



**RIDGEFIELD CITY COUNCIL
MEETING AGENDA**

**Thursday, October 24, 2024
RACC - Columbia Assembly Room
510 Pioneer Street, Ridgefield, WA 98642**

I. GENERAL SESSION CALL TO ORDER - 6:30 PM

- 1. Flag Salute**
- 2. Roll Call**
- 3. Late changes to the agenda**

II. PROCLAMATION

- 1. Lights Out For Birds**

III. PUBLIC COMMENT

Anyone requesting to speak to the Council regarding all items not subject to a specific Public Hearing may come forward at this time. Please state your name and limit comments to three minutes. Written comments may be submitted to the Clerk prior to the meeting.

IV. CONSENT AGENDA

- 1. Approval of Claims And/Or Payroll**
- 2. Approval of Minutes from the October 10, 2024 Meeting**

V. PRESENTATION

- 1. Third Quarter Budget to Actual Presentation - Kirk Johnson, Finance Director**
- 2. 2025 Proposed Operating and Capital Budget - Kirk Johnson, Finance Director**

VI. BUSINESS

- 1. Second Reading of Ordinance No. 1433 - Golden Acres Petition to Annex - Claire Lust, Community Development Director**
- 2. Motion - Approval of Waterfront Park Master Plan - Corey Crownhart, Park**

Manager

3. **Motion - Award of contract for I-5 Overpass Protective Safety Screen Project - Chuck Green, Public Works Director**
4. **Second Reading of Ordinance No. 1430 - Changes to Posted and Unposted Speed Limits for Portions of Pioneer Street, S. 15th Street, S 35th Place, S. 10th Way, S 25th Place, S. 4th Way, S. Wells Drive, S 11th Street, Union Ridge Parkway and S Hillhurst Road - Chuck Green, Public Works Director**

VII. PUBLIC HEARING/BUSINESS

1. **Public Hearing and Action on Resolution 656 - Adoption of Water System Plan Update and Water Use Efficiency Goals - Chuck Green, Public Works Director**

VIII. PUBLIC COMMENT

Anyone requesting to speak to the Council regarding all items not subject to a specific Public Hearing may come forward at this time. Please state your name and limit comments to three minutes. Written comments may be submitted to the Clerk prior to the meeting.

IX. COUNCIL/PRESIDING OFFICER/STAFF REPORTS

1. **Council**
2. **Mayor**
3. **City Manager**

X. ADJOURN

**CITY OF RIDGEFIELD
REQUEST FOR COUNCIL ACTION**

MEETING DATE: October 24, 2024

AGENDA ITEM NAME: Approval of Claims And/Or Payroll

GOVERNING LEGISLATION

PREVIOUS COUNCIL ACTION TAKEN:

SUMMARY/BACKGROUND:

BUDGET/FINANCIAL IMPACTS:

RECOMMENDED ACTION OR MOTION:

STAFF CONTACT:

ATTACHMENTS:

1. October 24, 2024 Claims Report

City of Ridgefield

Claims Payment Report

For Approval on:

October 24th, 2024

Sum of Amount					
Vendor Name	Vendor Number	Invoice Number	Resp. Department	Description	Total
ALLISON SENNETT	3834	3834-20241024	Administration	Digital Conference Hotel Reimb. - Sennett	221.84
ALLISON SENNETT Total					221.84
AMERICAN PUBLIC WORKS ASSC (APWA)	31	845205	Genl Govt/Facilities	2024 AWPB Membership Renewal	57.74
			Public Works	2024 AWPB Membership Renewal	1,061.26
AMERICAN PUBLIC WORKS ASSC (APWA) Total					1,119.00
AQUATIC INFORMATICS INC.	3337	110382	Genl Govt/Facilities	09.2024 Web Tests	(32.63)
			Public Works	09.2024 Web Tests	407.63
AQUATIC INFORMATICS INC. Total					375.00
ASSOCIATED CONSULTANTS INC.	1030	24-136-02	Public Works	Discovery Ridge Lot 9 Plan Review	736.25
		24-200-01	Public Works	Sunbelt Rentals Building Plan Review	1,187.50
		24-139-02	Public Works	Discovery Ridge Lot 10 Plan Review	807.50
		24-200-02	Public Works	Sunbelt Rentals Building Plan Review	1,092.50
		24-137-02	Public Works	Hillhurst Commercial Building A Plan Review	1,282.50
ASSOCIATED CONSULTANTS INC. Total					5,106.25
Bettin Travis	UB*01064	(blank)	Genl Govt/Facilities	Refund Check 015263-000 7266 S Ridge Way	43.01
Bettin Travis Total					43.01
BLUEFIN PAYMENT SYSTEMS - EPAY	2827	2827-202409A	Public Works	09.2024 Customer Web Payments	7,873.89
		2827-202409B	Public Works	09.2024 Customer Web Payments	21.90
BLUEFIN PAYMENT SYSTEMS - EPAY Total					7,895.79
BLUEROCK VENTURES LLC	4073	1001	Public Works	Community Recreation Center Project Management Services	20,000.00
BLUEROCK VENTURES LLC Total					20,000.00
BRIDGETOWER OPCO LLC	3585	745731551	Public Works	Invitation to Bid P24003-2: Park Laundry Site Cleanup	700.82
		745729279	Public Works	Invitation to Bid P22004: I-5 Bridge Decorative Fence	733.90
BRIDGETOWER OPCO LLC Total					1,434.72
BRITTANI FREIMUTH	3418	3418-20241024	Human Resources	2024 Springbrook Activate Event Meals per Diem - Freimuth	146.00
BRITTANI FREIMUTH Total					146.00
BROADCAST MUSIC INC.	3413	11558350	Genl Govt/Facilities	10.2024-09.2025 BMI Music License	435.00
BROADCAST MUSIC INC. Total					435.00
CASCADE CENTERS INC.	3969	18282	Genl Govt/Facilities	09.2024 Employee Assistance Program	169.49
			Public Safety	09.2024 Employee Assistance Program	140.42
			Public Works	09.2024 Employee Assistance Program	240.09
CASCADE CENTERS INC. Total					550.00
CATHY DORIOT	79	0079-20241024	Public Safety	Halloween Pokemon Trick or Treat Cards Reimb. - Doriot	76.21
CATHY DORIOT Total					76.21
CFM STRATEGIC COMMUNICATIONS INC.	2551	28507	Genl Govt/Facilities	09.2024 Lobbyist	5,200.00
CFM STRATEGIC COMMUNICATIONS INC. Total					5,200.00
CINTAS CORPORATION NO 2	3497	5232407105	Genl Govt/Facilities	10.2024 First Aid Supplies - PW Ops	78.30
			Public Works	10.2024 First Aid Supplies - PW Ops	199.71
		5232407103	Genl Govt/Facilities	10.2024 First Aid Supplies - CH	100.50
		5232407104	Genl Govt/Facilities	10.2024 First Aid Supplies - RACC	116.49
		5232407102	Public Safety	10.2024 First Aid Supplies - PD	97.98
CINTAS CORPORATION NO 2 Total					592.98

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CITY OF BATTLE GROUND	92	INV00488	Judicial	09.2024 Court Costs/Public Defender	23,105.25
CITY OF BATTLE GROUND Total					23,105.25
CITY OF RIDGEFIELD - EPAY PERMITS	95	PLZ-24-0079	Public Works	SEPA Reviews - Pioneer Widening Project	500.00
CITY OF RIDGEFIELD - EPAY PERMITS Total					500.00
CLARK COUNTY	102	CI068132	Public Works	08.2024 Whatley Decant Billing	510.00
		CI068180	Public Safety	08.2024 CJC Interviews	112.50
		CI068168	Judicial	Q3.2024 Limited Jurisdiction Cases	600.00
		CI068126	Public Works	ATMS Support Annual Service Agreement	213.98
CLARK COUNTY Total					1,436.48
CLARK COUNTY TREASURERS OFFICE	554	SIF202409	Genl Govt/Facilities	Monthly School Impact Fees	151,920.00
CLARK COUNTY TREASURERS OFFICE Total					151,920.00
CLARK PUBLIC UTILITIES - EPAY	110	7559-485-202409	Genl Govt/Facilities	487 S 56th Pl. - PW Ops Center	55.25
				230 Pioneer St.	252.55
			Public Safety	101 Mill St Ste B - Police Station	359.56
			Public Works	255 S 56th Pl - Electricity	3,839.28
				109 W Division St - Electricity	40.62
				23117 NW Hillhurst Rd/School Flasher	32.51
				487 S 56th Pl. - PW Ops Center	756.63
				N 1st Cir & N 65th Ave - Park & Ride	71.71
				101 S Main Ave - Overlook Park	87.25
				Traffic Signal - Hillhurst/Royal Rd.	68.01
				Pioneer St. & Gee Creek Loop - Electricity	37.71
				535 N Abrams Park Rd.	20.14
				512 N Allen Dr - Electricity	37.45
				City Park/Water Well	7,685.90
				800 NE 264 St Intertie 1 - Water	89,546.49
				N Abrams Park/E Division	249.02
				3701 N 3rd Cir - Electricity	37.63
				1504 NW Intertie 3 - Water	1,663.70
				487 S 56th Pl.- PW Ops Center	246.25
				S 5th St and S Union Ridge Pkwy	79.84
				N 35th Ave and Pioneer St	69.42
				SR/Pioneer St & S 56 PL	135.02
				Municipal Lighting Lease	11,034.89
				911 N 65th Ave Intertie 2 - Water	93.49
				SR/Pioneer ST & S 65 AVE	67.91
				337 S Royal Rd.	151.18
				Overlook Park - Electricity	62.44
				214 S Riverview Dr	474.80
				400 N Abrams Park Rd	1,477.79
				2300 N 3rd Way Bellwood Trail Lights	37.18
				301 N 3rd Ave	206.64
			Public Works	487 S 56th Pl. - PW Ops Center	12.53
CLARK PUBLIC UTILITIES - EPAY Total					118,990.79
CLARK REGIONAL WASTEWATER DISTRICT - EPAY	741	0741-202409	Genl Govt/Facilities	230 Pioneer St City Hall - Sewer	117.89
				487 S 56th Pl - PW Ops Center - Sewer	3.93

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CLARK REGIONAL WASTEWATER DISTRICT - EPAY	741	0741-202409	Genl Govt/Facilities	109 W Division WWTP - CRWWD Portion - Sewer	76.30
			Public Works	109 W Division WWTP - Sewer	76.29
				535 N Abrams Park Rd	119.68
				487 S 56th Pl - PW Ops Center - Sewer	71.18
				Abrams Park Restrooms - Sewer	86.17
				Abrams Park Concessions Sewer	43.68
				Abrams Park Kitchen - Sewer	48.47
				255 S 56th Pl Well & Reservoir - Sewer	38.90
				101 S Main Ave - Overlook Park	53.26
				Public Works	487 S 56th Pl - PW Ops Center - Sewer
CLARK REGIONAL WASTEWATER DISTRICT - EPAY Total					736.64
CLATSKANIE RIFLE & PISTOL CLUB INC.	3593	6	Public Safety	Range Fees	105.00
CLATSKANIE RIFLE & PISTOL CLUB INC. Total					105.00
COLUMBIA RESOURCE COMPANY	114	44757B051	Genl Govt/Facilities	Street Road Kill PW Debris & 109 W Division Yard Disposal	94.94
			Public Works	Street Road Kill PW Debris & 109 W Division Yard Disposal	339.29
COLUMBIA RESOURCE COMPANY Total					434.23
COLUMBIAN PUBLISHING	116	48840	Community Development	Golden Acres Annexation PLZ-24-0052	95.40
		48833	Public Works	Invitation to Bid P22004: I-5 Bridge Decorative Fence	547.80
		49153	Public Works	Invitation to Bid P24003-2: Park Laundry Site Cleanup	532.50
		48825	Community Development	Clark College Development Agreement	61.20
COLUMBIAN PUBLISHING Total					1,236.90
COMCAST - EPAY	2271	2271-202410	Genl Govt/Facilities	PW OPS Internet Services	10.40
				PW Ops Communications	13.76
				RACC Internet Services	200.79
				CH Internet Services	409.43
			Public Safety Public Works	CH Communicatons	66.65
				PDt æ 101 Mill Internet Services	72.58
				PW OPS Internet Services	190.40
				Traffic Light Internet Services	149.85
	PW Ops Communications	252.44			
COMCAST - EPAY Total					1,366.30
CONSOR NORTH AMERICA INC.	3949	C232644WA.00-13	Public Works	09.2024 S Royle Rd S 15th to S 5th Construction Mgmt	21,565.84
CONSOR NORTH AMERICA INC. Total					21,565.84
CRESCENT DESIGN AND ENGINEERING	4047	5	Public Works	09.2024 Development Plan Review	4,908.75
CRESCENT DESIGN AND ENGINEERING Total					4,908.75
CT PUBLISHING LLC	3753	283481	Public Works	Invitation to Bid P24003-02: Park Laundry Cleanup	377.40
		283489	Community Development	Golden Acres Annexation PLZ-24-0052	146.20
CT PUBLISHING LLC Total					523.60
DEPARTMENT OF LICENSING - EPAY	154	RG0001710-2024	Genl Govt/Facilities	CPL Fees	21.00
		RG0001713-2024	Genl Govt/Facilities	CPL Fees	18.00
		RG0001708-2024	Genl Govt/Facilities	CPL Fees	18.00
		RG0001709-2024	Genl Govt/Facilities	CPL Fees	18.00
		RG0001714-2024	Genl Govt/Facilities	CPL Fees	18.00
		RG0001711-2024	Genl Govt/Facilities	CPL Fees	18.00
		RG0001707-2024	Genl Govt/Facilities	CPL Fees	18.00
		RG0001712-2024	Genl Govt/Facilities	CPL Fees	18.00

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DEPARTMENT OF LICENSING - EPAY Total					147.00
DICK'S TIRE FACTORY	158	D11042	Public Safety	2020 Ford Explorer 70453D - Oil Change	67.64
		D10732	Public Safety	2016 Ford Explorer 59462D - Oil Change	62.26
DICK'S TIRE FACTORY Total					129.90
ELCOR INC	2081	OCBF-18124	Public Safety	09.2024 GCC Monthly Billing	1,426.85
			Public Works	09.2024 GCC Monthly Billing	2,439.56
			Information Technology	09.2024 GCC Monthly Billing	1,722.51
		18194	Public Safety	BitTitan User Migration Bundle	16.65
			Public Works	BitTitan User Migration Bundle	28.47
			Information Technology	BitTitan User Migration Bundle	20.10
		MSG-18121	Public Safety	09.2024 IT Services	6,360.00
			Public Works	09.2024 IT Services	10,874.02
			Information Technology	09.2024 IT Services	7,677.84
		18195	Public Works	Video Card - Sampson	241.31
ELCOR INC Total					30,807.31
ERIC L EISEMANN	485	0485-202409	Public Works	09.2024 Planning Consulting Services	4,200.00
ERIC L EISEMANN Total					4,200.00
EVERGREEN SOLUTIONS LLC	3548	1340-4	Human Resources	2024 Class and Comp Study	9,125.00
EVERGREEN SOLUTIONS LLC Total					9,125.00
FERGUSON ENTERPRISES INC # 8423	181	1283862	Public Works	PWWTR Supplies	4,374.14
		1283509	Public Works	PWWTR Fire Hydrant Repair	1,209.78
		1278990-1	Public Works	3 OMNI Water Meters	5,067.53
FERGUSON ENTERPRISES INC # 8423 Total					10,651.45
FIDELITY NATIONAL TITLE COMPANY OF WASHINGTON	3923	612895918	Legal	Temporary Easement Parcel #214028000	309.50
FIDELITY NATIONAL TITLE COMPANY OF WASHINGTON Total					309.50
Fox Erosion Control & Landscape Inc	UB*01062	(blank)	Genl Govt/Facilities	Refund Check 016968-000 Hydrant Meter S Dolan Rd & S 5th St	459.32
Fox Erosion Control & Landscape Inc Total					459.32
GRAYLING ENGINEERS PLLC	3877	1165	Genl Govt/Facilities	09.2024 Water Main Replacement - Pioneer to Shobert	13,629.60
GRAYLING ENGINEERS PLLC Total					13,629.60
H.D. FOWLER COMPANY	2036	16846969	Public Works	PWWTR Supplies - Nuts/Bolts/Plunger Parts/Screws	306.08
H.D. FOWLER COMPANY Total					306.08
HD SUPPLY INC.	3886	INV00503562	Genl Govt/Facilities	PWFAC Rain Jackets & Boot - Ashmore & Naramore	93.44
			Public Works	PWFAC Rain Jackets & Boot - Ashmore & Naramore	668.02
		INV00495275	Public Works	PWWTR Disposable Wipes & Pump Tubes	128.49
		INV00503820	Genl Govt/Facilities	PWFAC Icon Bib Overalls - Ashmore	18.13
			Public Works	PWFAC Icon Bib Overalls - Ashmore	129.59
		INV00503603	Genl Govt/Facilities	Icon Bib Overall - Jefferies	7.38
			Public Works	Icon Bib Overall - Jefferies	66.48
		INV00507573	Genl Govt/Facilities	PWFAC Rain Jacket - Shaw	26.95
			Public Works	PWFAC Rain Jacket - Shaw	152.66
HD SUPPLY INC. Total					1,291.14
HERRON ASSOCIATES LLC	4055	HA-INV00082	Public Works	RORC Fieldhouse and Field 5 & 4 Lights - Electrical Plan Reviews	1,162.50
HERRON ASSOCIATES LLC Total					1,162.50
HIGHWAY SPECIALTIES LLC	3887	0014797-IN	Public Works	Street Sign - Electric Vehicle Parking Stations	217.40
HIGHWAY SPECIALTIES LLC Total					217.40
HOME DEPOT VISA - EPAY	1805	3035209	Genl Govt/Facilities	PW Shop Tape PPE Storage Baskets	1.11

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HOME DEPOT VISA - EPAY	1805	3035209	Genl Govt/Facilities Public Works	PW Shop Tape Measure PW Shop Tape PPE Storage Baskets PW Shop Tape Measure Parks - Bypass Lopper Pro Folding Saw Hex Key Sets Streets - Garden Fertilizer Parks - Bit Socket Sets PWSTW Hose Spray Nozzle PWSTW Flashlight & Rebar PWWTR Shop Vacuum	1.98 17.80 31.69 84.71 20.65 29.32 8.74 52.15 125.58
HOME DEPOT VISA - EPAY Total					373.73
HONEY BUCKETS	223	554461182 554461181	Genl Govt/Facilities Public Works	Birdfest & Bluegrass Port-a-Potty 10.04.24-10.21.24 Davis Park Port-A-Potty	355.00 373.00
HONEY BUCKETS Total					728.00
HUMANE SOCIETY FOR SW WASHINGTON	526	5569	Public Safety	Q3.2024 Animal Control	4,737.50
HUMANE SOCIETY FOR SW WASHINGTON Total					4,737.50
INSTANT IMPRINTS CASCADE PARK	2371	54603	Human Resources	Pink T-Shirts - Breast Cancer Awareness	203.99
INSTANT IMPRINTS CASCADE PARK Total					203.99
J2 BLUE PRINT SUPPLY	243	AR158395	Genl Govt/Facilities	Notice of Civil Penalty Revised	247.09
J2 BLUE PRINT SUPPLY Total					247.09
JAMES J. MAUL	3987	175	Public Works	09.2024 Park Laundry Environmental Support	4,537.50
JAMES J. MAUL Total					4,537.50
JANEAN Z PARKER	2199	13	Public Works Legal	09.2024 Legal Services 09.2024 Legal Services	790.62 6,978.13
JANEAN Z PARKER Total					7,768.75
JOSUE M YAM NOH	4027	I-001-02012	Genl Govt/Facilities Public Works	PWFAC 2011 Ford F-350 48613D - Upholstery Work PWFAC 2011 Ford F-350 48613D - Upholstery Work	(32.63) 407.63
JOSUE M YAM NOH Total					375.00
JULIE SWARTS	3875	3875-20241015	Public Works	29th Annual Cross Connection Control Seminar Meals - Swarts	88.00
JULIE SWARTS Total					88.00
LANGUAGE LINE SERVICES INC.	3122	11421126	Judicial	09.2024 Interpreting Services - PD	11.66
LANGUAGE LINE SERVICES INC. Total					11.66
LES SCHWAB GROUP HOLDINGS LLC	4006	43700025841 43700024268	Genl Govt/Facilities Public Works Public Safety	2016 Ford Focus Tire Maintenance 2016 Ford Focus Tire Maintenance 2020 Ford Explorer 70453D - Tires	29.36 539.70 173.88
LES SCHWAB GROUP HOLDINGS LLC Total					742.94
Lilly Seth	UB*01063	(blank)	Genl Govt/Facilities	Refund Check 013889-000 137 N 44th Pl	20.00
Lilly Seth Total					20.00
LISA BLAKE	2297	2297-20241015	Public Works	29th Annual Cross Connection Control Seminar Meals - Blake	88.00
LISA BLAKE Total					88.00
MACKAY AND SPOSITO INC.	899	52425 52415	Public Works Public Works	09.2024 Paradise Pointe Master Plan 09.2024 Gee Creek Trail Heron to Main	10,964.57 13,977.36
MACKAY AND SPOSITO INC. Total					24,941.93
MAUL FOSTER ALONGI INC.	834	62961	Public Works	09.2024 Park Laundry Site Cleanup & Environmental Services	18,967.87
MAUL FOSTER ALONGI INC. Total					18,967.87
Mchenry Sallie	UB*01065	(blank)	Genl Govt/Facilities	Refund Check 009821-000 264 N Green Gables Loop	48.00
Mchenry Sallie Total					48.00

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MINERT AND ASSOCIATES INC.	981	335466	Public Works	09.18.2024 DOT Drug Test - Swarts	83.00
MINERT AND ASSOCIATES INC. Total					83.00
MINUTEMAN PRESS (NORTH)	3278	12284	Public Works	Name Badges - Alec Earl (Parks Board)	25.96
MINUTEMAN PRESS (NORTH) Total					25.96
MJB CONSULTING INC	3117	2322	Genl Govt/Facilities	10.2024 State Lobbyist	3,000.00
MJB CONSULTING INC Total					3,000.00
MUNICIPAL EMERGENCY SERVICES INC	2235	IN2131103	Public Safety	Ballistic Armor & Exterior Carrier - Erazo	1,470.02
MUNICIPAL EMERGENCY SERVICES INC Total					1,470.02
NAPA AUTO PARTS	498	443853	Genl Govt/Facilities	PWFAC Vehicle - Bulbs	0.52
			Public Works	PWFAC Vehicle - Bulbs	3.70
		445030	Genl Govt/Facilities	PWFAC Antifreeze - Forklift	1.18
				PW Shop Hammer	0.91
			Public Works	PWFAC Antifreeze - Forklift	18.75
				PW Shop Hammer	14.61
		445035	Genl Govt/Facilities	PW Shop Grinder Blade	2.54
			Public Works	PW Shop Grinder Blade	40.58
				CDD Vehicle Wipers	8.37
		444198	Public Works	PWSTW 2016 Ford F250 Truck Windshield Wipers	18.93
				Sweeper Cabin Air Filter	24.17
		445031	Public Works	CDD Vehicle Wipers	25.14
		444875	Public Works	PWSTW Towels & Glass Cleaners	25.83
NAPA AUTO PARTS Total					185.23
NICHOLAS JOHNSON	3443	3443-20241024	Public Works	Green River Exam & PSI Testing Fee Reimb. - N Johnson	193.00
NICHOLAS JOHNSON Total					193.00
NORTH COAST ELECTRIC COMPANY	4057	S013605877.003	Public Works	Acorn Light Fixture	2,373.11
		S013605877.007	Public Works	Cobrahead Light Fixtures	2,026.52
NORTH COAST ELECTRIC COMPANY Total					4,399.63
NORTHSIDE FORD TRUCK SALES INC	3281	289455	Genl Govt/Facilities	PW Engineering Ford Focus 57240D - Oil Change	1.95
			Public Works	PW Engineering Ford Focus 57240D - Oil Change	66.14
		289454	Public Works	CDD 2020 Ford Escape 70429D - Oil Change & Maint.	76.11
NORTHSIDE FORD TRUCK SALES INC Total					144.20
NORTHWEST NATURAL GAS - EPAY	315	0315-202409	Genl Govt/Facilities	109 Division PW Shop - Natural Gas	1.78
				487 S 56th PW Ops #A - Natural Gas	1.21
				487 S 56th PW Ops #B - Natural Gas	2.10
				230 Pioneer St City Hall - Natural Gas	24.68
			Public Safety	101 Mill St Police Department - Natural Gas	52.31
			Public Works	109 Division PW Shop - Natural Gas	28.10
				487 S 56th PW Ops #A - Natural Gas	21.84
				487 S 56th PW Ops #B - Natural Gas	33.10
			Public Works	109 Division PW Shop - Natural Gas	0.46
				487 S 56th PW Ops #A - Natural Gas	0.27
				487 S 56th PW Ops #B - Natural Gas	0.54
NORTHWEST NATURAL GAS - EPAY Total					166.39
ONE CALL CONCEPTS	326	4099104	Public Works	09.2024 Excavation Notifications/Modern Ticket Delivery	272.64
ONE CALL CONCEPTS Total					272.64
PATRICK HILDRETH BRAND AND DESIGN	2372	2966	Genl Govt/Facilities	09.2024 General Desgin & Wine Posters	600.00

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PATRICK HILDRETH BRAND AND DESIGN Total						600.00
PBS ENGINEERING AND ENVIRONMENTAL LLC	342	0071069.009-32	Public Works	08.2024 S Royle Rd 15th to 5th Way	2,707.57	
PBS ENGINEERING AND ENVIRONMENTAL LLC Total						2,707.57
PORTLAND ENGINEERING INC	2082	12623	Public Works	09.2024 Q178V Ridgefield Cellular Telemetry	228.27	
PORTLAND ENGINEERING INC Total						228.27
PROVIDENCE HEALTH & SERVICES OREGON	3530	54227	Genl Govt/Facilities	DOT Physical Exam - Melroy	10.00	
			Public Works	DOT Physical Exam - Melroy	90.00	
PROVIDENCE HEALTH & SERVICES OREGON Total						100.00
PUBLIC SAFETY TESTING	354	2024-1023	Public Safety	Q3.2024 Subscription Fees	135.00	
PUBLIC SAFETY TESTING Total						135.00
PURCHASE POWER - EPAY	356	70922421	Genl Govt/Facilities	09.03.2024 Postage Replenishment	502.25	
PURCHASE POWER - EPAY Total						502.25
RIDGEFIELD HARDWARE	376	0376-202409	Genl Govt/Facilities	09.2024 Operational Supplies & Tools	16.67	
			Public Works	09.2024 Operational Supplies & Tools	690.35	
RIDGEFIELD HARDWARE Total						707.02
RONALD ONSLOW	930	0930-20241024	Council	01.2024-08.2024 Meal and Mileage Reimb. - R. Onslow	487.38	
RONALD ONSLOW Total						487.38
SANDRA HOOTS	2163	2163-20241024	Public Safety	Parking Meter Fee & Mileage Reimb. - Hoots	26.28	
SANDRA HOOTS Total						26.28
SARAH SCHNEIDER	3549	3549-2024-1024	Public Works	2024 Springbrook Activate Event Meals per Diem - Schneider	159.60	
			Finance	2024 Springbrook Activate Event Meals per Diem - Schneider	8.40	
SARAH SCHNEIDER Total						168.00
SEATTLE DAILY JOURNAL OF COMMERCE	3980	3403359	Public Works	Invitation to Bid P24003-2: Park Laundry Cleanup Site	963.90	
SEATTLE DAILY JOURNAL OF COMMERCE Total						963.90
SIMPLIFILE - EPAY	2962	E6209806	Legal	Recording Fees - Pioneer St Right of Way Deed	988.11	
		E6203277	Public Works	Recording Fees - Critical Area Mitigation Covenant/Agreement	658.87	
SIMPLIFILE - EPAY Total						1,646.98
SITEONE LANDSCAPE SUPPLY LLC	2951	146715069-001	Public Works	Teal Crest Park Irrigation Parts	79.78	
		146613409-001	Genl Govt/Facilities	PW Shop Notebooks	0.65	
			Public Works	Teal Crest Park Irrigation Parts	79.78	
				PW Shop Notebooks	10.37	
		146959147-001	Public Works	Teal Crest Park Irrigation Parts	18.27	
		146935940-001	Public Works	Teal Crest Park Irrigation Parts - Returned	(20.94)	
		146934346-001	Public Works	Teal Crest Park Irrigation Parts	40.10	
SITEONE LANDSCAPE SUPPLY LLC Total						208.01
SPRINGBROOK - GROUP EPAY	3544	241021926	Public Works	09.2024 UB Web Payments	1,273.37	
SPRINGBROOK - GROUP EPAY Total						1,273.37
SPRINGBROOK SOFTWARE LLC	3444	INV-018620	Public Works	09.2024 Customer Web Payments	3,827.54	
SPRINGBROOK SOFTWARE LLC Total						3,827.54
STAPLES CONTRACT & COMMERCIAL INC	2884	7002414652	Genl Govt/Facilities	PW Shop Wooden Table	18.15	
			Public Works	PW Shop Wooden Table	290.51	
STAPLES CONTRACT & COMMERCIAL INC Total						308.66
STERICYCLE INC	2504	DC1008	Genl Govt/Facilities	08.2024 & 09.2024 Secure Shredding - PW Ops	11.03	
			Public Safety	08.2024 & 09.2024 Secure Shredding - PD	95.18	
			Public Works	08.2024 & 09.2024 Secure Shredding - PW Ops	202.43	
		DA1008	Genl Govt/Facilities	08.2024 & 09.2024 Secure Shredding - RACC	39.45	

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STERICYCLE INC	2504	DA1008	Genl Govt/Facilities Public Works	08.2024 & 09.2024 Secure Shredding - CH 08.2024 & 09.2024 Secure Shredding - RACC	66.56 81.83	
STERICYCLE INC Total					496.48	
SUMMIT LAW GROUP PLLC	413	157522	Legal	Summit Annual Webinar Subscription	2,000.00	
SUMMIT LAW GROUP PLLC Total					2,000.00	
TAC 1 SYSTEMS	1634	SI-015068	Genl Govt/Facilities Public Safety	Radio Parts Radio Parts	(8.70) 108.70	
TAC 1 SYSTEMS Total					100.00	
THE PARR COMPANY	964	26716403	Genl Govt/Facilities	PW Ops Bathroom Wall - Screws & Spray Texture	7.90	
			Public Works	PW Ops Bathroom Wall - Screws & Spray Texture	20.12	
		26715246	Public Works	Davis Park EV Parking Signs Supplies	12.87	
		26715509	Public Works	PWFAC Paint Containers - Plow	4.98	
THE PARR COMPANY Total					45.87	
TOPCON SOLUTIONS STORE	3421	90293066	Public Works	2024 Bluebeam Studio Prime Level 1 Renewal	2,289.22	
TOPCON SOLUTIONS STORE Total					2,289.22	
TOWNZEN & ASSOCIATES INC.	3450	24-142	Public Works	09.2024 Building Plan Review	2,249.39	
				09.2024 Structural Review	1,350.00	
TOWNZEN & ASSOCIATES INC. Total					3,599.39	
TRAFFIC SAFETY SUPPLY	432	INV074566	Public Works	Street Sign Hardwares - Surface Mount Base Anchors Washers	188.00	
TRAFFIC SAFETY SUPPLY Total					188.00	
UNIFIRST CORPORATION	3904	2240148768	Public Safety	10.01.2024 Floor Mats - PD	79.04	
		2240151127	Genl Govt/Facilities	10.08.2024 Floor Mats - RACC	3.41	
			Public Works	10.08.2024 Floor Mats - RACC	7.08	
			2240148766	Genl Govt/Facilities	10.01.2024 Floor Mats - RACC	3.41
			Public Works	10.01.2024 Floor Mats - RACC	7.08	
		2240151128	Genl Govt/Facilities	10.08.2024 Floor Mats - CH	16.46	
		2240151129	Public Safety	10.08.2024 Floor Mats - PD	39.52	
		2240148767	Genl Govt/Facilities	10.01.2024 Floor Mats - CH	16.46	
UNIFIRST CORPORATION Total					172.46	
VAIRKKO TECHNOLOGIES LLC	3699	28438	Genl Govt/Facilities	10.2024 PD Scheduling Software	(15.49)	
			Public Safety	10.2024 PD Scheduling Software	193.49	
VAIRKKO TECHNOLOGIES LLC Total					178.00	
VERIZON WIRELESS - EPAY	452	9974996790	Genl Govt/Facilities	General Cellphones	141.94	
				PW Cellphones	86.18	
			Public Safety	PD Cellphones	662.16	
			Public Works	PW Cellphones	1,379.78	
			Community Development	CDD Cellphones	614.64	
			Council	Council Cellphones	47.20	
			Administration	Admin Cellphones	236.35	
			9974996788	Genl Govt/Facilities	PW iPad and Cellphones	43.85
					General iPad and Cellphones	53.12
			Public Safety	PD iPad and Cellphones	852.07	
			Public Works	PW Grant Williams iPad	391.31	
				PW iPad and Cellphones	701.99	
				PW Julie Swarts iPad	434.79	
				CDD iPad and Cellphones	319.34	

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VERIZON WIRELESS - EPAY	452	9974996788	Public Works Council Information Technology Administration Finance Executive	PW Nick Johnson iPad	434.79		
				PW Lisa Marmo iPad	434.79		
				PW Laura Loucks iPad	434.79		
				Council iPad and Cellphones	585.86		
				PW Grant Williams iPad	43.48		
				Admin iPad and Cellphones	425.88		
				Finance iPad and Cellphones	53.12		
				Executive iPad and Cellphones	53.12		
				9974996789	Public Works	Hillhurst Ped Crossing	145.17
				VERIZON WIRELESS - EPAY Total			
W.W.GRAINGER INC.	206	9270413744	Public Works	PWWTR High Voltage Danger Sign	58.60		
W.W.GRAINGER INC. Total				58.60			
WAGER AUDIO INC	3957	229960039	Genl Govt/Facilities	Ridgefield Hometown Celebration & Tree Lighting	1,246.87		
WAGER AUDIO INC Total				1,246.87			
WASHINGTON STATE PATROL	463	12501458	Genl Govt/Facilities	09.2024 Background Checks - CPL	159.00		
WASHINGTON STATE PATROL Total				159.00			
WELLS FARGO - EPAY	1681	202409-9687	Genl Govt/Facilities	Moore Amazon Batteries - PW Ops	5.85		
				Moore Amazon Mktpl Phone Case - Naramore PW FAC	4.39		
				Moore Amazon Phone Case - Thamert	3.91		
				Moore Amzn Mktp Chairs - TMI Conference Room	717.41		
				Moore Amzn Mktp Us Label Tape - PW Shop	2.38		
				Moore Amazon Harness - PW FAC	4.65		
				Moore Amazon Mktpl Screen Protectors - PW Ops	0.86		
				Moore Amazon Vacuum Filters - PW Shop	1.49		
				Moore Amazon Mktpl Safety Helmet - PW Shop	4.03		
				Moore Amazon Phone Case - Shaw	3.09		
				Moore Amazon Mktpl Drawer Storage - PW Shop	2.37		
				Moore Amazon Mktpl HDMI Cable - Lead Engineer	12.00		
				Moore Amazon Mktpl Hardhat Reflective Stickers - PW Shop	3.45		
				Moore Amzn Mktp Us Folders - PW Ops	0.72		
				Moore Amazon Bins/Paper Craft Supplies/Wipes - September 1Sat	169.78		
				Moore Amazon Mktpl Notepads - RACC	2.77		
				Moore Amazon Mktpl HDMI Cord - Lead Engineer	13.89		
				Moore Amazon Mktpl Sticky Notes/Flags - PW Ops	2.98		
				Moore Amazon HDMI Cord/TV Mount - Thamert	5.46		
				Moore Amazon Mktpl Garland - HR Shindig	28.24		
				Moore Amazon Mktpl Phone Case - CDD Director	18.47		
				Moore Amazon Mktpl Mug Rack - PW Shop	1.92		
				Moore Amazon Mktpl Safety Helmets - PW Shop	16.10		
				Moore Amazon Doll Cutouts - September 1Sat	129.03		
				Moore Amazon Kleenex - CH	32.60		
				Moore Amazon Mktpl Kleenex/ID Holders - RACC	47.78		
				Moore Amazon Mktpl CH Coffee & Communication Board Borders	58.74		
				Moore Amazon Mktpl Voter Box - Public Engagement Meetings	18.53		
				Moore Amazon Wine Glasses/Napkins - October 1Sat	72.14		
				Moore Amazon.Com Giant 4 Score Game - Employee Picnic	86.95		

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WELLS FARGO - EPAY

1681

202409-9687

Genl Govt/Facilities
Public Safety

Public Works

Council

Information Technology

Human Resources

Administration

Moore Amzn Mktp TV - Thamert	31.31
Moore Amazon Mktpl Privacy Computer Screen - PD	58.69
Moore Amazon Disposable Gloves/Laminating Sleeves - PD	128.99
Moore Amazon Mktpl Gun Cleaning Swabs - PD	10.86
Moore Amazon Copy Paper/Tape/Notebooks - PD	96.69
Moore Amazon Mktpl Batteries - PD	45.63
Moore Amazon Lubricant - PD	19.56
Moore Amazon Batteries - PW Ops	31.09
Moore Amazon Mktpl Phone Case - Naramore PW FAC	31.37
Moore Amazon Phone Case - Thamert	22.17
Moore Amzn Mktp Us Label Tape - PW Shop	38.11
Moore Amazon Harness - PW FAC	33.26
Moore Amazon Mktpl Screen Protectors - PW Ops	4.53
Moore Amazon Vacuum Filters - PW Shop	23.93
Moore Amazon Mktpl Safety Helmet - PW Shop	64.44
Moore Amazon Mktpl Cap Fillers - Water	32.20
Moore Amazon Phone Case - Shaw	17.54
Moore Amazon Mktpl Drawer Storage - PW Shop	37.89
Moore Amazon IPAD Keyboard - Williams	119.30
Moore Amazon Mktpl HDMI Cable - Lead Engineer	3.00
Moore Amazon Mktpl Hardhat Reflective Stickers - PW Shop	55.15
Moore Amzn Mktp Us Folders - PW Ops	13.27
Moore Amazon Mktpl Notepads - RACC	5.76
Moore Amzn Mktp TV - Sampson	208.69
Moore Amazon Mktpl HDMI Cord - Lead Engineer	3.48
Moore Amazon Mktpl Sticky Notes/Flags - PW Ops	54.85
Moore Amazon HDMI Cord/TV Mount - Thamert	30.95
Moore Amazon Mktpl Mug Rack - PW Shop	30.67
Moore Amazon Mktpl Safety Helmets - PW Shop	257.78
Moore Amazon IPAD Pencil - Williams	23.57
Moore Amzn Mktp TV - Thamert	177.40
Moore Amazon HDMI Cord/TV Mount - Sampson	36.40
Moore Amazon.Com Drill Set - N.Johnson - Water	45.49
Moore Amazon Mktpl Pick Tools - N.Johnson - Water	12.38
Moore Amzn Mktp Laptop Sleeves - Council	148.33
Moore Amazon IPAD Keyboard - Williams	13.26
Moore Amazon IPAD Pencil - Williams	2.62
Moore Amazon Tablecloths/Ballot Boxes - Employee Picnic	46.27
Moore Amazon Mktpl Tablecloths - Employee Picnic	17.38
Moore Amazon Chili Decor/Ladles/Baskets - Employee Picnic	154.14
Moore Amazon Ballot Boxes - Employee Picnic	8.69
Moore Amazon Ladles - Employee Picnic	48.96
Moore Amazon Mktplace Food Baskets Refund - Employee Picnic	(30.21)
Moore Amazon Mktpl Chili Cook Off Decor/Cups - Employee Picnic	74.97
Moore Amazon Mktpl Giant Tic Tac Toe - Employee Picnic	21.73
Moore Amazon.Com Stabilizer/Recording Mics - Communications Team	421.75

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WELLS FARGO - EPAY

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202409-9687	Finance	Moore Amazon Mktpl Printer Toner - Schneider	31.74
202409-5997	Genl Govt/Facilities	Sampson Tractor Supply Gloves - Venne	1.09
		Sampson Tractor Supply Gloves - Webberley	1.09
	Public Works	Sampson Tractor Supply Gloves - Venne	9.77
		Sampson Tractor Supply Gloves - Webberley	9.77
		Sampson The Quikrete Companies Wetlands Green Cubes - Storm	616.86
202409-7189	Administration	Sennett Loews Arlington Hotel 3CMA Conf Hotel Parking - Sennett	123.42
		Sennett Digital Day Digital Day Conference - Demoss/Sennett	57.04
202409-5756	Genl Govt/Facilities	Rubioromero Primo Water FI Water Delivery Service - PW Ops	21.80
		Rubioromero Primo Water Water Delivery Service - RACC	96.62
		Rubioromero Amazon Web Services Web Audio Backup Sales Tax	(0.05)
		Rubioromero Water Coffee Delivery Water Delivery Service - RACC	9.51
		Rubioromero Mailchimp Social Media WA Sales Tax	(0.24)
	Public Safety	Rubioromero Siptrunk IncTelephone Service - PD	229.86
	Public Works	Rubioromero Primo Water FI Water Delivery Service - PW Ops	115.93
	Information Technology	Rubioromero Amazon Web Services Web Audio Backup	0.65
		Rubioromero Spotify Usa Monthly Music - CH	13.03
		Rubioromero Adobe Software - Communications Specialist	65.21
		Rubioromero Mailchimp Social Media	28.81
		Rubioromero Zoom.Us Meeting Platform	60.86
202409-5484	Genl Govt/Facilities	Freimuth Uline Conference Table - TMI Building	1,088.48
	Public Works	Freimuth Little Creek Casino Water Operator Class Stay - Johnson	353.10
		Freimuth WWCCPPG Cross Connection Seminar - Blake	195.66
		Freimuth La Quinta Hotel Playground Inspector Class - Curtis	502.89
		Freimuth WWCCPPG Cross Connection Membership - Blake	10.87
		Freimuth WWCCPPG Cross Connection Membership - Swarts	10.87
		Freimuth La Quinta Hotel Playground Inspector Class - Embry	335.26
		Freimuth WWCCPPG Cross Connection Seminar - Swarts	195.66
		Freimuth Campbells Lodge Permit Techs Conf Hotel - Harrington	367.62
		Freimuth La Quinta Hotel Playground Inspector Class - Nathan	335.26
		Freimuth La Quinta Hotel Playground Inspector Class - Crownhart	335.26
		Freimuth Campbells Lodge Permit Techs Conf Hotel - May	367.62
	Council	Freimuth Bunnies Pizza - City Council Study Session	132.50
	Human Resources	Freimuth Vdara Springbrook Activate Hotel Deposit - Freimuth	191.61
		Freimuth Springbrook Software Activate Conference - Freimuth	895.00
	Finance	Freimuth Oxford Suites Yakima WFOA Conf Hotel - Finance Director	516.21
202409-2114	Council	Stuart Rosauers Breakfast Mtg with City Councilors RE City Issue	13.93
	Executive	Stuart Rosauers Breakfast Mtg with City Councilors RE City Issue	13.52
		Stuart TheSeminarGroup Land Use Seminar - Stuart	699.00
		Stuart Block7 Parking - Vancouver Manager Retirement - Stuart	5.44
		Stuart Bevridge Meeting w/Developer RE Discovery Ridge/Junction	53.48
		Stuart Sushi Kato Commercial Waterfront Development Mtg - Stuart	20.87
		Stuart Law Seminars International Growth Management Act Seminar	745.00
		Stuart Nest Restaurant RORC Funding/Ridgefield Little League Mtg	18.28
		Stuart The Columbian Monthly Newspaper Subscription - Stuart	12.50
		Stuart Fuel Bistro BG City Manager Mtg EMS & Cresa Services	55.34

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WELLS FARGO - EPAY	1681	202409-2114	Executive	Stuart La Catrina Paradise Pointe Mtg PH 1 Final Plat - Stuart	17.89
				Stuart Rosauers Developer Mtg RE Discovery Ridge	4.28
				Stuart Nest Restaurant Regional Economic Development Mtg	19.57
				Stuart Nest Restaurant Comp Plan UGA Analysis Meeting	20.88
		202409-2164	Genl Govt/Facilities	Giles Costco Paper Towels/Napkins/Coffee - PW Ops	7.56
				Giles Costco Whse Breakroom Shelf - PW Shop	6.38
			Public Works	Giles Costco Paper Towels/Napkins/Coffee - PW Ops	40.19
				Giles Costco Whse Breakroom Shelf - PW Shop	102.31
				Giles Rodda Paint Clear Coat For Snowplows - Street	133.24
				Giles Rodda Paint Clear Coat Thinner For Snowplows - Street	30.04
		202409-7051	Genl Govt/Facilities	Blehm Fuel Bistro Interview Lunch - PW FAC	9.21
				Blehm Lucid Software Mapping Evacuation Software - Addtl WA Tax	(0.86)
				Blehm Rosauers Soap - TMI Building	13.63
			Public Works	Blehm Fuel Bistro Interview Lunch - PW FAC	65.80
			Information Technology	Blehm Lucid Software Mapping Evacuation Software	103.70
			Human Resources	Blehm Chefstore Tongs/Condiments - Employee Picnic	67.68
				Blehm Costco Drinks/Utensils/Food - Employee Picnic	229.57
				Blehm Fred-Meyer Employee Service Awards	50.00
				Blehm Rosauers Appetizer Foods - Employee Picnic	55.06
				Blehm Fred-Meyer Chips/Serveware/Cards - Employee Picnic	52.49
				Blehm Rosauers Fruit Trays - All Hands	35.98
		202409-7739	Genl Govt/Facilities	Coleman Meetup Pro 6Mo Registration Software - Dragon Boats	195.66
				Coleman Cleverwaiver Waiver Forms Software - Dragon Boats	29.99
				Coleman West Coast Event Prodctns Rentals - Farm To Table	19.54
		202409-0187	Genl Govt/Facilities	Melroy Ichi Teriyaki Kory Shaw 1st Day Lunch - Melroy	1.85
				Melroy Little Conejo Maint I Interview Lunch - PW FAC	6.27
				Melroy Ichi Teriyaki Kory Shaw 1st Day Lunch - Shaw	2.77
			Public Works	Melroy Ichi Teriyaki Kory Shaw 1st Day Lunch - Melroy	16.62
				Melroy Little Conejo Maint I Interview Lunch - PW FAC	44.82
				Melroy Ichi Teriyaki Kory Shaw 1st Day Lunch - Shaw	15.70
		202409-3244	Public Safety	Doriot Miracle Cleaners Uniforms Velcro Bases - PD	37.13
		202409-9437	Public Safety	Steele-Hoots ODOT DMV2U Oregon Background Investigations - PD	13.00
				Steele-Hoots Costco Coffee/Soap/Paper Towels - PD	103.34
				Steele-Hoots Costco Batteries - PD	32.59
				Steele-Hoots TLO Transunion Background Investigations - PD	201.97
		202409-9102	Genl Govt/Facilities	Allen Customsigns.Com Nameplates -Streets Addtl Tax	(0.02)
				Allen Customsigns.Com Nameplates - Council/Parks Addtl Tax	(0.02)
			Public Works	Allen Customsigns.Com Nameplates -Allen (Roundabout Committee)	14.11
				Allen Customsigns.Com Nameplates -Rafanelli (Parks Board)	14.11
			Council	Allen Customsigns.Com Nameplates -Cole (City Council)	14.11
			Human Resources	Allen Starbucks Coffee - September All Hands	43.48
				Allen Instacart Breakfast Items - September All Hands	81.35
				Allen Costco By In Car Wellness Snacks	1,061.41
				Allen Costco By In Car Breakfast Items - September All Hands	103.33
		202409-7069	Information Technology	Ferriss Citrix Systems Sharefile 2 Licenses	417.41
		202409-6996	Genl Govt/Facilities	Demoss Sticker Mule Roundabout Red Wine Labels	185.88

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WELLS FARGO - EPAY	1681	202409-6996	Genl Govt/Facilities	Demoss 9 Cent Posters Of Roundabout Red Labels - Addtl WA Tax	(2.35)	
				Demoss 9 Cent Posters Of Roundabout Red Labels	184.79	
				Demoss Newspapers.Com Newspaper Archive Subscription Addtl Tax	(0.68)	
			Public Safety	Demoss Sticker Mule Pink Patch Pins - PD	53.26	
				Information Technology	Demoss Newspapers.Com Newspaper Archive Subscription - Comm Team	81.42
				Human Resources	Demoss Fuel Bistro HTC Meeting Lunches - Wellness	260.72
				Administration	Demoss 3CMA Online Membership - Communications Team	845.00
		202409-6939			Demoss The Columbian Monthly Newspaper Subscription - Demoss	9.99
			Public Works	Lust The Columbian Monthly Newspaper Subscription - CDD Director	9.99	
			Community Development	Lust Rosauers Refreshments - Comp Plan Community Mtg - CDD	77.70	
				Lust Starbucks Coffee - Comp Plan Community Mtg - CDD	43.48	
		202409-4252	Genl Govt/Facilities	Blake USPS Resident Letter Postage	6.60	
		202409-0745	Public Safety	Doriot Tacticalgear.Com Uniform Shirts - Officer Debiak	112.93	
		202409-4870	Finance	Johnson The Columbian Newspaper Subscription - Finance Director	12.50	
WELLS FARGO - EPAY Total					18,586.62	
WESTERN UNITED CIVIL GROUP LLC	3743	23016-13	Public Works	08.24.2024 - 09.30.2024 S Royle Rd S 15th to 5th Way	340,583.49	
WESTERN UNITED CIVIL GROUP LLC Total					340,583.49	
WEX BANK - EPAY	3552	99961408	Genl Govt/Facilities	PW Fuel	262.42	
			Public Safety	PD Fuel	4,917.06	
			Public Works	PW Fuel	4,208.14	
				CDD Fuel	631.76	
WEX BANK - EPAY Total					10,019.38	
WOODLAND SAW AND CYCLE INC.	2223	3759	Public Works	PWSTW Weedeater Trimmer Line	110.68	
		3757	Genl Govt/Facilities	PWFAC Muffler & Sleeve - Backhoe Repair	6.07	
			Public Works	PWFAC Muffler & Sleeve - Backhoe Repair	97.18	
WOODLAND SAW AND CYCLE INC. Total					213.93	
ZENNER PERFORMANCE METERS INC.	3354	0086164-IN	Genl Govt/Facilities	3" Zenner Hydrant Meter	(6.32)	
			Public Works	3" Zenner Hydrant Meter	1,766.44	
		0091185-IN	Genl Govt/Facilities	1 1/2" Zenner Meter	(2.23)	
			Public Works	1 1/2" Zenner Meter	257.73	
		0088177-IN	Genl Govt/Facilities	Water Meters	(12.67)	
			Public Works	Water Meters	2,826.92	
		0089085-IN	Genl Govt/Facilities	Stealth PIT Install Kit	(1.86)	
ZENNER PERFORMANCE METERS INC. Total					133.61	
ZENNER PERFORMANCE METERS INC. Total					4,961.62	
Grand Total					923,646.69	

**CITY OF RIDGEFIELD
REQUEST FOR COUNCIL ACTION**

MEETING DATE: October 24, 2024

AGENDA ITEM NAME: Approval of Minutes from the October 10, 2024 Meeting

GOVERNING LEGISLATION

N/A

PREVIOUS COUNCIL ACTION TAKEN:

N/A

SUMMARY/BACKGROUND:

Staff has prepared the minutes for Council consideration of adoption for the Council meeting(s).

BUDGET/FINANCIAL IMPACTS:

N/A

RECOMMENDED ACTION OR MOTION:

Approve the minutes by making the following motion: 1. "I move to approve the consent agenda"

STAFF CONTACT:

ATTACHMENTS:

1. 10-10-2024



**CITY OF RIDGEFIELD, WASHINGTON
CITY COUNCIL MEETING MINUTES
OCTOBER 10, 2024**

Regular Meeting - 5:30 PM

I. SPECIAL MEETING - 5:30 P.M.

1. City Council Member Selection Process & Interviews - Steve Stuart, City Manager

City Council conducted interviews for the vacated position by Jennifer Lindsay, Position No. 6.

