WL
7/11/2019	West Linn Summer Camps	Water Cycle Play	18	SF WL
7/19/2019	Lot Whitcombe Elem.	Mad Science - Where's the Water?	300	CRW
8/7/2019	West Linn Summer Camps	Mad Science - What do you know?	50	SF WL
8/16/2019	West Linn Summer Camps	Mad Science - Where's the Water?	50	SF WL
11/1/2019	Redland Elem	Mad Science - What do you know?	200	CRW
11/5/2019	Sojourner School	Mad Science -Where's the Water?	150	CRW

11/13/2019	J Mcloughlin	Mad Science - What do you Know?	95	SF OC
11/14/2019	Spring Mt. Elem	Incredible Journey	90	Sunrise HV
11/25/2019	Trillium Primary (Camp Fire)	Mad Science - Where's the Water?	60	SF WL
11/26/2019	Trillium Primary (Camp Fire)	Mad science - What do you know?	60	SF WL
12/3/2019	Bilquist Elem	So You Want to Be a Salmon?	90	CRW
12/12/2019	Bolton Primary	Mad Science - Where's the Water?	50	SF WL
12/13/2019	Bolton Primary	So You Want to Be a Salmon?	90	SF WL
12/23/2019	Bolton Primary	Mad Science - Where's the Water?	50	SF WL
1/17/2020	Bolton Primary	Mad science - What do you know?	75	SF WL
1/23/2020	Spring Water	Will Hornyak	250	SF OC
1/24/2020	Bolton Primary	Treatment Plant Tour	32	SF WL
1/27/2020	Oregon Trail after school program	Nonpoint Source	15	Sunrise HV
1/28/2020	Oregon Trail after school program	Nonpoint Source	15	Sunrise HV
1/28/2020	Oak Grove Elem	Source to Tap	26	OLWS
1/29/2020	Oak Grove Elem	Will Hornyak	500	OLWS
1/31/2020	Bolton Primary	Treatment Plant Tour	32	SF WL
2/7/2020	Bolton Primary	Treatment Plant Tour	32	SF WL

2/10/2020	Bolton Primary	Tap Water Tour	75	SF WL
2/11/2020	Bolton Primary	Tap Water Tour	75	SF WL
2/12/2020	Bolton Primary	Tap Water Tour	75	SF WL
2/13/2020	Bolton Primary	Treatment Plant Tour	75	SF WL
2/21/2020	Bolton Primary	Will Hornyak	350	SF WL
3/3/2020	View Acres	Will Hornyak	350	OLWS
		Total	3368	

Appendix I - Mini Water Education Grants

9 grants for 33 teachers were issued to the following schools this past year.

Oak Lodge Water Services

Oak Grove Elementary

- (2) Kindergarten Teachers
- (1) 5th grade Teacher

View Acres Elementary

- (3) First grade Teachers

South Fork Water Board

Springwater Environmental Science School (Oregon City)

- (5) 3rd and 5th grade Teachers

Bolton Primary (West Linn)

- (19) Kindergarten – 5th grade Teachers

Willamette Primary (West Linn)

- (3) 5th grade Teachers

Appendix J –2021 CRWP Children's Calendar

10 schools and 19 classes participated in the 2020 CRWP Children's Calendar coloring contest. More than 200 pictures were submitted. The following is a breakdown of which CRWP members schools participated in the calendar project.

City of Estacada
Clackamas River Elementary

City of Gladstone
John Wetten Elementary

Oak Lodge Water Services
Candy Lane Elementary
Jennings Lodge Elementary

South Fork Water Board
Gaffney Lane Elementary (Oregon City)
John Mcloughlin Elementary (Oregon City)
Trillium Creek Elementary (West Linn)

Sunrise Water Authority
Mount Scott Elementary
Oregon Trail Elementary (Happy Valley)
Sunnyside Elementary (Happy Valley)

Appendix K– Community Events

CRWP staff participated in 7 Community Events throughout CRWP service areas between July 1, 2019 and March of 2020.

Date	Event	Water Provider
July 4, 2019	Happy Valley 4th July Event	Sunrise Water Authority
July 21, 2019	West Linn Old Time Fair	South Fork West Linn
August 13-17, 2019	Clackamas County Fair	CRWP Members
August 24, 2019	Oak Lodge Trolley Trail Event	Oak Lodge Water Services
September 14, 2019	Stafford Family Festival	South Fork/West Linn
October 5, 2019	CRWP Watershed Tour	CRWP Members
February 22, 2020	RWPC Home & Outdoor Living Show	Regional Water Providers Consortium

Appendix L – Adult Presentations

This year staff gave 6 adult presentations/interviews between July 1, 2019 and March of 2020.

Date	Event	Water Provider
July 10, 2019	AM Northwest Live	Regional Water Providers Consortium
July 31, 2019	KXL Radio Interview	Regional Water Providers Consortium
November 12, 2019	Barclay Neighborhood Ass.	South Fork Water Board Oregon City
December 4, 2019	Oregon Landscape Contractors Expo	Regional Water Providers Consortium
January 9, 2020	Gaffney Lane Neighborhood Ass.	South Fork Water Board Oregon City
February 1, 2020	Beavercreek Lions Club	Clackamas River Water

Appendix M – Quarterly E Newsletter



WINTER 2020 News

Do You Know Where Your Main Water Shut-Off Is?

Despite all the best precautions this winter water pipes may still freeze. The faster you can shut off the water, the less damage you will accrue.

Knowing where your main shut off valve is can prevent costly water damage. If you can't access the shut off valve at the water meter, you'll need to find the main shut off valve for your house.

The valve is most likely where the water line enters the house. This could be in the basement, the crawl space, or in the garage. It will look like a regular spigot valve or a single handled ball valve. If you have a broken pipe and need to stop the water while you wait



for a plumber to arrive, turning this valve off shuts off all of the water to your home.

Make sure everyone in the house knows where the main shut off valve is located. For a quick response, identify the valve by tying a piece of colored yarn or a string to it and post your plumbers contact information in plain sight.

For more indoor/outdoor water conservation information and free conservation tools and devices call the Clackamas River Water Providers at **503-732-3511** or visit our website at: www.clackamasproviders.org.

What's Inside:

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Rebate Program	P1
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Winter Quiz	P2
Pesticide Reduction	P3
Watershed Resiliency	P3
'Faces' Interview	P4
Water Audit Kit	P5
Winter Water Tips	P6
Partner Spotlight	P7

CRWP Rebate Program is Temporarily Out of Funds!

Due to an enthusiast response (we processed more rebates in three months than we usually do in a whole year) our rebate program is temporarily out of funds for the remainder of this fiscal year. The rebate program will resume when we have funds available July 1st of 2020.

The Clackamas River Water Providers encourages water conservation to promote wise water use because everyone depends on water. We all must use water efficiently or there may not be enough for drinking, irrigation, commercial uses, fish, and emergencies such as fire-fighting. The CRWP is

committed to providing our customers with the tools to do whatever they can for more efficient water use.

We offer six water use rebates up to \$385 in value. These rebates are available each fiscal year (July 1st - June 30th) on a first-come, first-served basis until the program funds have depleted.

Click [here](#) for CRWP members participating in our rebate program, rebate information, and eligibility requirements, or to find out other ways to save water.



CHRISTINE HOLLENBECK, Public Education and Conservation Program Coordinator, (503) 723-3511 • christine@clackamasproviders.org
KIM SWAN, Water Resource Manager, (503) 723-3510 • kims@clackamasproviders.org


Appendix N – Fish on the Run, Irrigation Done Campaign



Campaign Main webpage

Menu

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- Audio Tips
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- Landscape Water Audits
- Water Efficient Plants Guide
- News and Resources -
- Contact



FISH ON THE RUN

IRRIGATION DONE!

Whether you use a hose or have an underground watering system to water your yard and garden, we are asking our water customers to help us keep water in the Clackamas River by reducing or shutting-off outdoor watering for the fall fish runs!


Our communities use a lot of water during the summer months. For residents of Clackamas and Washington Counties who receive their drinking water from the Clackamas River, water use doubles or even triples, this is due mostly to outdoor watering. Summer is also the time of year when the Clackamas River is flowing at its lowest levels and we get the least amount of rainfall to help supplement river flows.

In addition to providing drinking water to over 300,000 people, the river is home to migrating salmon and steelhead virtually year-round. Most of the year there is plenty of water in the river, however as summers are getting longer and hotter, making sure there is enough water in the river for fall fish runs is getting more challenging. This is especially important starting in late August as Fall Chinook and Coho Salmon begin returning to the Clackamas River on the way to their spawning grounds. The chart below from PGE shows typical migration patterns and the months when runs peak.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Winter Steelhead												
Summer Steelhead												
Spring Chinook												
Coho												
Fall Chinook												

Find out more about what Portland General Electric is doing for salmon species in the Clackamas River click here: [PGE Clackamas Project](#)

To help encourage our customers to do their best in conserving their drinking water at this time we have developed a water conservation meter which will be evaluated weekly and notifies us the severity of the river conditions and how much we should be conserving. For specific conservation information, tips, and actions when the meter is at stage yellow or red, please see the Resources below.



To see the current water meter level, go to [Water Conservation Meter](#)

Appendix O - NEW Flume Pilot Program

Check it out!

The Clackamas River Water Providers is working with FLUME to pilot a **rebate of \$100** to eligible CRWP customers if they purchase a new FLUME Smart Water Monitor device.

FLUME, a first-of-its-kind, easily installed household device that puts the power of water monitoring into the hands of homeowners.

- Detect small leaks before they cost money and cause damage.
- Gain real-time information on your household water consumption.
- Set water usage goals and budgets for your household.
- Receive push notifications on suspicious water activities while you're away.

The FLUME Smart Water Monitor tracks your water use 24/7, alerting you to excessive water use and leaks. Take control of your property's water use and protect your home.



The Clackamas River Water Providers is a coalition of the municipal water providers that get their drinking water from the Clackamas River who are working together on water resource issues. The purpose of the organization is to fund and coordinate efforts regarding source water protection, public outreach and education around watershed issues, drinking water, and water conservation. By preserving the Clackamas River as a high-quality drinking water source we are able to minimize future drinking water treatment costs, while being good stewards of the river.

For more information regarding individual CRWP members and their water service areas go to www.clackamasproviders.org and at the top of the page click on "About Us."

Put water conservation in your own hands.

Use the FLUME Smart Home Water Monitor System and receive a \$100 Rebate.



Stop Leaks. Protect Your Home. Save Money. Gain Peace of Mind. Conserve Water.


Smart technology sends notifications straight to your phone.



14275 S. Clackamas River Drive
Oregon City, OR 97045

For more information:
www.clackamasproviders.org
E-mail: christine@clackamasproviders.org
Phone: (503) 723-3511






Keep track of everything right from your phone. FLUME provides complete coverage by catching leaks inside of your home as well as in your lawn or garden. If FLUME senses a leak or unusually high water use, you'll be notified immediately via text, email or push notification anywhere you are.

Control Your Water Use
FLUME gives you real-time access to your water usage. You can determine which activities (or kids!) are using the most water with instant data and take action to avoid excess use.

Manage Your Water Bill
Never be surprised by a high water bill again. FLUME lets you set daily, weekly or monthly budgets and notifies you as you approach your limit. You can also measure your use against like homes in the FLUME Family. Conserve water and save money.

For more information about this device or where to buy one go to Amazon.com or to <https://www.flumetech.com/>



Rebate applicant must meet the following requirements:

You must receive water from one of the following Water Provider members:

- City of Estacoda
- City of Gladstone
- Clackamas River Water
- Oak Lodge Water Services
- South Fork Water Board (Oregon City and West Linn)
- Sunrise Water Authority (Happy Valley and Damascus)

- 1) You must be a single-family residential customer or a small business (50 employees or less) which owns its own site and your account must be active and in good standing.
- 2) The rebate application must be received within 3 months of the product purchase.
- 3) One Flume rebate, per account.
- 4) A copy or original of the dated sales receipt (or invoice) must be included with the rebate form. The brand/model purchased must match the item exactly.
- 5) Rebate item must be installed at the property associated with your water account.
- 6) Rebates are available on a first-come, first-served basis. The program will end when funds are depleted.
- 7) Prior to approval, an on-site inspection may be required by CRWP.
- 8) In accepting this rebate you allow FLUME to share your water use data with your water provider and the CRWP in part to assist in determining potential water savings of this device.

To apply online go to:
www.clackamasproviders.org/conservation-rebates

REBATE APPLICATION

Name: _____

Installation Address:

Street _____

City/State/Zip: _____

Mailing Address (if different):

Street _____

City/State/Zip: _____

Home Phone: _____

Day Phone: _____

Email Address: _____

Water Account #: _____


Please Circle Your Water Provider:

- City of Estacoda
- City of Gladstone
- Clackamas River Water District
- Oak Lodge Water Services
- South Fork Water Board (Oregon City and West Linn)
- Sunrise Water Authority (Happy Valley and Damascus)

I certify the information I have provided is true and correct, and I have purchased the goods for use at the location indicated. I grant permission to Clackamas River Water Providers, with notification, to enter upon the property to inspect the installation of rebate goods to assure program requirements are met. I understand rebates are distributed on a first come first-served basis until funds are exhausted.

Signature _____

Flume Website


Working together to protect and conserve our drinking water.

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 - Water-Efficient Plant Guide
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PUT WATER CONSERVATION IN YOUR OWN HANDS WITH FLUME.

The Clackamas River Water Providers is working with FLUME to pilot a **\$100 rebate** to eligible CRWP customers if they purchase a new FLUME Smart Water Monitor device. FLUME, a first-of-its-kind, easily installed household device that puts the power of water monitoring into the hands of homeowners.

- Detect small leaks before they cost money and cause damage.
- Gain real-time information on your household water consumption.
- Set water usage goals and budgets for your household.
- Receive push notifications on suspicious water activities while you're away.

The FLUME Smart Water Monitor tracks your water use 24/7, alerting you to excessive water use and leaks. Take control of your property's water use and protect your home.

Stop Leaks.
Protect Your Home.
Save Money.
Gain Peace of Mind.
Conserve Water.

Keep track of everything right from your phone. FLUME provides complete coverage by catching leaks inside of your home as well as in your lawn or garden. If FLUME senses a leak or unusually high water use, you'll be notified immediately via text, email or push notification anywhere you are.

Control Your Water Use. FLUME gives you real-time access to your water usage. You can determine which activities (or kids) are using the most water with instant data and take action to avoid excess use.

Manage Your Water Bill. Never be surprised by a high water bill again. FLUME lets you set daily, weekly or monthly budgets and notifies you as you approach your limit. You can also measure your use against like homes in the FLUME Family. Conserve water and save money.

For more information about this device or where to buy one go to www.amazon.com or to www.flumetech.com.

REBATE ELIGIBILITY

You must receive water from one of the following Water Provider members:

- City of Estacada	- Oak Lodge Water Service
- City of Clatskanie	- South Fork Water Board (Oregon city and western)
- Clackamas River Water	- Sunnyside Water Authority (Oregon valley and oregon)

- 1) You must be a single-family residential customer or a small business (50 employees or less) which owns its own site and your account must be active and in good standing.
- 2) The rebate application must be received within 3 months of the product purchase.
- 3) One rebate, per account.
- 4) A copy or original of the stated sales receipt (or invoice) must be included with the rebate form. The brand/model purchased must match the form exactly.
- 5) Rebate item must be installed at the property associated with your water account.
- 6) Rebates are available on a first-come, first-serve basis. Program ends when funds are depleted.
- 7) Prior to approval, an on-site inspection may be required by CRWP.
- 8) In accepting this rebate you allow FLUME to share your water use data with your water provider and the CRWP in part to assist in determining potential water savings of this device.

To apply go to: [Online Rebate Application](#) or [Rebate Application PDF](#).

Newsletter Signup

Newsletter

Annual Report

How Water Systems Work

Interactive Map

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Appendix P - Water Efficient Landscape Audit Program

Since July 2019 a total of 26 CRWP member customers participated in the Water Efficient Landscape Audit Program. Below is a breakdown of where the audits were performed.

Clackamas River Water

Number of audits = 17

Oak Lodge Water Services

Number of audits = 7

South Fork Water Board

Oregon City - Number of audits = 1


Sunrise Water Authority

Happy Valley - Number of audits = 1

Audit Brochure

Do you need help saving water outside this summer?

The CRWP is now offering **FREE Residential Landscape Water Audits** to the following member's service area: City of Estacada, City of Gladstone, Oak Lodge Water Services, and South Fork Water Board (Oregon City and West Linn), and Sunrise Water Authority (Happy Valley and Damascus).



Water use in our communities more than doubles during the summer months due to outdoor watering.

JOIN

The Clackamas River Water Providers is a coalition of the municipal water providers that get their drinking water from the Clackamas River who are working together on water resource issues. The purpose of the organization is to fund and coordinate efforts regarding source water protection and public outreach and education around watershed issues, drinking water, and water conservation. By preserving the Clackamas River as a high quality drinking water source we are able to minimize future drinking water treatment costs, while being good stewards of the river.




For more information about the CRWP, our watershed, and conservation programs visit our website:
www.clackamasproviders.org

Or contact us at:
Clackamas River Water Providers
14275 S Clackamas River Drive
Oregon City, Oregon 97045
christine@clackamasproviders.org
(503) 723-3511


Clackamas River Water Providers

offering

FREE Residential Landscape Water Audits



Assess your lawn, garden and irrigation systems



A Landscape Water Audit...

Is an assessment of your lawn, garden areas, irrigation system and more.

Our landscape auditor will assess your lawn and garden areas, irrigation system and more. Upon completion of the audit you will be provided written recommendations to help you manage your outdoor water use for a more water efficient landscape and irrigation system.

RESIDENTIAL AUDITS will begin in May and be performed during the spring and summer months only (during the watering season).

The audits will be approximately 1.5 hours long. Please be available to walk through the audit process with the Audit Specialist.

Interested customers can contact the CRWP at **503-723-3511** or email christine@clackamasproviders.org to schedule an audit.

Audits are booked on a first come first serve basis. Audits will be performed at each site one time only.

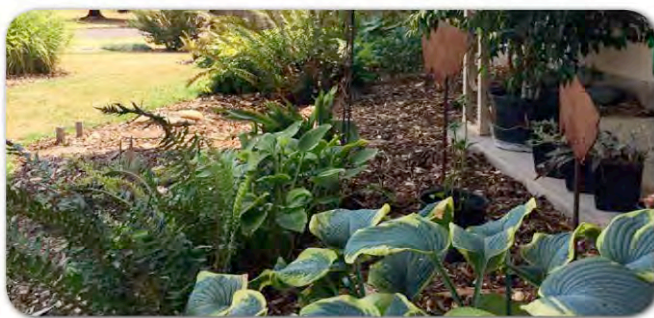
your **AUDIT**

Landscape water audits will include but are not limited to:

- A walk through the yard and garden area including all lawn areas.
- Making note of soil types, plant material, naturally available water, and sun exposure.
- Locating the water meter, noting any existing leaks from the meter throughout the irrigation system.
- Making note of existing backflow protection; type, size, make and model number.
- Locating the irrigation system controller, making note of the make/model as well as the current schedule. Each zone will be ran separately, recording gallons per minute used for each zone.



When the audit is complete, all recommendations will be recorded. This includes irrigation controller schedule adjustments, irrigation head adjustments/replacements, maintenance of existing plant material, and the addition of soil amendments to reduce weeds, promote soil moisture, and reduce the use of fertilizers.



Appendix Q - Conservation Rebate Program

A total of 218 rebate applications were processed this year with a total of 242 rebates.

<p>City of Gladstone Total Rebate Applications = 8 Total Rebates = 8 Irrigation Controllers = 3 Clothes Washer = 4 Toilets = 1</p> <p>Oak Lodge Water Services Total Rebate Applications = 31 Total Rebates = 37 Toilets = 13 Clothes Washers = 13 Irrigation Controllers = 7 Hose Timer = 1 Spray Nozzles = 3</p> <p>Clackamas River Water Total Rebate Applications = 44 Total Rebates = 47 Toilets = 19 Clothes Washers = 13 Irrigation Controllers = 12 Spray Nozzles = 2 Hose Timer = 1</p> <p>City of Estacada Total Rebate Applications = 3 Total Rebates = 4 Toilets = 1 Clothes Washer = 3</p>	<p>South Fork Water Board Total Rebate Applications = 78 Total Rebates = 87 Oregon City = 28 Toilet rebates = 6 Irrigation. Controllers = 11 Spray Nozzles = 2 Clothes Washer = 9 West Linn = 59 Toilet rebates = 10 Clothes Washer = 12 Irrigation Controllers = 31 Rain Sensor = 3 Spray Nozzles = 2 Hose Timer = 1</p> <p>Sunrise Water Authority Total Rebate Applications = 56 Total Rebates = 59 Damascus = 8 Toilet rebates = 2 Clothes Washer = 1 Irrigation Controllers = 4 Hose Timer = 1 Happy Valley = 51 Toilet Rebates = 18 Clothes Washer = 13 Irrigation Controllers = 20</p>
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Rebate Brochure

Clackamas River Water Providers REBATE APPLICATION

CUSTOMER INFORMATION

Name _____

Installation Address _____

City _____ State _____ Zip _____

Mailing Address (if different) _____

City _____ State _____ Zip _____

Home Phone _____ Daytime Phone _____

Email _____

PLEASE PROVIDE YOUR ACCOUNT # _____
AND CIRCLE YOUR WATER PROVIDER BELOW

<input type="checkbox"/> City of Estacada	<input type="checkbox"/> City of Gladstone	<input type="checkbox"/> Oak Lodge Water Services
<input type="checkbox"/> South Fork Water Board (Oregon City and West Linn)	<input type="checkbox"/> Clackamas River Water	<input type="checkbox"/> Sunrise Water Authority (Happy Valley and Damascus)

I certify the information I have provided is true and correct and I have purchased the goods for use at the location indicated. I grant permission to Clackamas River Water Providers with notification to enter upon the property to inspect the installation of rebate goods to assure program requirements are met. I understand rebates are distributed on a first-come first-served basis until funds are exhausted.

REBATE INFORMATION

INDOOR REBATES

Toilet Rebate – up to \$85 + \$15 additional for recycling your old toilet Manufacturer and Model # _____

Washing Machine Rebate – up to \$75 maximum Manufacturer and Model # _____

Customer Signature _____ Date _____

The following are required, please check all that apply. Do not send until application is complete. Incomplete and unsigned application may be returned.

<input type="checkbox"/> Water provider account number	<input type="checkbox"/> Manufacturer and or model number (if required)
<input type="checkbox"/> Name and address	<input type="checkbox"/> Toilet recycling receipt for additional \$15
<input type="checkbox"/> Proof of purchase	<input type="checkbox"/> Signed and dated application

OUTDOOR REBATES

Rain Sensor/Switch – up to \$25 maximum

Irrigation Controller – up to \$200 maximum

Multi-stream Rotating Nozzles – up to \$60 (or 20 nozzles at \$3 each)

Manual Hose Bib Timer – up to \$25 maximum

Customers can take advantage of each rebate one time per fiscal year per account.

The Clackamas River Water Providers (CRWP) are a coalition of the municipal water providers on the Clackamas River that are working together on water resource issues. The purpose of the organization is to collectively fund and coordinate efforts regarding water resource planning and management, water conservation and the development of the Clackamas River on a sustainable basis. For more information regarding individual CRWP members and their water service areas go to www.clackamasproviders.org and at the top of the page click on "About Us."



Working Together to Protect and Conserve Our Drinking Water

14275 S. Clackamas River Drive
Oregon City, OR 97045

For More Information
www.clackamasproviders.org
E-mail: Christine@clackamasproviders.org
Phone: (503) 723-3511

UP TO \$485 IN REBATES!

Clackamas River Water Providers

are offering 6 water conservation rebates*

* Up to \$485 in rebates available!



SAVING WATER = SAVING MONEY!

Up to \$485 in savings each year!


INDOOR REBATES – 2 CHOICES!

We're offering 2 choices in indoor rebates. Customers can take advantage of each rebate one time per fiscal year per account.

1 WASHING MACHINE
Up to \$75 rebate – Model # required. Machines being replaced must be Energy Star certified residential clothes washers.



2 TOILET REBATE
Up to \$85 rebate – Model # required. When you replace a toilet that uses 1.6 gallons per flush (gpf) or more with a new WaterSense® certified high efficiency toilet (HET). Get an additional \$15 if you recycle your toilet.




OUTDOOR REBATES – 4 CHOICES!

We're offering 4 choices in outdoor rebates. Customers can take advantage of each rebate one time per fiscal year per account.

3 RAIN SENSOR/SWITCH
Up to \$25 rebate – Temporarily shuts off your automatic irrigation system when it rains.

4 WATER-SENSE WEATHER-BASED IRRIGATION CONTROLLERS
Up to \$200 rebate when you purchase and install a WaterSense weather-based controller. "Smart" irrigation control technology that uses local weather data to determine when and how much to water. WaterSense® labeled irrigation controllers can save you water, time, and money when compared to standard models.



5 MULTI-STREAM ROTATING NOZZLE IRRIGATION
Up to \$60 rebate – or 20 nozzles per account at \$3 each. Model # required. Replace inefficient pop-up spray nozzles with efficient water conserving models. See our website for specific models.

6 MANUAL HOSE BIB TIMER
Up to \$25 rebate. Never forget to turn off your water! Automatically turn off sprinklers at pre-set times.

REBATE ELIGIBILITY REQUIREMENTS

Applicant must meet the following criteria

You must receive water from one of the following water provider members:

City of Estacada City of Gladstone Oak Lodge Water Services
South Fork Water Board (Oregon City and West Linn)
Sunrise Water Authority (Happy Valley and Damascus)
Clackamas River Water

- You must be a single-family residential customer or a small business (50 employees or less) which owns its own site and your account must be active and in good standing.
- The application must be received within 3 months of purchase.
- One rebate each, per account, per fiscal year (July 1–June 30).
- A copy or original of the dated sales receipt (or invoice) that specifies the brand/model must be included with the rebate form. The brand/model purchased must match the item exactly.
- The high efficiency toilet and weather-based controller you purchase must be EPA WaterSense® labeled. For a complete list of eligible products, visit: http://www.epa.gov/watersense/product_search.html
- For toilet rebates, the toilet brand/model must match the eligible model list exactly. Tank and bowl numbers cannot be mixed and matched from different models.
- Receive an additional \$15 for recycling your old toilet. Visit our website at <http://clackamasproviders.org/water-conservation/conservation-rebates/toilet-recycling-fac.html> for a recycling site near you. A copy of the recycling receipt is required to be eligible.
- For a complete list of eligible washing machines, visit: www.energystar.gov/productfinder/product/certified-clotheswasher.
- Rebate items must be installed at the property associated with your water account.
- Rebates are available on a first-come, first-served basis. The program will end when funds are depleted. The total rebate per item will not exceed the receipt amount.
- Prior to approval, an on-site inspection may be required by Clackamas River Water Providers.



STAFF REPORT

To Board of Directors
From Sarah Jo Chaplen, General Manager
Title Designation of the 2021 SDAO Conference Voting Member
Item No. 7
Date January 19, 2021

Summary

Members of the Board are invited to attend the virtual annual conference of the Special Districts Association of Oregon (SDAO) on February 3-4, 2021.

Background

There are five SDAO Board positions open for election. Nominees will speak during the conference caucus sessions and the vote will be held during the SDAO conference's annual business meeting.

Each organization is allowed one voting delegate. The Director designated as OLWS' voting delegate will cast the official vote while attending the SDAO conference.

Past Board Actions

Secretary/Vice President Gornick was designated as the District's voting delegate for the 2020 SDAO conference.

Recommendation

Staff requests the Board designate a Director who will be attending the conference to be the OLWS voting delegate at the 2021 SDAO conference.

Suggested Board Motion

"I move to designate _____ as the District's voting delegate for the 2021 SDAO conference."



STAFF REPORT

To	Board of Directors
From	Jason Rice, District Engineer
Title	Second Reading of Proposed Ordinance No. 2021-04 Updating Water System Development Charges
Item No.	8
Date	January 7, 2021 for January 19, 2021

Summary

This report is summarizing information related to the Second Reading of Staff's recommendation for updated District Water System Development Charges.

Background

In 2018, the Oak Lodge Water Services District (District) hired Water Systems Consulting (WSC) to develop what would ultimately be titled 2020 Water System Master Plan (WSMP), with FCS GROUP contracted to perform the financial portion of the greater master planning effort. Contained within the Water System Master Plan is a FCS GROUP Technical Memo (Attachment 1) of their opinion of the District's maximum defensible system development charges (SDC) for the water utility, based on the demand growth projections and capital improvement plan included in the WSMP.

Oregon Revised Statutes (ORS) 223.297 to 223.314 authorize local governments to establish system development charges (SDCs), one-time fees on new development paid at the time of development. SDCs are intended to recover a fair share of the cost of existing and planned facilities that provide capacity to serve future growth.

ORS 223.299 defines two types of SDCs:

- A reimbursement fee designed to recover "costs associated with capital improvements already constructed, or under construction when the fee is established, for which the local government determines that capacity exists"
- An improvement fee designed to recover "costs associated with capital improvements to be constructed"

ORS 223.304(1) states, in part, that a reimbursement fee must be based on “the value of unused capacity available to future system users or the cost of existing facilities” and must account for prior contributions by existing users and any gifted or grant-funded facilities. The calculation must “promote the objective of future system users contributing no more than an equitable share to the cost of existing facilities.” A reimbursement fee may be spent on any capital improvement related to the system for which it is being charged (whether cash-financed or debt-financed) and on the costs of compliance with Oregon’s SDC law.

ORS 223.304(2) states, in part, that an improvement fee must be calculated to include only the cost of projected capital improvements needed to increase system capacity for future users. In other words, the cost of planned projects that correct existing deficiencies or do not otherwise increase capacity for future users may not be included in the improvement fee calculation. An improvement fee may be spent only on capital improvements (or portions thereof) that increase the capacity of the system for which it is being charged (whether cash-financed or debt-financed) and on the costs of compliance with Oregon’s SDC law.

During a previous meeting with the Board, there was a request to pull data together showing Oak Lodge’s total cost of System Development Charges across all agencies. Then, to contrast that data with other local agencies. This information can be found in Attachment 2.

Past Board Actions

- | | |
|---------------|---|
| August 2020 | Board approved an amended Rates, Fees and Other Charges Schedule |
| October 2020 | Board Approved resolution 2020-15 adopting the 2020 Water System Master Plan |
| December 2020 | The first reading of Proposed Ordinance 2020-04 was read by the Board. (For the purposes of this meeting, this Ordinance number was changed to 2021-04 due to the year turning over.) |

Concurrence

Staff, Legal Counsel, Water Systems Consulting and FSC Group all worked to develop and get adopted the 2020 Water System Master Plan.

No notices of support or opposition have been received by Staff since the 90-day notice period of all interested parties went into effect.

Recommendation

Staff recommends approving the revised Fees and Other Charges Schedule (Attachment 3).

Alternatives to Recommendation

If the Board wishes to modify the recommendation, the Board could direct Staff to update its methodology and begin the process of re-reading the Ordinance for the first time.

Suggested Board Motion

If the Board wishes to perform the second reading of Ordinance No. 2021-04:

“I move to read by title only, Ordinance No. 2021-04 revising the District’s Schedule of Rates, Fees and Other Charges, updating Section G.3 related to Water System Development Charges.”

If the Board does not wish to perform the first reading of Ordinance No. 2021-04:

Direct Staff on what changes need to be made to come before the Board at a later date. In this case, new noticing periods will be deployed.

Attachments

1. OLWSD Water Master Plan SDC Tech Memo
2. SDC Comparison Chart
3. Revised Rates and Fee Schedule
4. Ordinance No. 2021-04

To: Scott Duren, PE
From: Wyatt Zimbelman, Senior Analyst
Doug Gabbard, Project Manager
John Ghilarducci, Principal
RE: Oak Lodge Water Services District Water SDC

Date: July 2, 2020

INTRODUCTION

This section describes the policy context and project scope upon which this memorandum is based.

THE ENGAGEMENT

In 2018, the Oak Lodge Water Services District (District) hired Water Systems Consulting to develop the 2018 Water Master Plan (WMP), with FCS GROUP contracted to perform the financial portion of the greater master planning effort. This report summarizes our opinion of the District's maximum defensible system development charges for the water utility, based on the demand growth projections and capital improvement plan included in the WMP.

SYSTEM DEVELOPMENT CHARGE BACKGROUND

Oregon Revised Statutes (ORS) 223.297 to 223.314 authorize local governments to establish system development charges (SDCs), one-time fees on new development paid at the time of development. SDCs are intended to recover a fair share of the cost of existing and planned facilities that provide capacity to serve future growth.

ORS 223.299 defines two types of SDCs:

- A reimbursement fee designed to recover “costs associated with capital improvements already constructed, or under construction when the fee is established, for which the local government determines that capacity exists”
- An improvement fee designed to recover “costs associated with capital improvements to be constructed”

ORS 223.304(1) states, in part, that a reimbursement fee must be based on “the value of unused capacity available to future system users or the cost of existing facilities” and must account for prior contributions by existing users and any gifted or grant-funded facilities. The calculation must “promote the objective of future system users contributing no more than an equitable share to the cost of existing facilities.” A reimbursement fee may be spent on any capital improvement related to the system for which it is being charged (whether cash-financed or debt-financed) and on the costs of compliance with Oregon's SDC law.

ORS 223.304(2) states, in part, that an improvement fee must be calculated to include only the cost of projected capital improvements needed to increase system capacity for future users. In other words, the cost of planned projects that correct existing deficiencies or do not otherwise increase

capacity for future users may not be included in the improvement fee calculation. An improvement fee may be spent only on capital improvements (or portions thereof) that increase the capacity of the system for which it is being charged (whether cash-financed or debt-financed) and on the costs of compliance with Oregon’s SDC law.

SDC CALCULATION

This section provides our detailed calculations of the maximum defensible water SDC.

CALCULATION OVERVIEW

In general, SDCs are calculated by adding a reimbursement fee component and an improvement fee component—both with potential adjustments. Each component is calculated by dividing the eligible cost by growth in units of demand. The unit of demand becomes the basis of the charge. **Exhibit 1** shows this calculation in equation format:

Exhibit 1: SDC Equation

$\frac{\text{Eligible costs of available capacity in existing facilities}}{\text{Units of growth in demand}} + \frac{\text{Eligible costs of capacity-increasing capital improvements}}{\text{Units of growth in demand}} = \text{SDC per unit of growth in demand}$
--

Reimbursement Fee

The reimbursement fee is the cost of available capacity per unit of growth that such available capacity will serve. In order for a reimbursement fee to be calculated, unused capacity must be available to serve future growth. For facility types that do not have available capacity, no reimbursement fee may be calculated.

Improvement Fee

The improvement fee is the cost of planned capacity-increasing capital projects per unit of growth that those projects will serve. In reality, the capacity added by many projects serves a dual purpose of both meeting existing demand and serving future growth. To compute a compliant improvement fee, growth-related costs must be isolated, and costs related to meeting current demand must be excluded. We have used the incremental approach to allocate costs to the improvement fee basis, based on data provided by the District’s consulting engineer.

Adjustments

Fund Balance

All accumulated SDC revenue currently available in fund balance is also deducted from its corresponding cost basis. This practice prevents a jurisdiction from double charging for projects that were in the previous methodology’s improvement fee cost basis but have not yet been constructed.

The District’s practice is to use SDC revenue as the first source of funding for capital projects, and capital expenditures exceeded SDC revenues in both 2018 and 2019. Therefore, the District believes there is no unspent water SDC revenue, and we have not calculated an adjustment.

Compliance Costs

ORS 223.307(5) authorizes the expenditure of SDCs for “the costs of complying with the provisions of ORS 223.297 to 223.314, including the costs of developing system development charge methodologies and providing an annual accounting of system development charge expenditures.” To avoid spending monies for compliance that might otherwise have been spent on growth-related projects, this report includes an estimate of compliance costs in the SDC calculation.

GROWTH

The growth calculation is the basis by which an SDC is charged. Growth for each system is measured in units that most directly reflect the source of demand. For water SDCs, the most applicable and administratively feasible unit of growth is the meter capacity equivalent (MCE). For the District, one MCE equals the flow capacity of a 5/8” x 3/4” water meter.

Current Demand

According to the District’s records, the water utility had 8,777 customer accounts in 2017. Table 4-1 of the WMP provides the District’s projected population growth from 2017 to 2022, which was used to project customer accounts for 2020. Applying the MCE flow factors provided by the American Water Works Association (AWWA), the District has 8,877 customer accounts in 2020 with a combined flow capacity of 13,634 MCEs, as shown in **Exhibit 2**:

Exhibit 2: Estimated 2020 Customer Data

Meter Size	2020 Accounts	MCE Factors	2020 MCEs
5/8"	8,342	1.0	8,342
3/4"	21	1.5	31
1"	224	2.5	560
1 1/2"	123	5.0	613
2"	91	8.0	732
3"	10	16.0	163
4"	21	25.0	529
6"	33	50.0	1,669
8"	10	80.0	762
10"	2	115.0	233
Total	8,877		13,634

Future Demand

Table 4-1 of the District’s WMP includes a population growth forecast for the utility through 2037. Assuming that the distribution of meter sizes remains unchanged, and therefore MCEs increase in proportion to population growth, the District will serve 14,272 MCEs in 2037. The growth from 13,634 MCEs in 2020 to 14,272 MCEs in 2037 (i.e., 638 MCEs) is the denominator in the SDC equation (**Exhibit 3**).

Exhibit 3: Customer Growth

Growth Unit	2020	2037	Growth (2020-2037)	Growth Share
Meter Capacity Equivalents	13,634	14,272	638	4.5%

Any estimate of future demand involves uncertainty. Fortunately, the accuracy of this estimate is less important than its derivation from the same process that produced the project list described later. In other words, the defensibility the SDC rests more on the consistency of the growth estimate with the project list than with the accuracy of the growth estimate.

REIMBURSEMENT FEE COST BASIS

The reimbursement fee is the eligible cost of available capacity per unit of growth that such available capacity will serve. Calculation of the reimbursement fee begins with the historical cost of assets or recently completed projects that have unused capacity to serve future users. For each asset or project, the eligible cost is the cost portion of the asset or project that is available to serve future users.

To avoid charging future development for facilities provided at no cost to the District or its ratepayers, the reimbursement fee cost basis must be reduced by any grants or contributions used to fund the assets or projects included in the cost basis. Furthermore, unless a reimbursement fee will be specifically used to pay debt service, the reimbursement fee cost basis should be reduced by any outstanding debt related to the assets or projects included in the cost basis to avoid double charging for assets paid for by debt service in the rates.

The District's records list \$17,586,255 in water fixed assets. We allocated these assets to six categories based on the function of each asset:

- Storage
- Pumping
- Water mains
- Meters and services
- Fire
- General plant

Of these six categories, storage, pumping, and water mains were determined to have available capacity for future users of the system.

Storage

The cost of unused capacity in storage facilities is \$2,843,023. The detailed calculation of storage capacity is shown in **Exhibit 4**:

Exhibit 4: Storage Capacity

Storage Facility	Existing Storage	Required Storage	Excess Capacity	% Excess Capacity	Facility Cost	Eligible Cost
Valley View	10.0 MG	6.6 MG	3.4 MG	33.9%	\$ 2,428,539	\$ 823,275
View Acres	5.6 MG	2.7 MG	2.9 MG	51.3%	\$ 3,940,973	\$ 2,019,749
Total	15.6 MG	9.3 MG	6.3 MG	44.6%	\$ 6,369,512	\$ 2,843,023

Pumping

The cost of unused capacity in pumping facilities is \$277,156. The detailed calculation of pumping capacity is shown in **Exhibit 5**:

Exhibit 5: Pumping Capacity

Pumping Facility	Firm Capacity	Required Capacity	Excess Capacity	% Excess Capacity	Facility Cost	Eligible Cost
Valley View	2,200 gpm	1,154 gpm	1,046 gpm	47.5%	\$ 550,279	\$ 261,633
View Acres	1,850 gpm	1,582 gpm	268 gpm	14.5%	\$ 107,154	\$ 15,523
Total	4,050 gpm	2,736 gpm	1,314 gpm	42.2%	\$ 657,433	\$ 277,156

Water Mains

Chapter 5.2.1 of the WMP indicates that the District’s distribution system has no pressure deficiencies at service connections within the District’s service area under future peak hour demands. Because the system is sufficient to serve future demands, the capacity share of the District’s water mains is estimated to be equal to the District’s growth share of 4.5 percent. By “growth share,” we mean that portion of total future demand that will be new.

Reimbursement Fee Cost Calculation

The reimbursement fee cost basis is calculated by multiplying the capacity share of each asset category by the original cost asset value of that category. The detailed calculation is shown in **Exhibit 6**:

Exhibit 6: Reimbursement Fee Cost Basis

Asset Category	Original Cost	Less: Debt Principal	Net Asset Value	Available Capacity	Eligible Cost
Water Mains	\$ 7,717,967	\$ -	\$ 7,717,967	4.5%	\$ 345,227
Storage	6,369,512	-	6,369,512	44.6%	2,843,023
Pumping	657,434	-	657,434	42.2%	277,156
Meters & Services	461,838	(1,320,000)	-	0.0%	-
Fire	47,321	-	47,321	0.0%	-
General Plant	2,332,182	-	2,332,182	0.0%	-
Total	\$ 17,586,255	\$ (1,320,000)	\$ 17,124,417	20.2%	\$ 3,465,406

IMPROVEMENT FEE COST BASIS

An improvement fee is the eligible cost of planned projects per unit of growth that such projects will serve. The improvement fee cost basis is based on a specific list of planned capacity-increasing capital improvements. The portion of each project that can be included in the improvement fee cost basis is determined by the extent to which each new project creates capacity for future users. **Exhibit 7** shows how a total project cost of \$24,050,600 reduces to an eligible cost of \$3,219,594.

Exhibit 7: Improvement Fee Cost Basis

ID	Description	Project Cost	SDC Eligible	SDC Eligible Portion of Costs	Timing
C-1	SE Aldercrest Road	\$ 885,500	9.7%	\$ 85,919	Year 1-3
F-1	SE 28th Avenue, SE Lakewood Drive, Kellogg Lake Apartments	1,099,000	18.3%	201,650	Year 1-3
F-2	SE River Road	3,143,500	19.6%	614,781	Year 4-9
C-2	SE Lisa Lane	67,500	33.0%	22,291	Year 4-9
F-3	SE Vista Sunrise Court	116,400	9.8%	11,361	Year 4-9
C-3	SE Marcia Court	109,700	32.2%	35,295	Year 4-9
F-4	Jennings Avenue, Emerald Drive, Colina Vista Avenue, Clayson Ave	1,453,900	8.6%	125,399	Year 4-9
C-4	SE Ranstad Court and SE Cinderella Court	195,300	28.9%	56,472	Year 4-9
F-5	Alderway Avenue	323,800	33.9%	109,898	Year 10+
C-5	Oatfield	3,169,400	7.9%	249,947	Year 4-9
F-6	View Acres Road	530,600	11.4%	60,498	Year 10+
C-6	Round Oaks Court	56,900	6.4%	3,636	Year 10+
F-7	Old Orchard Court, SE Meldrum Avenue	593,800	15.6%	92,670	Year 10+
F-8	SE Hull Avenue	1,173,800	13.8%	161,414	Year 10+
F-9	McLoughlin Boulevard	1,557,400	9.9%	154,939	Year 10+
F-10	McLoughlin Boulevard	1,021,400	13.4%	136,619	Year 10+
F-11	River Road	240,100	9.2%	22,154	Year 10+
F-12	Harold Avenue, Derry Lane, and Gordon Street	392,000	8.8%	34,368	Year 10+
F-13	McLoughlin Boulevard	73,700	22.2%	16,342	Year 10+
F-14	McLoughlin Boulevard	103,500	39.0%	40,339	Year 10+
F-15	McLoughlin Boulevard, Glen Echo Avenue, River Road	494,600	9.0%	44,593	Year 10+
F-16	Vineyard Road, Vineyard Lane, commercial parking lot, Kens Cour	1,031,800	20.2%	208,541	Year 10+
F-17	Austin Street and Sandra Avenue and Roethe Road	509,600	8.1%	41,184	Year 10+
F-18	SE Roethe Road	266,300	9.1%	24,143	Year 10+
F-19	River Road, Oak Grove Boulevard	51,400	13.0%	6,701	Year 10+
F-20	SE Maple Street	86,900	9.8%	8,521	Year 10+
F-21	Vineyard Road	127,700	7.8%	9,941	Year 10+
F-22	SE River Drive	291,400	9.6%	27,835	Year 10+
F-23	Poplar Place	884,200	11.4%	100,695	Year 10+
F-24	River Forest Road, River Forest Drive, River Forest Court (loop)	911,100	9.5%	86,203	Year 10+
F-25	Cottonwood Court	278,700	9.8%	27,409	Year 10+
F-26	Cedar Avenue	362,800	8.9%	32,379	Year 10+
F-27	Thornton Drive	307,300	33.4%	102,708	Year 10+
F-28	SE Diamond Lane	99,300	32.1%	31,839	Year 10+
F-29	SE Sierra Vista Drive	453,300	9.4%	42,605	Year 10+
F-30	SE Britton Avenue	147,200	22.2%	32,694	Year 10+
F-31	Raintree Court	155,200	9.9%	15,338	Year 10+
F-32	Walta Vista Drive	149,600	10.2%	15,196	Year 10+
F-33	SE Torbank Road and SE Lindenbrook Court	409,300	8.3%	33,800	Year 10+
F-34	McLoughlin Boulevard	43,000	7.3%	3,124	Year 10+
F-35	SE Evergreen Street	56,900	43.3%	24,650	Year 10+
F-36	SE McLoughlin Blvd	32,300	23.8%	7,690	Year 10+
F-37	SE McLoughlin Blvd and Holly Ave	593,500	9.4%	55,812	Year 10+
Total		\$ 24,050,600		\$ 3,219,594	

COMPLIANCE COSTS

Compliance costs are the sum of SDC methodology updates and annual administrative costs. In consultation with District staff, we estimate compliance costs at 1.3 percent of the combined reimbursement fee and improvement fee cost bases.

SDC FUND BALANCE

The District has advised us that it holds no unspent water SDC revenue. Had a fund balance existed, we would have deducted it from the SDC cost basis to avoid double-charging development.

CALCULATED SDC

Dividing the sum of the net cost bases by the projected growth results in the calculated SDC per MCE, as shown in **Exhibit 8**:

Exhibit 8: Water SDC per MCE

Reimbursement Fee Cost Basis	
Reimbursement Fee Cost Basis	\$3,465,406
<i>Growth to End of Planning Period</i>	<i>638 MCEs</i>
Reimbursement Fee	\$5,428
Improvement Fee Cost Basis	
Improvement Fee Cost Basis	\$3,219,594
<i>Growth to End of Planning Period</i>	<i>638 MCEs</i>
Improvement Fee	\$5,043
Total System Development Charge	
Reimbursement Fee	\$5,428
Improvement Fee	\$5,043
Compliance Fee (1.3%)	\$137
Total System Development Charge per MCE	\$10,608

SCHEDULE OF SDCS

In order to impose water SDCs on an individual property, the number of MCEs is determined by the size of the property's water meter. The MCE calculation used is based on AWWA flow factors as shown in **Exhibit 9** where one MCE is a 5/8" x 3/4" meter.

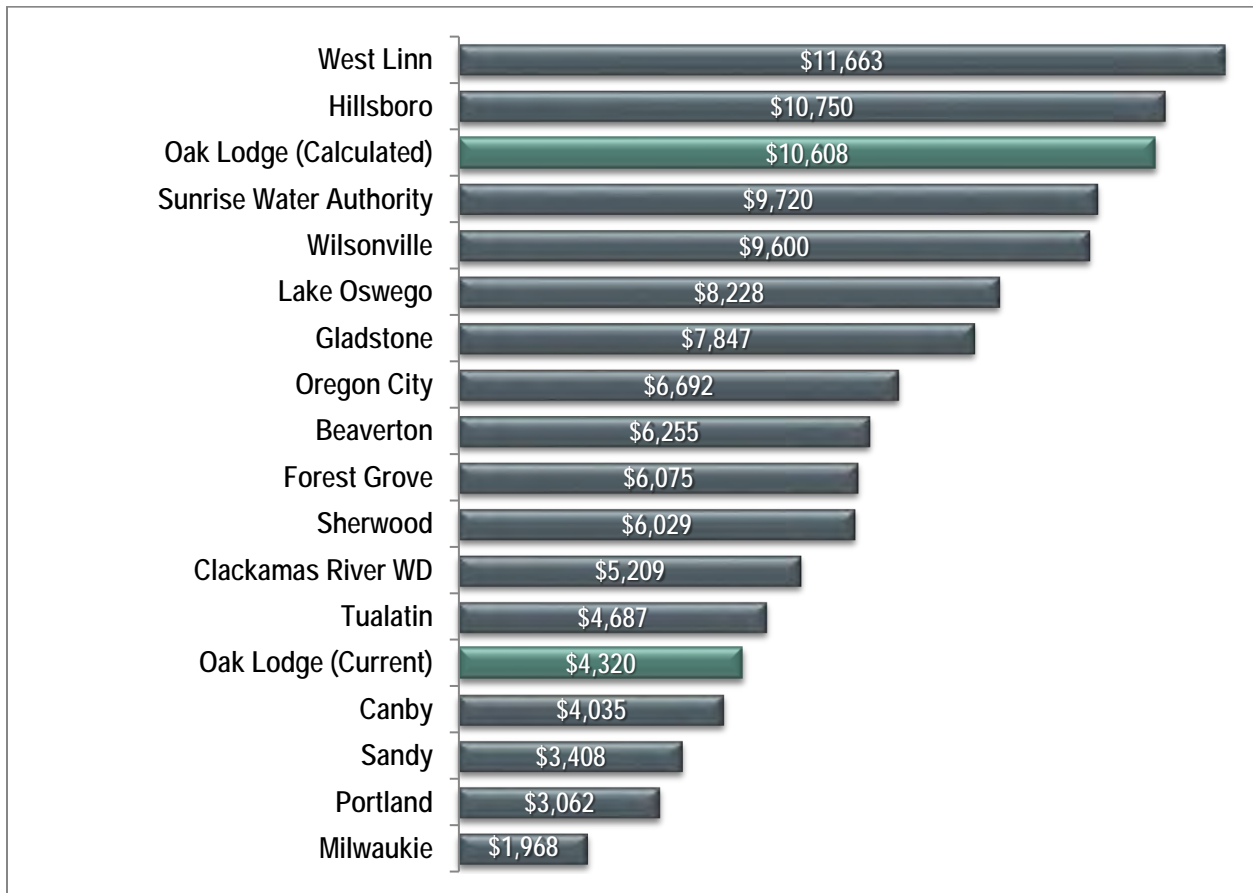
Exhibit 9: Water SDC Schedule

Meter Size	Flow Factor	Calculated SDC	Current SDC	Change
5/8" x 3/4"	1.0	\$10,608	\$4,320	+\$6,288
3/4"	1.5	\$15,912	\$6,480	+\$9,432
1"	2.5	\$26,521	\$10,800	+\$15,721
1 1/2"	5.0	\$53,042	\$21,595	+\$31,447
2"	8.0	\$84,867	\$34,555	+\$50,312
3"	16.0	\$169,733	\$69,110	+\$100,623
4"	25.0	\$265,208	\$107,985	+\$157,223
6"	50.0	\$530,416	\$215,970	+\$314,446
8"	80.0	\$848,666	\$345,550	+\$503,116
10"	115.0	\$1,219,958	\$496,730	+\$723,228

COMPARISONS

Exhibit 10 shows how the District's current and calculated 5/8" x 3/4" water SDCs compare with SDCs adopted by other water utilities.

Exhibit 10: Regional Comparison



SDC IMPLEMENTATION

FUNDING PLAN

The SDCs calculated in this report represent our opinion of the maximum water SDCs that the District can legally charge. However, even if the District imposes the full, calculated charge, the SDC will generate only 28 percent of the funds needed to complete the full project list, as shown in **Exhibit 11**.

Exhibit 11: Funding Plan

Capital Funding Plan	\$	%
Requirements		
Capital Improvement Plan	\$ 24,050,600	99.6%
Compliance Costs	87,406	0.4%
Total Requirements	\$ 24,138,006	100.0%
Resources		
System Development Charges	\$ 6,767,904	28.0%
Other District Resources	17,370,102	72.0%
Total Resources	\$ 24,138,006	100.0%

The District is under no legal obligation to impose the full, calculated SDC. However, the District should be aware that any discounting or phase-in period that reduces SDC revenue will increase the funding requirement from other resources.

CREDITS

A credit is a reduction in the amount of the SDC for a specific development. ORS 223.304 requires that SDC credits be issued for the construction of a qualified public improvement which is: required as a condition of development approval; identified in the District’s adopted SDC project list; and either “not located on or contiguous to property that is the subject of development approval,” or located “on or contiguous to such property and is required to be built larger or with greater capacity than is necessary for the particular development project . . .”

Additionally, a credit must be granted “only for the cost of that portion of an improvement which exceeds the minimum standard facility size or capacity needed to serve” the particular project up to the amount of the improvement fee. For multi-phase projects, any “excess credit may be applied against SDCs that accrue in subsequent phases of the original development project.”

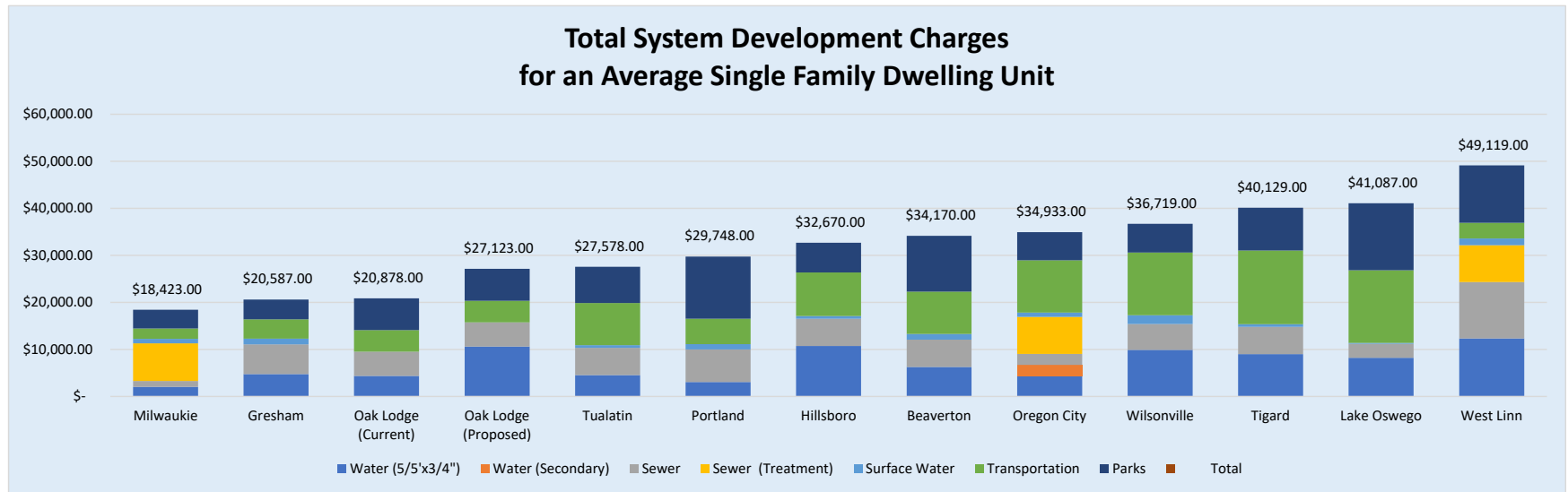
INDEXING

Oregon law (ORS 223.304) also allows for the periodic indexing of SDCs for inflation, as long as the index used is:

- (A) A relevant measurement of the average change in prices or costs over an identified time period for materials, labor, real property or a combination of the three;
- (B) Published by a recognized organization or agency that produces the index or data source for reasons that are independent of the system development charge methodology; and
- (C) Incorporated as part of the established methodology or identified and adopted in a separate ordinance, resolution or order.

We recommend that the District index its charges to the *Engineering News Record* Construction Cost Index for the City of Seattle and adjust its charges annually. There is no comparable Oregon-specific index.

Total System Development Charges for an Average Single Family Dwelling Unit



SDC	Milwaukie	Gresham	Oak Lodge (Current)	Oak Lodge (Proposed)	Tualatin	Portland	Hillsboro	Beaverton	Oregon City	Wilsonville	Tigard	Lake Oswego	West Linn
Water (5/5'x3/4")	\$ 2,041.00	\$ 4,751.00	\$ 4,363.00	\$ 10,608.00	\$ 4,545.00	\$ 3,062.00	\$ 10,750.00	\$ 6,255.00	\$ 4,342.00	\$ 9,912.00	\$ 9,000.00	\$ 8,228.00	\$ 12,326.00
Water (Secondary)									\$ 2,350.00				
Sewer	\$ 1,233.00	\$ 6,318.00	\$ 5,165.00	\$ 5,165.00	\$ 5,800.00	\$ 6,917.00	\$ 5,800.00	\$ 5,800.00	\$ 2,373.00	\$ 5,503.00	\$ 5,800.00	\$ 2,995.00	\$ 12,007.00
Sewer (Treatment)	\$ 8,005.00								\$ 7,850.00				\$ 7,850.00
Surface Water	\$ 965.00	\$ 1,203.00	\$ -	\$ -	\$ 560.00	\$ 1,159.00	\$ 560.00	\$ 1,252.00	\$ 902.00	\$ 1,848.00	\$ 560.00	\$ 164.00	\$ 1,395.00
Transportation	\$ 2,194.00	\$ 4,111.00	\$ 4,590.00	\$ 4,590.00	\$ 8,968.00	\$ 5,393.00	\$ 9,269.00	\$ 8,968.00	\$ 11,127.00	\$ 13,357.00	\$ 15,668.00	\$ 15,460.00	\$ 3,349.00
Parks	\$ 3,985.00	\$ 4,204.00	\$ 6,760.00	\$ 6,760.00	\$ 7,705.00	\$ 13,217.00	\$ 6,291.00	\$ 11,895.00	\$ 5,989.00	\$ 6,099.00	\$ 9,101.00	\$ 14,240.00	\$ 12,192.00
Total	\$ 18,423.00	\$ 20,587.00	\$ 20,878.00	\$ 27,123.00	\$ 27,578.00	\$ 29,748.00	\$ 32,670.00	\$ 34,170.00	\$ 34,933.00	\$ 36,719.00	\$ 40,129.00	\$ 41,087.00	\$ 49,119.00

Oak Lodge Water Services District Schedule of Rates, Fees, and Other Charges

Effective ~~July 1, 2020~~ January 19, 2021

Effective
~~7/1/2020~~ 1/19/2021

A. Rates/Service Charges

1. Water Service

a. Residential Service

i. Rate per hundred cubic feet of water (CCF) per **billing cycle** (2 months)

Block 1 (Lifeline)

Block 2 (Main)

Block 3 (Conservation)

Usage Bracket	Rate
1-10 CCF	\$ 1.22
11-50 CCF	\$ 1.65
51+ CCF	\$ 1.94

ii. Fixed rate per meter size per **billing cycle** (2 months)

20 gallons per minute (GPM)

30 gallons per minute (GPM)

Meter Size	Rate
5/8" x 3/4"	\$ 37.14
Full 3/4"	\$ 55.70

b. Large Residential, Commercial, and Industrial Service

i. Rate per hundred cubic feet of water (CCF) per **month**

All services

Usage Bracket	Rate
All usage	\$ 1.72

ii. Fixed rate per meter size per **month**

Meter Size	Rate
1"	\$ 32.68
1.5"	\$ 56.29
2"	\$ 83.34
3"	\$ 157.66
4"	\$ 247.76
6"	\$ 472.99
8"	\$ 765.78
10"	\$ 1,081.07

c. Fire Line Service

i. Fixed rate per meter size per **month**

Meter Size	Rate
3/4"	\$ 18.56
1"	\$ 25.90
1.5"	\$ 37.14
2"	\$ 51.77
3"	\$ 88.98
4"	\$ 135.15
6"	\$ 252.21
8"	\$ 382.89
10"	\$ 549.56

ii. Rate per hundred cubic feet of water (CCF)

Block A

Block B

Usage Bracket	Rate
1 CCF	Fixed rate/meter
2+ CCF	\$ 1.72

d. Water Service Backflow Assembly Testing Program

i. Fixed rate per device per **year**

Device Size	Fee
0.5" - 2"	\$ 22.00
2.5"-4"	\$ 32.00
6"-12"	\$ 42.00

ii. Administration Late Fee

\$ 25.00

iii. Confined Space Entry Charge per Vault (applies to devices in vaults)

\$ 25.00

iv. Confined Space Pumping Charge per Minute (applies to vaults filled with water)

\$ 0.84

v. Repairs and/or Replacements performed by District's Contractor

Contracted parts and labor

Actual cost

2. Wastewater Collection and Treatment

a. Fixed rate per Equivalent Dwelling Unit (EDU) per **month**

\$ 40.97

b. Rate per hundred cubic feet (CCF) of average winter water consumption per **month**

\$ 2.37

3. Watershed Protection

a. Fixed rate per Equivalent Service Unit (ESU) per **month**

\$ 9.51

b. Stormwater Facility Maintenance Surcharge per ESU per **month**

\$ 4.75

Oak Lodge Water Services District Schedule of Rates, Fees, and Other Charges

Effective ~~July 1, 2020~~ January 19, 2021

	Effective 7/1/2020 1/19/2021
4. Administration	
a. Interest penalty on delinquent utility billing service charges	12.00%
b. NSF check/payment fee	\$ 25.00
c. Water service disconnect notification (Red Tag) fee	\$ 7.00
d. Water service disconnect fee (for nonpayment)	\$ 25.00
e. After Hours turn on fee	\$ 100.00
f. Hydrant meter deposit	\$ 3,000.00
Water usage will be billed against the meter deposit and any remaining balance will be returned to the user	
g. Hydrant use permit	\$ 50.00
h. Title search fee	\$ 25.00
i. Lock replacement fee - if lock is cut on meter	\$ 125.00
j. Public Record Requests	
i. Photocopies per page/side	VARIOUS
Letter (8.5x11)	
- Black and White Copies	\$ 0.25
- Color Copies	\$ 0.50
Legal (8.5x14)	
- Black and White Copies	\$ 0.35
- Color Copies	\$ 1.00
Tabloid (11x17)	
- Black and White Copies	\$ 0.50
- Color Copies	\$ 1.50
Large Format (Larger than 11x17)	Based on Size and Complexity
ii. Electronic Copies	
Flash Drive (up to 32 GB)	\$ 10.00
iii. Archive Retrieval Fees	
Base Charge per Trip	\$ 75.00
Charge per Box	\$ 5.00
iv. Record Research & Processing	
Staff time up to 30 minutes	No Cost
Staff time over 30 minutes in half hour increments	Labor Rate
B. <u>Fats, Oils, Grease Program Fees</u>	
1. Wastewater Collection System Line Maintenance Fees	
a. Utility Worker Labor Rate per Hour	\$ 94.00
b. Utility Truck Rate per Truck per Hour	\$ 30.00
c. Hydro Cleaner Rate per Truck per Hour	\$ 85.00
d. Vactor Rate per Truck per Hour	\$ 120.00
e. CCTV Van Rate per Truck per Hour	\$ 200.00
C. <u>Industrial Wastewater Pretreatment Program Fees</u>	
1. Wastewater Discharge Permit Application and Review Fee	
a. Upon issuance	\$ 1,500.00
b. Upon each anniversary date of permit issuance	\$ 1,500.00
2. Significant Industrial User Fee (DEQ Pass-through)	
a. Upon issuance	\$ 537.00
b. Upon each anniversary date of permit issuance	\$ 537.00
3. Monitoring and Inspection Fee	\$ 150.00
a. Laboratory costs	Actual cost
4. Accidental Discharge Fee	\$ 850.00
5. Industrial Pretreatment Permit Appeal Fee	\$ 2,000.00

Oak Lodge Water Services District Schedule of Rates, Fees, and Other Charges

Effective ~~July 1, 2020~~ January 19, 2021

Effective
~~7/1/2020~~ 1/19/2021

D. Permit and Development Review Fees

<p>1. Utility Connection Permit</p> <p>a. Plan Review (per EDU or ESU)</p> <p>b. Initial Inspection - water and sewer only</p> <p>c. Additional Inspections - water and sewer only</p> <p>2. Site Development Permit</p> <p>a. Plan Review - greater of</p> <p style="padding-left: 40px;">or</p> <p style="padding-left: 40px;">or</p> <p>b. Initial Inspection - Water and Wastewater - greater of</p> <p style="padding-left: 40px;">or</p> <p>c. Additional Inspections - Water and Wastewater</p> <p>d. Initial Inspection - Surface Water - greater of</p> <p style="padding-left: 40px;">or</p> <p>e. Additional Inspections - Surface Water</p> <p>3. Post-Approval Plan Review and/or Design Review (Modifications to Approved Plans)</p> <p>a. Plan Review (minimum)</p> <p>4. Erosion Prevention and Sediment Control (less than one acre)</p> <p>a. Plan Review</p> <p>b. Surface Water Inspection (one initial, one monthly, and one final)</p> <p style="padding-left: 20px;">i. 1200 CN (lots or projects with disturbance areas 1-5 acres)</p> <p style="padding-left: 20px;">ii. Plan Review Minimum Base Fee for 1 acre</p> <p style="padding-left: 20px;">iii. Additional fee per acre</p> <p>c. Initial Inspection - other</p> <p>d. Additional Inspection - other</p>	<p>minimum</p> <p>minimum</p> <p>minimum</p> <p>minimum</p>	<p>\$ 200.00</p> <p>\$ 310.00</p> <p>Per Section E</p> <p>\$ 955.00</p> <p>2.5% of Engineer's Estimate</p> <p>\$200 per EDU or ESU</p> <p>\$ 500.00</p> <p>2.5% of Engineer's Estimate</p> <p>Per Section E</p> <p>\$ 500.00</p> <p>2.5% of Engineer's Estimate</p> <p>Per Section E</p> <p>50% of original plan review fee</p> <p>\$ 200.00</p> <p>\$ 310.00</p> <p>\$ 460.00</p> <p>\$ 310.00</p> <p>\$ 310.00</p> <p>Per Section E</p>
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E. Additional and After-Hours Inspections

<p>1. Additional Inspection Fee Rate per Hour</p> <p style="padding-left: 20px;">Minimum two hour charge</p> <p>2. Additional Inspection Fee Rate per Hour - After Hours</p> <p style="padding-left: 20px;">Minimum two hour charge</p>	<p>\$ 138.00</p> <p>\$ 275.00</p> <p>\$ 170.00</p> <p>\$ 340.00</p>
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F. Connection/Hook-up/Meter Set Fees

<p>1. Wastewater Connection Fee/Hook-up Fee (Municipal Customers Only)</p> <p>2. Water Meter Set Fee</p>	<p>\$ 5,165.00</p>																								
<p>3. Tapping Fee</p>	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Meter Size</th> <th style="text-align: left; border-bottom: 1px solid black;">Meter Set Fee</th> </tr> </thead> <tbody> <tr> <td>5/8"x3/4"</td> <td>\$ 454.00</td> </tr> <tr> <td>Full 3/4"</td> <td>\$ 454.00</td> </tr> <tr> <td>1"</td> <td>\$ 569.00</td> </tr> <tr> <td>1.5"</td> <td>\$ 1,016.00</td> </tr> <tr> <td>2"</td> <td>\$ 1,116.00</td> </tr> <tr> <td>3"-10"</td> <td>Actual cost</td> </tr> </tbody> </table> <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Tap Size</th> <th style="text-align: left; border-bottom: 1px solid black;">Tapping Fee</th> </tr> </thead> <tbody> <tr> <td>3/4"</td> <td>\$ 320.00</td> </tr> <tr> <td>1"</td> <td>\$ 340.00</td> </tr> <tr> <td>1.5" and 2"</td> <td>\$ 810.00</td> </tr> <tr> <td>3" - 10"</td> <td>Approved Contractor</td> </tr> </tbody> </table>	Meter Size	Meter Set Fee	5/8"x3/4"	\$ 454.00	Full 3/4"	\$ 454.00	1"	\$ 569.00	1.5"	\$ 1,016.00	2"	\$ 1,116.00	3"-10"	Actual cost	Tap Size	Tapping Fee	3/4"	\$ 320.00	1"	\$ 340.00	1.5" and 2"	\$ 810.00	3" - 10"	Approved Contractor
Meter Size	Meter Set Fee																								
5/8"x3/4"	\$ 454.00																								
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3/4"	\$ 320.00																								
1"	\$ 340.00																								
1.5" and 2"	\$ 810.00																								
3" - 10"	Approved Contractor																								
<p>4. Request for Meter Relocations</p>	<p>Two times Meter Set Fee</p>																								

Oak Lodge Water Services District Schedule of Rates, Fees, and Other Charges

Effective ~~July 1, 2020~~ January 19, 2021

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G. System Development Charges (SDC)

1. Watershed Protection SDC per ESU
2. Wastewater SDC per EDU
3. Water Distribution SDC per water meter

\$ -
\$ 5,165.00

Meter Size	SDC	
5/8"x3/4"	\$ 4,363.20	\$ 10,608.00
Full 3/4"	\$ 6,544.80	\$ 15,912.00
1"	\$ 10,908.00	\$ 26,521.00
1.5"	\$ 21,810.95	\$ 53,042.00
2"	\$ 34,900.55	\$ 84,867.00
3"	\$ 69,801.10	\$ 169,733.00
4"	\$ 109,064.85	\$ 265,208.00
6"	\$ 218,129.70	\$ 530,416.00
8"	\$ 349,005.50	\$ 848,666.00
10"	\$ 501,697.30	\$ 1,219,958.00

4. Requests for meter size upgrades

Diff in SDC's as
listed

OAK LODGE WATER SERVICES DISTRICT

ORDINANCE NO. 2021-04

AN ORDINANCE REVISING THE DISTRICT'S SCHEDULE OF RATES, FEES AND OTHER CHARGES AS SHOWN IN ATTACHMENT B, UPDATING SECTION G.3 RELATED TO WATER SYSTEM DEVELOPMENT CHARGES.

WHEREAS, it is the policy and practice of the Oak Lodge Water Services District to require the discernment and recovery of certain District costs from fees and charges levied in providing District Services.

WHEREAS, the Board of Directors approved Resolution 2020-15 that approved the District's 2020 Water Master Plan. Contained within that Master Plan was a Technical Memo titled "Oak Lodge Water Services District Water SDC" (Attachment A) that has calculated an update to the District's Water System Development Charges using updated data from the 2020 Water System Master Plan.

WHEREAS, Per guidance set forth by ORS 223.304(8) the District will adjust the Water System Development Charges annually based upon Pacific Northwest Construction cost changes in the Engineering News Record Construction Cost Index as represented by the City of Seattle, Washington.

WHEREAS, Pursuant to ORS 223.304(6), The District provided notice to all interested parties at least 90 days prior to this first reading and provided documentation of its updated System Development Charge methodology at least 60 days prior to this first reading.

WHEREAS, Pursuant to ORS 198.540, this Ordinance was read at regular meetings of the Board of Directors on two different days at least six days apart and prior to the adoption thereof.

NOW, THEREFORE, THE OAK LODGE WATER SERVICES DISTRICT BOARD OF DIRECTORS HEREBY ORDAINS THE FOLLOWING:

Section 1. the District adopts amendments to the Oak Lodge Water Services District Schedule of Rate, Fees and Other Charges attached hereto as Attachment B and incorporated by reference, to be effective as of the dates specified below.

Section 2. This Ordinance was adopted by at least the affirmative vote of a majority of the members of the Board of Directors at a public meeting and was attested to by the Secretary. The Secretary of the Board of Directors is instructed to cause this Ordinance to be filed in the Records of the Oak Lodge Water Services District and to file a certified copy of this Ordinance with the County Clerk.

FIRST READING: December 15, 2020

SECOND READING: January 19, 2021

ADOPTED THIS 19th DAY OF JANUARY 2021.

OAK LODGE WATER SERVICES DISTRICT

By _____ By _____
Kevin Williams, President Paul Gornick, Secretary/Vice President



STAFF REPORT

To	Board of Directors
From	Markus Mead, Development Review Specialist
Title	Presentation of District Design and Construction Standards Update
Item No.	9
Date	January 19, 2021

Summary

Annual update to the District's utility Design and Construction Standards (Standards) and associated detail drawings.

Background

The Standards are an essential component of the District's infrastructure. They provide utility design guidance and construction instruction. They implement the District's policies and provide guidance to OLWSD staff, developers and District consultants for new utility installation, repairs, inspections and utility performance substantiation, plan document archival and processing.

The Standards document includes all three utilities within Oak Lodge's purview: water, wastewater and surface water. This proposed document is separated into Divisions and Sections. Sections are design-related for design engineers and staff. Divisions are construction-related for inspectors and contractors to follow. The Standards consist of text in the form of the Divisions and Sections and pictorial in the form of the standard detail drawings.

Like municipal codes, design standard documents are routinely amended to reflect updated policies, practices, industry standards and technologies. The former sanitary and water districts previously had separate "codes" which included their respective design and construction standards. These two codes were combined in 2017. The proposed Standards document is the third update of the combined document. This document is planned to be revisited with the Board annually. All proposed changes to the Standards are in "track changes" which are colored text and underlined. The changes to the detail drawings are shown in red annotations.

Note, the past few years of these updates have been combining the two Districts' codes and then refining each individual utility. To date, the wastewater and water utility have been refined, with the surface water utility remaining. Staff will propose amending Section 2, Surfacewater standards, in year 2022. This Section's amendments will be

based on the updated MS4 permit with Phase I changes anticipated to be released by the Oregon DEQ in calendar year 2021.

Summary of Proposed Changes

The proposed document will increase the District's utility systems integrity by providing design engineers with clearer standards and reducing error potential or confusion. No service fee, System Development Charge, or revenue changes are included in the proposed revisions.

There are not any proposed major changes or concentrated updates this year. Most of this year's proposed changes are clarifying utility design intent and reconciling to updated documents such as the Rules and Regulations.

Highlights of the changes to the proposed Standards include:

1. Section 1.1067 Permit Required: The proposal removes a potentially conflicting statement in Section 3.0040 Laterals, which is the primary guidance for lateral quantity and design. Section 3.0040 requires a single lateral per taxlot with an allowance for exceptions.
2. Section 2.0021 Development Not Requiring Detention: The proposal closes a loophole which, in some circumstances, removed the District's standard requirement to require stormwater detention. The loophole allowed, in cases of redevelopment where it could be proven that no substantial increase in surfacewater runoff is realized, to not require detention. The proposed change also clarifies the conditions for calculating stormwater volume by clarifying "existing conditions" in cases of redevelopment. Together, the proposed changes require any redevelopment to construct surfacewater detention if the project meets the thresholds of 2.1005.03.04 Onsite Detention Design Criteria, which are:
 - partitions of parcels with the potential to create more than two additional lots as currently zoned, and/or
 - nonresidential developments and redevelopments as defined by the District; and/or
 - public improvement projects if the roadbed is altered per 2.1005.03.05 Detention Design Method.

With this loophole closed, the applicant cannot claim that their development will not increase stormwater runoff volumes or peak discharge from existing developed conditions. This proposal enables all redevelopment to be captured and better meet the intent of the District's Municipal Separate Storm Sewer System permit. It also better meets the intent of the District's Rules and Regulations and the rest of the Design and Construction Standards.

3. Standard detail drawing 422: Provides a new detail drawing for 3-inch water domestic assembly.

The rationale for a new standard is that Oak Lodge is currently using a Tualatin Valley Water District specification and Oak Lodge staff wanted to continue using this specification with a small change. Staff has added a valve on the back side of the bypass so that if staff needed to do maintenance on the bypass in the future, it could be done without disrupting service to the customer. (Oak Lodge will require this valve on all meter bypass installations 3-10".)

4. Detail Drawing Changes

#202, Erosion Control Notes: Requires a permit notification station with the approved plans and emergency contact.

#410, Isolation Valve Detail: adds a valve and changes the depth to 18-inches.

#420, ¾-inch and 1-inch Water Services Assembly: specifies the trench dimensions and extends a copper-to-copper union when the pipe length is proposed to be 10 feet rather than 60 feet.

#421, 1.5-inch and 2-inch Water Services Assembly: Change "2" oval ball stop" to "2" full port ball style valve with oval meter flange", changes a fitting description from "MIP" to "MIPT" and "FIP" to "FIPT" to update the manufacturer descriptions.

#422, 3-inch Water Services Assembly: See previous discussion.

#423, Water Meter Location: Changes the drawing number to allow for future Assembly drawings.

Public Comment

The proposed Standards document has been available for public comment since January 5, 2021 for a total of 14 days for public comment. Oak Lodge actively notified all permit applicants from the past two years, neighboring municipalities and agencies and its general interested party list which includes relevant public entities, NGOs and Community Councils. To date, Oak Lodge has received zero (0) comments regarding the proposed changes. Any comments received after this staff report document is produced will be brought to the Board's attention at the January 19 Board meeting.

Past Board Actions

April 17, 2020 adopted the updated Design and Construction Standards by Resolution Number 2020-02 March 17, 2020.

OLWSD: February 15, 2019 adopted by Resolution Number 19-01 February 15, 2019

OLWSD October 17, 2017 adopted by Resolution Number 17-14 October 20, 2017 (Oak Lodge Water Services District)

OLSD March 2, 2016 adopted by Ordinance 85; March, 8 2016 (Oak Lodge Sanitary District)

Concurrence

The proposed changes have been reviewed by the wastewater and water operations representative and the District Engineer. It has not been reviewed by District legal counsel. In Staff's opinion, there are no items needing Counsel's decision.

Budget

There is no budgetary effect with this proposal. No service fee, System Development Charge, or revenue changes are included in this document.

Recommendation

Staff seeks approval from the Board to approve the proposed amendments in this annual update to go into effect February 19, 2021 pending any substantive public comment-related changes.

Alternatives to Recommendation

1. Reject the proposed changes; or
2. Adopt with Board-requested amendments.

Suggested Board Motion

"I move to approve Resolution No. 2021-01 adopting the Design and Construction Standards for the Oak Lodge Water Services District effective February 19, 2021."

Attachments

1. Design and Construction Standards (with track changes)
2. Standard detail drawing changes
3. Resolution No. 2021-01



DESIGN AND CONSTRUCTION STANDARDS



DESIGN AND CONSTRUCTION STANDARDS

SECTION 1	GENERAL DESIGN AND APPLICATION SUBMITTAL REQUIREMENTS
SECTION 2	STORMWATER DESIGN
SECTION 3	WASTEWATER DESIGN
SECTION 4	WATER DESIGN
DIVISION 1	GENERAL CONSTRUCTION
DIVISION 2	STORMWATER CONSTRUCTION
DIVISION 3	WASTEWATER CONSTRUCTION
DIVISION 4	WATER CONSTRUCTION
DRAWINGS	SANITARY DETAILS
DRAWINGS	WATER DETAILS



DESIGN AND CONSTRUCTION STANDARDS

This document is intended to be updated annually. If errors are found, please cite them and submit them to Oak Lodge Water Services Engineering Department:

Phone: (503) 654-7765

Email: permits@olwsd.org

Versions

Current OLWSD: February 18, 2021 adopted by Resolution Number 2021- 01 January 19, 2021

OLWSD: April 17, 2020 adopted by Resolution Number 2020-02 March 17, 2020

OLWSD: February 15, 2019 adopted by Resolution Number 19- 01 February 15, 2019

OLWSD October 17, 2017 adopted by Resolution Number 17- 14 October 20, 2017 (Oak Lodge Water Services District)

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SECTION 1—GENERAL DESIGN AND APPLICATION SUBMITTAL REQUIREMENTS

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1.0000 General

1.0010 Authority and Purpose and Alternative Design Proposals

The District's Design and Construction Standards establish and provide specific, technical direction for the design and construction of public sanitary sewer, public water and public and private watershed protection projects. Through the adoption of these standards, the District endorses a comprehensive set of design and construction practices that are designed to deliver high quality improvements to the District's customers.

Infrastructure improvements are conditioned through development permits including the Clackamas County development review, and/or building permit, and/or plumbing permit, and/or District-specific permit process, these standards, and other District policies adopted by the District. No relevant utility or infrastructure construction shall commence prior to the District approval of the construction plans. The District may require that designs submitted shall documents to be stamped by a Registered Professional Engineer licensed to practice by the State of Oregon.

The purpose of these Design Standards is to provide a consistent policy under which certain physical aspects of public facility design are constructed. Most of the elements contained in these standards are Infrastructure-oriented and it is intended that they apply to both public improvements under District contract and public improvements under private contract designated herein.

These Design Standards cannot provide for all situations. They are intended to assist but not to substitute for competent work by design professionals. It is expected that engineers will bring to each project the best of skills from their respective disciplines.

The Design Standards are also not intended to unreasonably limit any innovative or creative effort, which could result in better quality, better cost savings, and/or better life cycles. Any proposed departure from the Design Standards will be judged, however, on the likelihood that such departure will produce a compensating or comparable result in every way adequate for the user and District's customer. Alternate materials, methods or design will be considered for approval by the District's Engineer as the need arises and conditions warrant modification. This consideration will be on a case-by-case basis and require sufficient justification prior to approval. The justification shall be submitted in writing and shall state the standard being changed and the rationale. If the proposed alternative cannot be agreed to, the owner shall submit a variance as described in the District's Rules and Regulations.

The purpose of this Chapter is to describe the permit types, common scenarios activating those permits, common permit review procedures and responsibilities. These are provided as examples and any application may vary depending on relative conditions.

1.0020 Engineering Policy

It shall be the policy of the District to require compliance with all state and federal standards for professional engineers.

All engineering plans, reports, or documents shall be prepared by a registered professional engineer, or by a subordinate employee under the engineer's direction, and shall be signed by the engineer and stamped with the engineer's seal to indicate the engineer's responsibility for them. This engineer is designated by these Standards to be the Design Engineer. Through the permit review process, it shall be the Design Engineer's responsibility to review any proposed public facility extension, modification, or other change with the District prior to engineering or proposed design work to determine any special requirements (conditions) or whether the proposal is permissible.

A "Not Approved For Construction" and/or a "Plans Approved for Construction" stamp of the District on the plans, etc., for any job, does not in any way relieve the Design Engineer of responsibility to meet all requirements of the District or obligation to protect life, health, and property of the public. The plan for any project shall be revised or supplemented at any time it is determined that the full requirements of the District have not been met.

1.0030 Applicability and Permit Types

These Design Standards shall govern all construction and upgrading of all public and privately financed public facilities in the District and applicable work within its service areas.

1.0031 Permit Types

Site Development Permits are required for line extensions, subdivisions/partitions and / or site development or redevelopment (partial or wholesale). A line extension includes any proposal to install, lengthen, enlarge, amend, repair, replace, upgrade or alter any existing sanitary sewer or water main line or other portion of the public system other than a side sewer lateral or water service. Line extensions also include vertical alignment changes. Any alteration to a public main line is considered a “line extension” The County equivalent permit numbers are typically “Z....xxx” and/or “SC.....xxx” and include subdivisions, partitions, design review, site clearing and similar applications. Site Development permits are to be garnered for any relevant activity within the District Boundary and / or Service Area. Line Extension Permits are processed as a “Site Development” permit.

Utility Permits are required to install new, or lengthen, enlarge, amend, repair, replace, upgrade or alter any existing sanitary sewer lateral or water service or other portion of the public system other than a main line or other portion of the public system not a line extension. The County equivalent permits can be “Z....xxx” and/or “SC.....xxx” and/or “B.....xxx” and include, tenant improvements, building and occupancy permits and similar applications. Examples include single family residences, ADUs, sewer taps, water service installations, meter size changes, lateral or service repair in the public right of way. Utility Connection Permits are to be garnered for any relevant activity within the District Boundary and / or Service Area.

Disconnection: A utility permit is garnered for any service discontinuance or abandonment. A disconnection requires a utility permit when any property(ies), existing service(s) either physical or virtual to be disconnected from the sanitary sewer or water system. Disconnection permits shall be required when a structure(s) is demolished wholly or may be required at the District’s discretion if the structure(s) is partially demolished.

Virtual Connection: Utility service connection permits are required for virtual connections to evaluate the effluent volume and strength (see definition “virtual connection”). Virtual connections do not typically install, lengthen, enlarge, amend, repair, replace, upgrade or alter any existing sanitary sewer or water main line or other portion of the public system and may not have any sanitary sewer work outside the building envelope at all. The County equivalent permits are “Z....xxx and / or B...xxx” and include design review, tenant improvements, building and occupancy permits, process changes and similar applications. Examples include tenant improvement occupancy changes, production process intensification or reduction, or increased wastewater strength or volume. Utility Connection Permits are to be garnered for any relevant activity within the District Boundary and / or Service Area. Virtual Connection Permits are processed as a “Utility Permit”.

Erosion Control Permit: The District issues Erosion Control/Surface water Management Permits within its jurisdictional area. All construction activities affecting areas 500 square feet up to five (5) acres within the District shall obtain an Erosion Control/Surface Water Management Permit. Construction activities affecting areas 250 square feet or greater within the undisturbed buffer, sensitive areas, or riparian areas must also obtain an Erosion Control/ Surface Water Management Permit. An Erosion Control/Surface Water Management Permit is also required to discharge to the ~~District’s~~ surface water system.

1.0040 Conflicting Codes, Regulations, Rules, Standards

Where these Design Standards conflict with other applicable codes, Regulation or Rule or Standard, the more restrictive code shall prevail.

1.0050 Standard Specifications

All construction design detail, workmanship, and materials shall be in accordance with the current edition of the District Standards.

1.0060 Approval of Alternate Materials Or Methods

Any substitution, material or alternate method not explicitly approved herein will be considered for approval as set forth in Subsection 1.0010 (Authority and Purpose and Rules and Regulations Section 141.02 Variances and Exemptions). Persons seeking such approvals shall make an application in writing. Approval of any major deviation from these Design Standards will be in written form. Approval of minor matters will be made in writing if requested.

Any ~~alternate~~-alternative must meet or exceed the minimum requirements set in these Design Standards.

The request must meet the requirements of Rules and Regulations Section 141.02 Variances and Exemptions, and the written application shall include, but is not limited to, the manufacturer's specifications and testing results, design drawings, calculations, and other pertinent information.

Any deviations or special problems shall be reviewed on a case-by-case basis and approved by the District Engineer. When requested by the District, full design calculations shall be submitted for review with the request for approval.

1.0070 Special Design Problems

Special applications not covered in these Design Standards require review and approval by the District Engineer. Submittal of full design calculations, supplemental drawings, and information will be required prior to any approval.

Such applications which may require special review and approval are among, but not limited to, the following.

Sewer Force Mains	Water Distribution Pump Stations
Relining of Existing Sewers	Relining of Existing Water Mains
Internal Sealing of Existing Sewers	Water Pressure Regulating Devices
Sewer Regulatory Devices	Energy Dissipaters
Sewage Pump Stations	Water Reservoirs
Sewer Siphons	Water Treatment Plants
Sewage Treatment Plants	Water Flow Measurement/Monitoring/Telemetry Devices
Sewer Flow Measurement/Monitoring Devices	Storm Sewer

1.0080 Revisions to Design Standards

It is anticipated that revisions to these Design Standards will be made from time to time. The date appearing on the title page is the date of the latest revision. Users should apply the latest published issue to the work contemplated.

Parenthetical notations at the end of sections indicate the most recent change to those sections. All sections without notations are from the original Design Standards as adopted. Some sections may be changed more than once and it shall be the user's responsibility to maintain their copy of these Design Standards with the latest changes.

1.0090 Definitions and Abbreviations

AASHTO

American Association of State Highway and Transportation Officials.

Approved backflow prevention device

A backflow prevention device that has been investigated and approved by the Oregon State Health Division.

As-built plans

Plans signed and dated by the Design Engineer indicating that the plans have been reviewed and revised, if necessary, to accurately show all as-built construction details.

Back Siphonage

Backflow that results from negative pressure (partial vacuum) in the supply piping system.

Backflow

The reverse of flow from its normal or intended direction of flow. Backflow can be caused by back pressure or back siphonage.

Backflow preventer

An approved device or means to prevent backflow into the potable water system.

Building service lateral / sewer lateral

See Rules and Regulations definitions “sewer lateral”

Building sewer

See Rules and Regulations definitions “building sewer”

Building supply

See Rules and Regulations definitions “service line”.

CBE

Crushed based equivalent (CBE) is the number that directly relates the traffic coefficient to the number of inches of rock.

Collection systems

Facilities maintained by the District for the purposes of collecting, pumping, conveying, and controlling of wastewater.

Core

To cut and remove a portion of pipe with a circular hollow drill.

Cross-connection

Any actual or potential physical connection between a potable waterline and any pipe or vessel containing a nonpotable or potable (e.g., well) fluid (suspended solid or gas) so that it is possible to introduce the nonpotable fluid into the potable fluid by backflow.

Curb

The concrete structure indicating the edge of the vehicular roadway within the overall right-of-way.

Cut sheets

Sheets of tabulated data, indicating stationings, structures, fittings, angle points, beginning of curve, points on curve, end of curves, storm drain slope, staking offset, various elevations, offset cuts, and storm drain depths for streets, waterlines, sanitary sewers, and storm drains.

Datum

The vertical elevation control.

Dedication

The legal conveyance of land, typically from a private property owner to the District.

Oak Lodge Water Services District Design and Construction Standards

Section 1—General Design Requirements

[February 18, 2021 \(Previous Revision: March 17, 2020\)](#)

[March 17, 2020 \(Previous Revision: Feb. 15, 2019\)](#)

Definition of words

That, whenever, in these Standards, the words "directed", "required", "permitted", "ordered", "designated," or words of like importance are used, they shall be understood to mean the direction, requirement, permission, or order of designation of the District Engineer. Similarly, the words "approved", "acceptable", or "satisfactory", shall mean approved by, acceptable to, or satisfactory to the District Engineer.

Design Engineer

The engineer, licensed by the State of Oregon as a Professional Engineer under whose direction plans, profiles, and details for the work are prepared and submitted to the District for review and approval, or who is in charge of and responsible for construction of the improvement.

Detention

The holding of runoff for a designed period of time and then releasing it to the natural water course.

Development

See Rules and Regulations definitions "development"

Domestic sewage

The liquid and water-borne waste derived from ordinary living processes, free from industrial wastes, and of such character to permit satisfactory disposal without special treatment into the public sewer or by means of a private sewage disposal system.

Double check detector check valve assembly

A line-sized, approved, double check valve assembly with a parallel meter and meter-sized, approved, double check valve assembly. The purpose of this assembly is to provide backflow protection for the distribution system and, at the same time, provide a metering of the fire system showing any system leakage or unauthorized use of water.

Double check valve assembly

An assembly composed of 2-two single, independently acting, approved check valves, including tightly closing shutoff valves located at each end of the assembly and fitted with properly located test cocks.

Drainage facilities

Pipes, ditches, detention basins, creeks, culvert bridges, etc., used singularly or in combination with each other for the purpose of conveying or storing storm water runoff.

Easement

Areas located outside of dedicated rights-of-way, which are granted to the District for special uses.

(Private) Easement

An area on a parcel that benefits other parcel(s) by granting special uses.

Erosion control, post construction

The re-establishment of groundcover or landscaping prior to the removal of temporary erosion control measures.

Erosion prevention and sediment control

Measures that are required for construction sites where the ground surface will be disturbed with clearing, grading, fills, excavations, and other construction activities, in order to prevent and/or control eroded material and sediment from leaving the construction site and entering the public storm system and/or a water quality resource area.

Erosion, visible or measurable

Includes, but is not limited to: deposits of mud, dirt, sediment, or similar material, exceeding ½ cubic-foot in volume on public or private streets, adjacent property, or into the storm and surface water system, either by direct deposit, dropping discharge, or as a result of the action of erosion.

Fire hydrant assembly

The fire hydrant and attached auxiliary valve from a water main to a hydrant.

Fire protection service

A metered connection to the public water main intended only for the extinguishment of fires and the flushing necessary for its proper maintenance.

Flood or flooding

A general and temporary condition of partial or complete inundation or normally dry land areas from the overflow of inland or tidal waters, and/or the unusual and rapid accumulation of runoff of surface waters from any source.

Grade

The degree of inclination of a road or hillside.

Impervious areas

Those hard surface areas located upon real property which either prevent or retard saturation of water into the land surface and cause water to run off the land surface in greater quantities or at an increased rate of flow from that present under natural conditions preexistent to development.

Industrial waste

Solid, liquid, or gaseous waste resulting from any industrial, manufacturing, trade, or business process due to development, recovery, or processing of natural resources.

Interceptor sewer

The primary public sanitary sewer which conveys wastewater directly into the wastewater treatment plant.

Irrigation service

A metered connection intended for seasonal use and delivering water, which is not discharged to the sanitary sewer.

Lateral sewer

See Rules and Regulations definitions “sewer lateral”.

Longitudinal joint

A joint which follows a course approximately parallel to the centerline of the roadway.

Manager

See Rules and Regulations definitions “administrator”.

Natural drainageway

A natural depression which collects drainage of surface water. It may be permanently or temporarily inundated.

Natural grade

The grade of the land in an undisturbed state.

Natural resource

A functioning natural system such as a wetland or stream.

Natural resource area

The land containing the natural resources to be protected.

On-site detention

The storage of excess runoff on a development site prior to its entry into a public storm drain system. Stored runoff is gradually released after the peak of the runoff has passed.

Owner

The owner of record of real property as shown on the latest tax rolls or deed records of the county or a person who furnishes evidence that they are purchasing a parcel of property under a written recorded land sale contract.

Peak runoff

The maximum water runoff rate (cfs) determined for the design storm.

Person

Individual firm, corporation, association, agency, or other entity.

Plans

Construction plans, including system plans, sewer plans, and profiles, cross sections, detailed drawings, etc., or reproductions thereof, approved or to be approved by the District Engineer, which show the location, character, dimensions, and details for the work to be done, and which constitute a supplement to these standards.

Potable water

Water which is satisfactory for drinking, culinary, and domestic purposes and meets the requirements of the health authority having jurisdiction.

Private collection system

A privately owned and maintained lateral sewer system installed to serve multi-unit structures on single ownership properties which cannot legally be further divided.

Private storm drain

A storm drain located on private property serving one or more structures or inlets and is not owned or maintained by the District.

Public sanitary sewer

Sanitary main in public right-of-way or easement operated and maintained by the District for carrying sewage and industrial wastes.

Public storm drain

Any storm sewer in public right-of-way or easement operated and maintained by the District.

Release rate

The controlled rate of release of drainage, storm, and runoff water from property, storage pond, runoff detention pond, or other facility during and following a storm event.

Right-of-way

All land or interest therein which (by deed, conveyance, agreement, easement, dedication, usage, or process of law) is reserved for or dedicated to the use of the public for sidewalk, utility, and/or roadway purposes.

Road Bed

Any earthen material below the asphalt or concrete lifts.

Roadway

All of that portion of the right-of-way used or to be used for vehicle movement which exists between the curbs, proposed curb lines, or edges of pavement.

Sedimentation

Deposition of debris and soil.

Sewage

Water-carried wastes from residences, business buildings, institutions, and industrial establishments, except industrial wastes.

Sewer Main

The portion of the public sewerage system which is primarily installed to receive wastewater directly from individual residences and other individual public or private structures.

Silt

Fine textured soil particles, including clay and sand, as differentiated from coarse particles of sand and gravel.

Siltation

Deposition of (silt) fine textured waterborne sedimentation.

Standard drawings

The drawings of structures or devices commonly used on public improvements and referred to on construction plans contained in the OLWSD Design and Construction Standards.

Structures

Those structures designated on the standard plans such as catch basins, manholes, etc.

Transverse joint

A joint, which follows a course approximately perpendicular to the centerline of the roadway.

Trunk sewer

(Interceptor) A sanitary sewer which is primarily intended to receive wastewater from a collector sewer, another trunk sewer, an existing major discharge of raw or inadequately treated wastewater, or water pollution control facility.

Uniform Plumbing Code

The Uniform Plumbing Code adopted by the International Association of Plumbing and Mechanical Officials (current edition), as revised by the State of Oregon, called the "Oregon State Plumbing Specialty Code".

Wastewater

The total fluid flow in the sanitary sewerage system which includes industrial waste, sewage, or any other waste (including that which may be combined with any ground water, surface water, or storm water) that may be discharged into the sanitary sewerage system.

Water distribution system

Water pipelines, pumping stations, reservoirs, valves, and ancillary equipment used to transmit water from a supply source through a service meter.

Water main

A water supply pipe for public use.

Water service line

The pipe connection from the District water main to the users' water meter, hydrant, backflow prevention device, or fire sprinkler double check valve.

Virtual Connection

A change in "service class" or occupancy or operational change which results in an increase in wastewater volume, strength or load using the existing sewer lateral or service line. Typically, these are tenant improvements or accessory dwelling units, but could also be commercial/industrial process changes.

1.1000 CONSTRUCTION PLANS

1.1010 General Information

Prior to any construction work and plan approval, complete construction plans, specifications and all other necessary submittals shall be submitted to the District Engineer for review. Submittal requirements consist of design plans (where required), drainage calculations, and other information as necessary. Conditions of approval from the Development Plan Review process, or as specified by the District, the Clackamas County Planning Commission, Hearings Officer or the Planning Director shall all be shown on the design plans.

1.1020 Plan Preparation

Construction plans and specifications shall be prepared by a professional engineer licensed by the State of Oregon, as specified in Subsections 1.1020 (Plan Preparation) and 1.1030 (Required Sheets).

Typical permit submittal items include:

- Complete OLWSD Plan Review Application Form (online submittal)
- Preliminary Site Plan: A site plan containing proposed sanitary sewer and / or surfacewater facilities.
- Details
- Profile plans
- Fees and charges
- Drainage Fixture schedule
- Statement of occupancy(ies) for any and all relevant structures with sanitary sewer connection.
- Note, all submitted Site plans, grading plans, storm drainage plans, and associated calculations must be stamped and signed by a professional engineer licensed by the State of Oregon and meet the standards of the District.
- Engineer's statement (calculation) of disturbed area.
- Engineer cost estimate of sanitary sewer / surfacewater facilities including installation
- Downstream analysis.
- Preliminary and final plat
- Utility maintenance agreement(s)
- Geotechnical Report / Soil Report / Infiltration Analysis (from a professional geotechnical engineer or geologist).
- Storm Report
- Erosion Prevention / Sediment Control plan and details and narrative
- Performance bond
- Warranty bond
- DEQ Approval letter
- As-builts for any site work.

1.1021 Sheet Size

All construction plans shall be clearly and legibly drawn in ink "D"- size sheets. Sheets shall have a 1½-inch clear margin on the left edge and a ½-inch margin on all other edges.

1.1022 Scale of Plans

The following are applicable to engineering drawings for plan review and as-builts.

When plans are prepared for developer financed projects, the scale of drawings shall be as follows. Horizontal scales shall be 1" = 40', or 50', vertical scales shall be 1" = 2', 4', 5', or 10'. For subdivision

plans it is preferred that all plan views and profile views of the plan set are drawn at a common scale, if more than one scale is necessary, the difference should be large enough to be noticeable (e.g. 1" = 20' & 1" = 50'). When a scale is used which is smaller than 1" = 20' (e.g. 1" = 40') intersection details showing fittings and valves shall be provided at a larger scale. Architectural scales (e.g., 1/4" = 1'0") are not permitted unless approved. Letter size shall not be smaller than 0.10 inches.

Sheets shall contain a maximum of one plan view and one profile per sheet. The stations must align on the plan view and profile view and of a corresponding scale. The sheet coverage ratio should be no less than 60% plan view and 40% profile.

1.1030 Required Sheets

Construction plan submittals shall contain the following minimum sheets: title sheet (unless not required by the District Engineer) plan and profile sheet(s), and detail sheet(s). A title block shall appear on each sheet of the plan set and shall be placed on the lower right-hand corner of the sheet, across the bottom edge of the sheet or across the right-hand edge of the sheet. The title block shall include the names of the project, the engineering firm, the owner, the sheet title, ~~and page number and revision number and dates.~~

The seal and signature of the Design Engineer responsible for preparation of the plans shall appear on each sheet as well as the Design Engineer's phone number. The description and date of all revisions to the plans shall be shown on each sheet affected and shall be approved and dated by the Design Engineer as evidenced by signature or initial.

1.1031 Title Sheet

All subdivision projects and multiple sheet improvement projects shall have a title sheet as the first page of the construction plans. This sheet shall contain the following minimum information.

1. Site plan of entire project with street right-of-way and/or subdivision layout at a 1" = 100' scale. A 1" = 200' scale may be used if project size is too large. The site plan shall also be a composite utility plan showing all properties served by proposed sewer, water, and storm facilities, in addition to the proposed facility.
2. Vicinity map at a 1" = 1000' scale or greater. Map shall show the location of the project in respect to the nearest major street intersection.
3. Index of sheets.
4. Complete legend of symbols used.
5. General and construction notes pertinent to project, space permitting. If space does not permit a separate note page shall be used.
6. Temporary and/or permanent benchmarks used along with their descriptions, elevations of benchmark, and datum.
7. Design Engineer's name, address, phone number, and seal.
8. Developer's/owner's name, address, and phone number for public improvements with private financing.
9. Statement referencing District Infrastructure Design and Construction Specifications.
10. Provide contact phone number for all affected utility companies.
11. Show tax lot numbers or lot and block designations.

12. Conditions of approval.

~~All plans shall contain revision dates in the title block.~~

1.1032 Plan Sheet

The plan view of each sheet shall be drawn at the appropriate scale showing the following minimum information.

1. Adjacent street curbs, property lines, right-of-way lines, utility easements referenced to property lines, street centerlines, and intersections. Show property corner and curb elevations to determine water service level, serviceability of lot/property for sanitary sewer, points of disposal for building storm drains, and how new curbs will join to existing curbs.
2. Location of all underground utilities within 100 feet of project (if they are affected by the project), existing power/telephone poles and guy anchors, valves, manholes, catch basins, fire hydrants, meter boxes and vaults, signs, etc.
3. Location of all water courses, railroad crossings, culverts, bridges, large water transmission pipes and gravity sewers, and/or storm drains within 200 feet of proposed gravity sewer and storm drain extensions if they affect the design of the project. All water courses shall show the 100-year flood plain as indicated on the U.S. Army Corps of Engineers and Federal Emergency Management Agency (FEMA) maps.
4. On sewer and storm drain plans, each manhole, catch basin, and cleanout shall be numbered and stationed. Station numbering shall tie to existing street monuments, property corners, or manholes. Each separate line shall be separately designated (e.g., sewer line 'A', storm line 'A', etc.).
5. On street plans, horizontal stationing shall show points of tangency and curvature for centerline; curve data shall show tangent length, radius distance, centerline curve length, and delta angle. Centerline intersection stationing, in both directions, shall be shown.
6. Where streets are being widened, edge of pavement elevations shall be shown to determine pavement cross-slope to new curb or pavement edge.
7. On water plans, show all fittings and valves and identify by type (e.g., MJ x MJ, FLG x MJ, etc.); fire hydrants; intersection details for valves and fittings
8. On all plans, show stub-outs and block-outs for future developments.
9. On composite utility plans, if individual sheets are not provided, aAll utilities and associated lines, appurtenances and fittings, and associated callouts and notes must be colored to their utility locate color. For example, sanitary sewer = green, potable water = blue, and pink for stormsewer and surfacewater.
10. All infiltrator locations and facilities or structures shall be shown on plans.
11. All corrections to plan review comments must be identifiable by being "clouded" or otherwise "called out" on the plans with the associated revision number.
12. All revisions must be labeled with the revision number and associated drawing date.

1.1033 Profile Sheet

Profiles for construction plans shall be the same horizontal scale as the plan sheet. Where profiles are drawn on the same sheet as the plan view, the profile shall be immediately below the plan view. The following minimum information shall be shown.

1. For sewers and storm drains, show locations of manholes, catch basins, and cleanouts, with each numbered and stationed as indicated in Subsection 1.1032 (Plan Sheet) item 4.

2. Existing profile at centerline of proposed utility or street. Profiles at the right-of-way lines will be required if grade differences are significant.
3. Proposed profile grade, as appropriate, for all sewers, storm drains, and waterlines, giving pipe size, length between structures or fittings, slope, backfill and pipe material, sewer inverts, rim elevations, etc. Extension of the profile of streets for future extensions (stub streets) will be extended at least 200 feet for local streets or as required by the District Engineer.
4. Existing underground utilities that cross the alignment of the proposed facility.
5. Beginning of all vertical curves, points of vertical intersection, end of vertical curve, low point of sag curve, and length of vertical curve. Profiles of existing centerline grade shall extend a minimum of 250 feet beyond the end of the improvement.
6. Clearly show all potential conflicts with existing public and private utilities (i.e., pipes, conduits, vaults, cathodic protection systems, etc.) that impact proposed design.
7. Profiles for ditch and creek flowlines shall extend a minimum of 200 feet beyond the project, both upstream and downstream. Typical cross sections at 50-foot intervals shall also be submitted.

SPECIAL NOTE: District As-builts are only to be used as an aid to the engineer. When a potential conflict may occur, the Design Engineer shall field locate, or cause to be located, and verify the alignment, depth, and inverts of all existing facilities shown on the plans that will be crossed by the proposed facility.

1.1034 Detail Sheets

Detailed drawings shall be included with all construction plans where District standard drawings do not exist. If a standard drawing, such as sewer manholes, must be modified to fit existing or unique conditions, the modified drawing shall be shown on the plans. When appropriate, due to required detail complexity, a separate detail sheet shall be drawn. When District standard drawing appurtenances or construction installations are to be used, a reference to the specific standard drawing number shall be made on the title sheet.

1.1040 Supporting Information

The Design Engineer shall submit sufficient supporting information to justify the proposed design. Such information shall include, but not be limited to, the following:

1. Design calculations.
2. Hydrology and hydraulic calculations with basin maps.
3. Alternate materials specifications including manufacturer's design application recommendation.
4. Grading plan support information to include as appropriate.
 - a. Soils classification report
 - b. Hydrology report
 - c. Geotechnical engineer's report

1.1041 Facility Plan

When designing sanitary or storm sewer facilities, a facility plan shall be submitted with the construction plans when required by the District Engineer. This plan shall be used to identify and analyze the proposed extension of facilities. The topographic plan shall show all upstream and tributary areas within no less than 200 feet of the proposed development.

The plan shall include existing contours at 2-foot intervals, or as approved by the District, including location of existing structures and public and private utilities.

1.1042 Erosion Control Plan

The erosion control plan shall address the measures as required by the Erosion Prevention and Sediment Control Plans, Technical Guidance Handbook (ECTGH) (Clackamas County Department of Utilities, 2001)¹. Construction projects beginning prior to May 1 or those projects anticipating construction activity between November 1 and April 30 will be required to submit a plan addressing "wet weather" measures as outlined in the ECTGH. Construction activity is assumed as "active" until all permanent vegetation and/or erosion protection is established.

The plan shall include existing contours at 2-foot intervals, or as approved by the District, including location of erosion control facilities (i.e., silt fence, straw mulch, sediment ponds, etc.); outlet structures (i.e., catch basins, culverts, creeks, etc.); and existing public and private utilities.

1.1043 Information Required on Erosion Control Drawings

The following items must be depicted on ESCP drawings, as applicable:

- a. Total property boundary including surface area of the development.
- b. Areas of soil disturbance (including, but not limited to, showing cut and fill areas and pre-and post-development elevation contours);
- c. Drainage patterns before and after finish grading;
- d. Discharge points;
- e. Areas used for the storage of soils or wastes;
- f. Areas where vegetative practices are to be implemented;
- g. All erosion and sediment control measures or structures;
- h. Identify the type of seed mix (percentages of the various seeds of annuals, perennials and clover) and other plantings.
- i. Critical riparian areas, sensitive preserved vegetative areas, including trees and their root zones.
- j. Runoff controls to minimize erosion and scour. BMPs such as, diversion, slope drains, diversion dikes, check dams and drainage swales.
- k. Stabilized site entrances and access roads including, but not limited to construction entrances, roadways and equipment parking areas (for example, using geotextile fabric underlay).
- l. Perimeter sediment control, including storm drain inlet protection as well as all sediment basins, traps, and barriers.
- m. Stockpile management, including dust control and location.
- n. Concrete truck and other concrete equipment washout areas.
- o. Impervious structures after construction is completed (including buildings, roads, parking lots and outdoor storage areas);
- p. Springs, wetlands and other surface waters on site or adjacent to the site;
- q. Temporary and permanent stormwater conveyance systems;
- r. Onsite water disposal locations (for example, for dewatering);

¹ [Or current edition.](#)

- s. Storm drain catch basins depicting inlet protection, and a description of the type of catch basins used (for example, field inlet, curb inlet, grated drain and combination);
- t. Septic drain fields;
- u. Existing or proposed drywells or other UICs;
- v. Drinking water wells on site or adjacent to the site;
- w. Planters;
- x. Sediment and erosion controls including installation techniques;
- y. Natural buffer zones and any associated BMPs for all areas within 50 feet of a waters of the state; and
- z. Detention ponds, storm drain piping, inflow and outflow details.

Narrative Site Description: Describe the nature of the construction activity and the final use of the site, that is what will the site be used for at the completion of the construction. The narrative shall also contain the following:

Water Quality Requirements for TMDL and 303(d) Listed Waterbodies. If there is a potential for discharge of stormwater to directly discharge or discharge through a conveyance system to a portion of a waterbody that is listed for turbidity or sedimentation or that has an established Total Maximum Daily Load (TMDL) for sedimentation or turbidity from the construction site, then one or more of the BMPs listed below must be implemented. Identify the selected BMP(s) in the ESCP as one that addresses this condition of the permit, and provide the rationale for choosing the selected BMP(s). The 303(d) list can be found at: the Oregon DEQ website. Search under Category 5 (303(d)) and Category 4a (TMDL approved). If none, state “no water quality requirements” on the narrative.

Inspector Qualification Information: Provide the following information on the Erosion and Sediment Control Inspector. This is a person that works for the applicant and not a government employee. The consultant, general contractor, project manager, or person who prepared the ESCP may be designated with their agreement as the initial or final ESC Inspector. Upon designating an inspector(s), submit to OLWSD their name(s), and contact information including the following:

- Any Erosion Control Certification Information (E.g. CESCL, CPESC or equivalent)
- Application Date: ;
- Project Name: ;
- Plan Prepared By: ;
- Company Name: ;
- E-mail Address: ; and
- Emergency Phone Number: ;

Natural Buffer Zone

If a “waters of the state” is within the project site or within 50 feet of the project boundary, and a natural buffer exists within 50 feet of the water of the state, the ESCP must delineate and protect this area with orange fencing or flagging and maintain existing buffer until completion of project. All discharge must be filtered prior to entering the natural buffer to avoid sediment build up. If scour is an issue, an energy dissipater may need to be installed.

Natural Buffer means, for the purposes of this permit, an area of undisturbed natural cover surrounding surface waters within which construction activities are restricted. Natural cover includes the natural vegetation, exposed rock, and barren ground that existed prior to commencement of earth-disturbing activities.

If project will reduce natural buffer zone under 50 feet of waters of the state, the ESCP must include one or more of the following BMPs to control and treat sediment and turbidity:

- Compost berms, compost blankets, or compost socks;
- Erosion control mats;
- Tackifiers used in combination with perimeter sediment control BMPs;
- Water treatment by electro-coagulation, flocculation, filtration; or
- Other substantially equivalent sediment or turbidity BMP approved by DEQ or Agent

If no natural buffer zone(s) will be affected by the project, on the narrative state the following: “no natural buffer zone impacts will be realized by the proposal.”

Additional Information: The District may also require the applicant to provide additional information as indicated in these Standards or the Rules and Regulations.

1.1050 Plan Submittal and Review Procedures

For all utility or erosion control permit reviews, the property owner shall make a relevant application to the District. This submittal is separate from the Clackamas County or other Agency or District submittal. Other agencies such as Clackamas County do not provide application materials to OLWSD. The applicant or property owner must submit to OLWSD separately.

Construction plans for all privately financed Infrastructure facility improvements shall be submitted to the District Engineer. The District Engineer will coordinate the plan review and approval of all construction plans which will include review for compliance with all District Infrastructure Standard Construction Specifications, rules, and the project conditions of approval.

All plan submittals shall include information required in Subsection 1.1040 (Supporting Information) along with all other information requested by the District Engineer. This information is to include, but not be limited to, construction cost estimates, easement documents, right-of-way dedications, executed agreements, and a plan check and inspection fee. All submittals will be reviewed for completeness and the Design Engineer notified if required information is missing. Submittals should be made in a timely manner as lack of information to the District may impede the review process.

Plans and documents shall be submitted electronically through the District’s permitting software system. A complete construction cost estimate will be submitted for review and determining review fees. Once the plans are deemed complete, a detailed review will begin on a “first-in, first-out” basis. If the submittal is not complete, notification will be given by the District to the Design Engineer specifying information needed.

Upon completion of the detailed review, the District will notify the Design Engineer, any revisions or “Red-line comments” the District may have. The Design Engineer will revise the plans, addressing all items in the District’s letter, and return one electronic approved construction plan set to the District for approval.

1.1060 As-Built Plan Requirements

For all Infrastructure facility improvements, the Design Engineer shall submit certified As-built drawings for all plans, which were approved for construction and a copy of the recorded plat. One set of As-built drawings shall be submitted for preliminary review. If the first submittal is not acceptable, the District Engineer will notify the Design Engineer of information needed for resubmittal.

As-built drawings and plat drawings shall meet the requirements of Subsections 1.1020 (Plan Preparation), 1.1030 (Required Streets), and 1.1060 (As-Built Plan Requirements) and shall be of archival quality. At a minimum, one (1) hard copy shall be submitted and one (21) ~~electronic copies~~ ~~copy~~ shall be submitted in PDF file format and one (1) copy of drafting software such as .DWG shall be submitted.. As-built drawings shall include all field changes and be approved by the District. -As-built drawings shall be created with a surveyed space of NAD83 projection.

The Design Engineer shall submit, along with the As-built drawings, a statement certifying that all work for which plans were approved has been completed in accordance with the OLWSD Design and Construction Standard Specifications.

The words "as-built drawing" shall appear as the last entry in the revision block along with the month, day, and year the as-built drawing was prepared.

NOTE: Actual location and depth from finish grade of any other utilities encountered during construction shall be shown and noted on both plan and profile of the as-built plans.

1.1061 Storm Drains

The following minimum information shall be noted on storm drain as-built drawings.

- Station of wye or tee into main line. Tie end of branch line to nearest property corner at right-of-way line and distance back from the face of curb.
- Alignment changes, grade changes, and changes in construction materials. If changed alignment results in station changes, a station equation shall be shown as appropriate at a manhole.
- Other change altering the approved plans.
- Other items as determined by the District.

1.1062 Sanitary Sewer

The following minimum information shall be noted on sanitary sewer as-built drawings.

1. Station of wye or tee into main line. Stationing shall be based on existing Oak Lodge numerical system. Tie end of service lateral to nearest property corner at right-of-way line and distance back from the face of curb.
2. Depth at the end of service lateral measured from existing ground to invert of pipe. When required by the District Engineer, invert elevations shall be noted.
3. Length of service lateral measured from centerline of sewer main to end of pipe.
4. Alignment changes, grade changes, and changes in construction materials. If changed alignment results in station changes, a station equation shall be shown as appropriate at a manhole.
5. Other changes altering the approved plans.
6. Provide complete test results to the District Engineer.
7. Type of pipe, backfill material and location.
8. All rim and invert elevations on manholes, catch basins, and clean outs.
9. Other items as determined by the District.

1.1063 Water Main

The following minimum information shall be noted on water main as-built drawings.

1. Station and/or property line/corner to valves (not at standard location), all fittings, blow-offs, and dead-ended lines.
2. All changes from standard 36-inch depth cover. Limits shall be shown on plan with annotated reason for change. Actual pipe elevation (top of pipe) will be taken at every fitting.
3. Show alignment changes, grade changes, and changes in construction materials. If changed alignment results in station changes, a station equation shall be shown as appropriate at a valve.

4. Identify types of fittings (i.e., MJ x MJ, FLG x MJ, etc.); provide information in the form of an inventory list on construction drawings.
5. Other change altering the approved plans.
6. Provide design calculations and complete test results to the District Engineer.
7. Actual location and depth, from finish grade of street, of any other utilities encountered during construction.
8. Other items as determined by the District.

1.1064 Plan Quality and Miscellaneous Requirements

All submitted items shall be in both hard copy as described in this Section and as electronic documents in PDF format. Plan sheets shall be collated into one single file. Multiple individual sheets will not be accepted. OLWSD and other relevant details, notes and conditions shall be contained on the plan(s). Digital plans shall be vector-based, produced directly from drafting software such as AutoCAD. Scanned documents will be accepted only with prior approval and shall be at 360dpi minimum resolution.

If plans contain excessive linework, layers, have callouts that interfere with interpretation or are otherwise difficult to read, OLWSD shall at its discretion, reject the plans. Any incomplete or rejected submittal shall count as a submittal for inclusion in the review fee order.

Each submittal shall contain responses to the relevant previous comments and/or conditions of approval as satisfied by the plans or submittal as a narrative in a “findings” format. The initial submittal narrative shall contain the land use decision conditions of approval with OLWSD-related items responded to and successive submittals shall contain response(s) to the relevant comments from previous review(s).

Redlines are to be performed by the applicant or owner and shall be performed on all plan copies and shall be incorporated onto the final approved drawing set.

The applicant or owner coordinates with Clackamas County to establish a pre-construction meeting. The applicant shall coordinate with OLWSD to attend this meeting. If OLWSD is unable to do so, OLWSD shall require an individual pre-construction meeting on-site or at the OLWSD office.

Engineering review fees include one engineering review, one revision and plat review and as-built review for a partition or subdivision. Engineering review fees for design reviews with no plat include one review and one revision and one as-built review. Additional reviews are paid for with additional fees. Additional reviews are, for fee purposes, considered as new submittals and full review fees are charged.

1.1065 Permit and Approval Vesting and Amendments

All OLWSD permits are valid for one year. Following expiration, a new permit shall be garnered by the owner and be subject to all relevant fees and/or regulations. Upon the date the District deems the application to the District to be complete, the application shall be vested with those current rules, regulations standards and other requirements being current at the date deemed complete. Other agency or jurisdictional approvals do not apply. The following are the vesting time ranges per OLWSD permit. In the following the shortest time period applies if there are multiple permits referenced. Permit vesting shall consider section 1.1067 Permit Amendments in this Chapter.

1.1066 Permit Amendments

Should conditions or plans change from the original or approved conditions, the owner shall immediately apply for and obtain from the District an amendment to the permit prior to conducting any further work other than or different from that approved in the original permit. This includes submittal of updated permit application materials, and payment of amendment charges prior to the start of construction activities or other as determined by the General Manager. Permit amendments would not extend the vesting timeline.

1.1067 Permit Required

A permit is required prior to work commencement. Failure to acquire permit(s) equates to a violation of the Rules and Regulations and Standards. An individual service connection permit and lateral shall be required for each individual house, dwelling, building or other structure or connection (physical or virtual) requiring sanitary sewage disposal. No installer shall install a sewer connection(s) in public right-of-way or public easements not covered by the District's issued permit. The issuance of a permit by the District will not relieve the permit holder from the responsibility of obtaining such other permits or licenses as may be required by other governmental agencies. ~~Multiple multi-family residential connections to a single service lateral are allowed only if the units are on the same taxlot. Multiple non-residential connections to a single service lateral are allowed only if the units are in a contiguous structure.~~ Wastewater connections from multiple structures or dwellings within private property are regulated by the Clackamas County Building Division.

1.1068 Disconnections

Sanitary Sewer

Property owners may voluntarily disconnect from the sanitary sewer system in the event that the building being served is being demolished². Property owners may also voluntarily relocate (1.1069) where along the sanitary sewer mainline the building being served. Disconnections shall be capped at the property line or edge of a public easement with a compression plug (Cherne) at the main and inspected by OLWSD. Main lines may be required to be capped (plugged) at the District's discretion.

Drinking Water

Disconnections from the water system shall require the service to be severed on the meter side of the ~~corporation~~corporation stop with the ~~corporation~~ corporation stop turned off and inspected by OLWSD.

1.1069 Replacement Service Lateral Installations

If new service lateral alignment is proposed, the existing lateral shall be removed at main, plugged with a Cherne Plug, and inspected by OLWSD prior to burial. The existing lateral shall be grouted at ~~both the upstream and downstream ends.~~the downstream end.

If the existing lateral alignment is used, a new side sewer lateral shall be installed. The lateral shall conform to current District standards and requirements. Replacing laterals may be performed by pipe bursting or trenching. If HDPE material is used from the main to the structure, Oak Lodge waives the cleanout construction requirement.

² Pursuant to all relevant Oregon laws

1.1070 Building Sewer Repair

OLWSD's purview is the public sanitary sewer system. Only the Clackamas County Building Official shall permit and / or inspect sewer plumbing on private property (notwithstanding public easements).

1.1071 Connection to Cesspools And Septic Tanks

Direct connection from all plumbing fixtures in the structure(s) to the sanitary sewer system is required. Any connections to a cesspool, septic tank shall be removed and proper connection directly made to the public sewer system. Cesspools and septic tanks shall be abandoned in accordance with Clackamas County and Oregon Department of Environmental Quality requirements.

1.1072 Sanitary Sewer Backflow

The District reserves the right to require backwater valves to be installed on sanitary sewer laterals whenever conditions warrant at the District's discretion. Typically, conditions involve flood-related locations or high-water tables.

1.1073 Ownership and Acceptance And Bonding

Performance and Warranty Bond: See Rules and Regulations 205.50.01. This bond is separate from any other agencies bond such as Clackamas County. The owner shall submit a separate bond document to OLWSD not combined with any other agencies.

Prior to commencement of construction, the owner shall submit a combined performance and warranty bond to the District. The bond or deposit shall be in the amount of 100% of all proposed sanitary, surface water (private) and public water work including installation ~~costs~~ costs. The performance bond shall automatically transform into a warranty bond upon completion of the improvement and the approval and acceptance thereof by the District. At that time, the applicant shall execute and deliver to the District a bill of sale or other document in form approved by the District transferring all right and title to the sewer main extension to the District, and a statement of value of the work completed. The warranty portion of the bond shall guarantee the associated infrastructure against any defects of labor and material for a period of one year from the date of acceptance by the District. Upon acceptance by the District of the infrastructure and the security for the one-year guarantee, the relevant infrastructure shall be incorporated in the District's system and be a part thereof and shall be maintained by the District, subject to the guarantee requirement for the first year.

1.1074 Inspections and Authority

Site Development / Engineering Review / Line Extension: OLWSD inspects public main lines, side sewer laterals and all fittings, manholes, cleanouts and any other facility(ies) in the public right-of-way or easement. These utilities are installed by the owner. OLWSD inspects the pipe zone within six (6) inches surrounding the main line and / or side sewer lateral or other facilities including backfill, bedding, concrete and associated installation. Clackamas County generally inspects all other backfill and compaction and road surfaces.

Engineering Review / Surfacewater facilities on private property (outside the public right-of-way): OLWSD inspects any water quality facility including swales, rain gardens or other pollution control device such as mechanical filter. OLWSD also inspects stormwater detention and/or retention facilities including swales, rain gardens or other pollution control device such as mechanical pipes.

Clackamas County inspects the following:

- all plumbing on private property for sanitary sewer and storm sewer and
- rain drains and storm water infrastructure in the public right-of-way.

Utility Connection Permits / Sanitary Sewer: OLWSD inspects public main lines, side sewer laterals and all fittings, manholes, cleanouts and any other facility(ies) in the public right-of-way or easement.

Utility Connection Permits / Water: OLWSD inspects public main lines, services and all appurtenances and any other facility(ies) in the public right-of-way or easement. For water services of two inches and less, Oak Lodge installs the tap and corporation stop. The owner's contractor installs the water service pipe and appurtenances around the meter and Oak Lodge inspects this installation. Finally, Oak Lodge inspects and installs the meter. For water services greater than two inches, the owner installs the entire service.

Design Review and Utility Connection Permits and Other Applicable / Erosion Prevention / Sediment Control: OLWSD inspects all applicable sites and associated erosion prevention / sediment control and pollution control measures. These measures are installed by the owner.

1.1075 Inspection Request

The District requires a twenty-four hour notice of inspection request which must be made online in each respective permit record. All relevant installations are to be inspected before their completion and while the installation and connections are still uncovered.

1.1076 Installation Without Inspection

In the event an excavation is backfilled without an inspection first being completed by the District, then the owner shall cause the pipe to be exposed for the required inspection. All costs incurred in excavating a line for inspection shall be borne by the owner.

1.1078 Charges For Additional Inspections

Excess Inspection Fee (see Fee Schedule) shall apply as follows:

Where the pipe is laid and back-filled and/or connection of the building and/or side sewer made to the sanitary sewer system of the District without prior inspection and approval thereof by an inspector of the District, or the District's delegee.

For each re-inspection and/or retesting of the pipe to be made because of the failure of the installer to comply with the ordinances, rules and regulations of the District and the Oregon State Plumbing Specialty Code and/or failure of the pipe to meet the minimum leakage requirements set by the District upon testing thereof.

Should the owner wish an inspection outside of the regular working hours (7:30 am to 3:30 pm Monday through Friday) of the District, the applicant must apply to the District twenty-four hours in advance and make a deposit of triple the Excess Inspection Fee.

1.1079 Construction Quality

If any work done under a permit granted by the District is not in accordance with the provisions of this code, and if the installer doing the work shall refuse to construct properly and complete such work, notice of such failure or refusal shall be given to the installer stating the nature of the violation and providing a reasonable time for corrections thereof. The installer shall, within the period of time stated in such notice, correct and complete the work. In the event the work is not so corrected and completed within the stated time, the District may cause said work to be completed if, in its opinion, the failure constitutes a hazard to safety or health, and the cost of such work and any materials necessary therefore shall be charged to the installer and shall be payable by the installer immediately upon notice and demand thereof given to the installer.

1.1080 Construction Duration

All work within the limits of any public right-of-way shall be completed with due diligence. If any excavation is left open beyond a time reasonably necessary to complete the same, the District may cause the excavation to be backfilled and the public right-of-way restored. Any costs of such work shall be charged to the property owner and shall be payable immediately to the District upon written notice and demand for the amount thereof given to the installer.

1.1081 Damage

Should any installer or person damage any portion of the system during repair, installation or any other activity, the District reserves the right to charge the property owner for reimbursement of all time, materials and resources allocated to the associated correction, inspection and assessment and any other related work.

1.1082 DEQ Authority and Process

The Oregon DEQ shall approve each sanitary sewer line extension in the District's service area. The Oregon DEQ reviews proposed sanitary sewer installation plans for every line extension and charges associated fees. For this review Clackamas County provides the land Use Compatibility Statement. The Oregon DEQ shall be contacted by the applicant to submit the application and shall assure that the Oregon DEQ has provided the District the Sanitary Sewer Extension Approval.

1.1083 Agency Coordination

The District coordinates with CCDTD on land use development proposals within the County. The County has a policy to coordinate the review of development applications with the District, for proposals within the District's jurisdiction, to ensure that approval is not granted in the absence of adequate utilities or a mechanism to provide them concurrently with development.

END OF SECTION

SECTION 2—STORM WATER AND EROSION CONTROL DESIGN STANDARDS

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2.0000 STORM WATER AND SURFACE WATER DESIGN

2.0001 Definitions

The following are definitions of general applicability throughout the Oak Lodge Water Services Rules and Regulations and definitions specific to this Chapter. Additional definitions specific to other Chapters are provided within each specific Chapter.

AWWA

American Water Works Association

Best Management Practices (BMP)

Requirements, methods, measures, practices, or design and performance standards imposed on an owner or operator that facilitate compliance with this Code, applicable water quality standards or with requirements for dredged fill materials. BMPs may cover treatment requirements, operating and maintenance procedures, schedules of activities, prohibitions of activities, and other management practices to control plant site run-off, spillage, leaks, sludge or water disposal, or drainage from raw material storage.

Board

The Board of Directors of Oak Lodge Water Services District.

Bioswale

Landscaped elements designed to remove silt and pollution from surface runoff water. They consist of a drainage course with gently sloped sides (less than six percent) and filled with vegetation.

Buffer

Generally, the zone contiguous with a sensitive area that is required for water quality. The critical functions of a riparian buffer (those associated with an aquatic system) include shading, input of organic debris and coarse sediments, uptake of nutrients, stabilization of banks, interception of fine sediments, overflow during high water events, protection from disturbance by humans and domestic animals, maintenance of wildlife habitat, and room for variation of aquatic system boundaries over time due to hydrologic or climatic effects. The relevant regulatory agency's definition shall supersede this definition.

Business Customer

A person who resides or conducts business or other activities on a parcel zoned for business. Mere ownership and activities that are necessary to prevent or abate nuisance conditions or to avoid deterioration of a business parcel shall not constitute "residing" or "conducting business or other activities".

Business Parcel

A parcel of land, which is zoned for business use.

Conservation Easements

A voluntary agreement that allows a property owner to permanently limit the type and amount of development on their property while retaining private ownership.

Construction Activity

Ground disturbance activities including, but not limited to, clearing, grading, excavation, or filling, or activities subject to a building permit.

Contractor

A person duly licensed or approved by the State of Oregon to perform the type of work to be done under a permit or contract issued by the District.

County

Clackamas County, Oregon.

Customer

A residential, commercial business, industrial, or other customer.

Customer Charge

The periodic charges applied to all customers of the District's Surface Water Management system for the cost of planning, program development, public education, operation, maintenance, and replacement; including any other costs, such as but not limited to, debt service, capital improvements, administration, etc. This does not include charges from specific fees related to permits or one-time service fees.

Detention

The release of surface water runoff from a site at a slower rate than it is collected by the drainage system, the difference being held in temporary storage.

Development

Any human-induced change to improved or unimproved real estate, including but not limited to construction, installation, or expansion of a building or other structure; land division; drilling; and site alteration such as that due to land surface mining, dredging, clearing, grading, excavation, filling, construction of earthen berms, paving, or improvements for use as parking or storage.

Discharge

Any addition of water, storm water, wastewater, process water or any pollutant or combination of pollutants to waters of the State, directly or indirectly, by actions of dumping, spilling, disposing or physically connecting to the public storm system or natural drainage conveyance.

District

Oak Lodge Water Services District.

Drainageway

A channel such as an open ditch that carries surface water.

Dwelling Unit

As defined by Clackamas County.

Easement

An interest or right to use or occupy real property for construction and maintenance of facilities.

Engineer

A registered professional engineer licensed to practice in the State of Oregon.

Equivalent Service Unit (ESU)

A configuration of development resulting in impervious surfaces on a parcel, which contributes runoff to the Storm water system. One ESU is equal to 2,500 square feet of impervious surface area.

Erosion

Erosion is the movement of soil particles resulting from the flow or pressure from water, wind, or earth movement. Visible or measurable, construction-related erosion includes, but is not limited to:

1. Deposits of mud, dirt, sediment or similar material exceeding $\frac{1}{2}$ -cubic-foot in volume on public or private streets, adjacent property, or into the storm and surface water system, either by direct deposit, dropping, discharge, or as a result of the action of erosion during the construction period.
2. Evidence of concentrated flows of water over bare soils; turbid or sediment- laden flows; or evidence of onsite erosion such as rivulets or bare soil slopes, where the flow of water is not filtered or captured on the site.
3. Earth slides, mudflows, earth sloughing, or other earth movement, which results in material leaving the property.

Erosion Control Plan

A plan containing a list of best management practices (BMP) to be used during construction to control and limit soil erosion.

Excavation

The mechanical removal of earth material.

Fences

Structures that consist of concrete, brick, wood, plastic, or metal posts located in the ground, connected by wood, metal, or plastic, and capable of allowing passage of water.

GIS

Geographic Information System is a system of hardware and software used for storage, retrieval, mapping and analysis of geographic data.

Groundwater

Water found underground in the cracks and spaces of soil, sand and rock.

Hazardous Materials

Materials described as hazardous by the Department of Environmental Quality, including any toxic chemicals listed as toxic under Section 307(a) of the Clean Water Act or Section 313 of Title III of SARA.

Hearings Officer

Officer appointed by the General Manager or the Board of Directors, for hearings of appeals of administrative actions.

Highly Erodible

Soils with erosion (K) factors greater than 0.25, as listed in the Soil Survey of Clackamas County Area, Oregon, developed by the Soil Conservation Service.

Impervious Surface

That surface area, which either prevents, or retards the entry of water into the soil mantle and/or causes water to run off the surface in greater quantities or at an increased rate. Impervious surfaces may include, but are not limited to, rooftops, concrete or asphalt paving, walkways, patios, driveways, parking lots, oiled macadam, gravel, or other surfaces which similarly resist infiltration or absorption of moisture.

Industrial Waste

Any liquid, gaseous, radioactive or solid waste substance, or a combination thereof, resulting from any process of industry, manufacturing, trade or business, or from the development or recovery of any natural resources, or as defined by the Oregon State Department of Environmental Quality or the United States Environmental Protection Agency, exclusive of domestic sewage.

Infiltration System

A drainage facility designed to use the hydrologic process of surface and storm water runoff soaking into the ground, commonly referred to as recharge, to dispose of surface and Storm water runoff.

In-Lieu Fee

A fee paid to the District to cover onsite water quality or water quantity facilities from a site on which Storm water management is not practical.

In-Line Detention

Detention located in a stream channel, a drainageway, or in a regional or subregional piped system. In-line detention mixes flows to be detained with flows from other areas.

Inspector

A person authorized by the District to inspect construction sites and activities affecting surface water.

Metro

The Metropolitan Service District organized and operating under ORS Chapter 268 and its Charter in portions of Washington, Multnomah and Clackamas Counties to provide planning and other services.

Municipal Separate Storm Sewer System (MS4)

A conveyance or system of conveyances (including roads, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) owned or operated by a public body. The system is designed and used for collecting storm water and is not a combined sewer or part of a Publicly Owned Treatment Works (POTW).

National Pollutant Discharge Elimination System (NPDES) Permit

A permit issued pursuant to Chapter 402 of the Clean Water Act (40 CFR 122, 123, 124, and 504).

Non-Single-Family Customer (or User)

A person or property owner who resides or conducts business or other activities on a parcel that is other than a single-family parcel, including multi-family developments, commercial or industrial zoned parcels.

Oak Lodge Sanitary District Plant List

A document maintained by the District that lists native plant and tree species that are allowed and approved by the District in its plan reviews for replanting vegetation.

Open Space

1. Land within a development that has been dedicated in common to the ownership within the development or to the public specifically for the purpose of providing places for recreational uses or scenic purposes.
2. Land designated by local, state, or federal agencies for preservation.

Owner

The owner of record title or the purchasers under a recorded sale agreement and other persons having an interest of record in the described real property.

Parcel of Land

A lot, parcel, block or other tract of land that is occupied or may be occupied by a structure or structures or other use, and includes yards and other undeveloped areas required under the zoning, subdivision or other development ordinances.

Perennial Stream

A permanently flowing (non-intermittent) stream.

Permit

Any authorization required pursuant to this or any other regulation of the District.

Permittee

The person issued a building permit, development permit or any other permit described in this Code is issued.

Person

Any individual, firm, company, corporation, partnership association, entity, public corporation, political subdivision, governmental agency, municipality, industry, or any department or agency thereof.