II. PUBLIC COMMENT - Opportunity to provide public comment regarding the candidates

III. GENERAL SESSION CALL TO ORDER - 6:30 PM

1. Flag Salute

2. Roll Call

Present:

Mayor Ron Onslow

Mayor Pro Tem Matt Cole

Council Member Lee Wells

Council Member Judy Chipman

Council Member Clyde Burkle

Council Member Katie Favela

3. Late changes to the agenda

IV. PUBLIC COMMENT

Anyone requesting to speak to the Council regarding all items not subject to a specific Public Hearing may come forward at this time. Please state your name and limit comments to three minutes. Written comments may be submitted to the Clerk prior to the meeting.

Comments received during public testimony can be heard on the City's website under [City Council Meeting Audio Files | Ridgefield, WA \(ridgefieldwa.us\)](#).

V. PROCLAMATION

1. National Wildlife Refuge Week

2. Breast Cancer Awareness Month

VI. EXECUTIVE SESSION PURSUANT TO RCW 42.30.110(1)(h)

The Mayor announced that City Council would enter into an executive session pursuant to RCW 42.30.110(1)(h) at 6:39PM. Council will be in the executive session until 6:50PM. Action will be taken during the regular scheduled City Council meeting.

Attendees: City Manager, Mayor and City Council.

The Mayor reconvened the meeting at 6:50PM.

VII. DELIBERATION AND SELECTION OF POSITION NO. 6

1. Oath of Office - City Council Position No. 6

After deliberation by the Mayor and City Council, Rian Davis was unanimously appointed to the City Council, Position No 6.

The Oath of Office was conducted by City Clerk, Julie Ferriss.

VIII. CONSENT AGENDA

MOTION TO APPROVE AS PRESENTED.

RESULT:	(UNANIMOUS)
MOVER:	Council Member Clyde Burkle
SECONDER:	Council Member Lee Wells
AYES:	Mayor Onslow, Mayor Pro Tem Cole, Council Member Wells, Council Member Chipman, Council Member Burkle, Council Member Favela, Council Member Davis

1. Approval of Claims And/Or Payroll
2. Approval of Minutes from the September 26, 2024 Meeting

IX. PRESENTATION

1. Paradise Pointe Park Master Plan Presentation - Corey Crownhart, Park Manager

The Paradise Pointe Park Master Plan is progressing and is expected to be completed by December 31, 2024. The presentation provided an overview of the project area, highlighting its key features and discussing the overall scope of work, which includes site analysis, potential recreational facilities, and environmental preservation.

X. BUSINESS

1. Resolution No. 655 - Approval of 2024 Engineering Standards Update - Chuck Green, Public Works Director

The City's Engineering Standards provide guidance for the design and construction of public and private development projects. The Engineering Standards may be revised in two ways. Minor revisions and edits may be completed by an Administrative Change at a staff level by the City Engineer, and more comprehensive updates require adoption by the City Council. The City's Engineering Standards last received a comprehensive update in 2017. The 2024 Engineering Standards Update consists of two

volumes:

- Volume 1: Engineering and Planning Standards
- Volume 2: Construction Specifications and Standard Details and Drawings.

The 2024 update will also include a future Volume 3, Parks and Trail Standards, that is anticipated to be reviewed later this fall. The proposed 2024 revisions have been in the works for most of this year, and have included several opportunities for vetting and review with the design and construction community. Staff presented an overview of these changes to Council at the August 22, 2024 meeting. The major changes proposed in the 2024 Engineering Standards update include:

- Roads and streets, including more robust pavement sections to extend the life of roadways
- Street trees, including an update for narrower planter strips
- Downtown mailbox permits and restrictions
- Stormwater, including incorporation of most components of the 2019 Stormwater Management Manual for Western Washington
- Water
- Street lights
- Construction
- Development Review and Inspection Procedures.

The City Council conducted a discussion regarding the 2024 Engineering Standards Update.

MOTION: MOVED TO APPROVE RESOLUTION NO. 655 TO ADOPT THE 2024 ENGINEERING STANDARDS UPDATE AS PRESENTED.

RESULT:	(UNANIMOUS)
MOVER:	Council Member Katie Favela
SECONDER:	Council Member Clyde Burkle
AYES:	Mayor Onslow, Mayor Pro Tem Cole, Council Member Wells, Council Member Chipman, Council Member Burkle, Council Member Favela, Council Member Davis

2. Second Reading of Ordinance No. 1430 - Changes to posted and unposted speed limits for portions of Pioneer Street, S. 15th Street, S 35th Place, S. 10th Way, S 25th Place, S. 4th Way, S. Wells Drive, S 11th Street, Union Ridge Parkway and S Hillhurst Road - Chuck Green, Public Works Director

This is the second reading and request for action of proposed permanent speed limit changes on various roadways within the City. These were presented to Council during presentations as part of the Horizontal Curves Safety Project on September 12, and the public hearing and first reading of Ordinance 1430 at the September 26 Council meeting. The proposals are the outcome of a comprehensive safety study of city collectors and arterial, with particular emphasis on horizontal curves, as well as safety for all users. The engineering study conducted by the City Engineer considered prevailing speed, land use context and roadway conditions, including:

- Roadway environment, including roadside development, number and frequency of driveways and access points, and land use);
- Functional classification (principal or minor arterial, collector, etc.);
- Presence of on-street parking;

- Pedestrian and bicycle facilities and activity;
- Roadway characteristics such as lane widths, shoulder condition, grade, alignment, median type, and sight distance;
- Geographic context such as an urban district, rural town center, non-urbanized rural area, suburban area, and scenic corridors;
- Reported crash experience for at least a 12-month period (including from both the 2022 and 2024 Ridgefield City Safety Plans); and
- A review of past speed studies to identify any trends in operating speeds.

The results of the engineering study include proposed speed limit changes for the following locations:

- Pioneer Street, east of 9th Avenue/Hillhurst to 65th Avenue, reduce from 40 mph to 35 mph;
- S. 15th Street/S 35th Place/S. 10th Way/S 25th Place, west of S Royle Road, establish a 25 mph speed limit for the entire scenic collector (Gee Creek Plateau)
- S. 4th Way, S 21st Place to S 25th Place, establish a 20 mph speed limit
- S. Wells Drive, Royle Rd. to future Discovery Drive (approximately 5500 block), reduce from 35 mph to 30 mph;
- Union Ridge Parkway, S 5th Street to Pioneer Street, establish a 35 mph speed limit;
- Union Ridge Parkway, north of Pioneer Street along Clark College building to a future extension to N 10th Street, establish a 25 mph speed limit for the current and future corridor
- S Hillhurst Road, Great Blue to south of Carty Road, reduce from 35 mph to 30 mph.

City Council conducted a discussion on the proposed speed limit changes and decided to postpone the second reading of the ordinance until the October 24th meeting.

3. Second Reading of Ordinance No. 1432 - Greely Farms Development Agreement Amendment - Steve Stuart, City Manager

The developers, Urban Downs LLC and Ridgefield East Development LLC, are obligated under a Development/Pre-Annexation Agreement to dedicate to the City certain park improvements as part of the Greely Farms PUD Subdivision. Eight total acres of park land dedication were contemplated in the Development/Pre-Annexation Agreement, with two (2) acres to be dedicated without additional compensation (which has already occurred), two (2) acres to be dedicated with compensation in the form of Park Impact Fee (PIF) Credits, and four (4) acres to be dedicated with compensation in the form of cash payment. The rate of compensation was to be determined through an appraisal from a mutually agreed upon source. The City and Developers reached an agreed-upon appraised value of \$250,000 per acre for park land to be dedicated at Greely Farms. The Developers also identified an additional 0.9 acres of land that could be suitable for public parks/open space which the City agreed to purchase as part of the overall land dedication. City and Developers agreed upon an amended payment structure that gives Developers needed PIF Credits and cash while minimizing and spreading out City cash outlay for the acquisition. The Second Amendment to the Development Agreement memorializes the terms for transfer of the remaining 6.9 acres which have not already been transferred. Under the terms of this Amendment, the City agrees to the following:

1. The City agrees to issue PIF Credits for the purchase of three (3) acres, as well as an additional nine-tenths (0.9) acre of available adjacent land. Total PIF Credits issued shall be Nine Hundred and Seventy-Five Thousand (\$975,000), which is the sum of 3.9 acres x \$250,000/acre;
2. The City agrees to provide cash payment for the purchase of an additional three (3) acres at the agreed total purchase price of \$250,000 per acre, for a total of \$750,000. Payment shall occur in two equal installments of \$375,000 – the first due on closing of the property conveyance, and the second due on

February 1, 2025;

3.The Developers agree to submit a Boundary Line Application to add the agreed upon acreage to adjacent Tract G which is currently owned by the City. The City agrees to pay all costs associated with processing the BLA application;

4.The City agrees to continue deferring collection of PIFs from building permit submittals by Holt Homes in Greely Farms until issuance of the PIF credits to allow Holt the opportunity to utilize the credits for payment of PIFs on those submittals.

MOTION: MOVED TO ADOPT ORDINANCE NO. 1432 AS PRESENTED WITH A PURCHASE AND SALES AGREEMENT.

RESULT:	(UNANIMOUS)
MOVER:	Council Member Lee Wells
SECONDER:	Council Member Clyde Burkle
AYES:	Mayor Onslow, Mayor Pro Tem Cole, Council Member Wells, Council Member Chipman, Council Member Burkle, Council Member Favela, Council Member Davis

XI. PUBLIC HEARING/BUSINESS

1. Public Hearing and First Reading of Ordinance No. 1433 - Golden Acres Petition to Annex - Claire Lust, Community Development Director

The Petition to Annex includes one parcel owned by Anthony Golden and adjacent Carty Road right-of-way. The subject parcel is within the Ridgefield Urban Growth Area (UGA) and is contiguous with the Ridgefield city limits to the east (Marrett Hills properties), west (Cosgrove property), and south (Sanderling Park). Therefore, the parcel #216700000 is eligible for annexation. The direct petition method of annexation (RCW 35A.14.120-150) requires that owners of 60% or more of the land value of the proposed annexation area must sign the Petition to Annex. Road values are not included in this calculation. Anthony Golden signed the Petition to Annex. Mr. Golden owns 100 percent of the land value of the property proposed for annexation, exceeding the 60% threshold of the Petition to Annex.

The Mayor Opened the Public Hearing: 8:29PM

No testimony was received.

The Mayor Closed the Public Hearing: 8:30PM

First reading conducted.

2. Public Hearing and First Reading of Ordinance No. 1434 - Development Agreement with Clark College - Steve Stuart, City Manager

In 2016, Clark College developed a long-range master plan for a satellite campus within Ridgefield on 70 acres called Clark College at Boschma Farms. This master plan intended to provide access to underserved populations in north Clark County. Clark College received land use approvals and development permits for an Advance Manufacturing Center (AMC) as the first phase of this campus. The AMC will consist of a 50,000 square foot building with associated parking. In future years, Clark College and the Clark College Foundation plan to construct additional campus buildings and also include a potential regional business center and other amenities to become a community destination in north Clark County. As the AMC is nearing completion, Clark College and City officials have been negotiating a Development Agreement

(DA). This DA includes the following provisions:

- Clark College will build a north-south connector, a collector now known as Union Ridge Parkway
- At the College's request, Union Ridge Parkway, sidewalk, and utilities will be located in a permanent easement instead of right-of-way.
- The sidewalk along the east side of Union Ridge Parkway will be deferred until development of the abutting property on the east side of the collector.
- The City will be providing three street light poles to the College for the collector.
- All public improvements will have a one-year warranty provided by the College's contractor.
- The estimated cost to construct the Collector is \$1,472,908.00, with \$546,000 related to impacts of development (required frontage improvements) and \$926,908 related to system improvements (public benefit).
- The City agrees to reimburse Clark College for the system improvements portion of the Collector construction costs that are above and beyond those related to the impacts of the Clark College at Boschma Farms development. This reimbursement will be in the form of a combination of TIF Credits in an amount not to exceed \$153,896.00 and monetary reimbursement not to exceed \$773,012.00.
- Approval of this DA is a condition of permanent occupancy of the Clark College AMC building.

The Mayor Opened the Public Hearing: 8:38PM

No testimony was received.

The Mayor Closed the Public Hearing: 8:38PM

MOTION: MOVED TO ADOPT ORDINANCE NO. 1434 AS PRESENTED AND WAIVE THE SECOND READING.

RESULT:	(UNANIMOUS)
MOVER:	Mayor Pro Tem Matt Cole
SECONDER:	Council Member Judy Chipman
AYES:	Mayor Onslow, Mayor Pro Tem Cole, Council Member Wells, Council Member Chipman, Council Member Burkle, Council Member Favela, Council Member Davis

XII. PUBLIC COMMENT

Anyone requesting to speak to the Council regarding all items not subject to a specific Public Hearing may come forward at this time. Please state your name and limit comments to three minutes. Written comments may be submitted to the Clerk prior to the meeting.

Comments received during public testimony can be heard on the City's website under [City Council Meeting Audio Files | Ridgefield, WA \(ridgefieldwa.us\)](#).

XIII. COUNCIL/PRESIDING OFFICER/STAFF REPORTS

1. Council

Council Member Favela - Welcomed and congratulated newly elected Council Member Davis. Mentioned the upcoming "Girlfields for the Cure" run and provided a reminder about the Pink Lemonade Recycling ban.

Council Member Burkle - Attended the Port of Ridgefield meeting, City Manager briefing, Birdfest event.

Mayor Pro Tem Cole - Attended the School Board meeting, welcomed and congratulated newly elected Council Member Davis.

Council Member Davis - Thanked everyone for the welcome and support.

Council Member Wells - Attended City Manager briefing and Port of Ridgefield meeting.

2. Mayor

Attended Birdfest event, City Manager briefing, School Board meeting, AWC meeting.

3. City Manager

City Manager Steve Stuart - Provided reminders about upcoming meetings and events.

Public Works Director Chuck Green - Provided an update on the Kennedy well.

Finance Director Kirk Johnson - Reminded of the upcoming Budget Advisory meeting.

XIV. ADJOURN

9:02PM

Julie Ferriss, City Clerk

Ron Onslow, Mayor

**CITY OF RIDGEFIELD
REQUEST FOR COUNCIL ACTION**

MEETING DATE: October 24, 2024

AGENDA ITEM NAME: Third Quarter Budget to Actual Presentation

GOVERNING LEGISLATION

RCW 35A.33: Budgets in Code Cities; City of Ridgefield Financial Policy #07: Budget

PREVIOUS COUNCIL ACTION TAKEN:

The council routinely reviews financial reports. An economic update occurs annually at the beginning of the following year's budget process.

SUMMARY/BACKGROUND:

Review the budget to actual results for the first half of 2024. Present an economic update specific to Ridgefield.

BUDGET/FINANCIAL IMPACTS:

No financial impact presentation only.

RECOMMENDED ACTION OR MOTION:

No action requested presentation only.

STAFF CONTACT: Kirk Johnson, Finance Director

ATTACHMENTS:

1. 3rd Qtr 2024 Budget Report



3rd Quarter 2024 Budget Report



2024 Reserves Per Policy

	O&M	Revenue Stab.	Debt Service	Separation	Capital	Capital Repair & Replace	2024 Reserves	2023 Reserves	% Change
General Fund	1,808,606	1,008,654	141,113	118,202	1,101,250	-	4,177,825	3,327,969	25.54%
Building & Permitting	509,385	200,719	-	39,496	-	-	749,600	665,967	12.56%
Water Fund	572,242	-	-	21,699	263,236	774,561	1,631,738	1,381,176	18.14%
Storm Fund	168,911	-	19,323	15,722	242,013	320,987	766,956	646,251	18.68%
Total	3,059,144	1,209,373	160,436	195,119	1,606,499	1,095,548	7,326,119	6,021,363	21.67%
Capital Repair and Replacement Minimum Target (2% of Historical Cost)									
	Historical	Target	Total	Balance	Variance	% Target			
Water Fund	26,526,728	2%	530,535	774,561	244,026	146%			
Storm Fund	25,775,240	2%	515,505	320,987	(194,518)	62%			



3rd Quarter 2024

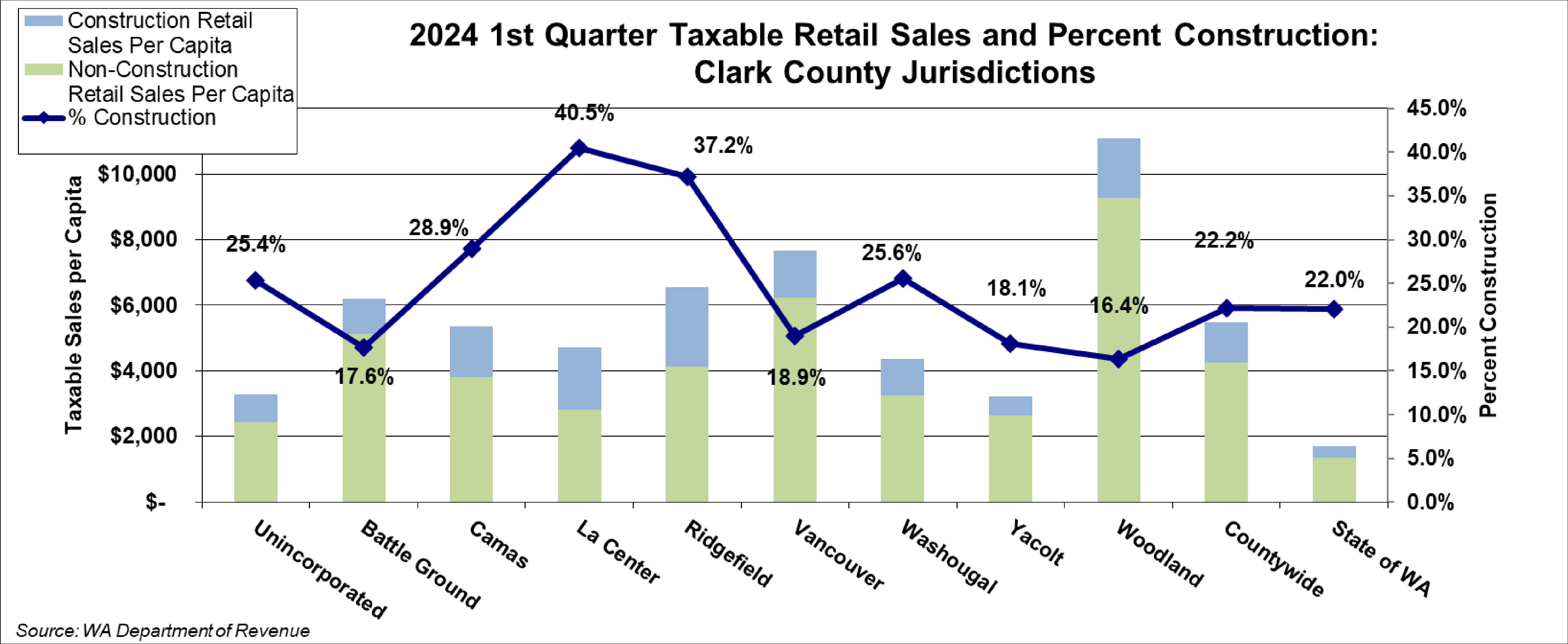
General Fund Revenue

Revenue	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Property Taxes	\$ 1,327,455	\$ 2,340,000	56.7%	\$ 1,280,219	3.7%
Retail Sales Taxes	2,944,232	4,735,000	62.2%	2,305,683	27.7%
Utility and Other Taxes	1,319,258	2,064,500	63.9%	1,185,713	11.3%
Licenses and Permits	77,239	97,180	79.5%	67,374	14.6%
Fines Forfeits and Restitution	53,556	72,000	74.4%	45,015	19.0%
Charges for Goods and Services	31,113	37,600	82.7%	37,443	-16.9%
Interfund Charges for Goods and Services	1,129,157	1,488,406	75.9%	1,235,080	-8.6%
Intergovernmental/Grants/Other	727,199	1,437,000	50.6%	715,100	1.7%
Total General Fund Revenue	\$ 7,609,209	\$12,271,686	62.0%	\$ 6,871,627	10.7%



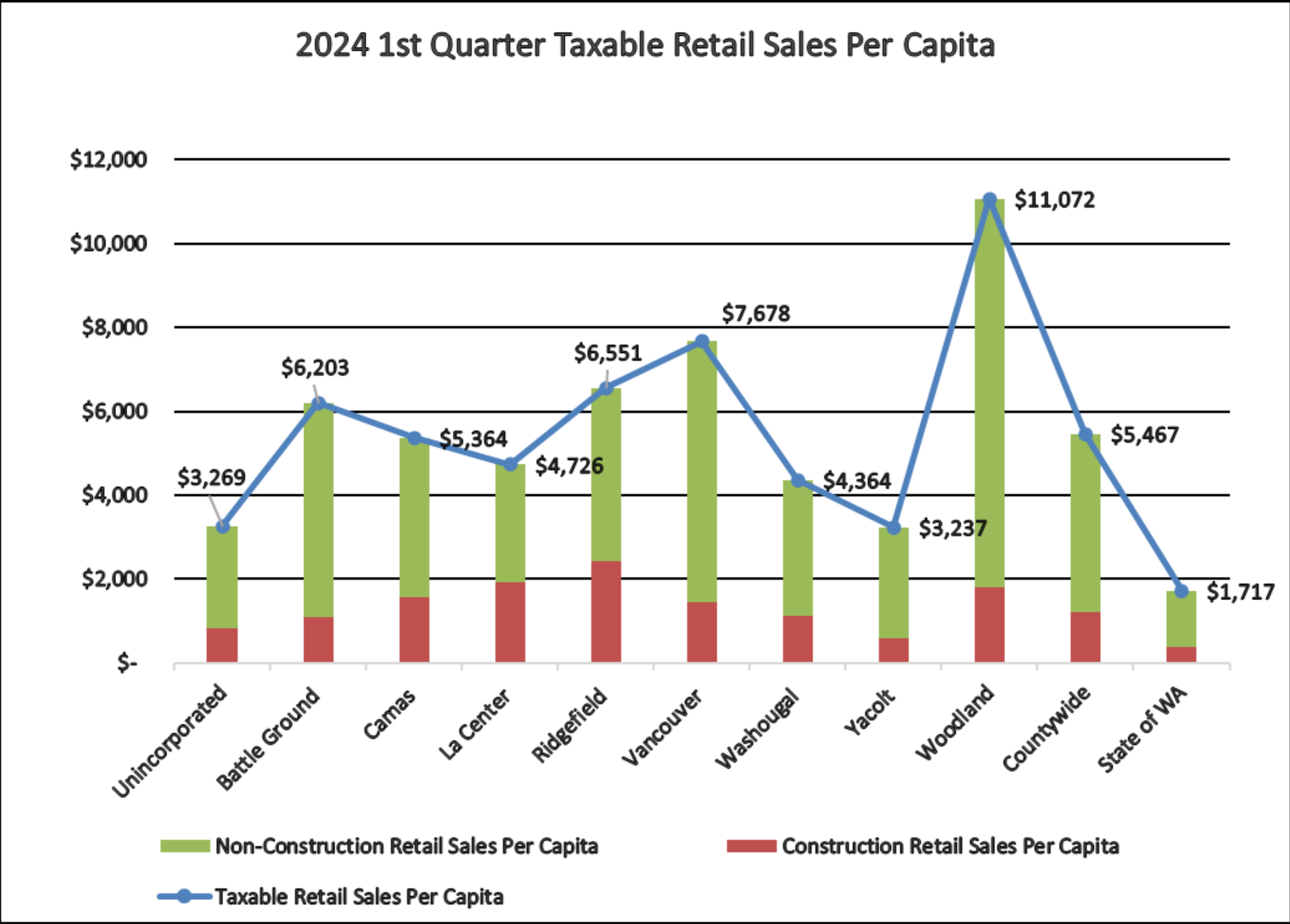
General Fund Sales & Use Tax Revenue

Retail Sales & Construction Comparison



General Fund Sales & Use Tax Revenue

Taxable Retail Sales Per Capita



Source: WA Department of Revenue



3rd Quarter 2024

General Fund Expense

Expense	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Department					
City Council	\$ 80,933	\$ 135,000	60.0%	\$ 73,901	9.5%
Judicial	240,500	335,000	71.8%	187,719	28.1%
Executive	246,573	350,800	70.3%	223,499	10.3%
Finance	715,869	977,600	73.2%	635,796	12.6%
Legal	61,381	70,000	87.7%	60,354	1.7%
Human Resources	347,946	506,500	68.7%	295,775	17.6%
Administration	516,959	745,700	69.3%	488,953	5.7%
General Government/Facilities	1,378,293	1,999,475	68.9%	1,494,267	-7.8%
Information Tech	348,973	496,000	70.4%	430,043	-18.9%
Public Safety	3,052,374	4,789,900	63.7%	2,973,170	2.7%
Cemetery	40,648	51,925	78.3%	33,413	21.7%
Community Development (Long Range Planning)	228,794	464,812	49.2%	25,865	784.6%
Parks	872,876	1,276,715	68.4%	696,296	25.4%
Transfers - To Debt Service	141,112	141,125	100.0%	-	100.0%
Transfers - To Equip Replace Fund	75,000	150,000	50.0%	253,500	-70.4%
Transfers - To Street Fund	789,702	1,052,935	75.0%	600,000	31.6%
Transfers - To Capital Facilities	187,048	360,000	52.0%	-	100.0%
Transfers - To Capital - Streets	74,759	994,080	7.5%	-	100.0%
Transfers - To Capital - Parks	49,881	2,096,000	2.4%	-	100.0%
Total General Fund Expense	\$ 9,449,621	\$16,993,567	55.6%	\$ 8,472,551	11.5%
Total Net Revenue (Loss)	\$ (1,840,412)	\$ (4,721,881)	39.0%	\$ (1,600,924)	15.0%



3rd Quarter 2024

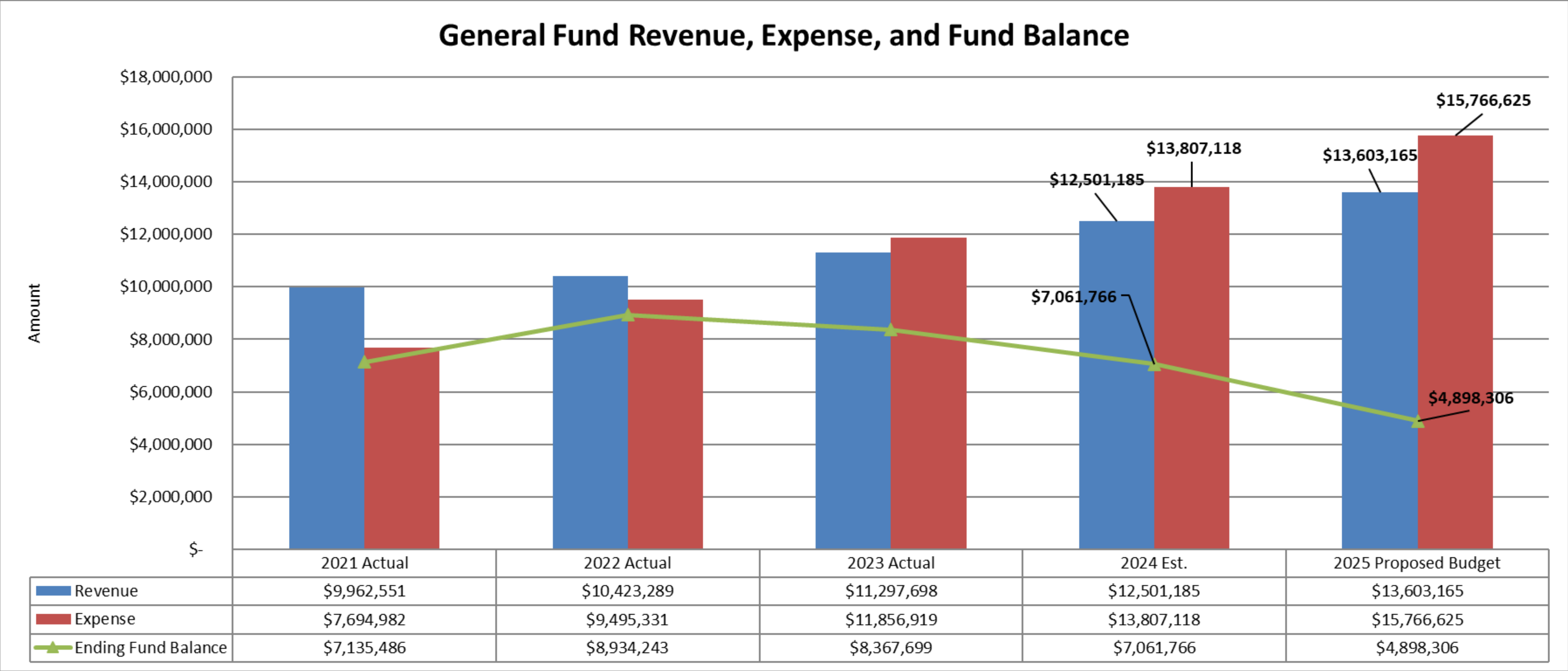
General Fund - Fund Balance

Fund Balance	3Q 2024 YTD Actual	2024 Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 8,367,700	\$ 8,367,700	\$ 8,904,244	-6.0%
Net Increase (Decrease)	(1,840,412)	(4,721,881)	(1,600,924)	15.0%
Ending Balance	6,527,288	3,645,819	7,303,320	-10.6%
Less: Reserved Amounts *	4,177,825	4,177,825	3,327,969	25.5%
Net Ending Available Fund Balance	\$ 2,349,463	\$ (532,006)	\$ 3,975,351	-40.9%
* Includes Street Fund Reserves				



3rd Quarter 2024

General Fund - Fund Balance

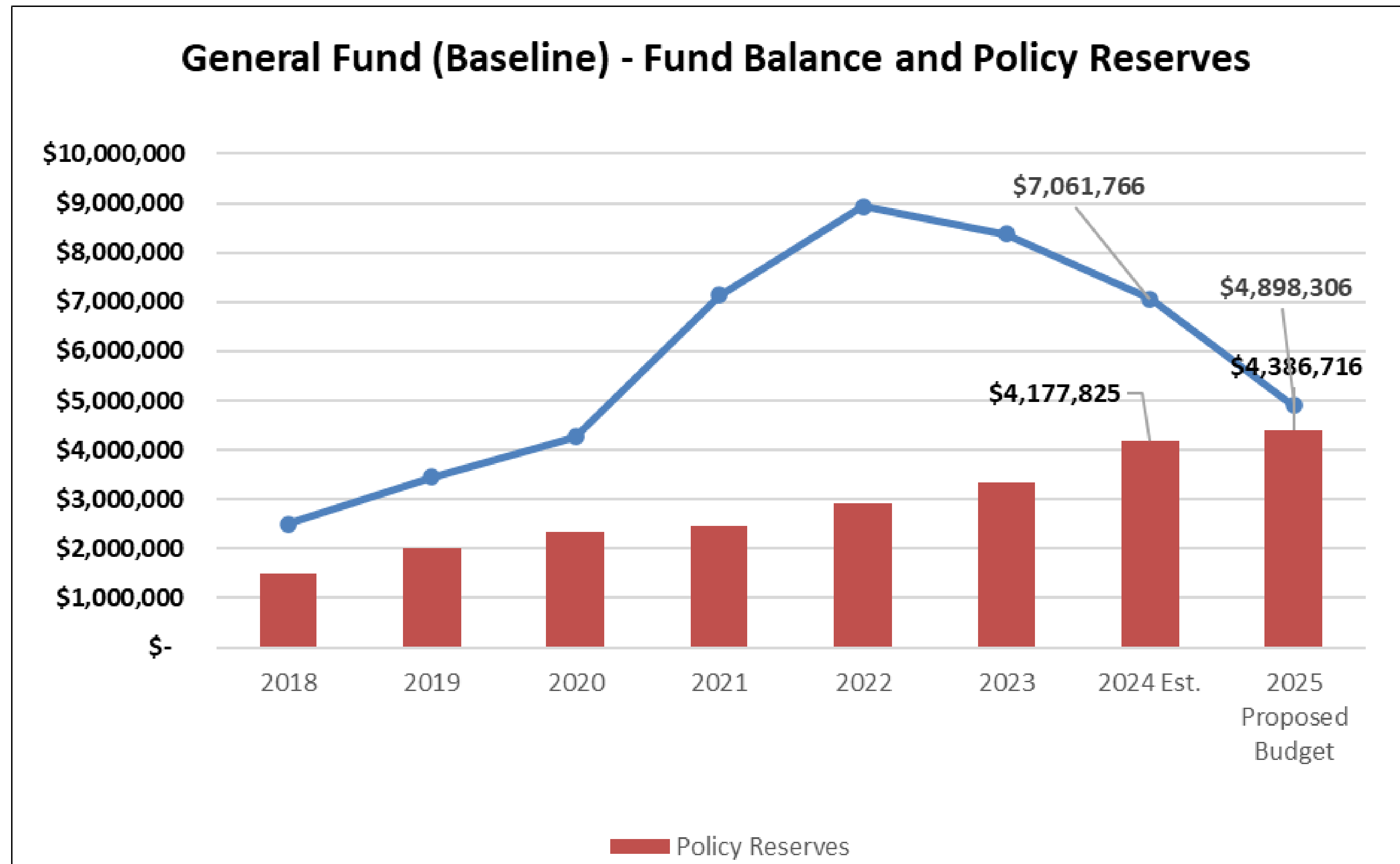


Source: City of Ridgefield Finance Department



3rd Quarter 2024

General Fund - Fund Balance



Source: City of Ridgefield Finance Department



3rd Quarter 2024

Street Fund

Revenue	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Tax/Franchise Fees	\$ 84,979	\$ 149,000	57.0%	\$ 93,301	-8.9%
Vehicle Motor Fuel Tax	173,217	296,500	58.4%	164,775	5.1%
Grants	-	56,000	0.0%	-	#DIV/0!
Permits	14,991	20,000	75.0%	14,637	2.4%
Transfer In - General Fund	789,701	1,052,935	75.0%	600,000	31.6%
Other Revenue	59,223	25,525	232.0%	13,637	100.0%
Total Street Fund Revenue	\$ 1,122,111	\$ 1,599,960	70.1%	\$ 886,350	26.6%
Expense	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Street Fund	\$ 1,017,940	\$ 1,598,535	63.7%	\$ 853,131	19.3%
Total Street Fund Expense	\$ 1,017,940	\$ 1,598,535	63.7%	\$ 853,131	19.3%
Total Net Revenue (Loss)	\$ 104,171	\$ 1,425	7310.2%	\$ 33,219	213.6%
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 35,563	\$ 35,563		\$ 133,720	-73.4%
Net Increase (Decrease)	104,171	1,425		33,219	213.6%
Ending Balance	139,734	36,988		166,939	-16.3%
Less: Reserved Amounts *	-	-		-	
Net Ending Available Fund Balance	\$ 139,734	\$ 36,988		\$ 166,939	-16.3%
*Reserves Maintained in General Fund					



3rd Quarter 2024

Community Development Building & Permitting Fund

Revenue	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Permits	\$ 975,136	\$ 885,000	110.2%	\$ 867,773	12.4%
Planning and Development	734,426	929,500	79.0%	773,242	-5.0%
Other Revenue	1,388	7,500	18.5%	9,012	100.0%
Total Building & Permitting Fund Revenue	\$ 1,710,950	\$ 1,822,000	93.9%	\$ 1,650,027	3.7%
Expense	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Building and Permitting	\$ 2,361,866	\$ 3,688,404	64.0%	\$ 2,385,553	-1.0%
Total Building & Permitting Fund Expense	\$ 2,361,866	\$ 3,688,404	64.0%	\$ 2,385,553	-1.0%
Total Net Revenue (Loss)	\$ (650,916)	\$(1,866,404)	34.9%	\$ (735,526)	-11.5%
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 1,823,451	\$ 1,823,451		\$ 3,041,416	-40.0%
Net Increase (Decrease)	(650,916)	(1,866,404)		(735,526)	-11.5%
Ending Balance	1,172,535	(42,953)		2,305,890	-49.2%
Less: Reserved Amounts	749,600	749,600		665,967	12.6%
Net Ending Available Fund Balance	\$ 422,935	\$ (792,553)		\$ 1,639,923	-74.2%



3rd Quarter 2024

Special Revenue & Debt Service Funds

Drug Fund	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 113	\$ 1,510	7.5%	\$ 58	94.8%
Expense	-	500	0.0%	-	
Total Net Revenue (Loss)	\$ 113	\$ 1,010	11.2%	\$ 58	94.8%
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 9,678	\$ 9,678		\$ 9,189	5.3%
Net Increase (Decrease)	113	1,010		58	94.8%
Net Ending Available Fund Balance	\$ 9,791	\$ 10,688		\$ 9,247	5.9%
Affordable Housing	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 11,394	\$ 25,000	45.6%	\$ 8,064	41.3%
Expense	-	-	0.0%	-	0.0%
Total Net Revenue (Loss)	\$ 11,394	\$ 25,000		\$ 8,064	41.3%
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 90,470	\$ 90,470		\$ 67,176	34.7%
Net Increase (Decrease)	11,394	25,000		8,064	41.3%
Net Ending Available Fund Balance	101,864	\$ 115,470		\$ 75,240	35.4%
Debt Service Fund	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 32,433,289	\$ 34,454,680	94.1%	\$ 452,278	100.0%
Expense	3,076,418	34,454,680	8.9%	452,278	100.0%
Total Net Revenue (Loss)	\$ 29,356,871	\$ -		\$ -	
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ -	\$ -		\$ -	
Net Increase (Decrease)	29,356,871	-		-	
Net Ending Available Fund Balance	29,356,871	\$ -		\$ -	



3rd Quarter 2024

REET and TBD

Real Estate Excise Tax (REET)	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 1,472,858	\$ 1,725,000	85.4%	\$ 1,286,207	14.5%
Expense	443,569	2,288,555	19.4%	452,278	-1.9%
Total Net Revenue (Loss)	\$ 1,029,289	\$ (563,555)	-182.6%	\$ 833,929	23.4%
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 4,285,137	\$ 4,285,137		\$ 4,501,079	-4.8%
Net Increase (Decrease)	1,029,289	(563,555)		833,929	23.4%
Ending Fund Balance	5,314,426	3,721,582		5,335,008	-0.4%
Debt Service Reserve	1,409,391	1,409,391		1,413,553	-0.3%
Net Ending Available Fund Balance	\$ 3,905,035	\$ 2,312,191		\$ 3,921,455	-0.4%
Transportation Benefit District (TBD)	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 608,718	\$ 850,100	71.6%	\$ 468,946	29.8%
Expense	314,264	1,047,900	30.0%	504,218	-37.7%
Total Net Revenue (Loss)	\$ 294,454	\$ (197,800)	-148.9%	\$ (35,272)	100.0%
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 389,688	\$ 389,688		\$ 586,915	-33.6%
Net Increase (Decrease)	294,454	(197,800)		(35,272)	-934.8%
Net Ending Available Fund Balance	684,142	\$ 191,888		\$ 551,643	24.0%



3rd Quarter 2024 Impact Fee Funds

Park Impact Fee (PIF)	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 203,621	\$ 251,250	81.0%	\$ 316,008	-35.6%
Expense	276,730	827,000	33.5%	1,405,975	-80.3%
Total Net Revenue (Loss)	\$ (73,109)	\$ (575,750)	12.7%	\$(1,089,967)	-93.3%
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 1,331,917	\$ 1,331,917		\$ 2,649,061	-49.7%
Net Increase (Decrease)	(73,109)	(575,750)		(1,089,967)	-93.3%
Net Ending Available Fund Balance	\$ 1,258,808	\$ 756,167		\$ 1,559,094	-19.3%
Traffic Impact Fee (TIF)	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 492,780	\$ 568,250	86.7%	\$ 426,449	15.6%
Expense	1,119,397	1,716,000	65.2%	1,883,473	-40.6%
Total Net Revenue (Loss)	\$ (626,617)	\$ (1,147,750)	54.6%	\$(1,457,024)	-57.0%
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 885,341	\$ 885,341		\$ 2,308,003	-61.6%
Net Increase (Decrease)	(626,617)	(1,147,750)		(1,457,024)	-57.0%
Net Ending Available Fund Balance	\$ 258,724	\$ (262,409)		\$ 850,979	-69.6%



3rd Quarter 2024

General Capital & Equipment Replacement Funds

General Capital Projects	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 6,315,370	\$ 47,974,350	13.2%	\$ 6,406,075	-1.4%
Expense	11,303,099	46,753,850	24.2%	6,576,741	71.9%
Total Net Revenue (Loss)	\$ (4,987,729)	\$ 1,220,500	-100.0%	\$ (170,666)	2822.5%
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 950,163	\$ 950,163		\$ 1,037,341	-8.4%
Net Increase (Decrease)	(4,987,729)	1,220,500		(170,666)	2822.5%
Net Ending Available Fund Balance	\$ (4,037,566)	\$ 2,170,663		\$ 866,675	-565.9%

Equipment Replacement (ERF)	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 137,500	\$ 275,050	50.0%	\$ 376,575	-63.5%
Expense	142,151	296,000	48.0%	569,350	100.0%
Total Net Revenue (Loss)	\$ (4,651)	\$ (20,950)	22.2%	\$ (192,775)	-97.6%
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 645,762	\$ 645,762		\$ 763,838	-15.5%
Net Increase (Decrease)	(4,651)	(20,950)		(192,775)	-97.6%
Net Ending Available Fund Balance	\$ 641,111	\$ 624,812		\$ 571,063	12.3%



3rd Quarter 2024

Water and Storm Water Operating Funds

Water Utility O&M	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 2,246,476	\$ 3,422,500	65.6%	\$ 2,173,377	3.4%
Expense	1,847,576	3,032,973	60.9%	1,725,682	7.1%
Total Net Revenue (Loss)	\$ 398,900	\$ 389,527	102.4%	\$ 447,695	-10.9%
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 3,203,301	\$ 3,203,301		\$ 2,537,142	26.3%
Net Increase (Decrease)	398,900	389,527		447,695	-10.9%
Ending Balance	3,602,201	3,592,828		2,984,837	20.7%
Less: Reserved Amounts	1,631,738	1,631,738		1,381,176	18.1%
Net Ending Available Fund Balance	\$ 1,970,463	\$ 1,961,090		\$ 1,603,661	22.9%
Stormwater Utility O&M	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 1,099,997	\$ 1,782,700	61.7%	\$ 825,368	33.3%
Expense	1,101,695	1,779,967	61.9%	997,466	10.4%
Total Net Revenue (Loss)	\$ (1,698)	\$ 2,733	-62.1%	\$ (172,098)	-99.0%
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 658,845	\$ 658,845		\$ 530,273	24.2%
Net Increase (Decrease)	(1,698)	2,733		(172,098)	-99.0%
Ending Balance	657,147	661,578		358,175	83.5%
Less: Reserved Amounts	766,956	766,956		646,251	18.7%
Net Ending Available Fund Balance	\$ (109,809)	\$ (105,378)		\$ (288,076)	-61.9%



3rd Quarter 2024

Water SDC and Utility Capital Fund

Water SDC	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 955,786	\$ 1,750,000	54.6%	\$ 929,913	2.8%
Expense	1,059,718	6,712,000	15.8%	174,569	507.0%
Total Net Revenue (Loss)	\$ (103,932)	\$ (4,962,000)	2.1%	\$ 755,344	-113.8%
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 8,010,425	\$ 8,010,425		\$ 9,218,798	-13.1%
Net Increase (Decrease)	(103,932)	(4,962,000)		755,344	-113.8%
Net Ending Available Fund Balance	\$ 7,906,493	\$ 3,048,425		\$ 9,974,142	-20.7%

Water Utility Capital Projects	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 1,045,653	\$ 10,248,000	10.2%	\$ 180,216	480.2%
Expense	1,178,595	10,248,000	11.5%	180,216	554.0%
Total Net Revenue (Loss)	\$ (132,942)	\$ -		\$ -	
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ 16,536	\$ 16,536		\$ 16,536	0.0%
Net Increase (Decrease)	(132,942)	-		-	-100.0%
Net Ending Available Fund Balance	\$ (116,406)	\$ 16,536		\$ 16,536	-804.0%

Storm Utility Capital Projects	3Q 2024 YTD Actual	2024 Budget	3Q % of Budget	3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Revenue	\$ 30,161	\$ 3,589,000	0.8%	\$ 18,187	65.8%
Expense	25,358	3,589,000	0.7%	18,187	39.4%
Total Net Revenue (Loss)	\$ 4,803	\$ -		\$ -	
Fund Balance	3Q 2024 YTD Actual	2024 Budget		3Q 2023 YTD Actual	3Q 2024 v 3Q 2023
Beginning Balance	\$ (5,491)	\$ (5,491)		\$ -	
Net Increase (Decrease)	4,803	-		-	-100.0%
Net Ending Available Fund Balance	\$ (688)	\$ (5,491)		\$ -	-100.0%



3rd Quarter 2024

Cash and City Investments (Market Value)

- Total Cash on Hand \$4,750,952
- Total investment portfolio \$49,204,010
 - Municipal bonds \$385,952
 - US Agency bonds \$9,505,016
 - Clark County investment pool \$1,300,323
 - Washington State local government investment pool \$38,012,719
 - Current yield on investment 3.0%. Goal is 2%
- Weighted average maturity 9.93 months





THANK YOU

**CITY OF RIDGEFIELD
REQUEST FOR COUNCIL ACTION**

MEETING DATE: October 24, 2024

AGENDA ITEM NAME: 2025 Proposed Operating and Capital Budget

GOVERNING LEGISLATION

RCW 35A.33; Budgets in Code Cities, City of Ridgefield Financial Policy #07: Budget

PREVIOUS COUNCIL ACTION TAKEN:

The council has held two public work sessions on the preparation of the 2024 budget.

SUMMARY/BACKGROUND:

The council held a work study session on the baseline operating budget in August 2024. They also held a work study session on capital, initiative and personnel requests in September 2024. The current presentation shows the proposed budget impacts for 2025 and requests final direction on development of the 2025 budget.

BUDGET/FINANCIAL IMPACTS:

Refer to the attached presentation for details.

RECOMMENDED ACTION OR MOTION:

No action requested just direction on the proposed budget that will be presented in public hearings beginning in November 2024.

STAFF CONTACT: Kirk Johnson, Finance Director

ATTACHMENTS:

1. 2025 Preliminary Budget Presentation



2025 Preliminary Budget Operating and Capital

October 24, 2024
6:30 PM



2025 Preliminary Budget Agenda

- Budget Calendar
- Revenue Assumptions. No changes to the 2025 revenue forecast.
- Additions to the Operating Budget
- Additions to the Capital Budget
- Budget Summary
- FTE Allocation Summary
- Budget Advisory Committee Recommendation
- Council Direction
- Next Steps



2025 Budget Calendar

2025 Budget Calendar

Week of	May/June	July				Aug					Sept				Oct					Nov				Dec			
		1	8	15	22	29	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25	2	9	16	23
City Council Goals/Retreat	5/6/2024																										
Management Initiatives/Goals Retreat	5/29/2024																										
Review Financial Sustainability Model (6 Year)																											
Review Budget and Financial Policies					25th																						
Review Economic Conditions/Budget to Actual							8th																				
Determine Baseline Assumptions																											
Develop Proposed Budget																											
Levels of Service																											
Baseline/Beginning Budget																											
New Programs or Initiatives																											
Update Indirect Cost Plan																											
Update Equipment Replacement Fund																											
Preliminary Budget																	24th										
Operating								22nd																			
Capital													26th														
Update Financial Forecast																											
Adopt Final Budget																											
Conduct Hearing on Revenue Sources																	7th										
Draft Final Budget																											
Adopt Property Tax Levy																	7th		21st								
Update Utility Rate Model																	7th		21st								
Final Budget and Conduct Hearings																			21st			5th					
Individual Department Budget Meetings																											
Executive Management Meetings (10am)							5th					9th			7th				If Needed								
Budget Advisory Committee Meetings								12th				16th				15th			If Needed								
City Council Work Sessions				25th					22nd				26th				24th			If Needed							

August 8 presentation - Economic forecast and potential policy updates

August 22 work session - Present baseline budget

September 26 work session - Present personnel, initiatives and capital budget requests

October 24 work session or presentation - Update revenue projections and present proposed budget

November 7 work session - Final touch on 2025 budget prior to public hearings - If needed



2025 Preliminary Budget

2025 Estimated Reserves

	O&M	Revenue Stab.	Debt Service	Separation	Capital	Capital Repair & Replacement	2025 Est. Reserves	2024 Reserves	% Change
General Fund	1,808,606	1,008,654	141,113	118,202	1,101,250	-	4,386,716	4,177,825	5.00%
Community Development	509,385	200,719	-	39,496	-	-	737,200	749,600	-1.65%
Water Fund	572,242	-	-	21,699	263,236	774,561	1,794,912	1,631,738	10.00%
Storm Fund	168,911	-	19,323	15,722	242,013	320,987	843,652	766,956	10.00%
REET							2,850,435	2,808,645	1.49%
Total	3,059,144	1,209,373	160,436	195,119	1,606,499	1,095,548	10,612,915	10,134,764	4.72%



2025 Preliminary Budget Revenue Assumptions

2025 Revenue Assumptions Included in the 2025 Preliminary Budget

- 1% Statutory increase (pending council action)
- 3% inflationary water rate increase per 2023 adopted rate model
- \$2.80 per EDU bi-monthly storm water rate increase per 2023 adopted rate model
- 2.8% inflationary increase to impact fees per Ridgefield Municipal Code indexing

Pending Rate/Fee Information

- Development cost of service study (Council presentation and action December 2024)
 - Building permits
 - Land use applications
 - Engineering permits
 - Development inspections
- Water system development charges (pending study and council action December 2024)



2025 Preliminary Budget Goals

As the city transitions from a dependence on residential construction to a more sustainable ongoing retail sales tax structure the following goals were identified by the Budget Advisory Committee and direction provided by the City Council.

- **Maintain the current level of service for all public services provided to the Ridgefield community.**
- **Provide the necessary staffing to support the service level for the Ridgefield community.**
- **Provide the necessary resources for the 2024 – 2026 transition period in the General Fund.**
- **Protect policy reserve levels in the General Fund through the transition.**
- **Maintain sufficient fund balance to pay debt service on current GO bonds and potential future issuance of debt service.**
- **Focus on current capital projects that are in process.**



2025 Preliminary Budget

2025 Operating and Capital Adjustments

Updates to the 2025 Preliminary Budget			
Operating Adjustments			
Operating Fund Updates (Ongoing)	2025 Budget	Increase	
Class & Comp Study Implementation (Personnel)	\$ 13,361,800	\$ 306,900	Operating Funds
Water Purchase CPU	\$ 400,000	\$ 100,000	Water Fund
Water Maintenance Worker (Distribution)	\$ 184,000	\$ -	No change in funding. Recommendation is to add position with a two year sunset. Council will review in 2026 to determine if position becomes a regular position.