Pollutant

Any of the following, but not restricted to: oil, grease, soil, mining waste, spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, heavy metals, asbestos, wrecked or discharged equipment, cellar dirt and untreated industrial, municipal and agricultural discharges into water.

Post-developed

Conditions at the site after development.

Pre-developed

Conditions at the site immediately before application for development. Man-made site alterations or activities made without an approved development permit will not be considered as pre-developed conditions.

Pretreatment

The reduction of the total suspended solids, including sediments and turbidity-causing materials and the removal of petroleum hydrocarbons, fats, oils, and grease through physical straining, settling processes or filtering of runoff.

Private Storm System

That portion of the storm system owned and/or maintained by any person or entity other than the District and is located outside the public right-of-way, except as otherwise approved by the District.

Property (or the Site)

The real property undergoing development.

Public Storm water System

Those portions of the Storm water system that are in the public ROW. Natural waterways are defined under State and Federal regulations.

Public Right-of-Way

Any public highway, road, street, avenue, alleyway, public place, public easement, or public right-of-way.

Rational Method

A formula for estimating maximum discharge of runoff at a point, using flow (Q), runoff coefficient (C), rainfall intensity (I) for selected recurrence interval, and area (A), in the formula: $Q=CIA$.

Redevelopment

A project that proposes to add, replace, and/or alter impervious surface (for purposes other than routine maintenance, such as resurfacing) on a site that is already developed. Requirements related to redevelopment shall be met when the project impacts greater than 500 square feet of impervious surface area.

Retention

The process of collecting and holding surface water runoff with no surface outflow.

Sensitive Areas

Existing or created wetlands, including all mitigated wetlands, Rivers, streams, sloughs, swamps, creeks and impoundments; limits defined by wetlands reports approved by the U.S. Army Corp of Engineers (USACE), Oregon Department of State Lands (DSL), and/or Clackamas County.

Standard Methods

The examination and analytical procedures set forth in the most recent edition of Standard Methods for the Examination of Water and Wastewater, published by the American Public Health Association, AWWA, and Water Environment Federation.

Stop Work Order

An Order issued by the District for violation of the Rules and Regulations. All work contributing to the violation must cease when a Stop Work Order is issued, and the Stop Work Order will stay in place until such time as removed by the District in writing.

Storm Drain Facility

A constructed or natural feature that conveys surface water flows or runoff during rain events, including but not limited to pipes, streets, ditches, streams, pollution reduction manholes, and detention facilities.

Storm Drainage/Storm Sewer

A pipe, or any method of conveyance that carries Storm water, surface runoff, or drainage.

Storm water

Waters on the surface of the ground or underground resulting from precipitation.

Storm water Management

A program to provide surface water quality and quantity controls through nonstructural methods and capital improvement projects. Nonstructural controls include maintenance of surface water facilities, public education, water quality monitoring, implementation or intergovernmental agreements to provide for regional coordination, and preparation of water quality control ordinances and regulations. Storm water Management is also referred to as “surface water management”.

Storm water Quality Treatment Facility

Storm water Quality Treatment Facility refers to any structure or drainageway that is designed, constructed, and maintained to collect, filter, retain, or detain surface water runoff during and after a storm event for the purpose of water quality improvement. It may include, but is not limited to constructed wetlands, water quality swales, and ponds.

Stream

A drainageway that is determined to be jurisdictional by the USACE or DSL, also referred to as creek.

Top-of-bank

The point closest to the boundary of the active floodplain of a stream where a break in the slope of the land occurs such that the grade beyond the break is flatter than 3:1 at any point for a minimum distance of 25 feet measured perpendicularly from the break.

Treatment

The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in water to a less harmful state prior to discharging to Waters of the State.

Undeveloped Land

Land left in its natural state, free from any structures, roadways, placement of impervious materials or any other man created alteration.

User

Any person or entity in whose name service is rendered as evidenced by the signature on the application or contract for that service, or in the absence of a signed instrument, by the receipt and payment of utility bills regularly issued in his/her/its name. A user, under this system and structure of rates, is either single-family or non- single-family.

User – Non-Single-family

Any user whose impervious surface results from the development of land for purposes of operating a dwelling unit for occupancy by more than one single-family or for other business, industrial, commercial or institutional purposes and to whom utility services are provided at a distinct service location.

Variance

A discretionary decision to permit modification of the terms of any part of this Code based on a demonstration of unusual hardship or exceptional circumstance unique to a specific property.

WES

Clackamas County Water Environment Services is the wastewater and surface water management agency for Clackamas County.

Water Quality Facility

A facility specifically designed for pollutant removal.

Water Quality Standards

The Federal Clean Water Act, the Code of Federal Regulations, ORS Chapter 468 and OAR Chapter 340 Division 41.

Water Treatment Bioswale/Water Quality Swale

A vegetated natural depression, wide shallow ditch, or similar constructed facility used to filter runoff for the purpose of improving water quality.

Waters of the State

Those waters defined in ORS Chapter 468B.005, or as amended, which include lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon, and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction.

Wetland

Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are those areas identified and delineated by a qualified wetlands specialist as set forth in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands, January 1987, or by a DSL/COE 404 permit. Wetlands may also consist of:

1. **Constructed Wetlands.** As defined in Section 404 of the Clean Water Act, constructed wetlands are those areas developed as a water quality or quantity facility, subject to maintenance as such. These areas must be clearly separated from existing or created wetlands.
2. **Created Wetlands.** Created wetlands are those wetlands developed in an area previously identified as a non-wetland to replace or mitigate wetland destruction or displacement.
3. **Existing Wetlands.** Wetlands identified and delineated as set forth in the Federal Manual for Identifying the Delineating Jurisdictional Wetlands, January 1987, or as amended, by a qualified wetlands specialist.

Work Area

Areas of disturbance for activities defined under "Development". Work Area includes areas used for storage of equipment or materials that are used for these activities.

2.0002 Relationship to OLWSD Rules and Regulations

The following standards, procedures and rules are adopted by reference in section 202.05 of OLWSD Rules and Regulations and have the full force and effect of the OLWSD Rules and Regulations.

2.0003 Ownership of Storm ~~water~~ Water System

The public storm sewer system is located on or within public and private property. Generally, Clackamas County owns the storm sewer and surfacewater facilities in the public right-of-way (ROW). OLWSD assists in maintaining some infrastructure in the public rights-of-way through various agreements, but does not generally own or is responsible for the drainage function of that system.

Property owners generally own and maintain storm sewer and surfacewater facilities on private property regardless of the authority, ownership or responsibility of the water entering those privately-owned facilities.

2.0004 OLWSD Authority: Storm/Surface water System

OLWSD's authority is derived from its compliance responsibilities with the District's MS4 permit. Compliance with this permit includes water quality monitoring, associated reporting, assuring new development and construction adheres to surface water standards for volume, rate and quality and erosion prevention / sediment control and to retrofit existing developed areas to improve water quality, perform watershed assessment. The District is a co-permittee with the Clackamas County MS4 Permit with authority allocated to each separate jurisdiction.

Clackamas County recognizes that the District has responsibility for operating, planning, and regulating surface water management systems in Comprehensive Plan Chapter Public Facilities and Services Policies 19-26¹ which requires all new developments to meet the development standards of the appropriate service provider.

2.0005 OLWSD Authority; Erosion Prevention / Sediment Control and 1200C

OLWSD is responsible for "small lot" construction and development on tax lot(s) that are less than one acre (43,560sf). Construction, development and ground disturbing activities on lot(s) greater than one and less than five acres are required to obtain a 1200CN permit from the Oak Lodge Water Services District. Construction, development and ground disturbing activities on lot(s) greater than five acres are required to obtain a 1200C permit from the Oregon Department of Environmental Quality which performs permit application review and inspection.

2.0006 Connection to the Storm sewer System

Any connection (either piped or release) to the Storm water / storm sewer / surface water system must be requested by the Property Owner, at owner's expense to the appropriate utility owner or regulatory authority, to connect directly with the proper public sStorm water in accordance with the provisions of these regulations. Such request shall be made through complete application to connect to the storm sewer system.

2.0007 Permit Applications (the Owner or Installer)

The installer of work covered by these regulations shall make application for a permit on forms provided by the District. The Property Owner or representative must also sign the permit application as acknowledgement of the work proposed to be performed. The District accepts digital signatures on its form within the permit software system. The permit application shall be supplemented by any plans, specifications or other information considered necessary by the General Manager or designee.

¹ <https://www.clackamas.us/planning/comprehensive.html> May 03, 2001

2.0008 Permit Required

An OLWSD-issued permit is required prior to any work commenced. Failure to acquire permit(s) equate to a violation of the Rules and Regulations. The issuance of a permit by the District will not relieve the permit holder from the responsibility of obtaining such other permits or licenses as may be required by other governmental agencies.

2.0009 Agency Coordination

The District coordinates with the Clackamas County Department of Transportation and Development and Oregon Department of Environmental Quality on land use and/or development proposals within the County. In the Clackamas County Comprehensive Plan Chapter 11 Policy 1 of City, Special District and Agency Coordination's Policy 1 authorizes the County to: "*Participate in interagency coordination efforts with federal, state, Metro, special purpose districts and cities. The County will maintain an updated list of federal, state and regional agencies, cities and special districts and will invite their participation in plan revisions, ordinance adoptions, and land use actions which affect their jurisdiction or policies.*"² The County has a policy to coordinate the review of development applications with the District, for proposals within the District's jurisdiction, to ensure that approval is not granted in the absence of adequate surfacewater management facilities per Clackamas County Zoning and Development Ordinance.

2.009.1 Preliminary Statements of Feasibility: Surfacewater

The District signs preliminary statements of feasibility for Surfacewater management as the Surfacewater management authority subject to the following conditions: The property owner is responsible for substantiating Surfacewater compliance and performance. This is demonstrated through a preliminary ~~Storm-storm~~ water report and plan submitted for the preliminary statement of feasibility. OLWSD does not own the ~~Storm-storm~~ water conveyance system and cannot authorize connections to that system. The owner of the system reconciles existing capacity to proposed impacts. Some development proposals may require use of public easements which OLWSD cannot determine access rights. Other conditions may apply depending on the proposal.

2.0010 General Design Requirements

Performance Standards: Storm drainage design within a development area must include provisions to adequately control runoff from all public and private streets and the roof, footing, and area drains of residential, multi-family, commercial, and/or industrial buildings. The design must ensure future extension of the drainage system to the entire drainage basin in conformance with the adopted Storm Drainage Master Plans and Strategic Plans and these Design Standards. These provisions include:

1. Surface or subsurface drainage, caused or affected by the changing of the natural grade of the existing ground or removal of natural ground cover or placement of impervious surfaces, shall not be allowed to flow over adjacent public or private property in a volume or location materially different from that which existed before development occurred, but shall be collected and conveyed in an approved manner to an approved point of disposal.
2. Surface water entering the subject property shall be received at the naturally occurring locations and surface water exiting the subject property shall be discharged at the natural locations with adequate energy dissipaters within the subject property to minimize downstream damage and with no diversion at any of these points.
3. The approved point of disposal for all storm water may be a storm drain or a detention or retention pond or other approved by Clackamas County or other relevant agency. Existing open channels, creeks or streams are approved points of disposal after the Storm water has been treated for water quality. Acceptance of proposed systems will depend upon the prevailing site

² <https://dochub.clackamas.us/documents/drupal/def278a5-a8a3-4883-94ba-20443d3ba068> May 23, 2018

conditions, capacity of existing downstream facilities, and functional performance of the alternate design.

4. When private property must be crossed in order to reach an approved point of disposal, it shall be the owner's responsibility to acquire a recorded drainage easement. Temporary drainage ditch facilities, when approved, must be engineered to contain the storm water without causing erosion or other adverse effects to the private property.
5. The peak discharge from the subject property may not be increased from conditions existing prior to the proposed development, except where it can be satisfactorily demonstrated by the applicant that there is no adverse impact.
6. Retention/detention facilities will be required where necessary to maintain surface water discharge rates at or below the existing storm peak discharge, except where it can be demonstrated by the applicant that no adverse impact will result from not providing said facilities.
7. Permanent Storm water quality control facilities will be required for all new developments and redevelopments and construction projects including public road expansion projects.
8. Drainage from roofs, footings, and downspouts shall drain to a private Storm water management system. Systems other than residential drywells (or soakage trenches) shall be designed by an engineer and reviewed by OLWSD staff for approval.
9. Vegetation shall be established on areas disturbed by/or on areas of construction, as necessary, to minimize erosion in accordance with OLWSD or DEQ standards.

All storm drain system designs shall make adequate provisions for collecting all storm water runoff. The system shall accommodate all runoff from upstream tributary areas whether or not such areas are within the proposed development. The amount of runoff to be accommodated shall be based upon ultimate development of all upstream tributary areas.

Proposed storm drain systems shall not discharge flows into inadequate downstream systems unless approved by Clackamas County or relevant agency.

10. Applicant must obtain all necessary permits (Division of State Lands, Army Corps of Engineers, Oregon Department of Fish and Wildlife, etc.).

2.0011 Site Drainage Plans

A. Existing Drainage Plan

Provide a topographical contour map defining existing conditions to include the following minimum information.

1. 2' contour intervals; slopes over 10% may use 5' intervals; extend contours a minimum of 100 feet beyond property.
2. All structures, buildings, parking lots, and utilities on the property.
3. Locations of all existing drainage facilities and watercourses, including wetlands and floodplain areas and overland drainage, intercepted drainage or areas of high-water tables.
4. Locations of all subsurface water outlets (e.g., springs).
5. Arrows to indicate direction of flow for all drainage information.
6. All existing on-site storm and Surfacewater infrastructure.

B. Proposed Drainage Plan

Show proposed site grading and drainage facilities on a topographical contour map. Unless the detail for proposed improvements will obscure the conditions shown on the existing drainage

plan, proposed site grading and drainage may be shown on the existing drainage plan. The following minimum information shall also be shown:

1. Finished contours of the property, after development, at 2' or 5' intervals as required.
2. Percent grade for graded slopes; elevations, dimensions and locations for all graded slopes.
3. Cut/fill areas; structural fill placement areas; erosion/sedimentation control methods; reseeding areas.
4. All proposed drainage facilities—including but not limited to public and private systems; paved areas, curbs, sidewalks; drainage ditches, culverts.
5. On-site basin plan showing drainage areas with respective treatment facilities. (For example, the drainage area for each proposed swale, and/or catch basin, and/or inlet, and/or mechanical filter, and/or outlet.)

C. Drainage Calculations

Furnish such supporting information as required per Subsection 305 of these Design Standards.

2.0012 Minimum Design Criteria

A. Storm Detention Facility

See 2.1005.03.04 Additional Surface Water Management Standards in this chapter.

B. Water Quality Facility

All Water Quality Facilities shall meet the design requirements of the most current *City of Portland, Storm water Management Manual*, as amended and adopted by the District and the requirements of 2.1005. Proposed facilities shall be of this design or equivalent. If this design is not used, a variance application shall be submitted.

See 2.1005 in this Chapter for additional standards and guidance.

C. Conveyance Piping

1. Time of Concentration

Overland flow of runoff to the initial catchment point into the storm drain system shall be a minimum of 5 minutes.

3. Velocity in Natural Channels

Control of discharge from developed areas to natural channels shall be such that the average velocity resulting from all design storms less than or equal to the 10-year event remains below the erosive velocity of the channel.

4. Manning's Equation

When calculating minimum pipe slopes and velocities, the Design Engineer shall use the Manning pipe friction formula.

6. Design Storm

The minimum design storm is the 100-year event.

2.0020 Storm Water Detention and Retention

2.0021 Development Not Requiring Detention

In general, all developments will be required to provide on-site detention, unless the developer can demonstrate by a hydraulic analysis that proposed development will not **significantly** increase

sStorm water runoff volumes or peak discharge from an undeveloped condition. If the site is proposed for redevelopment or existing roadway or other constructed alterations, this does not mean existing developed conditions.-

Notwithstanding any detention requirements, water quality facilities may still be required.

2.0022 Floodplain Information

Floodplain information, delineating the 100-year floodplain limits, shall be shown where it occurs within the development. Floodplain limits shall be based on maps prepared by the U.S. Army Corps of Engineers and the Federal Emergency Management Agency (FEMA). Where better information is available, it shall be used by the Design Engineer.

2.0023 Emergency Overflow

The Design Engineer shall assess the impacts of system failure for on-site detention. Overflow may occur due to rainfall intensity which exceeds the design storm, debris blockage of storm drain system, or some other reason.

The storm drain system shall be designed such that overflows do not cause inundation of neighboring properties. Potential overflow routes shall be adequately protected from erosion.

If surface detention (e.g., pond) is used, an overflow system shall be included to provide controlled discharge of design storm event for developed conditions as required by OLWSD, without overtopping any part of the pond embankment or exceeding the capacity of the emergency spillway. The overflow design shall assume failure of the normal outlet control structure. An emergency spillway shall be able to safely pass all flows over the pond embankment without overtopping the embankment. Sufficient armoring will be required to the toe on each face of the embankment to prevent failure of the embankment from erosion.

2.0024 Detention Facilities

Detention volume storage methods, in order of preference, are the following:

1. Surface storage—pond;
2. Combination pond and water quality treatment;
3. Roadside swales overflowing to a Storm water system;
4. Underground storage by tank or vault will be approved by the District Engineer only when a pond is impracticable.

2.0025 Infiltration Facilities [Underground Injection Control (UIC)]

Infiltration facilities, also known as Underground Injection Control or UIC facilities (UICs) are governed by the Oregon Department of Environmental Quality (DEQ) pursuant to OAR 340-106-0001 and OAR 340-044-0005 (or equivalent). Storm water UICs include drywells, storm sumps, french drains, infiltration trenches and galleries, and other devices designed or intended to dispose of Storm water directly below the soil without the benefit of surface infiltration.

Any person seeking to install a UIC within the District must first obtain a permit from DEQ. The OLWSD does not authorize, permit or review UICs. All other UICs, including those that accept Storm water from any residential driveway, commercial parking lot, street, etc., must be registered and permitted or rule authorized by DEQ.

2.0030 Water Quality Facilities

2.0031 Criteria for Requiring Construction of a Water Quality Facility

A water quality facility shall be constructed unless, in the judgment of the District Engineer, any of the following conditions exists. The applicant or owner may use the below to substantiate a variance request to water quality facility installation:

1. The site topography or soils makes it impractical, or ineffective to construct an on-site facility.
2. The site is small compared to the development plan, and the loss of area for the on-site facility would preclude the effective development.
3. There is a more efficient and effective regional site within the sub-basin that was designed to incorporate the development.
4. The development is for the construction of 1-or 2-family (duplex) dwelling(s) on existing lot(s) of record and not part of a subdivision (major or minor), or any partition with water quality treatments required for the subject impervious area(s).

If construction of an on-site facility is not required, then the District Engineer may require that development to construct an off-site treatment facility that will treat an equal or greater volume of Storm water elsewhere within the District. It is the development's responsibility to acquire the land necessary offsite to construct the proposed facility and to provide proof to the District Engineer that land has been acquired prior to the Land Use Application being deemed complete by the District. If the District is not furnished with adequate proof of ownership, then the application will not be deemed complete.

2.0032 Plan Requirements

When construction of water quality facilities is required the following shall be contained on the plan(s):

1. The application shall include a set of construction plans prepared by the Design Engineer that certifies the proposed water quality facilities have been designed in accordance with the criteria required in these Standards.
2. A financial assurance, meeting the requirements of the community development code is provided for the construction of the water quality facility.
3. An operation and maintenance plan shall be prepared showing how the water quality facility is to be maintained.
4. A landscape plan shall be prepared for the proposed facility.
5. A list of recommendations by a Geotechnical Engineer may be required at the discretion of the District Engineer.

2.0033 Facility Design

All Water Quality Facilities shall meet the design requirements of the most current *City of Portland, Storm water Management Manual*, as amended and adopted by OLWSD. See 2.1005 for additional information.

2.0040 Erosion Control

All relevant construction activities shall provide erosion prevention measures and sediment control practices during all phases of construction to prevent and restrict the discharge of sediments in accordance with the District's Rules and Regulations and OAR 340-41-455(3)³ (or equivalent). See 2.1005 of this section for Erosion Prevention and Sediment Control standards.

2.0050 Private Drainage Systems

2.0051 Subdivisions

When subdivision lots drain to the rear it may be necessary to provide a private drainage system in private easements. This system shall be for collection of roof drains, footing drains, and surface runoff. This system shall be designed to meet the Uniform Plumbing Code requirements.

2.0052 Subsurface Drainage

Subsurface drains (underdrains) shall be provided at the following locations:

1. Where existing springs and field tile intercepted during construction activity for other facilities; i.e., sewer, water, mains, street excavations, foundations, etc. Subsurface drains are not needed if the tile is removed.
2. Where high ground water exists or when it is necessary to reduce the piezometric surface to an acceptable level to prevent land slippage or underfloor flooding of buildings.

³ At time of composition.

2.1000 SURFACEWATER AND EROSION PERMIT PROCEDURES AND REQUIREMENTS

2.1001 General Notes

The following notes shall be contained in any submitted surface water permit application:

1. Erosion Control must be inspected prior to construction commencement. The owner or applicant shall schedule an initial inspection of erosion control measure installation at least 24 hours in advance of needing inspection. No inspections will be scheduled after 1:30PM.
2. Additional erosion control measures, and/or permits and/or fees may be required if the project scope changes from the approved plans.
3. Utility Placement Permits (Road Opening) may be required by Clackamas County if work enters the public right-of-way or other applicable area.
4. All hazardous chemicals, which are delivered to or stored at the job site during construction, restoration, or maintenance activities shall be stored, covered, and protected from the weather. None of the materials shall be exposed during storage. Hazardous chemicals shall be disposed of in such a manner that pollution of soil, groundwater, surface water.
5. The use of hazardous chemicals including, but not limited to, pesticides (including insecticides, herbicides, defoliants, soil sterilants) and fertilizers, must strictly adhere to federal, state, and local regulations.

2.1002 Objectives

The District provides surface water management through maintenance of surface water facilities, public education, water quality monitoring, implementation of intergovernmental agreements to provide for interjurisdictional coordination, and preparation of water quality and quantity control ordinances and regulations.

The objectives of this section are to:

1. Prevent or minimize the introduction of pollutants to surface waters;
2. Meet Federal National Pollutant Discharge Elimination System (NPDES) permit requirements;
3. Prevent future pollution and erosion through implementation of Best Management Practices (BMP);
4. Provide for the equitable distribution of the costs of the surface water management program; and
5. Better manage and control surface water within the District.

2.1003 Discharge Regulations

2.1003.01 Purpose

This chapter provides for the regulation of discharge of Storm water, pretreatment facilities, and storm drainage facility connection.

2.1003.02 Discharge Regulations

An Erosion Control/Surface Water Management Permit is required to discharge to the District's sanitary sewer system, any public Storm water system, creeks, or other drainageways. Before discharging to any constructed or natural systems within the District, an Erosion Control/Surface

Water Management Permit authorizing such discharge shall first be secured in writing from the District and fees paid. No person shall discharge or cause to be discharged, directly or indirectly, any quantity of Storm water, pollutant substance, or wash water into the public Storm water system unless an Erosion Control/Surface Water Management Permit is obtained from the District

2.1003.02.01 Discharge to Sanitary Sewer System

Discharge or contribution to the discharge of any Storm water or other unpolluted water is not allowed into the District's sanitary sewer system without specific approval from the District.

2.1003.02.02 Discharge to Public Storm water System

All discharges to the public Storm water system shall have authorization from the utility's owner; Clackamas County. Prohibited Storm water discharge activities include, but are not limited to, the following:

1. Introduction of pollutants or waters to the public Storm water system containing pollutants or concentrations at levels equal to or in excess of those necessary to protect waters of the State.
2. Failure to abide by the terms of any Erosion Control/Surface Water Management Permit, MS4 permit, NPDES permit, statute, administrative rule, ordinance, stipulated and final order or decree, or other permit or contract.
3. Discharges of non-Storm water or spills or dumping of materials other than Storm water into public storm system unless pursuant to a conditional Erosion Control/Surface Water Management Permit approved by the District and in compliance therewith.
4. Illegal or unpermitted connection or methods of conveyance to the public Storm water system.
5. Any discharge that will violate federal, state, or local water quality standards.

2.1003.02.03 Discharge to Creeks or Drainageway

New storm drains and roof drains are not allowed to drain directly into creeks or drainageways or encroach into the buffer unless an Erosion Control/Surface Water Management Permit is obtained from the District. Encroachment into buffer areas must be approved by the District and will require mitigation. Existing and replacement storm drains shall be constructed according to current state and federal regulations. Non-single family development shall provide an approved water quality facility prior to any discharge from the site to a storm drain system, a creek or drainageway, as approved by the District.

2.1003.02.04 State Discharge Limitations

State requirements and limitations on discharges shall apply in any case where they are more stringent than Federal requirements and limitations or those provided in this chapter.

2.1003.02.05 Local Discharge Limitations

The District retains the right to establish by ordinance more stringent limitations or requirements on discharges if such limitations or requirements are deemed necessary to comply with this chapter.

2.1003.03 Pretreatment Facilities

The District may require that pretreatment facilities are necessary to comply with water quality standards. Before constructing or operating any pretreatment facilities within the District, an Erosion Control/Surface Water Management Permit authorizing such connection shall first be secured in writing from the District and fees paid.

2.1003.03.01 Plans, Specifications, and Construction

1. The District may require plans, specifications, and other information relating to the construction or installation of pretreatment facilities.
2. Pretreatment facility construction and installation shall not commence until written approval of plans and specifications by the District is obtained.
3. Every facility for the pretreatment and handling of surface water discharged from non-single family residential development sites shall be constructed in accordance with approved plans and specifications.
4. The applicant shall notify the District when the facility is ready for final construction inspection. The inspector shall then inspect the facility construction. If such construction meets the previous permit requirements, a pretreatment facility approval shall be issued.

2.1003.03.02 Facility Operations and Maintenance Agreement

The District may require an Operations and Maintenance Agreement for pretreatment facilities. This agreement may set forth operations and maintenance, sampling, access, and other requirements. This agreement will provide for District access to inspect the facility. This agreement will be recorded in the County records against the affected property.

Every facility for the pretreatment and handling of surface water discharged shall be installed, maintained, and repaired at the expense of the facility owner discharging the surface water. The owner shall be responsible for maintaining and repairing pretreatment facilities using BMPs, as determined by the District or authorized representative.

2.1003.03.03 Sampling and Monitoring Facility

A person constructing a pretreatment facility, as required by the District, shall also install and maintain, at the expense of the facility owner, a suitable sampling access point for checking and investigating the discharge from the pretreatment facility to the public storm system. The sampling point shall be in accordance with specifications approved by the District.

2.1003.03.04 Sampling

Samples discharged into the public surface water system shall be representative of the use and shall be taken after treatment, if any, and before dilution by other water. The sampling method shall be one approved by the District and in accordance with best engineering practices. All sample analysis shall be performed in accordance with the procedures set forth in 40 CFR Part 136⁴, as amended.

2.1003.03.05 Reporting Requirements

The District may require the permit holder to submit a compliance report indicating the quantity and quality of surface water discharge, the need for pretreatment to comply with applicable standards, and the operation and maintenance schedule of the pretreatment facility.

⁴ Or equivalent

2.1003.03.06 Inspection and Right-of-Entry

The District or authorized representatives may inspect the monitoring facilities of any permittee to determine the compliance with the requirements of this Code. The discharger shall allow the District or authorized representatives to enter upon the premises at any reasonable hour for the purpose of inspection, sampling, or records examination. The District shall also have the right to install on the user's property such devices as are necessary to conduct sampling, inspection, compliance, monitoring, and/or metering operations. The right of entry includes but is not limited to access to those portions of the premises that contain facilities for sampling, measuring, treating, transporting, or otherwise handling surface water and storing records, reports, or other related documents.

2.1003.04 Discharge to a Storm Facility

An Erosion Control/Surface Water Management Permit is required to discharge or drain to any storm drain facility, including but not limited to pipes, streets, ditches, streams, pollution reduction manholes, and detention facilities, whether constructed or natural. Before discharging or draining to any storm drain facilities within the District, an Erosion Control/Surface Water Management Permit authorizing such discharge shall first be secured in writing from the District and fees paid.

2.1003.04.01 Plans, Specifications, and Construction

The District may require plans, specifications, and other information relating to the construction or installation of storm drain facility connections:

1. Storm drain facility connections construction and installation shall not commence until a written permit and approval of plans and specifications by the District is obtained.
2. Every storm drain facility connection shall be constructed in accordance with approved plans and specifications and shall be installed, maintained, and repaired at the expense of the facility owner connecting to a storm drainage facility.
3. The applicant shall notify the District when the connection is ready for inspection. The inspector shall then inspect the connection construction therein, and if such construction meets the previous requirement as approved in the permit, a connection approval shall be issued.

2.1004 Erosion Control and Environmental Protection

2.1004.01 Purpose

This Article provides for the regulation of erosion and pollution control to maintain and protect water quality and natural resources in accordance with federal, state, and local water quality standards.

2.1004.01.01 General Policy

1. To comply with water quality standards set forth in OAR 340-041⁵, it is the District's policy to prevent erosion and eliminate or reduce the amount of sediment and other pollutants reaching the public storm and surface water system.
2. The provisions of this Chapter apply during construction activities and until permanent erosion and pollution control measures are in place, or the site is stabilized and/or the District closes the associated permit(s) as described herein, unless otherwise noted.
3. This chapter is intended to regulate construction activities and other activities that accelerate erosion. It is the District's policy to require temporary and permanent measures for all construction projects to lessen the adverse effects of site alteration on the environment.
4. Nothing in this section shall relieve any person from obligation to comply with the regulations or permits of any federal, state, or local authority.

2.1004.02 Erosion Control

2.1004.02.01 Erosion Control Requirements

1. Where the District determines that erosion control facilities are necessary to comply with water quality standards, an Erosion Control/Surface Water Management Permit is required for construction and operation of such facilities. Before constructing any erosion control facilities within the District, an Erosion Control/Surface Water Management Permit authorizing such facilities shall first be secured in writing from the District and fees paid. Erosion control facilities and measures shall meet requirements of the current "*Clackamas County Water Environment Services Erosion Prevention Planning and Design Control Manual*."
2. The permittee or owner is responsible for the cost of installation, maintenance, and repair of all erosion control facilities required by an Erosion Control/Surface Water Management Permit, including both temporary and permanent facilities, as applicable.
3. The permittee or owner shall use BMPs, as determined by the District or Authorized designee.
4. No visible or measurable erosion shall leave the property during any construction or other erosion accelerating activity. The permittee/owner, along with any person who causes such visible or measurable erosion, shall be responsible for cleanup, damages, and fines. Cleanup responsibilities may involve, but are not limited to public facilities, resources, and areas impacted by a project including, but not limited

⁵ Or equivalent

to, creeks, drainageways, wetlands, catch basins, storm drains, and sensitive areas.

2.1004.02.02 Plans, Specifications, and Construction

In addition to the requirements of these Standards and Rules and Regulations, the District may require plans, specifications, and other information relating to the construction or installation of erosion control facilities or restoration plans. Erosion control facility construction and installation shall not commence until the permittee receives the District's written approval of erosion control plans and specifications. All erosion control facilities shall be constructed in accordance with approved plans and specifications.

2.1004.02.03 Inspection

The erosion control facilities and measures necessary to meet the requirements of this subsection shall be installed by the owner and shall be inspected by the District prior to the start of any construction activity. The owner shall notify the District when the erosion control facility is ready for final construction inspection. The District's inspector shall then inspect the facility construction prior to final approval.

2.1004.02.04 Maintenance

1. Maintenance of existing facilities shall be the responsibility of the property owner or applicant.
2. The permittee or owner shall maintain the erosion control facilities and BMPs in conformance with the approved erosion control plan.
3. If adequate maintenance is not performed, the maintenance standards and schedule shall be reviewed and enforced by the District and the owner or permittee shall be responsible to the District for costs incurred.
4. Where an erosion control plan is not effective or sufficient as determined by the District through a site inspection, the District may issue a stop work order and the permittee or owner shall be required to submit a revised plan to the District. Upon approval of the revised plan by the District, the permittee or owner shall immediately implement the additional facilities and techniques of the revised plan.
5. In cases where erosion is occurring in violation of this Code, the District may require the owner/permittee to install interim control measures prior to submittal of the revised erosion control plan.

2.1004.02.05 Deposit of Sediment

No person shall drag, drop, track, or otherwise place or deposit, or permit to be deposited, mud, dirt, rock or other such debris on a public street or into any part of the public storm and surface water system, or any part of a private storm and surface water system, which drains or connects to the public Storm water and surface water system. Any such deposit or material shall be immediately removed using hand labor or mechanical means. No material shall be washed or flushed into any part of the storm and surface water system without erosion control measures installed to the satisfaction of the District, and any such action shall be a violation.

2.1004.02.06 NPDES Permit

Any construction activity disturbing one (1) or more acres of land shall obtain an NPDES Storm water Discharge Permit issued by DEQ and submit a copy of the permit application, plans and associated reports and issued permit to OLWSD.

2.1004.03 Air Pollution

2.1004.03.01 Dust Control

Dust and other particulate matters containing pollutants that settle on property or are carried to surface waters through rainfall or other means shall be minimized to the maximum extent practicable, utilizing all measures necessary, including but not limited to:

1. Sprinkling with water, haul and access roads and other exposed dust producing areas;
2. Establishing temporary vegetative cover;
3. Placing wood chips or other effective mulches on vehicle and pedestrian use areas;
4. Maintaining the proper moisture condition on all fill surfaces;
5. Pre-wetting cut and borrow area surfaces; and
6. Using of covered haul equipment.

2.1003.04 Water Quality Maintenance

2.1004.04.01 Construction of New Facilities

Construction of new water quality facilities between stream banks shall be pursuant to permits issued by jurisdictional state and federal agencies (i.e., United States Army Corps of Engineers and the Department of State Lands) and applicable regulations.

2.1004.04.02 Pollutants

Pollutants in the DEQ current toxics standards identified in OAR 340-041⁶, such as, but not limited to, fuels, lubricants, asphalt, concrete, bitumens, raw sewage, other harmful materials, and trash or debris, shall not be discharged into rivers, streams, impoundments, wetlands, sensitive areas, undisturbed buffers, or any storm drainage system, or at such proximity that the pollutants flow to these watercourses.

2.1004.04.03 Alterations

The withdrawal of water from a stream, impoundment, wetland, or sensitive area, shall not result in altering or further degradation of the temperature or water quality of the waterbody in violation of OAR-340-041⁷.

2.1004.04.04 Construction Activities

All sediment-laden water from construction activities shall be routed through sedimentation basins, filtered, or otherwise treated to remove the sediment load before the water is discharged into the surface water system.

⁶ Or equivalent

⁷ Or equivalent

2.1003.05 2.1004.05 Natural Resource Protection

2.1004.05.01 Fish and Wildlife Habitat

Construction activities shall be done in a manner that minimizes adverse effects on wildlife and fishery resources pursuant to the requirements of local, state, and federal agencies charged with wildlife and fish protection.

2.1004.05.02 Sensitive Areas

An Erosion Control/Surface Water Management Permit is required for activities disturbing sensitive areas that would affect water quality by altering or affecting sensitive areas and associated buffers. These activities include, but are not limited to:

1. landscaping;
2. construction activities;
3. tree cutting;
4. vegetation removal; and
5. streambank restoration.

Before conducting construction activities in sensitive areas within the District, an Erosion Control/Surface Water Management Permit authorizing such activities shall first be secured in writing from the District and fees paid (see Fee Schedule).

Sensitive Areas applicable to the District include:

1. Existing or created wetlands, including all mitigated wetlands; limits defined by wetlands reports approved by the USACE, DSL, and/or Clackamas County;
2. Rivers, streams, springs, sloughs, swamps, creeks; Impoundments (lakes and ponds).

Sensitive areas, for the purposes of this chapter, do not include water quality facilities, such as constructed wetlands or the undisturbed buffers adjacent to sensitive areas.

2.1004.05.03 Study Requirements

An approved study may be required by the District identifying areas on the parcel which are, or may be, sensitive areas when, in the opinion of the District:

1. An area or areas on a parcel may be classified as a sensitive area; or
2. Designed as a natural resource or equivalent by Clackamas County.

2.1004.05.04 Tree Replacement within Buffer

Existing trees within the sensitive area buffer or riparian area are encouraged to remain in place. If a tree is removed from the buffer area the following conditions apply:

1. Any trees removed a diameter at breast height (DBH) of at least 3 inches shall be replaced at a ratio of 4:1 (four trees planted for every one removed) within a time

frame, location(s), and species identified in the approved site restoration plan.

2. An Erosion Control/Surface Water Management Permit shall first be secured from the District if the tree removal activity causes ground disturbance greater than 250 square feet.
3. Trees removed by or requiring removal as a result of natural causes (e.g. wind storm, disease (requires report from Certified Arborist to validate and document disease), wildlife activities) do not have to be replaced.
4. Types of trees allowed for replacement are those identified in the *Oak Lodge Sanitary District Plant List*, except as allowed in a plan approved by the District.

2.1004.05.05 Sensitive Area Buffer

The District may require that the buffer be fenced, signed, delineated, or otherwise physically set apart from parcels that will be developed. In any new development or redevelopment, the buffer shall be contained in a tract, and shall not be a part of any parcel to be used for the construction. The District reserves the right to require separate tracts for buffers; however, conservation easements will be considered and allowed if the developer can demonstrate that restrictions for activities on the parcel will protect the resource associated with the buffer. Restrictions may include permanent signage, fencing, documentation with the title of the property, or other methods approved by the District.

2.1004.05.06 Plans, Specifications, and Construction

In addition to requirements in these Standards, the District may require additional plans, specifications, and other information relating to construction within, variances from, and restoration of buffers. Construction and restoration shall not commence until written approval of plans and specifications by the District is obtained and shall occur in accordance with approved plans and specifications.

The applicant shall notify the District when the facility is ready for final construction inspection. The inspector shall then inspect the facility construction therein.

2.1004.05.07 Hazardous Chemicals, Pesticides, Fertilizers

The use of hazardous chemicals including, but not limited to, pesticides (including insecticides, herbicides, defoliants, soil sterilants) and fertilizers, must strictly adhere to federal, state, and local regulations.

All hazardous chemicals, which are delivered to or stored at the job site during construction, restoration, or maintenance activities shall be stored, covered, and protected from the weather. None of the materials shall be exposed during storage. Hazardous chemicals shall be disposed of in such a manner that pollution of soil, groundwater, surface water, or air does not occur. In no case shall hazardous materials be disposed of in drainageways.

2.1005 Additional Surface Water Management Standards

2.1005.01 Purpose

This Article provides for additional treatment design, water quality, quantity, and natural resource protection standards.

2.1005.02 General Standards

2.1005.02.01 Requirements

1. All development shall be planned, designed, constructed, and maintained to:
 - (a) Protect and preserve existing streams, creeks, natural drainage channels and wetlands, and to meet state and federal requirements;
 - (b) Protect property from flood hazards identified by the District;
 - (c) Provide records or show on District Storm water studies a system by which storm/surface water within the development will be controlled without causing damage or harm to the natural environment, or to property or persons.
2. All stream crossings and obstructions must be approved by USACE, DSL, Clackamas County, and other authorized federal, state, and local agencies.
3. In the event a development or any part thereof is traversed by any water course, channel, stream or creek, gulch or other natural drainage channel, adequate easements for purposes of surface water drainage maintenance shall be provided to the District. This does not imply a maintenance obligation by the District.
4. Facilities developed on site, including flow discharge from site, shall be constructed in a manner consistent with "*OLSD Surface Water Master Plan*".
5. All storm conveyance pipes, vaults, detention facilities, or other water quality or quantity facilities shall be built to specifications of the District.
6. All surface water facilities shall be constructed per specifications of the District.
7. Inspection of surface water facilities and approval of shop drawings shall be provided by the developer's engineer.
8. Following completion of construction, the engineer shall submit a document, stamped by a professional engineer, indicating all surface water systems have been inspected and installed per approved plans and approved changes.
9. Maintenance is required for all onsite surface water facilities. The maintenance program must be approved by the District. The District may require a recorded Operations and Maintenance Agreement for onsite facilities.
10. As-built plans of facilities, easements for all facilities, and approved maintenance plans shall be provided to the District upon completion of construction. Record drawings may be substituted for as-built plans when determined appropriate by the District or authorized representative.
11. Each surface water system shall have adequate easements and access for construction, operation, and maintenance. A commercial or industrial user having ownership or control of onsite detention facilities shall maintain such facilities in compliance with this Code and provide documentation of annual maintenance.
12. All surface water facilities shall be maintained as needed and as approved by the District. Proof of maintenance shall be annually submitted in accordance with a schedule approved by the District. If the facility is not maintained, the District may perform the inspection, maintenance, and documentation, and charge the owner of

the facility.

13. Site plans, grading plans, storm drainage plans, and associated calculations must be stamped and signed by a professional engineer licensed by the State of Oregon and meet the standards of the District.
14. Permittees or owners shall provide a performance bond or other surety acceptable to the District prior to recording of the plat for residential developments or the issuance of building permits for commercial or industrial developments. The amount of the performance bond shall be in the amount of 100 percent of the engineer's cost estimate for all approved but uncompleted surface water and buffer improvements.
15. A maintenance bond shall be provided to the District prior to release of the performance bond. The maintenance bond shall be in favor of the District, in the amount of 100 percent of the actual construction cost, for a period of one year from the date of final District inspection and acceptance of all completed buffer mitigation and public surface water facilities. During construction and the guarantee period, the District may perform work if the owner fails to do so and charge the Bond. At the end of the one-year guarantee period, the residual bond amount shall be released and remitted to the owner. Nothing herein shall limit the owner's responsibility for repair and maintenance to the amount of the bond.
16. The permittee or owner is responsible for complying with federal, state and local regulations.
17. All developments and redevelopments shall provide water quantity, water quality, and infiltration systems to meet requirements of subsection 2.1005.03 and 2.1005.04.
18. Development projects shall not be phased or segmented in such a manner to avoid the requirements of the Code.
19. Water quality facilities shall incorporate the following as a curb or hardscape stamp: "Storm water quality infiltration facility. Dump No Waste. Maintained by property owner".

2.1005.03 Water Quality Standards

2.1005.03.01 Conveyance Standards

1. Surface water collection systems shall be sized for post-developed conditions in accordance with the following criteria:
 - (a) Storm sewers and outfall pipes draining less than 640 acres: 25-yr, 24-hr design storm;
 - (b) Sewers and outfall pipes draining greater than 640 acres: 50-year, 24-hour design storm;
 - (c) Creek or stream channels draining less than 250 acres: 25-year, 24-hour design storm;
 - (d) Creek or stream channels draining greater than 250 acres: 50-year, 24-hour design storm;

- (e) Creek or stream channels draining greater than 640 acres: 100-year, 24-hour design storm.
2. Drainage areas may use alternate calculation methods such as the Santa Barbara Unit Hydrograph (SBUH), HEC-1, Hydrological Simulation Program - Fortran (HSPF), or Storm Water Management Model (SWMM), or others as approved by the District.
3. Drainage areas smaller than 1 acre shall use the Rational Method for determining conveyance flows.
4. Exceptions must be documented and approved by the District.
5. Instream or in-line detention can only be used in locations approved by the USACE, DSL, any other authorized federal, state, or local agency, and approval from the District.
6. District may require facilities to bring drainage including off-site drainage from private property to a public facility identified in the District's *Surface Water Master Plan*.
7. Public drainage facilities shall comply with Clackamas County standards, unless amended by the District.

2.1005.03.02 Off-site Flows, Springs, and Groundwater

The property owner shall be responsible to provide a drainage system for all water onsite and for water entering the property from offsite.

1. Surface water, springs, and groundwater shall be incorporated into the drainage design.
2. The owner is also responsible for springs and groundwater that surface during construction and within the warranty period of the drainage system.
3. During development or redevelopment of a property, the District may require the owner to install a drainage system with adequate capacity to convey offsite drainage to meet the needs identified in the adopted capital improvement plan of the *Surface Water Master Plan*.
 - (a) The drainage system shall be designed and installed consistent with standards described in subsections 2.1005.03.04 and 2.1005.03.05.
 - (b) In such case, the District may contribute a portion of the funding for the conveyance facility when funding is available.

2.1005.03.03 Curb Drains

Where a drainage system of catch basins and pipes is available, all drains that extend to the curb must be connected to the storm system.

2.1005.03.04 Onsite Detention Design Criteria

The District may require that the applicant design and construct a detention and drainage system which will ensure that offsite impacts caused by that development can be mitigated.

1. Onsite storm quantity detention facilities shall be designed to capture and detain runoff as follows:
 - (a) 2-year, 24-hour post-developed runoff rate to a ½ of the 2-year, 24-hour pre- developed discharge rate;
 - (b) In areas with limited downstream capacity, or critical areas identified in the District’s Hydromodification Analysis or other adopted documents detention shall be designed to reduce the 25-year, 24-hour, post-developed runoff rate to a 2-year, 24-hour pre- developed discharge rate, and, from the 2-year, 24-hour, post developed rate, to ½ of the 2-year, 24-hour pre-developed discharge rate.
3. Downstream analysis shall demonstrate adequate conveyance capacity to the distance where the project site contributes less than 15 percent of the upstream drainage area OR 1500 feet downstream of the project, whichever is greater. If the downstream analysis crosses the jurisdictional boundary of another surface water management agency, that agency must be notified by the developer or owner and given the opportunity to review and comment on the analysis.
4. Downstream Analysis Exemption: an exemption to the downstream analysis shall be proposed as an exemption request per OLWSD Rules and Regulations and shall address the following criteria. The exemption is discretionarily approved by the District as described in the Rules and Regulations:
 - a. Prior to Land Use Application, the owner/applicant shall provide infiltration tests results certified by a professional engineer (Oregon) or registered geologist/geotechnical engineer or equivalent. The test locations shall be conducted in areas anticipated for impervious areas and/or infiltration facilities.
 - b. The proposed development or redevelopment shall infiltrate up to the 25-year design storm event. If the 25-year storm event infiltration rate cannot be achieved, the 10-year event shall be infiltrated. If that cannot be achieved, the proposal shall match pre-developed peak flow for the 100-year storm event and meet the flow control standard documented in OLWSD Engineering Design and Construction Standards (OLWSD D&C) Section 2.1005.03.034. Flow control should be provided via mechanical means prior to entering the public system or receiving water.
 - c. To determine pre-developed runoff, the site should be analyzed using the Water Environment Services BMP sizing tool⁸.
 - d. All proposed roof areas and impervious surfaces should be managed consistent with other Storm water generated onsite.
 - e. The proposal does not have any other related exemptions, waivers or variances to OLWSD surface water standards.
 - f. The proposal does not disturb, by development activity or flow, or directly flow into any riparian areas or other water resource.

⁸ Section 2.4.8 and Portland City Code 17.38 at the time of this code adoption (<https://www.portlandoregon.gov/bes/article/582086>)

5. Detention is required for residential subdivisions and partitions of parcels with the potential to create more than two additional lots as currently zoned, and for non-residential developments and redevelopments as defined by the District. Detention is also required in the instance that two additional dwelling units are proposed on an existing lot of record and surface water drains to the public system including streets, pipes or stream. Two lot (creating one additional lot) partitions that cannot be further partitioned under current zoning, detention is not required if there are no downstream impacts. All subdivisions and partitions must include a drainage plan for each proposed lot. Infiltration facilities are required where soil conditions permit.
6. Open detention facilities shall be planted with vegetation as per the *Oak Lodge Sanitary District Plant List*, available from the District. Planting schedule and maintenance of vegetation shall be approved by the District.
7. Flow Control Exemption.

Onsite detention is not required for all development that discharges to surface waters because flow control is not always needed to protect stream morphology from hydromodification impacts.

Based on the flow control exemption criteria and conditions outlined in the *Discharge of Storm water to High Order Streams; Determining Exempt Reaches* (Herrera Environmental Consultants and Northwest Hydraulic Consultants, April 13, 2004), onsite detention is not needed for direct discharges to the Willamette River.

An exemption to the onsite detention requirement of subsection 2.1005.03.04 will be granted when all of the following conditions apply:

1. The entire development site discharges directly to the Willamette River; and
2. The project site is drained by a conveyance system that is comprised entirely of man-made conveyance elements (e.g., pipes, culverts, outfall protection, etc.) and extends to the ordinary high-water line of the Willamette River; and
3. The flow path distance from the project site to the 100-year floodplain of the Willamette River is less than one-half mile; and
4. The conveyance system between the project site and the exempt receiving water shall have sufficient hydraulic capacity to convey discharge from future buildout conditions (under current zoning) of the site, and the existing development condition from the remaining drainage area contributing to the conveyance system, based on the conveyance standards outlined in Section 2.1005.03.01; and
5. Any erodible elements of the man-made conveyance system must be adequately stabilized to prevent erosion under the conditions noted above.

2.1005.03.05 Detention Design Method

1. The procedure for determining the detention quantities is set forth in *City of Portland's latest Storm water Management Manual*. Local rainfall data and information shall apply. The design criteria shall be as noted in the Code. Engineers desiring to utilize a procedure other than as set forth in the Code shall obtain the approval of the District prior to submitting calculations utilizing the proposed procedure.
2. The sizing of Storm water quantity detention facilities shall be based on the impervious area to be created by the development, including structures and all roads and impervious areas. In circumstances of any road improvements, all roadway (public or private) that is altered to

the road bed and all areas that drain or flow to the (re)development site shall also be included in the proposal's treatment detention and treatment.

3. For single family and duplex residential subdivisions or partitions, Storm water quantity detention facilities shall be sized for the impervious areas to be created by the subdivision or partitions, including all residences on individual lots at a rate of one Equivalent Service Unit (ESU) of impervious surface area per dwelling unit, plus all roads. If actual impervious area is to be greater than one ESU per dwelling unit, then the actual impervious numbers shall be used. Such facilities shall be constructed as a part of the subdivision or partition.
4. Redevelopment of sites shall require detention for the areas impacted by construction.
5. Regional detention and water quality facilities are encouraged. Where topography allows, detention and water quality facilities may be sized and constructed to provide detention and treatment for more than one development. Maintenance must be provided for the facility. Easements and access must also be provided.
6. Each development shall address drainage for groundwater and springs. Existing problems shall be addressed in plans submitted for review and approval. Groundwater and springs that are encountered during development shall be the responsibility of the developer to address. Plans for drainage of these waters shall be submitted to the District for review and approval prior to construction.
7. Fees in-lieu of detention and treatment for water quality may be applied under the following conditions:
 - (a) Regional detention and treatment downstream is available and has been identified.
 - (b) Downstream detention and treatment is constructed or an agreement has been approved by the District on implementation of downstream detention and treatment.
 - (b) Fees in lieu of detention and treatment will be applied as a percentage of facility costs, including engineering, maintenance, and administration. Percentage of costs will be based on percentage of use of facility(s).
- 8) Treated area exchange: This provision is typically applied to redevelopment or capital improvement or public improvement projects. With this provision, an equal area of existing impervious area may be treated for proposed impervious area provided that the surface type is of similar polluting potential. For example, existing roof area could not be treated for proposed vehicle maneuvering area:
 - a) The exchanged area should be in the same watershed and preferably on the same site if a private development; and
 - b) The exchange should be performed within a proximate time range such as the same fiscal or calendar year.

2.1005.03.06 Infiltration/Retention Systems

Infiltration systems are encouraged for all new developments and redevelopments to infiltrate runoff from storm events up to one-half ~~inch~~ of rainfall in 24 hours:

1. Treatment shall occur prior to or concurrent with infiltration systems in accordance with OLWSD Rules, Regulations and Standards.

2. Infiltration system capacity may be incorporated into the detention system design, in order to reduce the required detention volume. Infiltration facilities shall be sized to infiltrate the design runoff volume within a maximum of 96 hours.
3. Infiltration requirements may be waived, or reduced, if it can be demonstrated by a registered professional engineer that infiltration will destabilize the soil, cause adverse structural or environmental impacts, or due to site constraints such as high groundwater, springs, or impermeable soils.
4. Infiltration will be allowed in the District with consideration of soil and subsurface drainage capacity. Infiltration systems will be designed for 3 inches of rain within a 24-hour period.
5. Use of infiltration systems will require an engineering report documenting the year- round infiltration capacity of the soil/ground as well as a percolation test. DEQ approval is required for use of infiltration.

2.1005.04 Water Quality Standards

All new developments and re-developments shall provide on-site water quality facilities, as required by the District. In circumstances of any road improvements, newly created impervious surfaces shall be considered in the proposal's detention and treatment proposal. Water quality facilities shall be designed to capture and treat the first 1 -inch of Storm water runoff from a 24-hour storm event.

Accepted types of vegetated treatment facilities include vegetated swales, filter strips, constructed wetlands, wet ponds and extended dry detention ponds. Alternative systems may be used with approval by the District and shall be designed to provide equivalent treatment as described in ⁹ the *City of Portland's latest Storm water Management Manual*.

END OF SECTION

⁹ Section 2.4.8 and Portland City Code 17.38 at the time of this code adoption
(<https://www.portlandoregon.gov/bes/article/582086>)

SECTION 3—WASTEWATER DESIGN STANDARDS

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3.0000 SANITARY SEWERS

3.0010 General Design Requirements

Performance Standards: Sanitary sewer system design shall meet the policies and guidelines of the adopted OLWSD Rules, Regulations and Design and Construction Standards and its updates.

Sanitary sewer systems shall be designed to provide gravity service to all areas of development unless approved by District Engineer as stated below.

Sanitary sewer system capacity shall be designed for ultimate development density of the tributary area. The system shall allow for future system extension and for future development.

Sanitary sewers shall be designed to remove the domestic sewage from residential, commercial, or industrial buildings, and all public and private establishments.

Storm water, including street, roof, or footing drainage, shall not be discharged into the sanitary sewer system but shall be removed by a system of storm drains or by some other method separate from the sanitary sewer system.

Unpolluted or noncontact cooling waters shall not be discharged into sanitary sewers. The overflow drains and filter backwash lines of swimming pools and hot tubs shall drain into a sanitary sewer.

In general, sewer systems shall be designed to allow for future loads and for ultimate development of the specific drainage area or basin concerned.

As a condition of sewer service, all developments will be required to provide public sewers to adjacent upstream parcels in order to provide for an orderly development of the drainage area. This shall include street frontage of the property to adjoining properties when the main is located in the street right-of-way. This shall include trunk sewers that are oversized to provide capacity for upstream development.

All sewer mainlines shall be located within the public right-of-way or public easement as directed by the District Engineer. These lines are placed in the public streets and right-of-way for ease of maintenance and access, control of the facility, operation of the facility, and to provide required replacement and/or repair.

Design shall comply with Oregon Department of Environmental Quality sewer design guidelines¹, and the requirements of OLWSD.

District Engineer approval will be required for any sanitary lift or pump stations.

3.0011 Pipe Materials and Size

All public sanitary sewers including mains and laterals shall be constructed with PVC SDR 35 pipe as specified in the District's Design and Construction Standards Division 3 (Sanitary Sewer Construction Standards). The District Engineer shall have discretion for requiring alternative pipe materials. Class 50 ductile-iron pipe, C900 PVC pipe, or HDPE SDR 11 (new) or SDR 17 (bursting) pipe may be required with authorization from the District Engineer. Circumstances include but are not limited to areas of unstable soils, high groundwater, shallow rock, being located outside public roadways, and railroad crossings or creek crossings.

Private sanitary sewers shall meet the appropriate sections of the Oregon Plumbing Specialty Code.

All sanitary sewer main lines shall be a minimum diameter of 8 inches. A ~~6-inch~~6-inch diameter sewer will be allowed only with the District Engineer's approval and shall be submitted as a variance request.

New and reconstructed light rail and freight rail construction may require improvements to the sanitary sewer system at utility crossing locations. All existing pipes or pipes on the second half of useful life within

¹ OAR 340, and Division 52 at time of adoption

the rail zones shall be replaced to current standards. Metallic or conductive pipe materials are not approved pipe materials at rail crossings. Pipes are to be centered under rail tracks to avoid joints underneath rail lines. All new pipe installations must identify practical future replacement options for the sewer pipe under rails in case of future failure of utility. All pipes shall be sized for full build-out and future flows. This sizing includes allowance for trenchless technologies. Where lining is anticipated, pipe size shall account for future lining thickness.

3.0012 Minimum Design Criteria

In general, sewer systems should be designed to care for future loads which may reasonably be expected within a period of 30 to 50 years, and for ultimate development of the specific drainage area concerned.

A. Velocity

All sanitary sewers shall be designed on a grade which produces a mean velocity, when flowing half-full or full, of no less than 2.5 feet per second. Where velocities greater than 15 fps are attained, special provisions shall be made to protect against displacement by erosion and shock. The minimum grades for the various sizes of pipe are as follows.

Inside Pipe Diameter (inches)	Grade (feet per 100 feet)
6	0.77
8	0.53
10	0.39
12	0.31
15	0.23
18	0.18
21	0.15
24	0.13
27	0.11
30	0.09
36	0.07

In general, slopes greater than those shown above are desirable and are particularly recommended on sewers which dead end and will not be extended so they have adequate slope to self-clean. Dead-end mains shall have a minimum of 2% slope for all diameter sewers.

B. Manning Equation

When calculating minimum pipe slopes and velocities, the Design Engineer shall use the Manning pipe friction formula.

C. Pipe Coefficient

The minimum pipe roughness coefficient for sanitary sewers shall be 0.013.

3.0020 Alignment and Cover

3.0021 Right-of-Way Location

Sanitary sewer lines shall be located in the street right-of-way, 5 feet north and west of centerline whenever possible. All changes in direction of pipe shall be made at a manhole.

Sewers shall be located in the street right-of-way. If streets have curved alignments, the center of the manhole shall not be less than 6 feet from the curb face on the outside of the curve, nor the sewer centerline less than 6 feet from the curb face on the inside of the curve.

Curved alignments will not be permitted.

3.0022 Minimum Cover

All sanitary sewers shall be laid at a depth sufficient to drain building sewers, to protect against damage by frost or traffic, and to drain basement sewers, where practical. Sufficient depth shall mean the minimum cover from the top of the pipe to finish grade at the sewer alignment. In new residential hillside subdivisions, mainline and lateral sewers shall be placed in the street at a depth sufficient to drain building sewers on the low side of the street.

Sanitary sewers shall be constructed with 5 feet minimum cover in all parts of the public right-of-way or easement.

Where the topography is relatively flat and existing sewers are shallow (5 feet or less) the minimum cover shall be 3 feet. Where required for additional strength when cover is minimal, ductile-iron pipe or C900 PVC pipe and/or CDF backfill may be required by the District Engineer.

Deviation from the above standards will be considered on a case-by-case basis when one of the following circumstances exists.

1. Underlying rock strata—required: A request in writing to the District Engineer, together with submittal of a soils report, with a plan and profile certifying that bed rock exists 3 feet below the undisturbed ground surface at all investigated alignments.
2. A ditch or stream must be crossed—required: A plan and profile; horizontal scale 1 inches = 20 feet, vertical scale 1 inches = 2 feet.
3. Other circumstances which the installer desires to vary the standards shall be submitted as a variance.

3.0023 Separation with Waterlines

Water mains shall be installed a minimum clear distance of 5 feet horizontally from sanitary sewers and shall be installed to go over the top of such sewers with a minimum of 18 inches of clearance at intersections of these pipes (in accordance with the requirements of OAR ²Public Water Systems or equivalent). Exceptions shall first be approved by the District Engineer. In all instances the distances shall be measured edge to edge. The minimum spacing between water mains and storm drains, gas lines, and other underground utilities, excepting sanitary sewers, shall be 3 feet horizontally when the standard utility location cannot be maintained.

Where water mains are being designed for installation parallel with other water mains, utility pipe, or conduit lines, the vertical location shall be 12 inches below (or in such a manner which will permit future side connections of mains, hydrants, or services) and avoid conflicts with parallel utilities without abrupt changes in vertical grade of the above mentioned main, hydrant, or service. Where crossing of utilities are required; the minimum vertical clearance shall be 6 inches.

3.0024 Easements

Sewers placed in easements along a property line shall have the easement centered on the property line and the sewer shall be offset 18 inches from the property lines. For sewers placed in easements located other than along a property line, the sewer shall be placed in the center of the easement. The conditions of the easement shall be such that the easement shall not be used for any purpose which would interfere with the unrestricted use for sewer main purposes. Under no circumstances shall a building, wall, fence, or permanent structure be placed over a sanitary sewer main or sewer easement without District approval. This shall include overhanging structures with footings located outside the easement.

Public eEasements for sewers shall have a minimum width of 20 feet. In some instances, larger width easements may be required, such as excessively deep pipes or location of a building near the easement.

² Chapter 333, at time of adoption

Easement locations for public sewer mains serving a Planned Unit Development, apartment complex, or commercial/industrial development shall be in parking lots, private drives, or similar open areas which will permit an unobstructed vehicle access for maintenance by District personnel.

All easements must be furnished to the District Engineer for review and approval prior to recording. Easements shall state that the District will not in any way be responsible for replacing landscaping including any shrubs or trees, fencing, or other structures or improvements [such as asphalt or curbs](#) that may exist or have been placed in the easement.

To service underserved areas, OLWSD may require public utilities and/or associated easement(s) to extend to the farthest property line or the most proximate or logical property line to connect to existing, planned, or potential utility lines.

3.0025 Relation to Watercourses

Generally, the top of all sanitary sewers entering, crossing or adjacent to streams shall be at a sufficient depth below the natural bottom of the streambed to protect the sewer line. 1 foot of cover is required where the sewer is in rock; 3 feet of cover is required in other materials. In paved channels, the top of the sewer line shall be placed at least 6 inches below rock grade of the bottom of the channel, except as provided above.

Sewers located along streams shall be located outside of the streambed and sufficiently removed therefrom to provide for future, possible stream channel widening. All manhole covers shall be watertight at or below the 100-year flood elevation.

Sewers crossing streams or drainage channels shall be designed to cross the stream as nearly perpendicular to the stream channel as possible and shall be free from change of grade. The minimum cover shall be 36 inches from the bottom of the streambed or drainage channel.

Pipe material shall be ductile iron with an 18-foot length of pipe centered on the stream or drainage channel centerline. The ductile-iron pipe shall extend to a point where a 1-to-1 slope begins at the top of the bank and slopes down from the bank away from the channel centerline and intersects the top of the pipe.

Concrete encasement will be required when the above cover requirements cannot be met. Each deviation from the above requirements will be reviewed on a case-by-case basis and submitted as a variance request.

3.0030 Structures

3.0031 Manholes

Manholes shall conform to ASTM C-478.

Manholes shall be located at all changes in slope, alignment, pipe size, and at all pipe junctions with present or future sanitary sewers.

Manhole spacing shall not be greater than 300 feet. Spacing may be increased in special circumstances with District Engineer approval and submitted as a variance.

Manholes outside of vehicle or pedestrian travel ways shall have a tamper proof lid.

Designs for manholes are shown in the OLWSD standard drawings. They are suitable for most conditions.

All sanitary manholes shall be of watertight construction. If ground water or surface drainage can be expected, watertight covers shall be used.

New designs or revisions should not be shown on the construction drawings unless the standard designs are not suitable. New or revised designs may be necessary if:

1. ~~1~~One or more of the sewers to be connected to the manhole is over 36 inches in diameter (smaller diameters may require a special design if the manhole is at an alignment change.)
2. ~~Several~~More than two sewers will be connected to the manhole.
3. There is less than 90 degrees between the incoming and outgoing sewer.
4. The manhole will be subject to unusual structural loads.
5. Diversion or other flow control measures are required.

Where one or more of conditions a), b), or c) are encountered, a drawing of the manhole base should be made to determine if it is feasible to use designs shown in the standard drawings. It may be necessary to restrict the options to a specific standard drawing specified by a note on the construction drawings. If a special design is required for any reason, it will be necessary to show the details on the construction drawings and to provide structural calculations as needed.

Some alternate manhole features are shown in the standard drawings. Where these features are required, they must be specified by a note on the construction drawings. Some examples are:

1. Slab tops must be used in lieu of cones where there will be 4 feet or less between the manhole shelf and the top of the last barrel section.
2. Watertight manhole frames and covers are to be used if floodwaters are expected to cover the manhole top or if the manhole must be located in the street gutter. Such conditions should be avoided wherever feasible.
3. Tamperproof manhole frames (7 inches depth) and covers are required in all areas outside the paved public right-of-way or pedestrian travel ways. Rims shall be 1 foot above the finished grade if not in a paved way.

Standards for elevation differences at manholes have been established to compensate for normal energy losses and to prevent surcharging of a sewer by a larger sewer. For purposes of slope calculation and for establishing elevation differences, the elevations are given at the intersection of the sewer centerlines (usually the center of the manhole). The rules for elevation differences at manholes are:

1. The crowns of incoming sewers shall be at least as high as the crown of the outgoing sewer.
2. If the incoming and outgoing sewers are of equal size and are passing straight through the manhole, no added elevation change is required.
3. If sewers intersect or the alignment changes at the manhole, the invert elevation difference shall be at least 0.10 feet for 0°-45° of horizontal deflection angle, and 0.20 feet for over 45° of horizontal deflection angle.
4. The slope of a sewer within a manhole shall be no less than the slope of the same sewer outside of the manhole.
5. Drop connections are required when the vertical distance between flow lines exceeds 2 feet. The diameter of the drop connection must be specified on the construction drawings. The diameter of the drop connection shall be the same size as the diameter of the incoming sewer. Outside drop assemblies only, will be permitted, see the standard drawings.
6. All connections must enter the manhole through a channel in the base. This includes drop connections and connections to existing manholes.

Where conditions make compliance with these rules impractical, exceptions will be permitted. It will be necessary, however, for the Design Engineer to provide a complete analysis of the need for such designs.

3.0032 Cleanouts

Cleanouts will not be approved as substitutes for manholes on public sewer lines.

3.0040 Laterals

Laterals are those sewer lines which connect buildings to the sewer mains. They are comprised of the privately-owned part of the lateral located on private property, and the District-owned part of the lateral located in the road right-of-way or District easement.

Each individual building site staxlot shall be connected by a separate, lateral connected to the sewer main. ~~Each individual property shall have an individual lateral.~~ Exceptions to this standard shall be applied for as a variance request and approved by the District Engineer or designee.

If a structure is replaced or significantly ~~reconstructed~~, reconstructed, a new sewer lateral and cleanout is required to be constructed. The replacement lateral shall adhere to current District standards.

A-When a new lateral pipe and cleanout is required to be installed. The District will evaluate the tap to determine whether it can be reused for the new lateral. -If the existing lateral alignment is re-used, new materials shall be installed. If a different alignment or tap location is ~~proposed~~required, the exiting sewer in the public ROW or easement shall be abandoned and disconnected at the main. If there are multiple existing laterals (in use or existing) all unused laterals shall be disconnected at the main.

Where the invert of the lateral entering a manhole is less than two feet above the manhole invert, a formed channel will be constructed utilizing Portland Cement concrete. The sewage entering the manhole will follow a smooth concrete channel transitioning evenly from the invert of the inlet pipe into the main channel. Sewage will not be allowed to fall freely to the manhole base.

The minimum inside diameter of a District-owned lateral shall be 4 inches for single family residences and for multifamily complexes of three Equivalent Dwelling Units or less.

A 6-inch diameter District-owned lateral is required for any commercial properties. During any commercial redevelopment, the sewer lateral(s) shall be inspected by the District to determine if it/they meets current material, slope and condition standards. If so, the lateral could remain. A cleanout may be required to be retrofitted to the existing lateral.

A 6-inch diameter District-owned lateral is required for any residential properties or complexes of four Equivalent Dwelling Units or more.