Capital Adjustments			
Project (One-Time)	2024 Budget	2025 Budget	Funding Source
Pioneer Widening Water Work	\$ 500,000	\$ 300,000	WSDC, carry forward
RORC Fieldhouse	\$ 240,000	\$ 240,000	Grant, carry forward
Park Laundry Cleanup	\$ 2,300,000	\$ 1,000,000	Grant, Gen Fund, carry forward
Clark College ROW Purchase	\$ -	\$ 780,000	Bond, TIA project list
Capital Facility Plans	\$ 281,000	\$ 40,000	Operating funds carry forward.
I-5 Safety Screen and Art	\$ 553,300	\$ 590,000	Original 2025 budget request was for \$979,000. Reduced budget to \$590,000



2025 Preliminary Budget Budget Summary

Fund	Beginning Fund Balance	2025 Revenue	2025 Operating Budget	2025 New Requests	2025 Expense	Net Total	Ending Fund Balance
Operating Funds							
General Fund	7,061,766	13,603,165	13,540,695	1,836,930	15,377,625	(1,774,460)	5,287,306
Street Fund	78,348	1,416,190	1,396,950	15,000	1,411,950	4,240	82,588
Building & Permitting	857,230	2,512,000	3,290,300	-	3,290,300	(778,300)	78,930
Water Fund	3,804,647	3,933,000	3,460,900	472,500	3,933,400	(400)	3,804,247
Storm Fund	791,792	2,276,500	1,848,680	218,600	2,067,280	209,220	1,001,012
Capital Service Funds							
REET	4,181,840	2,040,000	-	3,308,645	3,308,645	(1,268,645)	2,913,195
PIF	426,996	215,250	-	640,000	640,000	(424,750)	2,246
TIF	125,675	465,250	-	-	-	465,250	590,925
Water SDC	6,394,602	1,750,000	40,000	6,955,000	6,995,000	(5,245,000)	1,149,602
Special Revenue Funds							
Drug Fund	9,762	1,510	500	-	500	1,010	10,772
Tax Increment Area	-	30,000	30,000	-	30,000	-	-
Affordable Housing	110,003	25,000	-	-	-	25,000	135,003
TBD	806,819	1,168,000	182,500	895,000	1,077,500	90,500	897,319
Debt Service							
Debt Service	14,854,020	3,324,765	3,324,765	13,780,000	17,104,765	(13,780,000)	1,074,020
Capital Funds							
General Capital	1,553,736	20,924,600	-	21,374,600	21,374,600	(450,000)	1,103,736
ERF	628,611	284,100	-	112,500	112,500	171,600	800,211
Water Utility Capital	16,536	7,531,000	-	7,531,000	7,531,000	-	16,536
Storm Utility Capital	-	2,404,000	-	2,404,000	2,404,000	-	-
2025 Preliminary Budget	41,702,383	63,904,330	27,115,290	59,543,775	86,659,065	(22,754,735)	18,947,648



2025 Preliminary Budget Impact Fee/SDC Credits

Impact Fee and System Development Charge Balances 10/24/2024					
	PIF		TIF		WSDC
Current Balance	\$	960,464	\$	8,455,875	\$ 172,853
Outstanding Issuance	\$	6,743,000	\$	2,472,000	\$ -
Total Credits	\$	7,703,464	\$	10,927,875	\$ 172,853



2025 Preliminary Budget

2025 Estimated FTE Allocations

Personnel Schedule (Full-Time Equivalents)				
Job Title	2023 FTE Allocation	2024 FTE Allocation	2025 Est. FTE Allocation	2025 Est. FTE Percentage
Executive	1.00	1.00	1.00	1.15%
Total Finance	6.30	6.30	6.05	6.97%
Total Human Resources	2.40	2.40	2.40	2.77%
Total Administration	5.60	5.60	5.60	6.46%
Total General Government/Facilities	1.40	1.55	1.75	2.02%
Total Public Safety	19.00	21.00	21.00	24.21%
Total Cemetery	0.30	0.35	0.70	0.81%
Total Long Range Planning & Code Enforcement	1.50	1.50	1.50	1.73%
Total Parks	5.65	6.65	8.30	9.57%
Total Streets	6.10	6.90	6.65	7.67%
Total Building and Permitting	15.70	15.70	15.10	17.41%
Total Water Utility	7.00	7.00	9.80	11.30%
Total Stormwater Utility	4.30	6.30	6.90	7.95%
Total Full Time Equivalents	76.25	82.25	86.75	100.00%
Full-Time Staff				
Full-Time Employees	75.00	81.00	85.00	97.98%
Part-Time Staff				
Part-Time Employees	1.25	1.25	1.75	2.02%



2025 Preliminary Budget

Next Steps

- November
 - Final draft of proposed budget available to public
 - Conduct public hearing on revenue sources 11/7 6:30 PM
 - Property tax levy and utility rates 1st reading 11/7 6:30 PM
 - Property tax levy and utility rates 2nd reading 11/21 6:30 PM
 - Conduct public hearing and 1st reading on 2025 proposed budget 11/21 6:30 PM
- December
 - Conduct public hearing and 2nd reading on 2025 proposed budget 12/5 6:30 PM
 - Adopt 2025 Proposed Budget 12/5 6:30 PM
 - Transmit 2025 adopted budget to MRSC and State Auditor





THANK YOU

**CITY OF RIDGEFIELD
REQUEST FOR COUNCIL ACTION**

MEETING DATE: October 24, 2024

AGENDA ITEM NAME: Second Reading of Ordinance No. 1433 - Golden Acres Petition to Annex

GOVERNING LEGISLATION

RCW 35A.14 - Annexation by Code Cities

PREVIOUS COUNCIL ACTION TAKEN:

Council adopted Resolution No. 648, Golden Acres Intent to Annex, on May 23, 2024.
Council held a public hearing on Ordinance No. 1433, Golden Acres Petition to Annex, on October 10, 2024.

SUMMARY/BACKGROUND:

See attached staff report.

BUDGET/FINANCIAL IMPACTS:

None.

RECOMMENDED ACTION OR MOTION:

To approve the Golden Acres Petition to Annex:
"I move to adopt Ordinance No. 1433 as presented."

STAFF CONTACT: Claire Lust, Community Development Director

ATTACHMENTS:

1. Staff Report
2. Applicant's Narrative
3. Exhibit A_Legal Description and Survey

ORDINANCE NO. 1433

AN ORDINANCE OF THE CITY OF RIDGEFIELD, WASHINGTON ANNEXING INTO THE CORPORATE LIMITS OF THE CITY OF RIDGEFIELD APPROXIMATELY 9.75 ACRES IDENTIFIED AS THE GOLDEN ACRES ANNEXATION AREA AND ASSIGNING THE ZONING OF THE ANNEXED AREA AS RESIDENTIAL LOW DENSITY 4 WITH THE URBAN HOLDING 10 OVERLAY.

WHEREAS, annexations to the City of Ridgefield are regulated by Revised Code of Washington (RCW) Chapter 35A.14, Annexation by Code Cities; and

WHEREAS, the proposed annexation area (Golden Acres Annexation Area comprised of Assessor's parcel 216700000 and adjacent NW Carty Road right-of-way) is within the Ridgefield Urban Growth Area as shown on the Ridgefield Urban Growth Area Comprehensive Plan Map of the Clark County 20-Year Comprehensive Growth Management Plan which the Board of Clark County Councilors adopted on June 28, 2016, Ordinance No. 2016-06-12; and

WHEREAS, RCW 35A.14.010 provides that an unincorporated area lying contiguous to a code city may become part of the charter code city or noncharter code city by annexation; and

WHEREAS, the area proposed to be annexed is contiguous to the city limits; and

WHEREAS, RCW 35A.14.120 provides a direct petition annexation method which requires that prior to circulating a petition for annexation, the initiating party or parties, who shall be the owners of not less than ten percent in value, according to the assessed valuation for general taxation of the property for which annexation is sought, shall notify the legislative body of a charter code city or noncharter code city; and

WHEREAS, on May 23, 2024 the City Council of the City of Ridgefield adopted Resolution No. 648 accepting a notice of intent to annex for the Golden Acres Annexation Area and authorizing the applicant to circulate a petition to annex; and

WHEREAS, the City of Ridgefield received a petition to annex for the Golden Acres Annexation Area and assigned File Nos. MASTER-24-0048 and PLZ-24-0052; and

WHEREAS, RCW 35A.14.120 requires that the petition to annex must be signed by the owners of not less than sixty percent in value, according to the assessed valuation for general taxation of the property for which annexation is petitioned; and

WHEREAS, the Golden Acres petition to annex is signed by the owners of 100 percent in value of the property for which annexation is petitioned; and

WHEREAS, on September 3, 2024, the City of Ridgefield requested that the Clark County Department of Assessment and GIS certify the petition to annex by direct petition method according to RCW 35A.01.040(4) which requires that a petition signed by property owners be transmitted to the county assessor for determination of sufficiency; and

WHEREAS, on September 12, 2024, the Clark County Assessor provided to the City of Ridgefield a Certification of Sufficiency for the annexation petition by the direct petition method; and

WHEREAS, RCW 43.21C.222 exempts annexation of territory by a city or town from compliance with the chapter entitled State Environmental Policy; and

WHEREAS, RCW 35A.14.130 provides that the legislative body of a code city may entertain a petition for annexation and fix a date for a public hearing thereon and cause notice of the hearing to be published in one or more issues of a newspaper of general circulation in the city, and post in three public places within the territory proposed for annexation, and shall specify the time and place of hearing and invite interested persons to appear and voice approval or disapproval of the annexation; and

WHEREAS, the City of Ridgefield met the requirements defined within RCW 35A.14.130 by publishing a notice of public hearing in the Columbian newspaper, posting notice of public hearing at three public places within the territory proposed for annexation, mailing the notice to surrounding property owners, and posting the notice online; and

WHEREAS, on October 10, 2024, the City Council of the City of Ridgefield held and closed a public hearing on the proposed annexation; and

WHEREAS, RCW 35A.14.140 provides that after the public hearing, if the legislative body determines to effect the annexation, then they shall do so by ordinance and file a copy of the ordinance with the board of county commissioners; and

WHEREAS, the proposed annexation area is designated Urban Low as shown on the Comprehensive Plan Map of the Ridgefield Urban Area Comprehensive Plan which the City Council adopted on February 25, 2016, Ordinance No. 1203; and

WHEREAS, the City is designating subject properties Residential Low Density 4 pursuant to RDC 18.210.015.A, the 2016 Ridgefield Urban Area Comprehensive Plan, and the Carty Road Subarea Plan; and

WHEREAS, the City is placing all newly annexed properties in UH-10 pursuant to RDC 18.210.015.B until certification by the city engineer that identifies capital facilities deficiencies have been satisfactorily resolved, as required in RMC 18.270.060, and until Council adopts development standards implementing the Carty Road Subarea Plan;

NOW THEREFORE, the City Council for the City of Ridgefield hereby ordains as follows:

SECTION 1. Annexation. The City of Ridgefield hereby annexes into the corporate limits of the City of Ridgefield the Golden Acres Annexation Area shown in Exhibit A.

SECTION 2. Zoning. The zoning of the annexed area shall be Residential Low Density 4 with the Urban Holding 10 overlay. The Urban Holding 10 overlay shall not be removed until the requirements of RDC 18.210.015.B and 18.270.060 are met and Council has adopted development standards for the Carty Road Subarea.

SECTION 3. City Filing of Certificate with Washington State Office of Financial Management. A Certificate of Annexation shall be filed with the Washington State Office of Financial Management within thirty (30) calendar days of the effective date of this ordinance.

SECTION 4. City Filing with Clark County. A certified copy of the adopted ordinance shall be separately filed with the Board of Clark County Commissioners and the Clark County Department of Assessment and GIS.

SECTION 5. Severability. If any section, sentence, clause or phrase of this ordinance shall be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this ordinance.

SECTION 6. Effective Date. This ordinance shall be in full force and effect thirty (30) calendar days after adoption and publication pursuant to law.

SECTION 7. Corrections. The City Clerk and the codifiers of this ordinance are authorized to make necessary clerical corrections to this ordinance including, but not limited to, the correction of scrivener's/clerical errors, references, ordinance numbering, section/subsection numbers and any references thereto.

PASSED BY THE CITY COUNCIL OF THE CITY OF RIDGEFIELD, WASHINGTON THIS 24TH DAY OF OCTOBER, 2024.

Ron Onslow, Mayor

ATTEST/AUTHENTICATED:

Julie Ferriss, City Clerk

APPROVED AS TO FORM:

Janean Parker, City Attorney

First Reading/Passage: October 10, 2024
Second reading/Passage: October 24, 2024
Date of Publication:
Effective Date:

EXHIBIT A:
Legal Description and Map of Annexation Area



COMMUNITY DEVELOPMENT DEPARTMENT

510-B Pioneer Street | PO Box 608 | Ridgefield, WA 98642
(360) 887-3908 | Fax: (360) 887-2507 | www.ridgefieldwa.us

Golden Acres Petition to Annex

Staff Report – 2nd Reading

File No. MASTER-24-0048, PLZ-24-0052

October 24, 2024

I. Basic Facts

Petition to annex submitted: August 19, 2024

Technically complete: September 3, 2024

Council hearing date: October 10, 2024

Second reading and vote on adoption: October 24, 2024

Applicant/Property Owner: Anthony G. Golden. 2825 NW Carty Rd / Ridgefield, WA 98642. Contact: 360.737.9152, goldenexpedite@gmail.com

Property Information: 2825 NW Carty Rd / Ridgefield, WA 98642. #31 S33 T4N R1E WM, Assessor's #216700000, 9.75 acres.

Current Zoning: Clark County Single-Family Residential (R1-10), Urban Holding 10 (UH-10)

Comprehensive Plan Designation: Urban Low (UL)

Carty Road Subarea Plan Zoning Designation: Residential Low Density 4 (RLD-4)

Staff Contact: Claire Lust, Community Development Director. 360.857.5024, Claire.lust@ridgefieldwa.us

II. Property Information

The Petition to Annex includes one parcel owned by Anthony Golden and adjacent Carty Road right-of-way. See Figures 1 and 2. The subject parcel is within the Ridgefield Urban Growth Area (UGA) and is contiguous with the Ridgefield city limits to the east (Marrett Hills properties), west (Cosgrove property), and south (Sanderling Park). Therefore, the parcel is eligible for annexation. The property information is as follows:

Property Owner	Legal	Square Feet	Acres	2024 Assessed Taxable Property Value for 2025 Taxes	Site Address
GOLDEN ANTHONY G	#31 S33 T4N R1E WM, Assessor's #216700000	424,710	9.75	\$889,927.00	2825 NW Carty Rd

Figure 1. Vicinity map

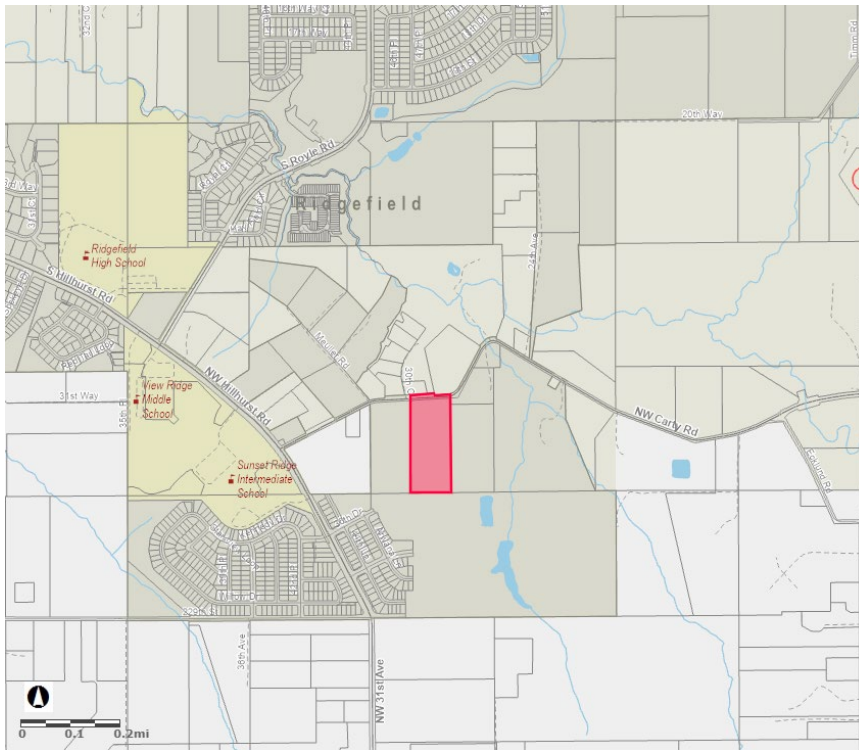
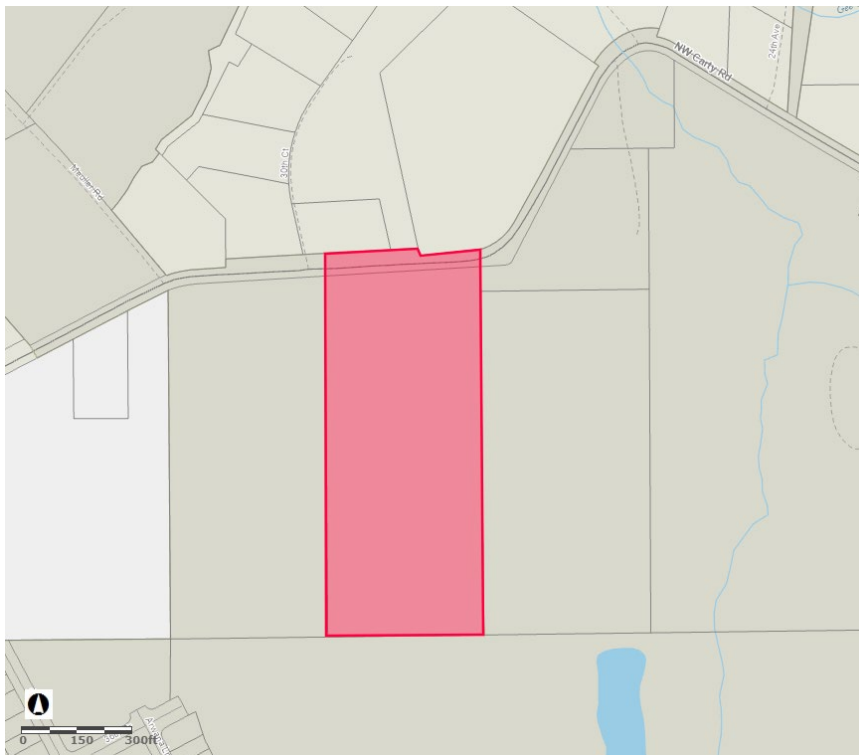


Figure 2. Site map



III. Zoning and Development

Annexation requires concurrent rezoning from the existing Clark County zoning designation to a City zoning designation. Staff finds:

- The County zoning of the proposed annexation area is Single Family Residential R1-10 with the Urban Holding – 10 (UH-10) overlay.
- The 2016 Ridgefield Urban Area Comprehensive Plan designation is Urban Low Density Residential (UL).
- Per RDC 18.210.015.A, the RLD-4, RLD-6, and RLD-8 zoning districts shall implement the UL comprehensive plan designation.
- The adopted Carty Road Subarea Plan assigns RLD-4 zoning to the annexation area.
- Therefore, the proposed City zoning is RLD-4.
- The Urban Holding – 10 (UH-10) overlay shall be assigned until capital facilities deficiencies are adequately resolved and development standards implementing the Carty Road Subarea Plan have been adopted by Council.

The applicant's narrative is attached. Their intent is to develop the property.

IV. Procedure

Intent to Annex

On April 18, 2024, the applicant filed an intent to annex the subject parcel. City Council adopted Resolution No. 648 approving the intent to annex and authorizing the applicant to circulate a petition to annex on May 23, 2024.

Direct petition (60% petition) method for owner-initiated annexation.

The direct petition method of annexation (RCW 35A.14.120-150) requires that owners of 60% or more of the land value of the proposed annexation area must sign the Petition to Annex. Road values are not included in this calculation. Anthony Golden signed the Petition to Annex. Mr. Golden owns 100 percent of the land value of the property proposed for annexation, exceeding the 60% threshold of the Petition to Annex.

Certification of sufficiency.

The Clark County Assessor reviewed the declaration of petition to annex, survey, and legal description and issued a certificate of sufficiency on September 12, 2024.

Council hearing.

Council held a public hearing and first ordinance reading for the Golden Acres Petition to Annex on October 10, 2024. No testimony was received.

Second ordinance reading.

Council will hold a second reading and vote to determine whether the City will adopt the Petition to Annex on October 24, 2024.

Remaining steps upon adoption.

- Ordinances: The city shall adopt an ordinance annexing certain lands, adopt a zoning ordinance for the annexed area, and forward the ordinance(s) to the Clark County Assessor's Office, State Department of Revenue, State Department of Commerce, and State Office of Financial Management.
- Census: The City Clerk shall report population increases to census reporting agencies.

August 14, 2024

City of Ridgefield,

I would like to file an Petition to Annex on parcel 21670000, which is located at 2825 NW Carty Road, Ridgefield, WA 98642. If annexed, the plan would be to develop my 9.75-acre parcel into a multi house development.

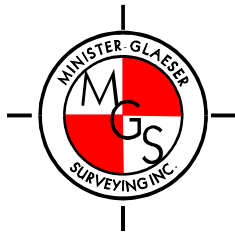
Currently I am surrounded by properties that have been annexed or are currently being annexed into the City of Ridgefield. Sanderling Park subdivision is located to the south of my property and the property to the east is currently going through the annexation process under Marrett Holdings, LLC (PIN 216698000, 216701000 and 215606000).

I appreciate your consideration into this request.

Thank you,

A handwritten signature in black ink, appearing to read "Anthony G. Golden". The signature is fluid and cursive, with a long horizontal stroke at the end.

Anthony G Golden



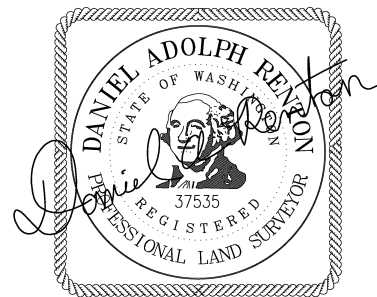
Minister & Glaeser Surveying, Inc.

Phone: 360-694-3313 Fax: 360-694-8410

JULY 25, 2024

EXHIBIT “ ”

07-25-2024



**ANNEXATION OF THE
“GOLDEN” PARCEL
TAX LOT 32 (PIN: 216700000, AFN: 6063218 D)**

A parcel of land located in a portion of the Northwest Quarter of the Northwest Quarter of Section 33, Township 4 North, Range 1 East, Willamette Meridian, Clark County, Washington, described as follows;

BEGINNING at the Southwest corner of the “Marrett Holdings LLC” parcel as described and recorded under Clark County, Washington, Auditors File Number 6152077 D, said point bears North $01^{\circ}13'26''$ East, for a distance of 1.46 feet from a $3/4$ ” iron pipe set in Book “G” of Unrecorded Surveys, at Page 127, Clark County Surveyors Office Records, said point is also on the North line of the "Pahlisch Homes at Sanderling Park LP" parcel as described and recorded under Clark County, Washington, Auditors File Number 5928005 D;

Thence North $01^{\circ}13'26''$ East, along the West line of said “Marrett Holdings LLC” parcel and its Northerly extension thereof, for a distance of 1056.11 feet to the North Right of Way line of “NW Carty Road”, and the beginning of a non-tangent 160.00 foot radius curve to the right, said point bears North $01^{\circ}13'26''$ East, for a distance of 42.51 feet from a $3/4$ ” iron pipe set in Book “G” of Unrecorded Surveys, at Page 127, Clark County Surveyors Office Records;

Thence leaving said West line and its Northerly extension thereof and along said North Right of Way line the following courses and distances;

Thence along the arc of a non-tangent 160.00-foot radius curve to the right, the long chord of which bears South $81^{\circ}10'12''$ West, for a chord distance of 39.84 feet, through a central angle of $14^{\circ}18'18''$, for an arc distance of 39.95 feet;

Thence South 88°19'20" West, for a distance of 119.85 feet;

Thence North 10°46'00" West, for a distance of 20.25 feet;

Thence South 88°19'20" West, for a distance of 265.28 feet to the West line of the "Golden" parcel as described and recorded under Clark County, Washington, Auditors File Number 6063218 D and its Northerly extension thereof, said point bears North 01°14'13" East, for a distance of 60.08 feet from a 3/4" iron pipe set in Book "G" of Unrecorded Surveys, at Page 127, Clark County Surveyors Office Records,

Thence South 01°14'13" West, leaving said North Right of Way line and along said West line and its Northerly extension thereof, for a distance of 1050.63 feet to the Southwest corner of said "Golden" parcel, said point bears North 01°14'13" East, for a distance of 1.14 feet from a 3/4" iron pipe set in Book "G" of Unrecorded Surveys, at Page 127, Clark County Surveyors Office Records, said point is also on the North line of the "Pahlish Homes at Sanderling Park LP" parcel as described and recorded under Clark County, Washington, Auditors File Number 5928005 D;

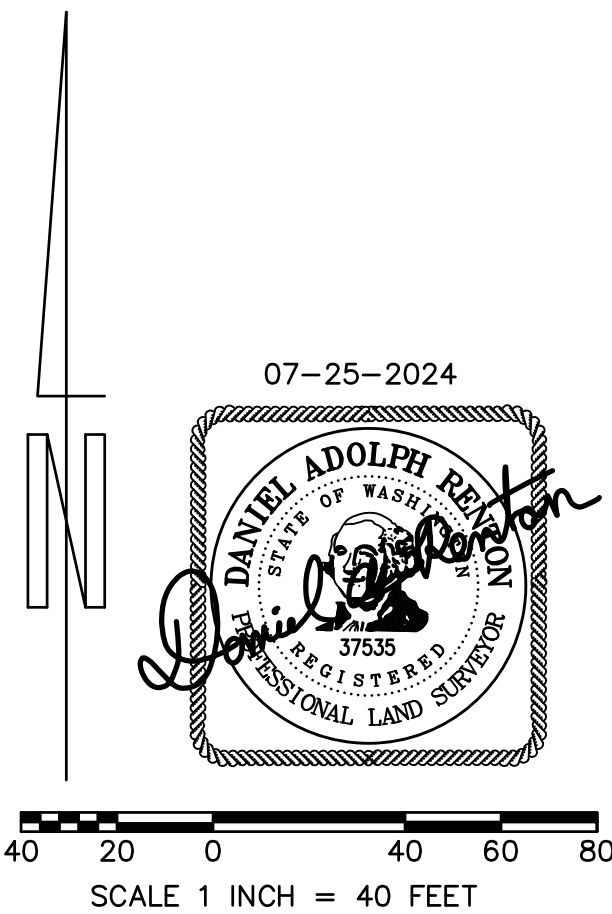
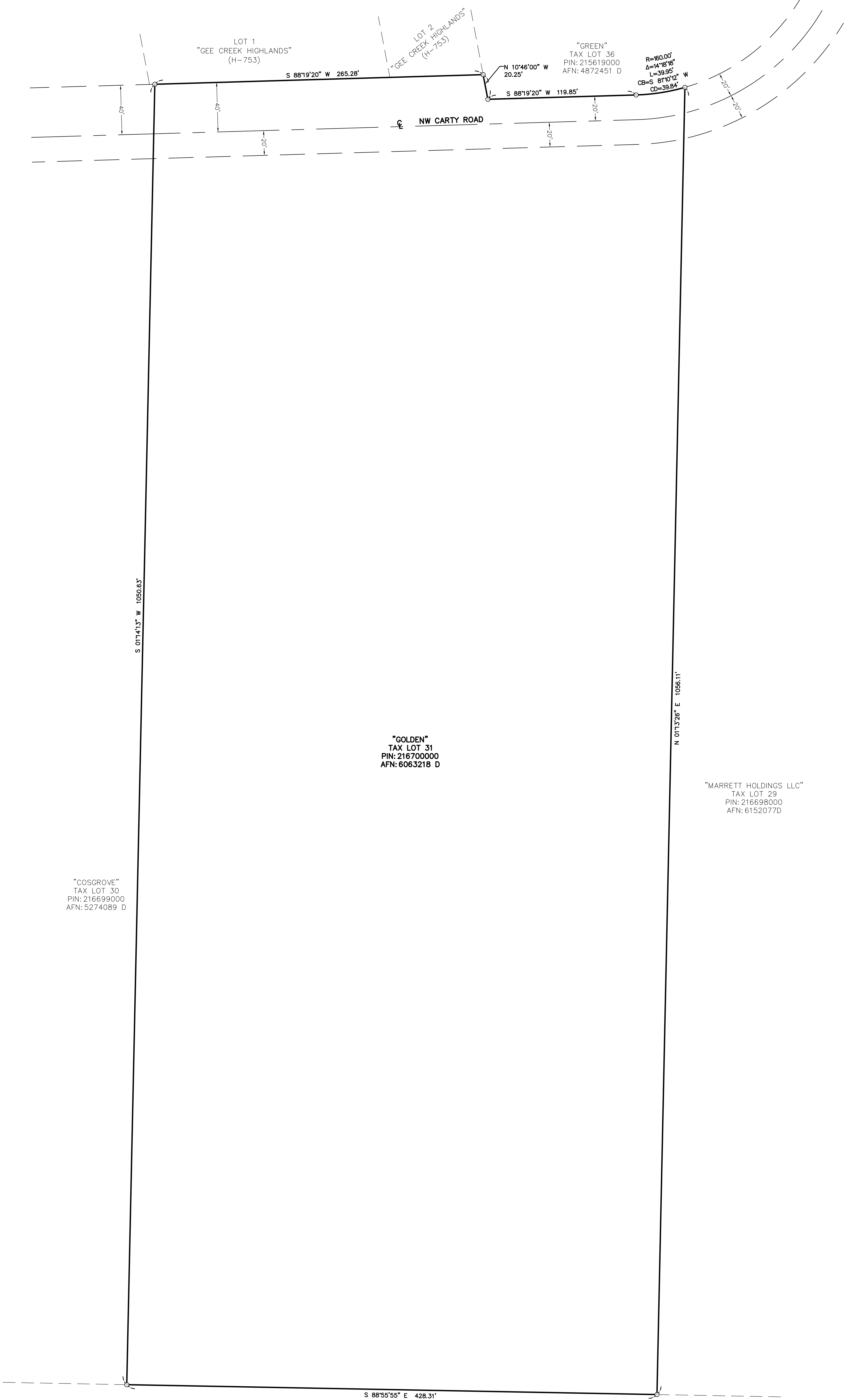
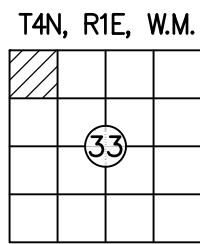
Thence South 88°55'55" East, leaving said West line and its Northerly extension thereof and along the South line of said "Golden" parcel and the North line of said "Pahlish Homes at Sanderling Park LP" parcel, for a distance of 428.31 feet to the **POINT OF BEGINNING**;

CONTAINING: 10.36 acres, more or less.

TOGETHER with and **SUBJECT** to easements and restriction of record.

BASIS OF BEARING: NAD83_2011 (EPOCH:2010.0000), WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, US-FEET;

ANNEXATION
OF THE "GOLDEN" PARCEL
TAX LOT 31
PIN: 216700000
IN A PORTION OF THE
THE NW 1/4 OF THE NW 1/4
OF SECTION 33
T. 4 N., R. 1 E., W.M.
CLARK COUNTY, WA



	MINISTER-GLAESER	
	SURVEYING INC.	
	2200 E. EVERGREEN BLVD.	
	VANCOUVER, WA 98661	
	(360) 694-3313	
SCALE: 1"=40'	JOB NO. 24-299	DATE: 07-25-2024
CALC BY: DAR	DRAWN BY: DAR	CHECKED BY: DAR
SHEET 1 OF 1		

**CITY OF RIDGEFIELD
REQUEST FOR COUNCIL ACTION**

MEETING DATE: October 24, 2024

AGENDA ITEM NAME: Motion - Approval of Waterfront Park Master Plan

GOVERNING LEGISLATION

8.18.090 - Park master plan standards.

PREVIOUS COUNCIL ACTION TAKEN:

Approval of Interlocal Agreement with the Port of Ridgefield for Specialized Services and Public Works Construction (November 2, 2023)

Approval of the 2023 Parks Capital Budget

Approval to Award Consultant Contract for the Waterfront Park Master Plan (December 7, 2023)

SUMMARY/BACKGROUND:

The City and Port of Ridgefield have long-range plans for creating a community waterfront park. The Waterfront Park Master Plan is a partnership between the Port of Ridgefield and the City of Ridgefield. Staff contracted with Walker Macy, a landscape, architecture, planning, and urban design firm, to organize and draft a Master Plan for review and potential adoption by the City Council and Port of Commissioners.

Walker Macy has conducted numerous community engagement activities and field surveys over the past few months. This included three open-house events, stakeholder meetings, and field visits with port and city staff. Initial concepts were provided to the public, and with feedback from all parties involved, including the public, a proposed master plan has been drafted for the City Council's consideration.

This evening, the final Proposed Waterfront Park Master Plan, along with the Parks Board of Commissioners' recommendation, will be discussed and considered for approval.

BUDGET/FINANCIAL IMPACTS:

RECOMMENDED ACTION OR MOTION:

Motion to approve the Waterfront Park Master Plan with specifications of amenities to be included.

STAFF CONTACT: Corey Crownhart, Park Manager

ATTACHMENTS:

1. Waterfront Park Master Plan - CC2024.10.24



Waterfront Park Master Plan

Consideration of Approval

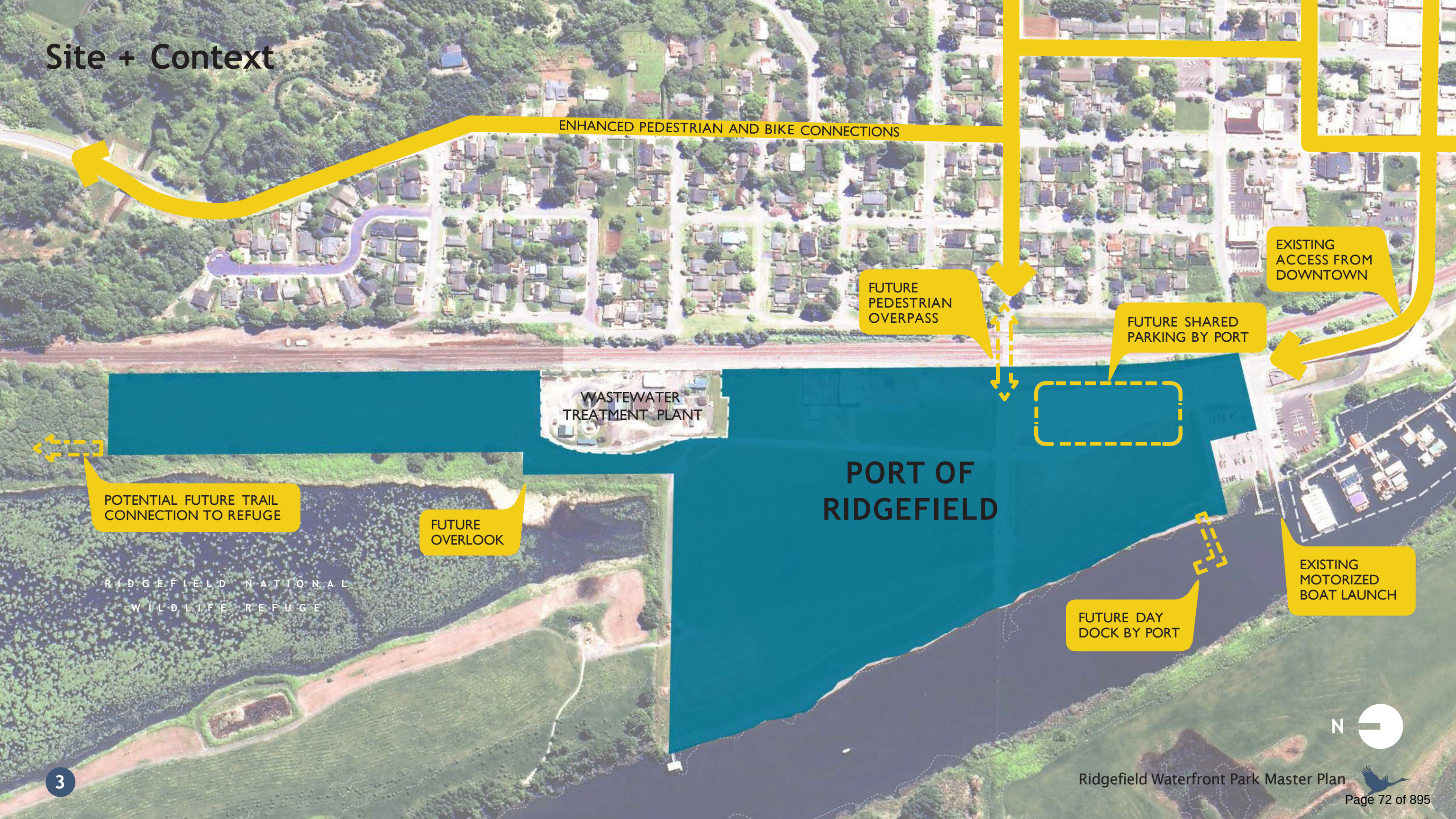
Parks, Trails, and Recreation Division

City Council Public Meeting | October 24, 2024

Project Schedule



Site + Context



ENHANCED PEDESTRIAN AND BIKE CONNECTIONS

FUTURE
PEDESTRIAN
OVERPASS

FUTURE SHARED
PARKING BY PORT

EXISTING
ACCESS FROM
DOWNTOWN

WASTEWATER
TREATMENT PLANT

PORT OF
RIDGEFIELD

POTENTIAL FUTURE TRAIL
CONNECTION TO REFUGE

FUTURE
OVERLOOK

RIDGEFIELD NATIONAL
WILDLIFE REFUGE

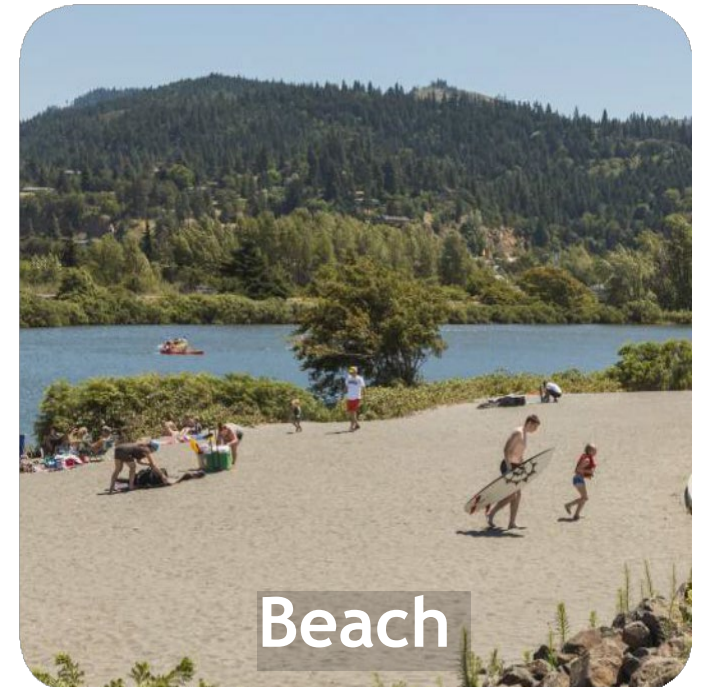
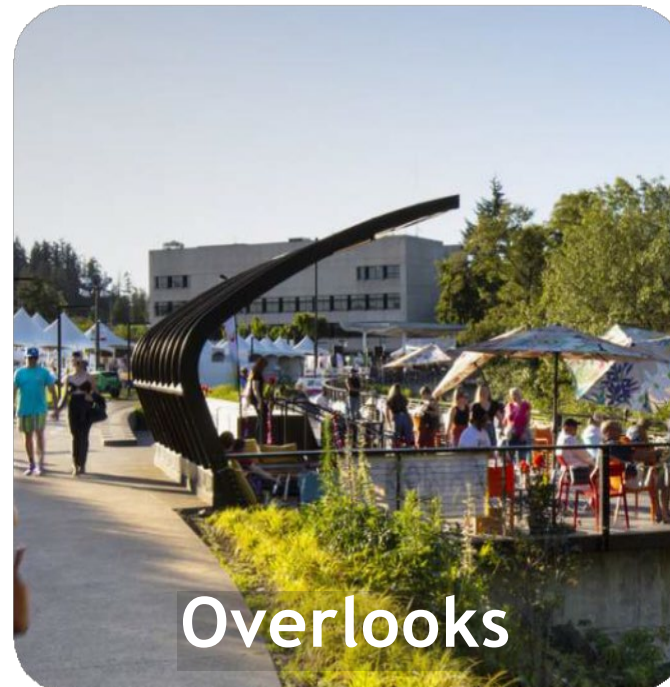
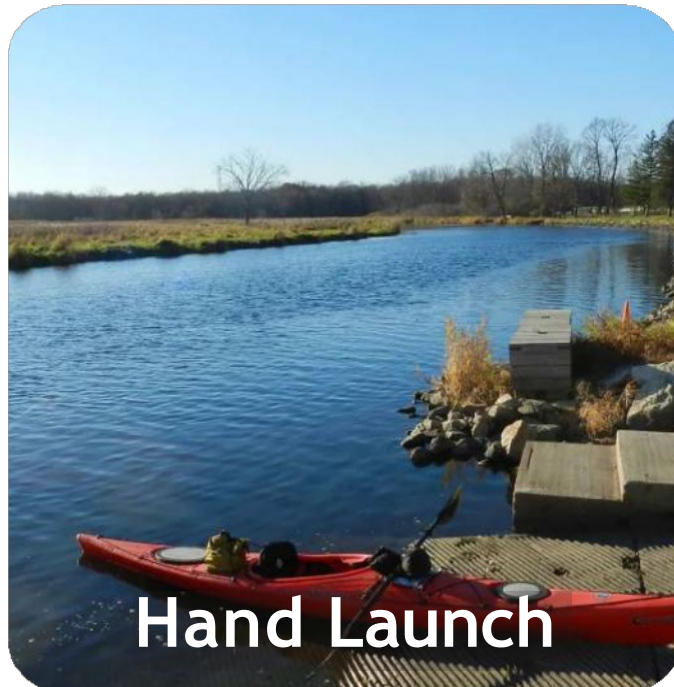
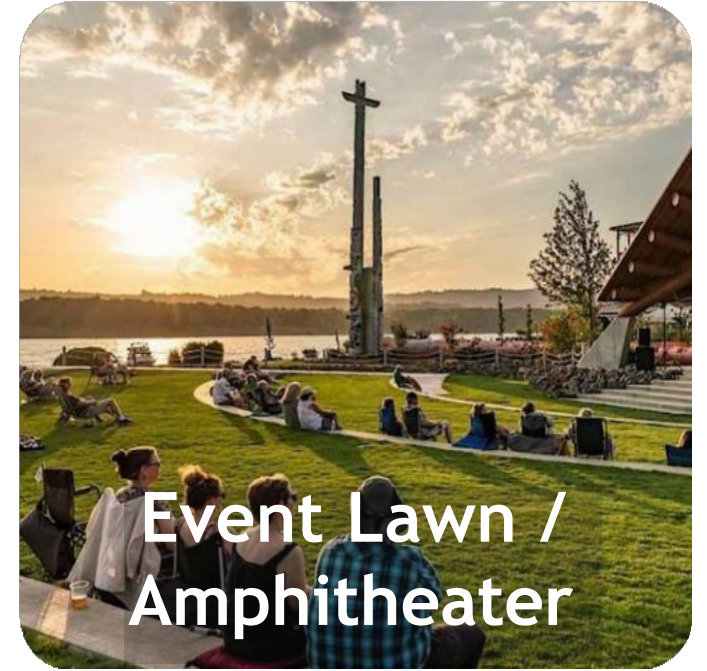
EXISTING
MOTORIZED
BOAT LAUNCH

FUTURE DAY
DOCK BY PORT

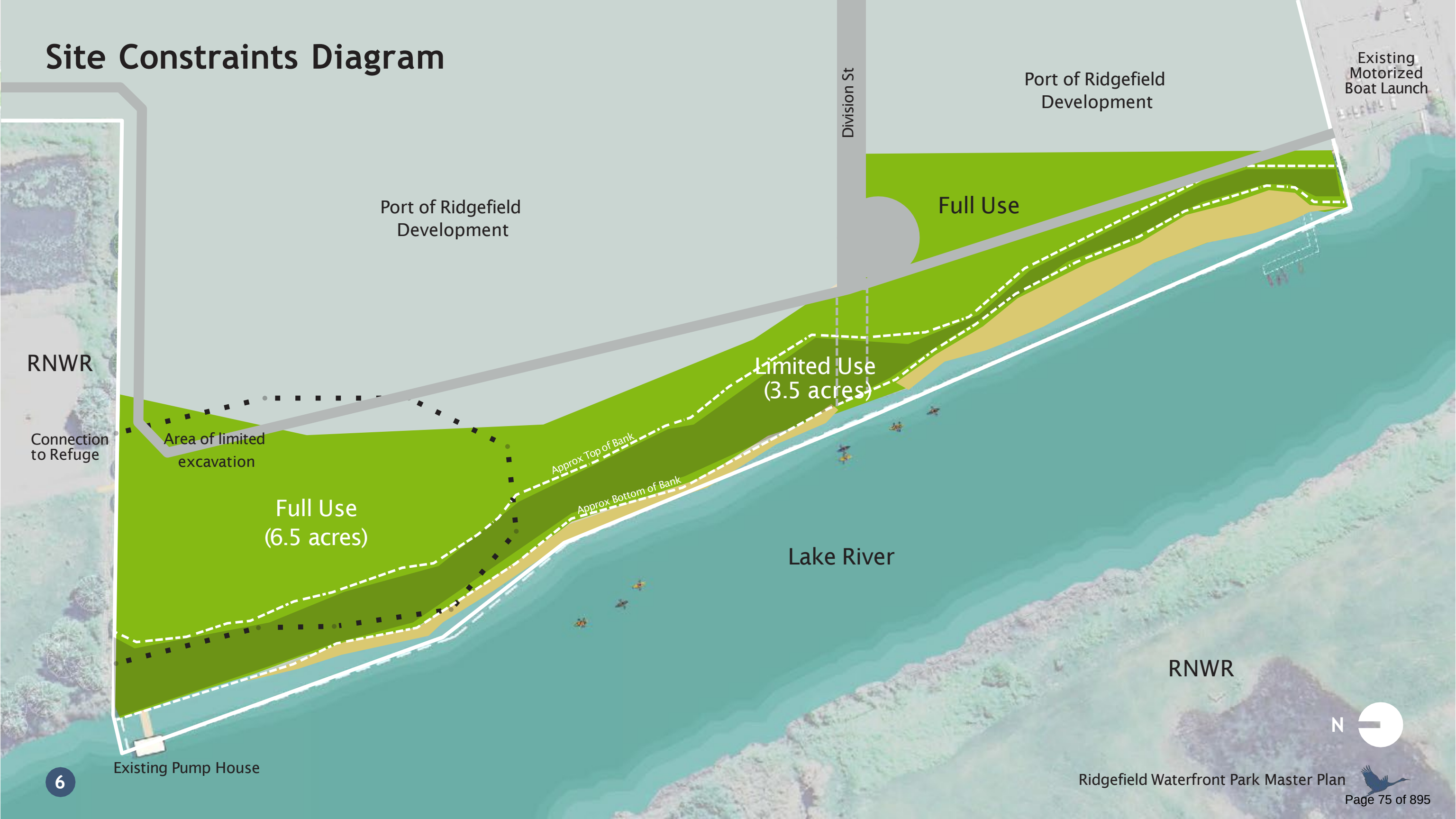
Guiding Principles



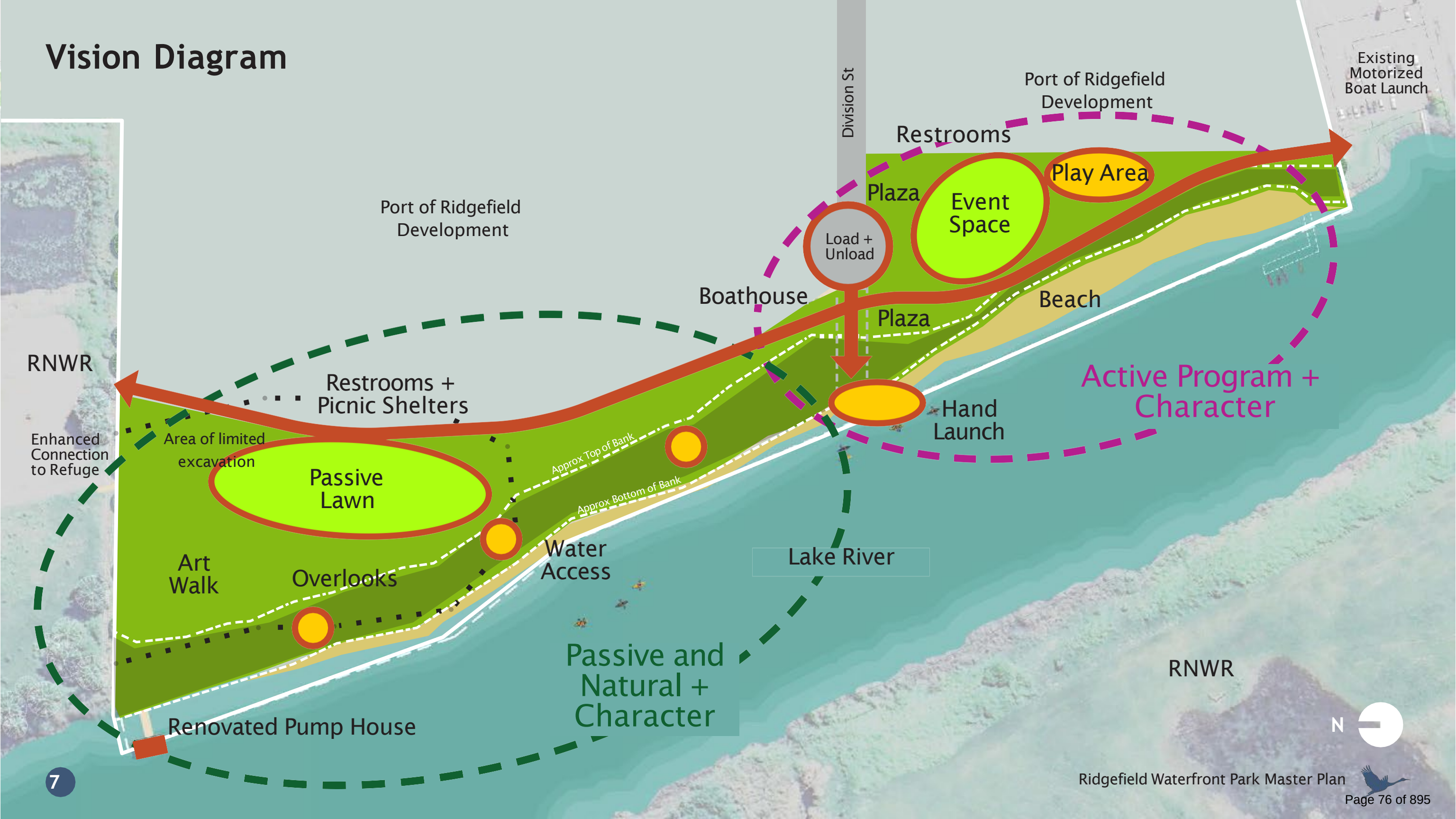
Proposed Program



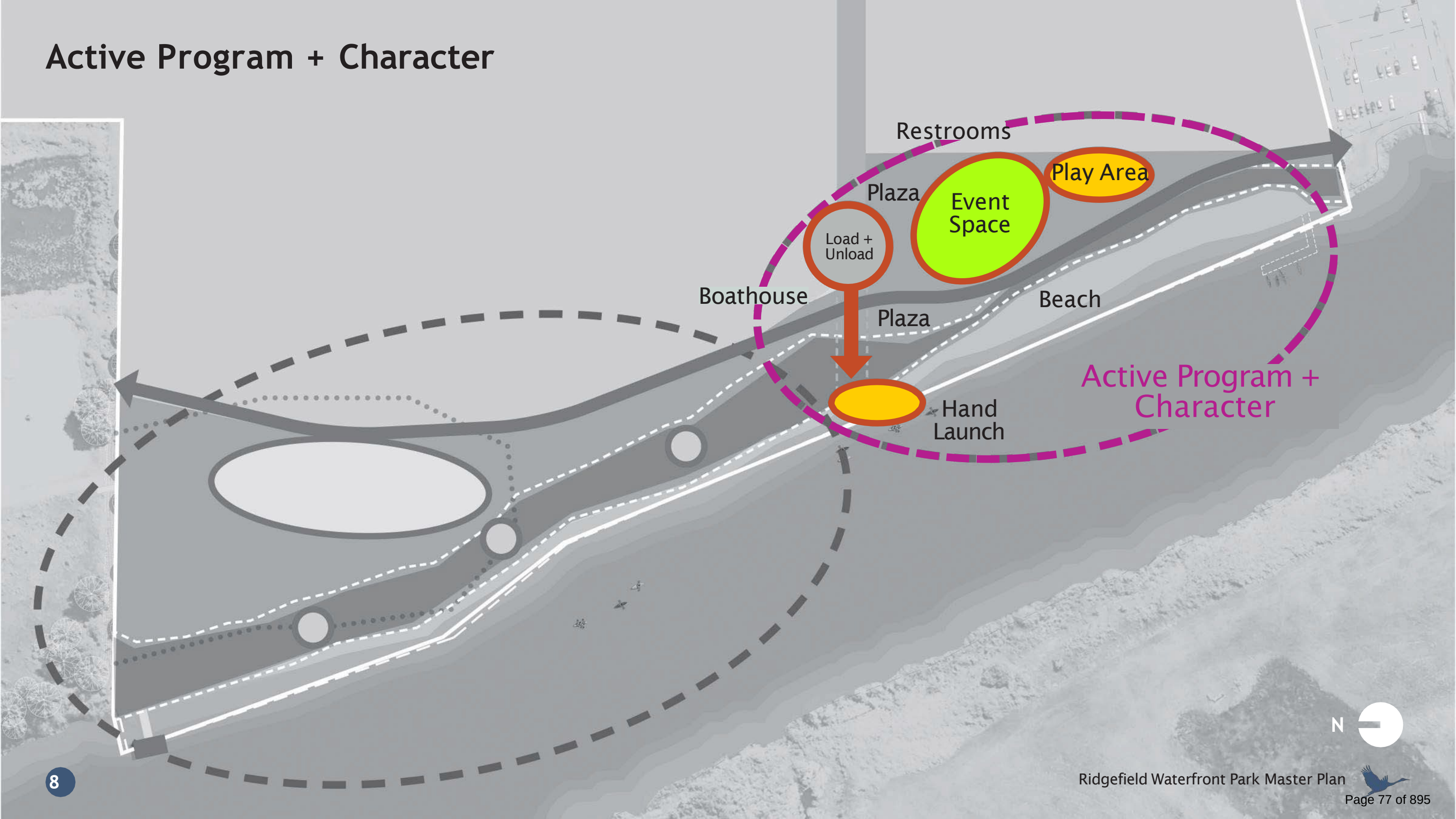
Site Constraints Diagram



Vision Diagram



Active Program + Character



Event Space

Event Lawn (~30,000 SF) + Plaza with Amphitheater Seating

Flexible Stage (not a permanent structure)