An 8-inch diameter District-owned lateral is required for properties with an 8-inch-diameter privately-owned lateral and must have a manhole installed at the property owner's cost at the point of connection to the main line. Laterals shall be built to the same construction standards and of the same materials as the sewer mainline. Laterals shall be placed at 90° to the main sewer line to avoid excessive exposure to other utilities during excavation for construction or maintenance of the laterals. Other angles may be approved for atypical conditions on a case-by-case basis and submitted as an alternate request described in Section 1. Lateral connections may be made at manholes 90° to sewer mainline if such placement would not interfere with other present or future connections to the manhole. Laterals will run straight from the tap to the clean out, with no bends and no intentional flexing of the pipe. Manhole taps are allowed when no other alternative exists. All manhole taps are to be requested with a variance application.

The minimum slope of sewer service lines shall be 2% (1/4-inch-per-foot), except for unusual conditions, when a slope of 1% (1/8-inch-per-foot) may be approved. It will be necessary, however, for the Design

Engineer to provide a complete analysis of the need for any sewer service lateral slope less than 2%. The maximum slope shall be 100% (45° or 1-foot-per-foot).

Laterals shall be installed with a clean out located at the edge of the road right-of-way or at the edge of a District easement. If a Public Utility Easement (PUE) is present, the clean out must still be located in the road right-of-way, not in or behind the PUE. A 4-inch lateral must have a 4-inch clean out and a 6-inch lateral must have a 6-inch clean out. The clean out riser shall extend to 6 inches below final grade, be easily accessible, have a threaded plug, and be contained within a traffic-rated protective box set to final grade. A watertight plug shall be installed in the end of the lateral and a 2x4 wood marker shall be placed at the lateral end from pipe invert to at least 36 inches above the finish grade. The marker top shall be painted green and marked with the depth of the lateral measured from ground to invert of pipe.

3.0050 Connection to Existing Sewer

Connections to, and extensions of, existing sewers will occur to facilitate new development. Certain requirements will be placed on the Design Engineer as to permitted methods and/or locations.

Connections to existing manholes shall be made with the following guidelines:

1. Where the invert of the connecting pipe is more than 2 feet above the manhole shelf, the Contractor will be required to construct an outside drop with the inlet pipe invert being located at the manhole shelf. The sewage entering the manhole will follow a smooth concrete channel transition from the inlet pipe into the main channel.
2. Where the invert is required to enter below the shelf of the manhole, the inlet pipe will not enter below a point where the crown of the new inlet pipe is below the crown of the outlet pipe. The base of the manhole will be rebuilt if damaged in this process. The sewage will enter the main flow in a smooth channel transitioning from the inlet pipe to the main channel.
3. No pipe will enter an existing manhole where the angle between the incoming flow and the outgoing flow is greater than 90°.

New laterals shall be connected by core drilling a hole in the existing main line and installing an Inserta Tee (or equivalent) per the manufacturer's instructions.

In the case where the new lateral diameter is only 2 inches smaller than the existing main diameter (for example, 4-inch tap on a 6-inch main or a 6-inch tap on an 8-inch main), a section of main line shall be removed and a PVC tee shall be spliced in with Fernco Strongback (or equivalent) couplers. After this type of tap is bedded and trench compaction is completed, the main line will be TV inspected at the Contractor's expense to show that the new PVC tee is properly aligned with the existing main line.

If an 8-inch lateral is to be connected to an 8-inch existing main line, then a manhole shall be required at the point of connection.

New and reconstructed light rail and freight rail construction may require improvements to the existing sanitary sewer system at utility crossing locations. All existing asbestos-cement pipes or pipes on the second half of useful life within the rail zones must be replaced to current standards. Existing metallic or conductive pipe materials are not approved pipe materials at rail crossings and must be replaced to current standards.

3.1000 Sewage Pump Station Design Standards

3.1010 General

The pump station shall be a submersible pump type facility.

Station shall include: submersible pumps, wet well, valve vault, associated piping and valves, electrical controls, instrumentation, telemetry, access road, fencing, landscaping, and potable water supply, and shall generally conform to the District rules, regulations and standards.

Pump station shall be designed to pump the peak wastewater flow from the service area. When the service area is not built out, staging of pump station capacity will be allowed.

Where the flow is substantial or where environmental damage may occur due to power failure, the District Engineer may require permanent standby power.

Wet well-mounted or wet well/dry well stations will not be allowed.

3.1020 Design

Pump station shall be designed to meet the minimum requirements and guidelines standards of the Department of Environmental Quality (DEQ), ³ regulations.

Design shall be by registered engineer experienced in design of such facilities.

Service area, peak flow, and pump station calculations shall be submitted to the District Engineer.

Wet well shall be designed to provide 4 hours of storage above high water alarm.

3.1030 Materials

3.1031 Pumps

A minimum of 2 pumps shall be supplied. Each pump shall be capable of pumping the peak wastewater flow. Where more than 2 pumps are used, the station shall be able to pump peak wastewater flow when the largest pump is out of service.

Pumps shall be submersible pumps manufactured by Hydronix (or equal), explosion-proof, suitable for hazardous location, and shall be UL or FM listed.

3.1032 Piping and Valves

Piping and fittings shall be ductile iron.

Valves shall be metal, suitable for wastewater use. Valves shall be designed for wastewater service.

Provide pressure gauges on pump discharge piping.

3.1033 Electrical

Electrical controls shall be located above ground mounted in a waterproof enclosure. Electrical panels shall be UL listed. The pump station wet well shall be considered a hazardous location.

3.1034 Controls

Controls may be mechanical relays or programmable logic controllers.

Pumps shall alternate lead-lag position with each pumping cycle.

Bubbler shall control pump start/stop.

Float activated alarm shall indicate high water level.

An auxiliary power connector and manual transfer switch shall be provided.

3.1035 Alarms and Telemetry

Alarms shall be telemetered to the OLWSD SCADA system.

Alarms include:

³ OAR Chapter 340, Division 52 at time of adoption

- Pump failure
- Power failure
- Telemetry failure
- High water level
- Bypass

3.1036 Landscaping and Fencing

A 6-foot chain link fence with 3 strands of barbed wire and redwood slats shall surround the pump station. Access for easy maintenance shall be incorporated in the design.

3.1037 Additional Features

Provide 1-inch hose bib at valve vault. Potable water shall be provided by reduced pressure backflow preventer.

Provide positive ventilation in valve vault.

Odor control as required.

3.1038 Force Main

Force main shall be designed for a nominal flow velocity in the range of 3 to 5 feet per second.

3.1040 Construction

3.1041 Design Codes

Pump station and related facilities will be constructed to Electrical and Building Codes.

3.1042 Steel Fabrications

Steel fabrications shall be hot dipped galvanized; painting required on valves, piping, and pipe fittings.

3.1043 Operating and Maintenance Data

Compile product data and related information appropriate for District maintenance and operation of products furnished under the Contract.

Prepare operating and maintenance manual.

Instruct District personnel in the maintenance of products and in the operation of equipment and systems.

3.1044 Spare Parts

Supply 2 sets each of all gaskets, bearings, and mechanical seals for rotating equipment.

END OF SECTION

SECTION 4—WATER DESIGN STANDARDS

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4.0000 Water Mains

4.0010 General Design Requirements

Performance Standards: Water distribution systems shall be designed to meet State Water Administrative Rules, AWWA Standards, and guidelines of these Design Standards.

Water system design shall provide adequate flow for fire protection and maximum water usage and consumption. Required water system demands shall be met by maintaining the minimum operating pressures required by the District. For single-family residential areas, the minimum static pressure shall be 35 PSI, and the minimum fire flow shall be 1,000 GPM. For all other developments, the required fire flow shall be as determined by the Fire Marshal.

Water system design shall meet distribution needs for maximum water usage and consumption within a given pressure zone. New water systems shall allow for future extensions beyond present development.

When water systems are designed where velocities are greater than 5 fps, special provisions shall be made to protect against displacement by erosion and shock.

All waterlines shall be located within the public right-of-way or as directed by the District Engineer. These lines are placed in the public right-of-way for ease of maintenance and access, control of the facility, operation of the facility, and to permit required replacement and/or repair. The District Engineer, under special conditions, may allow a public waterline to be located within a public water easement as referenced in Subsection 4.0024 (Easements).

4.0011 Pipe Materials and Size

All public water distribution systems shall be constructed with ductile-iron pipe. All such pipe shall be cement mortar-lined pipe with push-on or mechanical type joints. When a corrosive potential condition is encountered, all ductile-iron pipe and fittings will be polyethylene encased with an 8 mil tubing meeting manufacturer and AWWA standards. Where an active cathodic protection system is encountered as a result of other utilities, a deviation from the normal pipe design/material/installation practice may be required by the District Engineer.

All pipe, valves and fittings shall be pressure rated for 250 or 350 PSI. All fittings shall be factory cement lined and coated.

Water distribution main sizes shall generally conform to the following:

All new water mains must be 8-inch or greater unless otherwise approved by District Engineer for special cases including dead-end mains beyond the hydrant where no expansion is anticipated or likely and generally less than 250 feet in length. Any main less than 8 inches shall terminate with a standard blowoff per standard drawing 413. Fire hydrants are not permitted on lines less than 8 inches.

~~4-inch: May only be used with approval of the District Engineer in residential zones on dead-end streets with a center line distance of less than 250 feet measured from the center of the intersecting street to the radius point of the cul-de-sac; with service to not more than 12 residences; and shall be connected to a looped minimum 6-inch main. Fire hydrants are not permitted on 4-inch lines. All 4-inch lines shall terminate with a standard blowoff (standard drawing 413.)~~

~~6-inch: Are not generally allowed and only allowed with approval of the District Engineer.~~

~~8-inch diameter pipe is the~~ Minimum size for primary feeder mains in residential subdivisions and general system. ~~Minimum~~ The minimum size residential-subdivision distribution water main for the grid (looped) system, not to exceed an unsupported length of 600 feet and shall not be permanently dead-ended. Looping of the distribution grid shall be at least every 600 feet.

10 inches and Up: As required for primary feeder lines in subdivisions, industrial and commercial areas.

Velocity in distribution mains shall be designed not to exceed 5 feet per second. Velocity in service lines, as defined in Subsection 4.0050 (Water Service Lines), shall not exceed 10' per second. Standard trench section (standard drawing 402) will be utilized for all water pipe installed.

New construction and reconstruction of light rail and freight rail may require improvements to the water system at utility crossing locations. Existing pipes in the second half of their useful life within the rail zones must be replaced to current standards. Metallic or conductive pipe materials are not approved pipe materials at light rail crossings.

All waterlines are to be encased through rail line crossings. Each casing pipe segment is to be positioned under rail tracks to avoid joints underneath rail lines. Metallic or conductive pipe materials are not typically approved at rail crossings (including pipes used as encasement conduit). If steel casing is selected, it shall be cathodically protected, but HDPE is generally preferred.

All water mains, lines and services and associated appurtenances within a radius of ten feet of any electrical line shall be cathodically protected. HDPE pipe is generally preferred.

4.0012 Grid System

The distribution system mains shall be looped at all possible locations. All developments will be required to extend mains across existing or proposed streets for future extensions of other developments within the District. All terminations shall be planned and located such that new or existing pavement will not have to be cut in the future when the main is extended. The installation of permanent dead-end mains greater than 250 feet, upon which fire protection depends and the dependence of relatively large areas on single mains, will not be permitted. To create a grid for existing, proposed and any potential connection, OLWSD may require public utilities and/or associated easement(s) to extend to the farthest property line or the most proximate or logical property line to connect to existing, planned, or potential utility lines.

4.0013 Dead-End Mains

Dead-end mains which will be extended in the future shall be provided with a properly sized blowoff (see standard drawings 413).

Permanent dead-end mains shall terminate with a standard blowoff assembly (see standard drawings 413).

4.0014 Restrained Joints

All fittings such as bends, tees, crosses, solid sleeves, valves, hydrants, blow offs, etc must be restrained by Megalug or Romagrip joint restraint glands. Thrust blocking and / or "rodding" will not be accepted as an alternative.

Thrust blocking will be required only behind tap saddles for new main and service installations 4 inches and larger.

Thrust blocking may also be required when an existing unrestrained main is modified and the potential for movement is increased. A saddle block may be required to anchor the unrestrained main in place.

All bell & spigot joints must be restrained by Field LOK (or equivalent) gaskets.

4.0020 ALIGNMENT AND COVER

4.0021 Right-of-Way Location

Water systems shall be located south and east from the right-of-way centerline or as directed by the Engineer. Generally, the waterline will be located 4 feet from curblin e or edge of pavement. Except as provided in Subsection 4.0024 (Easements), all waterlines shall be in the public right-of-way.

Curved alignment for waterlines or mains is permitted and shall follow the street centerline when practical. The minimum allowed radius shall be based on allowable pipe deflection for the pipe diameter and the pipe laying length, but not to exceed 3 degree joint deflection.

4.0022 Minimum Cover

The standard minimum cover over buried water mains within the street right-of-way shall be 36 inches from finish grade.

The maximum cover over buried water mains within the street right-of-way shall be 48" from finish grade, unless circumstances require additional cover and is approved by the District Engineer. The minimum cover for mains in easements across private property shall be 48" from finish grade.

Finish grade shall normally mean the existing or proposed pavement elevation. Where the main is located in the cut or fill side slope or where mains are located in easements, finish grade shall mean final ground elevation at the water main alignment.

4.0023 Separation with Sewer Lines

Water mains shall be installed a minimum clear distance of 5 feet horizontally from sanitary sewers, and shall be installed to go over the top of such sewers with a minimum of 18 inches of clearance at intersections of these pipes. When physical conditions render this spacing impossible or impractical, then ductile-iron water pipe with watertight joints or concrete encasements is required for the sewer line. Wherever it is necessary for sewer and water lines to cross each other, the crossing should be at an angle of approximately 90 degrees and the sewer shall either be located 18 inches or more below the water line or be constructed of ductile-iron water pipe with watertight joints for a distance of 9 feet on both sides of the water line. Exceptions shall first be approved by the District Engineer. In all instances, the distances shall be measured edge to edge. The minimum spacing between water mains and storm drains, gas lines, and other underground utilities, excepting sanitary sewers, shall be 3 feet horizontally when the standard utility location cannot be maintained.

Where water mains are being designed for installation parallel with other water mains, utility pipe, or conduit lines, the vertical separation shall be 12 inches below or in such a manner which will permit future side connections of mains, hydrants, or services, and avoid conflicts with parallel utilities without abrupt changes in vertical grade of the above mentioned main, hydrant, or service. Where crossing of utilities are required, the minimum vertical clearance shall be 6 inches.

4.0024 Easements

Mains placed in easements along a property line, shall have easements centered on the property line and shall be offset 18 inches from the property line. Mains placed in easements along a right-of-way line shall be offset a minimum 3 feet from the right-of-way line and within a minimum 10-foot-wide easement. For mains placed in easements located other than along a property or right-of-way line, the main shall be placed in the center of the easement. Easements, when required, shall be exclusive and a minimum of 20 feet in width. The conditions of the easement shall be such that the easement shall not be used for any purpose which would interfere with the unrestricted use for water main purposes. Under no circumstances shall a building or structure be placed over a water main or water main easement. This includes overhanging structures with footings located outside the easement.

Easement locations for public mains serving a Planned Unit Development, apartment complex, or commercial/industrial development shall be in parking lots, private drives, or similar open areas which will permit unobstructed vehicle access for maintenance by District personnel.

All easements must be furnished to the District General Manager for review and approval prior to recording.

4.0030 Appurtenances

4.0031 Valves

Valves shall be the same size as the mains in which they are installed. Valve types and materials shall conform to the Design and Construction Standards.

Distribution system valves shall be located at the tee or cross fitting. There shall be a sufficient number of valves so located that not more than 4, and preferably 3 valves, must be operated to affect any one particular shutdown. The spacing of valves shall be such that the length of any one particular shutdown shall not exceed 500 feet. -

Valves shall be installed at each cross, tee, or any tap 4-2 inches or greater in diameter connected to the main line. Intersections shall be valved in at least 2 branches and cross-intersections shall be valved at all branches. Transmission water mains shall have valves at not more than 1,000-foot spacings. Hazardous crossings such as creeks, railroad and freeway crossings, shall be valved on each side.

Distribution tees and crosses for future branch lines on transmission mains may be required at the direction of the District Engineer.

4.0032 Fire Hydrants

The water system shall be designed to provide adequate flow as required. The distribution system shall be designed in commercial/industrial areas to accommodate fire flows up to 1,500 GPM. Minimum fire flow in single-family residential areas shall be 1,000 GPM.

The distribution of hydrants shall be based upon the Oregon Fire Code Section 507.5.1 through 507.5.6. See Appendix C¹

Residential hydrants shall be located as nearly as possible to the corner of street intersections and not more than 500 feet from any cul-de-sac radius point.

No fire hydrant shall be installed on a main of less than 6" inside diameter. The hydrant lead shall be a minimum 6" inside diameter.

All fire hydrants will be located behind the existing or proposed sidewalk or in the planter strip. Hydrants shall be placed as to not interfere with driveways and curb ramps. If any public hydrant encroaches on private property, an easement will be provided as directed by the District Engineer.

No hydrant shall be installed within 5' of any existing aboveground utility and there shall not be any utility facilities installed closer than 5' from an existing hydrant.

Hydrant installation shall conform to standard drawing 411. Full-depth hydrants will be required in all installations. Installation of hydrant extensions will not be allowed, unless approved by the District Engineer.

Hydrants shall not be located within 20' of any building, and shall not be blocked by parking. The large hydrant port should face the road or travelway.

Guard posts shall adhere to Oregon Fire Code section 507².

¹ Or equivalent

Use of posts other than at the 4 corners may be approved by the District Engineer.

4.0033 Pressure-Reducing and Air Release Valves

The District's water distribution system is divided into separate pressure zones. Where water systems cross these zone lines, a pressure-reducing valve station will be required. The specific design and location for such valves will be reviewed and approved by the District's Engineer.

When designated by the District Engineer, air release valves, per standard drawing 413, shall be installed. Such valves will be required on large diameter lines at all high points in grade.

² Or equivalent

4.0040 Backflow Prevention

The type of backflow prevention assembly required is determined by the hazard level, and the potential for back siphonage, backpressure, or both.

Generally, all commercial accounts or any meter 1.5 inches and larger is required to install a backflow device at the property line.

4.0041 Typical Conditions Requiring Backflow Protection. An approved, customer owned and maintained backflow prevention assembly shall be installed on domestic, irrigation or fire service line(s) to premises when any of the following conditions exist:

- a. Premises with activities included in Table 42 of OAR 333-061-0070³.
- b. There is an auxiliary water supply, such as a well, cistern, or body of water on the property.
- c. There is intricate or inaccessible piping, which makes it impractical to ascertain whether or not a cross-connection exists.
- d. There is an elevation difference between the service connection at the public water main and the highest water outlet on the property that exceeds 30-feet.
- e. There is a risk of back siphonage or backpressure due to practices or equipment.
- f. There is an actual or potential cross-connection that presents a health hazard.
- g. There is an irrigation system.
- h. There is a water storage tank or bulk water filling station for vehicles and/or equipment.
- i. There is a temporary water supply provided for construction use.
- j. There is a fire line, fire sprinkler system, or private fire hydrant on the premises.
- k. There are materials or chemicals on site which present a potential hazard to the water supply.
- l. There is a boiler on the property.

4.0050 Water Service Lines

The sizes of water service lines which may be used are $\frac{3}{4}$, 1, 2, 4, 6, ~~8~~, 10, and 12 inches. Water service lines will be reviewed for effects on the distribution system and shall not be greater in size than the distribution main.

A 2" water service line will be installed to serve a ~~1.5~~-inch meter.

A 4" water service line will be installed to serve a ~~3~~-inch meter.

For 3" and greater services, a design drawing must be submitted showing the vault and fitting requirements with the expected flow (normal and maximum day flow) requirements and proposed usage.

Domestic service lines $\frac{3}{4}$ " through 2" shall normally extend from the main to behind the curb, with a District meter stop and meter box located at the termination of the service connection (standard drawings

³ At time of adoption.

420). Meter to be provided and installed by District. Meter boxes are to be provided by the developer. In general, individual service connections shall terminate in front of the property to be served and shall be located 18 inches each side of a common side property line.

When a corrosive potential condition is encountered and the copper service passes over or under an active cathodic protection system, the service will be installed in a Schedule 40 PVC conduit for a distance of 10 feet on each side of the active system. All conduit placements will be as-built.

Unless otherwise specified, any new tap must be located a minimum of 18 inches from other water service taps and main line joints, valves, and fittings.

Any service must leave the main at a 90 degree angle and run straight from the corp stop to the meter. The service must be centered in the trench.

The meter box and service must be located in front of the property served and a minimum of 18 inches away from a property corner.

The top of the District meter stop must be installed 7 inches to 9 inches below finished grade.

4.0051 Fire Service

There are 4 categories of private fire services: 1) hydrants, 2) fire sprinkler lines, 3) combination hydrant and fire sprinkler lines, and 4) combination plumbing and fire sprinkler heads.

The water fire service line shall normally extend from the main to the property line and end with a vault metering device and valves. An approved backflow prevention device will be required of the property being served.

Single family dwellings that are sprinkled shall construct a separate fire service of 1-inch minimum diameter.

“Flow-through” sprinklers may combine the domestic and fire services for single family dwellings.

Individual taps or connections should have a minimum separation of 1.5 feet as measured from the outside of the pipes.

4.0052 Fire Vaults Below Ground

A vault will be required when a development or redevelopment proposes fire sprinklers and/or a service equal to or greater than one 1-inch diameter. The vault drawing will be included on construction drawings submitted to the District. The vault shall contain all valves, fittings, meters, and appurtenances required for fire service to the development. Oak Lodge reviews vaults and Double Detector Check Valve Assembly for detector meter clearance. Oak Lodge replaces and installs the factory meters at its expense.

- a. 1-inch fire services require a 13-inch x 24-inch valve box or larger.
- b. Oak Lodge requires public access to the meter for reading purposes. The vault shall be located one-half in the public ROW or adjacent to the public ROW in a public easement dedicated to Oak Lodge or the public. The easement shall be recorded on the property plat.
- c. Installation Location: Double Check Backflow Prevention Assemblies (DC) and Reduced Pressure Principle Backflow Prevention Assemblies (RP) of size 2.5-inch and smaller shall be installed at the water service connection on the customer side of the water meter per UPC and OAR 333-061-0070 and OAR 333-061-0071. Assemblies must not be immersed in water and must be protected from freezing during cold weather.

- d. DCs and RPs of size 3-inch and larger shall be installed in a vault or aboveground housing per Uniform Plumbing Code (UPC) and OAR 33-061-0070 and oar 336-061-0071⁴ at the water service connection on the customer side of the water meter.
- e. Below-Grade Vault inlet and outlet pipe spools shall be ductile iron, flange by plain end. The assembly must be flanged, ~~and have a line sized shut off valve outside the vault at the property line.~~
- f. Clearance between the assembly and interior vault wall shall be a minimum of 12 inches.
- g. Clearance between the test cock side of the assembly and the interior vault wall shall be a minimum of 24 inches.
- h. Clearance from the bottom of the backflow assembly to the floor shall be a minimum of 12 inches and the device must be supported with stand-on pipe supports.
- i. When outside stem/screw and yoke (OS&Y) rising stem valves are used, clearance from a fully opened stem to the top of the vault lid shall be a minimum of three inches.
- j. The vault must have adequate drainage to prevent the assembly from becoming submerged in water.
- k. RPs and Reduced Pressure Detector Assemblies must have an approved bore-sighted drain to daylight with a rodent screen.
- l. If a bore-sighted drain to daylight is not feasible for a DC or Double Check Detector Assembly installation, then a sump pump will be required.
- m. Plugs shall be installed on test cocks of below-ground installations, with no dissimilar metals.

4.0053 Fire Vaults Above Grade Installation

- a. The assembly must have the District Engineer's approval.
- b. The inlet and outlet pipe spools shall be ductile iron, flange by plain end. The assembly must be flanged.
- c. Underground 90 degree² bends shall be restrained with mechanical joint restraint. Above ground 90 degree² bends shall be flanged.
- d. The backflow assembly must be installed horizontal and plumb, unless otherwise allowed by OAR 333-061-0071⁵.
- e. The enclosure shall be installed on a concrete slab with a minimum thickness of six inches and a minimum compressive strength of 3,000 psi. The slab shall be poured on a 4-inch leveling course of 3/4-inch crushed, compacted rock.
- f. Clearance between the assembly and interior vault wall shall be a minimum of 12 inches.
- g. Clearance between the test cock side of the assembly and the interior vault wall shall be a minimum of 24 inches.
- h. Clearance from the bottom of the backflow device to the floor shall be between 12 and 60 inches.

⁴ At time of adoption.

⁵ At time of adoption.

- i. The backflow assembly shall be supported by stand-on pipe supports.
- j. The enclosure shall include an adequate bore sighted drain hole.
- k. The enclosure shall be insulated or have a heat source to maintain enclosure at 40 ~~°F~~degrees Fahrenheit. The assembly shall be easily accessible.
- l. All structures and wiring shall comply with local building codes.

4.0054 Installation of Double Check Detector Assemblies and Reduced Pressure Detector Assemblies

- a. Detector meters shall be installed with all Reduced Pressure Detector Assemblies, Double Check Detector Assemblies, and any other applicable assemblies.
- b. The detector meter will be supplied by the district.

Air Gaps: All air gaps must be approved by the District.

- c. The air gap shall provide a physical separation between the free-flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel.
- d. The air gap size shall be a minimum of twice the diameter of the supply pipe, as measured vertically above the overflow rim of the vessel, and in no case shall be less than one inch.
- e. The air gap shall be installed away from walls or other obstructions that may restrict the air flow into the outlet pipe and nullify the air gap effectiveness.

4.0060 System Testing

All new water systems (lines, valves, hydrants, and services) shall be individually pressure tested, chlorinated, and tested for bacteria. All testing shall be performed in accordance with Division 4 (Water Construction Standards) of the Standard Construction Specifications and in the presence of a District Inspector. Services and hydrant lines 20 feet or less in length and services 2" inches and less in diameter will not be disinfected to the same requirements as longer and larger services and lines.

4.0070 Water Quality Sampling Stations

Water sampling stations will be required as directed by the District.

4.0080 Water Service/Permit Application Meters

The owner of the premises to be served, or the owner's duly authorized agent, will apply for water service ~~in writing on regular application forms furnished by~~ from the District. No service will be provided until the District approves the application and required payments are made.

The District will provide water service only from mains located within public roads, streets, alleys, or public easements, public right-of-way, and to property abutting such mains, and to dwellings, and other structures, and premises fronting such thoroughfares with sufficient frontages on the same to provide for appropriate service from such thoroughfares.

All applications will include the signature of the applicant, the location of the premises for which the service is requested, the address to which all bills be sent, and such additional data, ~~as the Board from time to time may require, including a plot plan of the area to be served.~~ District personnel will regard as

~~confidential, additional information furnished by an applicant, at the District's request; provided, however, the District will in no way be responsible for its use of said information, which will be at its direction.~~
~~Failure to supply such information and any additional needed by the District to make a determination, when requested shall be deemed sufficient cause to deny the application.~~

Applications for service will be considered merely as a request for service, and will not bind the District or Board, to provide such service. Charges made for the installation of water service will be paid in full, ~~and before installation, by the District.~~

~~Each dwelling, or building, or premises must be provided with its own water service connection, and meter. No person will furnish water to any other building, property, or premises, without first obtaining written approval of the District, and then, only according to the specific term of any such authorization that might be granted.~~

The District will not permit so-called "spider connections" which would provide service from one road or street, to premises abutting, or dwellings fronting, on another road or street. The District will provide each dwelling with a separate service connection, and no other occupant of such dwelling, will furnish water to any other dwelling, or premise.

Meters will be set ~~at property lines per District specifications, and t~~The service pipe from the main to the meter, as well the meter and the meter box will be the property of the District and not the person owning the premises or paying for the installation.

~~The contractor is responsible for the proper placement of the District meter stop in relation to the curb, sidewalk, property line, and finished grade. If the District determines that the meter stop location or depth are not acceptable, the contractor must relocate the meter stop and other related parts at no expense to the District. Extending the service line by use of a union or shortening the service line by bending it to use up excess length is not acceptable.~~

Water service installations for ¾-inch service to 2-inch service shall adhere to the following procedures:

- A Utility Placement Permit must be obtained from Clackamas County prior to construction in the road right of way.
- The installer is to schedule a preconstruction meeting with the District inspector.
- The installer must request the tap installation and all inspections a minimum of 24 hours ahead of time through OLWSD's Accela Citizen Portal: <https://aca.accela.com/OLWSD/Default.aspx>. No inspections will be performed after 2 pm.
- The corporation stop on the main line will be supplied and installed by OLWSD. The contractor is responsible for all aspects of the excavation, traffic control, and adherence to safety regulations. The excavation for the tap must be a minimum of 3 feet wide by 6 feet long with 1 foot clear behind the main and 1 foot clear below the main. If OLWSD determines that the work site does not meet their access or safety standards they will not install the tap.

4.0081 Water Service Connection

Water services shall be installed as described in 403.07 Copper Service Installation of these Design and Construction Standards.

Unless otherwise requested and approved in writing, service connections will be ¾-inch and meters will be ~~5/8-inch-x-~~¾-inch with such fittings, connections, a meter box, meter stops, etc. as the District may require.

When in the judgement of the District personnel, unusual conditions exist which require greater attention, extra fittings, meter boxes, vaults, or other safeguards, to assure adequate volume and pressure of water to an individual service, and or to minimize repair and maintenance problems, inherent in the installation,

the District may require the applicant to meet the cost of such additional fittings, meter vaults, or other safeguards.,

When meters are required to be installed in driveways or roadways or under other circumstances, that in the opinion of the District personnel may cause unusual installation or maintenance problems, the District will have the right to require concrete meter vaults, with traffic-rated lids or other devices to likewise be installed. The cost of such vaults or other protective devices will be borne by the owner of the property requesting the service installation.

Services larger than ¾-inch, may, at the discretion of the Board, be installed when requested in writing, provided the system can adequately serve such larger connections without interfering with the water service of others. The charges made for the installation of larger services will be sufficient to cover all costs thereof, and the minimum or "ready to serve/ charge" will be higher than for standard ¾-inch service connections.

The Board may require persons requesting large service connections for fire protection, to pay for an equitable portion of the cost of feeder mains needed to supply the required flow. Each such case will be considered separately on its merits and the circumstances applicable to the case. The Board may also enter into special service contracts, in which higher minimum charges are established sufficient to cover the cost of the service rendered.

Replacement services and/or connections are to be dismantled by the property owner and at the owner's expense and inspected by the District.

All District rules, and regulations rates and charges are subject to change or modification by the Board. All special contracts will be in writing, signed by the proper person, or customer and the District.

The An OLWSD representative inspector must see the entire installation before it is backfilled. Any portion of the installation that has been covered prior to inspection must be exposed for inspection.

The water service must have a minimum 30 inches of cover. 24 inches of cover is permissible under a storm drainage ditch. Maximum cover is 48 inches.

No crimps or dents in the copper are acceptable.

The service must have a minimum of 6 inches of ¾-inch-0-inch ("¾-minus") bedding underneath.

The meter stops on both sides of the meter must be positioned with the valve nut straight up to allow for proper operation.

The meter must be centered within the meter box.

The customer-side plumbing connecting to the downstream side of the meter must be either copper or PEX (no PVC pipe is acceptable inside the meter box).

The contractor is to supply all parts except for the corporation stop, the meter, and the customer-side meter stop.

END OF SECTION

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101 Definitions and Abbreviations

Unless otherwise defined in the contract documents the following definitions and abbreviations shall apply wherever used.

The words "directed, required, permitted, ordered, requested, instructed, designated, considered necessary, prescribed, approved, acceptable, satisfactory," or words of like import, refer to actions, expressions, and prerogatives of the District Engineer.

Command type sentences are used, but are not exclusive of other directives, throughout these Standard Specifications. In all cases the command expressed or implied is directed to the Contractor.

The specifications contained herein are divided into categories: (1) Division; (2) Section; and (3) Subsection, and are designated as in the following example:

Division: DIVISION 3—SANITARY SEWER CONSTRUCTION STANDARDS

Section: 302 MANHOLES AND CONCRETE STRUCTURES

Subsections: 302.03 CONSTRUCTION

302.03.01 General

A. Excavation and Backfill

1. (as needed)

a. (as needed)

101.01 Definitions

Acceptance of work

All work required by the contract documents and/or conditions of approval will be considered accepted upon approval of the Certificate of Completion by District.

Advertisement

The public announcement inviting bids for work to be performed or materials to be furnished.

Attorney

The District's Legal Counsel.

Certificate of Completion

Standard District form, which must be signed by the Contractor.

Certificate of Compliance

Standard District form, which must be signed by the Contractor, stating compliance with the contract documents and/or conditions of approval.

Change Order

A written order issued by the District Engineer to the Contractor directing changes in the work, subject to approval of District.

District

Oak Lodge Water Services District.

District Engineer

The District Engineer, or General Manager, of the District, acting either directly or through authorized representatives.

Contract

The document entitled "contract" or "agreement" which is executed by the Contractor and the District; authorizing ordinance; advertisement calling for bids; bid; instructions to bidder; plans; and all specifications, addenda, permits, performance bond, insurance certificates, and change order for any approved revisions made during the performance of the work to any of the above listed documents, collectively referenced as the "contract documents."

Contract cost

The aggregate amount of price promised to be paid by District to Contractor upon fulfillment of the Contract.

Contract item

A specific unit of work for which a price or basis of payment is provided in the Contract.

Contractor

Any individual, firm, co-partnership, corporation, or any combination thereof who has entered into a Contract with the District for a project. In the case of work being done under permit issued by the District, the permittee shall be construed to be the Contractor.

Day

Calendar day; i.e., any and every day shown on the calendar, Sundays and holidays included.

Easement

The right to use a defined area of property for specific purpose or purposes as set forth in the specifications.

Improvement

General term encompassing all phases of work to be performed under a Contract for a Local Improvement District and synonymous with the terms "project" or "work."

Inspector

The authorized representative of the District.

Lump sum

A method of payment providing for one all-inclusive payment for the work described to be done, complete and accepted without further measurement, as such work is covered under the applicable lump sum pay item.

Notice

A written communication delivered, by hand or by mail, to the authorized individual, member of the firm, or officer of the corporation for which it is intended. If delivered or sent by mail it shall be addressed to the last known business address of the individual, firm, or corporation. In the case of a Contract with two or more persons, firms, or corporations, notice to one shall be deemed notice to all.

OSHD Standard Specification

The latest edition of the Specification Document published by the State of Oregon entitled Standard Specifications for Highway Construction, Oregon State Highway Division. This document is available from the Oregon State Highway Division, Salem, Oregon.

Plans

The official Plans, profiles, cross sections, elevations, details and other working, supplementary and detail drawings, or reproductions thereof.

Project

General term encompassing all phases of the work to be performed under the Contract and is synonymous with the term improvement or work.

Provide

When related to an item of work, the word provide shall be understood to mean furnish and install the work complete in place.

Reference specifications

Bulletins, standards, rules, methods of analysis or test, codes and specifications of other agencies, engineering societies, or industrial associations referred to in the contract documents. All such references specified herein refer to the latest edition thereof, including any amendments thereto which are in effect and published at the time of advertising for bids or of issuing the permit for the project.

Right-of-way

See CCDTD Definition

Roadway

See CCDTD Definition

Shop drawings and submittals

Supplementary plans or data or other information which the Contract requires the Contractor to submit to the District Engineer.

Special Specifications

Requirements peculiar to the project and changes and modifications of the Standard Specifications.

Specified

As used herein, the word specified, or as specified, means as required by the Contract.

Standard plans or drawings

Details of structures, devices, or instructions adopted by District as a standard and referred to in the Contract.

Standard Specifications

The terms, directions, provisions and requirements set forth herein.

Station

A distance of 100 feet measured horizontally along the established centerline of a street, sewer, or other work, unless specified otherwise.

Street

See CCDTD Definition

SubContractor

An individual, partnership, firm, corporation, or any combination thereof, to whom the Contractor sublets part of the Contract.

Substantial completion

The work (or a specified part thereof) has progressed to the point where, in the opinion of the District Engineer, it is sufficiently complete in accordance with the contract documents and/or conditions of approval, so that the work (or specified part) can be utilized for the purposes for which it is intended.

Surety

The corporate body which is bound with and for the Contractor, for the acceptable performance of the Contract, and for their payment of all obligations arising out of the Contract.

Unit price

A contract item of work providing for payment based on specific unit of measurement; e.g., linear foot or cubic yard.

Use of pronoun

As used herein, the singular shall include the plural, and the plural the singular; and the term "person" includes natural person or persons, firm, co-partnership, corporation or association, or combination thereof.

Utility

Tracks, overhead or underground wires, pipelines, conduits, ducts, or structures, owned, operated or maintained in or across a public right-of-way or easement.

Work

All material, labor, tools, equipment, and all appliances, machinery, transportation, and appurtenances necessary to perform and complete the Contract, and such additional items not specifically indicated or described which can be reasonably inferred as belonging to the item described or indicated and as required by good practice to provide a complete and satisfactory system or structure.

Working day

Calendar day, any and every day shown on the calendar, excluding Saturdays, Sundays and legal holidays.

101.02 Abbreviations

AAN	American Association of Nurserymen
ACI	American Concrete Institute
AGA	American Gas Association
AGC	Associated General Contractors of America
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
APWA	American Public Works Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
CCDTD	Clackamas County Department of Transportation and Development
CRSI	Concrete Reinforced Steel Institute
DEQ	Department of Environmental Quality
EPA	Environmental Protection Agency
ITE	Institute of Traffic Engineers
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NLMA	National Lumber Manufacturer's Association
ODOT	Oregon Department of Transportation
OLWSD	Oak Lodge Water Services District
ORS	Oregon Revised Statutes
OSHA	Occupational Safety and Health Administration
OSHD	Oregon State Highway Division
PCA	Portland Cement Association
UBC	Uniform Building Code
UL	Underwriters' Laboratories, Inc.
USASI	United States of America Standards Institute
WWPA	Western Wood Products Association

102 Instructions to Bidders

See Oak Lodge Water Services District Purchasing Rules.

103 Award and Execution of Contract

See Oak Lodge Water Services District Purchasing Rules.

104 Scope of Work

104.01 Plans and Specifications

The contract documents and/or conditions of approval will govern the work to be done. Anything mentioned in the Specifications and not shown on the Plans and detailed drawings, or shown on the Plans and detailed drawings and not mentioned in the Specifications, shall be of like effect as though shown or mentioned in both. Specifications and Plans referred to in any of the contract documents and/or conditions of approval shall be considered as being included in the document in which such reference is made. When a particular standard plan or Specification is referred to, such reference shall be to the standard plan or Specification which is in force at the time of advertising for bids. The phrases, "Contractor shall", "Contractor will", etc. may not always be specifically stated in all paragraphs but is considered understood where not specifically stated otherwise.

104.02 Precedence of Contract Documents

In case of conflict, the order of precedence of the following documents in controlling the work shall be:

1. Contract
2. Addenda
3. Bid
4. Permits from outside agencies required by law
5. Special Specifications (Provisions)
6. Plans
7. Standard plans and standard details
8. Standard/Technical Specifications

Change orders, supplemental agreements and approved revisions to Plans and Specifications will take precedence over contract documents listed above.

104.03 Shop Drawings and Other Submittals

Plans furnished and included with Specifications indicate the work proposed and the intended results.

By approving and submitting shop drawings, product data and samples, the Contractor represents that they have determined and verified all materials, field measurements, and field construction criteria related thereto, and that they have checked and coordinated the information contained within such submittals with the requirements of the work and of the contract documents and/or conditions of approval and that they have checked and coordinated the information contained within such submittals with the requirements of the work and of the contract documents and/or conditions of approval.

All required shop drawings, product data and samples shall be furnished to the District Engineer for their review and any required testing before any of the work or related work is performed or products or material ordered prior to the District Engineer's review and completion of any testing will be at Contractor's risk.

The District Engineer will review all shop drawings, product data and samples and conduct such tests as are required by the contract documents and/or conditions of approval within a reasonable time but in no event will the District Engineer be required to complete such review or conduct such tests in less than 14 days after submission. The District Engineer will notice the applicant stating one of the following:

1. Make corrections/additions noted: make the necessary changes and resubmit for review.

2. Set is ready for approval: send one digital set stamped by the Designing Engineer for construction.

The review by the District Engineer of any shop drawings, product data, samples, construction methods and equipment or other submittals is only for conformance with the general design concept of the project and does not extend to consideration of structural integrity, safety, detailed compliance with contract requirements, or any other obligation of the Contractor. Any action shown is subject to the requirements of the plans and specifications. The Contractor is responsible for confirming and correlating all dimensions; fabricating and construction techniques; coordinating their entire work in strict accordance with the contract documents and/or conditions of approval. The review does not relieve Contractor from their obligation fully to perform all Contract requirements, nor shall such review give rise to any right of action or suit in favor of Contractor or third persons, against the District.

104.04 Changes in Work

Without invalidating the agreement and without notice to a surety, District may, at any time, order additions, deletions or revisions in the work: these will be authorized by a written amendment, a change order, or a work directive change.

Upon receipt of any such document, Contractor shall promptly proceed with the work involved that will be performed under the applicable conditions of the contract documents (except as otherwise specifically provided).

104.05 Force Account Work

The Contractor shall perform work on a force account basis upon written notice by the District Engineer. If the District Engineer determines that the work increases the amount due under the Contract, payment will be made pursuant as force account work.

The Contractor must:

Maintain records in such a manner as to provide a clear distinction between direct cost of work performed on force account basis and costs of all other operations performed in connection with the Contract.

Daily, furnish to the District Engineer signed reports itemizing materials used and setting forth the cost of labor and charges for equipment rental, delineating whether said equipment is Contractor or ~~SubContractor~~ Subcontractor owned. Provide names, identifications, and classifications of workmen, the hourly rate of pay and hours worked, and the size, type, and identification number of equipment and hours of equipment operation.

Substantiate material charges by vendor's invoices, submit such invoices with the reports; or, if not available, submit with subsequent reports. In the event said vendor's invoices are not submitted within 30 days after completion of the force account work owner reserves the right to establish the cost of such materials.

The District Engineer will compare their records with the reports furnished by the Contractor, make any necessary adjustments, compile the costs of work paid for on a force account basis and issue a change order covering the work.

104.06 Salvage

When shown or specified, carefully salvage and stockpile within the construction area all castings, pipe and any discarded facilities, to be disposed of by owner.

105 Control of Work

105.01 Authority of the District Engineer

The District Engineer will decide all questions which may arise as to quantity, quality, and acceptability of materials furnished and work performed, the rate of progress of the work; interpretation of the Plans and Specifications; the measurement of all quantities; and the acceptable fulfillment of the Contract on the part of the Contractor. The District Engineer's estimates, decisions and approval signify favorable opinion and qualified consent; it does not carry with it certification or assurance of completeness, quality or accuracy concerning details. Such approval does not relieve Contractor from responsibility for errors, improper fabrication, improper construction methods, nonconformance to requirements or for deficiencies within their control.

It is further understood that all work to be done under the Contract will not be considered completed until it has passed final inspection by the District Engineer and is accepted by the District. It is further understood that the authority of the District Engineer is such that the Contractor shall at all times carry out and fulfill the instructions and directions of the District Engineer insofar as they concern the work to be done under the Contract.

The District Engineer shall have the authority to order unacceptable work to be corrected, removed or replaced, and unauthorized work to be removed and, pending completion of such order, to deduct the estimated cost thereof from any monies due, or to become due the Contractor including retainage. This authority shall take precedence over any and all requirements of the specifications for payment set forth elsewhere in the specifications.

At the District Engineer's sole discretion, minor defects in the work may be accepted subject to a reasonable deduction from the Contract price or other credits to the owner. Such determination by the District Engineer shall be final.

The District Engineer is not authorized to waive any written notice required of the Contractor by the Contract.

105.02 Authority and Duty of Inspectors

The District Engineer may appoint assistants to inspect all materials used and all work done. Such inspection may extend to any or all parts of the work and to the preparation or manufacture of materials to be used. Inspectors will not be authorized to revoke, alter, enlarge, or relax the provisions of the Contract. An Inspector is placed on the work to keep the District Engineer informed of progress of the work and the manner in which it is being done. In addition, the Inspector shall call to the attention of Contractor any deviation from the Plans, or Specifications.

An Inspector will not be authorized to approve or accept any portion of the work or to issue instructions contrary to the Plans and Specifications under this Contract. Furthermore, the Inspector is not authorized to waive any written notices required by the Contract. The Inspector will have authority to reject defective material and to suspend any work that is being improperly done, subject to final decision by the District Engineer.

105.03 Responsibility of Contractor

Do all work and furnish all labor, materials, equipment, tools, and machines necessary for the performance and completion of the project in accordance with the Contract. Be obligated to determine and be responsible for the method of construction.

Contractor shall be solely liable for any accident, loss or damage happening to work referred to in the Contract prior to completion and acceptance thereof.

105.04 Notification of Utilities And Agencies

Obtain prior approval from Clackamas County for closing or partial closing of any street. When performing work in streets and easements, whether inside or outside District's legal boundaries, notify all of the affected utilities and local agencies about the operations so as to properly coordinate and expedite the work in such a manner as to cause the least amount of conflict and interference between the operations and those of other agencies.

The Contractor and its SubContractors must comply with all provisions of ORS and including notification of all owners of underground facilities at least 48 business day hours but not more than 10 business days before beginning work. Notify the following utilities and agencies in writing at least 2 working days before commencing any work on the project.

1. District Technical Services Department
2. Northwest Natural Gas Co.
3. Oregon Department of Transportation
4. Portland General Electric Co.
5. Comcast
6. Century Link
7. Water Environment Services of Clackamas County

Other applicable municipalities, agencies or special districts or providers

The District shall relocate or cause to be relocated all privately or publicly owned utility conduits, lines, poles, mains, pipes, and such other facilities within the jurisdiction and control of the District where such relocation is necessary in order to conform said utility and other facilities with the plans and ultimate requirements of the project. If desirable for specific reasons, or for convenience of field operations, contact the above listed utilities.

105.05 Utilities and Existing Improvements

Information shown as to location of existing water courses, drains, sewer lines, or utility lines is provided for Contractor's information and convenience and is not, in any way, warranted to be accurate by the District. Contractor shall verify all such information and shall deal with varying conditions at its own expense.

Operation of water valves and hydrants by unauthorized personnel is strictly prohibited. Obtain written permission from and pay any fee required from the District prior to using hydrant water.

Provide for the flow of sewers, drains, or water courses interrupted during the progress of the work, and restore such drains or water courses as approved by the District Engineer, at no additional cost to the District.

Be responsible for all costs for the repair of any and all damage to any utility, whether previously known or disclosed during the work, as may be caused by the work. Maintain in place utilities not shown on the drawings to be relocated or altered by others. If Contractor requires temporary relocation, for their convenience or because of their method of construction or as a result of site conditions, Contractor shall bear all costs for said temporary relocation. Maintain utilities which have been relocated by others in their relocated positions in order to avoid interference with structures which cross the project work.

Make excavations and borings ahead of work, as necessary, to determine the exact location of interfering utilities or underground structures. When this is not feasible or practical or the need for such work was not foreseen, the utility owners or the District shall have the right to enter upon the right-of-way and upon any structure therein for the purpose of making new installations, changes or repairs. Conduct operations so

as to provide the time needed for such work to be accomplished during the progress of the improvement, at no additional cost to the owner.

It is understood that there will be interfering utilities, service laterals, and other underground pipes, drains or structures encountered on underground projects that are not shown or are shown incorrectly on the plans and/or have not been previously discovered in the field. Contractor agrees this is a normal and usual occurrence in the construction of underground improvements. Furthermore, bidders understand and agree that work in some cases must be done in close proximity to said utilities and underground pipes, drains, and structures not shown or shown incorrectly on the plans which may require a change in operations and may cause sloughing of the trench, additional traffic control, additional pavement and backfill costs, and time; the Contractor agrees that a reasonable number of these occurrences are usual and ordinary on underground projects and are reflected in the bid and plan of operation.

The District Engineer will require a reasonable amount of time to perform design changes necessitated by directly conflicting utilities and/or the utility owners will require a reasonable amount of time to make necessary utility relocations.

The Bidders agree to provide for these conflicts and interferences and agree to provide for a reasonable amount of time for design changes and/or utility relocations due to said interference in the bid and understand that no additional compensation for interruption of schedule, extended overhead, delay or any other impact claim or ripple effect or any other costs whatsoever or additional time will be made for these conflicts or interferences.

105.06 Survey Service

Give notice to the District Engineer not less than 3 working days in advance of when survey services will be required in connection with the laying out of any portion of the work.

The District Engineer will furnish appropriate offset lines and grades as they deem necessary for all projects involving trenching operations. Contractor will be responsible for the transfer of the offset lines or grades into the ditch, to batter boards, or any other point within the work. Work done without lines and grades having been established by the District Engineer or work done beyond the lines and grades will be considered as unauthorized and will not be paid for and may be ordered removed, replaced, or corrected at no expense to the District.

105.07 Protection of Survey Markers

105.07.01 Permanent Survey Markers

Notify the District Engineer not less than three working days prior to starting work in order that the District Engineer may take necessary measures to ensure the preservation of survey monuments, stakes, lot stakes, and benchmarks. Do not disturb permanent survey monuments, stakes, lot stakes, or benchmarks without the consent of the District Engineer and notify the District Engineer and bear the expense of replacing any that may be disturbed.

When a change is made in the finished elevation of the pavement of any roadway in which a permanent survey monument is located, preserve the monument, and adjust the monument cover to the new grade at no expense to District.

105.07.02 Construction and Survey Markers

Preserve construction survey stakes and marks for the duration of their usefulness during construction. If any construction survey stakes are lost or disturbed through negligence of Contractor, and in the judgment of the District Engineer need to be replaced, such replacement shall be by the District Engineer at the expense of Contractor. The cost of replacement shall be charged against and shall be deducted from payments for Contract work.

105.08 Protection of Property

Protect all public and private property, insofar as it may be endangered by operations and take every reasonable precaution to avoid damage to such property.

Restore and bear the cost of any public or private improvement, facility, structure, or land and landscaping within the right-of-way or easement which is damaged or injured directly or indirectly by or on account of an act, omission, or neglect in the execution of the work. Restore to a condition substantially equivalent to that existing before such damage or injury occurred, by repairing, rebuilding, or otherwise effecting restoration thereof, or if this is not feasible, make a suitable settlement with the District of the damaged property.

Give reasonable notice to occupants of buildings on property adjacent to the work to permit the occupants to remove vehicles, trailers and other possessions as well as salvage or relocate plants, trees, fences, sprinkler systems, or other improvements in the right-of-way which are designated for removal or which might be destroyed or damaged by work operations.

Protect all designated trees, lawns and planted areas within the right-of-way or easements. Restore all on-surface disturbed areas, by methods as set forth in the technical specifications. If conditions are such that the method specified cannot be done, provide erosion control surface covering of such quality and quantity as will prevent erosion from occurring, without adverse impacts to the environment, if required by conditions existing at the site, at no additional cost to the District.

Review with the District Engineer the location, limits and methods to be used prior to clearing work. Clearing and grubbing shall be performed in strict compliance with all local, State and federal laws and requirements pertaining to clearing and burning, and particularly in conformity with the provisions of ORS Chapter 477, and all subsequent amendments, which require, among other things, filing with the State Forester a general description of the right-of-way to be cleared before the start of clearing operations. Obtain the required permit from the State Forester and District and perform clearing work in conformance thereto.

105.09 Use of Work During Construction

The District shall have the right to take possession of and use any completed or partially completed portions of the work. Such use shall not be considered as final acceptance of the work or portions thereof.

Such action by the District will not relieve the Contractor of responsibility for injury or damage to said completed portions of the work resulting from use by public traffic, action of the elements, Contractor's operations, defective work, or negligence, or from any other cause, except for injury or damage resulting from District's negligence. Contractor will not be required to again clean up such portions of the work prior to final acceptance, excepting for such clean up as results from Contractor's operations or defective work. Use of any completed or partially completed portions of the work does not relieve Contractor from the warranty responsibility nor shall the warranty period commence to run until final completion and acceptance of the work.

105.10 Furnishing Temporary Services and Facilities

Install, furnish and maintain temporary light, power, water and any temporary services or facilities complete with connecting piping, wiring, lamps, and similar equipment during construction of the work, including testing and start up. Remove temporary facilities upon completion of work. Obtain all permits and bear all costs in connection with temporary services and facilities. Conform to applicable statutes, rules, codes, and other requirements in the use of these facilities.

105.11 Verbal Agreements or Representations

No verbal agreement or conversation by or with any officer, agent or employee of the District, either before or after execution of the Contract, shall affect or modify any of the terms or obligations contained in

any of the documents comprising the Contract. Any such verbal agreement or conversation is in no way binding upon the District.

105.12 Water and Air Pollution Control

During the term of the Contract, Contractor's operations shall conform to applicable laws and regulations of the Oregon DEQ, and other agencies of the State and Federal Government, District Erosion Control Plans, as well as other local ordinances and resolutions designed to prevent, control, and abate water and air pollution.

During all phases of the work, or when directed, protect work sites, storage and disposal areas from washout and erosion, and take precautions to control or abate dust nuisance and air pollution by cleaning up, sweeping, sprinkling, covering, enclosing, or sheltering work areas, and stockpiles, and by promptly removing from paved streets earth or other material which may become airborne or may be washed into waterways or drainage systems.

105.13 Noise

Conform and comply with applicable noise regulations as established in the Clackamas County Code. Work hours are restricted to the hours of 7:00 a.m. to 7:00 p.m. during the weekdays and 8:00 a.m. to 5:00 p.m. on the Saturday.

105.14 Access to the Work

Provide access to the work for representatives of the District, the State of Oregon, the Federal Government, and other entities having jurisdiction in the area.

Allow access to the District Engineer or their representatives to all parts of the work and to plants of manufacturers at all times.

105.15 Defective or Unauthorized Work

All work which does not conform to the requirements of the Contract shall be considered as unacceptable.

Upon discovery immediately remove unacceptable and defective work and replace by work and materials which conform to the Contract. This provision shall have full effect regardless of the fact that the unacceptable work may have been done or the defective materials used with the full knowledge of the Inspector.

106 CONTROL OF MATERIALS

106.01 Preference for Use of Oregon Products

Preference may be given to services, articles or materials produced or manufactured in Oregon, if price, fitness, availability and quality are otherwise equal. These provisions do not apply to Contracts on projects financed wholly or in part by federal funds.

106.02 Quality of Work

Materials, parts, products and equipment which are to be incorporated into the work shall be new and shall conform to the contract documents.

106.03 Sampling and Testing

Tests of the work may be made by the District at any time during construction of the work or during the production, fabrication, or preparation and use of materials, parts, products, and equipment.

District reserves the right to require samples and to test products for compliance with pertinent requirements irrespective of prior certification of the products by the manufacturer.

When such tests of the work are necessary, as determined by the District Engineer, such tests will be made by and at the expense of District unless otherwise specified. Provide such facilities and cooperate as required for collecting and forwarding samples and do not incorporate into the work until tests have been made and found acceptable. In all cases furnish the required samples without charge and in ample time to permit testing prior to use. Provide safety measures and devices to protect those who take the samples.

In the absence of any reference Specification, it shall be understood that materials shall meet the Specifications and requirements of ASTM, as directed by the District Engineer. When there is no pertinent coverage under ASTM, the material concerned shall meet Specifications and requirements of applicable commercial standards of the Commodity Standards Division of the U.S. Department of Commerce. Lacking such coverage, materials shall meet requirements established by reputable industry for a high-quality product of the kind involved.

All testing shall be performed by the testing laboratory, the District Engineer, or as directed by the District Engineer.

In the event the District Engineer requests tests and the work fails, the Contractor shall bear all costs for this test and all subsequent testing necessary to meet specified requirements.

106.04 Certification

The District Engineer may, at their sole discretion and in lieu of any other required sampling and testing, accept from Contractor two copies of the manufacturer's certification with respect to the product involved, under conditions set forth as follows:

1. Certification shall state that the named product conforms to District's requirements and that representative samples thereof have been sampled and tested as specified.
2. Certification shall either be accompanied by a certified copy of test results or certify that such test results are on file with the manufacturer and will be furnished to the District Engineer upon request.
3. Certification shall give the name and address of the manufacturer and the testing agency and the date of tests; and shall set forth the means of identification which will permit field determination of the product delivered to the project as being the product covered by the certification.
4. Contractor shall be responsible for any costs of certification or for any costs of the sampling and testing of products in connection therewith.

106.05 Inspection by Others

Inspection of work by persons other than representatives of the District will not constitute inspection by the District.

106.06 Storage and Protection of Items of Work

Store items to be incorporated into the work to assure the preservation of their quality and fitness for the work. Stored items, even though approved before storage, may be re-inspected and are subject to rejection prior to being incorporated into the work. Stored items shall be located so as to facilitate their prompt inspection.

106.07 Trade Names, Equals, or Substitutions

In order to establish a basis of quality, certain processes, types of machinery or equipment, or kinds of materials may be specified—either by description of process, by designating a manufacturer by name and

referring to their brand or product designation, or by specifying a kind of material. It is not the intent of these specifications to exclude other processes, equipment, or materials of equal value, utility, or merit.

Whenever a process is designated; a manufacturer's name, brand, or item designation is given; or a process or material covered by patent is designated or described; it shall be understood that the words "or equal" follow such name, designation, or description, whether in fact they do so or not. This "or equal" clause is not a warranty, either expressed or implied, by the District that an equal exists.

The Contractor may offer to furnish materials or equipment of equal or better quality and performance than that specified as a substitute after the Contract is executed. If the offer necessitates changes to, or coordination with, any other portion of the work, the data submitted shall include drawings and details showing all such changes. Contractor agrees to perform these changes as part of the substitution of material or equipment. Acceptance by the District Engineer shall not relieve the Contractor from full responsibility for the efficiency, sufficiency, quality, and performance of the substituted material or equipment in the same manner and degree as the material and equipment specified by name. Any cost differential associated with a substitution shall be reflected in the Contract price and the Contract shall be appropriately modified by change order.

If the bid includes a list of equipment, materials, or articles for which Contractor must name the manufacturer at time of submission of the bid, no substitutions therefore will be permitted.

All materials or equipment of equal or better quality offered by the Contractor for substituting shall be approved by the District Engineer prior to incorporation into the project.

107 LEGAL RELATIONS AND RESPONSIBILITIES

107.01 Laws and Regulations

Comply with all federal and State laws; all local laws, ordinances, and regulations; and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of work. Observe and comply with all such laws, ordinances, regulations, orders, and decrees. Protect and indemnify District and their representatives against any claim or liability arising from, or based on, the violation of any such law, ordinance, regulation, order, or decree—whether by Contractor, their ~~SubContractors~~Subcontractors, suppliers of materials or services, or others engaged by the Contractor or their employees.

In addition to those set forth herein, the District's Public Contracting rules and the Statutes of the State of Oregon for public works contracts, ORS Chapters 279A and 279C, are incorporated by reference into the Contract.

107.02 ~~SubContractors~~Subcontractors

After Contract award and notice of Contractor/~~SubContractor~~Subcontractor agreements have been submitted, work shall not be transferred or subcontracted without prior consent of the District.

Use of ~~subContractors~~Subcontractors, material suppliers or equipment suppliers shall in no way release Contractor from any obligations of contract with the District.

Contractor will provide in all subcontract agreements that the ~~SubContractor~~Subcontractor, material supplier and equipment supplier will be bound by the terms and conditions of this Contract to the extent that they relate to the ~~SubContractor's~~Subcontractor's work, material or equipment. All ~~SubContractor's~~Subcontractor's agreements will also provide that they are assignable to the District at District's option, in the event this agreement is terminated for default of Contractor.

107.03 No Waiver of Legal Rights

The District shall not be precluded by any measurement, estimate or certificate made either before or after completion and acceptance of work or payment therefore, from showing the true amount and

character of work performed and materials furnished by the Contractor, or from showing that any such measurement, estimate or certificate is untrue or incorrectly made, or that work or materials do not conform in fact to the Contract. The District shall not be precluded, notwithstanding any such measurement, estimate or certificate, or payment in accordance therewith, from recovering from the Contractor and their sureties such damages as it may sustain by reason of their failure to comply with terms of the Contract, or from enforcing compliance with the Contract. Neither acceptance by the District, or by any representative or agent of the District, of the whole or any part of the work, nor any extension of time, nor any possession taken by the District, nor any payment for all or any part of the project, shall operate as a waiver of any portion of the Contract or of any power herein reserved, or any right to damages herein provided. A waiver of any breach of the Contract shall not be held to be a waiver of any other breach.

107.04 Other Contracts

The District reserves the right to award other contracts or issue permits for work that may require coordination with the work to be performed under this Contract.

When separate contracts or permits are awarded or issued for different portions of the Project, "the Contractor" in the contract documents in each case shall be the Contractor who signs each separate contract.

Mutual Responsibility of Contractors: The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work, and shall properly connect and coordinate their work with theirs.

If any part of the Contractor's work depends for proper execution or results upon the work of any other separate Contractor, the Contractor shall inspect and promptly report to the District Engineer any apparent discrepancies or defects in such work that render it unsuitable for such proper execution and results. Failure of the Contractor to inspect and report shall constitute an acceptance of the other Contractor's work as fit proper to receive the work, except as to defects which may develop in the other separate Contractor's work after the execution of the Contractor's work.

Should the Contractor cause damage to the work or property of any separate Contractor which results in a claim against the District, and if the claim is not satisfied by Contractor and the separate Contractor sues the District or initiates an arbitration proceeding on account of any damage alleged to have been so sustained, the District shall notify the Contractor who shall defend if requested such proceedings at the Contractor's expense, and if any judgment or award against the District arises therefrom the Contractor shall pay or satisfy it and shall reimburse the District for all attorney's fees and court or arbitration costs which the District has incurred.

The Contractor shall be responsible for any cutting, fitting and patching that may be required to complete the work except as otherwise specifically provided in the Contract. The Contractor shall not endanger any work of any other Contractors by cutting, excavating or otherwise altering any work and shall not cut or alter the work of any other Contractor. Any costs caused by defective or ill-timed work shall be borne by the party responsible, therefore.

If a dispute arises between the separate Contractors as to their responsibility for cleaning up, the District may clean up and charge the cost thereof to the several Contractors as the District Engineer shall determine to be just.

107.05 Liability and Indemnification

The Contractor shall assume all responsibility for the work and shall bear all losses and damages directly or indirectly resulting to the Contractor, to the District, to the District Engineer, and to their officers, agents, and employees on account of (a) the character or performance of the work, (b) unforeseen difficulties, (c) accidents, or (d) any other cause whatsoever.

The Contractor shall defend, indemnify, and hold harmless the District, the Design Engineer, and their officers, agents and employees from all claims, loss, damage, and injury of every kind directly or indirectly arising out of this Contract. The Contractor shall assume this responsibility even if (a) fault is the basis of the claim, and (b) any act, omission or conduct of the District connected with the Contract is a condition or contributory cause of the claim, loss, damage or injury.

The Contractor shall not be liable for, nor be required to defend, or indemnify the District or the Design Engineer relative to any claim, loss, damage, or injury resulting solely from acts or omissions by the District, the Design Engineer, or their officers, agents or employees. The Contractor shall not be liable for, nor be required to defend, or indemnify the District or the Design Engineer relating to any claim loss, damage, or injury arising from the use of any maps, drawings, reports, surveys, designs, or specifications furnished by the District, Design Engineer, or their officers, agents, or employees.

Any specific duty or liability imposed or assumed by the Contractor, as may be otherwise set forth in the contract documents, shall not be construed as a limitation or restriction of the general liability or duty imposed upon the Contractor by this section.

The Contractor shall assume all responsibility for the work.

107.06 Insurance

107.06.01 General

The Contractor shall provide and maintain during the life of this Contract the insurance coverage designated hereafter. All costs for such insurance shall be borne by the Contractor and shall be included in the Contract price.

Prior to execution by the District and before commencing work under this Contract, Contractor shall furnish the District Engineer with certificates of insurance specified herein showing the name of the insurance carrier, coverage, type, amount (or limits), policy numbers, effective and expiration dates, description of operations covered, and containing substantially the following cancellation provision:

"The insurance covered by this certificate will not be canceled or materially reduced, except after 30 days written notice has been received by the District."

In case of the breach of any provision of this Article, the District, at its option, may take out and maintain, at the expense of the Contractor, such insurance as the District may deem proper. The District may deduct the cost of such insurance from any monies which may be due or become due the Contractor under this Contract.

107.06.02 Review and Approval of Insurance

The Contractor shall not commence work under this Contract nor allow any ~~SubContractor-Subcontractor~~ to commence work on a subcontract until the Contractor has obtained all the insurance required hereunder and such insurance has been approved by the Attorney. All policies or insurance and certificates of insurance shall be satisfactory to the District. Approval of the insurance shall not relieve or decrease the liability of the Contractor hereunder.

107.06.03 Workers' Compensation, the Federal Longshoremens' and Harborworkers' Act, and the Federal Jones Act

The Contractor shall provide and shall require all ~~SubContractors-Subcontractors~~ to provide workers' compensation coverage for all persons employed under this Contract including the Contractors' partners and any individual regardless of relation to the Contractor's partners and any individual regardless of relation to the Contractor or to the partners who provide work under this Contract. The Contractor shall be required to assure that subject workers will receive the compensation for compensable injuries provided in ORS Chapter 656 either by:

1. a carrier-insured employer; or

2. a self-insured employer as provided by ORS 656.407.

In addition to the statutory benefits outlined above, the Contractor and all Sub~~c~~Contractors shall provide employers' liability insurance with limits of not less than:

1. \$2,000,000 each occurrence
2. \$2,000,000 disease each employee
3. \$2,000,000 disease—policy

Evidence of such coverage, including the guaranty or warrant period, shall be filed with the District and maintained for the duration of the Contract.

The Contractor shall defend, indemnify, and hold harmless, the District and the District's officers, agents, and employees against any liability that may be imposed upon them by reason of the Contractor's or SubContractor's failure to provide workers' compensation and employers liability coverage.

107.06.04 General Liability and Automobile Liability

The Contractor shall provide a general liability policy that provides coverage for bodily injury including personal injury and property damage liability insurance and automobile liability insurance. Such insurance must protect the Contractor, the District, and their officers and employees from all things or damage which may arise out of this Contract or in connection therewith, including all operations of ~~SubContractors~~Subcontractors. Such insurance shall provide coverage for not less than the amounts for which public bodies are responsible as set forth in ORS Chapter 30.260 - 30.300, Tort Actions against public bodies, but in no event less than the following limits of liability:

The policy shall contain an endorsement that the aggregate applies separately to this Contract.

Commercial General Liability Insurance

1. \$2,000,000 each occurrence limit
2. \$3,000,000 general aggregate
3. \$3,000,000 products/completed operations aggregate
4. \$3,000,000 personal and advertising injury
5. \$2,000,000 limited job site pollution occurrence sublimit

Comprehensive Automobile Liability Insurance Including Coverage for all Owned, Hired, And Non-owned Vehicles.

1. \$2,000,000 each occurrence combined single limit
2. \$3,000,000 aggregate bodily injury and property damage, or \$2,000,000 each person bodily injury
3. \$2,000,000 each occurrence bodily injury
4. \$2,000,000 each occurrence property damage
5. \$2,000,000 each occurrence pollution occurrence sublimit

The insurance shall be written on a comprehensive form which includes broad form property damage on an occurrence basis. Unless excluded by Special Specification, the general liability policy shall include, without deductible, coverage for premises operations, explosion and collapse hazard, underground hazard, products, completed operations, contractual insurance, and independent Contractors. Such insurance shall be maintained until the expiration of the guaranty period required by the Contract. Failure to maintain liability insurance as provided above shall, at District's option, because for immediate termination of the Contract.

The Contractor shall provide a letter from the insurance company which states that such insurance shall be without prejudice to coverage otherwise existing.

The District, its officers, agents, and employees, shall be named additional insureds in the Contractor's General Liability Insurance policy.

The policy shall also provide for a Cross Liability Endorsement or Separation of Insureds Endorsement.

The policy shall be endorsed to provide an Amendment - Aggregate Limits of Insurance (per project) specifying that a separate aggregate limit of liability applies to this Contract.

If there are insufficient insurance proceeds and assets of the Contractor to fully indemnify the District, its officers, employees, agents, and the District Engineer, then the District, its officers, employees, and agents would be indemnified first with any remaining insurance proceeds and assets to be used to indemnify the District Engineer.

If set forth in the Special Specifications, additional insureds may be the District Engineer, other governmental bodies with jurisdiction in the area involved in the project, and their officers and employees and such agents as may be specified.

107.06.05 Claims on Project

The Contractor, when notified of a claim by an affected party shall:

1. Refer claim to the Contractor's insurance carrier or claims administrator.
2. Contractor's insurer will copy the District on acknowledgment of claim.
3. Contractor's insurer will copy the District on notice to claimant of disposition of claim.

107.06.06 Builders Risk Insurance

During construction, Contractor shall obtain and maintain for the benefit of the parties to the Contract as their interest may appear, all-risk builder's risk insurance to the extent of 100% of the value of the project. Coverage shall also include: (1) formwork in place; (2) form lumber on site; (3) temporary structures; (4) equipment; and (5) supplies related to the work while at the site. Such insurance shall be endorsed to require 30 days' written notice to the District prior to cancellation or change of the policy. One (1) copy of the policy and 2 certificates of such insurance shall be delivered to the District before commencing work and shall be subject to review and approval by the District. The District may temporarily waive delivery of the copy of the policy. In the event Contractor fails to maintain such insurance, the District may arrange therefore; and any premium incurred shall be to the account of Contractor.

107.06.07 Insurance for Work in Railroad Rights-of-Way

During construction in railroad right-of-way, Contractor shall obtain and maintain insurance as required by the individual railroads.

107.07 Royalties and Patents

Contractor shall pay all royalties and license fees required to perform the work. Defend and indemnify District, from all loss or damage that may result from the Contractor's wrongful or unauthorized use of any patented article or process.

107.08 Permits

Contractor shall obtain all Municipal, County, State, federal, or other permits or licenses necessary or incident to performance of the work under this Contract. Work within the railroad right-of-way requires permit by the rail authority and railroad operators in addition to the above. Comply with all permit requirements pertaining to the project.

107.09 Compliance with ORS Chapter 279a, B, And C (Public Contracting Code)

Comply, and require all SubContractors to comply, with the District's Public Contracting Rules, the requirements of the applicable State statutes, and be subject to the applicable liabilities provided in ORS Chapter 279A, B and C, such as, but not limited to, the statutes that are numbered and referenced, and incorporated herein by an abbreviated subject matter, and listed below and the statutes required to be set forth as conditions in public contracts, which follows.

1. ORS 279C.375 Award of contract; Bond; Waiver of bond in case of emergency.
2. ORS 279C.540 Maximum hours of labor on public contracts; holidays; exceptions.
3. ORS 279C.840 Workers on public works to be paid not less than prevailing rate of wage.
4. ORS 279C.845 Certification of rate of wage by Contractor or SubContractor.
5. ORS 279C.850 Inspection to determine whether prevailing rate of wage being paid; proceedings to require payment of prevailing rate of overtime.
6. ORS 279C.855 Liability of Violations.

107.10 Labor

Upon notification in writing from the District Engineer, remove immediately from the job for its duration any laborer, workman, mechanic, foreman, superintendent, or other person employed who is found to be incompetent, intemperate, troublesome, disorderly or otherwise objectionable, or who fails or refuses to perform their work properly or acceptably.

Comply with provisions of the District's Equal Opportunity Policy and to ORS Chapter 659 relative to unlawful employment practices and discrimination by employers against any employee or applicant for employment because of race, religion, color, sex, or national origin. Particular reference is made to ORS 659.030, which states that it is unlawful employment practice for any employer, because of the race, religion, color, sex, or national origin of any individual, to refuse to hire or employ or to bar or discharge from employment such individual or to discriminate against such individual in compensation or in terms, conditions or privileges of employment.

107.11 Overtime

In addition to the requirements set forth in Specification 107.09, Contractor shall notify the District Engineer of any overtime operations as soon as possible. The Contractor must provide documentation to the District Engineer's satisfaction justifying the overtime work (ORS 279C.520).

In the event that the Contractor wishes to proceed with an overtime operation, the Contractor must first notify and obtain approval from the District Engineer to do so, prior to commencing such work.

For overtime work requested by the Contractor, the Contractor shall pay the applicable wage rate for the District Engineer's Inspector, engineering and operations personnel, and other staff required at the project during the overtime hours.

This section does not apply to labor performed in the manufacture or fabrication of any material ordered by the Contractor or manufactured or fabricated in any plant or place other than the place where the main Contract is to be performed.

107.12 Safety

107.12.01 Employee Safety

The Contractor shall at all times be responsible for the safety of their employees and their SubContractor's employees. The Contractor shall maintain the job site and perform the work in a manner

which meets the District's responsibility under statutory and common law for the provision of a safe place to work and which complies with the District's written safety regulations, if any.

Conduct the project with proper regard for the safety and convenience of the public. When the project involves use of public ways, provide necessary flag persons and install and maintain means of reasonable access to all fire hydrants, service stations, warehouses, stores, houses, garages, and other property. Private residential driveways shall be closed only with approval of the District Engineer or specific permission of the property owner. Do not interfere with normal operation of public transit vehicles unless otherwise authorized. Do not obstruct or interfere with travel over any public street or sidewalk without approval. At all times provide open trenches and excavations with secured and adequate barricades or fences of an approved type which can be seen from a reasonable distance. Close up or plate all open excavations at the end of each working day in all street areas unless approved otherwise by the District Engineer and in all other areas when it is reasonably required for public safety or as directed by the District Engineer. At night, mark all open work and obstructions by lights. Install and maintain all necessary signs, lights, flares, barricades, railings, runways, stairs, bridges, and facilities. Observe all safety instructions received from the District Engineer or governmental authorities, but following of such instructions shall not relieve Contractor from its responsibility or liability for accidents to workmen or damage or injury to person or property.

107.12.02 Public Safety and Convenience

The Contractor shall at all times conduct their work so as to ensure the least possible obstruction to traffic and convenience to the general public and residents in the vicinity of the work and to ensure the protection of persons and property. No road or street shall be closed to the public except with the permission of the District Engineer and proper governmental authority. Fire hydrants on or adjacent to the work shall be kept accessible to firefighting equipment at all times. Temporary provisions shall be made by the Contractor to ensure the use of sidewalks, private and public driveways and proper functioning of all gutters, sewer inlets, drainage ditches and culverts, irrigation ditches and natural water courses. The Contractor will minimize inconvenience to others due to mud and dust.

107.12.03 Safety Program

The Contractor shall adopt a written safety program complying with the requirements of employee and public safety set forth hereinabove and as described in the Special Conditions. The safety program shall also comply with OAR Chapter 437, Division 3, regarding general safety and health provisions.

107.13 Right-Of-Way, Easements and Premises

Confine construction activities within property lines, right-of-way, limits of easements and limits of construction permits as shown or specified in the contract documents unless arrangements are made with owner(s) of adjacent private property. If additional space or property is needed to accommodate Contractor's method for construction of the work or for the convenience of the Contractor, Contractor shall bear all related costs and responsibilities. Prior to the use of any private property outside the specified boundaries, file with the District Engineer written permission from the property owner(s).

Do not unreasonably encumber the specified work areas with materials and equipment. Obtain and bear the costs of permits for special occupancy and use of the specified work areas from the proper agencies. Comply with all requirements regarding signs, advertisements, fires and smoking.

107.14 12-Month Maintenance and Warranty

In addition to and not in lieu of any other warranties required under the Contract make all necessary repairs and replacements to remedy, in a manner satisfactory to the District Engineer and at no cost to District, any and all defects, breaks, or failures of the work occurring within 12 months following the date of substantial completion due to faulty or inadequate materials or workmanship. Repair damage or disturbances to other improvements under, within, or adjacent to the work, whether or not caused by settling, washing, or slipping, when such damage or disturbance is caused, in whole or in part, from activities of the Contractor in performing their duties and obligations under this Contract when such

defects or damage occur within the warranty period. The 12-month maintenance period required shall, with relation to such required repair, be extended 1 year from the date of completion of such repair.

If Contractor, after written notice, fails within 10 days to proceed to comply with the terms of this section, District may have the defects corrected, and Contractor and Contractor's surety shall be liable for all expense incurred. In case of an emergency where, in the opinion of the District Engineer, delay would cause serious loss or damage, repairs may be made without notice being given to Contractor and Contractor or surety shall pay the cost of repairs. Failure of the District Engineer to act in case of an emergency shall not relieve Contractor or surety from liability and payment of all such costs.

In addition to the above provisions, District waterline facilities installed by the Contractor under this Contract that require repair or replacement during the 12-month maintenance period shall be repaired by the District or under the direction of the District and the Contractor and Contractor's surety shall be liable for all expenses incurred.

108 PROSECUTION AND PROGRESS OF WORK

108.01 Contractor's Construction Schedule

Within 30 days of Contract award or 1 week in advance of starting work, whichever is earlier, submit for written approval a proposed construction schedule to the District Engineer. Contractor may not commence work until construction schedule is approved by the District Engineer.

If it is desirable to carry on operations in more than one location simultaneously, submit a schedule for each location at least 1 week in advance of beginning such operations. In the event that the Contractor's proposed construction schedule does not meet the necessary construction program schedule as determined by District, immediately resubmit a schedule that conforms as approved. Contractor shall not commence work until schedule is approved by the District Engineer.

The schedule shall show the proposed order of work and indicate the time required for completion of the major items of work. This working schedule shall take into account the passage and handling of traffic with the least practicable interference therewith and the orderly, timely and efficient prosecution of work. It will also be used as an indication of the sequence of the major construction operations and as a check on the progress of work.

108.02 Preconstruction Conference

Attend a preconstruction conference, if requested, at a time, prior to start of work, designated by the District Engineer. Comply with information and instructions provided at the preconstruction conference as recorded in the minutes of the meeting.

108.03 Notice-to-Proceed

Unless stated otherwise in the Special Specifications, written Notice to Proceed will be given by the District Engineer within 30 days after the performance and payment bond and all required insurances have been filed with and approved by the District and the Contract has been executed. Do not commence work under the Contract until such written notice has been given.

Notice to Proceed may be delayed up to an additional 30 days (for a total of sixty 60 days) from date of Contract by the District Engineer if, in the District Engineer's opinion, necessary easements or permits have not been obtained, or required utility relocation, construction, or reconstruction has not been completed or has not progressed to a degree that will allow initial contract work to commence.

Commence work within 10 working days after the date of the Notice to Proceed, or such other date as may be fixed by the Notice to Proceed, which date shall establish the date for commencement of the Contract time. Notify the District Engineer 48 hours in advance of the time and place work will be started.

108.04 Contract Time

Time shall be considered the essence of the Contract.

Upon commencement of work, Contractor shall provide adequate labor, materials, and equipment, and work shall be performed vigorously and continuously in accordance with a schedule which will ensure completion within the specified time limit. Failure to diligently pursue the work may jeopardize additional contract time.

108.05 Suspension of Work

If the work is suspended for convenience: Temporarily suspend work on the Project wholly or in part for convenience of the District as directed by the District Engineer. In the event of such suspension, the District Engineer shall, except in emergency, and except as hereinafter provided, give Contractor 3 days' notice. Work shall be resumed within 5 days after notice has been given by the District Engineer to Contractor to do so. The District Engineer shall allow Contractor an extension of time for completion

corresponding to the total period of temporary suspension, and shall reimburse Contractor for necessary rental of unused equipment, services of watch persons, and other unavoidable expenses accruing by reason of the suspension, as stipulated in Subsection 108.05 (E), Delays and Extensions of Time.

If work is suspended by the District Engineer: Immediately suspend work on the project, wholly or in part, as directed by the District Engineer, for reasonable periods of time as the District Engineer may deem necessary, when conditions are unsuitable for satisfactory performance of the work. The District shall allow the Contractor an extension of time for completion corresponding to the total period of suspension, but the Contractor shall not be entitled to reimbursement for any costs or damages arising under this clause.

If work is suspended for cause: Immediately suspend work on the Project wholly or in part as directed by the District Engineer for such periods as the District Engineer may deem necessary due to: (1) failure to correct unsafe conditions for working personnel, the general public, or District's employees, (2) failure to immediately correct defective and unacceptable work in accordance with Subsection 105.15, (3) failure to carry out provisions of the contract documents and/or conditions of approval, and (4) failure to carry out orders or directives.

Voluntary suspension by Contractor: There shall be no voluntary suspension or slowing of operations without the prior written approval of the District Engineer and such approval shall not relieve Contractor from the responsibility to complete the Contract work within the prescribed Contract time. Should operations be discontinued, Contractor shall notify, in writing, the District Engineer at least 24 hours in advance of resuming operations.

Responsibilities of Contractor:

1. At the commencement of and during any suspension of work, protect all work performed to prevent any damage or deterioration of the work. Provide temporary protection devices to warn, safeguard, protect, guide, and inform traffic during suspension, the same as though the work had been continuous and without interferences.
2. Bear all costs for providing suitable provisions for traffic control and for maintenance and protection of the work during suspension unless the suspension was for convenience.

In all cases of suspension, except voluntary suspension by Contractor, work will be resumed only upon written order of the District Engineer or District.

108.06 Delays and Extensions of Time

If the Contractor is significantly delayed due to court orders enjoining the prosecution of this Project, unavoidable strikes, acts of God, unusual and extraordinary action of the elements that are of such severity to stop all progress of the work, or act or neglect of the District not authorized by the Contract, the Contractor shall, within 48 hours of the start of the occurrence, give notice to the District Engineer of the cause of the potential delay and estimate the possible time extension involved. Within 10 days after the cause of the delay has been remedied the Contractor shall give notice to the District Engineer of any actual time extension requested as a result of the aforementioned occurrence.

No extension of time will be considered for weather conditions normal to the area and time of year in which the work is being performed. Delays in delivery of equipment or material purchased by the Contractor or their SubContractors (including District-selected equipment) shall not be considered as a just cause for delay, when timely ordering would have made the equipment available. The Contractor shall be fully responsible for the timely ordering, scheduling, expediting, delivery, and installation of all equipment and materials. Extensions of time will be considered for delayed delivery of the District specified equipment "without equal."

Within a reasonable period after the Contractor submits to the District Engineer a written request for an extension of time the District Engineer will make the decision on each request, for General Manager approval.

An adjustment of Contract time as herein provided shall be the Contractor's sole remedy for any delay in completion of the project arising from causes beyond the control of the Contractor, except for unreasonable delay caused by acts or omissions of the District or persons acting therefore. In no event shall the Contractor be entitled to collect or recover any damages, loss or expense incurred by reason of such delay, except for an unreasonable delay caused by acts or omissions of the District or persons acting therefor. However, if Contractor is delayed due solely to a breach by the District, Contractor will be entitled to recover damages limited to reimbursement for necessary rental of unused equipment, services of watch persons, documented direct overhead costs, documented direct unavoidable expenses accruing by reason of the suspension, plus 15% of the foregoing damages to cover normal Contractor profit. Contractor shall not be entitled to indirect costs or any other damages arising out of the delay, including but not limited to, interruption of schedules, or any other impact claim or ripple effect. If a delay is caused by the District and Contractor (joint delay), Contractor shall be entitled to a time extension only, by reason of such joint delay.

108.07 Liquidated Damages

Time shall be considered the essence of the Contract. If Contractor fails to complete the project or to deliver the supplies or perform the services within the time specified in the Contract or any extension thereof by the District, the actual damage to District for the delay will be substantial but will be difficult or impractical to determine.

It is therefore agreed that Contractor will pay to District, not as a penalty but as liquidated damages, the per diem amount of 0.5% of the total contract or modification thereof for each and every calendar day elapsed in excess of the Contract time or the final adjusted Contract time applicable to the work required under the Contract.

Permitting Contractor to continue and finish the work or any part thereof after the Contract time or adjusted Contract time, as pertinent, has expired shall in no way operate as a waiver on the part of the District or any of its rights under the Contract.

Payment of liquidated damages shall not release Contractor from obligations in respect to the fulfillment of the entire Contract, nor shall the payment of such liquidated damages constitute a waiver of District's right to collect any additional damages which may be sustained by failure of Contractor to carry out the terms of the Contract, it being the intent of the parties that said liquidated damages be full and complete payment only for failure of Contractor to complete the work on time.

108.08 Contractor's Representative

Designate, in writing before starting work, an authorized representative who shall have complete authority to represent and to act for Contractor, in all directions given by the District Engineer. Contractor, or its authorized representative shall supervise the work, and shall be present on site continually during its progress.

If Contractor or its authorized representative is not present, directions may be given by the District Engineer or their authorized representative to the workmen and such order shall be received and followed. Any direction will be confirmed in writing upon request from the Contractor.

Keep a complete copy of the Plans and Specifications on or near the site at all time.

108.09 Conflicts, Errors, Omissions, And Additional Drawings

Check and compare all Plans and Specifications prior to construction and notify the District Engineer of any discrepancies or omissions in order to permit correction by the District Engineer. Coordination of Plans and Specifications is intended. Furnish labor and materials as required for the work. Should any work or materials be reasonably required or intended for carrying the project to completion which are omitted on the Plans and Specifications, furnish same as fully as if particularly delineated or described. The intent of the Plans and Specifications is to show and describe a complete project within the limits stated. Dimensions shown on Plans shall be followed, rather than scale measurements. Whenever it

appears that the Plans are not sufficiently detailed or explicit, the District Engineer may furnish additional detail drawings or written instructions and Contractor shall perform the work in accordance with the additional details or instructions.

108.10 District's Right to Do Work

Failure or refusal to comply with any of the terms or conditions of the Contract will permit the District to supply or correct any deficiency or defect or take other appropriate action without prejudice to any other remedy. Such action by District shall be taken only after 7 days' notice by the District Engineer to Contractor and their surety, unless in the judgment of the District Engineer an emergency or danger to the work or to the public exists, in which event action of the District as set forth above may be taken without any notice whatsoever. The cost of such action by the District shall be deducted from the payment then or thereafter due Contractor. Pay the District any costs in excess of such payment due.

108.11 Termination for Default

If the Contractor should be adjudged bankrupt, or if they should make a general assignment for the benefit of their creditors, or if a receiver should be appointed on account of insolvency, or if they should refuse to or fail to supply enough properly skilled workmen or proper materials for the efficient prosecution of the Project, disregard laws, ordinances or the instructions of the District Engineer, or otherwise be in violation of any provision of the Contract, the District may, without prejudice to any other right or remedy and after giving the Contractor and its surety 7 days' written notice, terminate the services of the Contractor and take possession of the premises and of all materials, tools and appliances thereon as well as all other materials whether on the premises or not, on which the Contractor has received partial payment and finish the work by whatever method it may deem expedient.

In the event action as above indicated is taken by the District, the Contractor, or its surety, shall provide the District Engineer with immediate and peaceful possession of all of the materials, tools and appliances located on the premises as well as all other materials whether on the premises or not, on which the Contractor has received any progress payment. Upon termination, in the event that the surety does not complete the Contract, at the election of the District, Contractor shall assign any and all SubContractors and material contracts to the District or District's designee. Further, the Contractor shall not be entitled to receive any further payment until the work is completed. On completion of the work, determination shall be made by the District Engineer of the total amount the Contractor would have been entitled to receive for the work, under the terms of the Contract, had Contractor completed the work. If the difference between said total amount and the sum of all amounts previously paid to the Contractor, which difference will hereinafter be called the "unpaid balance," exceeds the expense incurred by the District in completing the work, including expense for additional managerial and administrative services, such excess will be paid to the Contractor, with the consent of the surety. If, instead, the expense incurred by the District exceeds the unpaid balance, the amount of the excess shall be paid to the District by the Contractor or their surety. The expense incurred by the District as herein provided, and the damage incurred through the Contractor's default, shall be as determined and certified by the District Engineer.

In addition to and apart from the above-mentioned right of the District to terminate the employment of the Contractor, the Contract may be canceled at the election of the District for any willful failure or refusal on the part of the Contractor to faithfully perform the Contract according to all of its terms and conditions; provided, however, that in the event the District should cancel the Contract, neither the Contractor nor its surety shall be relieved from damages or losses suffered by the District on account of the Contractor's breach of Contract.

The District may, at its discretion, avail itself of any or all of the above rights or remedies and its invoking of any one of the above rights or remedies will not prejudice or preclude the District from subsequently invoking any other right or remedy set forth above or elsewhere in the Contract.

None of the foregoing provisions shall be construed to require District to complete the work, not to waive or in any way limit or modify the provisions of the Contract relating to the fixed and liquidated damages suffered by District on account of failure to complete the Project within the time prescribed.

108.12 Termination in the Public Interest

It is hereby agreed that the District has the right to terminate the Contract in whole or in part when it is considered to be in the public interest.

In the event the Contract is terminated as being in the public interest the Contractor shall be entitled to a reasonable amount of compensation for preparatory work and for all costs and expenses arising out of the termination excluding lost profits.

The amount to be paid to the Contractor:

1. Shall be determined on the basis of the Contract price in the case of any fully completed separate item or portion of the work for which there is a separate or unit Contract price; and
2. In respect to any other work, the Contractor will be paid a percent of the Contract price equal to the percentage of the work completed.

END OF DIVISION

Division 2 — STORMWATER CONSTRUCTION STANDARDS

301 GENERAL..... 2

301 GENERAL

The District's ~~Storm-storm~~ water construction standards apply to infrastructure on both private and public property ~~only (outside the public ROW). These generally include water quality and detention facilities.~~ Generally, cConstruction of this-storm water infrastructure is regulated by the Oregon Specialty Plumbing Code and permitted and inspected by the local Building Official which is the Clackamas County Building Department or by Clackamas County Department of Transportation and Development. When OLWSD's design standards of water quality and quantity facilities apply, ~~see reference~~ OLWSD Chapter 2.

END OF DIVISION

DIVISION 3 - WASTEWATER CONSTRUCTION STANDARDS

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301 PIPE AND FITTINGS

301.01 DESCRIPTION

This section covers the following work: (1) gravity and pressure sewer mains, (2) fittings, and (3) laterals and cleanouts and manholes and pump stations.

301.02 MATERIALS

301.02.01 General

Use all sewer pipe and fittings of the size, strength, material and joint type specified on the drawings and/or the proposal. Use jointing material as hereinafter specified for each pipe material. Each piece of pipe shall be clearly identified as to strength, class and date of manufacture. The manufacturer or fabricator shall furnish appropriate certification, based on manufacturers' routine quality control tests, that the materials in the pipe and fittings meet the requirements specified herein. Strength, permeability, hydrostatic tests, and pipe joints will be used as the basis of acceptance as described under proof tests herein.

It is not intended that materials listed herein are to be considered equal or generally interchangeable for all applications. The Design Engineer shall determine the materials suitable for the project and so specify.

301.02.02 Ductile-Iron Pipe

Ductile-iron pipe centrifugally cast of 60-42-10 iron shall conform to ANSI A21.51 Class 150 or AWWA C151, with Push-on Joint or Mechanical Joints as specified, conforming to ANSI Specification A21.11/AWWA C111. Ductile-iron pipe shall be lined with cement mortar and seal coated in accordance with ANSI Standard A21.4/AWWA C104.

When specified, tube type polyethylene encasement shall conform to ANSI A21.5/AWWA C105.

301.02.03 PVC Nonpressure Pipe

PVC sewer pipe shall conform to ASTM D 3034 SDR 35 or C900.

301.02.04 HDPE Pipe

HDPE pipe sizing shall conform with ASTM F714 or D3035. HDPE pipe material shall conform to ASTM D 3350. Pipe size and pipe dimension ratio shall be specified in the plans.

301.02.05 Lateral Markers

A 2-inch-x-4-inch stake painted green shall extend from the lateral end to a minimum of 3 feet above the ground.

301.02.06 Jointing Materials

Only lubricants for jointing materials approved by the manufacturer shall be used.

Furnish in duplicate a certified statement from the manufacturer of the gaskets, setting forth the basic polymer used in the gaskets and results of the tests of the physical properties of the compound. Gaskets shall be shipped in containers with identification of the batch from which the gaskets were fabricated.

A. Ductile-Iron Pipe

Rubber gaskets shall conform to ANSI A21.11/AWWA C111.

B. PVC Pipe

Rubber gaskets for PVC pipe shall conform to ASTM F 477. Solvent weld (glued) joints will not be allowed.

C. HDPE Pipe

HDPE pipe shall be joined via butt fusion welds in accordance with ASTM F 2620. The technician performing butt fusion welds shall be certified by the manufacturer or other certifying agency. Alternately, electrofusion polyethylene fittings may be used.

301.02.07 Proof Tests

The intent of this requirement is to prequalify a joint system, components of which meet the joint requirements, as to the water tightness capability of that joint system. This proof test shall be understood to apply to all sanitary sewers. Material and test equipment for proof testing shall be provided by the manufacturer. Joints shall meet the requirements of yard testing specified below. The pipe manufacturer shall submit results of the yard tests made, certified by a testing agency acceptable to the District Engineer. In general, each pipe material and joint assembly shall be subject to the following three proof tests at the discretion of the District Engineer.

1. Pipe in Straight Alignment

No more than 5 pipes selected from stock by the District Engineer or the testing agency shall be assembled according to the manufacturer’s installation instructions with the ends suitable plugged and restrained against internal pressure. The pipe shall be subjected to 13-PSI hydrostatic pressure for 10 minutes. Free movement of water through the pipe joint or pipe shall be grounds for rejection of the pipe.

2. Pipe in Maximum Deflected Position

A test section shall be deflected as described hereinafter for each pipe material. The pipe shall be subjected to 10-PSI hydrostatic pressure for 10 minutes. Free movement of water through the pipe joint or pipe wall shall be grounds for rejection of the pipe.

3. Joints Under Differential Load

The test section shall be supported on blocks or otherwise as described hereinafter for each pipe material. There shall be no visible leakage when the stressed joint is subjected to 10-PSI internal hydrostatic pressure for 10 minutes.

A. Ductile-Iron Pipe

For deflected position, create a position 1/2-inch wider than the fully compressed section on 1 side of the outside perimeter.

For differential load, support so that one of the pipes is suspended freely between an adjacent pipe, load bearing only on the joints. Apply a force per the following table along a longitudinal distance of 12 inches, immediately adjacent to 1 of the joints.

PIPE SIZE	FORCE - POUNDS	PIPE SIZE	FORCE - POUNDS
4 inches	1,000	15 inches	3,700
6 inches	1,500	18 inches	4,400
8 inches	2,000	21 inches	5,000
10 inches	2,500	24 inches	5,500
12 inches	3,000	and over	----

B. PVC Pipe

PVC pipe joints shall be tested by and meet the requirement of ASTM C 3212 for gravity sewers and ASTM D 3139 for pressure sewers.

301.02.08 Fittings

Provide tee fittings in the sewer main for lateral connections. Tees for laterals shall be 4 inches inside diameter, unless otherwise specified. All fittings shall be of sufficient strength to withstand all handling and load stresses encountered. All fittings shall be of the same materials as the pipe unless otherwise specified. Material joining the fittings to the pipe shall be free from cracks and shall adhere tightly to each joining surface. Use the same type of joints on all fittings that are used on the main sewer pipe. Tee fittings shall not be closer than 12 inches to any joint or bell of main line sewer which is 12 inches or less in diameter.

A. Ductile-Iron Pipe

Use mechanical joint cast-iron fittings conforming to ANSI A21.10/AWWA C110, and a class of at least equal to that of the adjacent pipe. Use push-on fittings of gray cast iron with body thickness and radii of curvature conforming to ANSI A21.10 and joints conforming to ANSI A21.11/AWWA C111.

B. PVC Pipe

PVC pipe shall be connected to sanitary manholes only thru formed or cored holes using an approved boot type adapter specifically manufactured for the intended service and approved by the District Engineer, such as Kor-N-Seal boots or equivalent. Sanded collars will be accepted only in poured-in-place manhole bases.

C. HDPE Pipe

Polyethylene fittings shall be manufactured in accordance with ASTM D 3261 for molded polyethylene fittings and ASTM F 1055 for electrofusion polyethylene fittings.

301.02.09 Pipe Coupling Adapters

A. PVC Pipe, and Ductile-Iron Pipe

Use flexible mechanical compression joint coupling with stainless steel shear proof bands such as a Fernco Strongback or approved equal.

B. HDPE Pipe

Electrofusion couplers shall be used to join pipe between manholes. Electrofusion couplers shall conform to ASTM F 1055.

301.03 Construction

301.03.01 Excavation and Backfill

Conform to the requirements of Standard Detail 302 for pipe bedding and Section 1 for public easements (Excavation, Embankment, Bedding, and Backfill). All excavation shall be unclassified. Clackamas County public road standards supersede OLWSD standards outside of pipe zone. All mains, manholes, taps, laterals, and clean outs must be inspected by a District representative before burial. Any installations backfilled prior to inspection must be excavated for District inspection at the contractor's expense.

301.03.02 Line and Grade for Gravity and Pressure Sewers

Do not deviate from line or grade, as established by the Design Engineer, more than ½ inch for line and ¼ inch for grade, provided that such variation does not result in a level or reverse sloping invert. Flat grade, negative slope, "bellies", or "sags" will not be accepted. Measure for grade at the pipe invert, not at the top of the pipe, because of permissible variation in pipe wall thickness. Establish line and grade for pipe by the use of lasers or by transferring the cut from the offset stakes to batter boards at maximum intervals of 25 feet.

A. Line and Grade for Laterals

The Design Engineer will establish line and grade to the tract of land to be serviced by the sewer system. At the preselected location of a lateral a stake will be driven into the ground showing the depth of excavation required at the property line.

The lateral must be laid perpendicular to the main whenever possible. Lay the pipe on a straight line and at a minimum of 2% grade between the tee and the clean out. The lateral shall be installed with the same accuracy as the main sewer and shall be a minimum of 5 feet of cover in all parts of the road right of way or easement.

301.03.03 Pipe Distribution and Handling

Distribute material on the job no faster than it can be used to good advantage. Unload pipe only by means recommended by the pipe manufacturer. Do not unload pipe of any size by dropping to the ground. Do not distribute more than 1 week's supply of material in advance of laying, unless approved.

Pipe shall not be unloaded or stored in the public right-of-way or easement unless it has been certified and accepted by the Design Engineer. Inspect all pipe and fittings prior to lowering into trench to ensure no cracked, broken, or otherwise defective materials are used. Clean ends of pipe thoroughly. Remove foreign matter and dirt from inside of pipe and keep clean during and after laying.

Use proper implements, tools, and facilities for the safe and proper protection of the work. Lower pipe into the trench in such a manner as to avoid any physical damage to the pipe. Remove all damaged pipe from the job site. Do not drop or dump pipe into trenches.

301.03.04 Pipe Laying and Jointing of Pipe and Fittings

A. General

Proceed with pipe laying upgrade with spigot ends pointing in direction of flow. Place pipe in such a manner as to ensure a continuous and uniform bearing and support for the full length of the pipe between joints. Take care to properly align the pipe before forced entirely home. Upon completion of pipe laying all pipe joints shall be in the "home" position, which is defined as the position where the least gap (if any) exists, when the pipe components that comprise the join are fitted together as tightly as the approved joint design will permit. Gaps at pipe joints shall not exceed that allowed by the manufacturer's recommendations.

Take special care to prevent movement of the pipe after installation when laid within a movable trench shield.

When laying operations are not in progress, protect the open end of the pipe from entry of foreign material and block the pipe to prevent movement or creep of gasketed joints.

Plug or close off pipes which are stubbed out for manhole construction or for connection by others.

When cutting and/or machining the pipe is necessary, use only tools and methods recommended by pipe manufacturer.

When shown or approved to deflect pipe from a straight line, either in the vertical or horizontal plane, or when long-radius curves are shown, the amount of deflection shall not exceed that specified or approved by the District Engineer. The pipe manufacturer's recommendation will serve as a guide, but the decision of the District Engineer shall be final.

The contractor shall at all times provide and maintain ample means and devices to remove and dispose of all water entering the trench excavation during the process of laying the pipe. Water and debris shall not enter into the District's sewer system. Water and debris shall be disposed of in an approved manner.

301.03.05 Installation of Tees and Laterals

Provide pipe bedding material compacted to a minimum of 90% of maximum density as determined by ASTM D 1557/AASHTO T-180 under all tee fittings, extending to the springline of the fittings. Place pipe bedding material on undisturbed native material or compacted foundation stabilization material.

Use pipe and fittings for laterals of one type of material throughout; no interchanging of pipe and fittings will be allowed. Use 4-inch diameter pipe for residential laterals when not otherwise specified. Commercial and Industrial laterals must be a minimum of 6-inch diameter.

For 6-inch ~~x~~ 8-inch connections, a "pipe snap cutter" shall be used to cut the main line and dress-in a factory tee.

Connect laterals to manholes only when directed. Connections to existing manholes shall be by way of a core drilled hole and use a Kor-N-Seal boot or equivalent.

Provide ends of all laterals with approved watertight plugs, or caps, suitably braced to prevent blow-off during internal air testing. Clean outs must be installed on the laterals prior to air testing.

Any new sanitary sewer tap location(s) must be a minimum distance of two (2) linear feet on either side of the main line from any other existing tap / lateral location.

All sanitary taps (both spliced-in taps and Inserta-Tee taps) will require a post-tap main line TV inspection. The inspection will be performed at the contractor's cost and after backfill and compaction is complete. Items under inspection will be excessive tap intrusion, leaks, alignment, and damage to the main line.

Permits for all sanitary installations (including single sanitary laterals for single lot development) must state that the installation is under warranty for a period of 12 months. At the end of 12 months OLWSD will TV the lateral to determine if the installation is accepted or if repairs are required.

301.03.06 Lateral Markers

In new subdivisions, undeveloped areas, and where connections will not be made in the Contract, after the service line is installed, block the capped or plugged end and install 2-inch ~~x~~ 4-inch marker. Extend markers at least 3 feet above the ground surface. Paint the top portion of the marker green. Write the depth of the lateral on the marker with permanent ink.

Take precautions during the backfilling operation to ensure the position and location of the marker. If the marker is broken or knocked out of vertical alignment during the backfilling operation, reopen the trench and replace the marker.

301.03.07 Testing

A. General

All gravity sanitary sewers shall successfully pass an air test prior to acceptance and shall be free of leakage. Manholes shall be tested as specified in Section 3.0041 (Manholes and Concrete Structures).

All pressure sewer force mains shall be tested in accordance with applicable portions of Division and Section 4, when not otherwise specified.

Lines shall be cleaned prior to any television inspection.

A television inspection of the sanitary sewer pipe shall be performed. Any defects in material or workmanship shall be satisfactorily corrected prior to final acceptance of the work.

No private plumbing can be connected to a new sanitary system installation without District approval. The District will not approve or accept a sanitary system installation if any private plumbing has been connected to it.

B. Cleaning Prior to Testing and Acceptance

Prior to testing and television inspection of the sewer system hydro clean all parts of the system and remove all debris.

Upon the District Engineer's final manhole-to-manhole inspection of the sewer system, if any foreign matter is still present in the system, hydroclean the system a second time as required and remove the debris.

C. Testing Procedure

Perform the tests in a manner satisfactory to the District Engineer. Calibrate gauges for air testing with a standardized test gauge provided by the Contractor at the start of each testing day. The calibration shall be witnessed by the District Engineer; notify the District Engineer 24 hours prior to each test.

D. Time of Test

Make tests of sections of constructed sanitary sewer for acceptance only after all service connections, manholes, backfilling, and compaction are completed between the stations to be tested. The District may require testing of manhole-to-manhole sections as they are completed in order to expedite the acceptance of sections of sewer and allow connections prior to the whole system being completed.

E. Repairs

Repair or replace, in a manner satisfactory to the District Engineer, any section of pipe not meeting the air test requirements, or which has leakage.

Infiltration of ground water in an amount greater than herein specified, following a successful air test as specified, shall be considered as evidence that the original test was in error or that subsequent failure of the pipeline has occurred. Correct such failures occurring within the warranty period in a manner satisfactory to the District Engineer at the Contractor sole expense.

The Contractor, in contracting to do this work, agrees that the leakage allowances as indicated herein are fair and practical.

F. Air Testing

1. General

The District Engineer may, at any time, require a calibration check of the instrumentation used. Use a pressure gauge having minimum divisions of 0.10 PSI and an accuracy of 0.0625 PSI. (1 ounce per square inch.) All air used shall pass through a single control panel.

All plugs used to close the sewer for the air test must be capable of resisting the internal pressures and must be securely braced. Place all air testing equipment above ground and allow no one to enter a manhole or trench where a plugged sewer is under pressure. Release all pressure before the plugs are removed. The testing equipment used must include a pressure relief device designed to relieve pressure in the sewer under test at 10 PSI or less and must allow continuous monitoring of the test pressures in order to avoid excessive pressure. Use care to avoid the flooding of the air inlet by infiltrated ground water. (Inject the air at the upper plug if possible.) Use only qualified personnel to conduct the test.

Do not coat pipes for sewers internally or externally with any substance of any type in an attempt to improve its performance when air tested.

2. Ground Water

The presence of ground water will affect the results of the test. Determine the average height of ground water over the sewer immediately before starting the test.

In every case, determine the height of the water table at the time of the test by exploratory holes or such other methods satisfactory to the District Engineer. The District Engineer will make the final decisions regarding test height for the water in the pipe section being tested.

3. Method

Use the Time-Pressure Drop Method for all air testing. The test procedures are described as follows:

1. Clean the sewer to be tested and remove all debris where noted.
2. Wet the sewer prior to testing, if desirable.
3. Plug all sewer outlets with suitable test plugs. Brace each plug securely.
4. Check the average height of the ground water over the sewer. The test pressures required below shall be increased 0.433 PSI for each foot of average water depth over the sewer.
5. Add air slowly to the section of sewer being tested until the internal air pressure is raised to 4.0 PSIG greater than the average back pressure of any ground water that may submerge the pipe.
6. After the internal test pressure is reached, allow at least 2 minutes for the air temperature to stabilize, adding only the amount of air required to maintain pressure.
7. After the temperature stabilization period, disconnect the air supply.
8. Determine and record the time in seconds that is required for the internal air pressure to drop from 3.5 PSIG to 2.5 PSIG greater than the average back pressure of any ground water that may submerge the pipe.

4. Acceptance

The sewer shall be considered acceptable when tested as described herein before if the section under test does not lose air at a rate greater than 0.0015 cfm per square foot of internal sewer surface.

For test sections containing over 625 square feet of surface area, the time measured by this method for 1.0 PSI pressure drop shall be calculated according to the following formula:

$$T = d^2L/42$$

T = test duration, seconds
d = pipe diameter, inches
L = section length, feet
42 = conversion factor

For test sections containing less than 625 square feet of internal surface area, the time measured by this method for 1.0 PSI pressure drop shall be calculated according to the following formula:

$$T = 56d$$

The internal surface area of pipeline sections may be calculated using the formula:

$$A = \pi Ld/12$$

The surface areas of lateral lines of differing lengths and diameters may be accommodated in Equations 1 and 2 above by using the sums $d_1^2L_1 + \dots + d_n^2L_n$ and $d_1 + \dots + d_n$ in place of d^2L and d , respectively.

301.03.08 Deflection Test for PVC Pipe and HDPE Pipe

In addition to air testing, perform a deflection test for all sanitary sewers constructed of PVC pipe or HDPE pipe after the trench backfill and compaction has been completed. The test shall be conducted by pulling an approved mandrel through the completed pipeline after compaction is completed. The diameter of the mandrel shall be 95% of the internal pipe diameter. Conduct testing on a manhole-to-manhole basis and only after the line has been completely flushed clean with water. Locate and repair any sections failing to pass the test and retest the section, at the Contractor's sole expense.

301.03.09 Subsequent Failure

No infiltration of ground water in the system is allowed. No standing water is allowed.

301.03.10 Rail Lines Crossing Sanitary Sewer

New and reconstructed light rail and freight rail construction may require improvements to the sanitary sewer system at all utility crossing locations. Each utility crossing area is to be minimized. All existing pipes on the second half of useful life within the rail zones shall be replaced to current standards. Metallic or conductive pipe materials are not approved pipe materials at rail crossings. Pipes are to be centered under rail tracks to avoid joints underneath rail lines. All new pipe installations must identify practical future replacement options for the sewer pipe under rails in case of future failure of utility.

301.03.11 Television Inspection of Sanitary Sewers

Upon completion of all sewer construction, repairs, cleaning, and required tests, the Contractor shall notify the District Engineer 24 hours prior to when the television inspection will be performed.

Subsequent to being notified, the District Engineer shall commence examination of lines. Findings will be recorded.

When performing television inspections, water shall be added and a one -inch measuring ball shall be utilized.

Upon correction of deficiencies revealed by television inspection, the Contractor shall notify the District Engineer; the same steps listed above may be repeated until all work is acceptable.

The District may, at its own option, perform a deflection test.

302 MANHOLES AND CONCRETE STRUCTURES

302.01 Description

This section covers the work necessary for the construction of the following items: (1) manholes, (2) drop assemblies, and (3) concrete encasement.

302.02 Materials

302.02.01 Base Rock

¾-inch minus base rock, conforming to the requirements for crushed aggregate material in Detail Drawing 302.

302.02.02 Forms

Forms for exposed surfaces shall be steel or plywood. Others shall be matched boards, plywood or other approved material. Form all vertical surfaces. Trench walls, large rock, or earth shall not be used as form material.

302.02.03 Concrete and Reinforced Steel

Concrete and reinforcing steel shall conform to Section 205 (Materials—Types and Use).

302.02.04 Cement Mortar

When specified for use, cement mortar shall conform to Detail Drawing 305 for concrete equivalencies. Mortar mixed for longer than 30 minutes shall not be used.

302.02.05 Manholes

A. Standard Precast Manhole Sections

Furnish sections as specified conforming to the details on the standard drawings and to ASTM C 478. Cones shall have same wall thickness and reinforcement as manhole section. Provide eccentric cones with precast grooves for all manholes over 6 feet in depth. Flat slab tops with precast grooves reinforced to withstand AASHTO H20 loading shall be provided for manholes 4 feet deep from crown of pipe and less. Top and bottom of all sections shall be parallel.

Prior to the delivery of any size of precast manhole section on the job site, yard permeability tests will be conducted at the point of manufacture. The precast sections to be tested will be selected at random from the stockpiled material that is to be supplied for the job. All test specimens will be mat tested, and shall meet the permeability test requirements of ASTM C 14 and ASTM C 497.

B. Precast Concrete Bases

Manholes shall be constructed using precast, reinforced concrete bases. Construction of precast bases shall conform to the requirements of ASTM C478. The base riser section shall be integral with the base slab.

C. Poured in Place Manhole Bases

The Contractor may use poured in place manhole bases only when pouring a new base over an existing main line. Concrete shall conform to Section 3.0030 (Manholes and Concrete Structures).

D. Manhole Grade Rings

Concrete grade rings for extensions shall be a maximum of 6 inches high.

E. Jointing Materials

Preformed plastic gaskets conforming to the requirements of AASHTO M-198 or joints using confined O-ring with rubber gaskets conforming to ASTM C443 shall be used.

302.02.06 Pipe and Fittings

Conform to requirements of Section 3.

302.02.07 Manhole Frames and Covers

A. General

1. All castings shall be true to size, weight and tolerances shown on the standard drawings. Delivered weight shall be +/- 5% of the specified weight. The bearing seat shall not rock when checked by the test jig. The foundry shall supply all test gauges and shall not subcontract any of the work other than testing procedure, patterns, and machining and cartage. The casting shall not be made by the open mold method and shall be free of porosity, shrink cavities, cold shuts, or cracks, or any defects which would impair serviceability. Repair of defects by welding, or by the use of "smooth-on" or similar material will not be permitted. All castings shall be shot or sandblasted, and the application of paint or other coating will not be permitted. Standard manhole frames are required in state, county and public road right-of-way. Suburban manhole frames are acceptable in private roads, driveways, and easements. Only 2-hole lids will be accepted. In landscaped easements MH frames must be set slightly above final grade.

2. All manhole frames and covers located outside of the right-of-way shall be tamper-proof.

B. Materials

Conform to ASTM A 48, Class 30B with the following revisions:

Tensile Strength	30,000 PSI
Traverse Strength:	(1.2 inch diam. bar - 18 inch centers)
Load - Pounds	2,600 - 3,000
Deflection - Inches	0.22 - 0.34
Brinell Hardness (as cast)	173 - 200

The foundry shall certify as to the tensile and traverse properties and the Brinell Hardness. The District reserves the right to require a Rough Transverse bar (size of bar 1.2 inch diam. by 20 inch long) and/or a tensile bar as per ASTM A 48 for each 20 castings or heat when less than 20 castings are made.

C. Inspection

Notify the District at least 24 hours in advance of casting the units or bars. At least 24 hours notice shall also be given prior to final gauging and inspection. When directed, the following strength test shall be made on the manhole cover. The cover, while resting in its frame, shall sustain a concentrated load of 40,000 lbs. applied at its center through a 2½-inch plug. The District Engineer may, at any time, require up to 5% of the job and/or order to be tested in this manner. In case of failure during the test, additional covers shall be furnished until the tests prove satisfactory. Covers that do not pass this test shall not be used.

D. Cap Screws

Cap screws and washers for tamperproof and watertight manhole covers shall be stainless steel with 60,000 PSI minimum tensile strength conforming to ASTM A 453.

302.02.08 Steps for Precast Manholes

Steps for precast manholes shall be of ¾-inch diameter structural steel in conformance with the standard details or be of steel reinforced polypropylene plastic, M.A. Industries, Inc., No PS-2PFS, or Lane No.

P-13850, or approved equal. All steps shall be in conformance with ASTM C-478 and shall be aligned vertically. All steps within a manhole shall be of the same design, type and size (mixing of unmatched steps within the same manhole is not permitted). Loose steps shall be cause for rejection of that manhole cone or section.

Steps of ¾-inch diameter structural steel shall conform to ASTM A 36 and galvanized in accordance to ASTM A 123. Steps shall be safety type 12-inch-x-8-inch-x-2-inch pattern as shown on the standard plans.

Steel reinforced polypropylene steps are to be driven into pre-formed holes in precast concrete manhole cones and sections by the manhole manufacturer prior to delivery to job site and shall be in conformance with the following specifications:

ASTM A-615 Grade 60, ½ inch deformed steel rod
ASTM 2146-78 Type II, Polypropylene

302.02.09 Nonshrink Grout

Nonshrink grout shall be Sika 212, Euco N-S, Five-Star, or equal nonmetallic cementitious commercial grout exhibiting zero shrinkage per ASTM C-827 and CRD-C-621. Grout shall not be amended with cement or sand, and shall not be reconditioned with water after initial mixing. Unused grout shall be discarded after 20 minutes and shall not be used.

Nonshrink grouts shall be placed or packed only with the use of an approved commercial concrete bonding agent applied to all cured concrete surfaces being grouted. The bonding agent shall be compatible with the brand of grout being used. Water as a substitute for commercial bonding agent for nonshrink grout will not be allowed in sanitary sewer construction.

302.03 Construction

302.03.01 General

A. Excavation and Backfill

Conform to applicable provisions in Section 204 (Excavation, Embankment, Bedding, and Backfill). Backfill around manholes shall be of the same quality as the trench backfill immediately adjacent. All excavation shall be unclassified. All mains, manholes, taps, laterals, and clean outs must be inspected by a District representative before burial. Any installations backfilled prior to inspection must be excavated for District inspection at the contractor's expense.

B. Base Rock

Place crushed aggregate base rock and thoroughly compact with a mechanical vibrating or power tamper.

C. Foundation Stabilization

If material in bottom of excavation is unsuitable for supporting manholes and other sewer appurtenances, excavate below subgrade as directed and backfill to required grade with rock conforming to Foundation Stabilization in Detail Drawing 304.

302.03.02 Manholes

All manholes, except as otherwise specified, shall be constructed using precast, reinforced concrete base sections, riser sections, and other precast appurtenances conforming to ASTM C478. Base riser sections shall be integral with the base slabs.

Preformed plastic gaskets shall be installed in strict accordance with the manufacturer's recommendation. Only pipe primer furnished by the gasket manufacturer will be approved. When using preformed plastic gaskets, manhole sections with chips or cracks in the joint surfaces shall not be used. Completed

manholes shall be rigid and all manholes for sanitary sewers shall pass the vacuum test. Construct manhole inverts in conformance with the standard drawings with smooth transitions to ensure an unobstructed flow through manhole. Cover exposed edges of pipe completely with grout. Trowel all grouted surfaces smooth.

The inside of all manholes will be grouted smooth with all spaces between risers, rings, and cones filled with grout flush with the inside of the manhole.

Holes for installing pipe into precast manhole sections shall be cast in place or core drilled.

Channels shall conform accurately to sewer grade. Channel shall be formed to accept a 7-inch x 30-inch cylinder into the pipes. Construct cast in place channel and shelf, in field, in 1 operation. Finish concrete shelf between channels with a brush.

302.03.03 Drop Assemblies

Construct drop assemblies at locations indicated and as shown on the standard drawings.

302.03.04 Pipe Stubouts and Manholes

Install stubouts from manholes at locations as shown or directed. Pipe connections to the cone section of a manhole are strictly prohibited.

302.03.05 Manhole Grade Rings

In general, manhole grade rings will be used on all manholes in streets or roads or other locations where a subsequent change in existing grade may take place. Extensions will be limited to a maximum height of 12 inches.

Install appropriate combination of grade rings to a height that will accommodate the finish manhole surface elevation as shown on the drawings. Lay grade rings in mortar with sides plumb and tops level. All mortared sanitary sewer manhole necks and all grade ring joints made with mortar shall be constructed using an approved commercial concrete bonding agent applied to all cured concrete surfaces being mortared. No joints, necks, frames, or grade rings on sanitary sewers shall be mortared without an approved bonding agent. Water as a substitute for commercial concrete bonding agent will not be approved. Grade ring extensions shall be watertight. ~~All mortared sanitary sewer manhole necks and all grade ring joints made with mortar shall be constructed using an approved commercial concrete bonding agent applied to all cured concrete surfaces being mortared. No joints, necks, frames, or grade rings on sanitary sewers shall be mortared without an approved bonding agent. Water as a substitute for commercial concrete bonding agent will not be approved.~~

302.03.06 Adjustment of Manholes and Cleanouts to Grade

The frame and cover will be adjusted to final grade after the first lift of AC has been placed and prior to the final lift. The void between the frame and the first lift of AC will be filled with Type B grout conforming to Section 205 (Materials—Types and Use). The manhole frame must be flush with the final grade of the roadway without the use of paving rings.

302.03.07 Vacuum Testing

Manholes shall be vacuum tested.

For manholes with poured bases constructed over existing main lines, the top of the existing main shall not be “cut out” until the manhole vacuum test has been witnessed and approved by an OLWSD inspector.

1. Each manhole may be tested immediately after assembly and prior to backfilling for Contractor information and ease of repair if necessary. Acceptance testing will be accomplished after backfilling and final paving is complete.
2. All lift holes shall be plugged with an approved nonshrink grout. Manhole frame to grade ring or cone connection shall use commercial concrete bonding agent and nonshrink grout.
3. All pipes entering the manhole shall be plugged, taking care to securely brace the plug from being drawn into the manhole.
4. The test head shall be placed at the inside of the top of the manhole frame and the seal inflated in accordance with the manufacturer’s recommendations. The seal at grade rings and frame shall be subject to the test.
5. A vacuum of 10 inches of mercury shall be drawn and the vacuum pump shut off. With valves closed, the time shall be measured for the vacuum to drop to 9 inches. The manhole shall pass if the time for the vacuum reading to drop from 10 inches of mercury to 9 inches of mercury meets or exceeds the values indicated below.

DEPTH OF MANHOLE (FEET)	ALLOWABLE TIME (SECONDS)		
	48-INCH	60-INCH	72-INCH
8	20	23	33
10	25	33	41
12	30	39	49
14	35	46	57
16	40	52	67
18	45	59	73
20	50	65	81
22	55	72	89
24	59	78	97
26	64	85	105
28	69	91	113
30	74	98	121

6. If the manhole fails the initial test, necessary repairs shall be made with an approved nonshrink, quick-setting grout. Retesting shall proceed until a satisfactory test is obtained.

302.03.08 Placing Precast Units

If material in bottom of trench is unsuitable for supporting unit, excavate as directed and backfill to required grade with foundation stabilization material in conformance with Section 204 (Excavation, Embankment, Bedding, and Backfill). Set units to grade at locations shown or directed.

302.03.09 Cleaning

Upon completion, clean each structure of all silt, debris, and foreign matter.

Oak Lodge Water Services District Design and Construction Standards
Division 3—Wastewater Construction

February 18, 2021 (Previous Revision: March 17, 2020)

March 17, 2020 (Previous Revision: Feb. 15, 2019)

303 WORK ON EXISTING SANITARY SEWERS

303.01 Description

This section covers the work necessary to join new work to existing, the abandoning of sanitary sewer lines, and adjusting existing utility structures to finished grades.

303.02 Materials

Conform to requirements of Section 205 (Materials—Types And Use) and to the requirements for related work referred to herein.

303.02.01 Inside Drops (Oregon Drops)

This type of connection will only be allowed with prior approval by the District Engineer and shall conform to the requirements of the standard drawing.

303.03 Construction

303.03.01 Excavation and Backfill

Conform to requirements of Section 204 (Excavation, Embankment, Bedding, and Backfill). All excavation shall be unclassified. All mains, manholes, taps, laterals, and clean outs must be inspected by a District representative before burial. Any installations backfilled prior to inspection must be excavated for District inspection at the Contractor's expense.

303.03.02 Manholes Over Existing Sewers

The Contractor shall be totally responsible for maintaining adequate capacity for flow at all times and adequately protecting new and existing work.

Construct manholes over existing operating sewer lines at locations shown. Perform necessary excavation and construct new manholes in conformance with applicable requirements of Section 302 (Manholes and Concrete Structures).

Construct manholes as shown on the detail drawings or standard drawings. Densify the concrete base by vibrating or working as approved and screed to provide a level, uniform bearing for precast sections.

Place the first precast section of manhole in concrete base before concrete has set and deposit sufficient mortar on the base to assure a watertight seal between the base and the manhole wall. First section shall be properly located and plumb. Stacking additional precast manhole sections shall be prohibited until the concrete has cured a sufficient amount to support the additional weight in moist conditions.

Prevent broken material or debris from entering sewer flow. Maintain flow through approved sewer lines at all times. Protect new concrete and mortar for a period of 7 days after placing. All sanitary sewer manholes shall be vacuum tested in accordance with Subsection 302.03.07 (Vacuum Testing).

303.03.03 Connection to Existing Main

Connections of laterals to existing sewer mains shall be made watertight. Transition couplings between dissimilar pipe materials shall be made using approved commercial adapters with stainless steel bands such as Fernco Strongbacks or equal.

New taps made to existing main lines shall be made by installation of an Inserta Tee or equal unless the tap diameter is within 2 inches of the main diameter (such as a ~~4-4~~-inch on ~~6-inch~~~~6-inch~~ tap or a ~~6-6~~-inch on ~~8-8~~-inch tap). In those cases, a section of main line must be cut out and a PVC tee fitting spliced into the main with Fernco Strongbacks or equivalent. The Contractor shall be totally responsible for maintaining adequate capacity for flow at all times and for containing all wastewater within the system at all times. A written plan for pump-around or containment of sewage must be approved by the District before work may begin. Special care must be taken to compact bedding material under the new tap to

provide proper support of the main. The Contractor must TV inspect the new tap section of main after backfilling and compaction is completed to confirm that the new Inserta Tee does not protrude into the main excessively or to confirm that the new tap section of the main is properly aligned with the existing main at both ends. This TV inspection is to take place with a District inspector present.

Taps shall be installed without protrusion into or damage to the existing sewer. No compromise of the sewer will be allowed, such as undermining and settlement of the sewer grade, debris in the sewer, or longitudinal or transverse cracking of the sewer pipe.

303.03.04 Removal of Existing Pipes, Manholes, and Appurtenances

Existing pipelines, manholes, and appurtenances which lie in the line of and are to be replaced by the new construction shall be removed from the site and disposed of as provided for in Section 203 (Clearing and Grubbing).

303.03.05 Filling Abandoned Manholes

Existing manholes shown to be abandoned shall be filled with granular material as specified in Section 204 (Excavation, Embankment, Bedding, and Backfill). Compact to at least 90% maximum density as determined by ASTM D1557. Remove manhole frame and cover and plug all pipes with permanent plugs as specified in Section 303.03.07 (Permanent Plugs). Break or perforate the bottom to prevent the entrapment of water.

303.03.06 Existing Manhole Frames and Covers

Manhole frames and covers removed by the Contractor which will not be reused on the project shall become the property of the District. Notify the District Engineer a minimum of 1 day prior to removal to arrange for picking up the removed frames and covers.

303.03.07 Permanent Plugs

Clean interior contact surfaces of all pipes to be cut off or abandoned. For pipe 12_-inches or smaller in diameter, install a gripper-type mechanical plug into the main and grout over it. For pipe 21_-inches and larger, the plugs may be constructed of common brick or concrete block. Plaster the exposed face of block or brick plugs with mortar. All plugs shall be watertight and capable of withstanding all internal and external pressures without leakage.

303.03.08 Adjusting Existing Structures to Grade

Existing manholes, and similar structures shall be brought to the specified finished grade by methods of construction, as required in Section 510 (Adjustment of Existing Structures to Grade).

303.03.09 Reconstruct Manhole Base

Conform to applicable requirements of Section 302 (Manholes and Concrete Structures). Exercise caution in chipping out existing concrete base so as to prevent cracking of manhole walls. Prevent all material from entering the sewer flow. Pour new base to a minimum of 6_-inches below the lowest projection of the pipe. Construct new channels to the elevations shown. Conform to details for channel construction in the standard drawings. Repair any cracks which occur as a result of work operations with new grout to form a watertight seal.

303.03.10 Manhole Required

If a connection is to be an 8-inch tap on the same size receiving line, then a manhole shall be required to make the connection.

303.03.11 Connection to Existing Manholes

All sanitary sewer pipe connections, including those at invert level and penetrations for drop connectors, conduits, and pass-throughs, shall conform to the requirements of applicable portions of Sections 301(Pipe and Fittings [Sanitary Sewer]) and 302 (Manholes and Concrete Structures).

END OF DIVISION

DIVISION 4—WATER CONSTRUCTION STANDARDS

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401 GENERAL

The following specifications, in conjunction with applicable requirements of other parts of the contract documents, the plans, and addenda, shall govern the character and quality of material, equipment and construction procedures for water work. All work done shall be in compliance with the requirements and restraints of OSHA, the State of Oregon Accident Prevention Division regulations and the Workers' Compensation Board. In addition, all work shall be completed in conformance with State of Oregon, Clackamas County, and/or City of Milwaukie and/or City of Gladstone street opening permits.

402 WATER WORKS MATERIALS

402.01 DUCTILE-IRON FITTINGS

All fittings shall conform to ANSI/AWWA Specification C110/A21.10 or ANSI/AWWA Specification C153/A21.53. All ductile-iron fittings shall be Class 350. Fittings shall be furnished with flanged or mechanical joints as specified on the plans. Fittings shall be ductile-iron fittings conforming to AWWA C110 and for compact C153. Fusion bonded epoxy fittings shall be U.S. pipe Permafuse or equal. Fittings shall be factory lined with cement mortar or cement lined to factory standards. No field coating with cement will be approved, other than for minor repairs. Fittings shall be new and free of defects in coating, body, and lining. During installation, fittings shall be properly aligned and bolted securely to provide watertight joints.

Fittings must be manufactured to conform to ANSI/AWWA standards.

402.02 MECHANICAL JOINTS

Mechanical joints, including accessory glands, gaskets, and bolts, shall conform to the requirements of ANSI/AWWA C111/A21.11, except where specifically modified in AWWA C153 for compact ductile-iron fittings. As stated in AWWA C111, Tbolts shall be made of either high strength cast iron containing a minimum of 0.50% copper, or high strength, low alloy, steel. Bolts shall be marked to identify material and producer. Contractor shall provide the District with the bolt manufacturer's specifications, which shall give the following information: manufacturer's name, type of material, and identifying mark. Follower glands for mechanical joints shall be domestic made only.

Mechanical joint gaskets shall be made of vulcanized synthetic rubber and shall be no more than 3 years old.

The recommended installation procedures in AWWA specification C111, Appendix A, "Notes on Installation of Mechanical Joints," including bolt torque ranges, shall be followed.

402.02.01 Megalug/RomaGrip Pipe Restraint

RomaGrip/Megalug glands shall be RomaGrip/Megalug brand, as manufactured by Romac/Ebaa Iron Sales, Inc., only¹. RomaGrip/Megalug shall be used on ductile-iron pipe and fittings.

402.03 FLANGED JOINTS

Flanges shall conform to ANSI specification B16.1 for Class 125 flanges and shall conform in all other respects to ANSI/AWWA C110/A21.11. Bolts for assembly of flanged joints shall be of the size and quantity shown in Table 10.14 on Page 34 of AWWA C110. As stated in AWWA C110, bolts shall conform to ANSI B18.2.1, Square and Hex Bolts and Screws Inch Series, Including Hex Cap Screws and Lag Screws. Nuts shall conform to ANSI B18.2.2, Square and Hex Nuts. Threads shall conform to ANSI

¹ or approved equal

B1.1, Standard for Unified Inch Screw Threads (UN and UNR Thread Form), Class 2A, external, and Class 2B, internal².

Bolts and nuts shall be of low-carbon steel conforming to the requirements of ASTM A307, Standard Specifications for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength, Grade B.

Contractor shall provide the District with the manufacturer's specifications regarding the bolts to be used on the project.

Flange gaskets shall be full face, 0.125-inch thick, red rubber or approved equal.

402.04 FLANGED PIPE OR SPOOLS

Flanged pipe or spools shall conform to the latest edition of ANSI/ANWA C115/A21.15. Flanges shall conform to requirements as specified in Subsection 402.04 (Flanged Joints). Pipe used shall be Class 53 DI. Pipe shall be furnished with coatings as specified in "Ductile-Iron Pipe". Threads on the flanges and pipe barrel shall be taper pipe threads (NPT) in accordance with ANSI B1.20.1.

When ordering, the following minimum information shall be provided to the manufacturer: Pipe size and finished length (flg. to flg., flg. to p.e.).

Manufacturer shall provide the following information: Length and weight shown on each pipe, flange manufacturer marking, country where cast, and DI or CI stamped on flanges. If fabricator is other than flange manufacturer, fabricator's mark shall be stamped with metal die on each flange after assembly. Also, manufacturer shall provide statement that the flange pipe complies with the specified standards.

402.05 DUCTILE-IRON PIPE

Ductile-iron pipe shall be Class 52. Physical properties shall not be less than 604210 iron and pipe shall conform to the latest revision of ANSI/AWWA specification C151/A21.51. Ductile-iron pipe shall be factory lined with cement mortar and bituminous seal coat and coated outside with asphaltic seal coat. Pushon rubber gasketed joints shall be installed using field-lok or approved equal locking gaskets. Pushon and mechanical pipe joints shall conform to ANSI/AWWA Specification C111/A21.11 and flanged joints shall conform to ANSI/AWWA C115/A21.15.

402.07 VALVES (GENERAL)

All valves shall be designed to AWWA specifications and shall have standard 2-inch square operating nut unless otherwise shown on the plans. All pipe valves and fittings shall be pressure rated at 250 to 350 PSI and shall open counter clockwise. All fittings shall be factory cement lined and coated.

402.07.01 Gate Valves

2-inch gate valves shall be resilient wedge double disc, non-rising stem with "O" ring packing, complying with AWWA Class C specifications. Gate valves 4-inch through 10-inch shall be resilient wedge, non-rising stem with "O" ring packing, complying with AWWA Class C specifications. The valves shall be designed to withstand water working pressures of 150 PSI or more. All valves shall be furnished with a 2-inch square operating nut and shall open counter-clockwise when viewing valve from above.

Operation of the valve shall permit full withdrawal of the disc from the waterway to provide a clear unrestricted passage when the valve is in the open position. The valve shall be furnished with mechanical joint ends unless otherwise specified. Where flanges are furnished on valves, they shall conform to ANSI Specification B16.1, Class 125.

Valves located within vaults must have both hand wheel and rising stems.

² or approved equal

402.07.02 Butterfly Valves

All butterfly valves shall be rubberseat type and bubbletight at 250 PSI pressure with flow in either direction. They shall be designed for direct burial and be satisfactory for application involving valve operation after long periods of inactivity. Valves shall conform to AWWA specification C504. All valves shall be Mueller or approved equal. Operating nut for the valve shall be located on the side of the main shown on the plans.

402.08 FIRE HYDRANT ASSEMBLY

Fire hydrants shall conform to AWWA specification C502. The hydrants shall have a 5.25-inch minimum valve opening with a 6-inch mechanical joint inlet, a 6-inch mechanical joint by flanged resilient wedge auxiliary gate valve, two 2.5-inch hose nozzles, one 4.5-inch pumper nozzle, a 1.5-inch pentagon operating nut (opening counter clockwise), and a safety flange. The hydrant color shall be yellow (~~Miller Safety Yellow OE 40~~); (Rust-oleum V7400 alkyd enamel, fire hydrant yellow³). The fire hydrant depth of bury shall be arranged to match the grade of the surrounding ground. See standard drawing no. 411 for additional requirements.

Fire hydrants shall be Mueller Centurion A-423, M&H 929 Reliant, or Clow Medallion F-2545⁴. No other manufacturer will be accepted by the District.

402.09 CAST-IRON VALVE BOXES

Valve boxes shall be manufactured using domestic cast iron only. Valve boxes shall be the cast iron "Vancouver" pattern (~~10" or~~ 18-inch tall casting) with standard lid – commonly known as a "9-10 can". Valve riser pipe from the valve to the cast-iron top shall be 6-inch PVC sewer pipe ~~or approved equal for the Vancouver box. A self-centering valve cover shall be compatible with 6-inch valve riser pipe, VC212 or approved equal.~~ See standard drawing no. ~~340~~410.

Valve box castings shall be smooth and uniform. Box lid shall not protrude above the rim and lids shall seat flat without rocking. Lid will be stamped with a W. Boxes of uneven thickness, pitted, or otherwise flawed in the casting will be rejected. PVC sewer pipe shall be cut off smooth with no sharp edges.

402.12 2-INCH SERVICE SADDLES

Generally, 2-inch water services shall be connected with a 2-inch resilient wedge iron-bodied gate valve with a standard 2-inch square operating nut at the main. The gate valve will have female iron pipe thread connections. Service saddles may be approved by the District Engineer. Where approved, service saddles shall be 2-inch female iron pipe threads, double strap, stainless steel. Body of saddle shall be ductile iron coated with nylon, and straps, bolts, washers, and nuts shall be stainless steel. The ~~short~~ close brass nipple between the saddle and the gate valve will be designated "lead-free", containing no more than 0.25% lead by a weighted average when used with respect to the wetted surfaces of pipe, fittings, and fixtures.

402.13 COPPER PIPE

3/4-inch and 1-inch Service lines shall be soft temper, copper water tube Type K, meeting ASTM B88⁵ specifications. 2-inch service lines shall be rigid copper water tube Type K, meeting ASTM B88⁶ specifications. Type L tubing will not be accepted.

³ or approved equal

⁴ or approved equal

⁵ or approved equal

⁶ or approved equal

402.14 BRASS FITTINGS

All brass components shall be designated “lead-free”, containing no more than 0.25% lead by a weighted average when used with respect to the wetted surfaces of pipe, fittings, and fixtures.