Event Power Infrastructure

Restrooms with Storage + Concessions Space

Event Capacity Range: Up to 2,900 standing and 1,450 seated at Event Lawn

ADA Parking in close proximity



Water Access

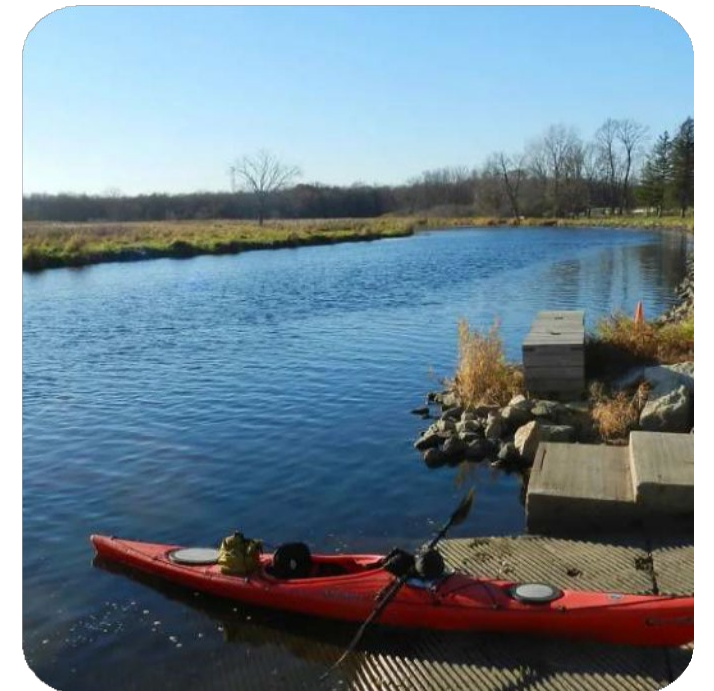
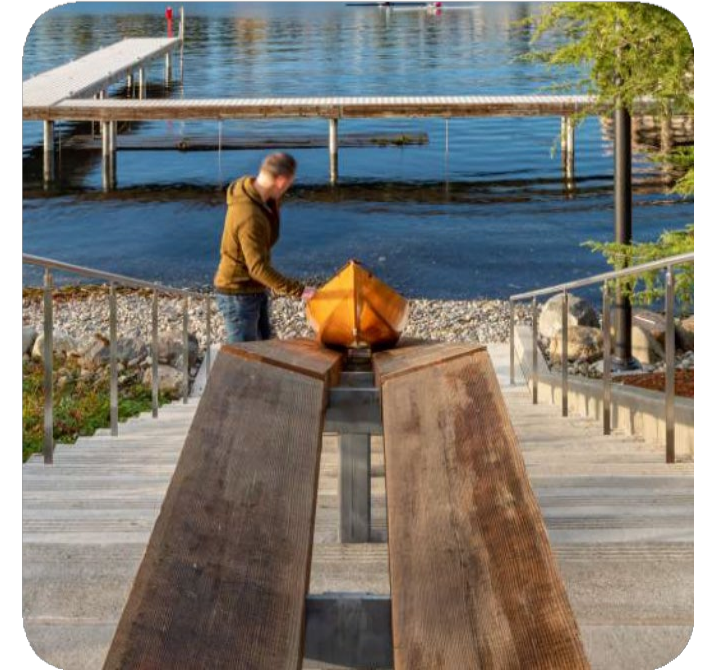
Loading + Unloading as close to water as possible

Direct Access with Boat Slide and Sloping Walk (no handrails) Routes to Hand Launch

Hand Launch and ADA Parking

Option for Boat Storage Building with Wash and Outdoor Shower Facilities

In-Water Beach Enhancements



Play Area

Destination Play Area

Inclusive, Social, and Accessible Play Experience

Unique Themes based in Surrounding Nature



Other Key Considerations

Park spaces will meet ADA requirements

Dedicated ADA parking as close to park as possible

No non-ADA parking stalls in park

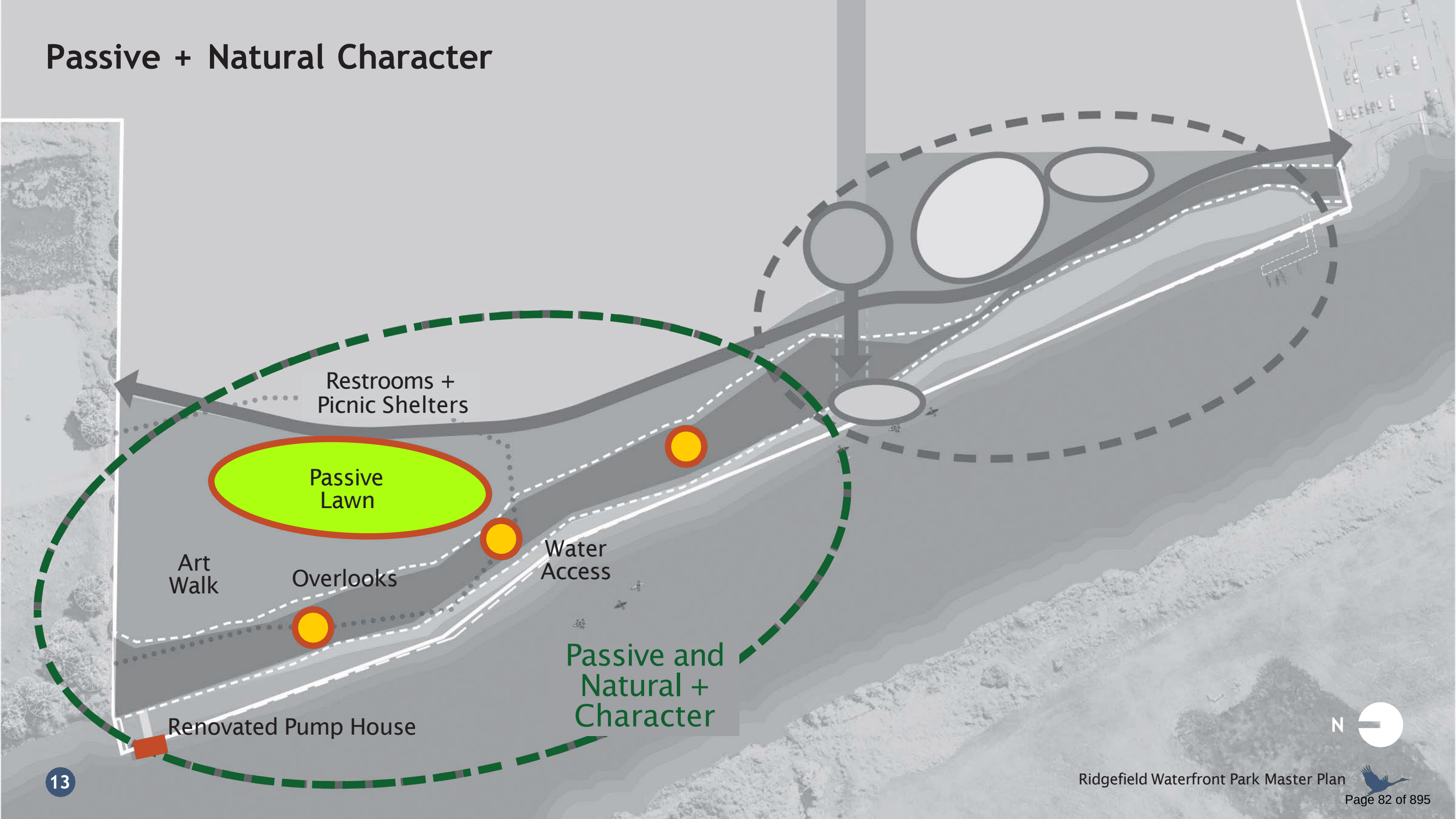
Assume daily parking via shared stalls in Port lots, on-street, or other off-site stalls

Assume 50-75 stalls for daily (non-event) use, 150-200 stalls for small events, and 500-1000 stalls for large events

Final park boundary and parking strategy will require additional coordination with Port



Passive + Natural Character



Lawn, Restrooms, and Picnics

Open lawn for non-event use

Second restroom building for users walking in park and refuge

Picnic shelter(s) for groups ranging in size

Art Walk connecting temporary and permanent art elements throughout park



Overlooks, Pump House, + Water Access

Series of Overlooks providing both Visual and Physical Access to Water and surrounding Natural Setting

Combination of stairs and sloping walks to maximize Access to Water

Accessible ramp(s) connecting to renovated pumphouse



Thank You / Questions?



Corey Crownhart, MSML Parks Manager
Public Works Department | City of Ridgefield
Phone: (360) 887-6010
Email: corey.crownhart@ridgefieldwa.us



Brian Bishop, ASLA Principal, Landscape Architect
Walker Macy
Phone: (206) 582-4557
Email: bbishop@walkermacy.com



Ridgefield Roundtable
Learn more about this project and others at:
www.ridgefieldroundtable.org/waterfront-park

**CITY OF RIDGEFIELD
REQUEST FOR COUNCIL ACTION**

MEETING DATE: October 24, 2024

AGENDA ITEM NAME: Motion - Award of contract for Project P22004 I-5 Overpass Protective Safety Screen Project

GOVERNING LEGISLATION

Revised Code of Washington Title 35 – Cities and Towns
Title 35A Optional Municipal Code
Title 39 - Public Contracts and Indebtedness, and
City Financial Policy #04: Procurement of Goods & Services.

PREVIOUS COUNCIL ACTION TAKEN:

Approval of 2024 Capital Budget and Budget Supplement

SUMMARY/BACKGROUND:

In 2017, the City began planning for enhancing the experience and safety of the Pioneer Street overpass over I-5 including seeking potential federal grants for the project. This concept evolved into building a protective safety fence and screen attached to the overpass, similar to the fence built with the Port of Ridgefield's Pioneer Street overpass over the BNSF railroad into the waterfront.

The enhancement component became installing a series of colorful steel sandhill cranes in different stages of flight on screening along the I-5 overpass as well as the Port's railroad overpass that will serve to visually connect downtown Ridgefield with the growing Ridgefield junction area along the interstate. The project will serve as a unique landmark for those traveling past Ridgefield by car on I-5, or by train under the rail overpass. In 2021, the Cowlitz Tribal Foundation donated \$50,000 to help fund the addition of artwork to the screens on the Pioneer Street Rail Overpass and the I-5 overpass.

The project also received a Department of Commerce grant for \$328,300 for the I-5 safety screen.

In 2019, the Washington State Department of Transportation (WSDOT) provided \$20,000 to launch the overpass safety screen design, with the City contributing additional funds to pay for design work. The City retained the services of Jacobs Engineering for the design work which began in earnest in late 2021. Representatives from the City and WSDOT provided design reviews. In summer 2024, WSDOT approved the design and the project's Public Art Plan, which includes the structural design as well as the art design and placement. The Public Art Plan received approval from both WSDOT and the Federal Highway Administration.

The City issued an invitation to bid on September 19, 2024. An optional pre-bid meeting was held on October 2, 2024. The bidding process closed and bids were opened October 17, 2024. The invitation to bid included Supplemental Responsible Bidder Criteria and with forms required by regulation and by law, including the Subcontractor List. One item, Structural Steel, had work that is included on that list.

Eleven submittals were received at the time of bid opening: Nine bids, one no-bid, and one non-responsive bid. Bids were received from (in alphabetical order):

Active Construction, Inc. from Puyallup, WA for \$633,633.00.

Cascade Bridge from Vancouver, WA for \$771,540.00.

Combined Construction from Mukilteo, WA for \$1,000,940.00.

Independent Artist from Baldwin Park, CA which was non-responsive.

JR Construction, from Post Falls, ID for \$485,280.00.

KR Homes, from Winlock, WA for \$1,060,065.00.

Legacy Contracting, from Stayton, OR for \$494,403.00.

Luna's Construction, from Vancouver, WA, which was a No-Bid.

Oregon State Bridge Construction, from Stayton, OR, for \$648,000.

Tapani, Inc, from Battle Ground, WA for \$378,821.20.

Western United Civil Group, from Yacolt, WA, for \$768,400.00.

The Engineer's estimate was \$1,115,808.25.

Requests for Supplemental Responsible Bidder Criteria responses were sent to the three apparent lowest bidders: Tapani, Inc.; JR Construction; and Legacy Contracting. These bidders had 48 business hours to return their responses.

A bid review also took place focusing on whether the subcontractor list was completed and correct, as well as a detailed review of the resultant bids and the fact they were all below the Engineer's estimate. The bid review against the engineer's estimate yielded a number of areas where the contractors' proposals for conducting their work would cost less than the original assumptions. Additionally, the price for structural steel has actually dropped recently, also provided measurable savings.

During the bid review, it was determined that JR Construction and Legacy Contracting were both determined to be non-responsive and their bids disallowed for failure to identify the subcontractor performing structural steel work and for failure to identify if they were to self-perform. Tapani's bid package was reviewed and determined to be compliant. Additionally, Tapani's response to the Supplemental Bidder Responsibility Criteria was received on time, but the responses from JR Construction and Legacy Contracting were received after the 48 business hour window of the request.

A review of Tapani's Supplemental Responsible Bidder Criteria response indicates they have experience directly applicable to this project with three projects, two of which had complex traffic control coordination with WSDOT and one from the Port of Ridgefield overpass and protective screen/fence project. The protective screen/fence was installed with that project which was opened in 2021. All three projects that were submitted received excellent reviews from the project sponsors for their work. Tapani has been determined as qualified to do the work on this project.

BUDGET/FINANCIAL IMPACTS:

The Amended 2024 Capital Budget includes \$553,300 for this project. Of that total, \$102,000 is to pay the artist for fabrication and installation of the artwork on both the I-5 and BNSF Railroad overpasses. Approximately \$100,000 is budgeted to complete design and design support during construction as well as to WSDOT under a reimbursable work order for fabrication inspection services. The remainder is to cover the cost of the Protective Safety Screen and Fence.

The draft 2025 Capital Budget includes additional funding to complete the project before June 30, 2025.

RECOMMENDED ACTION OR MOTION:

Council action is requested on this item. A suggested motion is:

"I move to award the construction contract for the I-5 Overpass Protective Safety Screen project to Tapani, Inc. Battle Ground, Washington, in the amount of \$378,821.20 plus an additional \$50,000 for contingencies."

STAFF CONTACT: Chuck Green, Public Works Director

ATTACHMENTS:

1. Bid Tabs
2. I-5 Overpass Protective Screen _Council_102424final

I-5 Bridge Decorative Fence					Engineers Estimate		Active Construction Inc		Cascade Bridge, LLC		Combined Construction, Inc.		Independent Artist		JR Construction		KR Homes, LLC		Legacy Contracting, Inc.		Luna's Construction & Painting		Oregon State Bridge Construction, Inc.		Tapani, Inc.		Western United Civil Group LLC	
				5110 River Rd E, Tacoma, WA 98443			14215 NW 3rd Ct, Vancouver, WA 98685		3701 South Rd., Mukilteo, WA 98275		Non-Responsive		3999 St Joe Ave, Post Falls, ID 83854		PO Box 856, Winlock, WA 98596		41850 Kingston-Jordan Rd., Stayton, OR 97383		No Bid		PO Box 310, Stayton, OR 97383		1705 SE 9th Ave., Battle Ground, WA 98604		PO Box 236, Yacolt, WA 98675			
STD ITEM NO.	WSDOT M41-10 SPEC SECTION	ITEM	UNIT	Q TY	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE			UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE			UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE
1	1-09.7	MOBILIZATION	LS	1	\$90,163.80	\$90,163.80	\$ 62,000.00	\$ 62,000.00	\$ 77,000.00	\$ 77,000.00	\$ 100,000.00	\$ 100,000.00			\$ 50,000.00	\$ 50,000.00	\$ 101,284.00	\$ 101,284.00	\$ 49,923.00	\$ 49,923.00			\$ 64,500.00	\$ 64,500.00	\$ 19,000.00	\$ 19,000.00	\$ 75,000.00	\$ 75,000.00
9950	6-06.0	BRIDGE RAILING – INSTALL NEW DECORATIVE FENCE	LF	492	\$1,333.54	\$656,102.70	\$ 790.00	\$ 388,680.00	\$ 995.00	\$ 489,540.00	\$ 1,180.00	\$ 580,560.00			\$ 590.00	\$ 290,280.00	\$ 1,215.88	\$ 598,214.00	\$ 586.75	\$ 288,681.00			\$ 750.00	\$ 369,000.00	\$ 587.10	\$ 288,853.20	\$ 1,200.00	\$ 590,400.00
9950	6-06.0	BRIDGE RAILING – REMOVE EXISTING DECORATIVE FENCE	LS	1	\$16,740.00	\$16,740.00	\$ 32,953.00	\$ 32,953.00	\$ 40,000.00	\$ 40,000.00	\$ 79,200.00	\$ 79,200.00			\$ 20,000.00	\$ 20,000.00	\$ 181,238.00	\$ 181,238.00	\$ 80,750.00	\$ 80,750.00			\$ 74,500.00	\$ 74,500.00	\$ 19,152.00	\$ 19,152.00	\$ 9,000.00	\$ 9,000.00
2177	1-10.0	PROJECT TEMPORARY TRAFFIC CONTROL	LS	1	\$241,220.93	\$241,220.93	\$ 150,000.00	\$ 150,000.00	\$ 165,000.00	\$ 165,000.00	\$ 241,180.00	\$ 241,180.00			\$ 125,000.00	\$ 125,000.00	\$ 179,329.00	\$ 179,329.00	\$ 75,049.00	\$ 75,049.00			\$ 140,000.00	\$ 140,000.00	\$ 51,816.00	\$ 51,816.00	\$ 94,000.00	\$ 94,000.00
					Total	\$1,004,227.43		\$ 633,633.00		\$ 771,540.00		\$ 1,000,940.00				\$ 485,280.00		\$ 1,060,065.00		\$ 494,403.00				\$ 648,000.00		\$ 378,821.20		\$ 768,400.00

*Contingency (~11%) \$111,580.83
*Total (Including Contingency) \$1,115,808.25

	Lowest Bidder
	2nd Lowest Bidder
	3rd Lowest Bidder

Reviewed by Melissa Irwin on 10/18/2024

*not included in Contractor's bid

I-5 Overpass Protective Safety Screen Project

Construction Contract Award

P22004

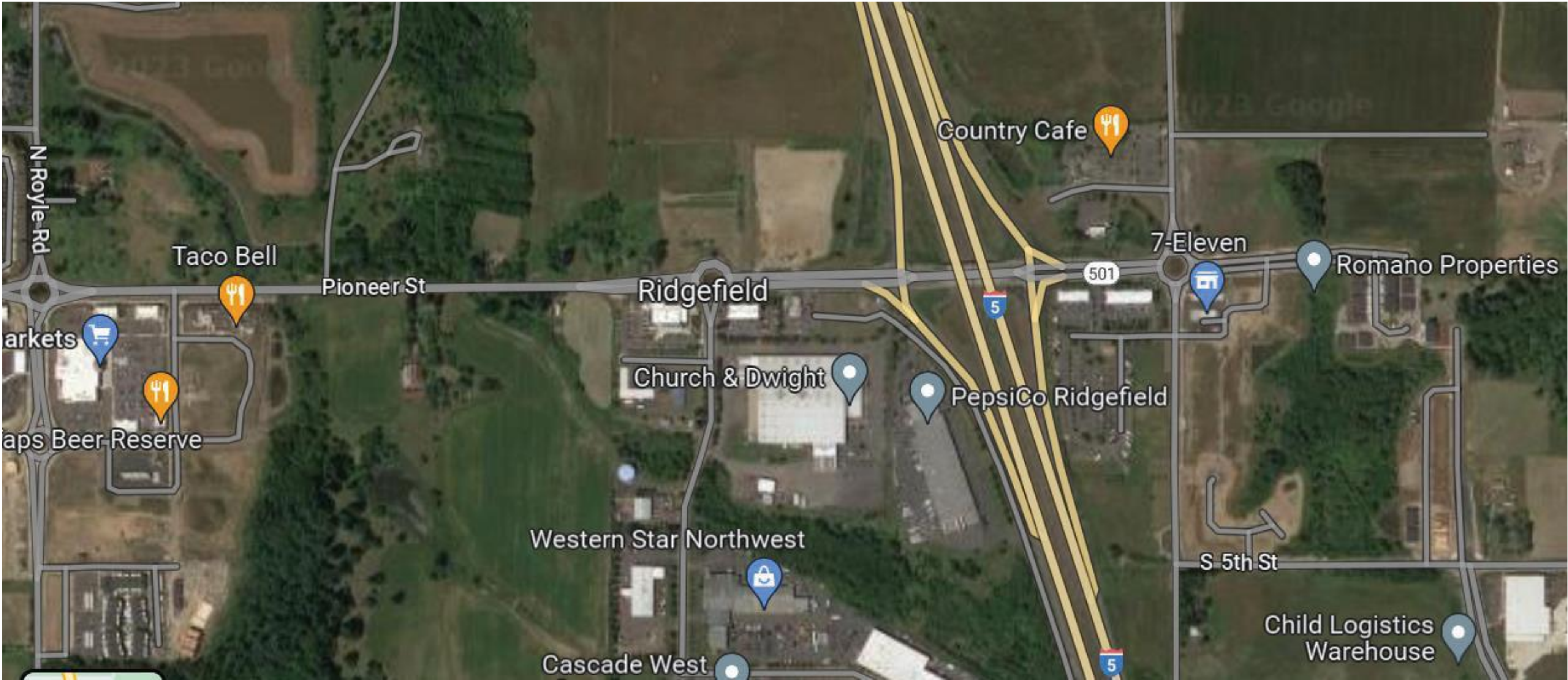


Ridgefield City Council | October 24, 2024

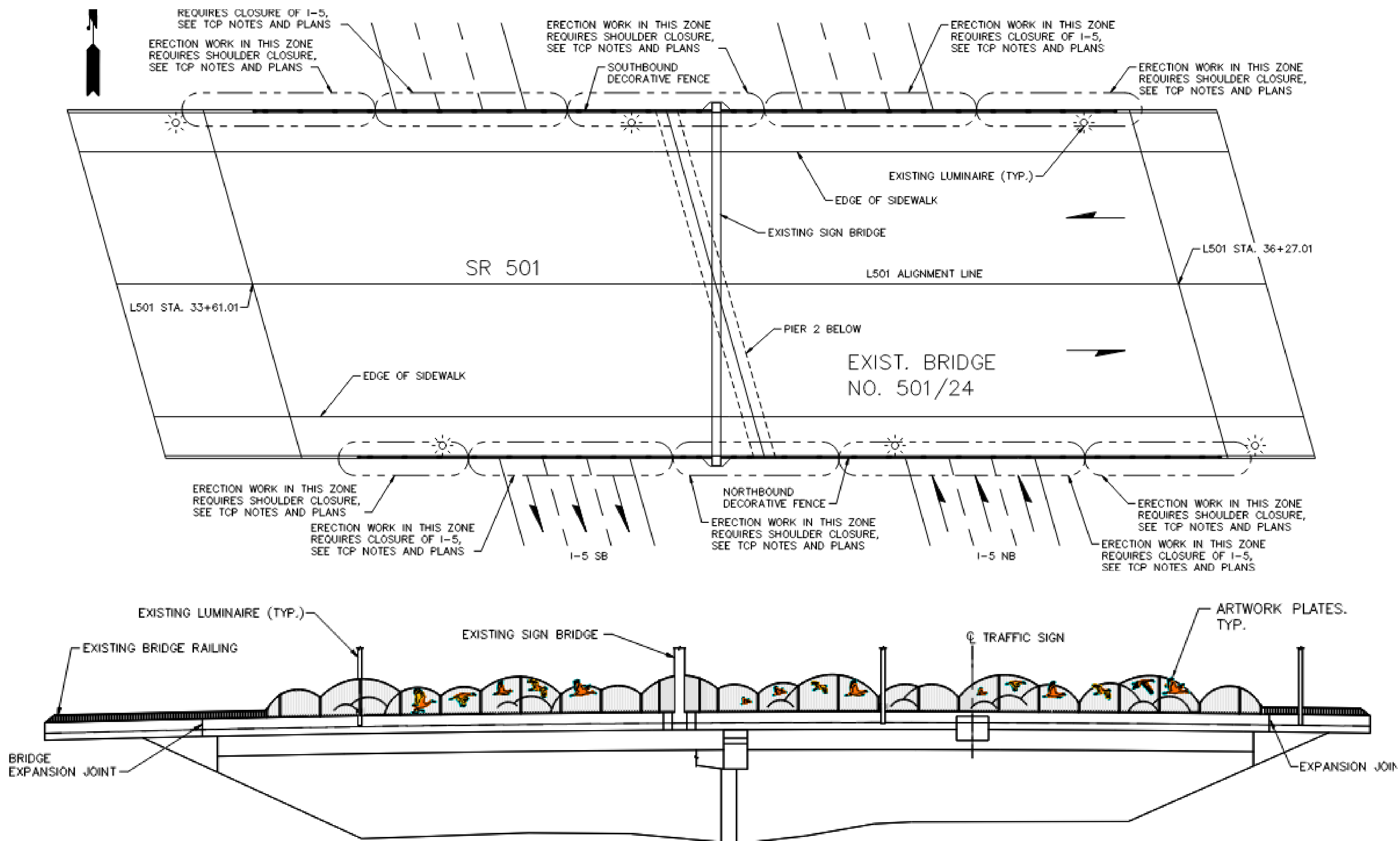
Components of this Project

- Installation of Protective Safety Screen on Pioneer Street over I-5
- Coordination with art installation (separate contract); Artist will
 - Fabricate sandhill cranes and bring them to Ridgefield
 - Install some cranes on the Pioneer Street overpass over BNSF
 - Working with screen contractor, attach remaining birds to I-5 overpass screen
- Contractor installs protective screens on I-5 overpass
 - Existing bridge rail removed, pieces returned to WSDOT
 - Contractor installs screens with art attached to I-5 overpass
- Project to be complete late spring 2025

Project Location Map



Overall Project Plan

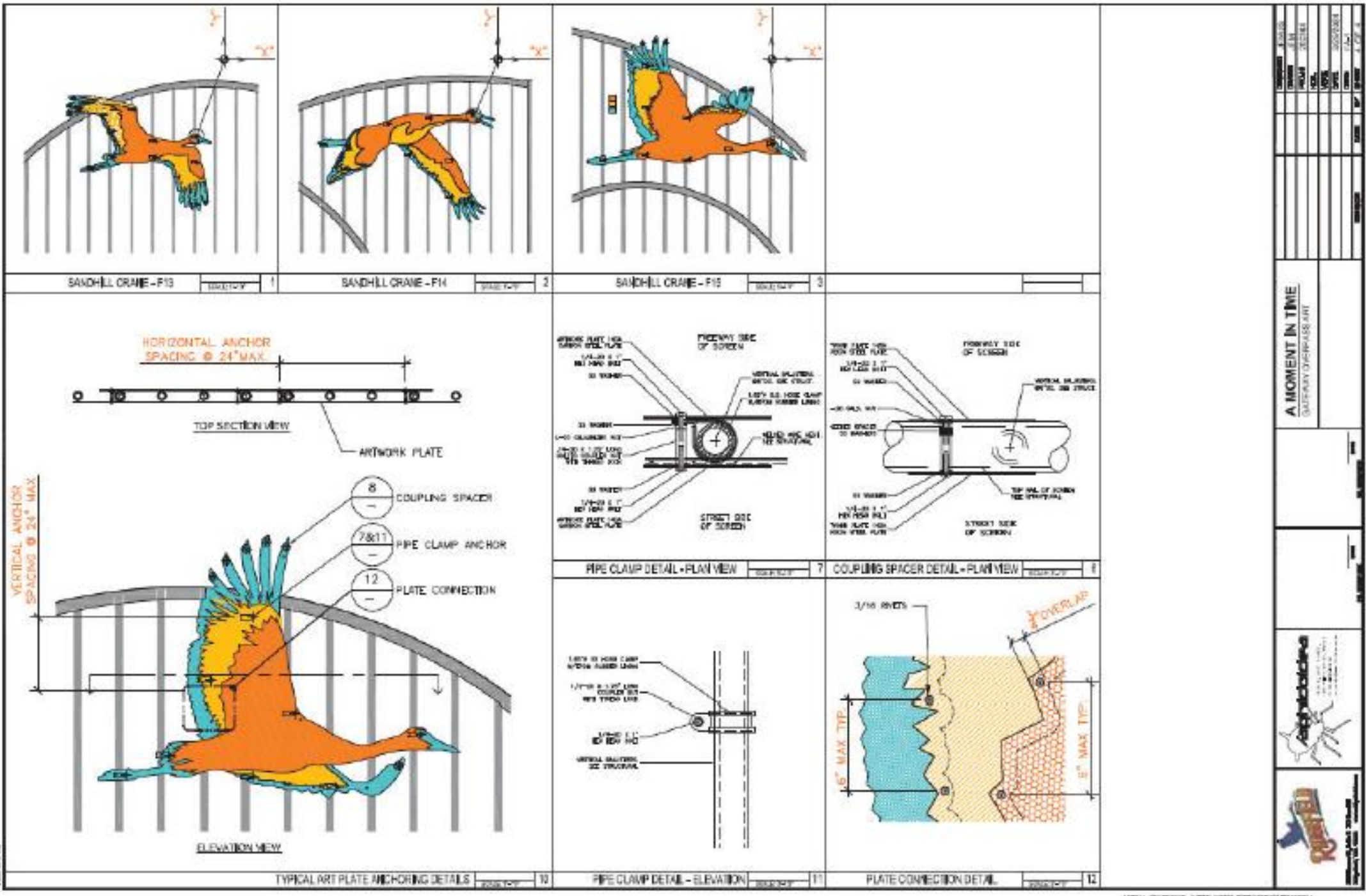


Project Rendering with Art

A MOMENT IN TIME

ART INSTALLATION FOR THE I-5 FWY OVERPASS SCREENS

4/12/24



Supplemental Bidder Responsibility Criteria

Required to be submitted by apparent low bidders after bid opening and within two (2) business days, with reference information.

- **Contractor must be qualified to successfully perform similarly sized and scoped projects, which shall be demonstrated by having the following:**
 - At least two (2) public construction projects of at least \$1 million in project construction cost completed within the last 5 years prior to bid submittal
 - Projects included structural or ornamental metal fence across a bridge or overpass, or similar structural fabrication
 - Also: freeway traffic control including partial or full closures
 - Coordination with items provided by others (artwork preferred).
 - Projects including bridge work on or over freeways are preferred.
- **Contractor must be able to demonstrate cost and schedule control in their projects submitted for Criterion 1:**
 - Projects were completed on time and within the Owner's budget
 - Change orders (if applicable) represent no more than 10% of the original contract cost, or within 10% over the number of workdays of the original project schedule
 - Extenuating circumstances can be considered.
- **Contractor shall not have had any public works contract terminated for cause or terminated for default by a government agency during the last five (5) years prior to bid submittal**
 - No termination for cause, and no liquidated damages paid.
 - Extenuating circumstances can be considered.



Bid Results

Eleven bids received

- Active Construction, Inc.
- Cascade Bridge
- Combined Construction
- Independent Artist (non-responsive)
- JR Construction*
- Kurt Reddig
- Legacy Contracting*
- Luna's Construction (no-bid)
- Oregon State Bridge Construction
- Tapani, Inc, from Battle Ground, WA.
- Western United Civil Group

*Non-responsive subcontractor form received and bid disallowed

Supplemental Responsible Bidder Criteria

Supplemental Bidder Criteria Responses

- Tapani is apparent lowest responsive bidder
- Responses sought from three lowest bidders
- Two business day turnaround
- Projects must meet supplemental criteria requirements
- Staff and consultant reviewed responses
- Tapani's projects are applicable and references are positive

Notice of Intent to Award sent to Tapani, Inc.



Overall Project Budget

Grants Received

- WSDOT: \$20,000
- Cowlitz Indian Tribe: \$50,000
- State/Department of Commerce: \$328,300
- Costs to date: \$230,818

2024 Capital Budget: \$553,300

- Design, Permits, WSDOT Inspection: \$100,000
- Artist (fabrication and installation of art): \$102,000
- Construction: \$351,300

Remaining needed budget request

- 2025 Draft Budget
- Construction: \$27,521
- Contingencies: \$50,000.

Requested Action

Council action is requested on this item. A suggested motion is:

“I move to award the construction contract for the I-5 Overpass Protective Safety Screen project to Tapani, Inc. Battle Ground, Washington, in the amount of \$378,821.20 plus an additional \$50,000 for contingencies.”



Keep in Touch



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Works Director
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**CITY OF RIDGEFIELD
REQUEST FOR COUNCIL ACTION**

MEETING DATE: October 24, 2024

AGENDA ITEM NAME: Second Reading of Ordinance No. 1430 - Changes to Posted and Unposted Speed Limits for Portions of Pioneer Street, S. 15th Street, S 35th Place, S. 10th Way, S 25th Place, S. 4th Way, S. Wells Drive, S 11th Street, Union Ridge Parkway and S Hillhurst Road

GOVERNING LEGISLATION

RCW 46.61.415 When local authorities may establish or alter maximum limits.
Ridgefield Municipal Code Title 10 (Vehicles and Traffic), Chapter 10.08 (Speed Limits)

PREVIOUS COUNCIL ACTION TAKEN:

Adoption of previous ordinances setting or changing speed limits in the City

SUMMARY/BACKGROUND:

At the October 10, 2024 meeting, Council postponed action on this item to the October 24, 2024 meeting.

This is the second reading and request for action of proposed permanent speed limit changes on various roadways within the City. These were presented to Council during presentations as part of the Horizontal Curves Safety Project on September 12, and the public hearing and first reading of Ordinance 1430 at the September 26 Council meeting.

To summarize, these proposals are the outcome of a comprehensive safety study of city collectors and arterial, with particular emphasis on horizontal curves, as well as safety for all users. The engineering study conducted by the City Engineer considered prevailing speed, land use context and roadway conditions, including:

- Roadway environment, including roadside development, number and frequency of driveways and access points, and land use);
- Functional classification (principal or minor arterial, collector, etc.);
- Presence of on-street parking;
- Pedestrian and bicycle facilities and activity;
- Roadway characteristics such as lane widths, shoulder condition, grade, alignment, median type, and sight distance;
- Geographic context such as an urban district, rural town center, non-urbanized rural area, suburban area, and scenic corridors;
- Reported crash experience for at least a 12-month period (including from both the 2022 and 2024 Ridgefield City Safety Plans); and
- A review of past speed studies to identify any trends in operating speeds.

The results of the engineering study include proposed speed limit changes for the following locations:

- Pioneer Street, east of 9th Avenue/Hillhurst to 65th Avenue, reduce from 40 mph to 35 mph;
- S. 15th Street/S 35th Place/S. 10th Way/S 25th Place, west of S Royle Road, establish a 25 mph speed limit for the entire scenic collector (Gee Creek Plateau)
- S. 4th Way, S 21st Place to S 25th Place, establish a 20 mph speed limit
- S. Wells Drive, Royle Rd. to future Discovery Drive (approximately 5500 block), reduce from 35 mph to 30 mph;
- Union Ridge Parkway, S 5th Street to Pioneer Street, establish a 35 mph speed limit;
- Union Ridge Parkway, north of Pioneer Street along Clark College building to a future extension to N 10th Street, establish a 25 mph speed limit for the current and future corridor
- S Hillhurst Road, Great Blue to south of Carty Road, reduce from 35 mph to 30 mph.

Attached to this staff report is the September 26 presentation of the safety study results and a table showing the results of the engineering study supporting the speed limit reduction proposals.

Ordinance 1430 includes these proposed changes as well as depicting the revisions to code to incorporate them.

BUDGET/FINANCIAL IMPACTS:

None

RECOMMENDED ACTION OR MOTION:

Staff requests a second reading of this ordinance and action. If approved, the ordinance is effective 30 days after its passage.

A suggested motion is:

"I move to approve Ordinance 1430 as presented."

STAFF CONTACT: Chuck Green, Public Works Director

ATTACHMENTS:

1. Various Speed Limit Changes

ORDINANCE NO. 1430

AN ORDINANCE OF THE CITY OF RIDGEFIELD, WASHINGTON AMENDING RIDGEFIELD MUNICIPAL CODE CHAPTER 10.08 (SPEED LIMITS) CHANGING POSTED AND UNPOSTED SPEED LIMITS FOR PORTIONS OF PIONEER STREET, S 15TH STREET, S WELLS DRIVE, S 35TH PLACE, S 10TH WAY, S 25TH PLACE, S 4TH WAY, UNION RIDGE PARKWAY AND S HILLHURST RD

WHEREAS, the City of Ridgefield has adopted the Washington State Model Traffic Ordinance (WAC 308-330) which encourages uniform traffic laws throughout Washington State while providing local agencies the authority to raise and lower speed limits on local roadways; and

WHEREAS, RCW 46.61.415 establishes that local authorities may post, increase or decrease speeds on local roadways in their respective jurisdictions following an engineering and traffic investigation on arterial streets; and

WHEREAS, the 2023 Edition of the Manual on Uniform Traffic Control Devices (MUTCD) allows jurisdictions to consider other factors into considerations for modifying speed limits; and

WHEREAS, the City of Ridgefield has adopted previous Ordinances since 1967 pertaining to the established speed limits within the City Limits and enforcement thereof; and

WHEREAS, the Horizontal Curves Safety Project has collected and assessed speed and traffic data at several locations around the City; and

WHEREAS, the City Engineer has conducted an appropriate engineering evaluation consistent with newer guidance from the MUTCD and has determined that modifying or designating speeds limits on several City streets is warranted; and

WHEREAS, the City Engineer has identified the following list of proposed speed limit adjustments to be established in code via this ordinance:

- Pioneer Street, east of 9th Avenue/Hillhurst to 65th Avenue, reduce from 40 mph to 35 mph;
- S. 15th Street/S 35th Place/S. 10th Way/S 25th Place, west of S Royle Road, establish a 25 mph speed limit for the entire scenic collector, to be covered under 10.08.010 - Speed limits established—Generally (25 mph speed limit);
- S. 4th Way, S 21st Place to S 25th Place, establish a 20 mph speed limit;
- S. Wells Drive, Royle Rd. to future Discovery Drive (approximately 5500 block), reduce from 35 mph to 30 mph;
- Union Ridge Parkway, S 5th Street to Pioneer Street, establish a 35 mph speed limit;
- Union Ridge Parkway, north of Pioneer Street along Clark College building to a future extension to N 10th Street, establish a 25 mph speed limit, to be covered under 10.08.010 - Speed limits established—Generally (25 mph speed limit);
- S Hillhurst Road, Great Blue to south of Carty Road, reduce from 35 mph to 30 mph; and

WHEREAS, the existing Chapter 10.08 is being amended to designate these speed limit adjustments;

and

WHEREAS, the Ridgefield City Council conducted a public hearing and the first reading of the proposed amendments to Title 10 during a regularly scheduled City Council meeting held on September 26, 2024; and

WHEREAS, the Ridgefield City Council waived a second reading of this proposed ordinance.

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF RIDGEFIELD, WASHINGTON DOES HEREBY ORDAIN AS FOLLOWS:

Section 1. Public Interest. The Ridgefield City Council finds it to be in the public interest to amend Chapter 10.08 regulating speed limits on city collectors and arterials.

Section 2. Ridgefield Municipal Code 10.08.010 Speed limits established—Generally, the following street segments are to be included with twenty-five miles per hour speed limits;

Union Ridge Parkway, north of Pioneer Street along Clark College building to a future extension to N 10th Street

S. 15th Street/S 35th Place/S. 10th Way/S 25th Place, west of S Royle Road to S 4th Way.

Section 3. 10.08.022 - Speed limits established—Twenty miles per hour is hereby amended as follows:

The speed limits on the following street segments shall be twenty miles per hour:

Bertsinger Road/S. 1st Way/S. 21st Place, a nonarterial street, Pioneer Street to S. 4th Way;
S. 4th Way, S 21st Place to S 25th Place.

Section 4. Ridgefield Municipal Code Section 10.08.024 - Speed limits established—Thirty-five miles per hour is hereby amended as follows:

The speed limits on the following street segments shall be thirty-five miles per hour:

Royle Road;
N. 65th Avenue;
N. 85th Avenue;
S. 65th Avenue;
S. Union Ridge Parkway;
S. 74th Place;
S. 10th Street;
S. 5th Street;
S. 85th Avenue;
~~S. Hillhurst Road—S. Great Blue Road to southerly city limits;~~
S. 11th Street, 5500 block (future Discovery Drive) to S Timm Rd.;
~~S. Wells Drive;~~
~~S. 15th Street;~~

~~S. 10th Way;~~
S. Royle Road;
N. 10th Street – N. 65th Avenue to N. 85th Avenue;
NW 229th Street - Hillhurst Road to a point approximately four hundred fifty feet west of S. 40th Place (Ridgefield City Limits);
Pioneer Street, east of 9th Avenue/Hillhurst to 65th Avenue;
Union Ridge Parkway, S 5th Street to Pioneer Street.

Section 5. Ridgefield Municipal Code Section 10.08.025 - Speed limits established— forty miles per hour is hereby amended as follows:

10.08.025 - Speed limits established—Forty miles per hour.
The speed limits on the following street segments shall be forty miles per hour:

~~State Highway 501—milepost 17.39 to 65th Avenue.~~

Section 6. A new section of Ridgefield Municipal Code Section 10.08.023 - Speed limits established— Thirty miles per hour is hereby established as follows:

The speed limits on the following street segments shall be thirty miles per hour:

-

- S. Wells Drive, Royle Rd. to 5500 block (future Discovery Drive)
- S Hillhurst Road, Great Blue to south of Carty Road.

Section 7. Corrections. The City Clerk and the codifiers of this ordinance are authorized to make necessary clerical corrections to this ordinance including, but not limited to, the correction of scrivener's/clerical errors, references, roadway names, ordinance numbering, section/ subsection numbers and any references thereto.

Section 8. Severability. If any section, subsection, sentence, clause, phrase, or other portion of this Ordinance, or its application to or any other person or circumstance is, for any reason, held invalid or unconstitutional by any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance. The City Council hereby declares that it would have passed this Ordinance and each section, subsection or portion thereof, irrespective of the fact that any one or more of the other portions be declared invalid or unconstitutional.

Section 9. Applicability. This ordinance shall be applied in the current city limits of the City of Ridgefield.

Section 10. Effective Date. This ordinance shall be in full force and effect thirty (30) calendar days after adoption and publication pursuant to law.

PASSED BY THE CITY COUNCIL OF THE CITY OF RIDGEFIELD, WASHINGTON THIS 10TH DAY OF OCTOBER, 2024.

Ron Onslow, Mayor

ATTEST/AUTHENTICATED:

Julie Ferriss,
City Clerk

APPROVED AS TO FORM:

Janean Parker, City Attorney

First Reading: September 26, 2024

Second Reading/Passage:

Date of Publication:

Effective Date:

Speed Limit Change Proposals Various Locations



Ridgefield City Council | September 26, 2024

Speed Limit Study

- Speed and traffic data collected, multiple locations
- Public request: add S 15th Street “Scenic Collector”
- Used updated 2023 MUTCD speed limit guidelines
- New guidelines: consider prevailing speeds, roadside & land use context, safety, bicycle & pedestrian presence, functional classification.



Proposed Speed Limit Reductions

Location	Current Speed Limit	Proposed Speed Limit	Supporting Data
Pioneer Street, east of 9 th /Hillhurst to 65 th Avenue (Route Jurisdiction Transfer)	40	35	New construction, roundabouts, higher traffic levels, increased pedestrian and bicycle activity. 35 mph consistent with others like Union Ridge Pkwy,, Royle & Hillhurst.
Gee Creek Plateau Corridor Royle Road west to S 25th Pl	35/unposted	25	Scenic collector: narrow road, no shoulders, frequent pedestrians and bicyclists. 20 mph curves; prevailing speed 29-34 mph on straight sections.
S 4 th Way	Unposted	20	Extend 20 mph Bertsinger corridor speed
S Wells Dr, Royle Rd. to future Discovery Drive (east of curves near 51st Place)	35	30	Speed study: prevailing speed 30-34 mph. Curves and sight distance for pedestrians crossing road a consideration. East of Discovery Drive to Timm Rd: keep at 35 mph.
Union Ridge Parkway, S 5 th Street to Pioneer	Not in code	35	Set speed limit at 35 mph for the newly completed Pioneer Street extension
Union Ridge Parkway (Pioneer to S. 5 th Street)	Not in code	25	Set speed limit as 25 mph for future “campus collector” through Clark College area.
S Hillhurst Road, Great Blue to south of Carty Rd.	35	30	Multiple pedestrians, after-school and summer activities on both sides of Hillhurst, high mix of vehicles, pedestrians and bicycles along the corridor.



S. Hillhurst Rd: 35 vs. 30 mph situations



Example of 35 mph



Example of Proposed 30 mph



S. Wells Drive / S 15th Street

35 vs. 30 mph situations



Example of 35 mph



Example of Proposed 30 mph



S. 15th Street / Gee Creek Plateau Collector

35 vs. 25 mph situations



Example of 35 mph



Example of Proposed 25 mph



Council Action Requested

- Conduct a public hearing on these speed limit changes
- Conduct first reading



Keep in Touch



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**CITY OF RIDGEFIELD
REQUEST FOR COUNCIL ACTION**

MEETING DATE: October 24, 2024

AGENDA ITEM NAME: Public Hearing and Action on Resolution 656 - Adoption of Water System Plan Update and Water Use Efficiency Goals

GOVERNING LEGISLATION

WAC 246-290-100

PREVIOUS COUNCIL ACTION TAKEN:

Adoption of 2013 Water System Plan Update

SUMMARY/BACKGROUND:

State regulations including Washington Administrative Code (WAC) 246-290-100) require municipal water suppliers to have a Washington State Department of Health (DOH) approved Water System Plan (WSP). The City's Water System Plan was last approved in 2013 for a period of six years. State rules have changed since then to allow approvals for Water System Plan updates to last for a period of ten years.

The Water System Plan is a functional plan intended to implement the Comprehensive Plan. The purpose of this update is to:

- Provide a long-term planning strategy and evaluate the existing system and its ability to meet the requirements for water source, quality, storage, and distribution over a 20-year planning period.
- Provide basic planning data for population, service connections, and water consumption.
- Provide system capacity analysis, identify limiting factors, and summarize hydraulic capacity.
- Update water use efficiency goals for the next 6 years.
- Provide a Capital Facilities Plan (CIP) for the next 6, 10 and 20 years.

Since 2023, City staff have been working with agency partners including Clark Public Utilities Water Division, Clark Cowlitz Fire Rescue and the Cowlitz Indian Tribe and the City's consultant Gray and Osborne on a comprehensive update to the Water System Plan, The 2024 Water System Plan update has been finalized and made available for agencies and the community for review and comment.

Accompanying the Water System Plan Update are Water Use Efficiency (WUE) goals and measures. Approval of these goals and measures is a separate requirement of the State DOH. These were made available in early October for the community to review and a survey has been conducted to gather opinion on some additional measures to be considered. Council discussion and action on including these measures as part of the Water Use Efficiency Goals is requested.

The attached presentation is an update of the one presented to Council at the February 2024 Study

Session.

The WSP 2024 Update and Water Use Efficiency goals require that Council convene a public hearing before taking action on both components.

Adoption of this Water System Plan Update and Water Use Efficiency Goals are required by the Washington State Department of Health.

BUDGET/FINANCIAL IMPACTS:

The budget for the WSP 2024 Update was included as part of the overall consultant contract for the Comprehensive Plan update.

RECOMMENDED ACTION OR MOTION:

Council is requested to hold a public hearing on these items and then take action.

A suggested motion is:

"I move to approve Resolution Number 656 to adopt the Water System Plan 2024 Update and Water Use Efficiency Goals as presented."

STAFF CONTACT: Chuck Green, Public Works Director

ATTACHMENTS:

1. WSP Resolution EXHIBIT A Goals and Measures
2. Exhibit B_Water System Plan Update
3. Ridgefield WSP- October 2024

RESOLUTION NO. 656

A RESOLUTION OF THE CITY OF RIDGEFIELD, WASHINGTON COUNCIL ADOPTING THE WATER SYSTEM PLAN 2024 UPDATE ALONG WITH WATER USE EFFICIENCY GOALS

WHEREAS, the current City of Ridgefield owns and operates potable water systems; and

WHEREAS, the City's potable water system is the focus of the Water System Plan 2024 Update; and

WHEREAS, the City of Ridgefield owns and operates potable water systems; and

WHEREAS, the City's potable water system is the focus of the Water System Plan 2024 Update; and

WHEREAS, it is a requirement of the Washington State Department of Health (DOH) for the City to establish a comprehensive drinking water system plan satisfactory to DOH and consistent with the regulations provided in Chapter 246-290-100 WAC; and

WHEREAS, since the Washington State Department of Health (DOH) approved the City's existing Water System Plan in 2013, changes in infrastructure, capital project needs, agency guidance documents, regulatory and case law changes affecting water system plans have occurred including updated drinking water regulations under WAC 246-290, two Water Summits with partner agencies, Clark Public Utilities' Water System Plan update, and implementation of various water conservation measures have occurred which are critical components of the Water System Plan Update; and

WHEREAS, the Water System Plan 2024 Update provides guidance for planning and managing the City's drinking water system production, supply, storage and capital facilities, and it is the responsibility of the City to provide water that meets Washington State drinking water quality standards, to the customer at the meter; and,

WHEREAS, on October 24, 2024, the City's SEPA Responsible Official issued a programmatic Determination of Non Significance for the Water System Plan 2024 Update, which has been submitted to the Washington State Department of Ecology, Washington State Department of Fish and Wildlife, Washington State Department of Health, as well as several local and regional entities; and

WHEREAS, the City shared a draft of the Water System Plan 2024 Update and the proposed Water Efficiency Goals and Measures with the public on the City's website and solicited public comment and feedback on the drafts; and

WHEREAS, on October 24, 2024, the City Council held a public hearing to receive comment on the Water System Plan 2024 Update and the Water Use Efficiency Goals and Measures.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF RIDGEFIELD, WASHINGTON HEREBY RESOLVES AS FOLLOWS:

Section 1. Recitals. The recitals contained in the Whereas clauses of the preamble to this Resolution are hereby adopted as findings of fact in support of the Resolution and incorporated herein by this

reference.