402.15 CORPORATION STOPS

Corporation stops shall be used for 3/4-inch and 1-inch taps only~~—~~. They shall be full-port ball style valves and tap directly into the main line with iron pipe threads.

402.16 METER STOPS

The District meter stops shall be full-port angle ball valves, with padlock wings (meets ANSI/AWWA C800 Standard). The customer meter stops shall be full-port angle valves (either ball or ground key type valves are acceptable, and padlock wings are not required). For 3/4-inch service, a -Ford BA43-332WQ or Mueller B-24258N is required⁷. For a 1-inch service, a Ford BA43-444WQ or Mueller B-24258N is required⁸. Either of these may be substituted if prior approval is provided from OLWSD.

402.17 CUSTOMER SIDE PLUMBING

Customer side plumbing within the meter box must be copper or PEX. PVC will not be accepted. The customer-side meter stop must be positioned with the valve nut straight up to allow for proper operation.

402.19 WATERLINE MATERIALS AT LIGHT RAIL CROSSINGS

New and reconstructed light rail and freight rail construction may require improvements to the water system at all utility crossing locations. Each utility crossing area is to be minimized. All existing water pipes or pipes within the rail zones shall be replaced to current standards and encased. Metallic or conductive pipe materials are not approved pipe materials at rail crossings. Pipes are to be centered under rail tracks to avoid joints underneath rail lines. All accessible structures must be located a minimum of 15' from the gate arms outside of the rail crossings.

403 CONSTRUCTION

403.01 STORAGE OF EQUIPMENT AND MATERIALS

Unless otherwise noted on the plans or in the special provisions, it shall be the responsibility of the Contractor to locate a storage site for all equipment and materials and gain approval from the District Engineer.

Prior approval shall be obtained from the governing agency for any storage of equipment or materials within the right of way (i.e., stringing of pipe).

~~401.011 INSPECTION~~ 401.011 INSPECTION

All mains, services, valve, fittings, hydrants, and other appurtenances must be inspected by a District representative before burial. Any installations backfilled prior to inspection must be excavated for District inspection at the Contractor's expense.

⁷ or approved equal

⁸ or approved equal

403.02 PLACING PIPE AND FITTINGS

The pipe shall be laid true to line, without objectionable breaks in grade and shall be firmly bedded for the entire length of the pipe.

All pipe shall be bedded and covered with 0.75-inch minus crushed aggregate to a depth of 6-inches on all sides.

Where conflicts arise between the designed grade of the waterline and an existing underground structure, the depth of the trench may be increased to permit proper installation of the waterline. Payment for over excavation shall begin once the extra depth reaches 18-inch below the designed grade.

Care shall be taken to clean joints and to keep them free of water during construction. Whenever water is excluded from the interior of the pipe, adequate backfill shall be deposited on the pipe to prevent floating. In the event of any flotation occurring, the pipe so affected shall be removed from the trench, replaced and relaid at the Contractor's expense.

Each section of the pipe and each fitting shall be thoroughly cleaned before it is lowered into the trench. Cleaning of each pipe or fitting shall be accomplished by swabbing out, brushing out, blowing out with compressed air, washing to remove all foreign matter. The most efficient method of cleaning out pipe and fittings will be determined on the job by the District Engineer.

If clean pipe sections and fittings cannot be placed in the trench without getting dirt into the open ends, the District Engineer will require that a piece of tightly woven canvas be tied over the ends of the pipe or fitting until it has been lowered into position in the trench. After the pipe or fitting has been lowered into the trench, all foreign matter shall be completely brushed from the bell and spigot ends before assembly. At the end of each day, or during suspension of the work, the pipe ends shall be securely closed by means of a secure plug or approved equivalent. Water in the trench shall not be allowed to enter the pipe and fittings.

If it is necessary to cut the pipe to lay it on curves or to cause a change in direction, the Contractor shall cut the pipe as required for proper installation. Where the cut length of pipe is to be installed into the bell end of another pipe, the cut end shall be beveled to ensure a proper seal. To set valves and fittings properly, the pipe shall be cut to the exact length required to obtain the designated locations. The cost of cutting the pipe shall be included in the unit prices bid.

Dead end lines, where a standard 2-~~or 4~~-inch blow-off assembly is not required by the plans, shall be provided with a ¾-inch corporation stop 18 inches from the plugged end of the pipe. This will allow for air removal and release of line pressure during future waterline extension. No extra payment shall be made for this installation.

403.03 WET TAPPING EXISTING MAIN

When specified, wet taps on existing water main are required to minimize interruption of service to customers. District personnel will install 3/4-inch and 1-inch corporation stops and 2-inch gate valves on live mains. District approved contractors will install 4-inch and larger taps on live mains. Tapping sleeve and valve for 4-inch and larger taps shall conform to standard drawing no. 408.

Before attaching tapping sleeve, care shall be taken to clean water main of all debris and defects. Attach sleeve and valve to the main. Then attach proper tapping machine to valve. Pressure test this assembly before making tap. After making tap, remove the tapping machine and inspect fitting and valve for leaks. If any such leaks are found, Contractor shall be required to repair the defect. Attach branch main to valve and install pipe. New connections 4-inch and larger shall be securely thrust blocked using a poured block sized according to the system pressure and the size of the main or service installed. -Taps shall be made no closer than 18-inch from end of sleeve to nearest joint.

Excavation for tap shall be such as to fully expose main with a minimum depth below main of 12 inches. A minimum of 18-inch of main shall be exposed from the end of the tapping sleeve. Also, excavate

enough area to accommodate tapping machine and workers. Backfilling shall be in accordance with OLWSD backfill standards.

403.04 POLYETHYLENE ENCASUREMENT OF PIPE AND FITTINGS

When specified, install polyethylene encasement, tube type, on all pipe and appurtenances. Polyethylene film shall conform to ASTM standard specification D124878, having a minimum thickness of 0.008-inch (8 mil). Install this encasement in accordance with AWWA C105, Method A, 1 length of polyethylene tube for each length of pipe. When required, polyethylene tubing used on mains shall be held in place with 2 inch-wide adhesive tape which is compatible with polyethylene, with plastic binder twine, with nylon tie straps, or other method approved by the District Engineer.

The use of polyethylene sheets will not be allowed on pipe segments, only fittings. Sand backfill shall be placed within the pipe zone and bedding area wherever polyethylene encasement is used.

Polyethylene sheets may be used to cover valves, fittings, and all mechanical joints and flanged connections. Valves shall be wrapped up to the bottom of the operating nut. Three layers of polyethylene shall be wrapped snugly around the pipe and held in place by using an adhesive tape compatible with polyethylene, plastic binder twine, or nylon tie straps. Backfill material shall not be allowed to get under the polyethylene, and pockets in the polyethylene which can trap backfill material shall be eliminated.

403.05 PLACING VALVE UNITS

A valve unit shall consist of a valve, bolts, gaskets, followers, ~~self-centering valve cover~~, PVC riser pipe, and cast-iron valve box, complete with cover.

Valves shall be placed in a vertical position at locations shown on the plans. The Contractor shall check each valve to determine that the valve is properly adjusted to seat securely and open fully. Valves not meeting these requirements shall not be installed. Valve boxes and PVC riser pipe shall be placed in a vertical position over the valve operating nut and the backfill shall be carefully compacted around the box. Any valve boxes found off center from the valve operating nut shall be removed and replaced into the proper position. The top of the valve box shall be adjusted to meet finish grade. PVC riser pipe shall extend up ~~outside~~ inside the valve box 7 inches on the Vancouver box to allow future raising of the box. Notches shall be cut into the rim of the valve box on a line passing through the center of the box as detailed on standard drawing no. 313. Valve boxes shall be placed so that the notches line up parallel with the water main below. A collar of concrete with a depth of 4-inch, 24-inch x 24-inch square, shall be placed around the top of all valve boxes not in a paved area.

The Contractor shall not operate any valve touching potable water.

403.06 PLACING FIRE HYDRANT ASSEMBLIES

The fire hydrant assembly shall consist of a mechanical joint hydrant, mechanical joint by flange auxiliary gate valve, cast-iron valve box, galvanized bolts, gaskets.

The fire hydrant shall be placed in a vertical position on a precast concrete block having a bearing surface of not less than 1 square foot. Hydrant drain holes shall not be blocked. Not less than 4 cubic feet of clean drain rock shall be placed around the base of the hydrant for drainage. The drain rock envelope must extend to 6-inch above the drain holes and must be fully wrapped in geotextile. See standard drawing no. 411 for other requirements. Fire hydrant extension kits may be installed with approval by the District Engineer. Where approved, fire hydrant extension kits may only be installed by District water crews. In no instance will more than one fire hydrant extension kit per hydrant be installed.

403.07 COPPER SERVICE INSTALLATION

Where indicated on the drawings or as determined in the field, the Contractor will be required to install copper water services. This will require District personnel or an approved contractor to install live taps (see 403.03) as necessary. The Contractor will install the copper service pipe and District meter stop and meter box.

All new copper pipe and service fittings shall be kept clean and free of debris. Where new services are installed, new meter boxes shall be set with the top of the box at finish grade. Meter boxes shall be located as follows, in order of preference:

1. Within the planter strip, excluding water quality facilities – with the District Meter Stop located 18- inches behind the face of curb.
2. Behind the sidewalk in an approved area (either in the road right of way, a Public Utility Easement, or an OLWSD easement) - with the District Meter Stop located 12-inch behind the back of sidewalk
3. In the sidewalk – with the District Meter Stop located 18-inch behind the face of curb (or 12-inch behind the front of the sidewalk)
4. If there is no curb: 3/4-inch and 1-inch District Meter Stops are to be located 40-inch outside of the property line, and 2-inch District Meter Stops are to be located 50-inch outside of the property line
5. Depth: District Meter Stops shall be installed with the top of the stop 7 to 9-inches below final grade

In addition:

1. The meter box must be located in front of the property served and a minimum of 18-inches away from a property corner.
2. The meter box shall not be located in a driveway or other areas where vehicle tires might pass over it (when suitable locations exist outside trafficked areas). The meter box must not be located in driveway approach wings.
3. The contractor is responsible for the proper placement of the District meter stop in relation to the curb, sidewalk, or property line. If the District determines that the meter stop location or depth are not acceptable, the contractor must relocate the meter stop at no expense to the District. Extending the service line by use of a union or shortening the service line by bending it to use up excess length is not acceptable.

The meter box and cover required for a 3/4" meter shall be a DFW 11"X18"X12" gray "wide body" meter box part number DFW486WBC4-12-BODY; and a DFW 11"X18" gray solid meter box cover w/ magnet w/ ss pick hole pin part number DFW486C-4MP-LID.⁹

The Meter box and cover required for a 1" meter shall be a DFW 13"X24"X12" gray meter box part number DFW1324C4-12-BODY and a DFW 13"x24" gray solid meter box cover w/magnet w/ss pick hole pin part number DFW1324C-4MP-LID.¹⁰

~~The top of the District meter stop must be installed 7 inches to 9 inches below finished grade.~~

⁹ or approved equal

¹⁰ or approved equal

All copper service pipe shall be bedded and covered with 0.75-inch minus crushed aggregate to a depth of 6 inches on all sides. If the service is located in a road right-of-way, all of the backfill will consist of 0.75-inch minus crushed aggregate.

Service lines shall be located in a direct line between the meter and a point on the main directly opposite the meter. Service lines shall have a minimum cover of 30 inches except where crossing road ditches where the cover may be reduced to 24 inches at said road ditch. The service line must be centered in the trench.

Where existing copper service is to be transferred to new main, and the existing main is to remain live, Contractor shall disconnect corporation stop from old main and install a lead-free brass plug. Contractor shall provide excavation down to old corporation stop, select backfill and compaction. Excavation and backfill shall be considered incidental to the project. Contractor shall perform surface restoration according to the bid item for that work.

All new services crossing existing metal gas lines shall have PVC sleeves as discussed on standard drawings no. 420.

Corporation stops shall be set at a 45 degree angle up from horizontal. Taps shall be a minimum distance of 18 inches from the bell or spigot end of the main, or from another service tap, or from any fitting.

Where a new section of copper service is to be installed, it shall be Type K, seamless soft annealed copper pipe conforming to ASTM B88. There shall be no splicing of copper unless the service is longer than ~~60~~ 100 feet or as approved by the District Engineer (unique conditions). When splicing is approved between 2 pieces of copper, it shall be done with a 3 piece copper to copper union. No more than 1 splice per service shall be made and splicing shall be made outside of the existing or proposed travel lane. Existing galvanized service lines encountered by the Contractor shall be replaced with copper service pipe up to and through the angle meter stop.

Where 2-inch services are to be installed, the main shall be tapped thru a 2-inch service saddle and a 2-inch resilient wedge iron-bodied gate valve, have 2-inch type K rigid copper tubing and utilize a 2-inch full-port ball type angle meter stop with locking wings.

403.08 PLACING PERMANENT BLOW-OFF ASSEMBLIES

A standard blow-off assembly shall consist of a main size x MJ cap tap , 2-inch x 1' brass nipple, 2-inch resilient wedge gate valve, 2-inch x ~~18~~30-inch galvanized nipple, 2-inch galvanized 90° bend, 2-inch galvanized piping, 2 valve boxes, galvanized coupling and brass or PVC plug. The blow-off assembly shall be placed as shown in standard drawing no. 413.

403.10 REMOVING EXISTING WATER WORKS MATERIALS

When the Contractor removes existing pipe, gate valve units, fittings, fire hydrant units or other items to allow installation of the work specified herein, the Contractor shall haul the removed water works material away. Title to the removed materials shall transfer to the Contractor, except when otherwise specified.

The District reserves the right to designate other water works materials to be removed. The Contractor shall remove the designated water works materials and haul them to the District's designated storage yard.

403.11 ABANDONING EXISTING MAINS AND VALVES

Any existing water lines that are abandoned shall be severed and plugged as directed by the District Engineer. All abandoned valve boxes shall be removed, gravel filled, compacted, and asphalt plugged at no additional cost.

403.111 ABANDONING EXISTING SERVICES

3/4-inch and 1-inch services that are abandoned shall have the corp stop left in place and the copper service line severed within 2-inch of the corp stop.

1.5-inch and 2-inch services that are abandoned shall have the corp stop removed from the service saddle and the saddle plugged with a brass plug designated as 'lead-free", containing no more than .25% lead by a weighted average when used with respect to the wetted surfaces of pipe, fittings, and fixtures.

3-inch and larger services that are abandoned shall have the tee removed from the main line and the main then repaired with a section of solid pipe and MJ sleeves.

Abandoned meters and meter boxes are to be removed and returned to the District.

403.12 MAINTAINING SERVICE

The Contractor shall schedule construction work specified herein to maintain a continuous water service to existing water users. Where it is necessary to shut down service to make required interties, the Contractor shall notify the District at least five working days prior to a planned water service shut down to allow the District to notify users of the impending loss of water service. Contractor may be required to make necessary service shutdowns of affected businesses after regular business hours at no additional cost to the District.

403.13 FLUSHING

The new pipeline shall be flushed, pressure tested, and disinfected before any connection to the existing water system is made. Temporary blow-offs and chlorination points shall be provided by Contractor at all dead ends and points of connection to the existing system. The new waterline shall be built as close as possible, as determined by the District Engineer, to the existing water system at points where connections are to be made.

All pipe, valves and fittings shall be thoroughly flushed prior to pressure testing and chlorination. Flushing shall be done through blow-off units, hydrants, individual services, and main at a minimum velocity of 2.5 F/S. All water used during flushing operations shall be measured through a Pitot Blade and stop watch. All results shall be reported to the District Engineer on a daily basis.

Prior to any flushing procedures taking place, the Contractor shall issue a flushing plan providing direction of flow, water damage control and a written schedule to the District Engineer for approval. A 48 hour notice shall be given to the District Engineer prior to any system shutdown or flushing procedures. Under no circumstance shall the Contractor operate any District valves without prior approval by the District Engineer.

The following chart shows minimum temporary blow-off/inlet sizes which shall be provided by the Contractor. Gate valves shall be provided on blow-off and inlet pipes to pressure test against, and to keep the pipe interior clean when backflow device is removed.

REQUIRED OPENINGS TO FLUSH PIPELINES		
NOMINAL PIPE SIZE (INCHES)	FLOW REQUIRED TO PRODUCE 2.5 FPS VELODISTRICT(GPM)	MINIMUM INLET & OUTLET PIPE SIZE REQUIRED (INCHES)
4	110	2
6	240	2
8	430	4
10	660	4
12	950	4
14	1290	6
16	1690	6
18	2140	6
20	2640	6
24	3800	6

All flushing and testing water shall be delivered to the new waterline through Oregon State Health Division approved double check valve backflow prevention devices.

The Contractor shall provide or obtain a backflow prevention device. Certified backflow tester shall test device and furnish documentation to District Construction Inspector after device is installed on site.

After flushing, the new system shall be pressure tested and disinfected. Payment for this item shall be included in the price bid for pipeline installation work.

403.14 TESTING AND CHLORINATION

All of the pipe, fittings, services, and individual valves, except the last connection with the existing main, after being placed, must be pressure tested, conforming to AWWA C600 Section 4 specifications. If the Contractor elects to test the line in sections, the lengths of the sections and provisions for testing shall be subject to approval by the District Engineer.

Before testing the pipeline for leakage, the pipeline shall be thrust blocked. The interior of the pipeline shall be thoroughly cleaned to remove all foreign matter.

The Contractor shall furnish necessary thrust blocks, pumps, medium range pressure gauges, means of measuring water loss, and all other equipment, materials and labor required for making the tests.

All air vents shall be open during the filling of the pipeline with water. After a test section is completely filled, it shall be allowed to stand under slight pressure for at least 24 hours to allow the lining to absorb what water it will and to allow the escape of air from any small air pockets. During this period, the bulkheads, valves and exposed connections shall be examined for leaks. If any are found, they shall be stopped. The pressure shall then be raised slowly to the minimum hydrostatic pressure of 180 pounds per square inch, or 1.5 times the normal working pressure, whichever is higher, measured at the point of highest elevation and shall be maintained for a period of at least 1 hour, beginning at a time of day to be mutually agreed upon between the Contractor and the District Engineer.

Test pressure shall not exceed 150% of pipe pressure rating.

No leakage is acceptable. While the pipe is under pressure and stabilized, an inspection for leaks along the pipeline shall be made by the Contractor. The gauges should be graduated at 2 PSI increments. Any

leaks found shall be recorded and shall be repaired by the Contractor. All such repairs shall be made subject to the approval of the District Engineer.

The Contractor, at their own expense, shall perform any excavation required to locate and repair leaks or other defects which may develop under the test. He shall remove backfill and paving already placed, shall replace such removed material, and shall make all repairs necessary to secure the required water tightness. All repairs and retests shall be made at the Contractor's sole expense.

All leakage tests shall be made in the presence of the District Engineer or District Inspector.

The pipeline shall be thoroughly chlorinated and flushed in accordance with the Oregon State Health Division's publication, "Public Water Systems", ORS Chapter 333. The Contractor shall employ the use of storage tanks, basins, or other means to transport or treat the chlorinated water for discharge to an approved point of disposal. Adequate quantities of chlorine in a water solution shall be added to the pipeline and shall be allowed to stand a sufficient length of time to sterilize the interior of the pipeline. The chlorinated water shall be flushed from the pipeline and a water sample shall be taken from the pipeline. The water sample shall be tested biologically and an acceptable certification that the water is safe for domestic water consumption shall be obtained before placing the pipeline into service. If the water is not safe, the Contractor shall chlorinate and flush the line and take new samples until an acceptable safe water certification is obtained.

Chlorine may be applied by the following methods: Liquid chlorine gas/water mixture, direct chlorine gas feed, or calcium hypochlorite and water mixture. The chlorination agent shall be applied at the beginning of the section adjacent to the feeder connection and shall be injected through a corporation cock, hydrant, or other connection ensuring treatment of the entire line. Water shall be fed slowly into new line with chlorine applied in amounts to produce a dosage greater than 50 ppm but not more than 200 ppm throughout the system. After 24 hours, a residual of not less than 25 ppm shall be produced in all parts of the line. If the check measurement taken after the 24-hour period indicates a free chlorine residual of less than 25 ppm, the system shall be flushed, rechlorinated, and rechecked until a final residual of 25 ppm or more is achieved and at no additional expense to the District.

During the chlorination process, all valves and accessories shall be operated. All parts of the line and services shall be chlorinated. After chlorination, the water shall be flushed from the line at its extremities until the replacement water tests are equal chemically and bacteriologically to those of the permanent source of supply. A minimum of 24 hours after dechlorination, the District shall take two consecutive sets of samples, taken at least 24 hours apart. At least one set of samples shall be collected from every 1,200 feet of the new water main, plus one set from the end of the line, and one set from each branch. Water samples will be taken for bacteriological tests by the District.

The Contractor shall furnish and place all necessary fittings required for the testing, chlorinating and flushing of the pipeline. If a corporation stop is removed, the hole shall be filled with a lead-free brass plug.

Water used in testing and flushing the pipeline shall be purchased from the District.

403.15 CUT-IN AND CONNECTION TO EXISTING MAINS

After new waterline is flushed, pressure tested and disinfected, but prior to any cut-in and connects, Contractor shall hold an onsite pre-connection meeting. Those to attend shall include onsite foreman, District Inspector, District Operations Personnel, and District Engineer.

This meeting shall take place prior to each connection and no longer than 1 week prior to the connection. At this meeting, Contractor shall have all fittings, pipe, chlorine swabbing equipment, pumps and hoses, and all equipment needed to make the cut-in connect. Cut-in schedule and shutdown coordination shall be discussed.

Once the bacteria test has been passed, cut-ins and connections to the existing water system shall be made by the Contractor. All fittings necessary for the cut-in and pumps adequate to handle water in the

trench shall be on hand and ready for service before connection is commenced. If the new waterline is opened to the air before Contractor and District personnel are ready to proceed with the connection, or if new waterline is contaminated by dirt or dirty water, the new waterline shall be disinfected again.

Fittings and pipe for cut-ins shall be swabbed out thoroughly with a 1% chlorine solution (½ pound of 64% calcium hypochlorite in 4 gallons of water). Swabbing equipment and solution shall be kept clean and fresh.

During each connection, work shall proceed without breaks until the connection is completed and water service is turned back on. Ground water shall not be allowed around any of the existing piping during the connection.

After the connection is completed and water service is turned back on, a visual leak inspection of all fittings shall be done by the Inspector prior to backfilling.

403.16 CLAY DAMS

Where indicated on the plans, or as directed by the District Engineer, the Contractor shall place clay dams to prevent ground water movement along the trench. Dams shall be made of impervious backfill material composed of particles at least 50% of which pass a no. 200 sieve, and with a plasticity index not less than 20, unless otherwise indicated on the plans.

A dam shall fill the trench completely from side to side and top to bottom, except for the volume occupied by the pipeline and any materials required for surface restoration. Pipe in contact with clay dam will be wrapped with 2 layers of 8-mil polyethylene.

Flow shall be considered in design of water and storm drain system.

END OF DIVISION

NOTES:

1. WHENEVER RAINFALL AND RUNOFF OCCUR, A KNOWLEDGEABLE AND EXPERIENCED PERSON IN THE PRINCIPLES, PRACTICES, INSTALLATION, AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS MUST PROVIDE DAILY INSPECTIONS OF BOTH THE CONTROLS AND PLACES WHERE WATER FLOWS OUT OF THE SITE. THIS PERSON SHALL WORKS FOR THE PERMITTEE.
2. CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND CREATION OF BARE GROUND DURING THE WET WEATHER PERIOD, BETWEEN OCTOBER 1 AND MAY 31. ALL EXPOSED SOILS MUST BE COVERED AT END OF BUSINESS DAY DURING THE WET WEATHER PERIOD.
3. DURING THE WET WEATHER PERIOD, TEMPORARY STABILIZATION OF THE SITE MUST OCCUR AT THE END OF EACH WORKDAY.
4. SEDIMENT CONTROLS MUST BE INSTALLED AND MAINTAINED ON ALL DOWNHILL SIDES OF THE CONSTRUCTION SITE AT ALL TIMES DURING CONSTRUCTION. THEY MUST REMAIN IN PLACE UNTIL PERMANENT VEGETATION OR OTHER PERMANENT COVERING OF EXPOSED SOIL IS ESTABLISHED.
5. ALL INLETS MUST HAVE SEDIMENT CONTROLS INSTALLED AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
6. SIGNIFICANT AMOUNTS OF SEDIMENT THAT LEAVES THE SITE MUST BE CLEANED UP WITHIN 24 HOURS AND EITHER PLACED BACK ON THE SITE AND STABILIZED OR DISPOSED OF PROPERLY. THE CAUSE OF THE SEDIMENT RELEASE MUST BE FOUND AND PREVENTED FROM CAUSING A RECURRENCE OF EROSION DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN UP OF SEDIMENT SHALL BE PREFORMED ACCORDING TO THE OREGON DEPARTMENT OF STATE LANDS REQUIRED TIME FRAME.
7. SEDIMENT MUST NOT BE INTENTIONALLY WASHED INTO STORM SEWERS, DRAINAGE WAYS, OR WATER BODIES.
8. SEDIMENT MUST BE REMOVED FROM BEHIND ALL SEDIMENT CONTROL MEASURES WHEN IT HAS REACHED A HEIGHT OF ONE THIRD THE BARRIER HEIGHT AND PRIOR TO THE CONTROL MEASURE'S REMOVAL.
9. ALL STRUCTURES WITH SUMPS MUST BE CLEANED WHEN THE SEDIMENT RETENTION CAPACITY HAS REACHED 50% AND ALSO AT COMPLETION OF THE PROJECT.
10. ANY USE OF TOXIC OR OTHER HAZARDOUS MATERIALS MUST INCLUDE PROPER STORAGE, APPLICATION, AND DISPOSAL.
11. THE PERMITTEE MUST PROPERLY MANAGE HAZARDOUS WASTES, OILS, CONTAMINATED SOILS, CONCRETE WASTE, SANITARY WASTE, LIQUID WASTE, AND OTHER TOXIC SUBSTANCES DISCOVERED OR GENERATED DURING CONSTRUCTION.
12. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS. NUTRIENT RELEASES FROM FERTILIZERS TO SURFACE WATERS MUST BE MINIMIZED. TIME RELEASE FERTILIZERS SHOULD BE USED AND CARE SHOULD BE MADE IN APPLICATION OF FERTILIZERS WITHIN THE RIPERIAN ZONE OF ANY WATERWAY.
13. OWNER OR DESIGNATED PERSON SHALL BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH CURRENT DISTRICT STANDARDS AND COUNTY, STATE, AND FEDERAL REGULATIONS.
14. PRIOR TO ANY LAND DISTURBING ACTIVITIES, THE BOUNDARIES OF THE CLEARING LIMITS, VEGETATED BUFFERS, AND ANY SENSITIVE AREAS SHOWN ON THIS PLAN SHALL BE CLEARLY DELINEATED IN THE FIELD. UNLESS OTHERWISE APPROVED, NO DISTURBANCE IS PERMITTED BEYOND THE CLEARING LIMITS. THE OWNER/PERMITTEE MUST MAINTAIN THE DELINEATION FOR THE DURATION OF THE PROJECT. NOTE: VEGETATED CORRIDORS MUST BE DELINEATED WITH ORANGE CONSTRUCTION FENCE OR APPROVED EQUAL.
15. PRIOR TO ANY LAND DISTURBING ACTIVITIES, THE MINIMUM CONTROL MEASURES THAT MUST BE INSTALLED ARE GRAVEL CONSTRUCTION ENTRANCE, PERIMETER SEDIMENT CONTROL, AND INLET PROTECTION WHERE INLETS ARE PRESENT. AS SOON AS LAND DISTURBING ACTIVITIES START, SOIL PILES MUST BE PROPERLY COVERED. ALL THESE MEASURES MUST BE MAINTAINED FOR THE DURATION OF THE PROJECT.
16. IF VEGETATIVE SEED MIXES ARE SPECIFIED, SEEDING MUST TAKE PLACE BEFORE SEPTEMBER 1.
17. WATERTIGHT TRUCKS MUST BE USED TO TRANSPORT SATURATED SOILS FROM THE CONSTRUCTION SITE. AN APPROVED EQUIVALENT IS TO DRAIN THE SOIL ON SITE AT A DESIGNATED LOCATION USING APPROPRIATE BMPS; SOIL MUST BE DRAINED SUFFICIENTLY FOR MINIMAL SPILLAGE.
18. ALL PUMPING OF SEDIMENT CONTROL BMP (SUCH AS) AND THROUGH A SEDIMENT
19. THE EROSION AND SEDIMENT TO ENSURE THAT SEDIMENT MUST BE INSTALLED PROPERLY
20. WRITTEN EROSION AND SEDIMENT UPON REQUEST. LE TO DISTRICT INSPECTORS
21. THE EROSION AND SEDIMENT CONDITIONS. DURING THE REGULATIONS. S FOR ANTICIPATED SITE
22. IN AREAS SUBJECT TO WIND SPRAYING, PLASTIC SHEET MAINTAIN COMPLIANCE WITH ALL

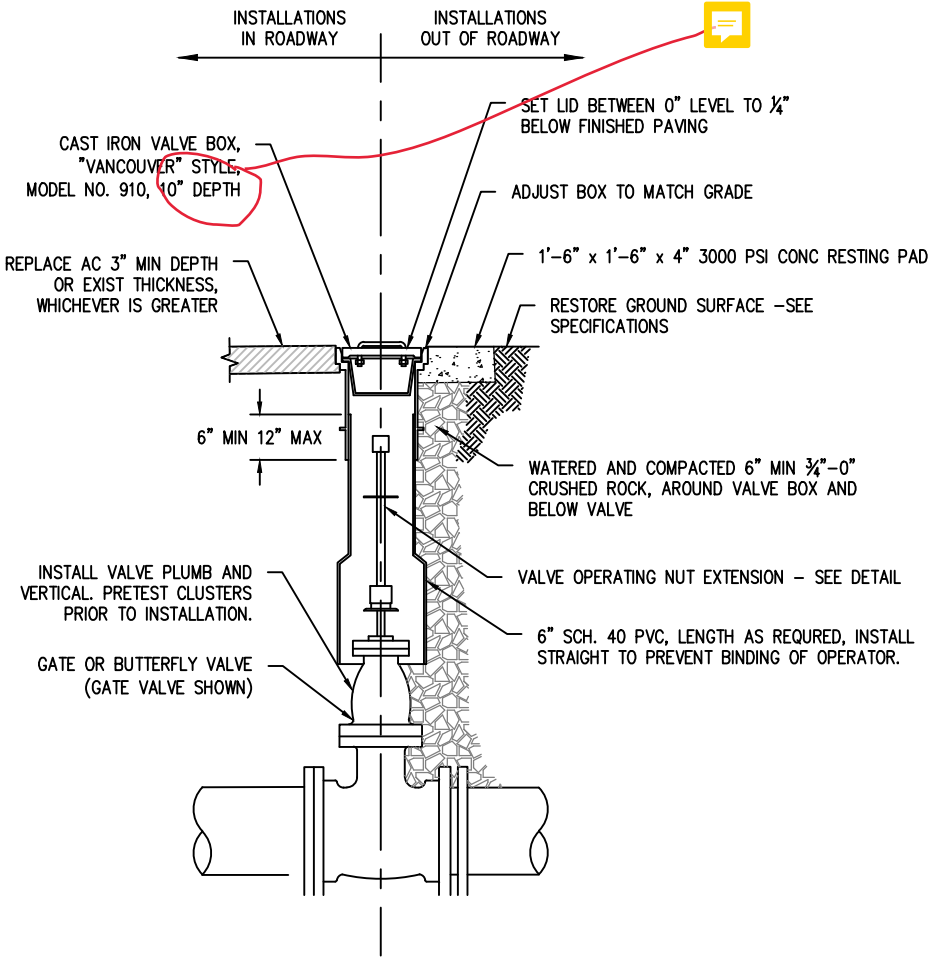
#23. INSTALL A NOTIFICATION STATION WITH A 4-INCH X 4-INCH POST, MINIMUM HEIGHT 36-INCHES, WITH A "COMMERCIAL DocBox" (<https://www.docbox.com/products/commercial-doc-box>) ATTACHED NEAR THE TOP. THIS SHOULD BE INSTALLED AT THE FRONTAGE PROPERTY LINE FACING THE FRONT LOT LINE. EQUIVALENTS ARE PERMITTED WITH PRIOR APPROVAL.

THE DOCBOX SHALL CONTAIN THE DISTRICT'S APPROVED PERMIT DOCUMENTS INCLUDING PLANS AND SUPPORTING DOCUMENTS, A 24-HOUR EMERGENCY CONTACT WITH MOBILE PHONE, NAME, TITLE AND EMAIL ADDRESS.

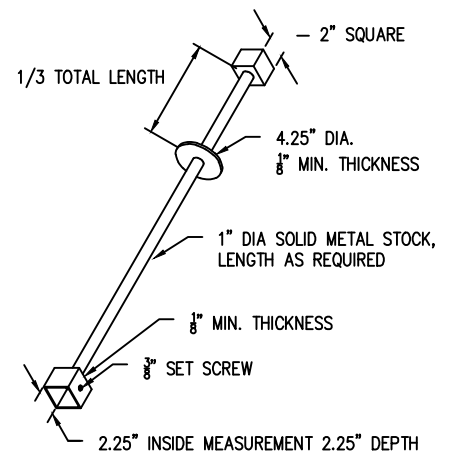


AND THROUGH A SEDIMENT
 MUST BE INSTALLED PROPERLY
 ER PROPERTIES.
 LE TO DISTRICT INSPECTORS
 S FOR ANTICIPATED SITE
 MAINTAIN COMPLIANCE WITH ALL
 TION OF FINE WATER

S	DRAWING NO.
	202
	DATE: 02/18/2020
	SCALE: NTS



ISOLATION VALVE DETAIL



OPERATING NUT EXTENSION

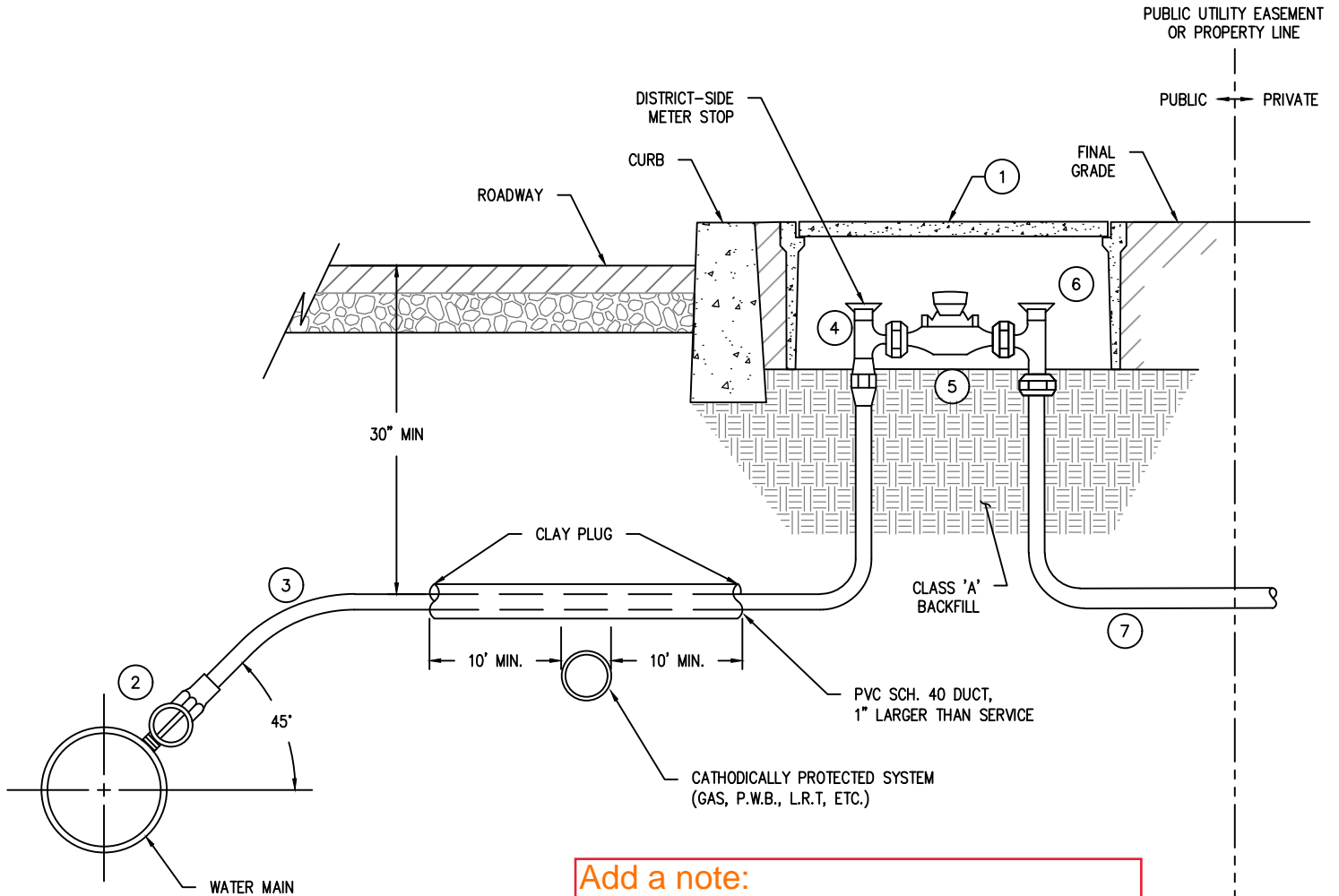
ISOLATION VALVE NOTES:

1. VALVES SHALL BE INSTALLED AT NO MORE THAN 500 FT SPACING WHEN 10" OR LARGER. VALVES SHALL BE INSTALLED AT NO MORE THAN 800 FT SPACING WHEN LESS THAN 10".
2. ISOLATION VALVES 2" AND LARGER ARE TO BE NRS RESILIENT SEAT GATE VALVES MEETING AWWA C509 OR C515. VALVES 14" AND LARGER SHALL BE BUTTERFLY VALVES MEETING AWWA C504.
3. BACKFILL AROUND VALVE BOXES SHALL BE COMPACTED USING A JUMPING JACK.
4. OLYMPIC FOUNDRY MODEL NUMBERS SHOWN. OWNER APPROVED EQUALS WILL BE ALLOWED.
5. ALL VALVES SHALL BE SUPPLIED WITH VALVE BOX AND LID. LID SHALL HAVE RECESSED HANDLE.
6. ALL VALVES THAT WILL BE PART OF A CUT-IN CONNECTION OR HOT TAP ON AN EXISTING MAIN SHALL BE PRE-PRESSURE TESTED ON BOTH SIDES OF THE SEAT PRIOR TO INSTALLATION.

OPERATING NUT EXTENSION NOTES:

1. EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS 5 FEET OR DEEPER BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF ONE (1) FOOT LONG, ONLY ONE EXTENSION PER VALVE. ALL EXTENSIONS ARE TO MADE OF STEEL SIZED AS NOTED, AND PAINTED WITH TWO COATS OF CARBON ELASTIC (ATCO NO. 2221) AS SPECIFIED BY PRESERVATIVE PAINT CO. OR APPROVED EQUAL.
2. FOR EXTENSIONS LONGER THAN 4 FEET AND/OR VALVES LARGER THAN 12" DIAMETER, BAR SHALL BE 1 1/4" DIAMETER.

NO.	REVISIONS	DATE	BY	APPROVED
1	SPACING AND DEPTH REQ'D	02/18/2020	HSC	
2				
3				
4				DISTRICT ENGINEER



Add a note:
 Trench must be 3-foot wide x 6-foot deep minimum, with 1-foot clear behind the main and 1-foot clear under the main.

NOTES:

1. SUBSTITUTES FOR ANY MATERIALS SHOWN SHALL BE PRE-APPROVED BY THE DISTRICT.
2. ALL PIPE AND STRUCTURE ZONES SHALL BE BACKFILLED USING 3/4" MINUS CRUSHED AGGREGATE AND COMPACTED TO 95% MAX. DENS. AS DETERMINED BY AASHTO T-180. COPPER SERVICE SHALL BE BEDDED AND COVERED WITH BACKFILL 6" ALL AROUND SERVICE. IN ROADS, BACKFILL SHALL BE EXTENDED TO TOP OF EXCAVATION.
3. WHEN AN ACTIVE CATHODIC PROTECTED SYSTEM IS ENCOUNTERED, SCH. 40 PVC SHALL BE INSTALLED AS SHOWN ABOVE WITH CLAY PLUG.
4. THE COMPLETE WATER SERVICE MUST BE INSPECTED BY DISTRICT PRIOR TO BACKFILL OR BE RE-EXCAVATED WITHOUT COST TO THE DISTRICT.
5. FOR LOCATION OF DISTRICT-SIDE METER STOP RELATIVE TO PROPERTY LINE, EASEMENT LINE, CURB, OR SIDEWALK, SEE DRAWING 423.

KEYNOTES:

1. DISTRICT STANDARD METER BOX WITH TOP OF LID AT FINAL GRADE.
2. CORPORATION STOP VALVE. FULL-PORT BALL TYPE UNIT TAPPED DIRECTLY INTO WATER MAIN WITH MALE IRON PIPE THREADS. OPERATING NUT INSTALLED IN 3 O'CLOCK OR 9 O'CLOCK POSITION.
3. 3/4" OR 1" SOFT TEMPER, TYPE 'K' COPPER TUBING COMPLYING WITH ASTM B-88. ENTIRE SERVICE SHALL BE SINGLE PIECE OF NEW PIPE FROM CORP STOP TO DISTRICT-SIDE METER STOP. COPPER-TO-COPPER UNIONS ARE ONLY ACCEPTABLE WHEN WATER SERVICE IS LONGER THAN 60 FEET AND ONLY WITH PRIOR APPROVAL OF DISTRICT ENGINEER.
4. DISTRICT-SIDE METER STOP INSTALLED 7" TO 9" BELOW FINISH GRADE. FULL-PORT BALL TYPE ANGLED METER STOP WITH LOCKING WINGS.
5. WATER METER, TO BE SUPPLIED AND INSTALLED BY DISTRICT.
6. CUSTOMER-SIDE METER STOP SAME AS DISTRICT-SIDE, EXCEPT BOTH BALL-TYPE AND KEY-TYPE ARE ACCEPTABLE AND LOCKING WINGS ARE NOT REQUIRED.
7. CUSTOMER-SIDE PLUMBING WITHIN THE METER BOX SHALL BE PEX OR COPPER. PVC IS NOT ACCEPTABLE.

OAK LODGE
 WATER SERVICES

WATER SYSTEM STANDARD DRAWING

3/4" AND 1" WATER SERVICE
 ASSEMBLY

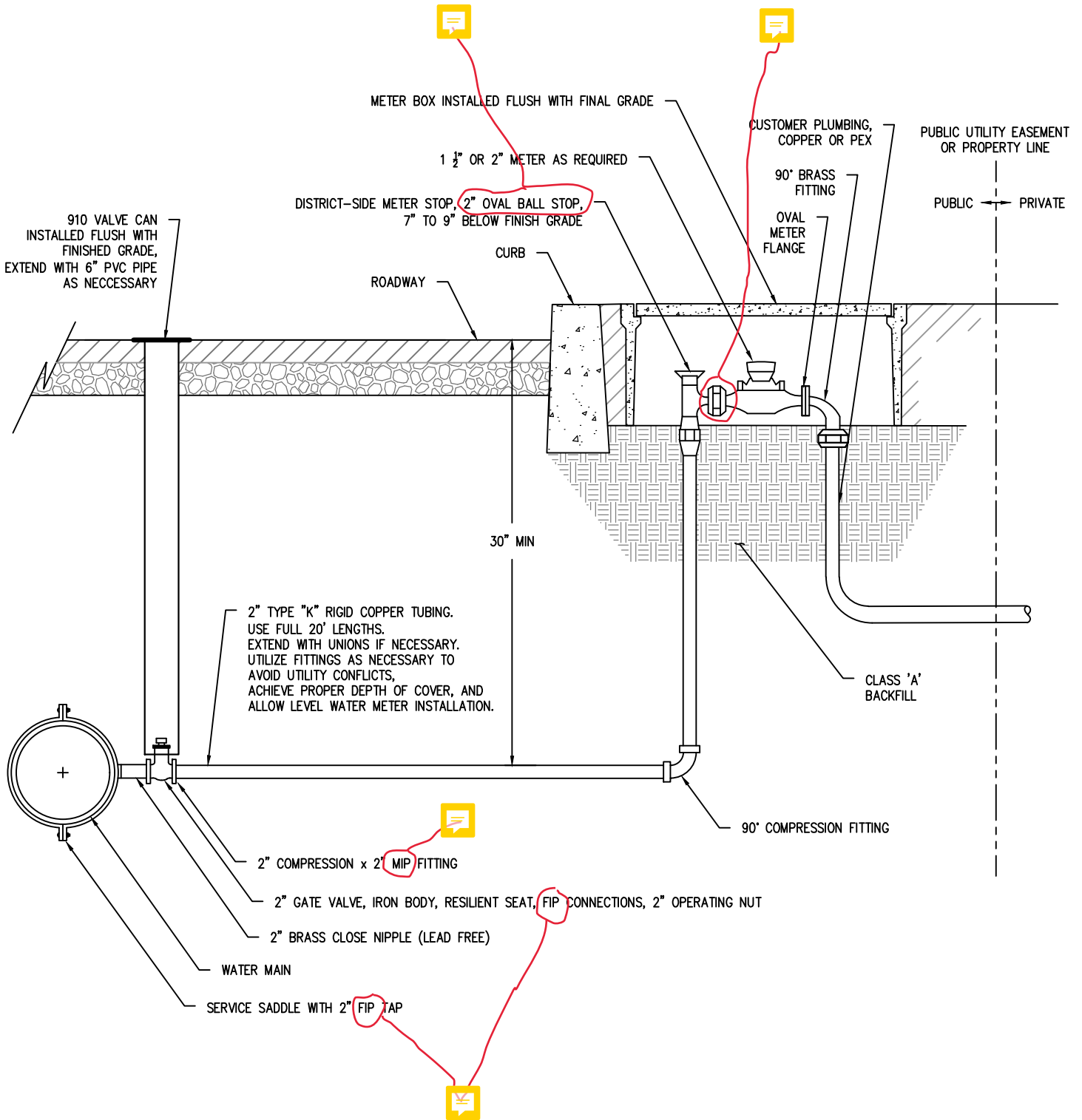
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2				
3				
4				DISTRICT ENGINEER

DRAWING NO.

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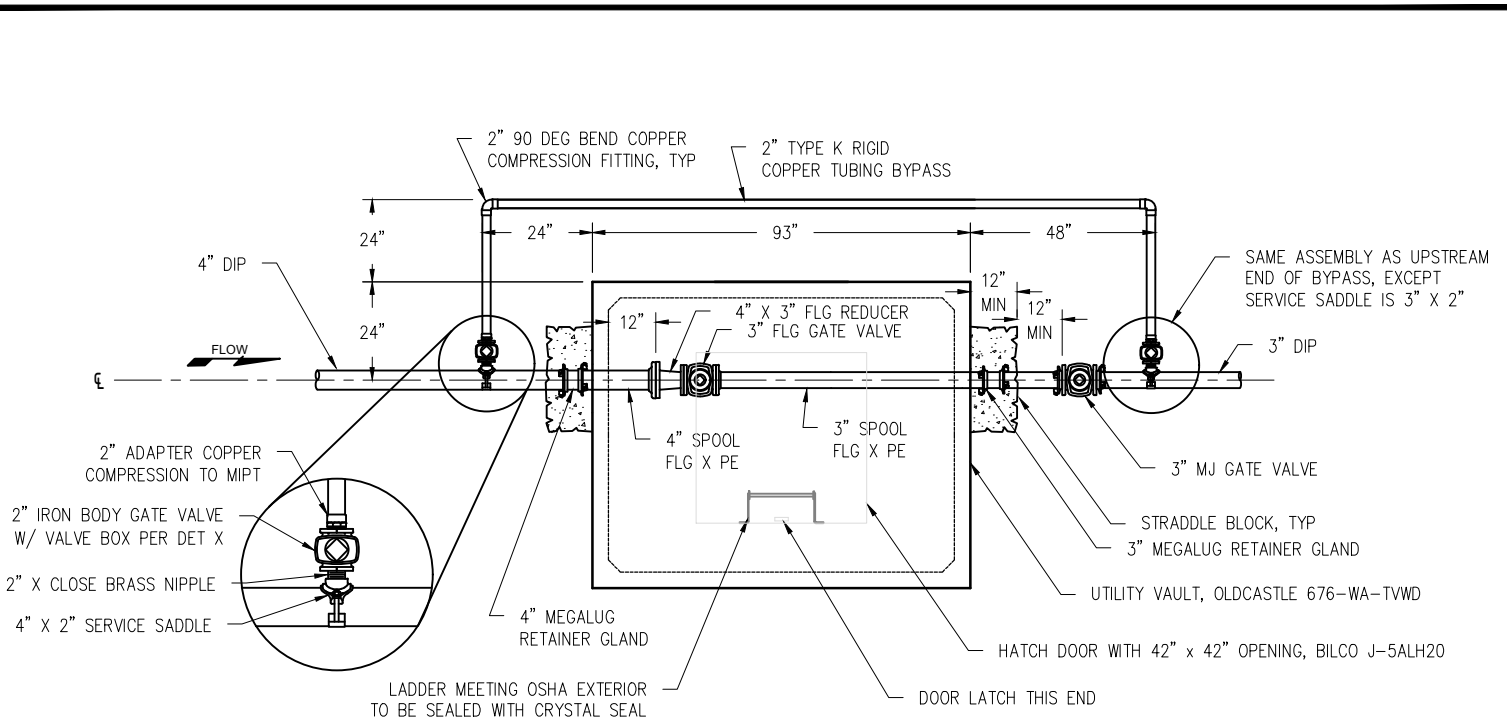
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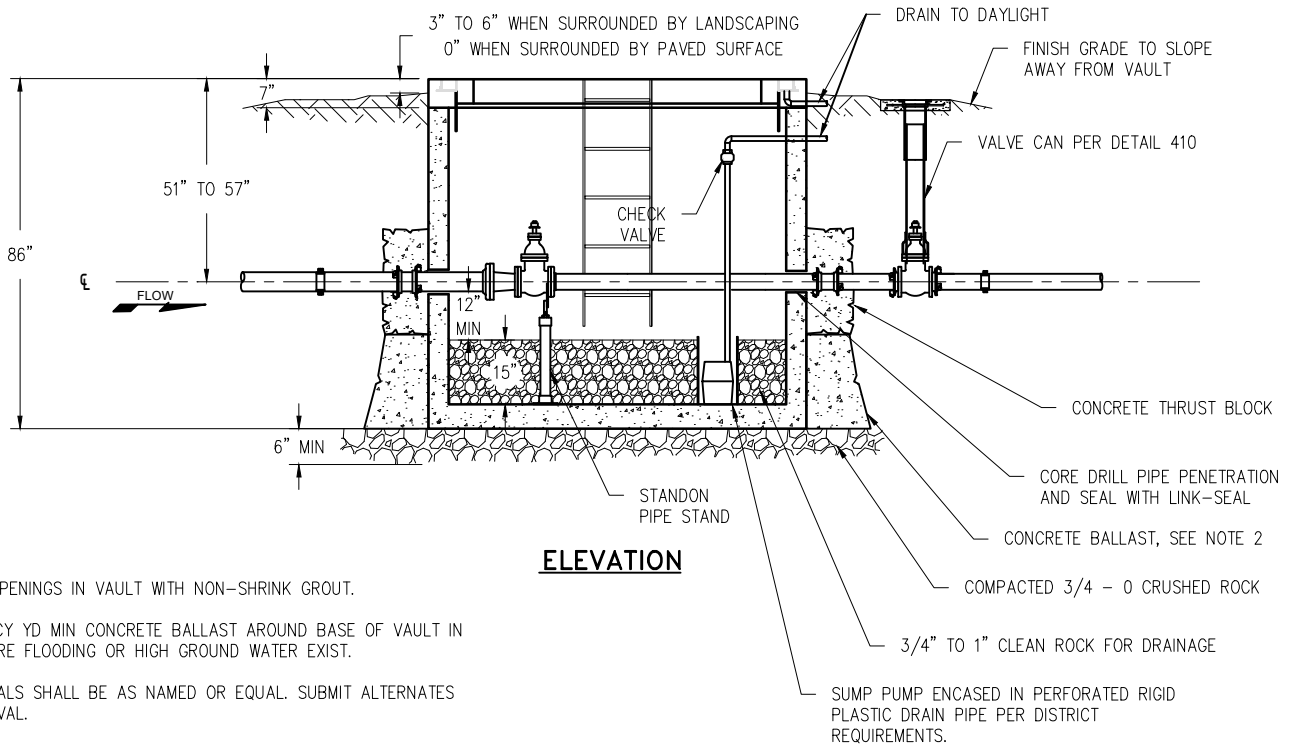


1 1/2" AND 2" WATER SERVICE ASSEMBLY

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER



PLAN



ELEVATION

NOTES:

1. SEAL ALL OPENINGS IN VAULT WITH NON-SHRINK GROUT.
2. INSTALL 3 CY YD MIN CONCRETE BALLAST AROUND BASE OF VAULT IN AREAS WHERE FLOODING OR HIGH GROUND WATER EXIST.
3. ALL MATERIALS SHALL BE AS NAMED OR EQUAL. SUBMIT ALTERNATES FOR APPROVAL.
4. ORS 92.044(7) PROHIBITS LOCATING ANY UTILITY INFRASTRUCTURE WITHIN 12 INCHES OF A SURVEY MONUMENT. DEVELOPER SHALL PAY FOR ANY RELOCATION OF SERVICES AND/OR METER BOXES FOUND TO FALL WITHIN 12 INCHES OF A SURVEY MONUMENT LOCATION.

OAK LODGE
WATER SERVICES

WATER SYSTEM STANDARD DRAWING

3-INCH WATER SERVICES ASSEMBLY

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

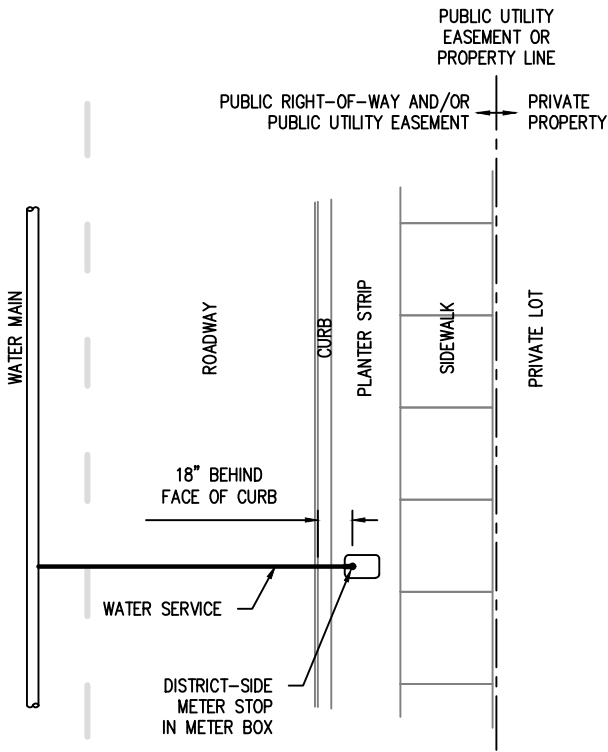
DRAWING NO.

422

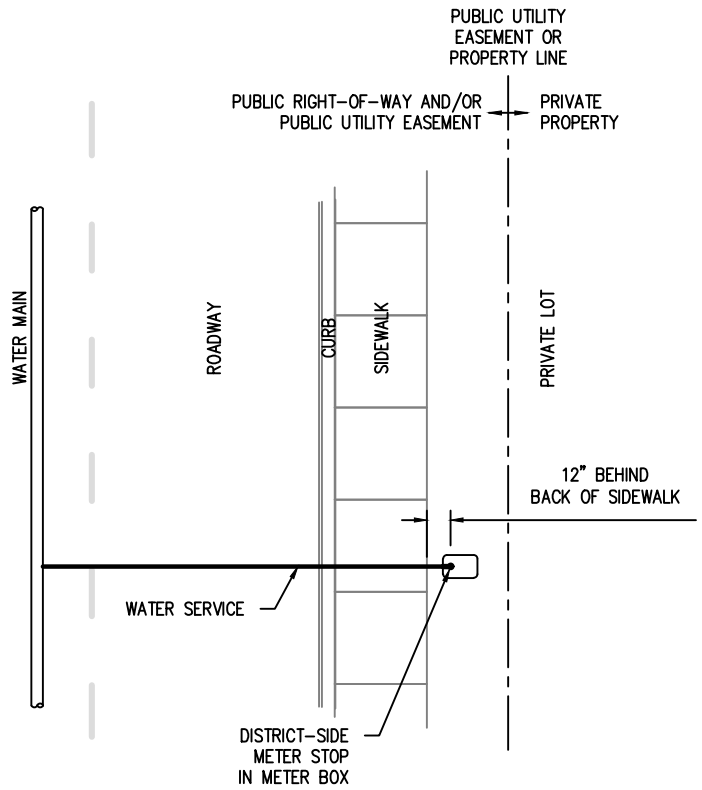
DATE: 12/04/2020

SCALE: NTS

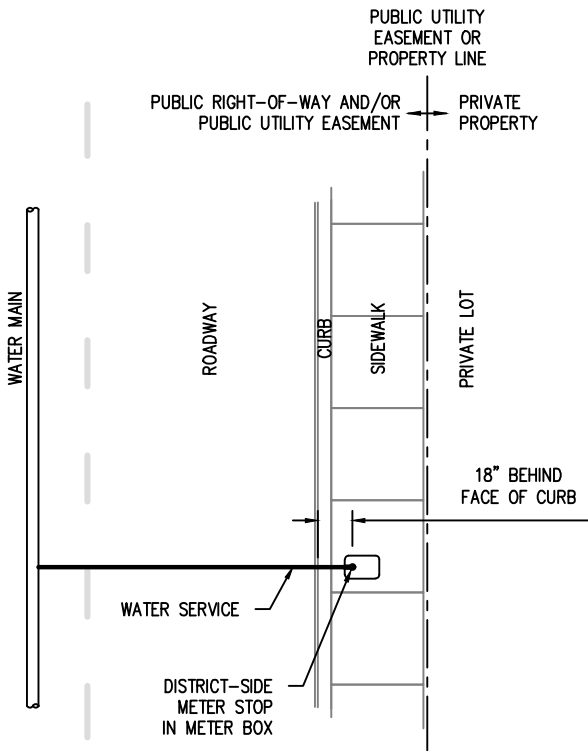
1st PREFERENCE – METER BOX LOCATED IN PLANTER STRIP



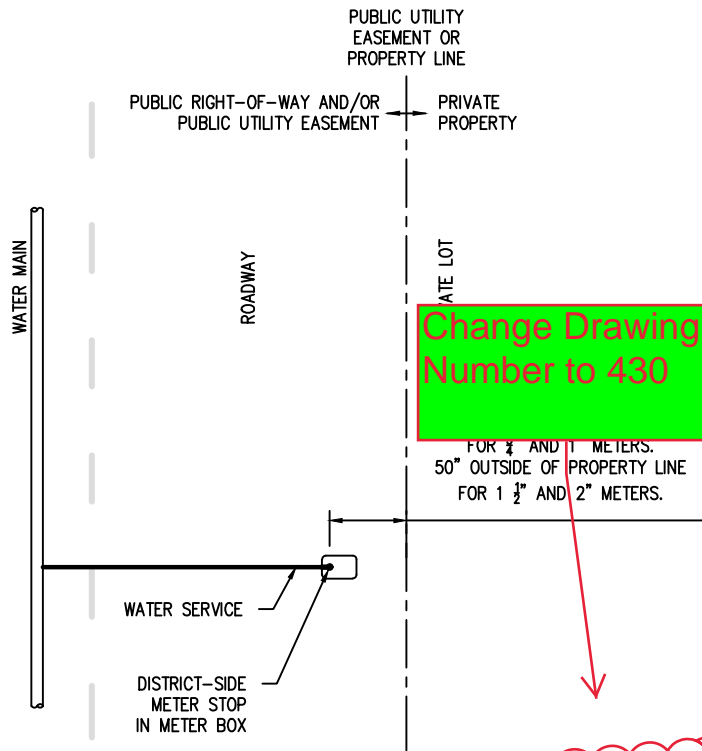
2nd PREFERENCE – METER BOX LOCATED BEHIND SIDEWALK



3rd PREFERENCE – METER BOX LOCATED IN SIDEWALK



4th PREFERENCE – NEITHER CURB NOR SIDEWALK PRESENT



NO.	REVISIONS	DATE	BY	APPROVED
1	EVERYTHING	02/18/2020	HSC	
2				
3				
4				DISTRICT ENGINEER

OAK LODGE WATER SERVICES DISTRICT

RESOLUTION NO. 2021-01

A RESOLUTION ADOPTING DISTRICT DESIGN AND CONSTRUCTION STANDARDS.

WHEREAS, construction in the District occurs on a regular basis; and

WHEREAS, Design and Construction Standards promote consistency and describe expectation about improving sanitary, stormwater and water infrastructure; and

WHEREAS, District Staff developed a set of Design and Construction Standards incorporating local, state and federal government practices; and

WHEREAS, the Design and Construction Standards are updated as needed to incorporate changes in best practices.

WHEREAS, the Design and Construction Standards will be kept on file and on the District's website for public inspection.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF OAK LODGE WATER SERVICES DISTRICT:

Section 1. The Board hereby adopts Attachment "A" to this Resolution that is the District's Design and Construction Standards.

Section 2. Staff shall publicly post the document for 30 days from adoption prior to implementation.

Section 3. Staff shall keep the Design and Construction Standards on file and on the District's website for inspection.

INTRODUCED AND ADOPTED THIS 19th DAY OF JANUARY 2021.

OAK LODGE WATER SERVICES DISTRICT

By _____ By _____
Kevin Williams, President Paul Gornick, Secretary/Vice President



STAFF REPORT

To	Board of Directors
From	Haakon Ogbeide, Civil Engineer
Title	Update on Procurement to Restore Treatment Plant Flow Capacity
Item No.	10
Date	January 19, 2020

Summary

This staff report is an update on the Emergency Procurement initiated on January 11, 2021 aimed at restoring the sewage treatment plant's capacity to absorb high flows following storm events. The project initiated through this procurement seeks to, as soon as possible, protect downstream populations from exposure to raw sewage and costly plant equipment from severe flood damage.

Background

Oak Lodge received sustained intense rainfall on the weekend of Sunday, December 20th, 2020, which lead to flooding within the treatment plant despite sewage flowing at a mere 60% of capacity. The nature of the flooding indicates a constriction in or near a main artery of the plant called the SRS Pipeline. This pipeline is in continuous operation without redundancy, so isolating and draining the line for cleaning or even inspection has proven to be unfeasible using only the District's in-house resources.

Between December 21st and January 8th, Oak Lodge staff from Plant Operations and Technical Services, along with on-call wastewater treatment engineers and a construction contractor, worked together to develop a plan to clear the flow constriction. The plan will allow the SRS Pipeline to be isolated and cleaned out by short-circuiting the continuous flow of sewage through a temporary Emergency Bypass Pipeline. The plan is shown generally on the attachment to this staff report.

To accomplish this plan as quickly as possible, on Monday January 11, 2021, District General Manager approve an Emergency Procurement not to exceed \$80,751 without further approval.

Concurrence

Plant Operations, Technical Services, District Attorney, consulting engineers Murraysmith, and construction contractors Slayden Constructors developed the Emergency Procurement approved by the General Manager.

Budget

Other wastewater capital projects will be adjusted to make funds available for this project. The “Capital Improvement Projects” account of the “Wastewater Reclamation Capital Fund” (72-21-7600) will fund this Emergency Procurement.

The costs are summarized by vendor below and detailed in the attachments.

Engineer	\$9,090.00
Contractor	\$71,660.83
Total	\$80,750.83

Recommended Motion

Staff requests that the Board retroactively approve the General Manager to sign an agreement with Slayden Constructors.

Suggested Board Motion

“I move to retroactively approve the General Manager to sign an agreement with Slayden Constructors.”

Attachments

1. Emergency Plan to Clean SRS Pipeline, Jan 11, 2021
2. Murraysmith Scope of Work
3. Slayden Constructors Quotation, revision 1

After the Emergency Bypass is in place, the Influent Box at the Aeration Basin, a similar chamber at the headworks, and the 42" SRS pipeline in between will be pumped dry. The sewage within will be discharged into Aeration Basin Train 1.

One 42" dia buried pipe allows all the Screened Raw Sewage (SRS) to flow by gravity from the Headworks to the Aeration Basin. The pipe is constricted, and only around 10 MGD currently passes through it.

The Aeration Basins can operate essentially as normal during the Emergency Bypass

The underground Influent Pump Station lifts raw sewage to the top of the Headworks Building

18" Emergency Bypass Pipeline will run up a 4'6" wide stairwell, across the ground, up the wall of the Aeration Basin, and discharge into the first train of the Aeration Basin.

Raw Sewage is screened and de-gritted within the Headworks Building, removing large objects

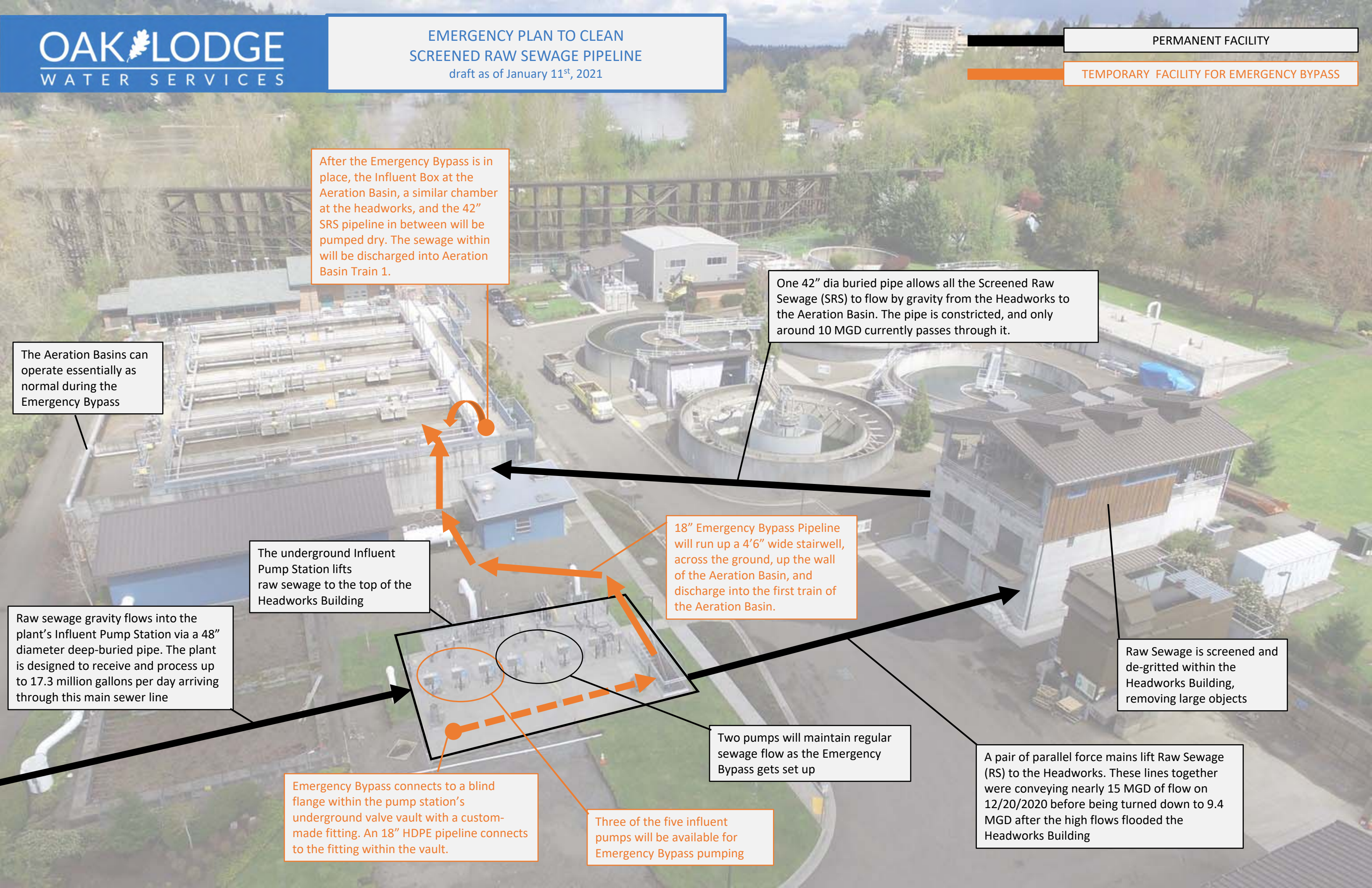
Raw sewage gravity flows into the plant's Influent Pump Station via a 48" diameter deep-buried pipe. The plant is designed to receive and process up to 17.3 million gallons per day arriving through this main sewer line

Two pumps will maintain regular sewage flow as the Emergency Bypass gets set up

A pair of parallel force mains lift Raw Sewage (RS) to the Headworks. These lines together were conveying nearly 15 MGD of flow on 12/20/2020 before being turned down to 9.4 MGD after the high flows flooded the Headworks Building

Emergency Bypass connects to a blind flange within the pump station's underground valve vault with a custom-made fitting. An 18" HDPE pipeline connects to the fitting within the vault.