Section 2. Adoption of Water Use Efficiency Goals and Measures. The City Council hereby adopts the Water Use Efficiency Goals and Measures for the City of Ridgefield as attached to this resolution as “Exhibit A” and incorporated fully by this reference.

Section 3. Adoption of Water System Plan. The City Council hereby adopts the City of Ridgefield Water System Plan 2024 Update, as attached to this resolution as “Exhibit B” and incorporated fully by this reference.

Section 4. Effective Date. This Resolution shall be effective and in full force and effect immediately upon adoption by the City Council.

Adopted at a regular session of the City Council of the City of Ridgefield, Washington this 24th day of October, 2024.

By:
Ron Onslow, Mayor

ATTEST/AUTHENTICATED:
Julie Ferriss,
City Clerk

EXHIBIT A

WATER SYSTEM PLAN 2024 UPDATE: WATER USE EFFICIENCY GOALS AND MEASURES

Goals

Under the Water Use Efficiency (WUE) Rule, the City must outline new water use efficiency goals as part of the

WSP update, adopt these goals through a public process, and measure progress towards these goals each year. These goals must include a measurable outcome, and address water demand and supply characteristics. The City will continue to strive for the same goals as in the previous WSP in an effort to continue to reduce demand and maintain an acceptable DSL rate. The two new goals are summarized below.

1. Demand Side Goal: Reduce the average day consumption per ERU (ERU_{ADD}) by 1 percent per year for the next 10 years. Table 4-5 shows the impact of meeting the reduced consumption goal.
2. Supply Side Goal: Maintain distribution system leakage and loss below 10 percent.

TABLE 4-5
Water Savings with Consumption Goal

Year	Projected ERUs (Excluding DSL) ⁽¹⁾	No Conservation		Conservation		Annual Water Savings (MG/Y)
		ERU _{ADD} ⁽²⁾	Average Daily Consumption (MG/Y)	ERU _{ADD}	Average Daily Consumption (MG/Y)	
2024	6,786	200	495	198	490	5
2025	7,131		521	196	510	10
2026	7,475		546	194	529	16
2027	7,820		571	192	548	23
2028	8,164		596	190	566	30
2029	8,509		621	188	584	37
2030	8,853		646	186	601	45
2031	9,198		671	185	621	50
2032	9,543		697	183	637	59
2033	9,887		722	181	653	69
Total Estimated 10-Year Water Savings						345

(1) From Table 2-13.

(2) From Table 2-7.

Measures

The WUE Rule requires that water systems with between 2,500 and 9,999 service connections must implement or evaluate a minimum of six water use efficiency measures. The WUE Guidebook further states that water use efficiency measures that are required in other portions of the WUE Rule cannot be counted as measures to be selected under this requirement.

A minimum of six measures to achieve these goals must be adopted by the City. Measures already implemented by the City which are consistent with qualifying measures in the WUE Guidebook include:

1. Installation of source and service meters if meters are not already present;
2. Regular calibration/ recalibration of meters;
3. Development and implementation of a water loss control program if distribution system leakage exceeds 10 percent;
4. Education of consumers about water use efficiency practices once per year;
5. Adopted revised water rate structure to encourage water conservation (the rate structure includes conservation for single-family, multi-family, and commercial uses)
6. Maintaining a display at City Hall and at City led public social events with materials promoting conservation and leak detection and other educational programs. These materials are also available on the City's website.
7. Notifying single-family and multi-family residential customers of unusually high water usage.
8. Evaluation of reclaimed water.

Additional measures for consideration were included in a community survey over the two weeks prior to the Public Hearing on the Water System Plan 2024 Update and the WUE Goals. These are shown below. Council discussion and action on these additional measures is requested as part of this action item.

- Increase public education materials about water conservation options and methods.
- Amend landscape engineering standards to identify low water usage landscaping techniques.
- Provide for methods to separate water used for irrigation landscaping from water used for other household or business needs.
- Provide public communication and messaging during water shortages, such as signage indicating the current level of conservation efforts requested and variable message boards emphasizing the need for reduced water use.
- Develop and adopt a Water Shortage Plan, with quantifiable stages, triggers and responses for different levels of water availability.

CITY OF RIDGEFIELD

CLARK COUNTY

WASHINGTON



WATER SYSTEM PLAN UPDATE

G&O #19234
JUNE 2024



Gray & Osborne, Inc.
CONSULTING ENGINEERS

CITY OF RIDGEFIELD

CLARK COUNTY

WASHINGTON



WATER SYSTEM PLAN UPDATE



G&O #19234
JUNE 2024



Gray & Osborne, Inc.
CONSULTING ENGINEERS

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- Appendix B – Intertie Agreement
- Appendix C – Kennedy Farms Water Rights Draft Memo and Groundwater Source Development Plan
- Appendix D – Water Quality Monitoring Schedule, DBP Monitoring Plan, and Coliform Monitoring Plan
- Appendix E – Consumer Confidence Report
- Appendix F – Hydraulic Model Results
- Appendix G – Water Excerpts from the City of Ridgefield Engineering Standards for Public Works Construction (May 2017)
- Appendix H – Water Rights and Water Rights Self-Assessment
- Appendix I – Water Use Efficiency Documentation
- Appendix J – Wellhead Protection Documents
- Appendix K – Critical Aquifer Recharge Ordinance
- Appendix L – CRESA Hazardous Materials Emergency Response Plan
- Appendix M – Water Shortage Response Plan
- Appendix N – Cross-Connection Control Documentation
- Appendix O – Public Boil Water Notification
- Appendix P – SEPA Checklist
- Appendix Q – Capital Project Cost Estimates
- Appendix R – Consistency, Correspondence and Approvals

CHAPTER 1

WATER SYSTEM DESCRIPTION

1.1 INTRODUCTION

The purpose of this Water System Plan (Plan) is to provide an update to the 2013 *City of Ridgefield Water System Plan Update*, as required by Washington Administrative Code (WAC) 246-290-100 and the Washington State Department of Health (DOH). This Plan is prepared in accordance with WAC 246-290-100 and the current DOH *Water System Design Manual* (DOH Design Manual).

The Plan evaluates the existing Group A water system and its ability to meet the current and anticipated State and Federal requirements for water source, quality, transmission, distribution, and storage. Recommended system improvements and operational modifications are developed to meet the projected water demands, anticipated regulatory requirements and planned infrastructure repair and replacement. Emergency operation, water quality monitoring, system maintenance, record keeping and reporting, cross-connection control, and wellhead protection are also addressed in this Plan.

A vicinity map showing the location of the City of Ridgefield is shown as Figure 1-1. An aerial photograph displaying the current city limits along with the urban growth area for the City of Ridgefield is shown as Figure 1-2.

1.1.1 AUTHORIZATION AND CONTRACT

The City of Ridgefield has authorized Gray & Osborne, Inc. to assist with the preparation of this Plan.

1.1.2 WATER SYSTEM OWNERSHIP AND MANAGEMENT

The City of Ridgefield operates a Group A community water system that provides potable water to the community. The water system is owned and managed as a municipal water system by the City of Ridgefield. The DOH system identification number for the Ridgefield Water System is 72400V. The City of Ridgefield has a Council-Manager form of government. The City Council acts as the legislative body and establishes the policies and vision of the City. The City Manager is appointed by the City Council to carry out the adopted policies and lead the City administration. The City Manager supervises the Public Works Director who oversees the operations and maintenance for the water system. The contact information is as follows:

City of Ridgefield
230 Pioneer Avenue
P.O. Box 608
Ridgefield, Washington 98642
Phone. (360) 887-3557
Fax. (360) 887-0861

1.2 SYSTEM BACKGROUND

1.2.1 HISTORY OF RIDGEFIELD

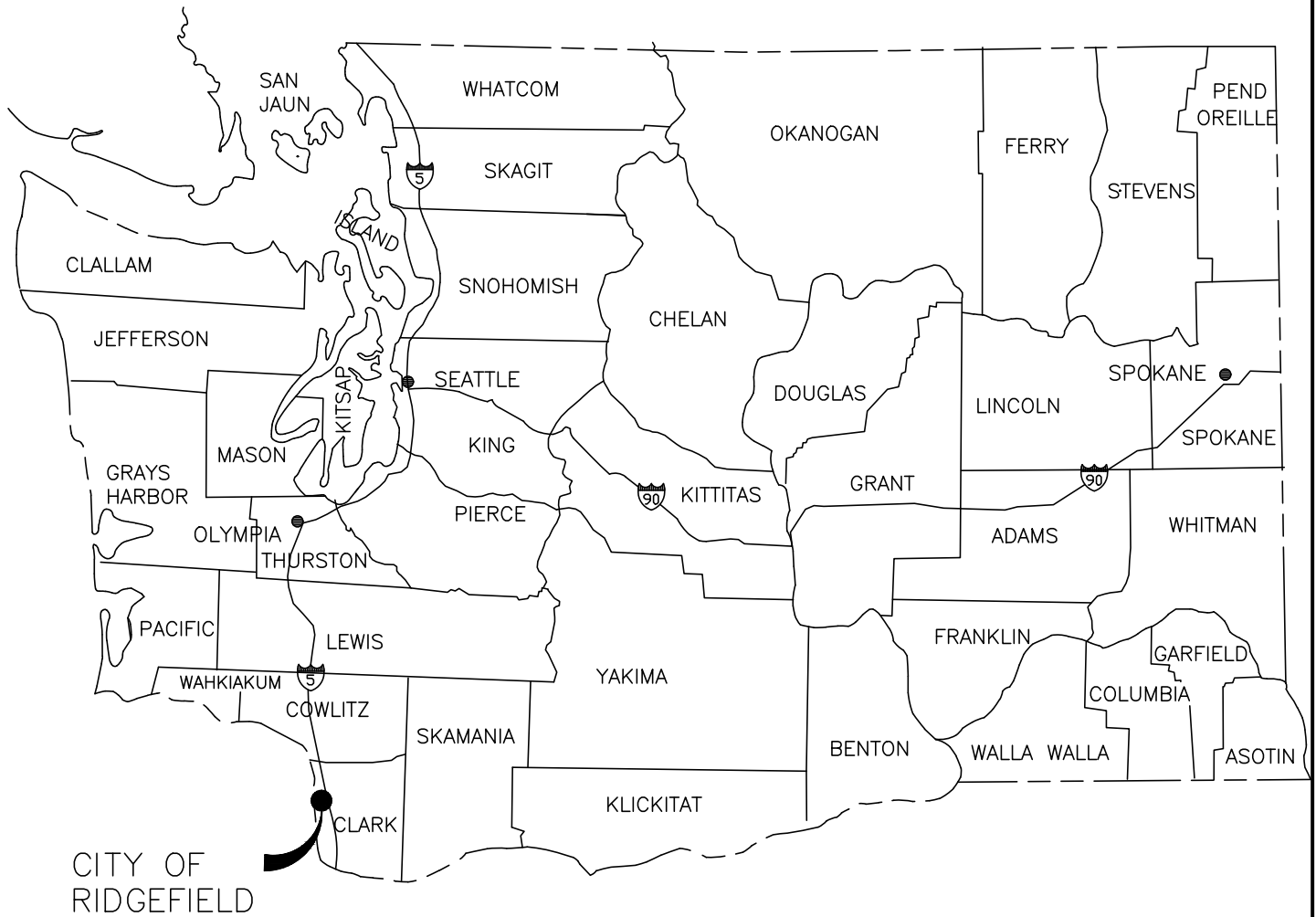
The City was originally situated along the shoreline of Lake River. The primary employer for the community was Pacific Wood Treating, a riverside industry that provided treated wood products to various national and international markets. Pacific Wood Treating ceased operations in the 1970s. After a period of low growth, the City of Ridgefield has become a rapidly growing community with residential, commercial and industrial development. The City also has an elementary school, middle school and high school. Much of the recent growth has derived from the housing and commercial markets that have reached the capacity limits in the Urban Growth Areas (UGAs) for the larger communities of Portland and Vancouver. These markets have now moved north to the City of Ridgefield.

1.2.2 HISTORY OF SYSTEM DEVELOPMENT AND GROWTH

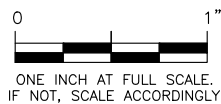
In 1917, a reservoir was constructed with a storage volume of 200,000 gallons in what is now the Low Zone. Most of the downtown area distribution system was constructed in 1935. Through various development contracts the distribution system has been maintained and replaced. Various wells were installed throughout the downtown area prior to 1945 through the late 1970s. Wells 1-6 were among the wells installed in the downtown area. None of these early wells are currently in service. The 200,000 gallon reservoir installed in 1917 was replaced with a 400,000-gallon bolted steel reservoir (the "Cemetery Reservoir") in 1999.

The area surrounding the I-5 and SR 501 interchange is referred to as the Junction Area. The Junction Area was served by a separate water system from 1985 until 1996. The Junction Area well, distribution system, booster station, and 100,000 gallon reservoir was constructed in 1985 to serve the Port of Ridgefield industrial park. The Junction Area system is discussed further in Section 1.3.1. The Junction Area Water System was connected to the downtown area system in 1996 with the completion of a 12-inch water main along Pioneer Street from the downtown area to the Junction Area. At that time, the Junction Well was taken out of service due to high iron and manganese concentrations and lack of available water rights.

\\goSERVER3\data2\Ridgefield\23244.00 WSP Comp Plan and WSP Update\Figures\FIGURE 1-1.dwg, 4/3/2024 4:20 PM, TRACE LAPPING



VICINITY MAP
NOT TO SCALE



CITY OF RIDGEFIELD

WATER SYSTEM PLAN

FIGURE 1-1

VICINITY MAP



Gray & Osborne, Inc.

CONSULTING ENGINEERS

In 1986, Wells 7, 8, and 9 were constructed in Abrams Park. In 2009, a fourth well, Well 10 was constructed in Abrams Park. In 2015, water rights for the Junction Well were obtained, the Junction Well was equipped with a new pump, and an iron and manganese treatment system was installed to treat water from the Junction Well. In 2019, Well 11 was drilled in Abrams Park. In 2020, it was equipped and put into service. These six wells are now the primary wells serving the water system. Most of the Hillhurst Road area facilities were also constructed in 1986. The Hillhurst Road facilities consist of approximately 10,000 feet of distribution main along Hillhurst Road and a 600,000-gallon standpipe located on the High School's property. This standpipe provides storage and pressure control for the High Zone.

1.2.3 PROJECTS COMPLETED SINCE THE 2013 PLAN

The 2013 Plan made many recommendations for system improvements. Tables 1-1A and 1-1B summarize the status of water system improvements undertaken since the 2013 Plan.

TABLE 1-1A

2013 Recommended Improvements Status

Item No.⁽¹⁾	Improvement	Project Status
Source Improvements		
SO-1	Equip Junction Well	Complete
SO-2	Replace Well 7 ⁽²⁾	Complete
SO-3	Conduct Hydrogeologic Study	Complete
SO-4	Obtain Additional Water Rights	In Progress
SO-7	New Source Partnership with CPU	Complete ⁽³⁾
Water Storage		
ST-1	Junction Reservoir	Complete
Distribution/Transmission System Improvements		
D-1	Mill Street, Railroad Avenue to West	Not Started
D-2	Royle Road - High School to Gee Creek	Partially Complete
D-3	45 th Avenue – Gee Creek to Pioneer	Partially Complete
D-9	45 th Avenue – Pioneer to North 10 th Street	Complete
D-10	North 10 th Street – North 45 th Avenue to I-5	Partially Complete
D-15	Future Street, South 45 th Avenue to 11 th Street	Complete
D-18	Cemetery Booster Station Upgrade	Complete
D-32	High Priority Minor Distribution System Improvements	See Table 1-1B

TABLE 1-1A – (continued)**2013 Recommended Improvements Status**

Item No.⁽¹⁾	Improvement	Project Status
Maintenance and Upkeep		
SU-1	Hydrant Replacement Program	On-Going
SU-2	Water Meter Replacement Program	Complete

- (1) Project numbers correspond to those in the 2013 Ridgefield Water System Plan
- (2) Following completion of the 2013 Plan, the objective of project SO-2 was changed from replacing an existing well to drilling a new supplementary well. The City's newest well in Abrams Park, Well 11, supplements (rather than replaces) Well 7. Well 7 remains in service. Well 11 was drilled in 2019 and equipping was completed in 2020.
- (3) See Appendix B for a copy of the new intertie agreement with Clark Public Utilities

TABLE 1-1B**2013 High Priority Minor Distribution System Improvements (D-32) Status**

Project Number	Name	Status
1	South Hillhurst Road	Complete
2	NW Riverview Dr	Complete
3	11 th Court to Northridge Drive	Complete
4a	South Hillhurst to Oak Street (Abandon with Sunset extension)	Complete
4b	South Hillhurst to Oak Street (Abandon with Sunset extension)	Complete
6	NW Cook Street	Complete
9	Alley between North Main and North 3 rd Avenue	Complete
10	Alley between North 3 rd and North 4 th Avenue	Complete
20	End of Shobert Street	Complete
24	South 8 th Court	Complete
25	Off of Northridge Drive to end of South 13 th Court	Complete

In addition, the City has completed the following improvements at the Junction Booster Station:

- **2015:** Upgraded the jockey pump from 10 gpm to 200 gpm.
- **2020:** Replaced the three original 1,000 gpm pumps with new pumps of the same capacity and equipped the pumps with Variable Frequency Drives (VFDs).

1.2.4 GEOGRAPHY

The City of Ridgefield is located in southwestern Washington approximately 2 miles east of the Columbia River and 25 miles north of Portland, Oregon. Rolling hills and ravines are prevalent in the western part of the City near the river while flatter uplands predominate in the eastern portion of the City. Lake River borders Ridgefield to the west and the existing city limits extend past I-5 to the east. Gee Creek is the primary surface water body through the City's service area. Elevations range from a maximum of approximately 300 feet Mean Sea Level (MSL) on the east side of I-5 to a minimum of 0 feet MSL at Lake River. A topographic map of the City is shown in Figure 1-3.

1.2.5 ADJACENT PURVEYORS

The only adjacent purveyor is Clark Public Utilities (CPU). The City's water system has three interties with CPU east of I-5. The City has an agreement with CPU regarding usage of the interties. A copy of the interlocal agreement is included in Appendix B. Figure 1-4 displays the location of CPU service near the City of Ridgefield.

1.3 INVENTORY OF EXISTING FACILITIES

1.3.1 SOURCE OF SUPPLY

The City currently obtains water from six wells (identified as Wells 7, 8, 9, 10, 11 and Junction) located in Abrams Park, and from the Junction Well, as shown in Figures 1-5 and 1-7. The Abrams Park wells draw from the Lower Troutdale Aquifer, which is the primary source of water for many Clark County water systems. The Junction Well draws from a deeper sand and gravel aquifer, which is separated from the overlying Lower Troutdale Aquifer by a confining layer. Water from all six sources is chlorinated prior to distribution.

The Abrams Park wellfield is equipped with an emergency generator adjacent to the control building. The generator is a diesel-powered generator with secondary containment. It is used to power Well 7, Well 8, and Well 9 in the event of a power failure at Abrams Park. In addition, the Junction Well has standby power available from an on-site generator.

Water service to the existing residences in much of the rural areas of the Ridgefield UGA is supplied by private wells. As water mains are extended throughout the UGA, it is expected that most of these residences will connect to the City's water system. It is possible that exempt water rights could be consolidated into City rights as private wells are decommissioned.

A brief description of each of the City's wells, both historical and in current use, is provided below.

1.3.1.1 Wells 1 and 2

Wells 1 and 2 was decommissioned in 2007.

1.3.1.2 Well 3

Well 3 was constructed in 1965 and has been inactive since 1991 due to sanding issues. However, the well could be returned to service. Originally the well could produce 150 gpm.

1.3.1.3 Well 5

Well 5 is located across the railroad from the Port of Ridgefield near Hall Street. Well 5 is an emergency source and is currently inactive.

1.3.1.4 Well 6

Well 6 is located across the railroad from the Port of Ridgefield near Cook Street. Well 6 is an emergency source and is currently inactive.

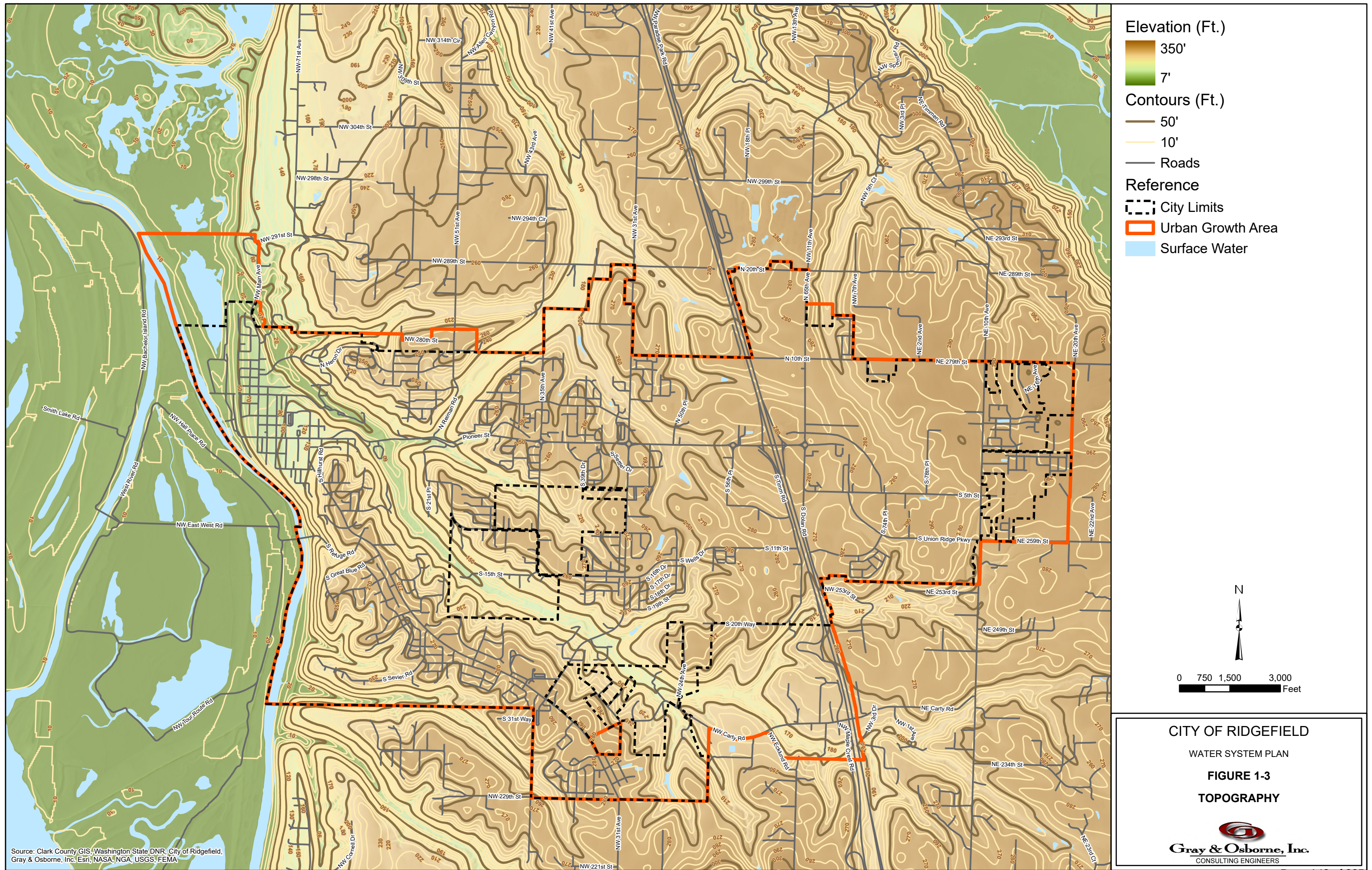
1.3.1.5 Well 7

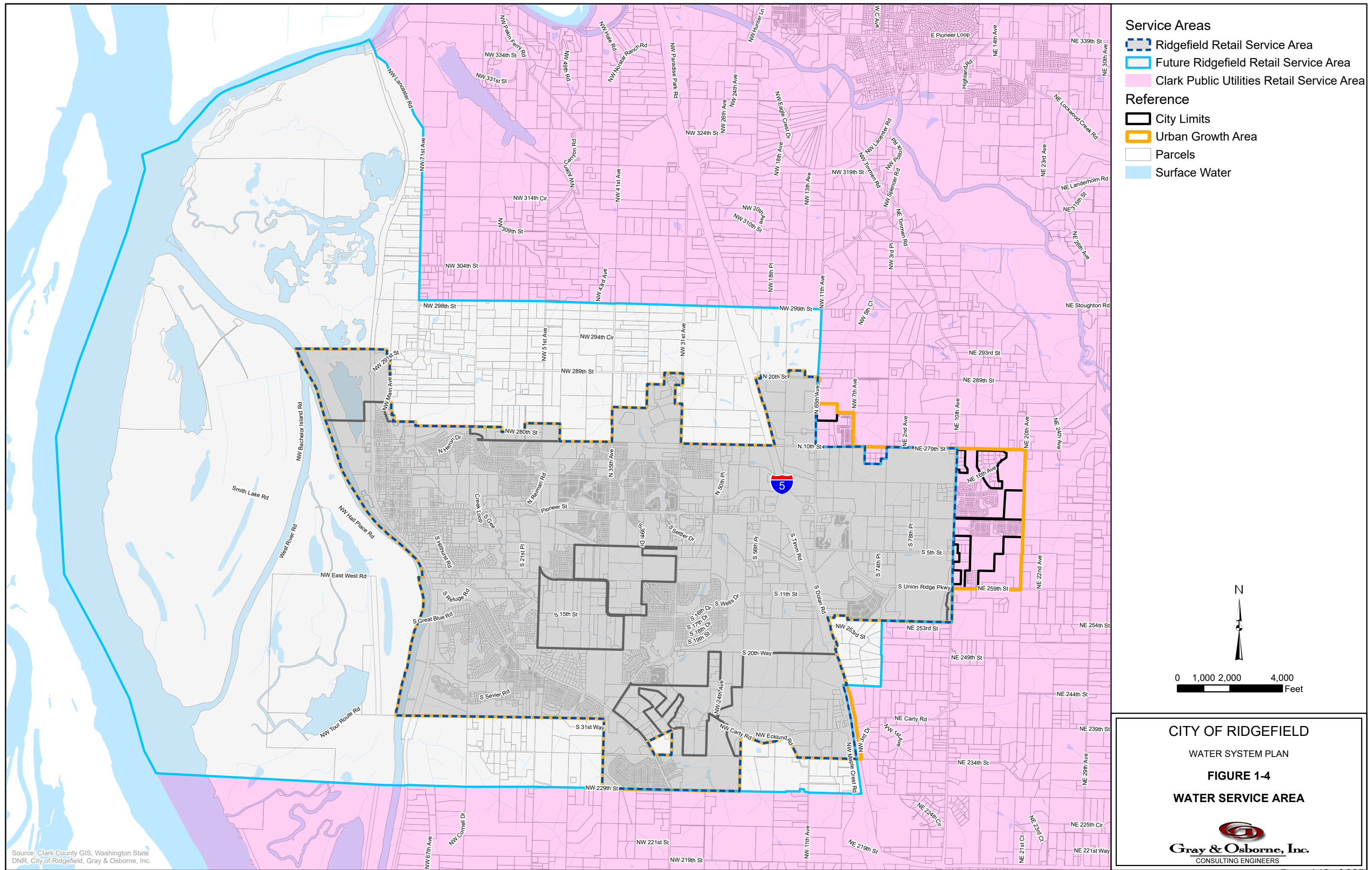
Well 7 was constructed in 1986 and has a nominal capacity of 300 gpm. The current estimated production capacity is 240 gpm. In 2009 and 2010, Well 7 began experiencing sanding problems due to holes in the well casing. The casing was repaired and the well returned to service. A 2011 investigation discovered a recurrence of sanding in the casing. To reduce sanding, the gate valve on the well discharge was throttled. If the gate valve is fully opened, the well will produce the nominal capacity of 300 gpm indicating that the well limitation is not hydraulic but related to the sanding.

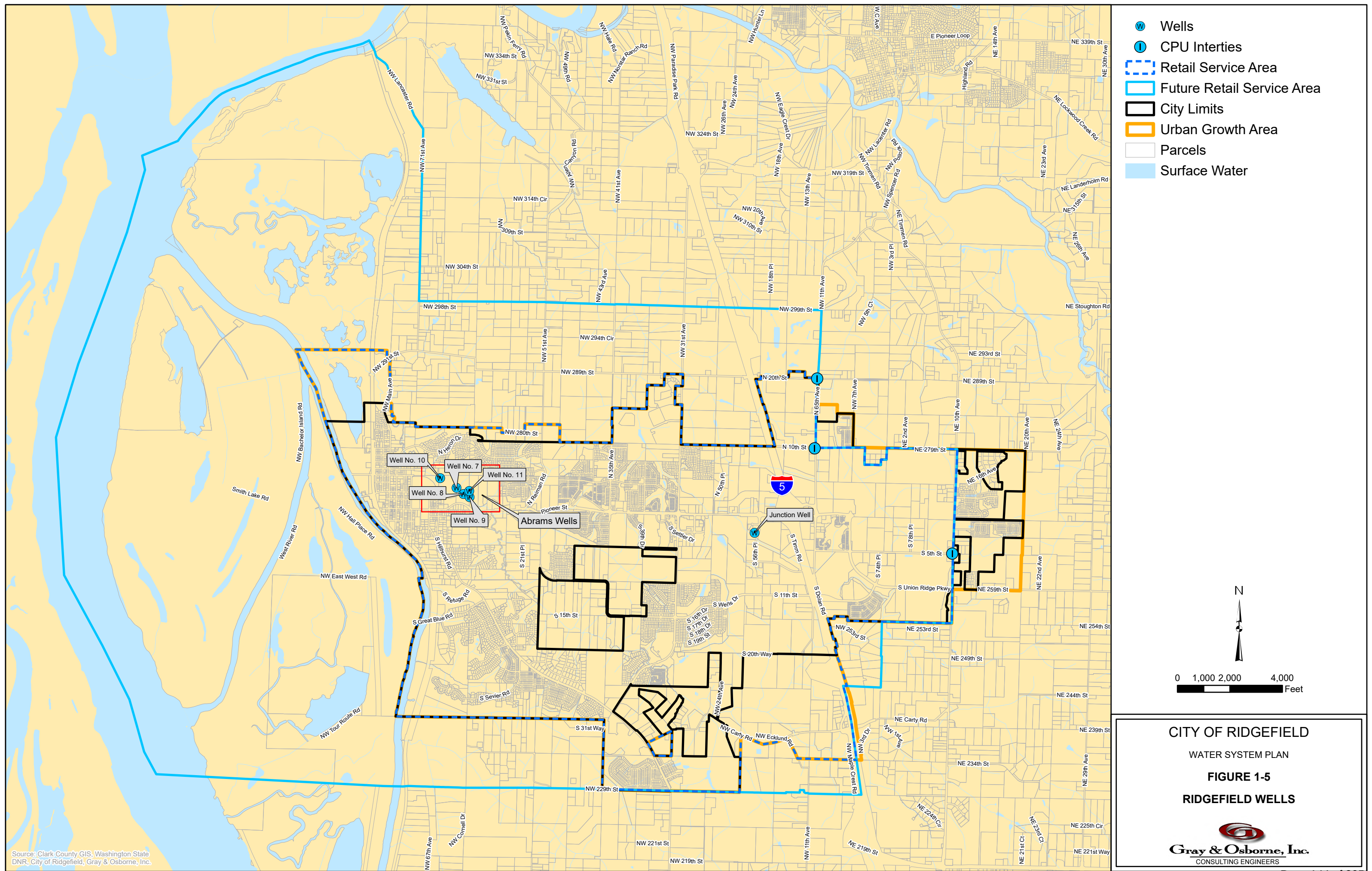
This well has an 8-inch-diameter casing and is finished to a depth of 145 feet below ground surface (bgs). The well is equipped with a 40-hp pump. Water from Well 7 is pumped to the City's Low Zone. Well 7 is screened with a slot size of 0.03 inches from 145.5 feet to 166 feet and 171 feet to 186.5 feet below ground surface. Well 7 has standby power available from the emergency generator located in Abrams Park.

1.3.1.6 Well 8

Well 8 was constructed in 1986 and has a nominal capacity of 290 gpm. The current estimated production capacity is 300 gpm.







This well has an 8-inch-diameter casing and is finished to a depth of 153 feet bgs. The well is equipped with a 40-hp pump. Water from Well 8 is pumped to the City's Low Zone. Well 8 is screened with a slot size of 0.03 inches from 130.5 feet to 193 feet below ground surface. Well 8 has standby power available from the emergency generator located in Abrams Park.

1.3.1.7 Well 9

Well 9 was constructed in 1986 and has a nominal output of 400 gpm. The current estimated production capacity is 290 gpm.

This well has an 8-inch-diameter casing and is finished to a depth of 162 feet bgs. The well is equipped with a 60-hp pump. Water from Well 9 is pumped to the City's High Zone. Well 9 is screened with a slot size of 0.03 inches from 162.5 feet to 199.5 feet below ground surface. Well 9 has standby power available from the emergency generator located in Abrams Park.

1.3.1.8 Well 10

Well 10 was constructed in 2009 and has a nominal capacity of 165 gpm. The current estimated production capacity is 130 gpm.

This well has a 12-inch-diameter casing and is finished to a depth of 135 feet bgs. The well is equipped with a 30-hp pump. Water from Well 10 is pumped to the City's High Zone. Well 10 is screened with a slot size of 0.03 inches from 109 feet to 130 feet below ground surface. Well 10 does not have standby power.

1.3.1.9 Well 11

Well 11 was drilled and developed in 2019 equipped in 2020. It has a firm capacity (i.e. sustainable capacity based on pump testing) of 150 gpm. It is equipped with a 30-hp submersible pump with a pumping capacity of up to 175 gpm (which can be sustained for short periods). Water from Well 11 is pumped to the City's High Zone. This well has a 10-inch diameter casing and is finished to a depth of 217 feet bgs. The well is screened with a 25-slot wire wrap screen from 172 feet bgs to 212 feet bgs. Well 11 has standby power available from the emergency generator located in Abrams Park.

1.3.1.10 Junction Well

The Ridgefield Junction Area, located at the intersection of SR 501 and I-5, is served by the Junction Well. This well was constructed in 1986 with an 8-inch diameter casing to a depth of 460 feet bgs. It was originally equipped as part of the Junction Area Water System with a well pump rated at 100 gpm. Due to high iron and manganese levels, the Junction Well was unused between 1999 and 2016 after the City took over the system. In 2017, following the City's obtaining water rights for the Junction Well and construction

of new iron and manganese treatment facilities on the site, the Junction Well was equipped with a new well pump with a nominal capacity of 400 gpm and returned to service. The current estimated production capacity is 340 gpm.

The Junction Well has standby power available from the emergency generator located on the site.

1.3.1.11 Summary

Table 1-2 lists the sources of supply and notes the current status of each well.

TABLE 1-2
Sources of Supply

Source	DOH Source Number	Year Completed	Total Well Depth (feet)	Pressure Zone Supplied	Nominal Production Capacity (gpm) ⁽¹⁾	Current Pumping Production Capacity (gpm)
Well 3 ⁽³⁾	S03	1965	167	N/A ⁽⁶⁾	0	0
Well 5 ⁽⁴⁾	-	1966	138	N/A ⁽⁶⁾	0	0
Well 6 ⁽⁴⁾	-	1971	131	N/A ⁽⁶⁾	0	0
Well 7	S11	1986	145	Low ⁽⁷⁾	300	240
Well 8	S08	1986	153	High ⁽⁷⁾	300	290
Well 9	S09	1986	162	High ⁽⁷⁾	400	290
Well 10	S16	2009	135	High ⁽⁷⁾	165	130
Well 11	S17	2020 ⁽⁵⁾	217	High ⁽⁷⁾	150	112 ⁽⁸⁾
Junction Well ⁽²⁾	S12	2017	460	High ⁽⁷⁾	400	340
Total					1,715	1,402

- (1) The nominal production capacity is the capacity observed during pump testing.
- (2) The Junction Well was first drilled and equipped in 1986. It was unused from 1999 to 2016. In 2017, it was equipped with a new well pump and returned to service.
- (3) Well 3 has been inactive since 1991 due to sanding issues. It originally had a nominal production capacity of 150 gpm.
- (4) Wells 5 and 6 are emergency sources and currently inactive.
- (5) Well 11 was drilled and developed in 2019 and equipped in 2020.
- (6) Well is inactive.
- (7) See Section 1.3.5 for a description of the pressure zones in the City's water system.
- (8) Well 11 is equipped with a pump capable of up to 175 gpm, which the well can sustain for short periods; the firm capacity is 112 gpm.

1.3.2 WATER RIGHTS

According to the Washington State Department of Ecology, the City currently holds water rights attached to various well sources for 1,445 acre-ft of annual withdrawal and 2,275 gpm of instantaneous withdrawal. As the City's water demands increase, rights associated with well sources not currently in use will likely need to be transferred to

productive well sources. The City also has an agreement with Clark Public Utilities (CPU) that currently entitles the City to up to 1,000 gpm of additional supply through its interties with CPU (see Appendix B for a copy of the intertie agreement). Table 1-3 summarizes the water rights held by the City. The City's water right self-assessment and copies of the City's water rights are included in Appendix H.

TABLE 1-3**Water Rights**

Source	Water Right Certificate or Claim Number	Well Status	Instantaneous Withdrawal (gpm)	Annual Withdrawal (acre-ft/year)
Well 1 ⁽¹⁾	018511	Decommissioned	200	323
Well 2 ⁽¹⁾⁽²⁾	G2-20381	Decommissioned	300 ⁽²⁾	240 ⁽²⁾
Well 3 ⁽³⁾⁽⁷⁾	2449 ⁽⁷⁾	Inactive	150 ⁽⁷⁾	180 ⁽⁷⁾
Well 5 ⁽⁴⁾	G2-20379	Inactive	200	161 ⁽⁵⁾
Well 6 ⁽⁴⁾	G2-20380	Inactive	125	100
Well 7	G2-27103	Active	300	241 ⁽⁶⁾
Well 8	G2-27104	Active	300	241 ⁽⁶⁾
Well 9	G2-27105	Active	300	241 ⁽⁶⁾
Well 10	G2-20381 ⁽²⁾	Active	300 ⁽²⁾	240 ⁽²⁾
Well 11 ⁽⁷⁾	2449 ⁽⁷⁾	Active	150 ⁽⁷⁾	180 ⁽⁷⁾
Junction Well	G2-29174	Active	400	483
Wells Subtotal			2,275	1,445
CPU Interties ⁽⁸⁾			1,000	1,613
Total			3,275	3,058
Water Rights Transfer Applications				
Kennedy Farms (Well)	CG2-26625	Pending Application	140gpm	119
Kennedy Farms (Surface)	CS2-SWC4718	Pending Application	0.20 cfs	N/A

- (1) Wells 1 and 2 were decommissioned in 2007.
- (2) A Showing of Compliance Form was filed with the Department of Ecology adding Well 10 as an additional point of withdrawal under water right G2-20381 (Well 2).
- (3) Well 3 has been inactive since 1991 due to sanding issues.
- (4) Wells 5 and 6 are emergency sources and currently inactive.
- (5) Of this total, 119 acre-ft are primary rights and 42 acre-ft are supplemental rights.
- (6) Supplemental to existing rights.
- (7) As part of the approval process for Well 11, a Showing of Compliance Form will be filed with the Department of Ecology adding Well 11 as an additional point of withdrawal under water right 2449 (Well 3).
- (8) The intertie agreement with Clark Public Utilities (see Appendix B) currently entitles the City to 1,000 gpm of supply from CPU's system and contains no annual maximum amount. If supplied continuously over the course of a year, 1,000 gpm is equivalent to 1,613 acre-ft.

In order to accommodate projected growth, the City is pursuing two water right and avenues in parallel. The first is the addition of a fourth CPU intertie on Royal Road, which under the current CPU intertie Agreement (Appendix B) would add an additional 1,000 gpm of CPU intertie capacity, bringing the total to 2,000 gpm or 3,226 acre-feet per year. The second avenue is the transfer of water right and the development of the Kennedy Wellfield. The water right associated with Kennedy Farms, which is located near the southeast city limits east of Northwest Hillhurst Road, have been purchased by the City. The City has applied for a water rights transfer that amounts to an annual water right of 119 acre-ft per year and instantaneous water rights of up to 140 gpm. The Kennedy Farm's water rights also included a 0.2 cubic feet per second surface water right. This surface water right will be temporarily donated to a trust and used for future mitigation (if needed). A draft technical memorandum summarizing the status of the Kennedy Farms water rights is included in Appendix C.

Finally, in 2023 the City purchased a parcel east of I-5 near the intersection of South 5th Street and South 78th Place as the future site of the Eastside Elevated Reservoir. This purchase also included any minor water rights associated with the property. Preliminary investigations suggest site may yield minor water rights which the City may ultimately be able to use for production or mitigation purposes; however, the validity of these water rights will be need to be assessed through additional investigation.

1.3.3 TREATMENT

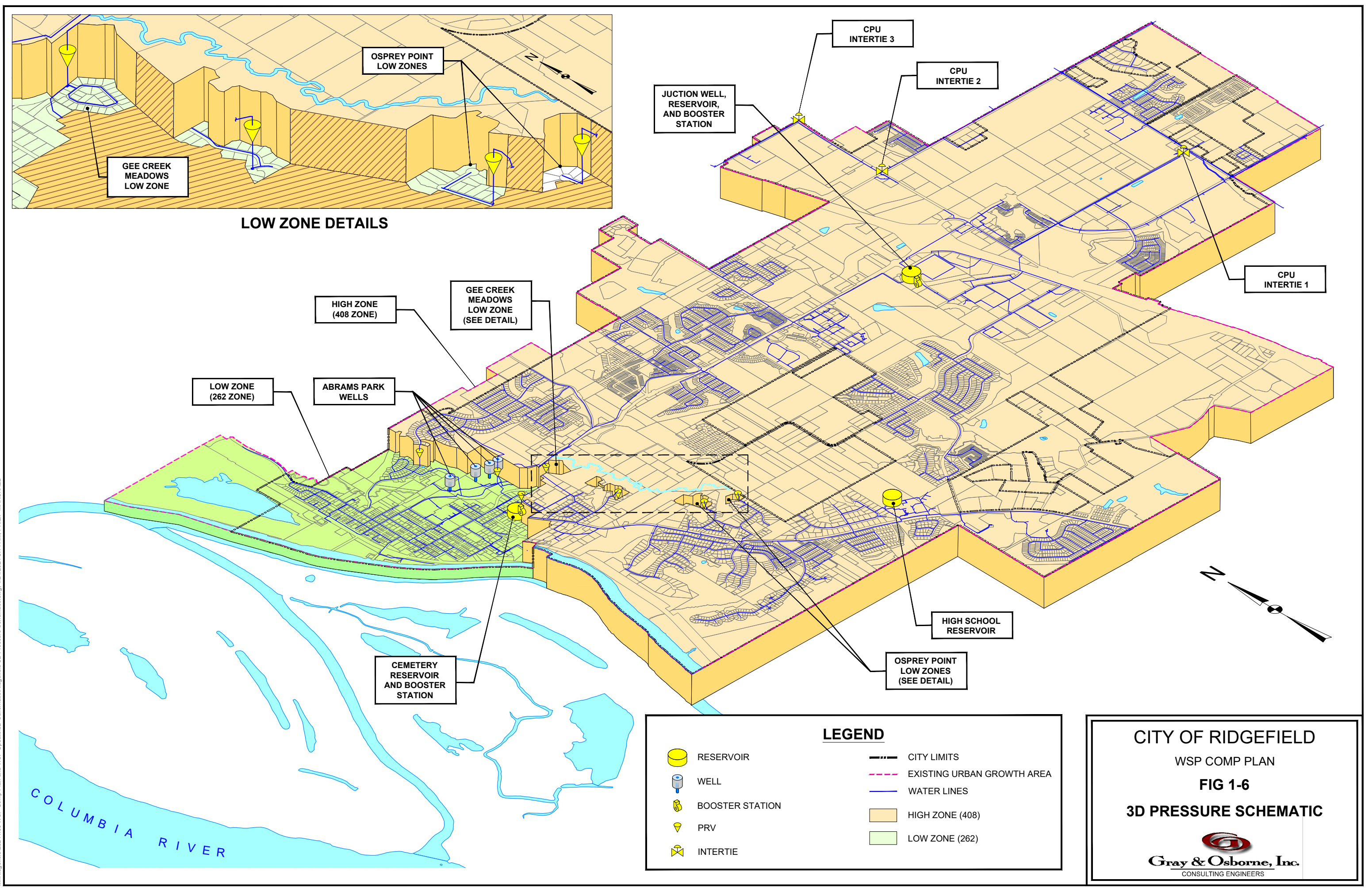
The City of Ridgefield voluntarily disinfects each of its sources to prevent bacteriological growth within the distribution system. A disinfection facility for the Abrams Park wells is located in the Well 8 building. Each well is chlorinated with an individual diaphragm metering pump assigned to that well. Sodium hypochlorite is delivered in bulk by a truck to the Abrams Park Wellfield site diluted to four percent and stored in a 1,000-gallon tanks. Each of the wells has a metering pump with a capacity of 14 gpd.

The Junction Well uses oxidation/filtration to remove manganese. A 12.5 percent sodium hypochlorite is used for oxidation while pyrolusite pressure filters are used to remove the manganese by filtration. Similar to the Abrams Park Wellfield, bulk sodium hypochlorite is delivered to the Junction Well site, diluted to four percent, and stored in a 1,000-gallon tank. The backwash from the filters is settled a 100,000-gallon tank onsite before being recycled back through the filters.

1.3.4 STORAGE

The storage facilities serving the City consist of a Low Zone 400,000-gallon reservoir located near the cemetery and a 616,000-gallon standpipe reservoir located near Ridgefield High School that serves the High Zone. The High Zone is also served by a 1,000,000-gallon reservoir at the Ridgefield Junction. A schematic showing the pressure zones and related storage facilities is shown on Figure 1-6. Table 1-4 summarizes the storage facilities used by the City.

M:\Ridgefield\23244.00 WSP Comp Plan and WSP Update\3D Schematic\Ridgefield-3D Pressure Schematic.dwg, 1/24/2024 8:44 AM, PHILIP MARSHALL



CITY OF RIDGEFIELD

WSP COMP PLAN

FIG 1-6

3D PRESSURE SCHEMATIC


Gray & Osborne, Inc.
CONSULTING ENGINEERS

Cemetery Reservoir: The Cemetery Reservoir is a 400,000-gallon, at-grade bolted steel tank constructed in 1999. The water supply is from Well 7 in Abrams Park, which has a capacity of 245 gpm. The well pumps directly into the Low Zone distribution system and supplies the Cemetery Reservoir. Furthermore, the Low Zone can utilize high zone storage through PRV stations. The Cemetery Reservoir can be filled from the high zone through an altitude valve.

High School Reservoir: The High School Reservoir serves the High Zone. It is a welded steel reservoir that was constructed in 1986 and has a capacity of approximately 616,000 gallons (as discussed in Chapter 3, some of this volume is not available at required minimum pressures). The reservoir is supplied by Abrams Park Wells 8, 9, 10, and 11, and by the Junction Well. Each of these wells feed directly into the High Zone.

Junction Reservoir: A 1,000,000-gallon welded steel reservoir is located at the Ridgefield Junction. The overflow elevation for this reservoir is lower than the High School Reservoir, so the Junction Booster Station must be used to supply water from this reservoir to the High Zone. The Junction Reservoir is filled from the high zone through an altitude valve.

Future Eastside Elevated Reservoir: The City purchased land east of I-5 near the intersection of South 5th Street and South 78th Place as the future site of the Eastside Elevated Reservoir. This project is further detailed in projects ST-1 and ST-3 in the Capital Improvement Program in Chapter 8.

TABLE 1-4**Storage Facilities**

Storage Facility	Construction		Diameter (feet)	Base Elevation (feet)	Overflow Elevation (feet)	Nominal Capacity	
	Type	Date				gal/ft	Gallons
High School Reservoir	Welded Steel	1986	28	286	420	4,606	616,000
Cemetery Reservoir	Bolted Steel	1999	62	249	266.5	22,584	400,000
Junction	Welded Steel	2015	78	256.00	284.50	35,745	1,000,000

1.3.5 BOOSTER STATIONS

The City currently has two booster stations. Table 1-5 provides a summary of the booster stations operated by the City.

TABLE 1-5**Booster Stations**

Booster Station	Type of Pumps	Number of Pumps	Capacity (gpm)	Function
Cemetery Booster Station	End Suction Centrifugal	2	120 gpm (each)	Pumps water from Low Zone to High Zone
Junction Booster Station	End Suction Centrifugal	4	Pump 1-3: 1,000 gpm (each) Pump 4: 200 gpm	Pumps water from the Junction Reservoir to the High Zone

Cemetery Booster Station: The Cemetery Booster Station was originally constructed in the 1950s and replaced in 2018. It consists of two 120 gpm end suction centrifugal pumps and is used to transfer water from the Low Zone to the High Zone.

Junction Booster Station: The Junction Booster Station was constructed in 1986. It originally consisted of three 1,000 gpm end suction centrifugal pumps and one 10-gpm vertical multi-stage pump. In 2015, the 10 gpm vertical multi-stage pump was replaced with a 15 HP end-suction centrifugal pump rated for 200 gpm at 160 feet of Total Dynamic Head (TDH). The three original 1,000 gpm pumps were replaced with new pumps of the same capacity and equipped with Variable Frequency Drives (VFDs) in 2020. The Junction Booster Station provides water to the High Zone from the Junction Reservoir during high demand or fire flow periods.

1.3.6 PRESSURE ZONES

The City's water system consists of two main pressure zones: the Low Zone and the High Zone. There are other small localized pressure zones that serve small areas of development from the High Zone, which are described further in Section 1.3.6. See Figure 1-6 for a pressure zone schematic.

The Low Zone has a hydraulic grade of approximately 262 feet, which is set by the Cemetery Reservoir. The Low Zone comprises around 35 percent of the City's connections. It includes the wellfield located in Abrams Park, the 400,000-gallon Cemetery Reservoir and a network of distribution main that was mostly constructed in 1935. The Low Zone is served by Well 7 but was historically served by several older wells no longer in active use.

The High Zone is located within the southeast portion of the service area and has a hydraulic grade of approximately 407.75 feet, which is set by the High School Reservoir.. Most of the High Zone has been constructed since 1986. It includes approximately 8,500 linear feet of water main along Hillhurst Road, 10,500 linear feet of water transmission main on Pioneer Street and the majority of the City's water distribution mains. Abrams Park Wells 8, 9, 10, and 11 deliver water to the High Zone along with the booster station that delivers Junction Well water from the Junction Reservoir. In

emergencies, water may also be delivered to the High Zone from the Cemetery Reservoir by two 120-gpm booster pumps.

1.3.7 PRV STATIONS

The Ridgefield water system currently has twelve pressure reducing valve (PRV) stations. Data on these stations is shown in Table 1-6. Three of these PRV stations allow water to pass from the High Zone to the Low Zone. The remaining PRV stations feed localized areas from the High Zone as described in Table 1-6 and shown on Figure 1-6.

TABLE 1-6

PRV Stations

PRV Station Location	PRV Size	Outlet Setting	Description
Abrams Park Well 7	3"	0	Closed
South of Gee Creek from Wells 7,8,9	4"	95	Feeds from the High Zone to the Low Zone along Pioneer Street
	2"	95	
Gee Creek 1651 Pioneer	4"	60	Feeds from the High Zone to Gee Creek Meadows mobile home park. Serves 32 lots
	1.5"	60	
Gee Creek Bridge under SE corner	2"	75	Provides water service to Abrams Park
South 56 th Reservoir control valve Low Reservoir Riverview Drive	8"	10	Feeds into the Cemetery Reservoir from the High Zone
	4"	9	
Hillhurst South 8 th Way intersection	1.5"	55	Serves 16 lots in the Hillhurst development
	6"	50	
Osprey 1507 South 21 st Place	2"	50	Serves seven lots in the Osprey Point development
	6"	50	
Cassini 1520 South 24 th Place	2"	50	Serves seven lots in the Cassini View development
	2"	65	
1009 North Heron Drive	6"	44	Feeds from the High Zone into the north end of the Low Zone
	2"	45	
Off Oak Street North of 1029	2"	60	Serves a few lots between Hillhurst Drive and Lake River from the High Zone
1710 Pioneer Street	2"	65	Serves a few homes near Abrams Park
End of Northridge Drive	4"	50	Serves a few homes along Northridge Drive

1.3.8 TRANSMISSION AND DISTRIBUTION SYSTEM

The City's water transmission system consists of 8-inch, 10-inch, and 12-inch ductile iron and PVC water mains that connect the Abrams Park Wells 7, 8, 9, 10, and 11 to the Cemetery and High School Reservoirs. The City's distribution mains consist of approximately 318,360 linear feet (LF) (over 60 miles) of water main ranging in size from 4 inch to 16 inch. The distribution system also includes approximately 6,700 LF of pipe of less than 4 inches in diameter, including some small-diameter steel pipe.

Table 1-7 summarizes the length of 4-inch and larger water main in the City's water system. Figure 1-7 shows the City's existing water distribution system.

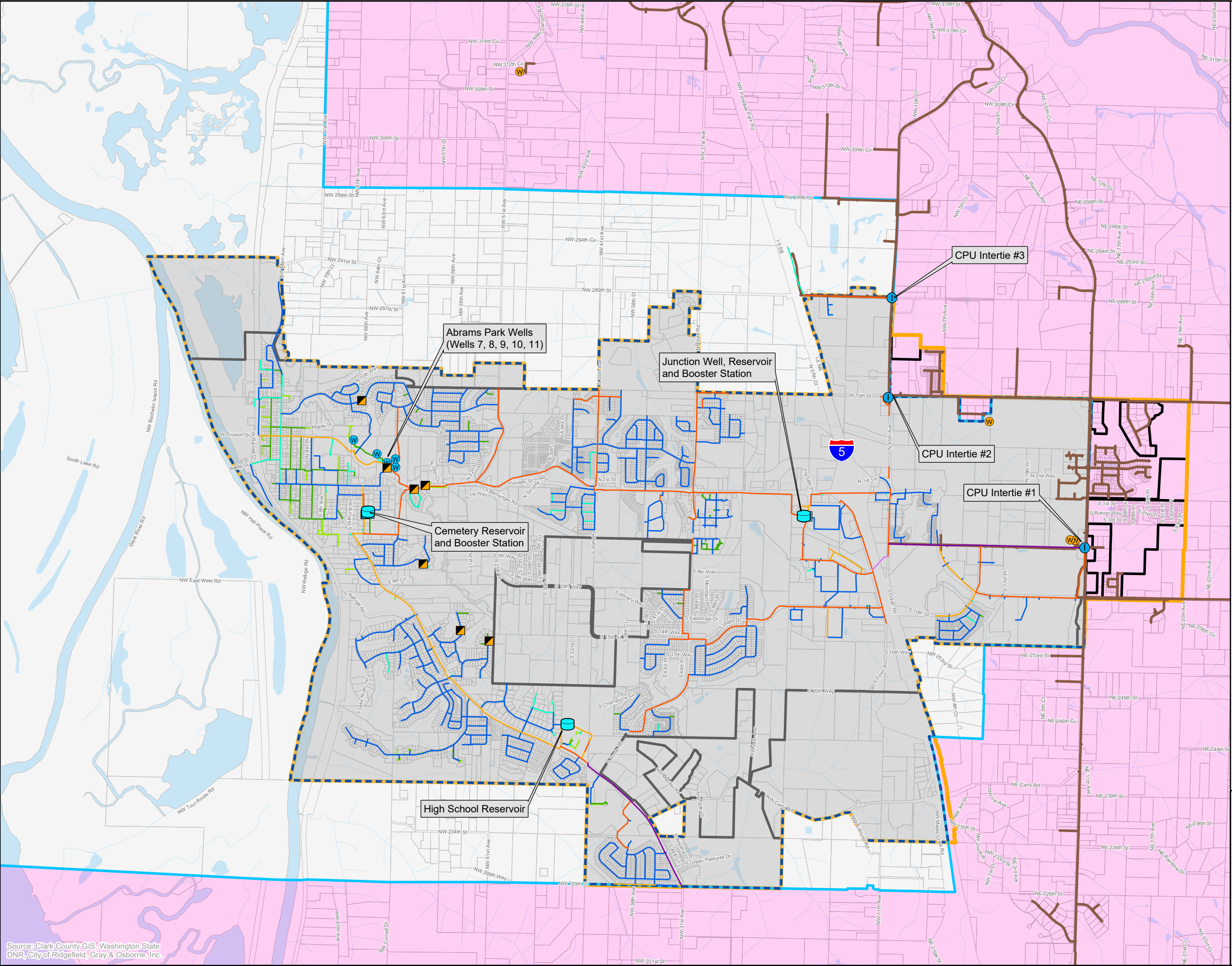
TABLE 1-7

**City of Ridgefield Distribution System Pipe Inventory
(4 Inch and Larger)**

Pipe Size (inches)	Pipe Material and Length (Linear Feet)		Total (Linear Feet)
	DI	PVC	
4	20,870		20,870
6	16,190	900	17,090
8	187,070		187,070
10	8,590	14,300	22,890
12	60,370		60,370
14	570		570
16	9,500		9,500
Total	303,160	15,200	318,360

1.3.9 TELEMETRY AND CONTROLS

The City has a Supervisory Control and Data Acquisition (SCADA) system that controls operation of the water system components and provides monitoring capabilities. The SCADA operating system is housed at the Public Works Building located at 487 South 56th Place. The SCADA system displays the levels of the High School Reservoir, the Cemetery Reservoir, and the Junction Reservoir, as well as the status of the well pumps in Abrams Park, the well pump for the Junction Well, the booster pumps at the Cemetery Booster Station, and the booster pumps at the Junction Booster Station. The system sends alarms when low or high levels occur in any of the City's reservoirs. The operator can remotely change the on/off settings for all well and booster pumps. The controls presently regulate well production based on storage levels in the Cemetery Reservoir and the High School Reservoir (but not the Junction Reservoir). Since the last water plan,



Water Lines 2024 (Diameter)

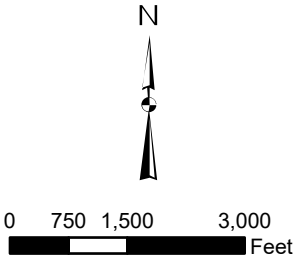
- ≤ 3"
- 4"
- 6"
- 8"
- 10"
- 12"
- 14"
- 16"
- CPU Water Lines

Facilities

- Existing Well
- CPU Well
- CPU Intertie
- Existing PRV
- Booster Pump Station
- Existing Reservoir

Reference

- Retail Service Area
- Future Ridgefield Retail Service Area
- Clark Public Utilities Retail Service Area
- City Limits
- Urban Growth Area
- Parcels
- Surface Water



CITY OF RIDGEFIELD
WATER SYSTEM PLAN
FIGURE 1-7
WATER SYSTEM FACILITIES 2024



additional telemetry has been installed at the site of the Junction Well and Reservoir. The City currently uses a licensed band VHF radio telemetry system.

The City's water system is currently controlled by the water level in the Cemetery and High School Reservoirs. The water level inside the Cemetery Reservoir controls the well pump for Well 7. The water level inside the High School Reservoir controls the well pump for Well 8, Well 9 Well 10, Well 11, the Junction Well, and the Cemetery booster pumps. The set points for all wells and booster pumps are seasonally changed to encourage turnover during the low use months. The Junction Booster Station has two on/off setpoints based on the pressure in the High Zone.

1.3.10 EXISTING INTERTIES

The City's water system is intertied with Clark Public Utilities in three locations. The 8-inch intertie east of I-5 near the intersection of Northeast 10th Avenue and Northeast 264th Street is connected to the City's High Zone and can provide an alternative source of supply during an emergency within Ridgefield's water system. The nominal capacity of this intertie is 1,000 gpm. This intertie is pressure controlled to allow flow into the City water system in the event of low pressure conditions in the City's High Zone.

The other two interties near the intersection of North 65th Avenue and 279th Street, and the intersection of North 65th Avenue and 289th Street currently supply water to isolated areas of the City's water system.

The hydraulic grade of CPU's system is 450 feet, which is higher than the hydraulic grade of the City's High Zone. All interties are metered.

The City has an intertie agreement with CPU regarding usage of the interties. A copy of this agreement is included in Appendix B.

1.4 RELATED PLANNING DOCUMENTS

The following plans and reports were used in the preparation of this document.

- *Clark County Coordinated Water System Plan, 2011*
- *Clark Public Utilities Water System Plan, 2013*
- *City of Ridgefield Comprehensive Plan, 2016*
- *City of Ridgefield Capital Facilities Plan, 2016*
- *City of Ridgefield General Sewer Plan, 2013*

1.5 EXISTING WATER SERVICE AREA CHARACTERISTICS

1.5.1 SERVICE AREA BOUNDARY

DOH Publication 331-432, *Service Areas in Planning Documents* (Revised January 2017) defines three types of Service Area for a water system: Future Service Area, Service Area, and Retail Service Area. The Future Service Area is the specific area to which a water system in a Critical Water Supply Service Area is to provide water service as provided in a written agreement between purveyors under Chapter 70.116 RCW and Chapter 246-293 WAC. It is defined in the applicable Coordinated Water System Plan. The Service Area is the specific area a water system currently serves and areas where future water service is planned. It is defined by the municipal water supplier (in this case, the City of Ridgefield). The Retail Service Area is the specific area where the municipal water supplier has a duty to provide service to new service connections as set forth in RCW 43.20.260. It is also defined by the municipal water supplier (i.e., the City of Ridgefield).

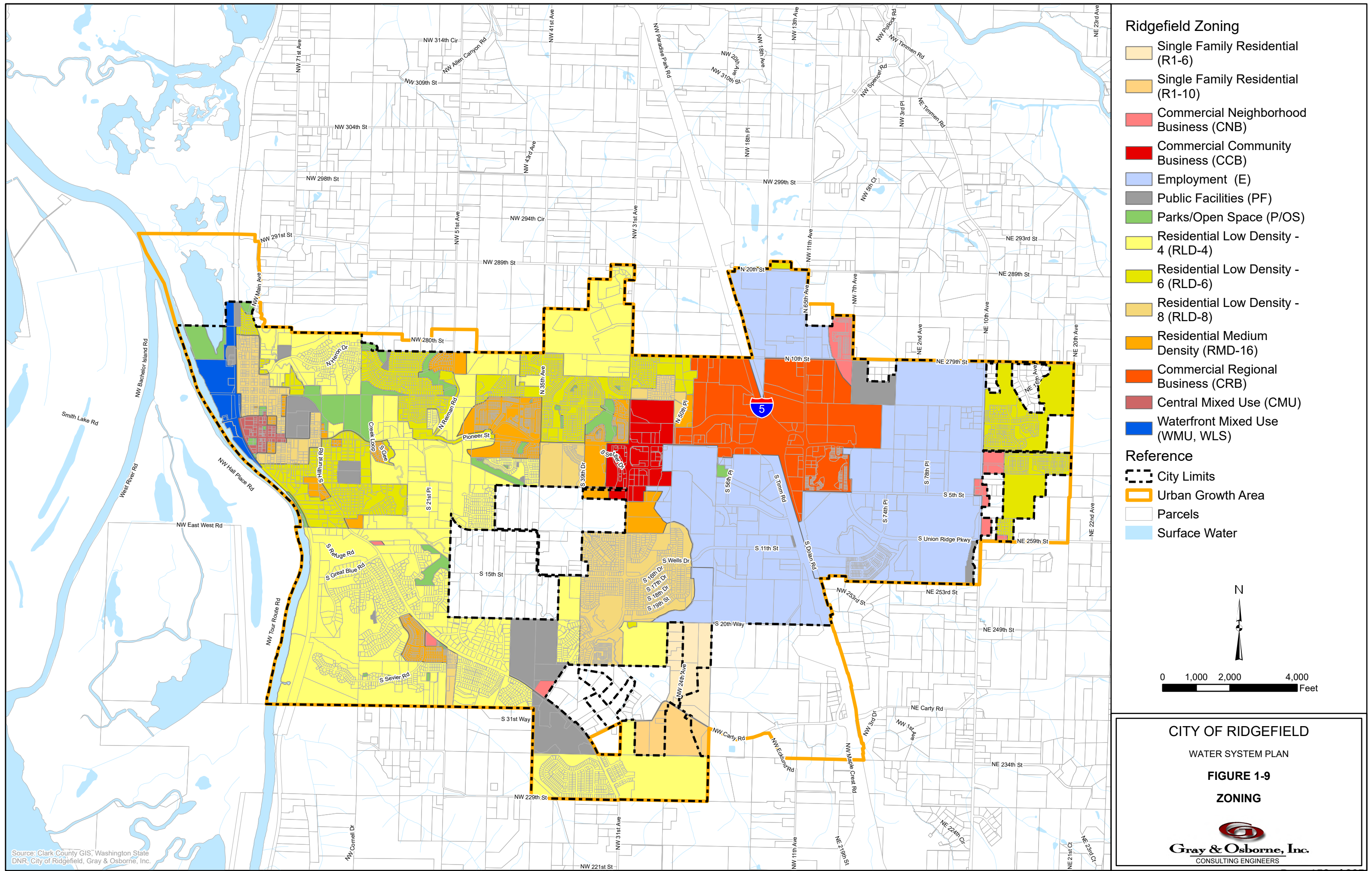
Figure 1-4 shows the three types of service area for the City of Ridgefield, as well as the Future Service Area for the adjacent provider, Clark Public Utilities. The Future Service Area boundary for both Ridgefield and Clark Public Utilities was previously established in the 2011 Clark County Coordinated Water System Plan (CWSP). Ridgefield's Retail Service Area is the same as its Service Area since Ridgefield does not currently supply wholesale water to any customers.

It should be noted that Ridgefield's UGA has expanded to the east beyond the boundaries of its Future Service Area as established in the CWSP. The City may want to work with CPU to review and adjust future service area boundaries as part of the next CWSP update.

1.5.2 LAND USE

The City of Ridgefield's city limits and Urban Growth Area (UGA) currently comprise a total of approximately 6,010 acres of land. Land uses within the city limits and UGA are varied and include a mix of residential, commercial, industrial, parks/open space, and other uses.

The City of Ridgefield or Clark County zoning designations, along with the governing Municipal Code Chapter or County Code Chapter (as applicable), total acreage for each zoning designation, and percentage of the total city limits plus UGA acreage is listed in Table 1-8. Figure 1-8 shows the land use designations within the city limits and the UGA, while Figure 1-9 shows the zoning designations within the city limits and the UGA.



For additional detail on the zoning designations listed in Table 1-8, please refer to the sections of Title 18 of the Ridgefield City Code or Title 40 of the Clark County Code as indicated in Table 1-8.

TABLE 1-8
Existing Land Use

Zoning Designation	Jurisdiction	Jurisdiction Code Section	Area Within City Limits plus UGA (Acres)⁽¹⁾	Percentage of Total Area
Business Park (BP)	Clark County	40.230.085	155.6	2.6%
Central Mixed Use (CMU)	City of Ridgefield	18.235	21.5	0.4%
Commercial Community Business (CCB)	City of Ridgefield	18.230	97.0	1.6%
Commercial Neighborhood Business (CNB)	City of Ridgefield	18.230	50.8	0.8%
Commercial Regional Business (CRB)	City of Ridgefield	18.230	381.4	6.3%
Employment (E)	City of Ridgefield	18.240	1184.8	19.7%
Light Industrial (IL)	Clark County	40.230.085	17.1	0.3%

TABLE 1-8 – (continued)

Existing Land Use

Zoning Designation	Jurisdiction	Jurisdiction Code Section	Area Within City Limits plus UGA (Acres)⁽¹⁾	Percentage of Total Area
Neighborhood Commercial (NC)	Clark County	40.230.010	16.7	0.3%
Parks/Open Space (P/OS)	City of Ridgefield	18.265	241.8	4.0%
Public Facilities (PF)	City of Ridgefield	18.260	190.8	3.2%
Residential (R-12)	Clark County	40.220.020	39.3	0.7%
Residential (R-22)	Clark County	40.220.020	207.7	3.5%
Residential Low Density - 4 (RLD-4)	City of Ridgefield	18.210	1400.1	23.3%
Residential Low Density - 6 (RLD-6)	City of Ridgefield	18.210	612.2	10.2%
Residential Low Density - 8 (RLD-8)	City of Ridgefield	18.210	372.8	6.2%
Residential Medium Density (RMD-16)	City of Ridgefield	18.220	219.8	3.7%
Single-Family Residential (R1-10)	Clark County	40.220.010	154.1	2.6%
Single-Family Residential (R1-6)	Clark County	40.220.010	302.2	5.0%
Single-Family Residential (R1-7.5)	Clark County	40.220.010	290.8	4.8%
Waterfront Low Scale (WLS)	City of Ridgefield	18.235	6.3	0.1%
Waterfront Mixed Use (WMU)	City of Ridgefield	18.235	47.4	0.8%
Total			6010.2	100.0%

(1) Acreages calculated based on Clark County GIS mapping.

1.6 FUTURE RETAIL SERVICE AREA CHARACTERISTICS

The City of Ridgefield's future retail service area is shown in Figure 1-4 and includes areas largely north and west of the existing city limits and UGA. As of early 2024, the City is in the early stages of updating its Comprehensive Plan. As part of this process the UGA may expand to include the urban reserve area north of city limits and west of Interstate 5. This area falls within the future retail service area.

1.7 SERVICE AREA POLICIES AND CONDITIONS OF SERVICE

1.7.1 2016 COMPREHENSIVE PLAN POLICIES

The City completed an update to its comprehensive land use plan per the requirements of the Growth Management Act in 2016. The comprehensive plan addressed a number of general water system policy issues. The City has reviewed these policies as part of its capital facilities planning and during the preparation of this water system plan. Current policies are summarized as follows.

1.7.1.1 PF-W-1 Provide Water

Provide safe, clean, quality drinking water to every Ridgefield home, business, public facility and industry. Provide water pressures and volumes necessary to support fire suppression hydrants and sprinkler systems. Ensure that the infrastructure to support water service is in place prior to new development. Encourage existing development using private wells to connect to public water as soon as available.

1.7.1.2 PF-W-2 Water Service Area

Provide water service within the RUGA [Ridgefield Urban Growth Area] and restrict provision of urban services outside the RUGA.

1.7.1.3 PF-W-3 Responsibility for System

Maintain sole responsibility for provision of water within the RUGA.

1.7.1.4 PF-W-4 Private Systems

Work with Clark County to eliminate private water systems within the RUGA over time. The city will additionally coordinate with Clark County and the Washington State Department of Health to ensure that existing wells are properly decommissioned when they are taken out of service.

1.7.1.5 PF-W-5 Integrate Systems

Design all water facilities within the RUGA to City standards, and make provisions for the eventual integration of facilities into City systems. The City will work with property owners to annex properties requiring City services in the near term (i.e., within 6 years), in accordance with the City’s Capital Facilities Plan.

1.7.1.6 PF-W-6 Water Connection Required

Connect all new construction within the RUGA to the City’s water system concurrent or subsequent to annexation, except for single-family residences on lots existing at the time of adoption of the Ridgefield Urban Area Comprehensive Plan that cannot reasonably hook up to the City water system.

1.7.1.7 PF-W-7 Protect Groundwater

Coordinate with Clark County to develop groundwater protection mechanisms which protect well heads, reduce the risk of accidental groundwater contamination, and encourage the conservation of groundwater.

1.7.2 CLARK COUNTY COORDINATED WATER SYSTEM PLAN POLICIES

The City of Ridgefield has been a member of the Clark County Water Utility Coordinating Committee (CCWUCC). The City was involved in the development of the original Coordinated Water System Plan (CWSP) and entered into the resulting Interlocal Agreement in 1982. The City has also adopted the 1991 CWSP update and 2011 CWSP update which included substantial revisions to the construction standards. The City is currently involved with other members of the CCWUCC to address a wide variety of water system policies. The following specific details of the City’s policies provide details for service area policies:

<i>Wholesale Water</i>	The City would consider a request for wholesale water sales but at present there are no connections to other systems that require it.
<i>Wheeling of Water</i>	The City would consider a request for wheeling of water through their distribution system but at present there are no connections to other systems besides CPU. Important considerations include monitoring and control, water quality, and water rights.
<i>Annexation</i>	The City presently requires either annexation or a “no contest” agreement as a condition of service.

<i>Direct Connection or Remote System</i>	The City requires direct service from its water system, use of private wells, or service from CPU. New private wells within the city limits will only be allowed if the residence is further than 500 feet from the closest service line. Remote systems will only be considered under extreme conditions and remote systems must meet the City's engineering and construction standards.
<i>Design and Performance Standards</i>	The City has prepared a comprehensive set of engineering and construction standards for public works construction. All new water system improvements must meet these criteria. (Copy of water standards included in Appendix G – Engineering Standards.)
<i>Surcharge for Outside Customers</i>	Connections outside the city limits pay a 50 percent surcharge on monthly rates.
<i>LID Formation outside City</i>	The City would assist with formation of an LID outside the city limits but within its water service area.
<i>UGA Responsibilities</i>	The City has a strong policy of concentric growth based on its UGA planning. New developments are expected to pay for distribution extensions and pay system development charges to enable the City to construct additional source, storage, and transmission facilities.
<i>Late-Comer Agreements</i>	The City would allow the creation of late-comer agreements to facilitate efficient construction of water system facilities.
<i>Oversizing Policy</i>	The City will provide financial assistance for over-sizing of water facilities when the needs of the system exceed the development's requirements.
<i>Cross-Connection Control Policy</i>	The City strictly regulates potential cross-connections and requires customers to implement appropriate prevention measures. When cross-connections are identified the City will provide limited assistance to correct the problem but will ultimately terminate service if uncorrected. (See Cross-Connection Control Program in Chapter 8 for additional information.)

System Extension All extension to the City’s water systems must meet City engineering standards. Where necessary to meet long-term system needs, the City will pay for over-sizing as appropriate.

Duty to Serve As described in Section 13.20.040 of the Ridgefield Municipal Code, the City has a duty to provide “timely” water service to all customers within the City’s Retail Service Area subject to the requirements of the Ridgefield Public Utilities Code, other provisions of the Ridgefield Municipal Code and applicable state law. As described previously, the Retail Service Area for the City of Ridgefield is the same as the Urban Growth Area (UGA).

Timeliness The City defines 240 days as a timely response to a request for water service. This time frame begins with the receipt of a written request for water service and ends with the approval of plans for the service. The City has a policy of responding to plan submittals within 30 days. Since construction of system extensions is the responsibility of the developer, the City cannot guarantee when actual service can be provided.

The following conditions of service cover the responsibilities of the City and the prospective customer:

Purveyor Responsibilities The City is responsible for providing water that meets quality and quantity standards of the state of Washington and the City’s design standards. The City will attempt to minimize service interruptions during maintenance, repair, and construction activities.

Customer Responsibilities The customer is responsible for payment of all charges incurred from their water service and to respond to the City’s requests for water conservation during emergencies.

Connection Fees The current system development charge is based on meter size with a 50 percent surcharge on connections outside the city limits. The current schedule of Water System Development Charges is shown in Table 9-3 in Chapter 9 of this Plan.

<i>Meter and Materials Requirements</i>	The City will provide and install all residential meters. Larger meters must be installed by a contractor. Water system materials must meet the engineering and construction standards.
<i>Consent</i>	The customer must consent to access by the City for inspection, maintenance, and repair of water facilities. All new facilities must be located within either the public right-of-way or within a utility easement.
<i>Cross-Connection</i>	The customer is responsible for selection and installation of cross-connection control devices that meet the city's standards. The customer is also responsible for annual testing where appropriate.
<i>Late-Comers</i>	Where a new connection will be served by connection to facilities covered by a late-comer agreement, the City will not permit service until the appropriate fee has been paid and clearly documented.
<i>Service Connection Responsibility</i>	Service taps on new mains will be completed by the developer following notification of the City. All service taps on existing mains will be made by the City. All connections to existing facilities require 48-hour notification.
<i>Developer Extension Requirements</i>	All developer extensions must meet the City's engineering and construction standards including design by a professional engineer. Financing of extensions is the developer's responsibility with the possible addition of utility oversizing by the City.
<i>Design Standards Compliance</i>	Exceptions to the design standards will be considered by the City in extreme situations and when a reasonable alternative is suggested.

1.8 SATELLITE SYSTEM MANAGEMENT

In special cases the City may consider becoming a satellite system manager but only within its designated water service area for Group A or B water systems. The City would not own these systems but would be willing to operate and maintain. Given the City's strong policy against remote systems, desire to promote concentric growth and an efficient water utility, and the large minimum lot size for rural areas it is not anticipated

that a significant demand will exist for satellite system management within the water service area.

1.9 CUSTOMER COMPLAINTS

Customer complaints are directed to the City Hall at (360) 887-3557. The customer is asked to complete a complaint form, which is submitted to the City Clerk. The Clerk then fills out a complaint log and notifies public works personnel to resolve the issue. After the issue is resolved, the complaint log is completed and filed and the customer is notified.

CHAPTER 2

BASIC PLANNING DATA

2.1 INTRODUCTION

The objective of this chapter is to present basic planning data and derive characteristic water parameters for the City of Ridgefield's (City) water system. These characteristic parameters will then be used for forecasting the City's future water demand. This chapter provides existing and projected future water demand, population, service connections, and Equivalent Residential Units (ERU). The chapter also includes projected land use and water demands for the 10- and 20-year planning periods. These forecasted demands will later inform the system capacity analysis in Chapter 3.

2.2 EXISTING POPULATION, SERVICES, AND WATER PRODUCTION

2.2.1 POPULATION HISTORY

2.2.1.1 Population Estimates

Population history for the City of Ridgefield was obtained from the Washington State Office of Financial Management (OFM). The historical population data is summarized in Table 2-1.

TABLE 2-1

City of Ridgefield Population History

Year	April 1 OFM Estimated Population ⁽¹⁾	Estimated Year-End Population ⁽²⁾	Annual Growth Rate ⁽³⁾
2010	4,763	4,922	N/A
2011	4,975	5,151	4.5%
2012	5,210	5,461	4.7%
2013	5,545	5,913	6.4%
2014	6,035	6,309	8.8%
2015	6,400	6,753	6.0%
2016	6,870	7,144	7.3%
2017	7,235	7,588	5.3%
2018	7,705	8,598	6.5%
2019	8,895	9,925	15.4%
2020	10,325	11,570	16.1%

TABLE 2-1 – (continued)**City of Ridgefield Population History**

Year	April 1 OFM Estimated Population⁽¹⁾	Estimated Year-End Population⁽²⁾	Annual Growth Rate⁽³⁾
2021	11,910	13,281	15.4%
2022	13,640	15,126	14.5%
2023	15,180	16,465	11.3%
Average			9.4%

- (1) April 1 official OFM population estimates for the City of Ridgefield.
- (2) Estimated Year-End Population is linearly interpolated using April 1 OFM Estimated Population for the year in question and the following year, except for 2019, where the 2018-2019 Annual Growth Rate is assumed to continue through the end of 2019. It is necessary to calculate year-end population because data for service connections presented herein is year-end.
- (3) Annual Growth Rate is equal to the change in April 1 OFM Population from the previous year divided by the previous year's April 1 OFM Population, expressed as a percentage.

Table 2-1 highlights the rapid growth the City has experienced over the last 13 years. The growth appears to have peaked at 16.1 percent in 2020 and has lowered to 11.3 percent by 2023. The average annual growth rate between 2011 and 2023 was 9.4 percent.

2.2.1.2 Service Connections

As shown in Table 2-3, service connection in the City have steadily increased between 2018 and 2022 with the bulk of the growth occurring in residential service. At the end of 2022 the City of Ridgefield served a total of 5,013 service connections.

TABLE 2-2

City of Ridgefield Year-End Service Connections for the Year 2022

Customer Description	2018	2019	2020	2021	2022
Residential, Inside City Limits	2,955	3,192	3,901	4,532	4,753
Residential, Outside City Limits	3	3	7	7	9
Multi-Family	23	21	20	20	24
Subtotal, Residential	2,981	3,216	3,928	4,559	4,786
Commercial, Inside City Limits	112	124	106	115	118
Commercial, Outside City Limits	1	1	0	1	1
Irrigation	62	67	84	93	108
Subtotal, Non-Residential	175	192	190	209	227
Total Service Connections	3,156	3,408	4,118	4,768	5,013

2.2.2 WATER PRODUCTION HISTORY

The City of Ridgefield tabulates monthly water production records. Water production records for 2014 through 2022 are summarized in Table 2-3.

TABLE 2-3**Metered Water Production**

Year	Wells (MG)							Interties (MG)				Total Production (MG)	Average Day Production (gpd)
	Well 7	Well 8	Well 9	Well 10	Well 11	Junction Well ⁽¹⁾	Total Well Production	CPU Intertie No 1	CPU Intertie No 2	CPU Intertie No 3	Total Intertie Production		
2014	53.5	74.2	35.2	47.7	0.0	0.0	210.6	0.0	0.2	2.1	2.3	212.9	583,258
2015	56.2	90.0	48.1	50.3	0.0	0.0	244.6	0.7	0.2	2.6	3.5	248.0	679,558
2016	56.6	94.9	45.4	52.2	0.0	0.0	249.1	2.4	0.2	0.6	3.3	252.4	689,515
2017	53.6	81.7	35.9	40.0	0.0	75.3	286.4	4.7	0.2	1.2	6.0	292.4	801,208
2018	52.5	42.5	77.4	49.6	0.0	110.6	332.5	0.0	0.5	2.1	2.6	335.1	918,117
2019	63.4	49.0	59.1	66.9	0.0	98.6	336.9	0.4	0.3	1.9	2.6	339.6	930,307
2020	56.2	59.5	75.6	66.5	4.2	121.0	383.1	12.0	0.3	2.1	14.4	397.5	1,085,965
2021	62.4	68.6	65.3	47.9	65.9	138.2	448.4	41.7	0.2	1.7	43.5	491.9	1,347,610
2022	77.7	72.0	55.8	43.3	56.1	126.4	431.2	55.8	0.1	2.2	58.1	489.3	1,340,516

(1) As described in Chapter 1, the Junction Well was not utilized between 1999 and 2016. In 2017 it was equipped with a new well pump and returned to service.

(2) Annual growth rate is equal to the change in production from the previous year divided by the previous year's production, expressed as a percentage.

As can be seen from Table 2-3, the total water production, including water from the three Clark Public Utility (CPU) Interties, grew steadily between 2014 and 2022. Annual production growth averaged 11 percent between 2015 and 2022. This corresponds exactly to the population growth rate for the same period (2015 through 2022). There has been an increased reliance on the CPU intertie after an updated agreement was signed in 2021, with CPU water accounting for approximately 12 percent of all production in 2021 and 2022. Monthly water production history is shown graphically in Figure 2-1.

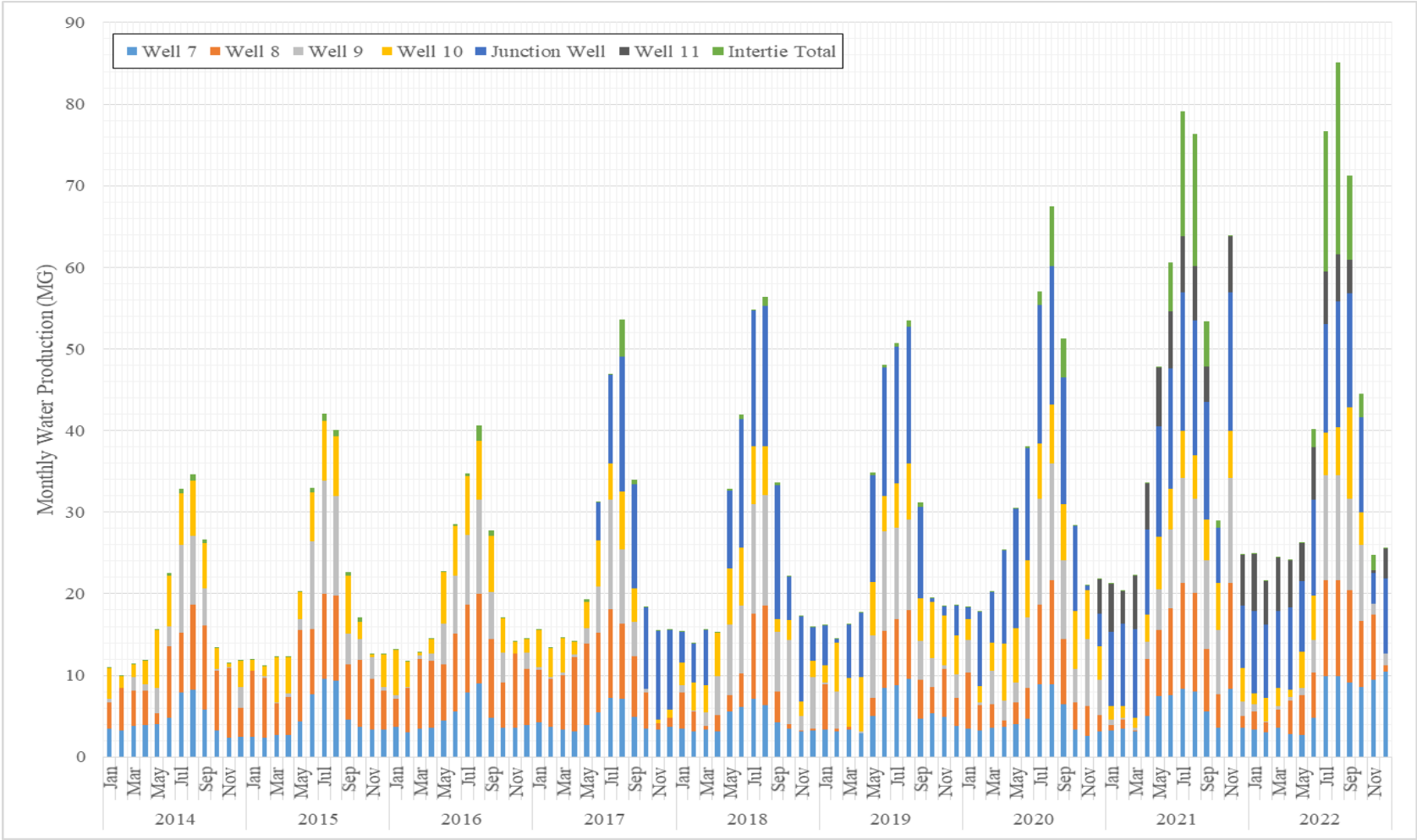


FIGURE 2-1

Monthly Production by Source

2.2.2.1 Maximum Day Production

The maximum day production records for 2018 through 2022 are summarized in Table 2-4. It is worth noting that maximum day production day takes into account both the daily production data for all wells, plus a daily average production of the total water purchased from CPU Interties for the month in which the maximum day date occurred.

TABLE 2-4

Maximum Day to Average Day Ratio Average

Year	Maximum Day Date	Maximum Day Production (mgd)⁽¹⁾	Average Daily Production (mgd)⁽²⁾	Maximum Day Peaking Factor⁽³⁾
2018	August 15	2.179	0.918	2.37
2019	June 18	2.334	0.930	2.51
2020	September 4	2.462	1.086	2.27
2021	July 20	2.934	1.348	2.18
2022	August 6	3.126	1.341	2.33
Average				2.33

- (1) Maximum Day Production is from City daily production data for all wells, plus a daily average for the total water from CPU Interties for the month in which the maximum day date occurred (this is necessary because CPU Interties are metered monthly rather than daily).
- (2) Average Daily Production is the total value from Table 2-3 divided by the number of days in a given year.
- (3) Maximum Day Peaking Factor = Maximum Day Production / Average Day Production.

The average maximum day peaking factor, which is the ratio of the maximum day production to average day production, was 2.33 between 2018 and 2022. This peaking factor will be used for the purposes of projecting future maximum system demands in the forecasting section at the conclusion of this chapter.

2.2.3 WATER CONSUMPTION

Water consumption history has been tabulated by customer class using the City's billing records for 2014 through 2022. Consumption data is summarized in Table 2-5.

TABLE 2-5**Annual Consumption by Customer Class**

Customer Class	2014	2015	2016	2017	2018	2019	2020	2021	2022
Residential (gal)	141,847,049	164,935,465	171,663,781	202,907,489	222,140,825	230,079,782	277,176,508	342,546,969	338,052,000
Multi-family (gal)	1,308,216	1,544,002	1,367,043	1,924,768	1,974,177	3,446,627	12,725,038	16,555,281	15,541,745
Commercial/Institutional (gal)	29,805,765	35,041,598	34,081,040	34,908,236	42,615,468	47,153,099	36,849,924	46,441,604	46,386,757
Irrigation (gal)	24,549,024	34,506,472	30,814,603	26,670,694	44,294,454	29,737,446	38,449,783	49,261,326	42,788,036
Total Consumption (gal)	172,961,030	201,521,065	207,111,863	239,740,492	266,730,469	280,679,508	326,751,470	405,543,854	399,980,502
Average Day Consumption (gpd)	473,866	552,113	565,879	656,823	730,768	768,985	892,764	1,111,079	1,095,837

As shown in Table 2-5, consumption steadily increased between 2014 and 2021, following the City's population trends. Consumption decreased slightly between 2021 and 2022. Residential consumption consistently accounted for 70 to 79 percent of overall consumption while commercial and irrigation each accounted for 10 to 15 percent of total consumption on any given year.

2.2.4 DISTRIBUTION SYSTEM LEAKAGE

Distribution System Leakage (DSL) is defined as the difference between metered source production and the sum of metered consumption and credibly estimated consumption. The calculated value for DSL represents the sum of leakage and measurement error (typically positive source meter error).

The Water Use Efficiency (WUE) Rule requires municipal water systems to meet a 10 percent or less water loss standard based on a 3-year rolling average. The City's historical DSL is presented in Table 2-6.

TABLE 2-6

Estimated Distribution System Leakage

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
Well Production, MG	210.6	244.6	249.1	286.4	332.5	336.9	383.1	448.4	431.2
Intertie Water, MG	2.3	3.5	3.3	6.0	2.6	2.6	14.4	43.5	58.1
Total Water Produced and Purchased, MG	212.9	248.0	252.4	292.4	335.1	339.6	397.5	491.9	489.3
Consumption due to Sales, MG ⁽¹⁾	197.5	236.0	237.9	266.4	311.0	310.4	372.3	459.5	449.7
Other Authorized Use, MG	0.6	1.6	1.3	0.4	1.7	1.5	1.7	6.4	6.0
Total Authorized Consumption, MG	198.1	237.6	239.2	266.8	312.7	311.9	374.0	465.9	455.7
Distribution System Leakage, MG	14.7	10.4	13.2	25.7	22.4	27.7	23.4	26.0	33.6
Distribution System Leakage, %	6.9%	4.2%	5.2%	8.8%	6.7%	8.2%	5.9%	5.3%	6.9%
3-Year Rolling Average DSL	-	-	5.4%	6.1%	6.9%	7.9%	6.9%	6.4%	6.0%

- (1) The consumption due to sales is the amount reported from customer billing records. Other Authorized Use includes metered and credibly estimated non-revenue water. Some hydrant usage is estimated.

Table 2-6 shows no clear trend in DSL over the historical period analyzed, but DSL has been consistently below 10 percent. This is not surprising since most of the City's distribution system was installed in recent years to accommodate growth. Therefore, the City's relatively low levels of DSL are in compliance with DOH requirements. To maintain compliance, the City continues to prioritize identifying and repairing water main

leaks as they appear and upgrades water mains in problem areas. The Water Use Efficiency Program will be discussed further in Chapter 4.

2.2.5 EQUIVALENT RESIDENTIAL UNITS

The concept of Equivalent Residential Units (ERUs) is to express water use by non-residential customers as an equivalent number of residential customers. Typical ERU consumption is calculated by dividing the total volume of water utilized in the single family residential (SFR) customer class by the total number of active SFR connections. This number defines the average consumption per ERU, which can be referred to as ERU_{ADD} . The volume of water used by any other customer class can then be divided by ERU_{ADD} in order to determine the number of ERUs for a given customer class. The maximum day consumption per ERU (ERU_{MDD}) can also be determined by multiplying a given year's computed ERU_{ADD} by the corresponding maximum day peaking factor found in Table 2-4. The equivalent residential unit calculations for both ERU_{ADD} and ERU_{MDD} for years 2018 through 2022 are summarized in Table 2-7 below.

TABLE 2-7

Annual Consumption by Customer Class

Year	Single-Family Residential Consumption (gpd)	Number of Single-Family Residential Connection	$ERU_{ADD}^{(1)}$	$ERU_{MDD}^{(2)}$
2018	608,605	2,958	206	488
2019	630,356	3,195	197	495
2020	759,388	3,908	194	441
2021	938,485	4,539	207	450
2022	926,170	4,762	194	453
Average			200	466

(1) $ERU_{ADD} = (\text{Single-Family Residential Consumption in GPD}) / (\text{Number of Single-Family Residential Connections})$.

(2) $ERU_{MDD} = ERU_{ADD} * \text{Maximum Day Peaking Factor for given year (from Table 2-4)}$.

As shown in Table 2-6, the City's ERU_{ADD} has been fairly steady between 2018 and 2022. In comparison, ERU_{MDD} has seen more fluctuation due to changes in the max day peaking factor, but remained steady for 2020 and 2021.

The average ERU_{ADD} and ERU_{MDD} values between 2018 and 2022 are 200 gpd/ERU and 466 gpd/ERU, respectively. These characteristic water parameters will be used to forecast water use projections later in this Chapter and to determine system capacity in Chapter 3.

2.2.5.1 2022 Consumption as Equivalent Residential Units

Table 2-8 presents consumption in the form of ERUs for all customer classes in 2022, based on the ERU_{ADD} for 2022. Values for 2022 DSL and other authorized uses are included in order to determine the systems total water use breakdown in terms of ERUs.

TABLE 2-8

2022 Average Day Consumption by Customer Class

Customer Class	Annual Consumption, Gallons	Number of Connections	Average Day Consumption, gpd ⁽¹⁾	ERUs ⁽²⁾	Average ERUs Per Connection ⁽³⁾
Residential	338,052,000	4,762	926,170	4,762	1.0
Multi-Family	15,541,745	24	42,580	219	9.1
Commercial/Institutional	46,386,757	119	127,087	653	5.5
Irrigation	42,788,036	108	117,227	603	5.6
Other Authorized Uses	5,994,726	-	16,424	84	-
Distribution System Leakage	40,525,029	-	111,027	571	-
Total	489,288,293	5,013	1,340,516	6,892	-

(1) Average Day Consumption is Annual Consumption divided by 365 days.

(2) Assumes ERUs = Average Day Consumption / ERU_{ADD}.

2.2.6 PEAK HOUR PEAKING FACTOR

To estimate peak hour demands for the City, a peak hour peaking factor must be calculated from the ratio of peak day demand to peak hour demand. Peak hour demand is determined by using the DOH 2020 Water System Design Manual guidelines. The equation used to estimate the peak hour demand is:

$$PHD = (ERU_{MDD}/1440)[(C)(N) + F] + 18$$

Where:

PHD = Peak Hourly Demand, (gallons per minute, gpm)

ERU_{MDD} = Maximum Day Demand per ERU (Table 2-7)

N = Number of ERUs

C = Coefficient Associated with Ranges of the number of ERUs (1.6)

F = Factor Associated with Ranges of the number of ERUs (225)

ERU_{MDD} for a given year can be found in Table 2-7 and the number of ERUs for a given year can be computed by dividing a year's average day consumption from Table 2-5 by the corresponding ERU_{ADD} in Table 2-7. The values for C and F of the peak hour demand formula are taken from the DOH Water System Design Manual, Table 3-1. Given the number of ERUs served by the City, the C value is equal to 1.6 and the F value

is equal to 225. Using the above equation, the peak hour demand for 2018 through 2022 is calculated and shown in Table 2-9. The peak hour factor is determined by dividing a given year's peak hour demand by the corresponding maximum day demand from Table 2-4. Peak hour peaking factor is reported in Table 2-9.

TABLE 2-9
Peak Hour Demand Peaking Factor

Year	Number of System ERUs⁽¹⁾	ERU_{MDD}⁽²⁾ (gpd/ERU)	Peak Hour Demand (gpm)	Maximum Day Production⁽³⁾ (gpm)	Peak Hour Peaking Factor⁽⁵⁾
2018	4,462	488	2,515	1,513	1.66
2019	4,715	495	2,612	1,621	1.61
2020	5,589	441	2,754	1,710	1.61
2021	6,518	450	3,278	2,037	1.61
2022	6,892	453	3,491	2,171	1.61
Average					1.62

(1) Number of System ERUs = Average Day Production (from Table 2-4) / ERU_{ADD}(from Table 2-7).

(2) From Table 2-7.

(3) From Table 2-5, converted from gpd to gpm.

(4) Peak Hour Peaking Factor = Peak Hour Demand/Maximum Day Production.

The City's peak hour demand has slightly decreased between 2018 and 2022. A peak hour peaking factor of 1.62 will be used for the water demand projections at the end of this chapter.

2.3 FORCASTED WATER DEMAND

The water demand projections through the 10- and 20-year planning horizons are presented in Table 2-13 and are based upon projected housing and employment growth in the City as well as the historical demand parameters established earlier in this chapter. Both are discussed and briefly summarized in their respective section ahead of the water demand projection.

2.3.1 PROJECTED HOUSING AND EMPLOYMENT GROWTH

As of early 2024 the City began updating its Comprehensive Plan Update and Clark County began providing preliminary allocations for anticipated employment and residential growth for the City of Ridgefield and surrounding municipalities. These preliminary allocations will be used to establish projected water demand for residential and commercial/industrial customers as well as demand for irrigation connections.

2.3.1.1 Housing Growth and Population

In its preliminary estimates, Clark County has allocated 8,175 new housing units to the City of Ridgefield between 2020 and 2045. For water system demand projections, it is assumed that each housing unit will correspond with one ERU. The City estimates that 2,065 housing units were added between 2020 and 2022. Assuming 2,065 of the allocated 7,887 new ERUs have already been built, 6,110 ERUs will be constructed between 2023 and 2045. If linear growth is assumed, this would equate to 265.7 ERUs added per year.

The City has also provided a projected 2045 population of 27,230. Using the same linear method of interpolation this would result approximately 489 new residents per year.

Table 2-10 summarizes the estimated increase in residential ERUs and resulting percentage growth rates year over year for 2022 through 2045. Population growth is summarized as well. It should be noted that the residential ERUs for 2022 is a historical value (From Table 2-8) as is the population for 2022 and 2023 (from Table 2-1).

TABLE 2-10

Projected Population Growth

Year	Residential ERUs	Growth Rate	Population
2022	4,850 ⁽¹⁾	13.9%	15,126 ⁽²⁾
2023	5,028	5.6%	16,465 ⁽²⁾
2024	5,293	5.3%	16,955
2025	5,559	5.0%	17,444
2026	5,825	4.8%	17,933
2027	6,090	4.6%	18,423
2028	6,356	4.4%	18,912
2029	6,622	4.2%	19,401
2030	6,887	4.0%	19,891
2031	7,153	3.9%	20,380
2032	7,419	3.7%	20,869
2033	7,684	3.6%	21,358
2034	7,950	3.5%	21,848
2035	8,215	3.3%	22,337
2036	8,481	3.2%	22,826
2037	8,747	3.1%	23,316
2038	9,012	3.0%	23,805
2039	9,278	2.9%	24,294
2040	9,544	2.9%	24,784
2041	9,809	2.8%	25,273

TABLE 2-10 – (continued)**Projected Population Growth**

Year	Residential ERUs	Growth Rate	Population
2042	10,075	2.7%	25,762
2043	10,341	2.6%	26,251
2044	10,606	2.6%	26,741
2045	10,872	2.5%	27,230

(1) Sum of single family and multi-family consumption in terms of ERUs from Table 2-8.

(2) Historical population numbers from Table 2-1.

In the upcoming water demand projections summarized in Table 2-13, residential consumption will increase reflecting the rise in ERUs presented in Table 2-10.

2.3.1.2 Employment Growth

Clark County has preliminarily allocated a total of 9,375 jobs to the City of Ridgefield for the 2045 planning horizon. However, the City's employment capacity based on current zoning only allows for an estimated 7,998 jobs. This presents an 1,337 job deficit. For the purposes of these projections, it is assumed that the City will take on all allocated jobs and increase employment capacity by a combination of rezoning and expanding the city limits and UGA into the North Ridgefield Urban Reserve Area.

For computing and forecasting the City's commercial/industrial water consumption, employment job numbers must be converted to ERUs. Employment projections from the City's 2016 Capital Facilities Plan equate one job to 0.25 ERUs of water demand. This value will be used for updated projections with the implicit assumption that the makeup of the City's future jobs will be similar to those in 2016. This means that by 2045 the 9,375 jobs will equate to 2,344 Commercial/Industrial ERUs. As shown in Table 2-8, commercial and industrial consumption in 2022 accounted for 752 ERUs of consumption. Assuming a linear increase in Commercial/Industrial ERUs between 2023 and 2045, this yields a 73.5 ERU increase per year, summarized in Table 2-11.

TABLE 2-11**Projected Employment Growth**

Year	Estimated Jobs	Growth Rate	Projected Commercial/ Industrial ERUs
2022	2,612	-	653 ⁽¹⁾
2023	2,906	10.1%	727
2024	3,200	9.2%	800
2025	3,494	8.4%	874
2026	3,788	7.8%	947
2027	4,082	7.2%	1,021
2028	4,376	6.7%	1,094
2029	4,670	6.3%	1,168
2030	4,964	5.9%	1,241
2031	5,258	5.6%	1,315
2032	5,552	5.3%	1,388
2033	5,846	5.0%	1,462
2034	6,141	4.8%	1,535
2035	6,435	4.6%	1,609
2036	6,729	4.4%	1,682
2037	7,023	4.2%	1,756
2038	7,317	4.0%	1,829
2039	7,611	3.9%	1,903
2040	7,905	3.7%	1,976
2041	8,199	3.6%	2,050
2042	8,493	3.5%	2,123
2043	8,787	3.3%	2,197
2044	9,081	3.2%	2,270
2045	9,375	3.1%	2,344

(1) Commercial/Industrial consumption in terms of ERUs from Table 2-8.

In the upcoming water demand projections summarized in Table 2-13, commercial/industrial consumption will increase reflecting the rise in ERUs presented in Table 2-11.

2.3.1.3 Irrigation

As shown in Table 2-2, the City uses a separate billing category for irrigation connections. As the City has grown, irrigation demand has increased, though the types of irrigated properties vary. Irrigation connections general fall into three categories: residential home owners associations (HOA) landscaping, commercial and industrial landscaping, and public and institutional landscaping. For the purposes of water demand forecasting, a weighed growth rate will be used. It is assumed that residential HOA

irrigation and commercial/industrial irrigation will increase at the same rate as their respective demand classes as summarized in Tables 2-10 and 2-11, while public and institutional landscaping is assumed to remain unchanged. The increase in irrigation ERUs is summarized in Table 2-12.

TABLE 2-12
Projected Irrigation Growth

Year	Residential HOA (% of Connections)	Commercial/Industrial (% of Connections)	Institutional and Municipal (% of Connections)	Total
2022	63.5%	20.7%	15.9%	100%
Year	Residential HOA⁽¹⁾ (ERUs)	Commercial/Industrial⁽²⁾ (ERUs)	Institutional and Municipal⁽³⁾ (ERUs)	Total (ERUs)
2022	383	124	96	507
2023	404	136	96	637
2024	426	149	96	671
2025	447	162	96	704
2026	469	174	96	738
2027	490	187	96	772
2028	511	199	96	806
2029	533	212	96	840
2030	554	224	96	874
2031	575	237	96	908
2032	597	249	96	942
2033	618	262	96	976
2034	639	274	96	1010
2035	661	287	96	1044
2036	682	299	96	1077
2037	704	312	96	1111
2038	725	325	96	1145
2039	746	337	96	1179
2040	768	350	96	1,213
2041	789	362	96	1,247
2042	810	375	96	1,281
2043	832	387	96	1,315
2044	853	400	96	1,349
2045	875	412	96	1,383

(1) Residential HOA Irrigation is projected to increase at same yearly rate as residential ERUs, as shown in Table 2-10.