Three of the five influent pumps will be available for Emergency Bypass pumping



**TASK ORDER
FOR
General WWTP Engineering Services
Oak Lodge Water Services District**

This Task Order, is issued pursuant to the Personal Services Agreement for On-Call Professional Engineering Services, dated December 11, 2018. This Task Order is for small General WWTP Engineering Services on an as needed basis that may not warrant individual Task Orders.

The Scope of Work includes one (1) task and is as follows:

Task 1 – WWTP Site Visits and General Engineering Services includes visits to the WWTP and general engineering services not associated with other Task Orders.

Our total proposed Budget is summarized as follows:

Task 1 – WWTP Site Visits and General Engineering Services	\$9,090
Total	\$9,090

The project Schedule is summarized as follows:

There is not a set schedule and Murraysmith will provide general engineering services on an as-needed basis. This Task Order should be replaced or amended as the remaining budget demands.

Oak Lodge Water Services

Date: _____

By: _____

Name:

Title:

Murraysmith, Inc.

Date: _____

By: _____

Michael Carr

Principal Engineer

	Labor to assist plant staff with Grit Removal (2-Days - Not to exceed 1-week)						80.00	\$64.00	\$5,120.00			
	Owner Contingency	LS	\$5,000.00	1	\$5,000.00							
	Dewatering Pump System Install											
	Labor to Install Dewatering Pump and Piping	MH	\$460.00	1	\$460.00		32.00	\$64.00	\$2,048.00	1.00	\$500.00	
	Labor to cleanout channel as required. Assumes Plant staff assistance with Oak Lodge Vacuum Truck	MH					32.00	\$64.00	\$2,048.00			
	Labor to Remove System	MH					8.00	\$64.00	\$512.00			
	Materials											
	HD Fowler - Custom 20"x18" Reducing 90 Degree Bend (Quote Included)	EA	\$3,735.29	1	\$3,735.29							
	HD Fowler - Bolt and Gasket kits.	LS	\$669.58	1	\$669.58							
	Unistrut and Anchors for Temp Pipe Supports	LS	\$279.00	1	\$279.00							
	Small Tools	LS	\$1,656.00	1	\$1,656.00							
	Safety PTP, JHA Review											
	Working Foreman	MH					2.00	\$82.42	\$164.84	2	\$24.32	\$36.48
	Supervision											
	Working Foreman - Planning	MH					16.00	\$82.42	\$1,318.72	16	\$24.32	\$389.12
	Working Foreman	MH					120	\$82.42	\$9,849.19	120	\$24.32	\$2,906.24
	Confined Space Work Plan/ Monitoring	MH	\$500.00	1	\$500.00		8.00	\$82.42	\$659.36	8	\$24.32	\$194.56
	TOTALS:											
			Total Materials Cost:		\$12,299.87	Total MH:	384.50	Total Labor Cost:	\$28,079	Total Equipment Cost:	\$8,145.60	

Construction Cost Worksheet
PCO # 001

SUBCONTRACTOR WORK

No.	Item Description	Unit of Measure	Sub Cost			Labor Cost					Equipment costs		
			Unit price	Qty.	Total	MH/Unit	Total MH	Rate	Bdn. Rate	Total	Hours	Rate	Total
1	XYLEM Rentals - Rental HDPE Pipe, fusing machine, and labor. Quote attached	LS	\$5,217.00	1	\$5,217.00		16.00	\$140.00		\$2,240.00	24	\$68.05	\$1,633.09
2	XYLEM Rentals - Misc. HDPE Fittings	LS	\$521.70	1	\$521.70								
3	XYLEM Rentals - Dewatering Pump System	LS	\$3,888.64	1	\$3,888.64								
	TOTALS:												
			Total Sub Cost:		\$9,627.34	Total MH:	16.00	Total Sub Labor Cost:	\$2,240.00	Total Sub Equipment Cost:	\$1,633.09		



RENTAL QUOTATION

ITEM	QTY	DESCRIPTION	WEEKLY UNIT	WEEKLY TOTAL	MONTHLY UNIT	MONTHLY TOTAL
A	1	18" 90 Degree Bend with 150# Flange	\$ 66.00	\$ 66.00	\$ 198.00	\$ 198.00
B	7	18" HDPE SDR 17 150# Flange Adapter	39.00	273.00	117.00	819.00
C	7	18" HDPE 150# FL Back Up Ring	24.00	168.00	72.00	504.00
D	5	18" 90 Degree HDPE SDR 17 Bend	39.00	195.00	117.00	585.00
E	2	18" 45 Degree HDPE SDR 17 Bend	39.00	78.00	117.00	234.00
F	1	18" 22.5 Degree HDPE SDR 17 Bend	39.00	39.00	117.00	117.00
G	200'	18" HDPE Pipe SDR 32.5 (Per Foot)	1.50	300.00	4.50	900.00
H	12	18" NBG Kit	10.00	120.00	30.00	360.00
<u>REQUIRED EXTRA:</u>						
I	1	Inbound Freight Delivery Br 025	1,000.00	1,000.00	1,000.00	1,000.00

Field Service Quote:

Labor: \$140/hour estimated at 2 days but actual would be billed
 Fusion Truck and Trailer: \$105 per day
 Fusion Machine 6" to 18" Rental: \$430.00 per day
 Environmental fee equal to 1.75% of rental

ESTIMATED RENTAL TOTAL	\$ 1,239.00	\$ 3,717.00
ESTIMATED DELIVERY CHARGE	\$ 0.00	\$ 0.00
ESTIMATED PICKUP CHARGE	\$ 500.00	\$ 500.00
REQUIRED EXTRAS	\$ 1,000.00	\$ 1,000.00



Customer: SLAYDEN CONSTRUCTORS INC
Estimator: Chris Baker
Job Name: OAK LODGE 20 X 18 REDUCING 90 DEGREE BEND
Location: PORTLAND OR

Estimate: E434704
Bid Date: 1/5/2021

Line	Qty	UoM	Description	Unit Price	Extended Price
1			NOTE: CURRENT LEAD TIME IS 4-5 DAYS		Note
2	1	EA	20" X 18" SHORT RADIUS 90 DEGREE BEND, SINGLE MITER 90, 20" 300# FLANGE, 18" 150# FLANGE, STEEL, BARE NO COATING OR LINING	3,735.29	3,735.29
3	2	EA	20"X 150# A307A BLACK BOLT KIT 20* 1-1/8X5" LENGTH BOLT	133.90	267.80
4	2	EA	18"X 150# A307A DIX HDPE BLACK BOLT KIT 16 1-1/8X8" LENGTH BOLT	161.67	323.34
5	2	EA	20" X 150# FF 1/8" NEOPRENE GASKET	23.04	46.08
6	2	EA	18" X 150#FF 1/8" NEPRENE GASKET	16.18	32.36
Approximate Total					4,404.87



RENTAL QUOTATION

ITEM	QTY	DESCRIPTION	WEEKLY UNIT	WEEKLY TOTAL	MONTHLY UNIT	MONTHLY TOTAL
A	1	Flygt Model 3085.183 Sewage Pump <ul style="list-style-type: none"> • 3" NPSM Discharge, CS434MT Impeller • 3.0HP Electric Motor, 460 Volt, 3 Phase • 50 Feet of Power Cable BWR FLS FV • w/MQD 	\$ 345.00	\$ 345.00	\$ 1,035.00	\$ 1,035.00
B	2	3" x 20' Black Water Suction Hose with Godwin QD Fittings	33.60	67.20	100.80	201.60
C	1	3" x 10' Black Water Suction Hose with Godwin QD Fittings	21.00	21.00	63.00	63.00
D	2	3" 90 Degree Godwin QD Bend	18.90	37.80	56.70	113.40
E	1	Power GHP26KW-R <ul style="list-style-type: none"> • Primary Unit • John Deere 4024TF270 diesel engine • Hwy trailer, 62 gal fuel tank 	398.40	398.40	1,195.20	1,195.20
F	1	Sub-Prime GST10 Submersible Trash <ul style="list-style-type: none"> • 2" Discharge • 1 HP Electric Motor • 115 Volt, 1 phase 	105.60	105.60	316.80	316.80



RENTAL QUOTATION

ITEM	QTY	DESCRIPTION	WEEKLY UNIT	WEEKLY TOTAL	MONTHLY UNIT	MONTHLY TOTAL
G	1	Sub-Prime GST10 Submersible Trash <ul style="list-style-type: none"> • 2" Discharge • 1 HP Electric Motor • 115 Volt, 1 phase • w/2"MQD 	105.60	105.60	316.80	316.80
H	4	2" x 20' Black Water Suction Hose with Godwin QD Fittings	25.20	100.80	75.60	302.40
I	2	2" x 10' Black Water Suction Hose with Godwin QD Fittings <ul style="list-style-type: none"> • w/2"MQD 	18.90	37.80	56.70	113.40
E	1	Environmental Fee	25.02	25.02	51.04	51.04
ESTIMATED RENTAL TOTAL				\$ 1,219.20		\$ 3,657.60
ESTIMATED DELIVERY CHARGE				\$ 90.00		\$ 90.00
ESTIMATED PICKUP CHARGE				\$ 90.00		\$ 90.00
REQUIRED EXTRAS				\$ 25.02		\$ 51.04



STAFF REPORT

To	Board of Directors
From	Alexa Morris, Outreach & Communications Specialist
Title	Communications Plan for 2021 – 2022
Item No.	11
Date	January 19, 2021

Summary

The Oak Lodge Water Services District has worked with consultant Barney & Worth, Inc. to prepare a Communications Plan for 2021 – 2022. This Staff Report seeks approval of the Communications Plan 2021 – 2022 as presented.

Background

The District and Barney & Worth, Inc. developed a two-year Communications Plan based on input from District staff and the Board. The District's goal is to make information about its services accessible to every one of its customers. This plan outlines strategies to help achieve that goal and to continue inviting customer feedback to inform future communication efforts.

Past Board Actions

June 16, 2020	Public Communication Goal Workshop. Board approved the refined list of district communication focus areas.
August 18, 2020	Barney & Worth, Inc. presented Communications Plan Framework. Board approved the development of the Communications Plan 2021 – 2022.
September 10, 2020	Communications Workshop to develop community briefing materials.
October 20, 2020	Barney & Worth, Inc. presented community briefing materials.
November 17, 2020	Board approved community briefing materials. Reviewed Communications Plan 2021 – 2022 draft.

Concurrence

The General Manager and Board met several times to discuss the action steps to create the Communications Plan 2021 – 2022. The General Manager also had internal discussions with the Management Team and communications staff.

On August 18, 2020 Barney & Worth, Inc. presented a Communication Plan Framework to the Board. After the presentation, the Board approved the development of the Communications Plan 2021 – 2022.

Over several months, the Board was a part of the proposal process which became the Communications Plan 2021 – 2022. Details of the plan were determined by the Board, Barney & Worth, Inc., and input from the Management Team and key communication staff. The Management Team met November 4, 2020 to provide feedback to Barney & Worth, Inc. on the Communications Plan 2021 – 2022 draft.

At the November 17, 2020 Board meeting the Communications Plan 2021 – 2022 draft was presented to the Board and public. There were no comments from the public.

There has been one change in the Framework Messaging section (pg. 4) under Our Commitments since the Board reviewed the Communications Plan 2021 – 2022 draft on November 17, 2020. The third bullet point on November 17, 2020 read as “Make smart investments and keep rates affordable”. The third bullet point was strengthened after feedback from some of the Board members and now reads as, “Make smart investments and work to keep rates affordable”. The community briefing materials have been updated to reflect this change.

Recommendation

Staff recommends the Board approve the Communications Plan for 2021 – 2022 as presented.

Suggested Board Motion

“I move to approve the Communications Plan for 2021 – 2022 as presented.”

Attachments

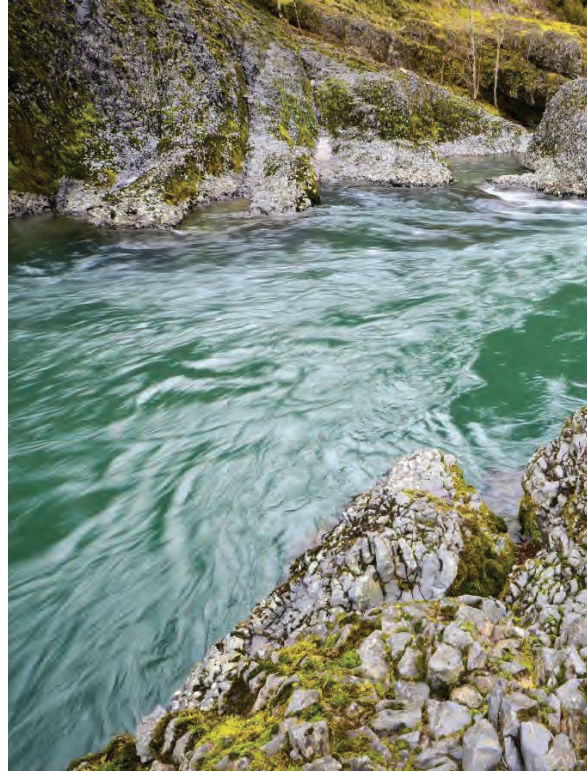
1. Communications Plan 2021 – 2022
2. Style Guidelines

OAK LODGE

WATER SERVICES

Communications Plan 2021-2022

December 2020



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Overview	2
Key Audiences	3
Framework Messaging	4
Strategies	7
Communication Channels	17
Communications Calendar	18
Additional Resources	19



Overview

The Oak Lodge Water Services District (District), and consultant Barney & Worth, Inc., developed this two-year Communications Plan based on input from District staff and the Board of Directors. This plan identifies objectives, audiences, messaging, resources, and a recommended two-year roadmap of strategies and tactics for ongoing customer communications.

The District's goal is to make information about its services accessible to every one of its customers. This plan outlines prioritized strategies to help achieve that goal and to continue inviting customer feedback to inform future communication efforts.

Objectives

Based on input from District staff and the Board of Directors, the Communications Plan objectives include:

- Create engaging key messages on the benefits of core services and build on them over time
- Provide a means for District staff and the Board of Directors to share a common message with the community
- Target messaging and information to stakeholders based on their interests and needs

It is recommended to update this plan in two years to keep communications strategies current and relevant to the District's customers.



Key Audiences

The following high-level list of District audiences identifies different communication needs and priorities. This list can be used to help tailor messaging and communication tools to best resonate with specific audiences. Some messages, such as the value of water and the importance of infrastructure investments, can be integrated into communications with multiple audiences.

Audience	Interests
<p>District Board of Directors</p>	<ul style="list-style-type: none"> • Progress updates • Water quality/quantity • Costs and rates
<p>District Staff Includes all District employees with an emphasis on frontline staff who routinely interact with customers</p>	<ul style="list-style-type: none"> • Decision making • Water quality/quantity • Progress updates • Costs and rates
<p>Regulatory Agencies Includes Oregon Department of Environmental Quality, Oregon Health Authority, and U.S. Environmental Protection Agency</p>	<ul style="list-style-type: none"> • Water quality/quantity • Public health • Permitting
<p>Other Local and Regional Agencies Includes interagency partners such as Clackamas County and Oregon Department of Transportation</p>	<ul style="list-style-type: none"> • Stormwater • Permitting • Maintenance • Program/project coordination
<p>Community Groups Includes various civic and neighborhood groups</p>	<ul style="list-style-type: none"> • Water quality and public health • Costs and rates
<p>District Customers Includes residential and business accounts</p>	<ul style="list-style-type: none"> • Water quality and public health • “How to” information (e.g., conserve water, protect watersheds) • Costs and rates
<p>Interested Parties Includes individuals who opted into receiving email communications from the District more regularly (about 50 current subscribers)</p>	<ul style="list-style-type: none"> • Specific District issues and opportunities • Water quality and public health • Costs and rates • Opportunities to volunteer
<p>General Public</p>	<ul style="list-style-type: none"> • Water quality and public health

Framework Messaging

Consistently framing communications around the District’s commitments to customers will enhance awareness of the services the District provides and the benefits of those services. The four commitments identified through discussion with the District Board and staff are to:

- Protect public health
- Provide excellent customer service
- Make smart investments and work to keep rates affordable
- Keep local streams and rivers clean

This section of the plan outlines messaging for each of the four commitments, including both an overarching statement and optional supporting messages that can be used for different circumstances.

One District, Three Services – Protecting Public Health and Water Resources

Oak Lodge Water Services District is committed to a clean water environment and a healthy community. The District was formed January 2017 through the consolidation of Oak Lodge Water and Oak Lodge Sanitary districts and now provides unified drinking water, sanitary sewer, and watershed protection services.

Protect Public Health

The District provides essential drinking water and sanitary sewer services to protect the health of nearly 29,000 people in the community.

1. **Drinking Water:** The District provides customers safe, reliable drinking water from the Clackamas River.
 - The Clackamas River is an extremely high-quality, raw water source. The headwaters of the Clackamas River are made up by Timothy Lake and Olallie Lake high up in the Mount Hood National Forest.
 - The District maintains about 100 miles of water pipe, three booster pump stations, and four storage reservoirs to deliver safe drinking water to homes and businesses each year.
 - The District has a cost-saving partnership with Sunrise Water Authority and the City of Gladstone to jointly own the North Clackamas County Water Commission water treatment plant.
2. **Sanitary Sewer:** The District collects wastewater from homes and businesses so the water can be cleaned and safely returned to the Willamette River.
 - The District maintains about 100 miles of sewer pipe, five pump stations, an outfall, and a water reclamation facility. After the collected wastewater is treated at the water reclamation facility, the clean water is returned safely to the Willamette River.



- In 2009, the community voted to invest in an up-to-date water reclamation facility that will serve the District through many years of growth and development.
- Each year, the District's water reclamation facility produces more than 2,100 tons of Class B biosolids that is beneficially reused as fertilizer.

Provide Excellent Customer Service

District staff are passionate about water and committed to being a good community partner. They provide high-quality customer service in every aspect of their work.

1. **Efficient Business Processes:** During consolidation, the District combined business systems for water and sewer to improve efficiency and continue to meet the needs of a growing community in everyday operations.
2. **Ongoing Community Conversations:** The District promotes two-way communication and positive relationships with customers through a friendly, customer-first culture.
3. **Skilled Professionals:** Experienced staff operate and maintain the District's systems to comply with regulations. Staff are committed to continuous learning and professional development to best serve the community.

Make Smart Investments and Work to Keep Rates Affordable

The District is a self-sustaining utility that focuses every dollar and every day on maintaining reliable drinking water, sanitary sewer, and watershed protection services.

1. **Long-range Planning:** The District continues to provide high-quality, reliable service through ongoing investment in updated infrastructure and technology.
 - The District prepares master plans to help prioritize future investments in repairs, replacement, and improvements.
2. **Dedicated Revenue:** District rate revenue supports maintenance and development of essential water services and is not diverted to any unrelated purpose.
 - Along with routine operations, rates cover annual delivery of the following services:
 - Maintaining existing infrastructure, including more than 200 miles of water and sewer pipeline.
 - Building and upgrading reservoirs, pump stations, and pipelines to continue providing reliable drinking water and wastewater treatment.
 - Providing backup facilities to meet peak water demand and emergency supply.
 - Cleaning Clackamas County-owned culverts, catch basins, and stormwater pipes in the District's service area.
3. **Robust Asset Management:** The District focuses on a strong asset repair and replacement program. Incremental rate adjustments keep the water and wastewater systems working reliably.
4. **Partnership Approach:** The District partners with other regional service providers to identify cost-savings opportunities and provide the best service to customers.

5. **Financial Stewardship:** The District conducts regular financial planning to make sure future capital needs are met.

- Through consolidation, the District has implemented joint systems and updated procedures to improve financial management.
- The District adjusts water system development charges annually so that new development pays for its share of growth-related costs.
- Each year, the District asks for public participation in the Budget Committee, which helps to review the current budget and build the budget for the next fiscal year.

Keep Local Streams and Rivers Clean

The District helps protect the environment by monitoring water quality in local waterways and helping to keep the Clackamas County-owned stormwater system clean.

1. **Water Quality Regulations:** The District meets or surpasses the Oregon Department of Environmental Quality's water quality permit requirements.
 - The District uses watershed protection fees to monitor creeks, clean catch basins, and coordinate permitting for stormwater infrastructure.
2. **Education and Partnership:** The District works with community partners to provide education programs and encourage good stewardship of streams, wetlands, and watersheds.
 - The District works with local businesses through the Stormwater Cleaning Assistance Program to keep storm drains clean.
 - The District provides proactive and regular maintenance for Clackamas County-owned stormwater catch basins and pipes.

Strategies

This plan outlines the following five key strategies for the next two years to help the District achieve communication objectives:

- **Strategy 1:** Increase electronic communications opportunities with customers.
- **Strategy 2:** Raise awareness and communicate benefits of core services.
- **Strategy 3:** Communicate utility management accomplishments.
- **Strategy 4:** Create opportunities for two-way communication with customers.
- **Strategy 5:** Advance equity and inclusion standards and program.

Two-Year Focus

2021

- Update service messaging with clear, concise customer benefits
- Build a strong digital communications foundation

2022

- Use customer input to grow new digital opportunities
- Celebrate steps to improve efficiency and to plan for the future

Tactics

Each of the five strategies is supported by tactics that detail specific activities for the next two years (January 2021 to December 2022). The description of each tactic identifies resource needs and recommends metrics to evaluate effectiveness.

These tactics should be reviewed annually and updated as needed to allow for budgeting for the following fiscal year.

A high-level list of tactics is included below. Each strategy and tactic is described in more detail in the following pages.

- **Strategy 1:** Increase electronic communications opportunities with customers.
 - Tactic 1.1: Increase email and e-bill customer list
 - Tactic 1.2: Change to digital newsletter
 - Tactic 1.3: Brand and relaunch existing social media
 - Tactic 1.4: Create NextDoor account
 - Tactic 1.5: Build photo library
 - Tactic 1.6: Network with community groups
- **Strategy 2:** Raise awareness of and communicate benefits of core services.
 - Tactic 2.1: Update welcome packet
 - Tactic 2.2: Develop themed monthly communications
 - Tactic 2.3: Update website

- Tactic 2.4: Develop key graphics
- **Strategy 3:** Communicate utility management accomplishments.
 - Tactic 3.1: Share master planning priorities
 - Tactic 3.2: Develop annual report
 - Tactic 3.3: Celebrate project milestones
 - Tactic 3.4: Include spotlight in staff meetings
 - Tactic 3.5: Develop branded site signage
- **Strategy 4:** Create opportunities for two-way communication with customers.
 - Tactic 4.1: Schedule community briefings
 - Tactic 4.2: Conduct customer survey
 - Tactic 4.3: Schedule facility tours
- **Strategy 5:** Advance equity and inclusion standards and program.
 - Tactic 5.1: Promote customer assistance program
 - Tactic 5.2: Prepare accessibility guide
 - Tactic 5.3: Create video or photo tours of key facilities

STRATEGY 1: Increase electronic communications opportunities with customers

A key strategy for the District will be continuing to build the customer email database and enhancing digital communications opportunities. With a stronger email list and web presence, the District will have the flexibility to evolve communications to meet changing community needs and share information in multiple ways to reach different audiences. As the District continues to assess the best ways to reach customers, new digital channels (YouTube or Vimeo, Twitter, and Instagram) can be added and integrated.

To help the District achieve Strategy 1, the following specific activities will be completed:

TACTIC 1.1: Promote customers signing up for electronic communications and billing					
Objective	Audience	Timeline	Lead	Budget	Measurement
Increase email and e-bill customer list (customer service, e-bill, newsletter push)	Customers (new and existing)	Monthly priority for 2021	Customer service staff	12 hours	Number of customers added (goal to increase from 40% to 70% in 2021)

TACTIC 1.2: Transition to digital newsletter format that provides analytics and integrates with social media					
Objective	Audience	Timeline	Lead	Budget	Measurement
Use digital news tool (Emma, Constant Contact, MailChimp) to maximize efficiency and integrate digital communications	Customers	Spring 2021: promote opt-in to digital news Summer 2022: shift to opt-in to paper news	Communications Lead	20 hours	Number of customers reached (goal of 70% or more in 2022) and engagement analytics

TACTIC 1.3: Claim and update content on existing social platforms customers use to share information

Objective	Audience	Timeline	Lead	Budget	Measurement
Update content on existing social platforms and direct subscribers to website (Facebook, LinkedIn, Google)	Customers	2021 (summer)	Communications Lead	2 hours weekly	Engagement analytics

TACTIC 1.4: Pilot use of a new social media channel to engage with customers

Objective	Audience	Timeline	Lead	Budget	Measurement
Create NextDoor account and track and respond to customer comments	Customers	2022 (summer)	Communications Lead	2 hours weekly	Engagement analytics

TACTIC 1.5: Build a stronger library of water system and working staff photos

Objective	Audience	Timeline	Lead	Budget	Measurement
Work with field staff to obtain quality photos of people and processes at work	Customers	2021 (summer)	Communications Lead	4 hours weekly	Number of photos

TACTIC 1.6: Selectively share content with partner organizations to expand communications reach

Objective	Audience	Timeline	Lead	Budget	Measurement
Develop simple message content that partner organizations can share on their digital platforms	Community groups and other service providers	Quarterly	Communications Lead	4 hours monthly	Engagement analytics

STRATEGY 2: Raise awareness and communicate benefits of core services

Another important strategy for ongoing communications is to enhance customer awareness of the three services the District provides (drinking water, sanitary sewer, and watershed protection) and the ways those services benefit customers. An annual review and update of core service content will help keep messaging relevant and consistent.

To help the District achieve Strategy 2, the following specific activities will be completed:

TACTIC 2.1: Update customer welcome packet and distribute widely

Objective	Audience	Timeline	Lead	Budget	Measurement
Make a strong first impression and establish good communication early (use packet to promote digital communications)	New customers	Updated at the start of each calendar year	Communications Lead	60 hours	Update completed Track number of customers reached annually

TACTIC 2.2: Organize outreach schedule to focus on monthly communications themes (see page 17)

Objective	Audience	Timeline	Lead	Budget	Measurement
Amplify messages with consistency across channels	Customers	Once per year	Communications Lead	20 hours	Annual update completed

TACTIC 2.3: Complete an audit of existing website content and identify needed updates

Objective	Audience	Timeline	Lead	Budget	Measurement
Improve consistency of information about core services and benefits	Customers	Once per year	Communications Lead	60 hours	Annual update completed

TACTIC 2.4: Develop multi-use infographic that illustrates three core services

Objective	Audience	Timeline	Lead	Budget	Measurement
Create visual to support education around core services (potentially using a 'One Water' concept)	Customers	Once	Consultant support	\$2,000	Graphic completed

STRATEGY 3: Communicate utility management accomplishments

The District takes pride in responsible stewardship of infrastructure and systems through long-range planning and efficient business processes and operations. Communications that coincide with each major project and planning cycle will help communicate accomplishments towards achieving efficiency goals.

To help the District achieve Strategy 3, the following specific activities will be completed:

TACTIC 3.1: Communicate priorities identified through master planning process					
Objective	Audience	Timeline	Lead	Budget	Measurement
Communicate planning progress and priorities for future investment (e.g., 'improving water system reliability' newsletter feature to speak to progress on Water System Master Plan priorities)	Customers	Quarter following planning cycle	Communications Lead	16 hours	Number and distribution of articles

TACTIC 3.2: Develop an annual report template and publish every two years					
Objective	Audience	Timeline	Lead	Budget	Measurement
Celebrate progress towards goals	Highly interested customers	2021	Communications Lead	60 hours	Distribution of report

TACTIC 3.3: Hold ground breaking and ribbon cutting events for significant projects

Objective	Audience	Timeline	Lead	Budget	Measurement
Celebrate wise investment and steps to improve and maintain reliability (for large projects, may include site signage, event video, press coverage)	Customers	Annually	Communications Lead	40 hours	Number of events annually

TACTIC 3.4: Include communications spotlight in agenda of reoccurring staff and/or manager's meetings

Objective	Audience	Timeline	Lead	Budget	Measurement
Support internal information sharing to increase communications power across staff	Internal	Once per month	Communications Lead	2 hours monthly	Number of meetings

TACTIC 3.5: Develop branded signage for use at project sites and other District locations

Objective	Audience	Timeline	Lead	Budget	Measurement
Increase visibility of District work activities (temporary or permanent signage)	Customers	Once	Communications Lead	18 hours	Signage ordered and/or installed

STRATEGY 4: Create opportunities for two-way communication with customers

To help make sure communications are effective, this strategy identifies several tactics to provide ongoing opportunities for two-way customer communication. Feedback collected from customer engagement can be used to refine and update communications content.

To help the District achieve Strategy 4, the following specific activities will be completed:

TACTIC 4.1: Schedule and present briefings to interested community groups

Objective	Audience	Timeline	Lead	Budget	Measurement
Increase customer understanding of service benefits	Community groups and neighborhood associations	8-10 per year	Communications Lead	100 hours	Number of briefings and participants

TACTIC 4.2: Conduct a statistically valid phone/online customer survey

Objective	Audience	Timeline	Lead	Budget	Measurement
Improve understanding of customer priorities and communications needs	Customers	Spring 2021 (to support benchmarking)	Consultant support	\$20,000	Number of customer responses

TACTIC 4.3: Provide educational tours for students and other community members

Objective	Audience	Timeline	Lead	Budget	Measurement
Meet MS4 permit requirements and improve customer understanding of how facilities operate	Primarily local schools	Twice per year	Communications Lead	40 hours	Number of tours and participants

STRATEGY 5: Advance equity and inclusion standards and program

This strategy focuses on building best practice guidance to support continuing equitable access for customer communications.

To help the District achieve Strategy 5, the following specific activities will be completed:

TACTIC 5.1: Communicate availability of customer support program

Objective	Audience	Timeline	Lead	Budget	Measurement
Share information about available services and communicate program successes	Low income customers	Bi-annually (tied to themed communications calendar)	Communications Lead	2 hours	Statement added to newsletter Track signups in next 2 months

TACTIC 5.2: Develop accessibility standards and guidelines for communications materials

Objective	Audience	Timeline	Lead	Budget	Measurement
Create guidance for improving accessibility of communications materials	Staff developing materials	Once	Communications Lead	10 hours	Complete guide

TACTIC 5.3: Create brief photo or video tour(s) of key facilities to improve information access

Objective	Audience	Timeline	Lead	Budget	Measurement
Make information available in multiple formats to improve access for diverse audiences	Customers	Bi-annually	Communications Lead	20 hours	Publish photo or video tour Track views

Communication Channels

The use of multiple communication channels is necessary to reach all customers. The District has an established set of communications tools, identified below, that can be used for direct engagement with residents and businesses. As the District considers new digital communications opportunities, this list can be updated to show how each of those channels connects to specific audiences.

The following list identifies priority communications channels for the District:

Channel	Main Audience	Content	Distribution
Website	Customers	Information on services and benefits	All customers
Newsletter	Customers	Rate information, customer tips	Electronic or print based on utility bill
Email	Interested parties	Selective updates	1-2 times per month (50 subscribers)
Community Briefings	Businesses and schools Neighborhood groups Low-income groups Non-English speaking communities	Presentation with information and Q&A Feedback form	10-12 per year (15-30 participants)
Education Outreach	Students	Information about protecting waterways from runoff	Based on interest
Tours	Customers	Tour guide script and participant handout Self-guided tour video	Based on interest
Welcome Packet	New customers	Informational overview of services and customer support	All customers activating service accounts
Annual Water Quality Report	Customers	EPA-required information Postcard notice Electronic and print options	All water customers
Customer Feedback (in person and online)	Customers	Feedback on customer service, rates, awareness	All customers

Communications Calendar

Developing an annual content calendar using key messages can help amplify the impact of customer communications. Thematic communications focusing feature content around one of the District’s four customer commitments at a time will strengthen messaging about service benefits for customers. This core messaging can be augmented with seasonal customer tips, such as water conservation, fall fertilization, and appropriate disposal of grease.

As the District grows digital communications opportunities beyond the newsletter and website, this type of calendar can be scaled up and applied across multiple communications channels so that customers are hearing consistent messages.

The following table describes a sample communications calendar. Note that due to the Municipal Separate Storm Sewer System permit requirements, stormwater must be mentioned in every issue of the newsletter (six issues annually).

Month	Theme	Topic	Stories
Jan-Feb	Protect Public Health	Water Service	Improving water system reliability (master plan priorities to enhance infrastructure resilience)
Mar-Apr	Provide Excellent Customer Service	Customer Survey	Seeking community input to help shape future communications and decision-making
May-Jun	Make Smart Investments and Work to Keep Rates Affordable	Capital Planning	Update on long-range planning and steps to improve efficiency
Jul-Aug	Keep Local Rivers and Streams Clean	Watershed Protection Service	Spotlight on education program and/or regional partnerships
Sep-Oct	Protect Public Health	Sanitary Sewer Service	Improving wastewater system resilience (master plan priorities)
Nov-Dec	Provide Excellent Customer Service	Business Efficiencies	Tips to manage utility bill (e-bill, leak detection, winter water conservation, customer support)

Additional Resources

The following is a list of additional communications resources that are available as part of the toolkit for ongoing customer communications.

- [Oak Lodge Demographics Summary](#)

A resource to better understand who the District's ratepayers are and to help create effective customer communications. This memo summarizes demographic characteristics for residents and households in the District and provides comparisons to Clackamas County and the state of Oregon.

- [Oak Lodge Style Guide and Templates](#)

A reference document with written and visual style guidelines for external communication materials. The guidelines are intended to create a consistent impression of the District and make it easier to create communications materials.

- [Oak Lodge Community Briefing Materials](#)

A resource to support in-person communications with neighborhood associations and other community groups about the services the District provides. This presentation includes basic information about each service area and responses to FAQs.

- [Oak Lodge Customer Service Training Materials](#)

A brief presentation that outlines simple best practices and messaging resources to help staff effectively respond to customer calls.

OAK LODGE

WATER SERVICES

Style Guide

December 2020



Overview

The Oak Lodge Water Services District (District), and consultant Barney & Worth, Inc., developed these style guidelines to help inform development of communication materials by communications staff and consultants. These style guidelines will help create a visible, consistent impression across communication materials, creating greater public recognition of District services, and making it quicker and easier for staff to create communications materials.

Style Guide Components

The style guidance includes:

- Logo Guidelines
- Color Palette
- Font Family
- Accessibility
- Consistency
- Additional Resources (templates)

These guidelines are intended to be used for official external communications (i.e., print and electronic materials for the general public, news media, and other stakeholders).

Assistance or Suggestions

Please contact Outreach and Communications Specialist Alexa Morris at alexa@olwsd.org with questions or suggestions about the guidance and resources described in this document.

Logo Guidelines

This section includes primary and alternate versions of the logo and provides guidance on preferred spacing and sizing when using the logo. The full color, horizontal logo is used in most communications. Black and white, reverse text, and vertical versions are also provided.

Full Color Logo



Reverse Logo (white on solid background)
Maintain Minimum Clear Space



One-Color Logo
Least Common Use



Minimum Clear Space - Proportionate

At any size, maintain logo "E" height margin in all



Minimum Logo Height

Logo should not be reduced to less than .25 in. height

(Actual Size)



Vertical Logo with Leaf

(full color, black and white, reverse text on blue, reverse text on green)



Color Palette

This section identifies the primary and secondary color palette for communications materials. The secondary color palette is used for the website.

Primary Colors



Oak Lodge Logo Blue

RGB: 63.126.193

CMYK: 76.45.0.0

Hexidecimal: #3F7EC1



Accent and Sidebar Options

50% Transparency



Oak Lodge Logo Green

RGB: 0.126.105

CMYK: 87.29.66.12

Hexidecimal: #007E69



Accent and Sidebar Options

50% Transparency

Secondary Colors



Oak Lodge Web Dark Blue

RGB: 24.76.133

CMYK: 98.77.21.6

Hexidecimal: #184c85



Oak Lodge Web Red

RGB: 142.69.54

CMYK: 31.78.79.26

Hexidecimal: #8e4536



Oak Lodge Web Orange

RGB: 206.124.22

CMYK: 17.57.100.3

Hexidecimal: #ce7c16



Oak Lodge Web Warm Green

RGB: 114.139.73

CMYK: 58.29.87.10

Hexidecimal: #728b49



Oak Lodge Web Light Blue

RGB: 67.152.206

CMYK: 70.28.2.0

Hexidecimal: #4398ce

Font Family

This section notes the standard font for general communications materials such as reports and presentations.

Calibri (body text)

ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890:"{}<>?_+!@#\$\$%^&*()

abcdefghijklmnopqrstuvwxyz1234567890:"{}<>?_+!@#\$\$%^&*()

Calibri Light (optional for headings)

ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890:"{}<>?_+!@#\$\$%^&*()

abcdefghijklmnopqrstuvwxyz1234567890:"{}<>?_+!@#\$\$%^&*()

Accessibility

This section includes best practices for writing and formatting communications materials to support accessibility for diverse customer communications needs.

Concise and Conversational Language

This section includes writing tips for communicating with a general interest audience.

- Use everyday words that have a clear meaning
- Use active voice to be direct and reduce words
- Put the most important information first, move details (if needed) towards the end
- Keep sentences and sections short to break up information
- Include examples to explain technical terms (avoid acronyms)

Simple Structure and Readable Layout

This section describes best practices to make materials easy and inviting to read.

- Use headings to signal key points and group information into meaningful sections
- Incorporate photos and figures to help tell the story
- Keep styles consistent to support content structure
- Use tables or lists to break up text and simplify complex information
- Leave ample white space

Formatting (documents and website)

This section notes formatting guidance to improve readability of documents as well as accessibility for screen readers.

- Use minimum 11 point font
- Use headings to organize content (H1, H2, H3)

- Include alt text for graphics and media
- Label hyperlinks (avoid only stating ‘click here’ or ‘read more’)
- Avoid relying solely on color to communicate
- Check that colors have enough contrast ([WebAIM contrast checker](#))
- Make sure tables are simple and do not have split or merged cells

Consistency

The section includes a brief list of style standards and commonly used starter text to maintain consistency across District communications materials.

- **Utility Name:** Use ‘Oak Lodge Water Services District’ in the first use, then use ‘District.’ Avoid using initialization in general communications. *Oak Lodge Water Services District (District) was formed in 2017. The District serves nearly 29,000 people.* If you choose to use the District’s acronym, use OLWSD.
- **Addresses:** Include the type of street (boulevard, road, lane). *The District’s office is located at SE River Road.*
- **Capitalization:** If a person’s professional title comes right before their name with no punctuation, capitalize. If a person’s professional title comes before their name with punctuation, or after their name, don’t capitalize. *Project Manager Jason Rice will oversee the consultant team. Our project manager, Jason Rice, will oversee the consultant team. Jason Rice, our project manager, will oversee the consultant team.*
- **Commas:** Use the serial comma in lists. *We will oversee the design work for phases one, two, and three.*
- **Numbers:** Spell out one through nine when used in a sentence, unless used for distance or weight. Use numerals for numbers greater than 10, unless they begin a sentence.
- **Phone Numbers:** Use parentheses and a space to indicate the area code in a phone number. *(503) 654-7765*
- **Time and Day:** Use a.m. and p.m.
- **Websites:** Keep it simple, use lowercase and do not include http or www.

About the District

The Oak Lodge Water Services District (District) is committed to creating a clean water environment and a healthy community. The District provides reliable drinking water, sanitary sewer, and watershed protection services to nearly 29,000 people in Oak Grove, Jennings Lodge, and portions of Milwaukie and Gladstone.

Drinking Water Services

The District provides customers safe, reliable drinking water from the Clackamas River. Customer rates fund essential services, including purchasing clean water and maintaining daily

operation of the distribution system.

Sanitary Sewer Services

The District collects wastewater from homes and businesses so the water can be cleaned and safely returned to the Willamette River. Customer rates fund essential services, including wastewater treatment and daily operation of the collection system.

Watershed Protection Services

The District helps protect the environment by monitoring water quality in local waterways and helping to keep the Clackamas County-owned stormwater system clean. Customer rates fund watershed protection activities necessary to comply with state and federal water quality permit requirements.

Access Statement

The Oak Lodge Water Services District is committed to providing equal access in its programs, services, and activities to all customers. To request accommodations, please contact Outreach and Communications Specialist Alexa Morris at alexa@olwsd.org or (503) 353-4219.

Learn More

(503) 654-7765

info@olwsd.org

Oak Lodge Water Services District

14496 SE River Road

Oak Grove, Oregon 97267

oaklodgewaterservices.org

Additional Resources

The following branded templates are available for District use, including:

- Meeting Agenda/Minutes
- PowerPoint Presentation
- Report

14496 SE River Road
Oak Grove, Oregon 97267
(503) 654-7765
oaklodgewaterservices.org





AGENDA ITEM

Title	Call for Public Comment
Item No.	12
Date	January 19, 2021

Summary

The Board of Directors welcomes comment from members of the public.

Written comments may not be read out loud or addressed during the meeting, but all public comments will be entered into the record.

The Board of Directors may elect to limit the total time available for public comment or for any single speaker depending on meeting length.



STAFF REPORT

To Board of Directors
From Gail Stevens, Finance Director
Title Finance Department Monthly Report
Item No. 13a
Date January 6, 2021 for January 19, 2021 Meeting

Summary

The Board has requested updates at the Regular Meetings of the Board on the status of the District's Operations.

Highlights of the Month

- Audit FY2020 Recommendations are included in the attached *Communication to Those Charged with Governance and Internal Control Related Matters*.
- Meter verification project complete per Moss Adams FY2020 report Appendix B *Recalculation of customer bills*.
- The District continues to replace large meters (1"+). Only 3% of all large meters now aged over 20 years.
- Billing uncollected rate for December equals the budgeted 2.0%.
- Accounts Receivables shows improvement from period ending November 30, 2020.

FY2020 Audit Recommendations

Moss Adams' *Communication to Those Charged with Governance and Internal Control Related Matters* is attached and documents the status of FY2019 audit recommendations determined during the FY2020 audit. The report includes three appendices as follows:

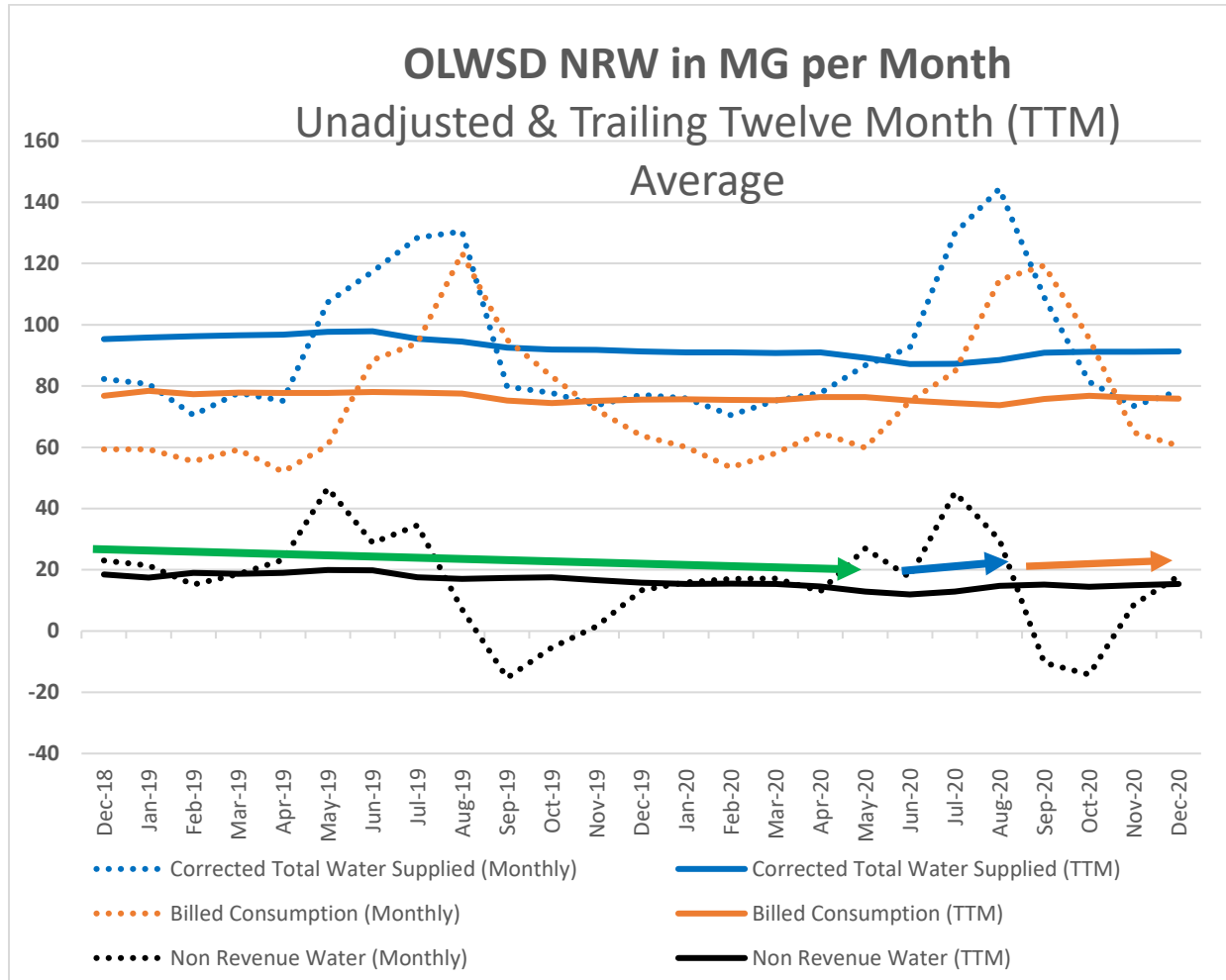
- Appendix A – June 30, 2020 Recommendations
- Appendix B – Prior Year Recommendations Partially Resolved in 2020
- Appendix C – Prior Year Control Deficiencies Resolved in 2020

Since the FY2019 audit recommendations were finalized only at the beginning of Calendar Year (CY) 2020, several of the initial recommendations are either listed in Appendix A or B within this year's report. There are only two new recommendations; 1- review of Allowance for Doubtful Accounts – due to the COVID State of Emergency there was a need to adjust the methodology, and 2- inventory costs – current purchased costs were not maintained in the prior system. All the remaining recommendations

included in Appendix A are carried over from FY2019. All items included in Appendix B were reviewed as resolved after June 30, 2020.

Non-Revenue Water and Billing System

Trailing twelve-month December results show a small increase from 15.010 to 15.398 MG. This is still an improvement from December 2019 of 15.784 MG, a 2.4% improvement.



Billing System Verification is complete and approved as part of the FY2020 audit. No additional findings in this area.

There has been a focus to replace large meters, which are 1" and above in size, especially meters aged over 20 years.

- During CY2020, 61 of the 460 large meters (13.2%), have been replaced through December.
- 132 reads out of 732 (61 meters x 12 reads), or 18.0%, were zero consumption reads on the old meters. This continues to credence to our hypothesis that the old meters were contributing to the Non-Revenue Water variance.

- Consumption billed at the service addresses for the replaced meters has increased by 23% in aggregate from matching months prior to replacement.
- There are now only 15 meters remaining over 20 year in age. Based on a review of the reads for billing on these, only one meter is currently reporting as zero consumption, and has been recommended for replacement. The remaining are reporting good reads. These meters will be tracked for timing of replacement.
- Distribution of large meter age is now more evenly spread over a 20-year period:
 - 0-5 years – 35%
 - 6-10 years – 19%
 - 11-15 years – 19%
 - 16-20 years – 23%
 - Over 20 years – 3%

Collections Rate

The District continues to keep a close eye on collections as the COVID State of Emergency continues. In December, the Federal Congress approved additional funds under the “Consolidated Appropriations Act, 2021”. This includes extensions of unemployment funds available to states initially funded within the CARES Act and additional stimulus payments.

The District’s collection rate through December continues to match historical trends. The additional federal assistance funds are anticipated to help maintain this trend over the next few months.

Collection Rates

	September 2020	October 2020	November 2020	December 2020
Utility Billing Sales	\$ 1,280,284	\$ 1,189,434	\$ 1,235,730	\$1,066,949
Cash Receipts	1,148,389	1,266,794	1,228,133	1,088,685
% (Uncollected)	(10.3%)	6.5%	(0.6%)	2.0%

December uncollected rate is equal to the budgeted 2.0%. The fiscal year-to-date collections rate is 99.4% of utility billings.

Accounts Receivable Review

The Accounts Receivable balances as of December 31, 2020 compared to November 30, 2020 show small improvements. These were the findings:

1. A/R Balance owed to OLWSD has decreased (\$57,509) since prior month-end, after accounting for the delta between billing cycles.

A/R Balance	11/30/2020	12/31/2020
Bi-Monthly Residential	\$1,049,755	1,137,258
Large Meters	499,512	493,948

Total	1,549,267	1,631,206
	Variance	\$81,939
	Variance due to Cycles	(139,448)
	Change in AR	(57,509)
		(3.7%)

2. The total number of delinquent accounts remained the same as the prior month and the average balance per delinquent account has increased by 0.8%.

Delinquent Accounts	11/30/2020	12/31/2020
Over 60 Days	\$ 406,326	\$ 409,527
Number of Accounts	871	871
Average Balance per Acct.	\$ 467	\$ 470
		0.8%

3. The number of accounts that are current, accounts paid in full within 30 days, has increased by 0.92% compared to prior month. The shift is from accounts in the 30-60 day grace period.

Account %	11/30/2020	12/31/2020
Current	82.12%	83.04%
30-60 Day Grace	4.68%	3.82%
Delinquent	9.49%	9.57%
Credit Balance	3.70%	3.57%

Red Tags / Letters historical counts were initially provided to the Board in the December 15, 2020 report. As the District moves forward in the next stage of its bill collections program, the counts will be updated in the tables below for tracking purposes.

	September 2019	November 2019	January 2020	March 2020	May 2020	July 2020	September 2020	November 2020
Cycle 1	175	143	166	138	245	262	319	350
Type	Red Tag	Red Tag	Red Tag	Letter	Letter	Letter	Letter	Letter
	October 2019	December 2019	February 2020	April 2020	June 2020	August 2020	October 2020	December 2020
Cycle 2	158	147	116	197	208	270	272	303
Type	Red Tag	Red Tag	Red Tag	Letter	Letter	Letter	Letter	Letter

Various communications are in development to consistently treat accounts in delinquent status as the District assists customers either impacted by COVID or other reasons during the collection of all past-due accounts. Reports are in development during January for use in identifying account history for the 870 accounts currently in delinquent status and determine the path to collection.

Attachments

1. Checks by Date Report for December 2020
2. Moss Adams *Communication to Those Charged with Governance and Internal Control Related Matters*

Bank Reconciliation
 Checks by Date
 User: jeff
 Printed: 01/07/2021 - 9:45AM
 Cleared and Not Cleared Checks
 Print Void Checks

Check No.	Check Date	Name	Comment	Module	Void	Clear Date	Amount
ACH Disbursement Activity							
0	12/2/2020	Check Commerce		AP		12/ 2/2020	187.25
0	12/4/2020	OR Dept of Justice, Div of Child Support		AP		12/14/2020	937.30
0	12/4/2020	Nationwide Retirement Solutions		AP		12/11/2020	1,993.04
0	12/4/2020	Internal Revenue Service		AP		12/10/2020	29,700.11
0	12/4/2020	Oregon Department Of Revenue		AP		12/11/2020	8,600.31
0	12/4/2020	VALIC c/o JP Morgan Chase		AP		12/11/2020	3,991.04
0	12/4/2020	Public Employees		AP		12/28/2020	30,903.69
0	12/4/2020	Oregon DOR - State Transit Tax		AP		12/11/2020	109.09
0	12/4/2020	Payroll Direct Deposit	DD 00001.12.2020	PR		12/ 4/2020	74,769.84
0	12/7/2020	TSYS		AP		12/10/2020	864.86
0	12/7/2020	TSYS		AP		12/10/2020	8,359.26
14181211	12/11/2020	Public Employees	PERS Adjustment	BRX		12/11/2020	-0.21
0	12/13/2020	Wells Fargo Bank		AP		12/11/2020	1,688.78
0	12/18/2020	Oregon DOR - State Transit Tax		AP		12/21/2020	108.20
0	12/18/2020	VALIC c/o JP Morgan Chase		AP		12/21/2020	3,875.88
0	12/18/2020	Internal Revenue Service		AP		12/21/2020	29,203.30
0	12/18/2020	OR Dept of Justice, Div of Child Support		AP		12/22/2020	937.30
0	12/18/2020	Public Employees		AP		12/28/2020	28,983.00
0	12/18/2020	Nationwide Retirement Solutions		AP		12/21/2020	1,993.04
0	12/18/2020	Oregon Department Of Revenue		AP		12/21/2020	8,634.74
0	12/18/2020	Payroll Direct Deposit	DD 00002.12.2020	PR		12/18/2020	74,161.10
13661218	12/18/2020	Oregon Department Of Revenue	OR DOR Adjustmer	BRX		12/21/2020	-120.00
13661219	12/18/2020	Oregon Department Of Revenue	OR DOR Adjustmer	BRX			120.00
15401223	12/23/2020	Wells Fargo Remittance Center	Wells Fargo Credit (BRX		12/23/2020	10,518.81
15401224	12/23/2020	Wells Fargo Remittance Center	Wells Fargo Credit (BRX			-10,518.81
0	12/23/2020	Wells Fargo Remittance Center	Wells Fargo Credit (BRX			10,518.81
14181228	12/28/2020	Public Employees	PERS Adjustment	BRX		12/28/2020	-1,611.32
14181229	12/28/2020	Public Employees	PERS Adjustment	BRX			1,611.32
0	12/31/2020	Public Employees		AP			37,378.09
0	12/31/2020	Internal Revenue Service		AP			45,037.31
0	12/31/2020	Nationwide Retirement Solutions		AP			360.00
0	12/31/2020	Oregon Department Of Revenue		AP			12,510.04
0	12/31/2020	Oregon DOR - State Transit Tax		AP			149.05
0	12/31/2020	Payroll Direct Deposit	DD 00003.12.2020	PR		12/31/2020	100,246.95
15801231	12/31/2020	Internal Revenue Service	IRS Adjustment	BRX			-569.94
15801232	12/31/2020	Internal Revenue Service	IRS Adjustment	BRX			569.94
ACH Disbursement Activity Subtotal							516,201.17
Voided ACH Activity							0.00
Adjusted ACH Disbursement Activity Subtotal							516,201.17

Paper Check Disbursement Activity

44830	12/2/2020	AFLAC		AP		12/14/2020	905.72
44831	12/2/2020	AFSCME Council 75		AP		12/ 8/2020	909.83
44832	12/2/2020	Brown and Caldwell		AP		12/ 7/2020	5,486.50
44833	12/2/2020	Cascadia Backflow		AP		12/ 9/2020	2,384.17
44834	12/2/2020	Comcast		AP		12/ 7/2020	764.55
44835	12/2/2020	Consolidated Supply Co.		AP		12/ 8/2020	4,175.15
44836	12/2/2020	Convergence Networks		AP		12/ 8/2020	12,041.50
44837	12/2/2020	Corrpro Companies, Inc.		AP		12/22/2020	825.00
44838	12/2/2020	Craig Blackman Trucking		AP		12/14/2020	1,865.08
44839	12/2/2020	Ferguson Waterworks		AP		12/ 7/2020	1,474.90
44840	12/2/2020	H.D. Fowler Company		AP		12/ 7/2020	11,061.32

Bank Reconciliation

Checks by Date

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Cleared and Not Cleared Checks

Print Void Checks

Check No.	Check Date	Name	Comment	Module	Void	Clear Date	Amount
44841	12/2/2020	H.R. Answers		AP		12/ 7/2020	299.00
44842	12/2/2020	HealthEquity		AP		12/ 8/2020	39.95
44843	12/2/2020	J. Thayer Company		AP		12/ 4/2020	90.00
44844	12/2/2020	Kaiser Permanente		AP		12/ 7/2020	15,258.68
44845	12/2/2020	Lord & Associates, Inc.		AP		12/ 8/2020	372.50
44846	12/2/2020	Maverick Welding Supplies Inc		AP		12/ 8/2020	31.01
44847	12/2/2020	murraysmith		AP		12/ 4/2020	26,247.36
44848	12/2/2020	OCD Automation, Inc.		AP		12/ 7/2020	4,251.00
44849	12/2/2020	Olson Bros. Service, Inc.		AP		12/ 7/2020	2,987.46
44850	12/2/2020	Oregon Health Authority		AP		12/ 4/2020	140.00
44851	12/2/2020	Owens Pump & Equipment		AP		12/ 8/2020	4,538.00
44852	12/2/2020	Pamplin Media Group		AP		12/ 7/2020	68.47
44853	12/2/2020	Portland Engineering Inc		AP		12/ 7/2020	140.00
44854	12/2/2020	Portland General Electric		AP		12/ 8/2020	1,873.19
44855	12/2/2020	Quality Control Services		AP		12/21/2020	1,110.00
44856	12/2/2020	Ritz Safety LLC		AP		12/ 8/2020	135.30
44857	12/2/2020	Santana Crane, Inc		AP		12/ 7/2020	525.00
44858	12/2/2020	Seattle Ace Hardware		AP		12/16/2020	264.44
44859	12/2/2020	Tice Electric Company		AP		12/ 9/2020	4,965.50
44860	12/2/2020	Unifirst Corporation		AP		12/ 8/2020	1,822.09
44861	12/2/2020	USA Blue Book		AP		12/10/2020	460.63
44862	12/2/2020	Verizon Wireless		AP		12/ 7/2020	708.01
44863	12/2/2020	Wallis Engineering PLLC		AP		12/ 4/2020	33,471.42
44864	12/2/2020	Waste Management Of Oregon		AP		12/10/2020	473.87
44865	12/4/2020	Employee Paycheck		PR		12/ 8/2020	1,063.09
44866	12/4/2020	Employee Paycheck		PR		12/ 4/2020	2,002.53
44867	12/4/2020	Customer Refund		AP			552.41
44868	12/4/2020	Customer Refund		AP			605.20
44869	12/4/2020	Customer Refund		AP		12/ 9/2020	114.84
44870	12/4/2020	Customer Refund		AP		12/18/2020	1.31
44871	12/4/2020	Customer Refund		AP		12/10/2020	21.30
44872	12/4/2020	Customer Refund		AP		12/16/2020	44.08
44873	12/4/2020	Customer Refund		AP		12/14/2020	269.80
44874	12/4/2020	Customer Refund		AP		12/ 8/2020	16.01
44875	12/4/2020	Customer Refund		AP		12/16/2020	12.58
44876	12/4/2020	Customer Refund		AP		12/14/2020	30.94
44877	12/4/2020	Customer Refund		AP			16.24
44878	12/4/2020	Customer Refund		AP			74.56
44879	12/4/2020	Customer Refund		AP			34.98
44880	12/8/2020	AFLAC		AP		12/17/2020	905.72
44881	12/8/2020	AFSCME Council 75		AP		12/11/2020	910.24
44882	12/8/2020	AnswerNet		AP		12/14/2020	346.92
44883	12/8/2020	Atlas Electrical Contractors, Inc.		AP		12/11/2020	843.32
44884	12/8/2020	Barney & Worth Inc		AP		12/11/2020	9,934.73
44885	12/8/2020	BendTel, Inc		AP		12/11/2020	169.74
44886	12/8/2020	Cable Huston LLP		AP		12/14/2020	9,885.00
44887	12/8/2020	Cavanaugh & Associates. PA		AP		12/16/2020	2,587.50
44888	12/8/2020	Century Link		AP		12/14/2020	590.01
44889	12/8/2020	Cintas Corporation - 463		AP		12/15/2020	2,170.88
44890	12/8/2020	City Of Gladstone		AP		12/15/2020	161.33
44891	12/8/2020	Clackamas County		AP		12/15/2020	5,008.69
44892	12/8/2020	Comcast		AP		12/14/2020	476.11
44893	12/8/2020	Consolidated Supply Co.		AP		12/10/2020	5,058.00
44894	12/8/2020	CTX-Xerox		AP		12/11/2020	1,727.20
44895	12/8/2020	Deluxe		AP		12/16/2020	1,349.23
44896	12/8/2020	Dr. Lance F. Harris D.C.		AP		12/14/2020	90.00
44897	12/8/2020	Ferguson Enterprises, Inc.		AP		12/14/2020	659.92

Bank Reconciliation

Checks by Date

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Cleared and Not Cleared Checks

Print Void Checks

Check No.	Check Date	Name	Comment	Module	Void	Clear Date	Amount
44898	12/8/2020	Ferguson Waterworks		AP		12/14/2020	22.12
44899	12/8/2020	Grainger, Inc.		AP		12/14/2020	823.79
44900	12/8/2020	J. Thayer Company		AP		12/11/2020	824.51
44901	12/8/2020	Les Schwab		AP		12/15/2020	167.25
44902	12/8/2020	Madison Biosolids, Inc.		AP		12/15/2020	4,680.20
44903	12/8/2020	Measure-Tech		AP		12/11/2020	2,549.25
44904	12/8/2020	Metro Overhead Door		AP		12/11/2020	781.00
44905	12/8/2020	Mike Patterson Plumbing Inc		AP		12/15/2020	2,203.00
44906	12/8/2020	Mueller Co		AP		12/14/2020	1,932.00
44907	12/8/2020	NCCWC		AP		12/ 9/2020	75,878.22
44908	12/8/2020	Northstar Chemical, Inc.		AP		12/10/2020	465.50
44909	12/8/2020	Polydyne, Inc.		AP		12/14/2020	4,258.10
44910	12/8/2020	Portland General Electric		AP		12/14/2020	1,935.82
44911	12/8/2020	Employee Business Expense Reimbursement		AP		12/ 8/2020	415.00
44912	12/8/2020	Seattle Ace Hardware		AP		12/23/2020	32.17
44913	12/8/2020	Springbrook Holding Company LLC		AP		12/15/2020	2,619.50
44914	12/8/2020	Traver's Cleaning Service Inc.		AP		12/14/2020	150.00
44915	12/8/2020	Unifirst Corporation		AP		12/15/2020	686.16
44916	12/8/2020	Verizon Wireless		AP		12/14/2020	1,600.98
44917	12/8/2020	Wallis Engineering PLLC		AP		12/11/2020	19,999.64
44918	12/10/2020	Aks Engineering & Forestry		AP		12/16/2020	23,357.48
44919	12/10/2020	Customer Refund		AP			5.57
44920	12/10/2020	Customer Refund		AP		12/22/2020	170.58
44921	12/10/2020	Customer Refund		AP			30.65
44922	12/10/2020	CDR Labor Law, LLC		AP		12/18/2020	552.00
44923	12/10/2020	Customer Refund		AP			1.59
44924	12/10/2020	Clackamas County		AP		12/22/2020	544.70
44925	12/10/2020	Consolidated Supply Co.		AP		12/16/2020	4,309.84
44926	12/10/2020	Customer Refund		AP			73.90
44927	12/10/2020	Customer Refund		AP		12/30/2020	72.13
44928	12/10/2020	Customer Refund		AP			24.34
44929	12/10/2020	Customer Refund		AP		12/18/2020	198.75
44930	12/10/2020	Customer Refund		AP		12/23/2020	41.35
44931	12/10/2020	Customer Refund		AP			290.31
44932	12/10/2020	Customer Refund		AP		12/21/2020	337.17
44933	12/10/2020	Horner Enterprises, Inc.		AP		12/23/2020	7,226.14
44934	12/10/2020	Customer Refund		AP		12/21/2020	81.45
44935	12/10/2020	Customer Refund		AP		12/17/2020	301.25
44936	12/10/2020	Employee Business Expense Reimbursement		AP			139.29
44937	12/10/2020	Customer Refund		AP		12/21/2020	36.34
44938	12/10/2020	NACWA		AP		12/28/2020	750.00
44939	12/10/2020	Oregon DEQ		AP		12/16/2020	2,488.00
44940	12/10/2020	Customer Refund		AP			2.70
44941	12/10/2020	Customer Refund		AP			49.09
44942	12/10/2020	SDIS		AP		12/16/2020	40,782.88
44943	12/10/2020	Employee Business Expense Reimbursement		AP		12/18/2020	125.27
44944	12/10/2020	Customer Refund		AP		12/17/2020	15.90
44945	12/10/2020	Customer Refund		AP			2.48
44946	12/10/2020	Unifirst Corporation		AP		12/15/2020	504.36
44947	12/10/2020	Water Systems Consulting, Inc.		AP		12/18/2020	10,486.87
44948	12/10/2020	Customer Refund		AP		12/18/2020	134.65
44949	12/18/2020	Employee Paycheck		PR		12/21/2020	1,465.72
44950	12/18/2020	Employee Paycheck		PR			2,001.91
44951	12/18/2020	Employee Business Expense Reimbursement		AP		12/21/2020	85.00
44952	12/18/2020	Oregon Health Authority		AP		12/21/2020	195.00
44953	12/18/2020	Oregon Health Authority		AP		12/21/2020	210.00
44954	12/22/2020	AFLAC		AP			905.72
44955	12/22/2020	Clackamas County Clerk		AP		12/23/2020	525.00

Bank Reconciliation
 Checks by Date
 User: jeff
 Printed: 01/07/2021 - 9:45AM
 Cleared and Not Cleared Checks
 Print Void Checks

Check No.	Check Date	Name	Comment	Module	Void	Clear Date	Amount
44956	12/28/2020	AFSCME Council 75		AP			742.17
44957	12/28/2020	Cascadia Backflow		AP			475.22
44958	12/28/2020	City Of Milwaukie		AP		12/31/2020	1,738.11
44959	12/28/2020	Cochran Inc.		AP		12/31/2020	1,230.00
44960	12/28/2020	Convergence Networks		AP			14,420.50
44961	12/28/2020	Grainger, Inc.		AP		12/31/2020	177.88
44962	12/28/2020	Hach Company		AP			297.22
44963	12/28/2020	Kaiser Permanente		AP		12/30/2020	15,258.68
44964	12/28/2020	Madison Biosolids, Inc.		AP		12/30/2020	2,327.07
44965	12/28/2020	Measure-Tech		AP			2,910.45
44966	12/28/2020	Merina & Company, LLP		AP			2,145.00
44967	12/28/2020	Municipal Code Corporation		AP			3,200.00
44968	12/28/2020	Net Assets Corporation		AP		12/31/2020	461.00
44969	12/28/2020	One Call Concepts, Inc.		AP			540.42
44970	12/28/2020	Oregon Health Authority		AP		12/30/2020	200.00
44971	12/28/2020	Oregon Secretary Of State		AP		12/31/2020	350.00
44972	12/28/2020	Quadient Leasing USA, Inc.		AP			599.43
44973	12/28/2020	Relay Resources		AP			6,098.81
44974	12/28/2020	Water Systems Consulting, Inc.		AP			7,157.50
44975	12/28/2020	Western Exterminator Company		AP			125.00
44976	12/31/2020	Employee Paycheck		PR			1,374.10
44977	12/31/2020	Employee Paycheck		PR			2,080.35
Paper Check Disbursement Activity Subtotal							474,359.51
Voided Paper Check Disbursement Activity							0.00
Adjusted Paper Check Disbursement Activity Subtotal							474,359.51
Total Void Check Count:							0
Total Void Check Amount:							0.00
Total Valid Check Count:							183
Total Valid Check Amount:							990,560.68
Total Check Count:							183
Total Check Amount:							990,560.68



COMMUNICATION TO THOSE CHARGED WITH GOVERNANCE
AND INTERNAL CONTROL RELATED MATTERS

OAK LODGE WATER SERVICES DISTRICT

June 30, 2020



Communication to Those Charged with Governance and Internal Control Related Matters

To the Board of Directors
Oak Lodge Water Services District

We have audited the financial statements of Oak Lodge Water Services District (the District) as of and for the year ended June 30, 2020, and have issued our report thereon dated December 23, 2020. Professional standards require that we provide you with the following information related to our audit.