(2) Commercial/Industrial Irrigation is projected to increase at same yearly rate as residential ERUs, as shown in Table 2-11.

(3) Institutional and Municipal Irrigation is projected to remain constant.

In the upcoming water demand projections summarized in Table 2-13, irrigation consumption will increase reflecting the rise in ERUs presented in Table 2-12.

2.3.2 HISTORICAL DEMAND PARAMETERS

Water use projections will use the historical water demand parameters, described earlier in this chapter, developed to be characteristic of the City of Ridgefield's water production and consumption. Residential, commercial/industrial, and irrigation ERUs will be multiplied by ERU_{ADD} (200gpd/ERU) in order to determine average day consumption for each category. Yearly DSL will be held constant at 93,200 gallon per day, reflecting 2022's slight uptick in leakage. Maximum day production will be determined by multiplying the computed average day production by the 2.33 peaking factor determined in Table 2-4, while peak hour demand will be determined by multiplying MDD (in gpm) by the peak day peaking factor of 1.62, as determined in Table 2-98.

2.3.3 WATER DEMAND PROJECTIONS

Water demand projections for the 10- and 20-year planning periods are presented in Table 2-13.

TABLE 2-13

Water Demand Projections

Year	Population	Residential Consumption ⁽¹⁾ (gpd)	Commercial/Industrial Consumption ⁽²⁾ (gpd)	Irrigation ⁽³⁾ (gpd)	Total Consumption (gpd)	DSL (gpd)	Total ERUs ⁽⁴⁾	Average Day Production ⁽⁵⁾ (gpd)	Maximum Day Production ⁽⁶⁾ (gpd)	Peak Hour Demand ⁽⁷⁾ (gpd)
2023	16,465	1,004,100	161,000	127,200	1,292,300	93,200	6,937	1,385,500	3,230,500	3,635
2024	16,955	1,057,200	175,800	133,900	1,366,900	93,200	7,311	1,460,100	3,404,500	3,831
2025	17,444	1,110,200	190,600	140,700	1,441,500	93,200	7,684	1,534,700	3,578,400	4,026
2026	17,933	1,163,300	205,400	147,500	1,516,200	93,200	8,058	1,609,400	3,752,600	4,222
2027	18,423	1,216,400	220,200	154,200	1,590,800	93,200	8,432	1,684,000	3,926,500	4,418
2028	18,912	1,269,400	235,000	161,000	1,665,400	93,200	8,805	1,758,600	4,100,500	4,614
2029	19,401	1,322,500	249,800	167,800	1,740,100	93,200	9,179	1,833,300	4,274,700	4,810
2030	19,891	1,375,500	264,600	174,600	1,814,700	93,200	9,553	1,907,900	4,448,600	5,005
2031	20,380	1,428,600	279,400	181,300	1,889,300	93,200	9,926	1,982,500	4,622,500	5,201
2032	20,869	1,481,600	294,200	188,100	1,963,900	93,200	10,300	2,057,100	4,796,500	5,397
2033	21,358	1,534,700	309,000	194,900	2,038,600	93,200	10,674	2,131,800	4,970,700	5,593
2034	21,848	1,587,800	323,800	201,600	2,113,200	93,200	11,047	2,206,400	5,144,600	5,788
2035	22,337	1,640,800	338,600	208,400	2,187,800	93,200	11,421	2,281,000	5,318,500	5,984
2036	22,826	1,693,900	353,400	215,200	2,262,500	93,200	11,795	2,355,700	5,492,700	6,180
2037	23,316	1,746,900	368,200	222,000	2,337,100	93,200	12,168	2,430,300	5,666,700	6,376
2038	23,805	1,800,000	383,000	228,700	2,411,700	93,200	12,542	2,504,900	5,840,600	6,572
2039	24,294	1,853,000	397,800	235,500	2,486,300	93,200	12,915	2,579,500	6,014,600	6,767
2040	24,784	1,906,100	412,600	242,300	2,561,000	93,200	13,289	2,654,200	6,188,700	6,963
2041	25,273	1,959,200	427,400	249,000	2,635,600	93,200	13,663	2,728,800	6,362,700	7,159
2042	25,762	2,012,200	442,200	255,800	2,710,200	93,200	14,036	2,803,400	6,536,600	7,355
2043	26,251	2,065,300	457,000	262,600	2,784,900	93,200	14,411	2,878,100	6,710,800	7,551
2044	26,741	2,118,300	471,800	269,400	2,859,500	93,200	14,784	2,952,700	6,884,700	7,746
2045	27,230	2,171,400	486,600	276,100	2,934,100	93,200	15,158	3,027,300	7,058,700	7,942

- (1) Residential Consumption = Residential ERUs (from Table 2-10) * ERU_{ADD}, where ERU_{ADD} = 200 gpd/ERU (Table 2-7).
(2) Commercial/Industrial Consumption = Commercial/Industrial ERUs (from Table 2-11) * ERU_{ADD}, where ERU_{ADD} = 200 gpd/ERU.
(3) Irrigation = Irrigation ERUs (from Table 2-12) * ERU_{ADD}, where ERU_{ADD} = 200 gpd/ERU.
(4) Total ERUs = (Total Consumption + DSL)/ERU_{ADD}, where ERU_{ADD} = 200 gpd/ERU.
(5) Average Day Production = Total Consumption + DSL.
(6) Maximum Day Production = Average Day Production * Peak Day Peaking Factor, where Peak Day Peaking Factor = 2.33 (Table 2-4).
(7) Peak Hour Demand = Maximum Day Demand (in gpm) * Peak Hour Peaking Factor, where Peak Hour peaking Factor = 1.62 (Table 2-9).

CHAPTER 3

WATER SYSTEM ANALYSIS

3.1 OBJECTIVE

Water system planning includes a careful analysis of a water utility's ability to meet minimum level of service standards for existing and future customers. In this chapter, design standards are presented which identify criteria that are applicable to the City of Ridgefield water system. A water quality and facility analysis will then compare the existing water quality and system facilities to these design standards. Based on this comparison, water system deficiencies will be identified and recommendations to improve compliance with the required standards are developed.

3.2 SYSTEM DESIGN STANDARDS

3.2.1 DESIGN STANDARDS

Performance and design criteria typically address the sizing and reliability requirements for source, storage, distribution, and fire flow. WAC 246-290 contains general criteria and standards that must be followed in development of public water systems in Washington State. In addition, the Washington State Department of Health (DOH) 2020 *Water System Design Manual* provides more specific guidance for water system design.

3.2.2 BASIS OF DESIGN STANDARDS

3.2.2.1 State Standards

The Water System Planning Handbook, published by DOH, provides a list of specific design standards to be discussed in the Water System Plan, which can be seen below.

- Average and Maximum Day Demand
- Peak Hour Demand
- Source Capacity
- Storage Requirements
- Minimum System Pressure
- Fire Flow Rate and Duration
- Minimum Pipe Size
- Reliability Recommendations
- Valve and Hydrant Spacing
- Water Quality Standards

DOH relies on various publications of standards, agencies, and the utility itself to establish design criteria. The following is a brief description of three of the most widely recognized performance and design standards.

- **WAC 246-290, Group A Public Water Systems, Washington State Board of Health (March 2022)**

This is the primary drinking water regulation utilized by the Washington State Department of Health (DOH) to assess capacity, water quality, and overall compliance with drinking water standards.

- **Water System Design Manual (WSDM), Washington State Department of Health (DOH) (June 2020)**

Significant revisions to the Water System Design Manual have recently been adopted. These standards will serve as guidance for the preparation of plans and specifications for Group A public water systems in compliance with WAC 246-290.

- **Water System Planning Guidebook, Washington State Department of Health (August 2020)**

The Water System Planning Guidebook outlines planning requirements as well as a process framework for water systems to create a WSP that best fits their size and needs. Significant revisions to the former Water System Guidebook were adopted in August 2020.

3.2.2.2 City Standards

DOH relies on the City itself to establish design criteria. The following gives a brief description of the referenced City design standards:

- **Engineering Standards for Public Works Construction (Volumes 1, 2, & Standard Details), City of Ridgefield (May 2017)**

These standards may also be referred to as Construction Standards or Development Standards and are adopted and approved by the City for construction of new public facilities, including water works. These standards, including developer extension guidelines, are provided in Appendix G.

3.2.3 GENERAL FACILITY STANDARDS

Table 3-1 lists the suggested DOH Water System Design Manual guidance and the City of Ridgefield's policies with regard to each standard.

TABLE 3-1

General Facility Requirements

Standard	DOH Water System Design Manual (June 2020)	City of Ridgefield Standard
Average Day and Maximum Day Demand	Average Day Demand (ADD) per ERU (ERU_{ADD}) and Maximum Day Demand (MDD) per ERU (ERU_{MDD}) should be determined from metered water use data if available.	• ADD = Calculated from Metered Monthly Production Data • $MDD = 2.33 * ADD$; with 2.33 being the maximum day peaking factor (See Table 2-4)
Peak Hour Demand	Peak hour demand is determined using the following equation from the DOH Water System Design Manual: $PHD = (ERU_{MDD}/1440)[(C)(N) + F] + 18$ C = Coefficient from DOH Table 3-1 (C=1.6) N = Number of connections, ERUs using max day demand and ERU_{MDD} F = Factor of range from Table 3-1 (F=225)	• $PHD = 1.62 * MDD$; with 1.62 being the maximum day peaking factor (See Table 2-9, which takes the average of the DOH formula across 5 years)
Source Capacity	• Sources should be capable of replenishing fire suppression storage within a 72-hour period while concurrently supplying MDD. • Sources capable of supplying MDD within a 20-hour period. • Sources must meet ADD with largest source out of service.	<u>Requirements:</u> 1. Sources capable of supplying MDD within a 24-hour period. 2. Sources must meet ADD with largest source out of service. <u>Goals:</u> 1. Sources should be capable of replenishing fire suppression storage within a 72-hour period while concurrently supplying MDD. 2. Sources capable of supplying MDD within a 20-hour period.
Storage Capacity	Water systems must account for and provide storage equal to the sum of: • <u>Operational Storage</u> = Volume sufficient to prevent excessive pump cycling. • <u>Equalizing Storage</u> = $(PHD - Q_s) * (150 \text{ minutes})$ • <u>Standby Storage</u> = $(N)(SB_i)(T_d)$ • <u>Fire Suppression Storage</u> = $(FF)(t_m)$	Same as DOH Water System Design Manual. $SB_i = 175 \text{ gpd/ERU}$ $T_d = 1 \text{ day}$ Standby storage and fire suppression storage are nested

TABLE 3-1 – (continued)**General Facility Requirements**

Standard	DOH Water System Design Manual (June 2020)	City of Ridgefield Standard
	Where: FF = Needed fire flow rate, gpm N = Number of system ERUs PHD = Peak hourly demand, gpm Q_s = Total of all permanent and seasonal sources, gpm SB_i = Locally adopted unit SB volume in gallons per day per ERU (number of system ERUs) T_d = Number of days selected to meet water system-determined standard of reliability t_m = Duration of FF rate, expressed in minutes as specified by fire authority	
Minimum System Pressure	The system should be designed to maintain a minimum of 30 psi in the distribution system under peak hour demand and 20 psi under fire flow conditions during MDD.	Same as DOH <i>Water System Design Manual</i> .
Fire Flow Standards	The minimum fire flow shall be determined by the local fire authority or WAC 246-293 for systems within a Critical Water Supply Service Area (CWSSA), whichever is greater.	The City's fire flow requirements are based on City Ordinances and the Clark County Coordinated Water System Plan. See Table 3-18 of this Plan for more. Residential: 1,000 gpm/120 min. Commercial: 1,500 gpm/120 min. Industrial: 3,000 gpm/180 min.
Minimum Pipe Sizes	The diameter of a transmission line shall be determined by hydraulic analysis. The minimum size distribution system line shall not be less than 6-inches in diameter.	Same as DOH <i>Water System Design Manual</i> .
Source Reliability Recommendations	- Two or more supply sources are available - Permanent and seasonal sources are capable of replenishing depleted fire suppression storage within 72 hours while concurrently supplying the MDD for the water system - Permanent and seasonal source capacity is enough to supply MDD in a pumping period of 20 hours or less - With the largest source out of service, the remaining permanent and seasonal sources can provide a minimum of ADD for the water system - Source of supply pump stations have power connections to two independent primary public power sources, have in-place auxiliary power available (auto transfer capable), and/or maintain adequate gravity standby storage	The City's goal is to meet these recommendations to the extent feasible.

TABLE 3-1 – (continued)**General Facility Requirements**

Standard	DOH Water System Design Manual (June 2020)	City of Ridgefield Standard
	A factor of safety is applied to a well pumping test safe yield determination (Chapter 3)	
Valve and Hydrant Spacing	Sufficient valving should be placed to keep a minimum of customers out of service when water is turned off for maintenance or repair. Fire hydrants on lateral should be provided with their own auxiliary gate valve.	Valve and hydrant standards are outlined in the City's Engineering Standards V1 – Ch. 4, which is included in Appendix G.
Water Quality Standards	WAC 246-290 The primary drinking water regulation utilized by DOH to assess capacity, water quality, and overall compliance with drinking water standards.	Same as DOH Water System Design Manual.

3.2.4 WATER QUALITY STANDARDS

Group A public community water systems must comply with the drinking water standards of the Federal Safe Drinking Water Act and its amendments. DOH adopted the updated Federal Standards under WAC 246-290. Furthermore, since the City of Ridgefield receives water from a groundwater source, the Groundwater Rule applies.

Table 3-2 lists existing drinking water regulations. The table also indicates whether or not the regulation is applicable to the City of Ridgefield. Existing state law contains regulations concerning bacteriological contaminants, disinfection by-products (DBPs), inorganic chemicals and inorganic physical parameters (IOCs), volatile organic chemicals (VOCs), synthetic organic chemicals (SOCs), and radionuclides.

TABLE 3-2**Existing Drinking Water Regulations**

Rule	Regulated Contaminant	City Action
Arsenic Rule	Arsenic	Monitoring
Asbestos Rule	Asbestos	Does not Apply
Consumer Confidence Report	Reporting Only	Issuing
Disinfectants/Disinfection Byproducts Rule (DBPR) (Stage 1 & 2)	TTHMs, HAA5, Chlorite, Bromate ⁽¹⁾	Monitoring
Groundwater Rule & Groundwater Under the Influence	Microbial Contaminants	Monitoring

TABLE 3-2 – (continued)**Existing Drinking Water Regulations**

Rule	Regulated Contaminant	City Action
Inorganic Chemicals (IOC), and Physical Parameters	IOCs	Monitoring
Lead and Copper Rule	Lead, Copper	Monitoring
Per- and Polyfluoroalkyl Substances	PFAS	Monitoring
Revised Lead and Copper Rule	Lead, Copper	Future Monitoring and Inventory beginning October, 2024
Radionuclides Rule	Radionuclides	Monitoring
Residual Disinfectant	Total Free Chlorine	Monitoring
Revised Total Coliform Rule	Coliform – Distribution System	Monitoring
Radionuclides Rule	Radionuclides	Monitoring
Volatile and Synthetic Organic Compounds	VOCs, SOCs	Monitoring

(1) TTHM = Total Trihalomethanes; HAA5 = Five Haloacetic Acids; IOCs = Inorganic Chemical and Physical Characteristics; VOCs = Volatile Organic Chemicals; SOCs = Synthetic Organic Compounds.

3.3 WATER QUALITY MONITORING SCHEDULE

Water quality monitoring is required for regulatory compliance and to monitor water system conditions. DOH's maintains a Water Quality Monitoring Schedule (WQMS) for every water purveyor in the state which can be accessed online the Sentry database. This schedule defines a monitoring schedule and provides sample locations. A copy of the most recent City of Ridgefield Water Quality Monitoring Schedule is included in Appendix D.

Under the 1986 amendments to the Safe Drinking Water Act (SDWA), DOH developed a source specific monitoring reduction waiver process to evaluate whether or not any given drinking water source had to monitor for a variety of chemicals (volatile organic chemicals, pesticides, synthetic organic chemicals). The method uses information on well age, construction, depth, past water quality history, degree of confinedness, etc., to provide an assessment of the source water's "physical susceptibility to contamination." This assessment (high/medium/low) combined with potential contaminant source inventory data enables DOH to assign a Susceptibility Rating for groups of contaminants including Volatile Organic Compounds (VOCs), Synthetic Organic Compounds (SOCs-primarily pesticides) and microbial contamination.

DOH's process for determining susceptibility ratings for individual sources of supply is initiated by the purveyor completing a Susceptibility Assessment Survey Packet for each of its sources. The Susceptibility Assessment (SA) is required of all Group A water systems having ground water or spring sources, as part of the Wellhead Protection Program. Each source must also have nitrate data and completed a minimum of one VOC analysis. Upon DOH determination of source susceptibility and evaluation of nitrate and VOC data, additional parameter-specific criteria are applied by DOH to determine the source's specific contaminant group (microbial, VOC, SOC) Susceptibility Rating. The system is notified in writing and provided this information.

Overall, the state Susceptibility Rating is based on assessment of source vulnerability to contamination (hydrogeologic susceptibility) and in the absence of direct/precise measurements of contaminant use and exposure, evaluates surrogate indicators such as the physical setting of the source and surrounding land use. Hydrogeologic susceptibility, the first component, is an evaluation of the physical potential for a source to be contaminated by the movement of chemicals from the land surface into a water supply. The second component involves an assessment of the risk of source exposure to contaminants and is determined by whether contaminants were used in the area of the water supply. This component can be difficult to assess, because inventorying all chemicals that have ever been used in an area is very difficult. In addition, once contaminants have entered the environment they can behave very differently from each other causing difficulty in predicting ground water pollution from surface exposure. The contaminant use assessment is also subject to change over time as surrounding land use changes. For these reasons, DOH regulations require water systems to update their Potential Contaminant Source Inventory every two years.

Susceptibility ratings reflect the sensitivity of a water source to contamination from a variety of contaminant sources. The susceptibility rating is dependent upon factors such as well construction, hydrogeological conditions, and distances to known or suspected contaminant sources. Drinking water wells vary in their susceptibility to contaminants discharged at the surface. Wells with poor construction or improper surface seals have an increased susceptibility to contaminant migration into the saturated zone of the well. In addition, wells located in unconfined aquifers typically have a higher degree of susceptibility than deep wells in confined aquifers. Vulnerability ratings are specific to pesticide contamination. The vulnerability ratings are somewhat dependent on land use characteristics and reflect regional pesticide use and application practices.

The susceptibility and vulnerability ratings for each of the active City sources are summarized in Table 3-3.

TABLE 3-3

City of Ridgefield Source Susceptibility and Vulnerability Ratings

Source	DOH Source Number	Susceptibility	Vulnerability
Well 7	S11	Low	Low
Well 8	S08	Low	Low
Well 9	S09	Low	Low
Well 10	S16	Low	Low
Well 11	S17	Low	Low
Junction Well	S12	Low	Low

3.4 WATER QUALITY ANALYSIS

This section evaluates the City of Ridgefield's efforts to comply with the required water quality regulations and testing requirements. Water quality monitoring data was reviewed through December 2023. Testing results for each analytes are discussed in their respective regulatory sections.

3.4.1 ARSENIC RULE

Arsenic is an inorganic chemical that has received significant attention due to recent rule revisions. Long term exposure to low concentrations of arsenic in drinking water can lead to skin, bladder, lung, or prostate cancer. Non-carcinogenic effects of ingesting arsenic at low levels include cardiovascular disease, diabetes, and anemia, as well as reproductive, developmental, immunological, and neurological effects.

An arsenic standard of 0.05 mg/L in drinking water was set by EPA in 1975, based on Public Health Service standard originally set in 1942. In March 1999, the National Academy of Sciences (NAS) completed a review of updated scientific data on arsenic and recommended that EPA lower the standard as soon as possible. After weighing the potential health benefit to the cost of improvements necessary to meet these new standards, the EPA selected the final arsenic MCL of 0.01 mg/L. The new arsenic standard became effective in 2004, replacing the previous standard of 0.05 mg/L. Compliance with the MCL of 0.01 mg/L was required in 2006.

The City has conducted all required arsenic testing as part of IOC testing; applicable arsenic testing results for all sources are included in Table 3-7 as part of the IOC testing results. The City also did additional testing for Arsenic in Wells 8 and 9 on 8/7/2019 and 8/17/2022 and found Arsenic concentrations of 0.0018 mg/L and <0.001 mg/L, respectively. Since monitoring began, measured arsenic levels have remained below the MCL of 0.01 mg/L. **The City of Ridgefield is in compliance with the standards for Arsenic.**

3.4.2 ASBESTOS

In recent years, there has been much concern with the health risks associated with asbestos. Several studies and case histories have documented the hazards to internal organs as a result of inhalation of asbestos fibers. Data is limited on the effects of ingestion of asbestos fibers or on the effects of inhalation exposure from drinking water. Ingestion studies have not caused cancer in laboratory animals, although studies of asbestos workers have shown increased rates of gastrointestinal cancer.

Asbestos is listed a primary inorganic contaminant. However, it is not routinely included in IOC samples for public water systems. **Since the City's water distribution system has less than 10 percent asbestos cement pipe installed, asbestos sampling is not required.**

3.4.3 CONSUMER CONFIDENCE REPORT

This rule was finalized on August 19, 1998. The Consumer Confidence Report Rule requires community water system purveyors to prepare and distribute an annual report of water quality analyses to their customers before the 1st of July each year. The City of Ridgefield has prepared and distributed a Consumer Confidence Report each year since 1999. A copy of the City's most recent Consumer Confidence Report is included in Appendix E.

3.4.4 DISINFECTANTS AND DISINFECTION BYPRODUCTS (D/DBP) RULES

Disinfectant byproducts include Total Trihalomethanes (TTHMs) and five different species of Haloacetic Acids (HAA5). The City is currently required by DOH to take two samples per year for both TTHMs and HAA5 in accordance with its Disinfection Byproduct (DBP) Monitoring Plan. A copy of the City's DBP Monitoring Plan is located in Appendix D.

Required sampling under the Stage 1 DBP rule began in 2004. Under the Stage 1 rule, systems were able to average the results for all sample locations in order to meet the MCL for each regulated DBP. The Stage 2 rule requires that each individual sample location meet the running annual average MCL. The Stage 2 rule states the system must meet 80 µg/L and 60 µg/L as the Locational Running Annual Averages (LRAAs) for TTHMs and HAA5s, respectively. Systems were required (unless waived) to identify new high TTHM and HAA5 locations by conducting an Initial Distribution System Evaluation (IDSE). The rule also requires population-based monitoring for all systems, with an allowance for reduced monitoring if initial monitoring averages less than half the MCLs for TTHM and HAA5. Compliance with the Stage 2 DBPR monitoring for systems serving less than 10,000 people was required as of October 1, 2013. The City has received a 40/20 waiver for reduced monitoring.

Table 3-4 shows the results for DBP samples collected from the distribution system since 2013.

TABLE 3-4

TTHM and HAA5 Sampling Results

Sample Date	Location A ⁽¹⁾			Location B ⁽²⁾		
	Sample Location	TTHM Concentration (ug/L) ⁽³⁾	HAA5 Concentration (ug/L) ⁽⁴⁾	Sample Location	TTHM Concentration (ug/L) ⁽³⁾	HAA5 Concentration (ug/L) ⁽⁴⁾
MCL	-	80	60	-	80	60
7/31/2013	1205 North 1 st Avenue	ND ⁽⁵⁾	ND ⁽⁵⁾	Gee Creek SB I-5 rest area	1.26	ND ⁽⁵⁾
9/5/2014	-	NA ⁽⁶⁾	NA ⁽⁶⁾	Gee Creek SB I-5 rest area	1.4	ND ⁽⁵⁾
7/29/2015	-	NA ⁽⁶⁾	NA ⁽⁶⁾	Gee Creek SB I-5 rest area	0.7	ND ⁽⁵⁾
8/3/2016	-	NA ⁽⁶⁾	NA ⁽⁶⁾	Gee Creek SB I-5 rest area	ND ⁽⁵⁾	ND ⁽⁵⁾
8/30/2017	-	NA ⁽⁶⁾	NA ⁽⁶⁾	Gee Creek SB I-5 rest area	5.16	ND ⁽⁵⁾
8/8/2018	1405 North Main Avenue	ND ⁽⁵⁾	ND ⁽⁵⁾	Gee Creek SB I-5 rest area	ND ⁽⁵⁾	ND ⁽⁵⁾
8/7/2019	1405 North Main Avenue	ND ⁽⁵⁾	20.7	Gee Creek SB I-5 rest area	ND ⁽⁵⁾	20.9
7/29/2020	1205 North 1 st Avenue	ND ⁽⁵⁾	ND ⁽⁵⁾	1100 South 11 th Street	ND ⁽⁵⁾	ND ⁽⁵⁾
8/18/2021	1205 North 1 st Avenue	ND ⁽⁵⁾	ND ⁽⁵⁾	Gee Creek SB I-5 rest area	10.2	3.4
8/17/2022	28908 NW Main Avenue	ND ⁽⁵⁾	ND ⁽⁵⁾	Gee Creek SB I-5 rest area	6.31	ND ⁽⁵⁾
8/23/2023	28908 NW Main Avenue	0.57	ND ⁽⁵⁾	1962 South Timm Road	ND ⁽⁵⁾	ND ⁽⁵⁾

- (1) Distribution, low zone.
 (2) Distribution, high zone.
 (3) TTHM MCL is 80 ug/L.
 (4) HAA5 MCL is 60 ug/L.
 (5) ND = No Detect.
 (6) NA = Not Analyzed.

As shown in Table 3-4, no samples were above the Maximum Contaminant Level (MCL). **Therefore, the City is in compliance with the DBP rule.**

3.4.5 GROUNDWATER UNDER THE INFLUENCE OF SURFACE WATER (GWI) DETERMINATION

Systems are required to provide filtration treatment for groundwater sources that are under the direct influence of surface water (GWI sources). DOH determines which sources are GWI sources based on a review of existing data and the collection of water quality and microscopic particulate analysis data. GWI sources are subject to the requirements of the surface water treatment rule.

Even though Wells 7, 8, 9 and 10 are near Gee Creek, DOH has stated these sources do not meet the criteria to warrant a GWI review due to the depth of the first screened interval and the proximity to Gee Creek.

3.4.6 INORGANIC CHEMICALS AND PHYSICAL CHARACTERISTICS

This category includes several inorganic elements and compounds. Many of the inorganic chemicals include elemental metals such as mercury, arsenic, and iron. Some non-metallic constituents such as chloride, fluoride, and sulfate are also included. Physical properties that affect water quality in this category include turbidity, specific conductivity, total dissolved solids, and color.

WAC 246-290 specifies primary and secondary maximum contaminant levels (MCLs) for inorganic physical and chemical characteristics. Primary MCLs are based on health effects, and secondary MCLs are based on factors other than health effects, such as taste, odor, color, etc.

Groundwater sources must be sampled for inorganics once every 3 years unless a waiver is in place. As shown in the Water Quality Monitoring Schedule in Appendix D, a 9-year waiver through December 2019 for inorganic chemicals (IOCs) has been granted for the Abrams Park wells, and the last IOC samples for these wells were taken August 2022. Note that Wells 8 and 9 are considered a wellfield by DOH and are sampled as such (rather than individually). The Junction Well does not have an IOC waiver and the last IOC sample was taken August 2022. Table 3-5 shows the results of the most recent IOC sampling for primary contaminants at each well source, and Table 3-6 shows the results of the most recent IOC sampling for secondary contaminants at each well source. Tables 3-7 and 3-8 show no MCL violations for IOCs. **The City of Ridgefield is in compliance with the standards for Inorganic Contaminants.**

TABLE 3-5

Inorganic Chemicals (IOCs) Sampling Results for Primary Contaminants

Analyte Name	Units	Maximum Contaminant Level	Well 7 8/17/2022 Sample	Wells 8 and 9 8/17/2022 Sample	Well 10 8/17/2022 Sample	Well 11 8/17/2022 Sample	Junction Well 8/17/2022 Sample
Antimony	mg/L	0.006	<0.003	<0.003	<0.003	<0.003	<0.003
Arsenic	mg/L	0.010	<0.001	0.0017	<0.001	<0.001	<0.001
Barium	mg/L	2.000	<0.1	<0.1	<0.1	<0.1	<0.1
Beryllium	mg/L	0.004	<0.0003	<0.0003	<0.0003	<0.003	<0.0003
Cadmium	mg/L	0.005	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.100	<0.007	<0.007	<0.007	<0.007	<0.007
Copper	mg/L	1.3 ⁽¹⁾	<0.02	<0.02	<0.02	<0.02	<0.02
Cyanide	mg/L	0.200	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoride	mg/L	4.00 ⁽²⁾	<0.2	<0.2	<0.2	<0.2	<0.2
Lead	mg/L	0.015 ⁽¹⁾	<0.001	<0.001	<0.001	<0.001	<0.001
Mercury	mg/L	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Nickel	mg/L	0.100	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate-n	mg/L	10.00	<0.5	0.53	<0.5	<0.5	<0.5
Nitrite-n	mg/L	1.00	<0.1	<0.1	<0.1	<0.1	<0.1
Selenium	mg/L	0.050	<0.002	<0.002	<0.002	<0.002	<0.002
Sodium	mg/L	-- ⁽³⁾	8.8	8.5	9.1	8.9	10
Thallium	mg/L	0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Turbidity	NTU	-- ⁽⁴⁾	0.15	0.16	0.15	0.16	0.13

- (1) The standards for Lead and Copper are distribution system action levels based on 90th percentile distribution sample values.
- (2) Fluoride has both a primary and secondary MCL. Concentrations above the secondary MCL (2.0 mg/L) cause aesthetic problems, while concentrations above the primary MCL (4.0 mg/L) are a public health concern.
- (3) Sodium does not have an MCL, but EPA has established a level of 20 mg/L as a level of concern for individuals on a low sodium diet.
- (4) The turbidity MCL applies only to untreated surface water sources. Since the Ridgefield water system is fed exclusively by groundwater, turbidity requirements do not apply.

TABLE 3-6**Inorganic Chemicals (IOCs) Sampling Results for Secondary Contaminants**

Analyte Name	Units	Well 7 8/17/2022 Sample	Wells 8 and 9 8/17/2022 Sample	Well 10 8/17/2022 Sample	Well 11 8/17/2022 Sample	Junction Well 8/17/2022 Sample	Maximum Contaminant Level
Chloride	mg/L	3.6	3.2	3.5	3.3	6.1	250.0
Fluoride	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	2.00 ⁽¹⁾
Iron	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	0.300
Manganese	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.050
Silver	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	0.100
Sulfate	mg/L	2.9	<50	3.5	2.2	<50	250.0
Zinc	mg/L	<0.02	<0.2	<0.2	<0.2	<0.2	5.00
Color	CU ⁽²⁾	<15	<15	<15	<15	<15	15.00
Conductivity	µmho/cm ⁽³⁾	220	220	240	220	220	700.00
Hardness	mg/L	97	98	110	97	86	None

(1) Fluoride has both a primary and secondary MCL. Concentrations above the secondary MCL (2.0 mg/L) cause aesthetic problems, while concentrations above the primary MCL (4.0 mg/L) are a public health concern.

(2) Color Units.

(3) A µmho is a micro-mho, or 1 millionth of a mho. A mho is a unit of electrical conductance, the inverse of an ohm, a unit of electrical resistance. One mho of electrical conductance is capable of transmitting 1 amp of electrical current across a potential of 1 volt. One µmho of conductance will transmit 1 millionth of an amp (1 micro-amp) at 1 volt, or 1 amp at 1-million volts (1 megavolt).

Nitrate samples are required annually by DOH. Nitrate sampling results are shown in Table 3-7 for the testing completed since 2013. The City has taken all required annual samples in accordance with DOH requirements. None of the samples exceeded the MCL for nitrate, which is 10 mg/L. **The City of Ridgefield is in compliance with the standards for Nitrate.**

TABLE 3-7

Nitrate Testing Results Since 2013

Sample Date	Units	Well 7	Wells 8 and 9	Well 10	Well 11	Junction Well
9/5/2014	mg/L	0.11	0.21	0.18	-	-
7/29/2015	mg/L	<0.25	<0.25	0.11	-	-
8/3/2016	mg/L	<0.2	<0.2	<0.2	-	-
8/30/2017	mg/L	<0.2	<0.2	<0.2	-	-
8/8/2018	mg/L	<0.5	<0.5	<0.5	-	<0.5
8/7/2019	mg/L	<0.5	<0.5	<0.5	-	<0.5
7/29/2020	mg/L	<0.5	<0.5	<0.5	-	<0.5
8/18/2021	mg/L	<0.5	0.63	<0.5	<0.5	<0.5
8/17/2022	mg/L	<0.5	0.69	<0.5	<0.5	<0.5
8/23/2023	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5

(1) Routine annual nitrate testing of the Junction Well was not conducted prior to 2018, as the well was inactive until 2017.

3.4.7 LEAD AND COPPER

EPA's Lead and Copper Rule (40 CFR 141) specifies monitoring for lead and copper. Initially, monitoring was completed every 6 months. If lead and copper action levels were not exceeded in two consecutive monitoring periods, then the number of samples required was reduced to annual sampling for 3 years. For systems that have been in compliance with annual monitoring, such as the City of Ridgefield, the monitoring requirement was reduced to once every 3 years, the City's current requirement. As shown on the City's Water Quality Monitoring Schedule included in Appendix D, the last lead and copper sampling was completed on 8/31/23 and the next lead and copper samples are required to be collected in August 2026.

Ninety percent of the distribution system lead samples collected according to the procedures outlined in WAC 246-290 must have concentrations below the "Action Level" of 0.015 milligrams per liter (mg/L). Similarly, 90 percent of the copper samples must have concentrations less than 1.3 mg/L. Systems exceeding the action levels are required to provide public notification and implement a program for reducing lead and copper levels.

The most recent lead and copper sampling conducted by the City in 2023 indicated 90th percentile levels for copper equal to 0.78 mg/L and lead equal to 0.0021 mg/L. Lead and copper testing results for the City for 2023 are summarized in Table 3-8. Although one lead sample was above the respective action levels, the 90th percentile levels were not. **Therefore, the City is in compliance with the standards for lead and copper.**

TABLE 3-8**Lead and Copper Sampling Results**

Lead	2023
Action Level, mg/L	0.0150
State Reporting Level, mg/L	0.0010
90 th Percentile Concentration, mg/L	0.0021
Number of Samples Taken/Samples Exceeding the Action Level	30/1
Copper	2023
Action Level, mg/L	1.3
State Reporting Level, mg/L	0.020
90 th Percentile Concentration, mg/L	0.78
Number of Samples Taken/Samples Exceeding the Action Level	30/0

3.4.8 REVISED LEAD AND COPPER RULE

The Revised Lead and Copper Rule (RLCR) set by the EPA will take effect in October 2024. It will focus on the creation and maintenance of a lead service line inventory where the water purveyor is required to test the service line on both the purveyor and customer sides of the meter with the ultimate goal of replacing all lead service lines. The inventory is required to be submitted by October 2024. Water systems will be required to identify and make public the locations of lead service pipes. The rule will also focus on establishing a “trigger level” for each containment. The EPA has also signaled its intent to emphasize testing for lead and copper in schools and child care facilities.

3.4.9 PER- AND POLYFLUOROALKYL SUBSTANCES

Per- and polyfluoroalkyl substances (PFAS) have become an increased concern for groundwater contamination in recent years. The substances are used to manufacture heat-, grease-, oil-, stain-, and water-resistant materials and are commonly found in consumer goods such as clothing, nonstick cookware and food packaging, as well as fire retardants and surfactants. PFAS are resistant to heat and chemical degradation and can build up in people, animals and the environment over time. The chemicals in the group known as PFAS may lead to negative health effects, including cancer, liver damage, and negative effects on developing babies. PFAS are typically found in groundwater near military bases, airports, and local fire departments.

3.4.9.1 Monitoring Requirements and Analysis

In Washington State, DOH's PFAS rule took effect in January 2022 and established state action levels (SAL) for five PFAS commonly found in drinking water (WAC 246-290-315(4)). The rule will require water systems to monitor all active, permanent, and seasonal sources beginning in 2023 and no later than 2025.

In March, 2023 the EPA established federal regulatory levels for six PFAS, including the five PFAS regulated by Washington State. The EPA Maximum Contaminant Levels (MCLs) are more stringent than those established by Washington State, thus adhering to federal MCLs will achieve compliance with both regulations. State Action Levels and EPA MCLs are displayed in Table 3-9.

TABLE 3-9

PFAS State Action Level and Federal Minimum Contaminant Level

Chemical	SAL	MCL
PFOA	10 µg/L	4.0 ng/L ⁽¹⁾
PFOS	15 µg/L	4.0 ng/L ⁽¹⁾
PFHxS	65 µg/L	Hazard Index = 1.0 ⁽²⁾
PFNA	9 µg/L	
PFBS	345 µg/L	
HFPO-DA (Commonly known as GenX Chemicals)	N/A	

(1) One nanogram per liter (µg/L) is equal to part per trillion (ppt).

(2) The PFA Hazard Index (HI) is made up of a sum of fractions. Each fraction compares the amount of four PFAs measured to the level determined not to cause health effects. HI can be found using the following equation: $\text{PFHxS}_{\text{measured}}/9 + \text{PFNA}_{\text{measured}}/10 + \text{PFBS}_{\text{measured}}/2000 + \text{GenX}_{\text{measured}}/10$.

The City has conducted preliminary tests for Well 10 and the Junction Well for PFAS. The results were “non-detect” for both sources. Preliminary testing conducted by CPU indicated that water from Intertie 1 had below detectable levels of the regulated PFAS as well. The City will continue to test for PFAS and report results per the DOH water quality monitoring schedule

3.4.10 RADIONUCLIDES

Radionuclides include radioactive substances occurring naturally in subsurface waters. Regulated substances include radium-226, radium-228, uranium, and gross alpha and beta particles. Radionuclide MCLs, as defined by EPA's Radionuclide Rule and WAC 246-290.

As shown on the Water Quality Monitoring Schedule in Appendix D, all sources require one sample for radionuclides every 6 years. The City has completed all radionuclide testing required through December 2023. Results of radionuclide testing are shown in Table 3-10.

TABLE 3-10**Radionuclide Testing Results Since 2013⁽¹⁾**

Sample Date	Units	Well 7	Wells 8 and 9	Well 10	Well 11	Junction Well
7/29/2015	pCi/L	N/A ⁽²⁾	<1.0 <3.0	N/A ⁽²⁾	N/A ⁽²⁾	N/A ⁽²⁾
8/3/2016	pCi/L	<1.0 <3.0	N/A ⁽²⁾	<1.0 <3.0	N/A ⁽²⁾	N/A ⁽²⁾
4/3/2017	pCi/L	N/A ⁽²⁾	N/A ⁽²⁾	N/A ⁽²⁾	N/A ⁽²⁾	<1.0 <3.0
8/15/2017	pCi/L	N/A ⁽²⁾	N/A ⁽²⁾	N/A ⁽²⁾	N/A ⁽²⁾	<1.0 2.01
8/18/2021	pCi/L	N/A ⁽²⁾	<1.0 <3.0	N/A ⁽²⁾	N/A ⁽²⁾ <3.0	N/A ⁽²⁾
11/17/2021	pCi/L	N/A ⁽²⁾	N/A ⁽²⁾	N/A ⁽²⁾	0.341 2.26	N/A ⁽²⁾
1/26/2022	pCi/L	N/A ⁽²⁾	N/A ⁽²⁾	N/A ⁽²⁾	0.247 <3.0	N/A ⁽²⁾
8/17/2022	pCi/L	0.228 0.943	N/A ⁽²⁾	0.486 0.522	N/A ⁽²⁾	N/A ⁽²⁾

(1) State-mandated radionuclide testing includes Radium 228 and Gross Alpha. Results are given in the format Radium 228 | Gross Alpha.

(2) N/A = Not Applicable (no sample collected).

Results of all radionuclide tests are below the state reporting limits of 1.0 pCi/L for Radium 228 and 3.0 pCi/L for Gross Alpha. Gross Alpha of 2.01 pCi/L was detected in the 8/15/2017 Junction Well sample, but that this level is below the state reporting limit. **The City of Ridgefield is in compliance with the standards for radionuclides.**

3.4.11 RESIDUAL DISINFECTANT

According to WAC 246-290-300, systems providing surface water disinfection treatment or receiving water that has been disinfected, shall measure residual disinfectant concentration within the distribution system daily. A disinfectant residual must be maintained throughout the distribution system.

3.4.11.1 Monitoring Requirements and Analysis

Water in the distribution system must maintain a residual disinfectant concentration of at least 0.2 mg/L. The City's goal is to maintain a residual between 0.4 and 0.7 mg/L. City staff report a consistent chlorine residual of 0.5 to 0.6 mg/L.

3.4.12 REVISED TOTAL COLIFORM RULE

Coliform bacteria describe a broad category of organisms routinely monitored in potable water supplies. Though not all coliform bacteria are pathogenic in nature, they are relatively easy to identify in laboratory analysis and they represent an indicator organism. If coliform bacteria are detected, then pathogenic organisms may also be present. Bacterial contamination in a water supply can cause a number of waterborne diseases, so these tests are strictly monitored and regulated by the DOH.

WAC 246-290 establishes bacteriological testing requirements for public water systems. Compliance with this rule is based on the presence/absence of total coliforms. The number of routine samples required depends on the system size.

The Revised Total Coliform Monitoring Rule specifies each total coliform positive routine sample must be tested for the presence of *E. coli*; if any total coliform positive sample is also *E. coli* positive, then the sample must be reported to the state by the end of the day. If a routine sample is positive for total coliform, repeat samples are required.

Within 24 hours of learning of the total coliform positive sample result, at least three repeat samples must be collected and analyzed for total coliform. One repeat sample must be collected from the same tap as the original sample, one repeat sample must be collected within five service connections upstream, and one repeat sample must be collected within five service connections downstream. If one or more repeat sample is positive for total coliform, the sample must be analyzed for *E. coli*. If the total coliform positive sample is positive for *E. coli*, the sample must be reported to the state. Another set of repeat samples must then be collected unless an assessment has been triggered and the state has been notified.

3.4.12.1 Monitoring Requirements and Analysis

The number of coliform samples required per monitoring period is based on the population served during the monitoring period. Each monitoring period is a calendar month. The City is required to take 15 distribution system coliform samples per month, except in July, August, and September, when only 10 samples per month are required. As the population grows, the monitoring requirements will increase also. A copy of the City's Coliform Monitoring Plan (CMP) is included in Appendix D.

Since the completion of the 2013 WSP there have been three documented positive coliform tests in the distribution system, occurring in November 2013, February 2020 and August 2023. In each case, follow-up coliform samples indicated no presence of coliform. **Therefore, the City is in compliance with the Revised Total Coliform Rule.**

3.4.13 VOLATILE ORGANIC COMPOUNDS AND SYNTHETIC ORGANIC COMPOUNDS

Volatile organic compounds (VOCs) are manufactured, carbon-based chemicals that vaporize quickly at normal temperatures and pressures. VOCs include many hydrocarbons associated with fuels, paint thinners, and solvents. This group does not include organic pesticides or herbicides, which are regulated separately as synthetic organic compounds (SOCs). VOCs are divided into the two following groups:

1. Regulated VOCs that have been determined to pose a significant risk to human health.

2. Unregulated VOCs for which the level of risk to human health has not been established.

The City of Ridgefield's sampling requirements for VOCs are shown in the Water Quality Monitoring Schedule in Appendix D. All sources have a VOC sampling waiver through at least December 2019. Source samples analyzed for VOCs since 2013 include:

- Well 7, 7/31/2013
- Wells 8 and 9, 8/3/2016
- Junction Well, 4/3/2017
- Junction Well, 8/31/2017
- Well 7, 8/8/2018
- Well 10, 8/8/2018
- Well 11, 8/18/2021
- Well 11, 11/17/2021
- Well 11, 1/26/2022
- Wells 8 and 9, 8/17/2022
- Junction Well, 8/23/2023

No VOCs were detected in any of these samples.

The City of Ridgefield's sampling requirements for SOC (herbicides and pesticides) are shown in the Water Quality Monitoring Schedule in Appendix D. All sources have a sampling waiver for herbicides and pesticides through at least December 2025. Source samples analyzed for SOC since 2013 include:

- Well 10, 8/3/2016
- Junction Well, 4/3/2017
- Junction Well, 5/4/2017
- Junction Well, 8/15/2017
- Well 7, 8/8/2018
- Wells 8 and 9, 8/8/2018
- Well 11, 11/17/2021
- Well 11, 1/30/2022

No SOC were detected in either of these samples. **The City of Ridgefield is in compliance with the standards for VOCs and SOC.**

3.5 SYSTEM COMPONENT ANALYSIS

3.5.1 WATER RIGHT ANALYSIS

As shown in Table 1-3, the City's total water rights are currently 3,275 gpm of instantaneous supply and 3,058 acre-ft of annual supply. These water rights reflect all those associated with the City's wells and the Intertie Agreement with Clark County Public Utility. The projected maximum day and total annual water demand are compared to the available instantaneous and annual water right in Table 3-11.

TABLE 3-11

Water Rights Evaluation

Year	Instantaneous Water Right Analysis (Qi)			Annual Water Rights Analysis (Qa)		
	Max Day Demand (gpm) ⁽¹⁾	Available Water Rights (gpm)	Surplus/ (Deficit) (gpm)	Annual Production (Acre-ft per year) ⁽²⁾	Available Water Right (Acre-ft per year)	Surplus/ (Deficit) (Acre-ft per year)
2022	2,146	3,275	1,129	1,485	3,058	1,573
2023	2,243		1,032	1,552		1,506
2024	2,364		911	1,636		1,422
2025	2,485		790	1,719		1,339
2026	2,606		669	1,803		1,255
2027	2,727		548	1,886		1,172
2028	2,848		427	1,970		1,088
2029	2,969		306	2,054		1,004
2030	3,089		186	2,137		921
2031	3,210		65	2,221		837
2032	3,331		(56)	2,304		754
2033	3,452		(177)	2,388		670
2034	3,573		(298)	2,471		587
2035	3,693		(418)	2,555		503
2036	3,814		(539)	2,639		419
2037	3,935		(660)	2,722		336
2038	4,056		(781)	2,806		252
2039	4,177		(902)	2,889		169
2040	4,298		(1,023)	2,973		85
2041	4,419		(1,144)	3,057		1
2042	4,539		(1,264)	3,140		(82)
2043	4,660		(1,385)	3,224		(166)
2044	4,781		(1,506)	3,307		(249)
2045	4,902		(1,627)	3,391		(333)

(1) Maximum day demand corresponds to the projected maximum day production for a given year (See Table 2-13).

(2) Annual production corresponds to projected average day production for a given year (see Table 2-13) multiplied by the number of days in a given year.

The above water rights analysis indicates that the City has adequate instantaneous water rights through 2031 with a 56 gpm deficit beginning in 2032 which increases to 1,627 gpm by 2045. The City has adequate annual water rights through 2041. A 82-acre-feet deficit in 2042 will increase to 333 acre-feet by 2045.

Strategies to address this deficiency will be provided in the summary of deficiencies at the conclusion of this chapter and discussed further in Chapter 8.

3.5.1.1 Water Rights Capacity Analysis

Table 3-12 presents an analysis of the total number, or maximum capacity, of ERUs that the existing water rights can support.

TABLE 3-12

Water Rights Capacity Analysis

Water Right Component	Maximum Permitted Withdrawal⁽¹⁾	ERU Capacity	Deficit Year
Annual Withdrawal	3,058 acre-feet	14,036 ⁽²⁾	2042
Instantaneous Withdrawal	4,716,000 gpd	9,926 ⁽³⁾	2032

(1) Including CPU Intertie as shown in Table 1-3.

(2) Based on ERU_{ADD} of 200 gpd/ERU.

(3) Based on ERU_{MDD} of 466 gpd/ERU.

As noted in the previous section, strategies to address this deficiency will be provided in the summary of deficiencies at the conclusion of this chapter and discussed further in Chapter 8.

3.5.2 SOURCE OF SUPPLY ANALYSIS

According to section 3.10 of the DOH 2020 *Water System Design Manual*, source production capacity must be sufficient to supply maximum day demands. Maximum day and average day demands must also comply with the maximum instantaneous and maximum annual withdrawal limitations of associated water rights. The following source capacity criteria have been analyzed in accordance with the DOH Water System Design Manual (WSDM):

- **Criteria 1 (Required by WSDM):** The source or sources for a water system must be able to meet the water system's maximum day demand.
- **Criteria 2 (Recommended by WSDM):** Permanent and seasonal sources are capable of replenishing depleted fire suppression storage within a 72-hour period while concurrently supplying the maximum day demand of the system.

- **Criteria 3 (Recommended by WSDM):** Sources capable of supplying the MDD of the system with 20 hours of pumping.
- **Criteria 4 (Recommended by WSDM):** With the largest source out of service, remaining sources able to provide a minimum of average day demand for the system.

The City's design standards are to meet Criteria's 1, 2, and 4 with the long term goal of meeting Criteria 3.

The City's current and projected ability to meet each of these criteria outline above are analyzed in upcoming Tables 3-13 through 3-16. Year 2022 demands are based on historical data, while all other years are based on projected demands which are summarized in Table 2-13.

The analysis reviews source capacity under two scenarios: without source improvements and with source improvements. The "without source improvement" scenario includes all of the City's existing wells which equates to 1,531 gpm as well as 1,000 gpm available from the existing CPU interties resulting in a total present source capacity of 2,531 gpm. The "with source improvements" scenario include the construction of a new intertie with CPU by 2026 making available an additional 1,000 gpm of source capacity as stipulated in the CPU Intertie Agreement which can be found in Appendix B. Details regarding the CPU intertie project can be found in the Capital Improvement Program in Chapter 8.

It should also be noted that the current well capacity in this analysis is based on the present pumping production of the existing wells as shown in Table 1-2 (which is less than the total nominal capacity of the existing wells). The City intends to evaluate ways to maximize production from the existing wells.

Well 9 is currently equipped with a 400 gpm pump. The water right for this well limits withdrawal to 300 gpm. Actual current production as shown in Table 1-2 is 300 gpm. The City has existing water rights from other wells in the same 1/4, 1/4 section. The City will file a replacement well declaration with the Department of Ecology to legally transfer the rights to this well.

3.5.2.1 Criteria 1 Source Analysis – 24-Hour Pumping

The water systems ability to meet maximum day demand through the 20-year planning period is summarized in Table 3-13 below. Historical maximum day demand for 2022 is from Table 2-4. The projected maximum day demand for each respective year is from Table 2-13 where it is referred to as maximum day production.