Our Responsibility Under Auditing Standards Generally Accepted in the United States of America

As stated in our engagement letter dated June 2, 2020, our responsibility, as described by professional standards, is to form and express an opinion about whether the financial statements, budgetary basis schedules and additional information, presented as supplementary information, prepared by management with your oversight are fairly presented, in all material respects, in conformity with U.S. generally accepted accounting principles. Our audit of the financial statements does not relieve you or management of your responsibilities.

Our responsibility is to plan and perform the audit in accordance with generally accepted auditing standards and to design the audit to obtain reasonable, rather than absolute, assurance about whether the financial statements are free of material misstatement. An audit of financial statements includes consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the District's internal control over financial reporting. Accordingly, we considered the District's internal control solely for the purposes of determining our audit procedures and not to provide assurance concerning such internal control.

We are also responsible for communicating significant matters related to the financial statement audit that, in our professional judgment, are relevant to your responsibilities in overseeing the financial reporting process. However, we are not required to design procedures for the purpose of identifying other matters to communicate to you.

We are also responsible for performing tests of compliance with certain provisions of laws, regulations, contracts, and grant agreements, including provisions of Oregon Revised Statutes as specified in Oregon Administrative Rules OAR 162-10-000 to 162-10-330 of the Minimum Standards for Audits of Oregon Municipal Corporations, noncompliance of which could have a direct and material effect on the determination of financial statement amounts.

Planned Scope and Timing of the Audit

We performed the audit according to the planned scope and timing previously communicated to you in the engagement letter.

Significant Audit Findings

Qualitative Aspects of Accounting Practices

Management is responsible for the selection and use of appropriate accounting policies. The significant accounting policies used by the District are described in the notes to the financial statements.

No new accounting policies were adopted and there were no other changes in the application of existing policies during fiscal year 2020. We noted no transactions entered into by the District during the year for which there is a lack of authoritative guidance or consensus. There are no significant transactions that have been recognized in the financial statements in a different period than when the transaction occurred.

Significant Accounting Estimates

Accounting estimates are an integral part of the financial statements prepared by management and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting them may differ significantly from those expected. The most significant estimates affecting the financial statements include:

Pension liability and related pension expense – This represents the amount of annual expense recognized for pensions and the related pension liability. The amount is actuarially determined, with management input. We have evaluated the key factors and assumptions used to develop the annual expense in determining that it is reasonable in relation to the combined and individual financial statements taken as a whole.

Unbilled Revenue – Unbilled revenue is a measure of revenue earned through the end of the reporting period that has yet to be billed. This generally represents accounts with billing cycles that start in the reporting year and end in the subsequent year. We have evaluated the key factors and assumptions used to develop unbilled revenue in determining that it is reasonable in relation to the financial statements taken as a whole. The District records unbilled revenue as part of accounts receivable on the statements of net position.

Allowance for Doubtful Accounts – This represents an estimate of the amount of accounts receivable that will not be collected. We have evaluated the key factors and assumptions used to develop the allowance in determining that it is reasonable in relation to the financial statements taken as a whole.

Recovery Periods for the Cost of Capital Assets – This represents the depreciation of capital assets. Management's estimate of the recovery periods for the cost of capital assets is based on regulatory-prescribed depreciation recovery periods. We have evaluated the key factors and assumptions used to develop the recovery periods in determining that they are reasonable in relation to the financial statements taken as a whole.

Other Post-Employment Benefit Obligations – This represents the amount of annual expenses recognized for post-employment benefits. The amount is actuarially determined with management input. We have evaluated the key factors and assumptions used to develop the annual expenses in determining that it is reasonable in relation to the financial statements taken as a whole.

Financial Statement Disclosures

The disclosures in the financial statements are consistent, clear, and understandable. Certain financial statement disclosures are particularly sensitive because of their significance to financial statement users. The most sensitive disclosures affecting the financial statements were:

- Note 9 – Defined benefit pension plan
- Note 12 – Commitments

We did not note any other disclosures in the financial statements which we consider sensitive to potential users.

Difficulties Encountered in Performing the Audit

We encountered no difficulties in dealing with management in performing and completing our audit.

Corrected and Uncorrected Misstatements

Professional standards require us to accumulate all known and likely misstatements identified during the audit, other than those that are trivial, and communicate them to the appropriate level of management.

For purposes of this letter, professional standards define an audit adjustment as a proposed correction of the financial statements made subsequent to the start of audit final fieldwork. An audit adjustment may or may not indicate matters that could have a significant effect on the District's financial reporting process (that is, cause future financial statements to be materially misstated). We identified the following audit adjustment during the course of our audit procedures.

1. To adjust the allowance for doubtful accounts - \$14,000

Uncorrected adjustments are those entries found during the course of the audit that management has decided to not post to the financial statements. During 2020 there was an uncorrected misstatement for \$478 related to inventory as a result of inventory costs not being appropriately updated and entered into the system timely. The projected likely misstatement within the remaining untested inventory balance in addition to the known misstatement exceeds our proposed journal entry threshold. Management has determined that the effects of the projected and known misstatement are immaterial, both individually and in the aggregate, to the financial statements as a whole.

Disagreements with Management

For purposes of this letter, professional standards define a disagreement with management as a financial accounting, reporting, or auditing matter, whether or not resolved to our satisfaction, that could be significant to the financial statements or the auditor's report. We are pleased to report that no such disagreements arose during the course of our audit.

Management Representations

We have requested certain representations from management that are included in the management representation letter dated December 23, 2020.

Management Consultation with Other Independent Accountants

In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a “second opinion” on certain situations. If a consultation involves application of an accounting principle to the District’s financial statements or a determination of the type of auditor’s opinion that may be expressed on those statements, our professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To our knowledge, there were no such consultations with other accountants.

Other Significant Audit Findings or Issues

We generally discuss a variety of matters, including the application of accounting principles and auditing standards, with management each year prior to retention as the District’s auditors. However, these discussions occurred in the normal course of our professional relationship and our responses were not a condition to our retention.

Communication of Internal Control Related Matters

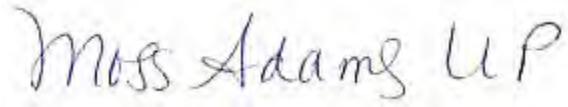
In planning and performing our audit of the financial statements of the District as of and for the year ended June 30, 2020, in accordance with auditing standards generally accepted in the United States of America, we considered the District’s internal control over financial reporting (internal control) as a basis for designing our auditing procedures for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the District’s internal control. Accordingly, we do not express an opinion on the effectiveness of the District’s internal control.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A material weakness is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity’s financial statements will not be prevented, or detected and corrected, on a timely basis.

Our consideration of internal control was for the limited purpose described in the first paragraph and was not designed to identify all deficiencies in internal control that might be material weaknesses. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Control deficiencies and other matters identified during our June 30, 2020 audit are included in Appendix A below, while Appendix B summarizes the prior year comments that have been partially resolved in the current year, and Appendix C includes prior year comments that have been resolved.

This communication is intended solely for the information and use of management and the Board of Directors and is not intended to be and should not be used by anyone other than these specified parties.

A handwritten signature in dark ink that reads "Moss Adams LLP". The signature is written in a cursive, flowing style.

Portland, Oregon
December 23, 2020

Appendix A
June 30, 2020 Recommendations

In addition to the required communications, we have identified the following matters for your consideration. Our recommendations are based on observations and testing during the course of our audit. These recommendations should be evaluated by management and the Board of Directors for implementation and the District should conduct a cost benefit analysis including consideration of the risks for the recommended action.

Other Matters

New customer setup – During our inquiries, we noted that no formal review control is in place to verify the accuracy of the new customer information input into the billing system. This is particularly important for new services to validate that the proper rate class was entered into the billing system. We recommend that management establish a control to routinely review reports of new customers added and to verify that the customers were setup correctly with accurate billing attributes.

Inventory costs – We noted that the purchase of inventory items are not being input into the system timely, which has created instances where inventory items are identified during the year end physical inventory count and management may have to call the vendor to obtain the price. We recommend that all inventory purchases be input into the inventory system on a timely basis to ensure the listing is updated, costs are accurate, and amounts charged to projects will be charged at accurate rates.

Capital asset reconciliation to the general ledger – We noted that the District does not currently have a control in place to reconcile certain key, full-accrual accounts on a monthly basis, specifically capital assets. To improve the accuracy of the monthly financial reports and to reduce the burden of the year end closing process, we recommend that the activity per the asset tracking system be routinely reconciled to the capital outlay accounts on a monthly basis. This reconciliation should be formally documented and reviewed by someone other than the person performing the reconciliation as part of the District's monthly close process.

Obsolete inventory – We noted that the District did not have a process in place to regularly review its inventory listing to identify obsolete or unusable inventory items. We recommend that as part of the physical inventory process, the District identify any obsolete items that should be expensed in the current year.

IT user access – We noted that the District does not regularly perform and document its review of user access to the various systems supporting the financial reporting function. We recommend that the District perform routine reviews of user access, at least annually, to determine whether access to the systems are appropriately updated, terminated users have been removed timely, and any segregation of duties conflicts are identified.

Purchase orders – We noted that the District's current policy requires purchase orders to be utilized for any inventory items over \$500. However, non-inventory items do not have a similar requirement. We recommend that the District update its policy to require purchase order on non-inventory items over a pre-determined threshold as well. The purchase orders should be reviewed and approved by someone other than the person requesting the purchase.

Listing of public procurement contracts – As part of our testing of compliance with state procurement requirements, we noted that the District does not maintain a centralized list of all contracts executed during the year. We recommend that this process be centralized with one employee to help track all procurements and ensure all documentation required is maintained on file to support the District's compliance with the State's procurement requirements.

Review of allowance for doubtful accounts – As part of our accounts receivable testing, we noted that the District did not review their allowance for doubtful accounts methodology even though total outstanding accounts receivable increased significantly in 2020 as a result of the novel coronavirus. We recommend that the District reviews their allowance for doubtful accounts methodology annually for the District to ensure that it is in line with outstanding accounts receivable and expected collections.

Appendix B
Prior Year Recommendations Partially Resolved in 2020

Review of new rates – During our current year control procedures over the revenue cycle, we noted no formal, documented process in place to evidence the review of rates input into the system. This is particularly important at the time of a Board-approved rate change to mitigate the risk that rates are input incorrectly or are not updated timely in accordance with the effective date of the new rates. We recommend that a formal process be established to require someone other than the person responsible for making the rate changes to review those changes to verify the accuracy and timeliness.

2020 Update –During our current year audit procedures, we noted that the District implemented a formal process to review rate changes input into the system beginning in April 2020. However, as the process was implemented during the year, we did note that the City of Gladstone residential rates for 1-10 CCF were incorrectly input into the system resulting in immaterial differences to customer bills.

Recalculation of customer bills – During our control procedures we noted no evidence of a recalculation of a sample of customer bills to determine if the bills were calculated accurately using appropriate rates. This is a key control that helps to mitigate the risk that bills are being calculated incorrectly or with incorrect rates, prior to the bills being sent to the customers. We recommend that management implement controls to require a re-calculation of a sample of customer bills each billing cycle, with a minimum of one bill from each rate class. This procedure should be documented to support which bills were re-calculated, who performed the procedures, and to date when the procedures were completed.

2020 Update – During our current year audit procedures, we noted that beginning in April 2020 the District implemented a control to re-calculate a sample of customer bills each billing cycle, with a minimum of one bill from each rate class. This procedure was appropriately documented to support which bills were re-calculated, who performed the procedures, and the date when the procedures were completed.

Customer refund approvals – During our inquiries, we noted that the District has a policy in place that requires any customer refunds should be approved by the Finance Director prior to being issued to the customer. However, during our testing we noted instances where the refunds were not approved by the Finance Director and had been issued to customers. We also noted that individuals other than the Finance Director had access to approve refunds in the system. We recommend that the Finance Director reviews and approves all refunds prior to being issued, and that electronic access to approve refunds be limited to the Finance Director.

2020 Update –During our current year audit procedures, we noted that customer refunds were reviewed and approved by the Finance Director prior to refunds being issued. However, we noted that a Billing Specialist had access within the billing system to approve their own refunds up until September 2020.

Physical inventory of wastewater inventory – During our inquiries we determined that the District had not recorded materials and supplies inventory previously, which resulted in an audit adjustment of approximately \$116,000. We recommend that the District record and track wastewater inventory consistently going forward and that physical inventories be performed on at least an annual basis to validate the accuracy of the amounts recorded.

2020 Update –During our current year audit procedures, we noted that the District performed an annual physical inventory count over wastewater inventory to validate the accuracy of the amounts recorded. However, we noted that no formal documentation of the inventory count was retained. We recommend that the District maintains documentation of the annual wastewater inventory count.

Asset tracking system – We noted that the District does not currently utilize an asset tracking system to track and monitor costs by project throughout the year, and to document when projects were placed into commercial operation and should be moved to assets in service for financial reporting purposes. We recommend that the District consistently utilize an electronic project tracking system to capture all the costs by project each year and to utilize reports from the system to monitor the costs by project to identify any significant variances from budget or estimate. The information in this system should also be reconciled to the general ledger on a routine basis and any projects placed into service should be closed to assets in service on the general ledger.

2020 Update – During our current year audit procedures, we noted that all capital projects are tracked in a spreadsheet that is reviewed periodically based upon what is approved in the capital budget. This allows the District to capture all the costs by project and to monitor the costs by project to identify any significant variances from budget or estimate. As the asset tracking spreadsheet is unprotected, we recommend that the District implements automated controls to prevent unauthorized changes and to reduce the risk of manual errors.

Journal entries – During our review of IT access, we noted that the Finance Director has the ability to both prepare and post journal entries without a secondary approval. We recommend that any manual journal entry have a documented approval from someone other than the person responsible for posting the entry.

2020 Update – During our current year audit procedures, we noted that manual journal entries had a documented approval from someone other than the person responsible for posting the entry. However, we noted that the former Finance Director still had access in the system and had the ability to prepare and post journal entries without a secondary approval.

Review of reconciliations – During our testing, we noted no evidence to support that reconciliations are reviewed and approved timely by someone other than the person preparing the reconciliations. This includes bank reconciliations, accounts payable reconciliations, as well as other monthly reconciliations. We recommend that each reconciliation be reviewed monthly and that the review be documented electronically or in writing.

2020 Update – During our current year audit procedures, we noted that the District formalized month-end close procedures to ensure that the bank reconciliations are reviewed and approved timely by someone other than the person preparing the reconciliations. However, during our testing we noted that the accounts payable reconciliation had no evidence to support that it was reviewed by someone other than the person preparing the reconciliation.

Pay rate and other employee master file changes – We noted during our payroll testing that once a pay rate is entered into the system, there is no formal review to verify that the rates were entered correctly. We recommend that the District run reports of any changes made to the employee master file on a monthly basis to verify the accuracy and timeliness of the changes. Such review should be formally documented to evidence who performed the review and when it was completed.

2020 Update – During our current year audit procedures, we noted that the District implemented a formal review each pay period to verify the accuracy and timeliness of pay rate changes. However, as this formal review was not implemented until August 2020 we noted that it was partially resolved in 2020.

Exceptions – During our inquiries over the exception reporting process, we noted that the exceptions report is a live screen that populates all the variances identified by the system and clears them out as exceptions are cleared by staff. However, no evidence of the exceptions is maintained on file to support the variances that were identified, and the manner with which those exceptions were cleared. This also creates challenges with verifying whether all exceptions were cleared prior to issuing all the bills to customers. We recommend that the District establish procedures to review the exceptions report prior to issuing customer bills each billing cycle to ensure all exceptions were cleared appropriately and timely. This review should be documented to note who performed the review and when it was completed.

2020 Update – During our current year audit procedures, we noted that the District implemented a formal documented review of the exceptions report prior to issuing customer bills each billing cycle. However, as this formal review was not implemented until November 2019 we noted that it was partially resolved in 2020.

Appendix C
Prior Year Control Deficiencies Resolved in 2020

Manual adjustments to customer accounts – During our procedures we noted that the District often makes manual adjustments to customer bills and consumption amounts. We recommend that manual adjustments are reviewed and approved by someone other than the person recording the adjustments prior to the bill being sent to the customer. This approval should be documented either electronically through the billing system or in writing. In addition, we recommend that the District run monthly reports to detail the adjustments made during the month, and such a report should be reviewed by someone other than those responsible for recording adjustments, to help identify any unauthorized adjustments.

2020 Update – During our current year audit procedures, we noted that the District is creating monthly reports to detail the adjustment made during the month, and that this report is appropriately reviewed and approved by the Finance Manager. We believe the comment has been resolved in the current year.

Physical inventory of capital assets – During the audit several assets were identified on the general ledger that were disposed of in previous periods, thus requiring a prior period adjustment for this error. We recommend that the District establish controls to perform periodic physical inventories of capital assets to help identify assets that were disposed of, but have not been captured appropriately in the financial records of the District.

2020 Update – During our current year audit procedures, we noted that the District performed an annual physical inventory count to help identify if any disposed assets had not been captured appropriately in the financial records of the District. We believe the comment has been resolved in the current year.

Useful lives of capital assets – As we were analyzing depreciation expense and useful lives assigned to assets, we noted that the ability to change useful lives is unrestricted and therefore unauthorized changes could occur and impact the calculation of depreciation expense. We recommend that access to change useful lives be restricted to certain individuals.

2020 Update – During our current year audit procedures, we noted that access to change useful lives has been restricted to certain individuals. Additionally, we noted that the District implemented a new policy that the Finance Manager must approve and review any changes to the useful lives of capital assets. We believe the comment has been resolved in the current year.

Labor and overhead costs – During our review of project costs, we noted that the District does not currently track and apply internal labor and overhead costs to projects. With the implementation of an asset tracking system, we recommend that the District begin to track these costs and apply them to the appropriate projects to help capture all costs that were incurred during the construction phase of each project.

2020 Update – During our current year audit procedures, we noted that all capital projects are tracked in a spreadsheet that is reviewed periodically based upon what is approved in the capital budget. This has allowed the District to track and apply internal labor and overhead costs to projects. We believe the comment has been resolved in the current year.

Review of NCCWC balance – During the audit of the North Clackamas County Water Commission (NCCWC), a prior period adjustment was identified and reported relating to the improper previous amortization of water rights. The restatement of the NCCWC's financial statements had a direct impact on

the District's reporting of its investment in the NCCWC on the District's financial statements. The adjustment to the investment in NCCWC was not properly recorded as a restatement in the initial draft of the district's financial statements provided to us. We recommend that the district completes a review of the final, audited NCCWC financial statements prior to finalizing the District's financial statements to ensure proper reflection of the investment in NCCWC. The review should be documented as part of the District's year end closing process.

2020 Update – During our current year audit procedures, we noted that the Finance Director performed a detailed review of the audited NCCWC financial statements prior to finalizing the District's financial statements to ensure proper reflection of the investment in NCCWC. We believe the comment has been resolved in the current year.

Cutoff of expenditures – During our testing, we noted amounts where the service period per the invoice spanned over both fiscal year 2018 and 2019, but the total amount of the invoice was expensed in fiscal year 2019. In addition, we noted an expenditure for which receiving documentation was not retained for materials that were invoiced in the prior fiscal year, but were recorded as expenditures in the current fiscal year. We recommend that the District establish controls to review year end cutoff to ensure that costs are recorded in the period in which the service was provided or the materials were received. We also recommend that the District retain all documentation related to purchases including any receiving documentation.

2020 Update – During our current year audit procedures, we noted that the District implemented controls to review year end cutoff to ensure that costs are recorded in the period in which the service was provided or the material were received. We believe the comment has been resolved in the current year.

Duplicate payment – We noted one instance in our subsequent disbursement testing where an invoice was paid twice by the District and was not discovered during the District's approval process. We recommend a formal review of all disbursements prior to issuing payment to ensure the amount to be paid matches the amount owed to the vendor for the products or services received and invoiced.

2020 Update – During our current year audit procedures, we noted that the District implemented a formal review of all disbursements prior to issuing payment to ensure the amount to be paid matches the amount owed to the vendor for the products or services received and invoiced. We believe the comment has been resolved in the current year.



STAFF REPORT

To Board of Directors
From Jason Rice, District Engineer
Title Technical Services Monthly Report
Item No. 13b
Date January 19, 2020

Summary

The Board has requested updates at the Regular Meetings of the Board on the status of the District's operations.

Highlights of the Month

- A significant amount of time was devoted to coordinating with Treatment Plant Staff and consultants to devise a plan to unblock the treatment plant.
- Onboarding of the District's new Outreach and Communications Specialist
- Various Task Orders are advancing for FY21 Capital Work.
- Effort to bring GIS layers "Up-to-Date" with past development was completed; Ongoing updates will continue.
- Water Quality Sampling
- Technical Services staff continue to work from home when they can to create as much social distancing as possible while still completing all normal tasks.

Sanitary Sewer Line Backup – South of Roethe Road behind Wendy's

While the cause of the backup is still being investigated, staff believes that Fats, Oil or Grease (FOG) were the likely culprits. Staff will be looking into this instance as well as be pulling together other District records to determine if a proper amount of oversight is occurring in the District's FOG Program. If it is determined that changes are needing to be made, staff will report back to the Board at a later date to discuss this program in greater detail.

Outreach and Communication

- The North Clackamas Watershed Council held a 90-minute online workshop to share how watersheds affect the community. The online event was titled North Clackamas Watersheds, People, and Place. The online workshop took place on January 12, 2021 at 6:00 p.m. on Zoom. The District is a funder of this outreach program.
- Communications Plan 2021 – 2022 was prepared for the Board to review.
- Follow the District on Facebook for updates at [Facebook.com/OLWSD](https://www.facebook.com/OLWSD)

Stormwater

- District staff continues to focus on keeping “hots spots” clear – at least every two weeks in the Autumn. These include keeping certain catch basins and problem spots clear.
- District field staff continued regular ongoing inspections and maintenance on eight beaver dams in the District. A total of about 10 hours of work occurred since the last report, in the remainder of December. Staff worked to keep dams lower and noted creek flows seemed good, with water moving without much blockage or pooling.
- District stormwater staff has been in conversation with Clackamas County Department of Transportation and Development (CCDTD) about cleaning/maintaining the stormwater ditch just south of Jennings along the Boardman Creek. The District is assessing how much work can be done now without a Removal/Fill Permit, versus waiting to do the work later with a Removal/Fill Permit.
- Customer calls were more frequent during the bog rains received in December. During the December 21-23 storms, District staff responded to several calls per day. As a reminder when a stormwater related call comes in:
 1. Customer service staff enters the request into the District Work Order Program (Lucity).
 2. Staff then review the request to decide on the response. Response may be any, if not all, of the following:
 - a. Inspection of the area;
 - b. Request entered for field staff to clean the catch basins, storm pipes, or sediment manholes;
 - c. Coordination/request to partner agencies for follow up on ditch cleaning, culvert cleaning, or cleaning of additional assets – like pipes in the McLoughlin corridor – depending on responsibility assigned in MOUs. Partner agencies are Clackamas County Department of Transportation and Development (CCDTD), Oregon Department of Transportation (ODOT), and North Clackamas Parks and Recreation District (NCPRD).

December 2020 Permit Activity

	<i>This Month</i>	<i>Last Month</i>	<i>Fiscal Year-to-Date</i>	<i>This Month Last Year</i>	<i>Last Year-to-Date</i>
Pre-applications Conferences	3	0	9	3	3
New Erosion Control Permits	3	9	44	42	70
New Development Permits	5	2	9	0	11
New Utility Permits*	5	13	48	-	-
Wastewater Connections	8	2	30	6	6
Sanitary SDC Fees Received	\$41,320.00	\$10,330	\$258,507	\$30,990.00	\$339,177.60
Water SDC Fees Received	\$26,179.20	\$8,726	\$197,890	\$32,400.00	\$196,370.00
Plan Review Fees Received	\$20,461.20	\$5,292	\$69,780	\$4,200.00	\$32,370.00
Inspection Fees Received	\$2,350.00	\$620	\$28,888	\$4,340.00	\$23,229.80

Attachments

1. Development Tracker
2. Capital Project Tracker

Project Status	Address	Type of Development	Notes	Last Updated
Under Construction	4410 SE Pinehurst Ave.	Residential: 17-lot Subdivision	Water utility only. Inspections Continuing	01/07/20210
Under Construction	16518 SE River Rd.	Redevelopment: Head Start School Additions	Oak Lodge permits expire March 2021. Modification to permit in Z0480-20. Oak Lodge sent comments to CC DTD. Modification did not affect Oak Lodge permit.	01/07/20210
Under Construction	13505 SE River Rd.	Residential: Rose Villa Phase 4 Medical Building and Replace Dwelling Units	Oak Lodge permits expire July 2021	01/07/20210
Under Construction	1901 SE Oak Grove Blvd.	Redevelopment: Replace a portion of existing New Urban School (eastern structure and gym)	Oak Lodge permits expire July 2021	01/07/20210
Under Construction	4828 SE View Acres Rd.	Redevelopment: View Acres Elementary School	Oak Lodge permits expire July 2021	01/07/20210
Under Construction	16303 SE River Rd.	Redevelopment: Riverside Elementary School	Oak Lodge permits expire July 2021	01/07/20210
Under Construction	1901 SE Oak Grove Blvd.	Redevelopment: Replace a portion of existing New Urban School Annex (western structure)	Oak Lodge permits expire July 2021	01/07/20210
Under Construction	5901 SE Hull Ave.	Redevelopment: Candy Lane Elementary School	Oak Lodge permits expire July 2021	01/07/20210
Under Construction	18521 SE River Rd.	Redevelopment: Jennings Lodge School	Oak Lodge permits expire July 2021	01/07/20210
Plan Review	14824 SE Kellogg Rd.	Residential: 2-lot partition	Current OLWSD Review	01/07/20210
Plan Review	15099 SE McLoughlin Blvd.	Tenant Improvement: Clackamas Credit Union	Current OLWSD Review	01/07/20210
Plan Review	19315 SE River Rd.	Residential: 2-lot partition	Land Use comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Plan Review	3870 SE Hillside Dr.	Modification of previously approved 13 lot subdivision	Land Use comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Plan Review	SE Jennings Ave., SE Oatfield Rd. to SE McLoughlin Blvd.	Capital Improvement: CC DTD Jennings Ave Roadway expansion and regional stormwater treatment	Current OLWSD review	01/07/20210
Plan Review	15603 SE Ruby Dr.	Residential: 3-lot partition	Current OLWSD review	01/07/20210
Plan Review	14928 SE Oatfield Rd.	Residential: 4-lot partition	Current OLWSD review	01/07/20210

<i>Project Status</i>	<i>Address</i>	<i>Type of Development</i>	<i>Notes</i>	<i>Last Updated</i>
Plan Review	6364 SE McNary Rd.	Residential: 15-lot partition	Current OLWSD review: water utility only	01/07/20210
Plan Review	2316 SE Courtney Ave.	Residential: 14 rowhomes or 14 apartments	Land Use comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Plan Review	3024 SE Westview Ave.	Residential: 2-lot partition	Land Use comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Plan Review	3700 SE Pinehurst Ave.	Commercial: Hair Salon in Residential Zone	Land Use comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Plan Review	3838 SE Hillside Dr.	Boat Ramp To Willamette River	Land Use comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Plan Review	3552 SE Westview Ave	Residential: Add One Dwelling Unit	Current OLWSD Review.	01/07/20210
Plan Review	14497 SE River Rd.	Residential: 2-lot partition	Current OLWSD Review.	01/07/20210
Plan Review	18245 Portland Ave. Gladstone	Residential: 2-lot partition with duplexes	Current OLWSD Review	01/07/20201
Pre-Application	14720 SE River Rd.	Residential: Multifamily	Pre-app Comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Pre-Application	14733 SE Rupert Ave.	Residential: tri-plex; no demo	Pre-app Comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Pre-Application	3110 SE Concord Rd. and 16103 SE Southview Ave	Residential: 7-lot subdivision	Pre-app Comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Pre-Application	Spaulding Ave. Taxlot 3200	Residential: 2-lot partition	Pre-app Comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Pre-Application	5212 SE Thiessen Rd.	Residential: 5-Lot Short Subdivision	Pre-app Comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Pre-Application	5200 SE Roethe Rd.	Residential: 4-lot subdivision	Pre-app Comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Pre-Application	16305 SE Oatfield Rd.	Residential: 12-lot subdivision	Pre-app Comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Pre-Application	3421 SE Vineyard Rd.	Zone Change To MR-1 and a three-parcel partition for seven duplex and triplex units.	Pre-app Comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Pre-Application	3811 SE Concord Rd.	Redevelopment: Concord School	Pre-app Comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Pre-Application	17325 SE McLoughlin Blvd.	Residential: 2-lot partition	Pre-app Comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Pre-Application	17325 SE McLoughlin Blvd.	Lot Line Adjustment or Partition to conform to existing conditions. No development.	Land Use comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Pre-Application	15775 SE McLoughlin Blvd	Commercial Redevelopment: fast food and bank.	Pre-app Comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Pre-Application	14333 SE Wagner Ln.	Residential: Three Lots	Pre-app Comments sent to CCDTD. County land use expiration timeline.	01/07/20210
Pre-Application	17821 SE Arista Dr.	Residential: 2-lot partition	Pre-application conference scheduled for Jan. 13 2021.	01/07/20210



STAFF REPORT

To Board of Directors
From Brad Lyon, Water Operations Field Supervisor
Title Field Operations Monthly Report
Item No. 13c
Date January 20, 2021

Summary

The Board has requested updates at the Regular Meetings of the Board on the status of the District's Operations.

Highlights of the Month

- Water consumption for December: **73867000 Gallons** (.52% below the 10-year average of 74,249,000 and down 1.19% compared to last year) (See metered monthly consumption chart)

Water Operations

Meter reading software produced a report with a large amount of customer meters reporting leaks. Staff went to each address, checked the meter, and advised customer of possible leak as necessary. Hydrant on SE Briggs was damaged by vehicle, and replaced. Staff helped with unclogging of sewer main at treatment plant as well.

Collections Operations

I will work to get footage numbers for month of December and will get them into February's report. Phil Lawrence started January 4, 2021 to lead collections team until a permanent replacement for Todd Knapp is found.

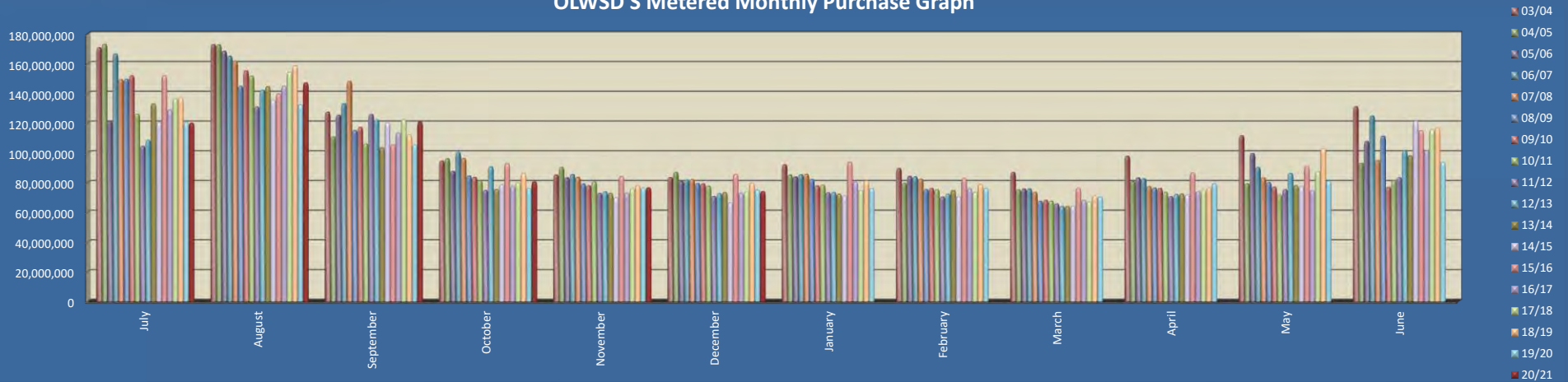
Attachments

1. Master Meter Report
2. Water Stats Report

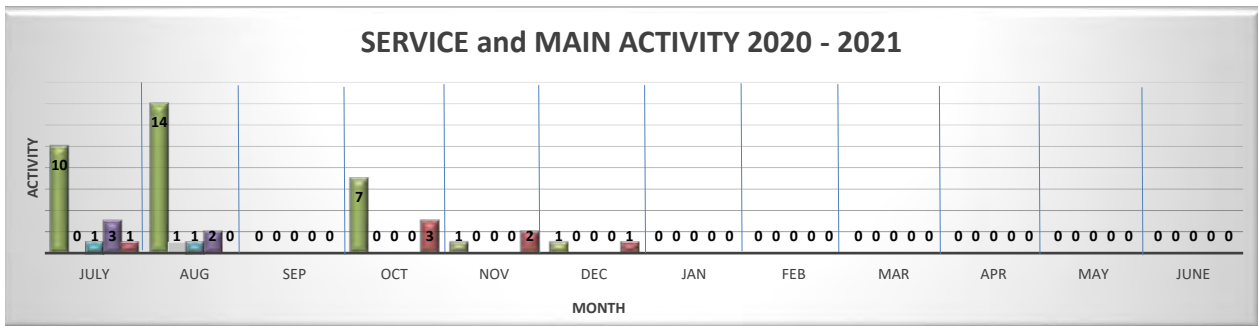
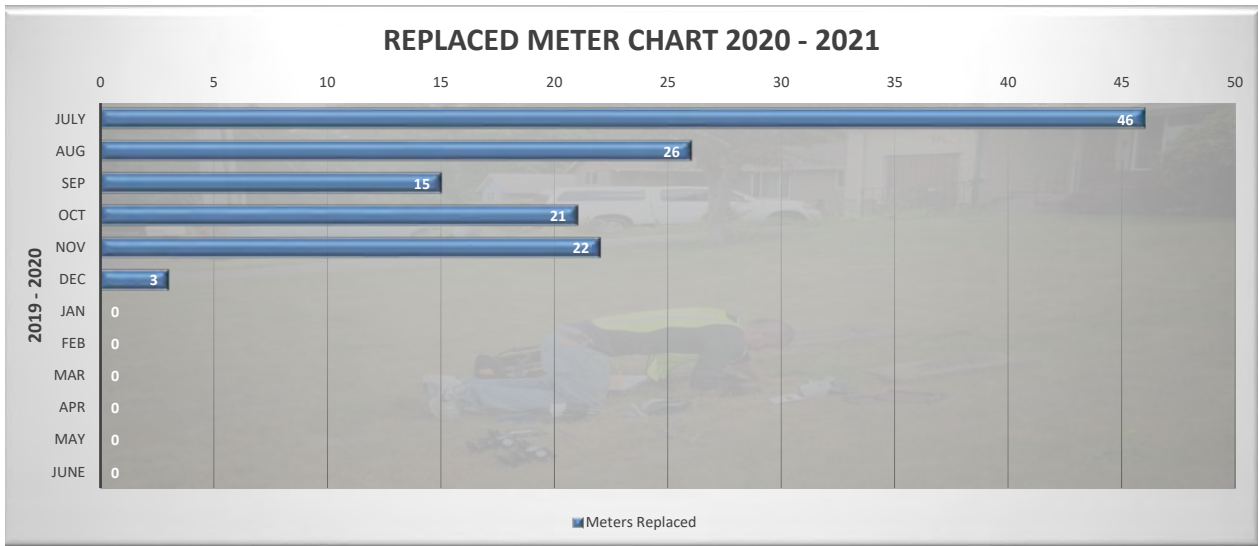
Water Purchased from NCCWC By Month and Year

Year	Fiscal 1st Half						Fiscal 2nd Half						Total Yearly Con	Average Daily Demand	10 Year % Ave	
	July	August	September	October	November	December	January	February	March	April	May	June				
03/04	170,652,000	172,726,000	127,198,000	94,416,000	85,037,000	83,285,000	91,933,000	89,441,000	86,755,000	97,665,000	111,392,000	130,863,000	1,341,363,000	3.67		
04/05	172,883,000	172,499,000	110,696,000	95,973,000	90,079,000	86,823,000	84,976,000	79,415,000	74,996,000	80,616,000	79,088,000	92,885,000	1,220,929,000	3.35		
05/06	120,871,000	168,248,000	125,172,000	87,512,000	83,230,500	80,773,500	83,697,000	84,098,667	75,580,333	83,028,000	99,436,000	107,501,000	1,199,148,000	3.29		
06/07	166,449,000	164,957,000	132,989,000	100,180,000	85,350,000	81,587,000	85,179,000	83,766,000	75,622,455	82,508,545	90,129,000	124,696,000	1,273,413,000	3.49		
07/08	149,207,000	161,512,000	147,980,000	96,159,000	83,445,000	81,921,000	85,466,000	82,200,000	73,405,000	77,221,722	83,162,278	94,885,000	1,216,564,000	3.33		
08/09	149,422,000	144,592,000	114,830,000	84,307,000	79,094,000	79,319,000	82,042,000	75,196,000	67,364,000	76,238,000	79,968,000	111,127,286	1,143,499,286	3.13		
09/10	151,804,000	155,069,000	117,099,000	83,457,000	77,782,000	79,107,000	77,735,000	75,975,000	67,986,000	75,943,000	76,903,000	76,720,000	1,115,580,000	3.06	101.94%	
10/11	125,996,000	151,590,000	105,880,000	81,052,000	80,389,000	77,515,000	78,266,000	74,983,000	67,462,000	73,285,000	71,613,000	81,189,000	1,069,220,000	2.93	97.70%	
11/12	104,328,000	130,684,000	125,733,000	74,646,000	72,657,000	70,555,000	73,041,000	70,104,000	65,501,000	70,380,000	75,148,000	83,256,000	1,016,033,000	2.78	92.84%	
12/13	108,236,000	142,023,000	121,981,000	90,545,000	73,672,000	72,454,000	73,277,000	72,051,000	63,866,000	71,906,000	86,085,000	101,278,000	1,077,374,000	2.95	98.45%	
13/14	132,837,000	144,354,000	103,403,000	75,217,000	72,624,000	73,180,000	72,052,000	74,566,000	63,886,000	72,171,000	77,889,000	97,978,000	1,060,157,000	2.90	96.87%	
14/15	120,411,000	135,271,000	120,008,000	78,257,000	69,534,000	66,200,143	70,840,857	70,318,000	63,972,000	71,515,000	77,173,000	121,185,000	1,064,685,000	2.92	97.29%	
15/16	151,728,000	139,696,000	105,238,000	92,781,000	83,966,000	85,368,000	93,522,000	82,637,000	76,044,000	86,443,000	90,989,000	114,745,667	1,203,157,667	3.30	109.94%	
16/17	128,722,333	144,599,000	113,212,000	77,196,000	72,766,000	72,839,000	80,205,000	75,867,000	68,040,000	73,822,000	74,515,000	101,310,000	1,083,093,333	2.97	98.97%	
17/18	136,262,000	154,085,000	122,113,000	79,860,000	75,718,000	73,584,000	74,389,000	73,219,000	66,754,000	74,713,000	87,263,000	115,543,000	1,133,503,000	3.11	103.58%	
18/19	136,887,000	158,433,000	112,001,000	86,062,000	77,769,000	79,690,000	81,040,000	78,594,000	70,790,000	76,199,000	102,519,000	116,626,000	1,176,610,000	3.22	107.51%	
19/20	120,368,000	132,181,000	105,200,000	75,825,000	76,089,000	74,759,000	75,848,000	75,918,000	70,192,000	79,173,000	80,872,000	93,438,000	1,059,863,000	2.90	96.85%	
20/21	119,901,000	146,849,000	120,624,000	80,370,000	76,317,000	73,867,000										
10 Year Average	125,968,033	142,817,500	114,951,300	81,075,900	75,111,200	74,249,614	77,248,086	74,825,700	67,650,700	74,960,700	82,406,600	100,983,067		3.00	10 Year ADD	Winter Ave
Last Year Compare	99.61%	111.10%	114.66%	105.99%	100.30%	98.81%										Summer Ave
10 year Average	95.18%	102.82%	104.93%	99.13%	101.61%	99.48%										127,912,278
	0.53%	-4.82%	2.82%	4.93%	-0.87%	1.61%										
	3,754,452	-6,067,033	4,031,500	5,672,700	-705,900	1,205,800										

OLWSD'S Metered Monthly Purchase Graph



Oak Lodge Water Services Water Report



Fiscal Year 2020 - 2021	Month	Meters Replaced	New Services	Iron Services Renewed	Plastic Services Renewed	Service Leaks Repaired	Main Leaks Repaired
2020	July	46	10	0	1	3	1
2020	Aug	26	14	1	1	2	0
2020	Sep	15	0	0	0	0	0
2020	Oct	21	7	0	0	0	3
2020	Nov	22	1	0	0	0	2
2020	Dec	3	1	0	0	0	1
2021	Jan	0	0	0	0	0	0
2021	Feb	0	0	0	0	0	0
2021	Mar	0	0	0	0	0	0
2021	Apr	0	0	0	0	0	0
2021	May	0	0	0	0	0	0
2021	June	0	0	0	0	0	0
Yearly Total		133	33	1	2	5	7

Backflow Program Update for the Month of July

Total						
1,709						
Signed up to Date	Devices Repaired	New Installations	Notice of Non-Compliance	Notice of Violation	Notice of Termination	Force Test
774	3	10	0	3	0	28
45%						

Total Signed up

45%
774

935

List of Backflow Letters

Letter 1	Notice of Non-Compliance	District made aware (30 days to respond)
Letter 2	Notice of Violation	Customer has final 30 days to correct
Letter 3	Notice of Termination of water service	Customer has 5 days til water shut off



STAFF REPORT

To Board of Directors
From David Mendenhall, Plant Superintendent
Title Plant Operations Monthly Report
Item No. 13d
Date January 19, 2021

Summary

The Board has requested updates at the Regular Meetings of the Board on the status of the District's Operations.

Highlights of the Month

- Mostly calm then calamity
- Bypass
- Post bypass

Water Reclamation Facility Operations

The first 19 days of December were lovely with very good plant performance and excellent effluent clarity. We had some rain days that increased our flow no more than 1 Million Gallons per Day (MGD) but we had already prepared for the rainy season by putting a third secondary clarifier on line in November. Then the steady rains began the afternoon of Saturday the 19th and got heavier as the night went on. The rain total from 8:00 am Saturday the 19th to 8:00 am Sunday the 20th was 1.63 inches, most of that after 10 pm, and the total from Sunday the 20th 8:00 am to Monday the 21st 8:00 am was 0.68". We suspect there were areas in the District which received heavier rain based on the resulting flows. During the early morning hours of Sunday, the 20th, flows continually increased and we put the plant into contact stabilization mode at 4:00 am to maintain the blankets in the clarifiers. The flows were about 9 MGD and we were not having any problems pumping. The flows increased rapidly in the morning to about 16 MGD and at 9:30 am operators noticed the headworks facility overflowing with the raw wastewater flowing 3 stories down the outside walls and internally through air ducts and piping. Wastewater was flowing down our plant street, into the catch basins and back to the plant drain system and into the headworks. (All of this flow stayed contained in the plant). They quickly opened another aeration basin and put on another clarifier, but the overflowing would not stop. They called in an additional operator and then called me to discuss options. The main electrical gear and controls are housed in the headworks building so the fear was great that allowed to continue, it was possible to have a

catastrophic failure of the electrical system and put our plant, our staff, and our customers in a grave situation. I am trying to describe a high flow event that we were prepared for and handling, which rapidly turned into an out-of-control situation. I made the call to turn all the influent pumps on and throttle them back until the overflowing could be stopped and see what we had. We fully discussed that this would result in a bypass to the Willamette River and I made the decision to do that.

Initially, a flow of about 10 MGD was achieved through the plant without overflowing the headworks. The wet well level stabilized at 15 feet which is the top of measuring range. As the overall wet well level stabilized, the pump output reduced. At the headworks, we used the level downstream of the bar screens as a guide to match flow with preventing headworks overflow. We were able to stabilize the flow at about 9.5 MGD with two pumps; one on auto and one on manual to adjust. Once control had been achieved the operators checked the plant over and tried to make sure everything was open and could determine no physical set up in the plant that would be restricting flow. After some brainstorming, we concluded that it was some blockage or restriction in the 42-inch pipe from the headworks to the aeration basins. So, we had no choice but to continue putting 9.5 MGD through full treatment and disinfection and bypass the remaining flow. The 9.5 MGD rate was to keep a margin of safety of about 20 inches from the top of the headworks to prevent water from getting in the foul air system.

The constructed bypass is immediately west of the plant entrance at 13750 SE Renton Ave in Rivervilla Park. The 24-inch bypass pipe has a duckbill on the end to prevent river backflow and goes into a submerged outlet in the Willamette River. The elevation of the pipe is from 11 feet to 13 feet above sea level. But a manhole directly upstream with a weir is what determines when that flow happens. That weir is at 14.17 feet above sea level. Our influent pump station has level detectors which go up to 15 feet. But that level is the actual level of the wet well structure and not above sea level. So, our initial assumption of when the bypass occurred and especially when it finished was wrong. I initially estimated the rate of flow on Sunday was 6 MGD at the beginning of the event and slowly diminishing. For Monday, December 21st, the estimate was for about 2 MGD based on observations at the bypass again diminishing until we reached a wet well level of 12 feet. But the bypass does not really start until our wet well is above 15 actual feet or 14 feet above sea level and we only measure to 15 feet. By looking at the detectable high-water level in the wet well (wastewater leaves a nice bathtub ring) the highest we got was about 16 feet. The weir is two feet long, so I had Haakon calculate the flow and with a foot of water flowing over the weir and the rate is 4.3 MGD. The initial 2 MGD estimate was based on a look at the duckbill flow and that had to be high because our wet well level was dipping a little below 15 feet at times Monday afternoon and evening. Now based on better information and the time the bypass started I am cutting my estimate in half from a total of 8 MGD to a total of 4 MGD. Still a very rough estimate but at least based on more facts. I also can say the bypass ended sometime Monday evening the 21st and not on Tuesday, December 22nd at 2:45 am. That was based on a wet well level of 12 feet which we now know is well below the bypass. The wet well level for bypass is about 16 feet. We have contacted our vendor to re-range that to 20 feet, so we know for certain when we bypass, and I hope that is never again.

For the first three days operators worked around the clock to monitor the flow and pump situation and manually make adjustments to preserve the plant. We also focused on cleaning up of the headworks, foul air piping and the streets. Treatment of the flow going through the plant remained very good. We were also trying to figure out what and where the blockage is. The pipe running from the headworks to the aeration basin has a maximum rise of 27 feet, so it is not very accessible. But a crew got together and tried to televise from the headworks end, but the flow is quite forceful and turbid and that did not work out. They probed around the inlet structure to the pipe. They felt a large mass of what seems to be debris and rags around the pipe opening which is about 9 feet underwater. They ran the flush line down through the pipe all the way to the aeration basin end three times and didn't encounter anything that stopped the flusher. But when pulling the hose out they were able to pull out a large wag of rags and debris. Using hooks and probes and a gantry they pulled several buckets of rags out of the pipe entrance. Thought was given to running the large tv camera in the pipe but there was concern of getting the camera stuck or losing it all together so that was not done. This endeavor was over the course of two days and was a significant effort involving Operations, Maintenance, Collections and Water. As it turned out these efforts opened up the clog a bit resulting in gaining capacity by about 3.5 MGD as measured during another rain event on the New Year's weekend. This capacity was just enough for us to avoid two more bypasses to the river. Plant cleanup involved cooperative groups from Operations, Maintenance, and Collections. This event was really bad, but the response was collaborative and effective. Another focus was to figure out how the bypass structure worked with the influent wet well, so plans were pulled out and reviewed and calculations done to determine the flow information I have stated above.

The people involved in all of this were Chuck Adams, David Hawkins, Matthew Westergaard, Paul Hawkins, Jayson Kahler, Doug Woods, Abe Merritt, Jesse Ramos, Jeff Wheeler, Derek Shunn, Dave Seifert, Justin Claxton, and Haakon Ogbeide. I also want to point out that this all happened in a time period with three holidays, people on vacation, and COVID-19 scheduling. I am very appreciative of the work this crew did.

We now need to fix the problem. Haakon got our on-call engineer Murray Smith involved right away on Monday the 21st, to assess our situation and develop a plan to remove this clog. Haakon has worked out a plan and has gotten a contractor to get input on the plan and pricing. He will be getting a procurement together very soon. In short, we are going to have to pump around the headworks, drain the pipe, and get a good feel on what needs to be done to remove whatever it is that is causing the problem. This will be a big project and needs to be done in phases.

We did other things in December, like John Krogstad trying to rebuild a digested sludge pump. The backing plate was damaged enough that the seal and bearings would not fit right. The lead time and cost on a new plate was a problem enough for me to order a new pump which had a two-week lead time. We will rebuild the other pump later and have a spare. There were PMs done too but the big story was the bypass.

We continued with our contract hauling of biosolids and continued pressing. My hauling numbers for last month were wrong because I read the tickets wrong. So, the amounts of biosolids hauled have been: October, 126.9 wet tons; November, 154.5 wet tons; and December, 178.4 wet tons.

Very happy to see 2020 end.

Attachments

1. Photo Pages of December 2020 work.
2. Rainfall vs Flow Data Correlation for June 2020-December 2020
3. Plant Performance BOD-SS Graph for June 2020-December 2020
4. Work Order Summary Graph 2020



1) Flooding in headworks



2) River Forest Rd not overflowing



3) Plant bypass manhole weir



4) Plant bypass manhole #2 duckbill



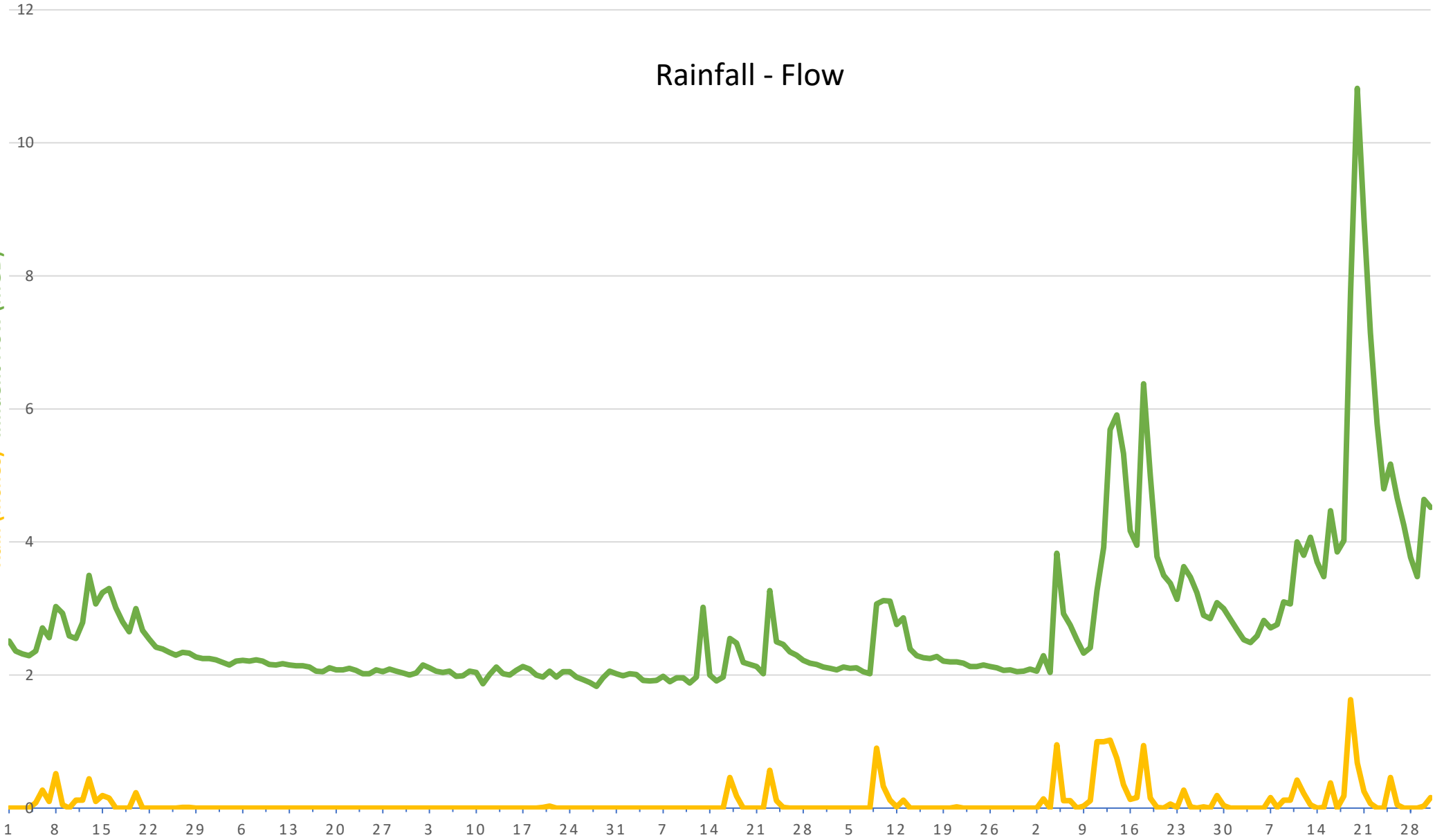
5) Headworks camera attempt



6) Partial rag ball captured

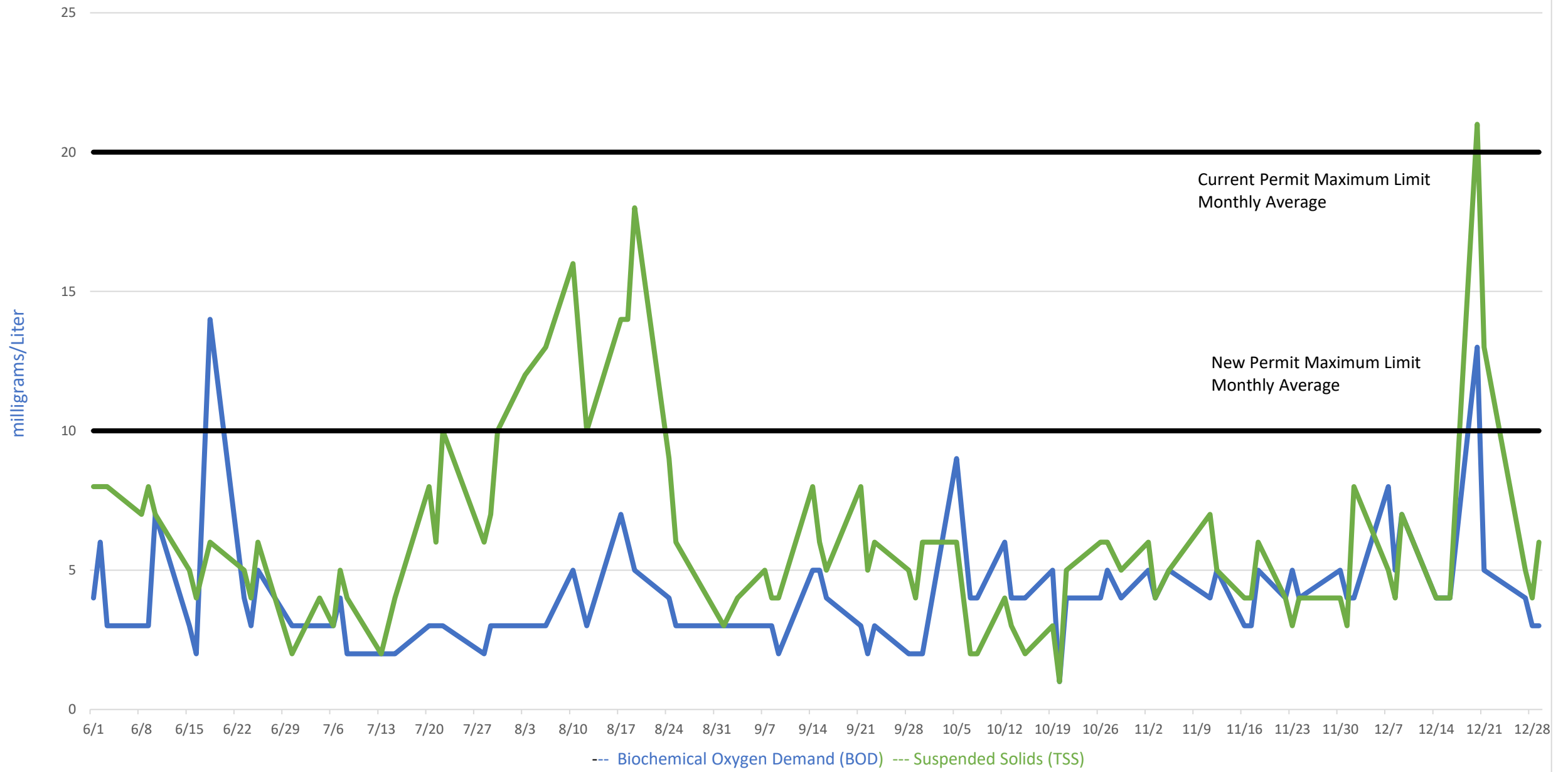
Rainfall - Flow

Rain (inches) - Influent Flow (MGD)

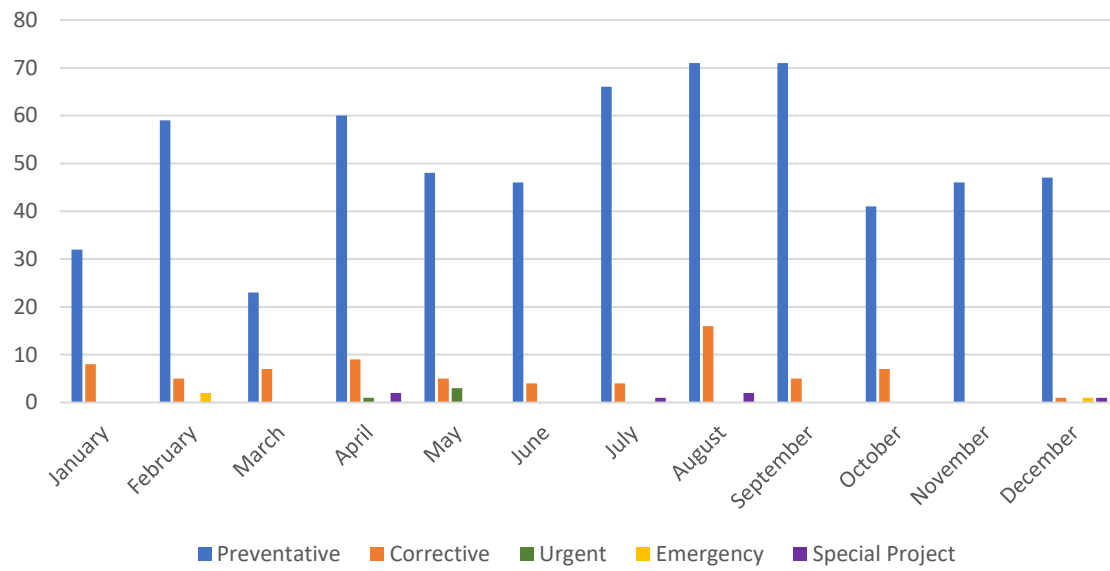


June 2020 through Dec 2020

Effluent Water Quality (Jun 2020-Dec 2020)



Treatment Plant Work Order Summary 2020





AGENDA ITEM

Title Business from the Board
Item No. 14
Date January 19, 2021

Summary

The Board of Directors appoints District representatives from time to time to serve as liaisons or representatives of the District to committees or community groups.

Directors assigned specific roles as representatives of the District are placed on the agenda to report to the Board on the activities, issues, and policy matters related to their assignment.

Business from The Board Items Include:

- a. Individual Board Member Reports**
- b. Parking Lot**

Date Added	Item	Work Update
8/13/2019	OLWSD/Gladstone IGA	OLWSD and Gladstone have begun negotiations of the full draft IGA. The next meeting is scheduled to occur in January 2021.

**Oak Lodge Water Services
2021 OLWS Board Member Liaison Assignments**

Board/Committee	Current Primary	Current Alternate	Meeting Schedule
Clackamas River Water	Kevin Williams	Paul Gornick	Monthly - Second Thursday, 6 p.m.
Sunrise Water Authority	Paul Gornick	Kevin Williams	Monthly - Fourth Wednesday, 6 p.m.
C-4	Paul Gornick	Susan Keil	Monthly - First Thursday, 6:45 p.m.
Regional Water Providers Consortium	Mark Knudson	Paul Gornick	Triannually - First Wednesday, 6:30 p.m.
Oak Grove Community Council	Mark Knudson	Susan Keil	Monthly - Fourth Wednesday, 7:00 p.m.
SDAO	All		Varies
AWWA	All		Varies
Jennings Lodge CPO	Kevin Williams	Paul Gornick	Monthly - Fourth Tuesdays, 7:00 p.m.
North Clackamas County Water Commission (NCCWC)	Paul Gornick/Kevin Williams	Mark Knudson	Quarterly - Fourth Thursday in Jan/March/June/Sept, 5:30 p.m.
Chamber of Commerce	Ginny Van Loo	Susan Keil	Monthly - Third Wednesdays, 11:45 a.m.-1:15 p.m.
New Concord Task Force	Ginny Van Loo		Quarterly
Healthy Watersheds	Kevin Williams		
OGLO Bike-Ped Bridge Advisory Group	OPEN	None needed	Task Force will dissolve after project decision
Water Research Foundation	Mark Knudson	None needed	

Board of Directors Report - Ginny Van Loo
January 2021

On January 4, 2021 I attended the North Clackamas Chamber Policy Advisory Meeting. 16 members were present and a presentation by Providence Housing Division was the beginning of the meeting. Renee King and Walter Zisette had a power point which showed proposed plans for Senior Housing to be located at 34th and Lewelling close to the Healing Place. They mentioned that Providence owns 17 properties in Oregon and Washington. The new building will house 69 units, share the Healing Place parking lot and relocate the Healing Place to the new building. Of the 69 units proposed, half will be affordable housing and the other half will be regular housing. These units are for long term units for seniors 55 and older.

The projected timelines are 2020 pre-development and program delivery; 2021 Apply for financing; 2022 Close on Financing and start construction; 2023/2024 complete construction and begin operations.

A question was posed about the income level and how to choose residents. Answer was that they will work with organizations, look at credit and criminal background. 30% of seniors have income levels below \$12,000-\$15,000 they would be looked at for half the units and those with \$35,000-\$50,000 will be looked at for the other half. Question about parking. They indicated that there will be 1 space per 5 units with additional parking at the Healing Place area.

Another presentation was from the Catholic Charities. Julia Metz presented information on the Happy Valley project. There will be more units on 162nd and Sunnyside. It is in cooperation with Caritas Housing which is Catholic Housing. In all their developments for Catholic Charities, they maintain ownership.

Clackamas County gave them \$18,000,000 thru a Metro Bond for this project. There will be a total of 142 units with on-site parking. These units will be prioritized for Seniors and Veterans. Completion is projected to be 2024. Units will be as follows:

12 studio's @ \$470-970 per month
50 1 bedroom units @ \$520-1040 per month
60 2 bedroom units @\$620-1240 per month
20 3 bedroom units @ \$720-1440.

Long term housing tax credits and the County voucher program will pay what citizen can't pay.

Following all this good information was a long discussion on the reopening of businesses that are closed due to Covid. Many businesses hanging on by a thread.

Meetings Attended During the Past Month

1. December 15, 2020 – Oak Lodge Water Services Board meeting (virtual meeting)
2. December 19, 2020 – Meeting with representatives of the Oak Lodge Governance Project (virtual meeting)
 - a. Chair Williams and I presented OLWSD’s perspectives and observations regarding the current governance study. The District offered standing placeholder agenda item on the District’s board meeting for the OLGP to provide project updates.
3. January 13, 2021 – Regional Water Providers Consortium Executive Committee (virtual meeting)
 - a. Staff have started budget and work planning for FY 2021-22
 - b. Agenda planning for Consortium Board Meeting in February

Meetings Scheduled for the Next Month

1. January 25, 2021 – Business Oregon Audit Committee meeting
2. January 27, 2021 – Oak Grove Community Council meeting
3. February 3, 2021 – Regional Water Providers Consortium Board meeting
4. February 3 & 4, 2021 – Special Districts Association of Oregon Annual Conference
5. February 5, 2021 – Oregon Infrastructure Finance Authority Board meeting
6. February 16, 2021 – OLWS Board meeting

Business from the Board
Paul Gornick's Meeting Reports
December 2020

December 16, 2020 - Sunrise Water Board Meeting (remote meeting)

- Board adopted Declaration of Surplus Property resolution for disposal of a dump truck and flatbed truck.
- General Manager's report included several notable items:
- New OSHA rules for COVID expanded the mask requirement for indoor "offices" that are regularly occupied, required creation of an infection control plan, periodic cleaning of common areas, and detailed workplace health notifications. Wade Hathhorn noted that SWA is already compliant in these areas.
- South Fork Water Board and the NCCWC have combined interests in an effort to create a Water Treatment Operator Apprenticeship program. The program has received preliminary approval from Oregon BOLI, and awaits formal approval in January 2021.
- Staff is examining options to migrate SWA's digital file system from traditional servers to cloud-based storage (Microsoft Azure, Google Cloud, Amazon Web Services). This is one of the final pieces of an ongoing strategy to make the system more resilient and cyber-secure, and will include customer service, billing, telecommunications, and engineering data. The execution of this strategy thus far has been very useful during the pandemic response where remote access to key system functions is required.

January 2021 – C4 Meeting (remote meeting)

- January meeting was cancelled by C4 Executive Committee; new elected officials will be taking office in January, and delay of one month will allow them to consider appointees and alternates to C4. Trent Wilson will forward a Power Point to all members about history and function of C4 Committee.
- Next meeting will be on February 4, 2021.



AGENDA ITEM

Title	Recess to Executive Session
Item No.	15
Date	January 19, 2021

Summary

Convene Executive Session under ORS 192.660(2)(f) to consider information or records that are exempt by law from public inspection.



AGENDA ITEM

Title	Adjourn Executive Session
Item No.	16
Date	January 19, 2021

Summary

Adjourn Executive Session and make any necessary motions as a result of Executive Session discussions.