TABLE 3-13

Ridgefield Source of Supply Analysis: Criteria 1
Supply Maximum Day Demand in 24 Hours of Pumping

Year	Maximum Day Demand (mgd) ⁽¹⁾	Without Proposed Source Improvements			With Proposed Source Improvements ⁽³⁾		
		Source Capacity With 24 Hours of Pumping (mgd) ⁽²⁾	Surplus/(Deficit)		Source Capacity With 24 Hours of Pumping (mgd)	Surplus/(Deficit)	
			mgd	gpm		mgd	gpm
2022	3.13	3.46	0.33	231	3.46	0.33	231
2023	3.23	3.46	0.23	159	3.46	0.23	159
2024	3.40	3.46	0.05	38	3.46	0.05	38
2025	3.58	3.46	(0.12)	(83)	3.46	(0.12)	(83)
2026	3.75	3.46	(0.29)	(204)	4.90	1.15	796
2027	3.93	3.46	(0.47)	(325)	4.90	0.97	675
2028	4.10	3.46	(0.64)	(446)	4.90	0.80	554
2029	4.27	3.46	(0.82)	(567)	4.90	0.62	433
2030	4.45	3.46	(0.99)	(687)	4.90	0.45	313
2031	4.62	3.46	(1.16)	(808)	4.90	0.28	192
2032	4.80	3.46	(1.34)	(929)	4.90	0.10	71
2033	4.97	3.46	(1.51)	(1,050)	4.90	(0.07)	(50)
2034	5.14	3.46	(1.69)	(1,171)	4.90	(0.25)	(171)
2035	5.32	3.46	(1.86)	(1,291)	4.90	(0.42)	(291)
2036	5.49	3.46	(2.03)	(1,412)	4.90	(0.59)	(412)
2037	5.67	3.46	(2.21)	(1,533)	4.90	(0.77)	(533)
2038	5.84	3.46	(2.38)	(1,654)	4.90	(0.94)	(654)
2039	6.01	3.46	(2.56)	(1,775)	4.90	(1.12)	(775)
2040	6.19	3.46	(2.73)	(1,896)	4.90	(1.29)	(896)
2041	6.36	3.46	(2.90)	(2,017)	4.90	(1.46)	(1,017)
2042	6.54	3.46	(3.08)	(2,137)	4.90	(1.64)	(1,137)
2043	6.71	3.46	(3.25)	(2,258)	4.90	(1.81)	(1,258)
2044	6.88	3.46	(3.43)	(2,379)	4.90	(1.99)	(1,379)
2045	7.06	3.46	(3.60)	(2,500)	4.90	(2.16)	(1,500)

- (1) 2022 maximum day demand (production) from Table 2-4; projected maximum day demand (production) from Table 2-13.
- (2) Present source capacity includes 1,402 gpm of well capacity and 1,000 gpm of capacity from the CPU intertie for a total of 2,402 gpm of source capacity resulting in 3.46 mgd capacity under a 24-hour/day pumping condition.
- (3) Source improvements include an additional CPU intertie and an additional 1,000 gpm of capacity brought online in 2026, resulting in a source capacity of 3,402 gpm and a daily capacity of 4.90 mgd under a 24-hour/day pumping condition.

Assuming 24-hour pumping, the City's current sources can meet projected MDD until 2025 and would be at a 3.60 MG or 2,500 gpm deficit by 2045. Provided the additional CPU intertie is constructed in 2026, the City would have adequate capacity to meet

projected MDD through 2032 and would finish 2045 with a 2.16 MG or 1,500 gpm deficit.

3.5.2.2 Criteria 2 Source Analysis – Fire Suppression Replenishment

The City's required fire suppression storage is 540,000 gallons and is discussed at length in the upcoming storage capacity analysis section. In order to replenish this volume in 72 hours, 0.18 mgd or 125 gpm must be pumped for three days. Table 3-14 summarizes the water systems ability to meet this requirement along with MDD of a given year with and without the anticipated source improvements.

TABLE 3-14

Ridgefield Source of Supply Analysis: Criteria 2 Supply Maximum Day Demand in 24 Hours of Pumping Plus Replenish Fire Suppression Storage in 72 Hours

Year	Maximum Day Demand Plus Replenish Fire Suppression Storage in 72 Hours (mgd) ⁽¹⁾	Without Proposed Source Improvements			With Proposed Source Improvements ⁽³⁾		
		Source Capacity With 24 Hours of Pumping (mgd) ⁽²⁾	Surplus/(Deficit)		Source Capacity With 24 Hours of Pumping (mgd)	Surplus/(Deficit)	
			mgd	gpm		mgd	gpm
2022	3.31	3.46	0.15	106	3.46	0.15	106
2023	3.41	3.46	0.05	34	3.46	0.05	34
2024	3.58	3.46	(0.13)	(87)	3.46	(0.13)	(87)
2025	3.76	3.46	(0.30)	(208)	3.46	(0.30)	(208)
2026	3.93	3.46	(0.47)	(329)	4.90	0.97	671
2027	4.11	3.46	(0.65)	(450)	4.90	0.79	550
2028	4.28	3.46	(0.82)	(571)	4.90	0.62	429
2029	4.45	3.46	(1.00)	(692)	4.90	0.44	308
2030	4.63	3.46	(1.17)	(812)	4.90	0.27	188
2031	4.80	3.46	(1.34)	(933)	4.90	0.10	67
2032	4.98	3.46	(1.52)	(1,054)	4.90	(0.08)	(54)
2033	5.15	3.46	(1.69)	(1,175)	4.90	(0.25)	(175)
2034	5.32	3.46	(1.87)	(1,296)	4.90	(0.43)	(296)
2035	5.50	3.46	(2.04)	(1,416)	4.90	(0.60)	(416)
2036	5.67	3.46	(2.21)	(1,537)	4.90	(0.77)	(537)
2037	5.85	3.46	(2.39)	(1,658)	4.90	(0.95)	(658)
2038	6.02	3.46	(2.56)	(1,779)	4.90	(1.12)	(779)
2039	6.19	3.46	(2.74)	(1,900)	4.90	(1.30)	(900)
2040	6.37	3.46	(2.91)	(2,021)	4.90	(1.47)	(1,021)
2041	6.54	3.46	(3.08)	(2,142)	4.90	(1.64)	(1,142)
2042	6.72	3.46	(3.26)	(2,262)	4.90	(1.82)	(1,262)
2043	6.89	3.46	(3.43)	(2,383)	4.90	(1.99)	(1,383)

TABLE 3-14 – (continued)**Ridgefield Source of Supply Analysis: Criteria 2 Supply Maximum Day Demand in 24 Hours of Pumping Plus Replenish Fire Suppression Storage in 72 Hours**

Year	Maximum Day Demand Plus Replenish Fire Suppression Storage in 72 Hours (mgd) ⁽¹⁾	Without Proposed Source Improvements			With Proposed Source Improvements ⁽³⁾		
		Source Capacity With 24 Hours of Pumping (mgd) ⁽²⁾	Surplus/(Deficit)		Source Capacity With 24 Hours of Pumping (mgd)	Surplus/(Deficit)	
			mgd	gpm		mgd	gpm
2044	7.06	3.46	(3.61)	(2,504)	4.90	(2.17)	(1,504)
2045	7.24	3.46	(3.78)	(2,625)	4.90	(2.34)	(1,625)

- (1) 0.18 mgd is required to replenish fire suppression storage in 72 hours; this is added to the 2022 maximum day demand from Table 2-4 or the projected maximum day demand from Table 2-13.
- (2) Present source capacity includes 1,402 gpm of well capacity and an additional 1,000 gpm from the CPU intertie for a total of 2,402 gpm of source capacity. This results in a 3.46 mgd capacity under a 24 hour/day pumping condition.
- (3) Source improvements include an additional CPU intertie and through it an additional 1,000 gpm of capacity brought online in 2026, resulting in a 3,402 gpm source capacity and a daily capacity of 4.90 mgd under a 24-hour/day pumping condition.

Assuming 24-hour pumping, the City's current sources can meet replenish fire suppression storage while meeting MDD until 2024 and would be at a 3.46 MG or 2,625 gpm deficit by 2045. Provided the additional CPU intertie is constructed in 2026, the City would have adequate capacity to meet projected MDD through 2033 and would finish 2045 with a 2.34 MG or 1,625 gpm deficit.

3.5.2.3 Criteria 3 Source Analysis – 20-Hour Pumping

Criteria 3 evaluates the system's ability to meet maximum day demand with 20 hours of pumping. It is worth noting that, in this scenario, the interties continue to operate 24 hours per day since they are a hydraulic, not a mechanical process. Results of this analysis are summarized in Table 3-15.

TABLE 3-15

Ridgefield Source of Supply Analysis: Criteria 3
Supply Maximum Day Demand in 20 Hours of Pumping

Year	Maximum Day Demand (mgd) ⁽¹⁾	Without Proposed Source Improvements			With Proposed Source Improvements ⁽³⁾		
		Source Capacity With 20 Hours of Pumping (mgd) ⁽²⁾	Surplus/(Deficit)		Source Capacity With 20 Hours of Pumping (mgd)	Surplus/(Deficit)	
			mgd	gpm		mgd	gpm
2022	3.13	3.12	(0.00)	(3)	3.12	(0.00)	(3)
2023	3.23	3.12	(0.11)	(90)	3.12	(0.11)	(90)
2024	3.40	3.12	(0.28)	(235)	3.12	(0.28)	(235)
2025	3.58	3.12	(0.46)	(380)	3.12	(0.46)	(380)
2026	3.75	3.12	(0.63)	(525)	4.56	0.81	675
2027	3.93	3.12	(0.80)	(670)	4.56	0.64	530
2028	4.10	3.12	(0.98)	(815)	4.56	0.46	385
2029	4.27	3.12	(1.15)	(960)	4.56	0.29	240
2030	4.45	3.12	(1.33)	(1,105)	4.56	0.11	95
2031	4.62	3.12	(1.50)	(1,250)	4.56	(0.06)	(50)
2032	4.80	3.12	(1.67)	(1,395)	4.56	(0.23)	(195)
2033	4.97	3.12	(1.85)	(1,540)	4.56	(0.41)	(340)
2034	5.14	3.12	(2.02)	(1,685)	4.56	(0.58)	(485)
2035	5.32	3.12	(2.20)	(1,830)	4.56	(0.76)	(630)
2036	5.49	3.12	(2.37)	(1,975)	4.56	(0.93)	(775)
2037	5.67	3.12	(2.54)	(2,120)	4.56	(1.10)	(920)
2038	5.84	3.12	(2.72)	(2,265)	4.56	(1.28)	(1,065)
2039	6.01	3.12	(2.89)	(2,410)	4.56	(1.45)	(1,210)
2040	6.19	3.12	(3.07)	(2,555)	4.56	(1.63)	(1,355)
2041	6.36	3.12	(3.24)	(2,700)	4.56	(1.80)	(1,500)
2042	6.54	3.12	(3.41)	(2,845)	4.56	(1.97)	(1,645)
2043	6.71	3.12	(3.59)	(2,990)	4.56	(2.15)	(1,790)
2044	6.88	3.12	(3.76)	(3,135)	4.56	(2.32)	(1,935)
2045	7.06	3.12	(3.94)	(3,280)	4.56	(2.50)	(2,080)

(1) 2022 maximum day demand from Table 2-4; projected maximum day demand from Table 2-13.

(2) Present source capacity includes 1,402 gpm of well capacity running 20 hours per day and an additional 1,000 gpm from the CPU intertie running 24 hours a day (as it is a hydraulic, not a mechanical process). The resulting source capacity is 3.12 mgd.

(3) Source improvements include an additional CPU intertie and an additional 1,000 gpm of capacity brought online in 2026, which will result in an additional non-pumping source which can be operated 24 hours a day even in this scenario. This results in a capacity of 4.56 mgd.

The City was more or less at capacity in 2022 when attempting to meet MDD when its existing sources are pumped for only 20 hour per day as the system operated at 3 gpm deficit. This deficit is projected to increase to 3.12 mgd or 3,280 gpm deficit by 2045. The deficit would abate after CPU intertie is constructed in 2026 but the City would only

have surplus supply through 2030 and would operate at a deficit from 2031 through 2045. The deficit is projected to be 2.50 mgd or 2,080 gpm by 2045. The City will maintain Criteria 3 as a planning goal to be met when improvements are made.

3.5.2.4 Criteria 4 Source Analysis – ADD with Largest Source Offline

The fourth and final criteria is the evaluation of the ability of the City's sources to meet average day demand with the largest source offline. Historical average day demand for 2022 is from Table 2-4, while the projected average day demand for each respective year is from Table 2-13, where it is referred to as average day production. The City's highest capacity source is the CPU intertie. For the evaluation of criteria 4 this source is assumed to be offline, meaning total source capacity prior to source improvements is assumed to be 1,402 gpm while source capacity after source improvements is assumed to be 2,402. The City's ability to meet Criteria 4 through the 20-year planning period is evaluated in Table 3-16.

TABLE 3-16

Ridgefield Source of Supply Analysis: Criteria 4 Supply Average Day Demand in 24 Hours of Pumping With Largest Source Out of Service

Year	Average Day Demand (mgd) ⁽¹⁾	Without Proposed Source Improvements			With Proposed Source Improvements ⁽³⁾		
		Source Capacity 24 Hours of Pumping, Largest Source Out of Service (mgd) ⁽²⁾	Surplus/(Deficit)		Source Capacity 24 Hours Pumping, Largest Source Out of Service (mgd)	Surplus/(Deficit)	
			mgd	gpm		mgd	gpm
2022	1.33	2.02	0.69	482	1.90	0.57	398
2023	1.39	2.02	0.63	440	1.90	0.51	356
2024	1.46	2.02	0.56	388	1.90	0.44	304
2025	1.53	2.02	0.48	336	1.90	0.36	252
2026	1.61	2.02	0.41	284	1.90	0.29	200
2027	1.68	2.02	0.33	233	3.34	1.65	1,149
2028	1.76	2.02	0.26	181	3.34	1.58	1,097
2029	1.83	2.02	0.19	129	3.34	1.50	1,045
2030	1.91	2.02	0.11	77	3.34	1.43	993
2031	1.98	2.02	0.04	25	3.34	1.36	941
2032	2.06	2.02	(0.04)	(27)	3.34	1.28	889
2033	2.13	2.02	(0.11)	(78)	3.34	1.21	838
2034	2.21	2.02	(0.19)	(130)	3.34	1.13	786
2035	2.28	2.02	(0.26)	(182)	3.34	1.06	734
2036	2.36	2.02	(0.34)	(234)	3.34	0.98	682
2037	2.43	2.02	(0.41)	(286)	3.34	0.91	630
2038	2.50	2.02	(0.49)	(338)	3.34	0.83	578
2039	2.58	2.02	(0.56)	(389)	3.34	0.76	527

TABLE 3-16 – (continued)**Ridgefield Source of Supply Analysis: Criteria 4 Supply Average Day Demand in 24 Hours of Pumping With Largest Source Out of Service**

Year	Average Day Demand (mgd) ⁽¹⁾	Without Proposed Source Improvements			With Proposed Source Improvements ⁽³⁾		
		Source Capacity 24 Hours of Pumping, Largest Source Out of Service (mgd) ⁽²⁾	Surplus/(Deficit)		Source Capacity 24 Hours Pumping, Largest Source Out of Service (mgd)	Surplus/(Deficit)	
			mgd	gpm		mgd	gpm
2040	2.65	2.02	(0.64)	(441)	3.34	0.68	475
2041	2.73	2.02	(0.71)	(493)	3.34	0.61	423
2042	2.80	2.02	(0.78)	(545)	3.34	0.53	371
2043	2.88	2.02	(0.86)	(597)	3.34	0.46	319
2044	2.95	2.02	(0.93)	(648)	3.34	0.39	268
2045	3.03	2.02	(1.01)	(700)	3.34	0.31	216

(1) 2022 average day demand from Table 2-4; projected average day demand from Table 2-13.

(2) Present source capacity with largest source (CPU intertie) out of service is 1,402 gpm of well capacity resulting in a 2.02 mgd capacity under a 24 hour/day pumping condition.

(3) Source improvements include an additional CPU intertie and an additional 1,000 gpm of capacity brought online in 2026 resulting in a 2,402 gpm source capacity and a daily capacity of 3.34 under a 24 hour/day pumping condition.

Assuming 24 hour pumping and the largest source offline, the City's current remaining sources can meet projected ADD until 2032 and would be at a 1.01 MG or 700 gpm deficit by 2045. Provided the additional CPU intertie is constructed in 2026, the City would have adequate capacity to meet projected MDD through the 2045 planning period.

3.5.2.5 ERU Source Capacity Analysis

Based on the Criteria 1 through 4 outlined in the previous sections the systems source capacity can be summarized in terms of supported ERUs as shown in Table 3-17.

TABLE 3-17
Source ERU Capacity

Criteria	Without Improvements		With Improvements	
	ERU Capacity	Deficit Year	ERU Capacity	Deficit Year
Criteria 1 – MDD w/24-hour pumping	7,311	2025	10,300	2033
Criteria 2 – Replenish Fire Flow in 72 hours w/MDD	6,937	2024	9,926	2032
Criteria 3 – MDD w/20-hour pumping	6,636	2022	9,553	2031
Criteria 4 – ADD w/o Largest Source	9,926	2032	-	Beyond 20-year

Criteria 2 and 3 represent the lowest ERU capacity. However, as previously discussed, the City treats both Criteria 2 and 3 as planning goals and Criteria 1 and 4 as a requirement. As a result, source capacity will be defined by the ERU capacity of Criteria 2.

3.5.2.6 Source Condition

The condition of the City's current sources of supply is generally good. Three of the current wells (Wells 7, 8, and 9) were constructed in 1986 with pitless well adapters. In 2006, well houses were constructed around each well head. The wells are generally in fairly good condition. However, in 2010, Well 7 began sanding. Further investigation found some holes and bends in the well casing. The largest holes have been repaired and Well 7 continues to operate at a reduced flow rate. Well 9's submersible pump was replaced in 2004 after a service life of only 3 to 4 years. Upon reviewing the installation, the City discovered the sump pump in the adjacent flow meter vault was connected to the submersible pump's power supply. This connection may have resulted in the shortened service life of Well 9's submersible pump. The pump failed again in 2011 and was replaced. Well 10, Well 11, and the Junction Well have all been constructed since 2009 and are in good condition.

3.5.3 TREATMENT ANALYSIS

The City of Ridgefield voluntarily disinfects each of its sources to prevent bacteriological growth within the distribution system. A disinfection facility for the Abrams Park wells is located in the Well 8 building. Each well is chlorinated with an individual diaphragm metering pump assigned to that well. Sodium hypochlorite is delivered to both the Abrams Park Wellfield site and Junction Well site at 12.5 percent solution strength and diluted to 4 percent and stored in 1,000-gallon tanks (one at each site). Each of the wells

has a metering pump with a capacity of 14 gpd. The tank is filled by a delivery truck and diluted to 4 percent. Existing chlorination facilities are in good working condition.

The Junction well is also equipped with an iron and manganese filtration system. Backwash water is settled in a 100,000-gallon steel tank and is recycled through the filtration system. The iron and manganese treatment system was installed in 2015 is in good working condition

The City's goal is to maintain chlorine residual levels throughout the City within a target range of 0.4 mg/L to 0.7 mg/L.

3.5.4 STORAGE ANALYSIS

The City of Ridgefield owns and operates three storage reservoirs that serve the water system. The High School Reservoir is a welded steel standpipe that serves the High Zone and has an overflow elevation of approximately 420 feet. The Cemetery Reservoir is an at grade bolted steel tank that serves the Low Zone at an overflow elevation of approximately 266.5 feet. The Junction Reservoir is an at grade welded steel tank, which has an overflow elevation of approximately 284.50 feet. The Junction Booster Station allows it to provide storage to the High Zone.

Storage requirements for the City are determined by applying the design standards outlined in the DOH Water System Design Manual, October 2019. The storage volume recommended according to this guidance document is based on the sum of the following:

- Operational Storage
- Equalizing Storage
- Standby Storage
- Fire Suppression Storage
- Dead Storage (if any)

3.5.4.1 Operational Storage

Operational storage is the volume of the reservoir devoted to supplying the water system while under normal operating conditions with the source(s) of supply in “off” status. This volume is dependent upon the sensitivity of the reservoir water level sensors and the tank configuration necessary to prevent excessive cycling of source pump motors. Operational storage is evaluated separately from other storage components, thus providing a factor of safety for equalizing, standby, and fire suppression storage components.

The City of Ridgefield reservoirs are controlled by the elevation of the water inside the reservoir. Both the Cemetery and High School Reservoirs are seasonally controlled by the water system operators and are adjusted as needed based on demand and water quality

concerns. The Junction Reservoir is filled from the high zone through an altitude valve, as thus does not have operational storage.

Typical operational range within the Cemetery Reservoir is currently 1.7 feet. At 22,584 gal/ft as shown in Table 1-4, this equates to approximately 38,400 gallons. Typical operational range within the High School Reservoir is currently 1.5 feet. At 4,606 gal/ft as shown in Table 1-4, this equates to approximately 6,900 gallons. Thus, the total operational storage in the City's reservoirs is currently approximately 45,300 gallons.

3.5.4.2 Equalizing Storage

Equalizing storage is typically used to meet diurnal demands which exceed the average day and maximum day demands. The volume of equalizing storage required depends on peak system demands, the magnitude of diurnal water system demand variations, the source production rate, and the mode of system operation. Sufficient equalizing storage must be provided in combination with available water sources and pumping facilities such that peak system demands can be satisfied.

Equalizing storage is calculated using equation 7-1 from the DOH Water System Design Manual:

$$ES = (PHD - Q_s) \times 150 \text{ minutes}$$

Where:

ES = Equalizing storage component (gallons)

PHD = Peak hourly demand (gpm)

Q_s = Total source of supply capacity, excluding emergency sources
(gpm) = 1,402 gpm

3.5.4.3 Standby Storage

Standby storage is provided in order to meet demands in the event of a system failure such as a power outage, an interruption of supply, or break in a major transmission line. The amount of standby storage is based on the reliability of supply and pumping equipment, standby power sources, and the anticipated length of time the system could be out of service.

Standby storage is calculated using Equation 7-2 from the DOH Water System Design Manual:

$$SB = (N)(SB_i)(T_d)$$

Where:

- SB = Total standby storage component, or its equivalent, in gallons.
 N = Number of ERUs
 SB_i = Locally adopted unit SB volume in gallons per day per ERU
 T_d = Number of days selected to meet water system-determined standard of reliability

The DOH Water System Design Manual also discusses provisions for modifying the standby storage requirement based on various factors related to water system reliability. With these reliability measures considered, the DOH recommendation for a minimum standby storage volume is 200 gallons per ERU. Given the reliability measures present in the City of Ridgefield Water System, including the interties with Clark Public Utilities, the applicable standard for required standby storage volume selected by the City is the following:

- SB_i = 175 gpd/ERU
 T_d = 1 day

3.5.4.4 Fire Suppression Storage

Fire suppression storage is provided to ensure that the volume of water required for fighting fires is available when necessary. Fire suppression storage also reduces the impact of firefighting on distribution system water pressure. The amount of water required for firefighting purposes is specified in terms of rate of flow in gallons per minute (gpm) and an associated duration. Fire flow must be provided at a residual water system pressure of at least 20 pounds per square inch (psi).

Fire suppression storage is calculated using the following equation:

$$FSS = (FF)(t_m)$$

Where:

- FSS = Required fire suppression storage component (gallons)
 FF = Required fire flow rate, as specified by fire protection authority (gpm)
 t_m = Duration of FF rate, as specified by fire protection authority (minutes)

DOH Note: The standby storage component or the fire suppression storage component, whichever volume is smaller, can be excluded from a water system's total storage requirement provided that such practice is not prohibited by: (1) a locally developed and adopted Coordinated Water System Plan; (2) local ordinance; or (3) the local fire protection authority or County Fire Marshal (reference WAC 246-290-235(4)).

Minimum fire flow requirements for the City of Ridgefield and the surrounding areas are shown in Table 3-18.

TABLE 3-18**Minimum Fire Flow**

Development Classification	Water System Coordination Act (WAC 246-293)	Clark County Coordinated Water System Plan	City of Ridgefield Requirement⁽¹⁾
Residential	500 gpm/30 minutes	1,000 gpm/30 minutes	1,000 gpm/120 minutes
Commercial and Multi-Family	750 gpm/60 minutes for >4,000 square feet	1,500 gpm/60 minutes	1,500 gpm/120 minutes
Industrial	1,000 gpm/60 minutes	2,000 gpm/90 minutes	3,000 gpm/180 minutes

(1) Fire flows in this table are for planning purposes only. New development must comply with the International Fire Code (IFC) as amended by the Ridgefield City Code. Per Section 14.03.050 of the Ridgefield City Code, fire flow requirements for new development shall be determined by the Fire Marshal and Clark County Fire and Rescue District.

For added fire protection, the City generally requires that new large structures provide fire sprinklers in accordance with the International Fire Code.

For the purposes of this analysis, fire suppression storage is based on the current maximum fire flow requirement of 3,000 gpm for 180 minutes, or 540,000 gallons. The City of Ridgefield will continue to nest standby and fire suppression storage.

3.5.4.5 Dead Storage

Dead storage is the volume of stored water not available to all customers at the minimum design pressure in accordance with WAC 246-290-230(5) and (6). Dead storage is excluded from the volumes provided to meet the other storage requirements. For the purposes of this analysis, dead storage is considered to be any storage not available at a minimum pressure of 30 psi.

The highest water service connection served by the Cemetery Reservoir is at approximately 176 feet. In order to be considered usable storage, storage supplying the Low Zone must be above approximately 245 feet to meet the minimum 30 psi pressure requirement at this location. The base elevation of the Cemetery Reservoir is 249 feet. Therefore, none of the Low Zone storage is considered dead storage.

The highest service connection served by the High School Reservoir is at approximately 288 feet. In order to be considered usable storage, storage supplying the High Zone must be above approximately 357 feet to meet the minimum 30 psi pressure requirement at this location. The base elevation of the High School Reservoir is at 286 feet and therefore approximately 71 feet or 327,000 gallons of the High School Reservoir is considered dead storage.

The Junction Reservoir is pumped storage; therefore, it has no dead storage.

3.5.4.6 Storage Requirement Summary

The total required storage for the City's water system is summarized in Table 3-19, where it is broken down by each storage component described in the previous section. Equalizing and standby storage are the only two storage components that are directly determined by water demand. The historical number of ERUs will be used for determining the equalizing and standby storage requirements for 2022 and the future storage requirements will be determined using the projected ERUs from the forecasted water demands.

TABLE 3-19
Required Storage Analysis

Year	Operational, gal ⁽¹⁾	Equalizing, gal ⁽²⁾	Standby, gal ⁽³⁾	Fire Suppression, gal ⁽⁴⁾	Total Required Storage, gal ⁽⁵⁾
2022	45,300	161,300	1,161,300	540,000	1,367,900
2023		184,900	1,214,000		1,444,200
2024		214,300	1,279,400		1,539,000
2025		243,600	1,344,700		1,633,600
2026		273,000	1,410,200		1,728,500
2027		302,400	1,475,500		1,823,200
2028		331,800	1,540,900		1,918,000
2029		361,200	1,606,400		2,012,900
2030		390,500	1,671,700		2,107,500
2031		419,900	1,737,100		2,202,300
2032		449,200	1,802,500		2,297,000
2033		478,600	1,867,900		2,391,800
2034		508,000	1,933,300		2,486,600
2035		537,300	1,998,700		2,581,300
2036		566,700	2,064,100		2,676,100
2037		596,100	2,129,500		2,770,900
2038		625,400	2,194,800		2,865,500
2039		654,800	2,260,200		2,960,300
2040		684,200	2,325,700		3,055,200
2041		713,500	2,391,000		3,149,800
2042		742,900	2,456,400		3,244,600
2043		772,300	2,521,800		3,339,400
2044		801,600	2,587,200		3,434,100
2045		831,000	2,652,600		3,528,900

- (1) Refer to the Operation Storage discussion for detailed bread down.
- (2) Equalizing Storage required calculated based on equation in Equalizing Storage section using Peak Hour Demand from Table 2-13 for a given year.
- (3) Standby Storage required is using the equation detail in the previous Standby Storage section and assuming 175 gallons per ERU and the projected ERU of a given year from Table 2-13.
- (4) Fire suppression storage is taken to be 540,000 gal for the entire planning period (180 minutes times 3,000 gpm).
- (5) Total required storage is taken to be the sum of operational, equalizing, and the greater of standby or fire suppression storage. It is assumed that the City will continue to nest Standby and Fire Suppression Storage.

3.5.4.7 Storage Capacity Summary

As described in Table 1-4, the City currently operates three reservoirs which hold just over 2 MG gallons of water. 1.69 MG are available when dead storage is subtracted. As of 2024 the City has a new storage reservoir in the design phase. This reservoir will add at least 2.5 MG of available storage and is slated to be constructed and brought online by the end of 2025. As a result, the City's storage analysis will be presented in Table 3-20 under two conditions: with present day reservoir capacity and with the new reservoir added to the system.

TABLE 3-20

Storage Analysis With and Without Improvements

Year	Total Required Storage, gal ⁽¹⁾	Without Improvements				With Improvement			
		Total Storage, gal ⁽²⁾	Dead Storage, gal ⁽³⁾	Total Available Storage, gal ⁽⁴⁾	Storage Surplus/ (Deficit), gal ⁽⁵⁾	Total Storage, gal ⁽⁶⁾	Dead Storage, gal ⁽⁷⁾	Total Available Storage, gal ⁽⁵⁾	Storage Surplus/ (Deficit), gal ⁽⁶⁾
2022	1,367,900	2,016,000	327,000	1,689,000	321,100	2,016,000	327,000	1,689,000	321,100
2023	1,444,200	2,016,000	327,000	1,689,000	244,800	2,016,000	327,000	1,689,000	244,800
2024	1,539,000	2,016,000	327,000	1,689,000	150,000	2,016,000	327,000	1,689,000	150,000
2025	1,633,600	2,016,000	327,000	1,689,000	55,400	4,516,000	327,000	4,189,000	2,555,400
2026	1,728,500	2,016,000	327,000	1,689,000	(39,500)	4,516,000	327,000	4,189,000	2,460,500
2027	1,823,200	2,016,000	327,000	1,689,000	(134,200)	4,516,000	327,000	4,189,000	2,365,800
2028	1,918,000	2,016,000	327,000	1,689,000	(229,000)	4,516,000	327,000	4,189,000	2,271,000
2029	2,012,900	2,016,000	327,000	1,689,000	(323,900)	4,516,000	327,000	4,189,000	2,176,100
2030	2,107,500	2,016,000	327,000	1,689,000	(418,500)	4,516,000	327,000	4,189,000	2,081,500
2031	2,202,300	2,016,000	327,000	1,689,000	(513,300)	4,516,000	327,000	4,189,000	1,986,700
2032	2,297,000	2,016,000	327,000	1,689,000	(608,000)	4,516,000	327,000	4,189,000	1,892,000
2033	2,391,800	2,016,000	327,000	1,689,000	(702,800)	4,516,000	327,000	4,189,000	1,797,200
2034	2,486,600	2,016,000	327,000	1,689,000	(797,600)	4,516,000	327,000	4,189,000	1,702,400
2035	2,581,300	2,016,000	327,000	1,689,000	(892,300)	4,516,000	327,000	4,189,000	1,607,700
2036	2,676,100	2,016,000	327,000	1,689,000	(987,100)	4,516,000	327,000	4,189,000	1,512,900
2037	2,770,900	2,016,000	327,000	1,689,000	(1,081,900)	4,516,000	327,000	4,189,000	1,418,100
2038	2,865,500	2,016,000	327,000	1,689,000	(1,176,500)	4,516,000	327,000	4,189,000	1,323,500
2039	2,960,300	2,016,000	327,000	1,689,000	(1,271,300)	4,516,000	327,000	4,189,000	1,228,700
2040	3,055,200	2,016,000	327,000	1,689,000	(1,366,200)	4,516,000	327,000	4,189,000	1,133,800
2041	3,149,800	2,016,000	327,000	1,689,000	(1,460,800)	4,516,000	327,000	4,189,000	1,039,200
2042	3,244,600	2,016,000	327,000	1,689,000	(1,555,600)	4,516,000	327,000	4,189,000	944,400
2043	3,339,400	2,016,000	327,000	1,689,000	(1,650,400)	4,516,000	327,000	4,189,000	849,600
2044	3,434,100	2,016,000	327,000	1,689,000	(1,745,100)	4,516,000	327,000	4,189,000	754,900
2045	3,528,900	2,016,000	327,000	1,689,000	(1,839,900)	4,516,000	327,000	4,189,000	660,100

(1) From Table 3-19.

(2) From Table 1-4.

(3) See Dead Storage discussion earlier in storage analysis section.

(4) Total Available storage = Total Storage – Dead Storage.

(5) Storage Surplus/Deficit = Total Available Storage – Total Required Storage.

(6) Assumes Construction of new reservoir in 2025 with 2.5 MG of available storage.

(7) New reservoir's contribution to Dead Storage is unknown but does not affect this analysis.

The City's existing storage infrastructure has adequate storage capacity to meet the system's projected needs through 2025. The system would be at a 1.84 MG deficit by 2045 if no new storage is brought online. Assuming the new reservoir is brought online in 2025 the City should have adequate storage capacity through at least the 2045 planning period.

3.5.4.8 ERU Storage Capacity Analysis

The system's ERU Storage capacity for both the unimproved (existing facilities) and improved (new reservoir) storage conditions are summarized in Table 3-21.

TABLE 3-21

Storage ERU Capacity

Scenario	Storage Component	Max Storage Capacity (gal)	Max ERU Capacity	Year Deficient
No Improvements	SB Storage	1,382,500	7,900	2026
	Equalizing Storage	260,900	7,900	2026
With Reservoir Improvements	SB Storage	3,364,400	19,225	Beyond 2045
	Equalizing Storage	1,151,600	19,225	Beyond 2045

As stated in the previous section, the City's existing infrastructure can support the projected ERUs through 2025. The improved storage facility will support 19,301 ERUs, which is beyond what is anticipated for the 20-year planning horizon.

3.5.4.9 Storage Condition Assessment

The Junction and Cemetery Reservoirs are both in good condition and improvements are not likely required in the next 10-year planning period. The interior and exterior coating system on the High School Reservoir is nearing the end of its useful life and will have to be replaced in the next 20 years. Recoating the High School Reservoir will be much more easily accomplished after the construction of the new eastside reservoir. Both the High School Reservoir recoating project and the construction of the new Eastside Reservoir are detailed in the Capital Improvement Program in Chapter 8.

3.5.5 BOOSTER STATION ANALYSIS

The City of Ridgefield water system has two booster stations: the Junction booster station and the Cemetery booster station. The Junction booster station provides supplemental water to the High Zone when needed. This booster station has three 50-hp pumps, each rated at 1,000 gpm, and one 15-hp jockey pump rated at 200 gpm. The jockey pump is used to maintain adequate chlorine residual inside the Junction Reservoir. These pumps

were recently replaced and VFDs installed so they are in good condition. The pumps have adequate capacity to supply required fire flows to the Junction area.

System pressure on the east side of the high zone can exhibit significant variability. This is likely related to hydraulic restrictions in the 10-inch transmission main along South Hillhurst Road and the 12-inch transmission main along Pioneer Street, which currently provide the only path for water to travel from the High School Reservoir to the east side of the high zone. A project to connect the water main on South Hillhurst Road with the water main on South Royle Road has been proposed to improve hydraulic capacity and reduce pressure fluctuations. This project will be discussed further in Chapter 8.

The Cemetery booster station was originally constructed in the 1950s or 1960s and replaced in 2018. It is located adjacent to the Cemetery Reservoir to provide supplemental flows to the High Zone. The Cemetery booster station consists of two 10-hp pumps with a capacity of 120 gpm each. This booster station is used regularly (typically during high-demand periods in the summer) to transfer water from the Low Zone to the High Zone as dictated by the telemetry set points. The station was designed to convey excess production from Well 7 (the only Abrams Park well feeding the Low Zone) to the High Zone.

3.5.6 TELEMETRY SYSTEM ANALYSIS

A discussion of the controls and telemetry of the City of Ridgefield water system is included in Chapter 1 of this Plan. All reservoir and well sites are connected to the telemetry system via radio telemetry. However, the Clark Public Utilities (CPU) intertie on the east side of the City is not connected to the City telemetry system. CPU currently has a telemetry connection to the intertie, which is managed by CPU. The City intends to work with CPU to have telemetry data from this intertie connected to the City's telemetry system. This project is included in the Capital Improvement Program discussed in Chapter 8.

3.5.7 WATER SYSTEM CAPACITY SUMMARY

The City of Ridgefield's capacity limits are summarized in Table 3-22. Details about each component's capacity limitations can be found in their respective sections earlier in this section.

TABLE 3-22**Water System Capacity Limits**

Water System Component	With Existing Infrastructure		With Upcoming Storage and Source Improvements	
	ERU Limit	Projected Deficit Year	ERU Limit	Projected Deficit Year
Instantaneous Water Rights ⁽¹⁾	9,926	3032	No Change	No Change
Annual Water Rights ⁽¹⁾	14,036	Beyond 2045	No Change	No Change
Source Capacity ⁽²⁾	7,311	2025	10,300	2033
Standby Storage ⁽³⁾	7,900	2026	19,225	Beyond 2045
Equalizing Storage ⁽³⁾	7,900	2026	19,225	Beyond 2045

(1) From Table 3-12.

(2) From Table 3-17.

(3) From Table 3-21.

As is evident from Table 3-22, source capacity currently is the limiting factor for the City's water system, followed soon after by standby storage. As previously discussed, plans are in place for both a new intertie and a new reservoir ahead the City reaching these capacity limitation. These projects are further described in Chapter 8 and should add enough capacity for the 10-year planning period.

The City has two projected capacity limitations in the 10 to 20-year planning horizons. The City will need to acquire additional instantaneous water rights after the 10-year and add an additional water source after the 10-year planning horizon. Projects addressing these deficiencies are outline in the Capital Improvement Program in Chapter 8 as well.

3.5.8 DISTRIBUTION SYSTEM HYDRAULIC ANALYSIS

The development of a computer hydraulic model, which can accurately and realistically simulate the performance of a water system in response to a variety of conditions and scenarios, has become an increasingly important element in the planning, design, and analysis of municipal water systems. The Washington State Department of Health's WAC 246-290 requires hydraulic modeling as a component of water system plans.

3.5.8.1 Hydraulic Modeling Software

The City's water system was analyzed using Innovyze's InfoWater hydraulic modeling software, which operates in a Geographic Information Systems (GIS) environment. The InfoWater model was updated from the City's previous model using an updated water system base map.

The InfoWater model is configured with a graphical user interface. All water system elements, including pipes, control valves, pumps, and reservoirs are assigned a unique

graphical representation within the model. Each element is assigned a number of attributes specific to its function in the actual water system. Typical element attributes include spatial coordinates, elevation, water demand, pipe lengths and diameters, and critical water levels for reservoirs. With attributes of each system element as the model input, the InfoWater software produces the model output in the form of flows and pressures throughout the simulated water system.

3.5.8.2 Model Calibration

The calibration of a hydraulic model provides a measure of assurance that the model is an accurate and realistic representation of the actual system. Model calibration incorporated hydrant flow testing to collect system pressures during a known high flow condition created by opening a fire hydrant and allowing it to flow. Reservoir levels during the hydrant flow testing were collected to establish boundary conditions in the model. The hydraulic model was adjusted to simulate the operating conditions present in the field during testing.

3.5.8.2.1 Previous Calibrations

The 2013 Water System Plan describes two previous model calibration efforts, one in 2005 and the most recent in 2011. Because of the large amount of new development that has occurred since the last model calibration in 2011 and the significant updates to the City's hydraulic model necessary to capture this new development, a new calibration effort was undertaken for the present Plan. The present calibration focused on areas of new development in the high zone, with the four high zone locations selected providing calibration of parts of the water system which were nonexistent at the time of the previous plan. The two low zone locations selected provided a check of how the updated model represented hydraulic conditions within the previously calibrated low zone.

3.5.8.2.2 Fire Hydrant Tests

The hydraulic model of the City's water system was calibrated using data obtained from fire hydrant tests at various locations throughout the water system. Six fire hydrant tests were conducted with the assistance of City personnel on November 1, 2019 (low zone tests), and November 21, 2019 (high zone tests). During these tests, static and residual pressures were recorded as City staff opened hydrants and flow was recorded. The testing locations include multiple points throughout the distribution system. A description of each testing location is presented in Table 3-23.

TABLE 3-23**Hydrant Testing Locations**

Test No.	Pressure Zone	Pressure Hydrant Location	Pressure Hydrant Model Node	Flow Hydrant Location	Flow Hydrant Model Node
1	High	South Union Place and South Ridge Way	J572	South Ridge Way and South Cross Place	J568
2	High	North 46 th Avenue and North Noble Loop	J458	North 10 th Street and North 46 th Avenue	J462
3	High	South Hay Field Circle and South Royle Road	J910	4023 South Hay Field Circle	J514
4	High	3716 South 41 st Street Place	J600	South 41 st Place and South Willow Drive	J606
5	Low	Mill Street and North 1 st Avenue	J-74	West Mill Street and North Krause Avenue	J-76
6	Low	North 1 st Avenue and North Depot Street	J-560	1220 North 1 st Avenue	J-14

The system conditions at the time of each test were recorded and replicated in the hydraulic model during the calibration process. Reservoir water levels were recorded during the testing time period, based on telemetry data. It is assumed that the jockey pump at the Junction Booster Station was on during all tests, and that one of the fire pumps at the Junction Booster Station was on during Test 3. The level in both the Cemetery Reservoir (which sets the hydraulic grade for the low zone) and the High School Reservoir (which sets the hydraulic grade for the high zone) during each test was recorded and is shown in Table 3-24. Values have been adjusted based on the presumed position of the reported level relative to the bottom of the tank.

TABLE 3-24**System Conditions During Hydrant Testing**

Test No.	High School Reservoir Level (ft)	Cemetery Reservoir Level (ft)
1	133.5	17.0
2	128.7	16.4
3	131.6	16.9
4	126.7	16.4
5	128.8	16.2
6	127.5	15.9

3.5.8.2.3 Calibration Procedures

Using the system conditions for each hydrant test, the hydraulic model was used to generate static pressure and residual pressure at the measured hydrant flow rate. The total system demand at the time of the hydrant tests was assumed to be equal to the average day demand for the water system. Model output was generated at points in the model equivalent to the locations of the hydrant tests as shown in Table 3-17.

Model output for static pressure was generated by running the model under average day demand. Model output for residual pressure was generated at each hydrant test location by placing an added demand equal to the measured hydrant flow rate and recording the resulting pressure at the point where residual pressure was measured. Computed pressures, flow rates, and hydraulic grade lines (HGLs) were compared to the field measurements of the hydrant flow testing and pipe Hazen-Williams Roughness Coefficients and elevations were adjusted to match the field-measured conditions.

3.5.8.2.4 Calibration Criteria

As stated in Section 6.1.3 of the DOH Water System Design Manual, *“There are no standard national or industry-adopted criteria for calibrating a hydraulic network model.”* DOH provides guidelines in Table 6-1 of the Water System Design Manual indicating that the hydraulic grade line of the model should generally be within 10 feet (4.3 psi) of the field observations.

3.5.8.2.5 Calibration Results

The friction factors for the pipes in the modeled system are adjusted throughout the calibration process until the model output best approximates the measured values. A Hazen-Williams Roughness Coefficient of $C=140$ is used throughout the system as it provides the best agreement with field tests. The friction factors for the pipe also compensate for system losses through valves and pipe fittings.

The values measured in the hydrant flow tests are compared to the model output values in Table 3-25.

TABLE 3-25
Calibration Results⁽¹⁾

Test No.	Flow (gpm) ⁽²⁾	Field Pressure (psi)			Modeled Pressure (psi)			Difference (psi)		
		Static ⁽³⁾	Residual ⁽⁴⁾	Drop ⁽⁵⁾	Static	Residual	Drop	Static	Residual	Delta (Drop)
1	919	60	34	26	60	36	24	0	+2	-2
2	1,061	62	42	20	64	39	25	+2	-3	+5
3	1,353	83	62	21	84	65	19	+1	+3	-2
4	1,087	56	50	6	54	48	6	-2	-2	0
5	1,222	82	56	26	83	65	18	+1	+9	-8
6	1,332	79	62	17	79	61	18	0	-1	+1

- (1) See Table 3-17 for flow and pressure hydrant locations and equivalent model nodes.
 (2) Flow at the flow hydrant as measured during testing.
 (3) Static pressure at the pressure hydrant as measured during testing, prior to the flow hydrant being opened.
 (4) Residual pressure at the pressure hydrant as measured during testing, after the flow hydrant was opened.
 (5) Drop is computed as Static minus Residual; represents the pressure drop in the system due to the flow from the flow hydrant.

With the exception of tests no. 2 and 5, calibration of the hydraulic model produced pressure drops that were less than 5 psi of actual field test data as recommended by the guidelines in the Water System Design Manual discussed above. In the case of Test 2, the modeled pressure drop is 5 psi higher than the field observations, indicating that the model is conservatively representing system capacity. In the case of Test 5, the modeled pressure drop is 8 psi lower than the field observations. It is likely this discrepancy is attributable to the presence of a closed valve in the proximity of the testing location, possibly on the 6-inch pipe along North Main Avenue between Division Street and Mill Street. When a closed valve is modeled in this location, the resulting modeled residual pressure is 59 psi, which corresponds to a modeled pressure drop of 24 psi. This value is within 2 psi of the observed pressure drop of 26 psi for Test 5. Thus, the hydraulic model calibration is sufficiently accurate for the purposes of this planning effort.

3.5.8.3 Model Assumptions

Model input assumptions have significant impacts on peak hour and fire flow results. This section documents assumptions regarding the hydraulic modeling analysis. Prior to the calibration of the hydraulic model, the basic layout of the water system is recreated within the model. The lengths, diameters, and connection points of system piping are assigned using an updated base map of the water system. The locations of the sources, reservoirs, and pressure reducing valves (PRVs) are found on water system base maps, while the critical elevations of the reservoirs are taken from as-built drawings and past planning documents. The assumptions regarding the modeling of all water sources, system demands, and the settings of PRVs are included in the following sections.

3.5.8.3.1 System Demands

A key element in the hydraulic modeling process is the distribution of demands throughout the water system. Modeling for this WSP was originally performed in 2019 as part of a previous Plan update which was never formally adopted. The parameters used are summarized below. It has been determined that this previous modeling effort is still valid for the current planning effort; given that the forecasted water system demands summarized in Table 2-13 are lower than what was projected in the previous plan update four years ago. A comparison of 2019 modeled demands and potential 2023 modeled demands are presented in Table 3-26.

TABLE 3-26
Modeled Demands

Parameter	Max Day Demand Fire Flow Scenarios				Peak Hour Demand Scenarios			
	2019	2030	2040	2045	2019	2030	2040	2045
2019 Modeled Total System Demand (gpm)	1,621	3,503	5,945	-	2,869	5,710	9,620	-
2023 updated Total System Demand (gpm) ⁽¹⁾	1,621	3,089	4,298	4,902	2,869	5,984	6,963	7,942
Total Number of Demand Model Nodes	622	622	651	-	622	622	651	-

(1) Total System Demand is the projected Maximum Day Demand for the Fire Flow Scenarios and projected Peak Hour Demand for the Peak Hour Demand Scenarios. Demand values for a given year can be found in Table 2-13. Note that fireflow demand is added will be added to the numbers in the table above for modeling the fireflow scenarios.

As shown in the Table above, the parameters used for the 2019 modeling effort represent a much higher demand and a more conservative modeling scenario than an updated demand 2023 scenario would. Most importantly the 2045 projected maximum day and peak hour demands in the update projection in Table 2-13 are still lower than those projected for 2040 in the 2019 modeling effort. As a result, the same 2019 modeling effort is presented as part of this WSP update.

Seven demand sets are used in the hydraulic analysis.

- **2018 Average Day Demands:** These demands were used for the calibration of the model.
- **2019 Peak Hour Demands:** These demands were used to verify the system is able to currently meet the DOH standards to supply domestic water at a minimum system wide pressure of 30 psi.

- **2019 Maximum Day Demand plus Fire Flow:** These demands were used to evaluate the system's ability to currently meet the maximum day demands plus required fire flows at DOH's requirement of 20 psi.
- **2030 Peak Hour Demands:** These demands were used to verify the system is able to meet the DOH standards to supply domestic water at a minimum system wide pressure of 30 psi within the 10-year planning period.
- **2030 Maximum Day Demand plus Fire Flow:** These demands were used to evaluate the system's ability to meet the maximum day demands plus required fire flows at DOH's requirement of 20 psi within the 10-year planning period.
- **2040 Peak Hour Demands:** These demands were used to verify the system is able to meet the DOH standards to supply domestic water at a minimum system wide pressure of 30 psi within the 20-year planning period.
- **2040 Maximum Day Demand plus Fire Flow:** These demands were used to evaluate the system's ability to meet the maximum day demands plus required fire flows at DOH's requirement of 20 psi within the 20-year planning period.

Modeled demands for each scenario are summarized in Table 3-26.

3.5.8.3.2 Storage

It has been conservatively assumed that all drawdown occurs in the existing reservoirs, even in the future modeling scenarios. Reservoir drawdown assumed in the model scenarios is shown in Table 3-27A, and the corresponding reservoir levels are shown in Table 3-27B. For the fire flow scenarios, it is assumed that the total drawdown is equal to the total of operational, equalizing, and fire suppression storage as shown in the "without improvements" section of Table 3-20. For the peak hour scenarios, it is assumed that the total drawdown is equal to the total of operational and equalizing storage as shown in Table 3-19. The Cemetery Reservoir and the High School Reservoir have been assumed to be drawn down from their respective pump off levels by 5 feet and 10 feet respectively in all scenarios, with the remaining drawdown occurring in the Junction reservoir.

In the 2030 and 2040 model scenarios, the model also includes the proposed standpipe to be located east of I-5. It has been assumed in all 2030 and 2040 model scenarios that the hydraulic grade in this standpipe will match the hydraulic grade of the High School Reservoir.

TABLE 3-27A**Modeled Reservoir Drawdown (gal)**

Reservoir	Fire Flow Scenarios			Peak Hour Demand Scenarios		
	2019	2030	2040	2019	2030	2040
Cemetery	112,900	112,900	112,900	112,900	112,900	112,900
High School	46,100	46,100	46,100	46,100	46,100	46,100
Junction	566,500	677,700	928,700	26,500	137,700	388,700
Total Drawdown	725,500	836,700	1,087,700	185,500	296,700	547,700

TABLE 3-27B**Modeled Reservoir Levels (ft)**

Reservoir	Fire Flow Scenarios			Peak Hour Demand Scenarios		
	2019	2030	2040	2019	2030	2040
Cemetery	12.0	12.0	12.0	12.0	12.0	12.0
High School	123.0	123.0	123.0	123.0	123.0	123.0
Junction	12.2	9.0	2.0	27.3	24.1	17.1

3.5.8.3.3 Source

For a conservative model, the proposed source improvements previously discussed have not been included in future model scenarios. For the peak hour demand scenarios, all sources are offline. For the fire flow scenarios, it is conservatively assumed that the largest existing well source (the Junction Well, 380 gpm capacity) is out service. CPU interties have also been omitted from the model runs, with the exception of the existing 279th Street Intertie, which is isolated from the remainder of the system, and is modeled providing 1,000 gpm during the 2040 fire flow scenario. Table 3-28 lists the capacity assumed for each existing and proposed source in each model run. Sources have been included in the model as negative demands.

TABLE 3-28**Modeled Sources (gpm)**

Source	Capacity (gpm)	Fire Flow Scenarios			Peak Hour Demand Scenarios		
		2019	2030	2040	2019	2030	2040
Existing Well 7	240	240	240	240	0	0	0
Existing Well 8	300	300	300	300	0	0	0
Existing Well 9	336	336	336	336	0	0	0
Existing Well 10	165	165	165	165	0	0	0
Existing Well 11	150	0	150	150	0	0	0
Existing Junction Well	380	0	0	0	0	0	0
Future Kennedy Farms Wells	1,200	0	0	0	0	0	0
Future Teal Crest Wells	600	0	0	0	0	0	0
Future Port of Ridgefield Wells	900	0	0	0	0	0	0
Existing South 5 th Street Intertie	1,000	0	0	0	0	0	0
Existing NW 279 th Street Intertie	1,000	0	0	1,000	0	0	0
Existing NW 289 th Street Intertie	1,000	0	0	0	0	0	0
Future Royle Road Intertie	1,000	0	0	0	0	0	0
Total	8,271	1,041	1,191	2,191	0	0	0

3.5.8.3.4 Booster Pump Stations

Booster station status during all model runs is shown in Table 3-29. It has been conservatively assumed that only two of the three 1,000 gpm Junction booster pumps are operating during all model scenarios. The Junction Booster Pumps were modeled using pump curves.

TABLE 3-29**Modeled Booster Pump Status**

Booster Pump	Nominal Pump Capacity (gpm)	Fire Flow Scenarios			Peak Hour Demand Scenarios		
		2019	2030	2040	2019	2030	2040
Junction Booster Pump 1	1,000	On	On	On	On	On	On
Junction Booster Pump 2	1,000	On	On	On	On	On	On
Junction Booster Pump 3	1,000	Off	Off	Off	Off	Off	Off
Junction Booster Pump 4	200	On	On	On	On	On	On
Cemetery Booster Pump 1	120	On	On	On	On	On	On
Cemetery Booster Pump 2	120	On	On	On	On	On	On

3.5.8.3.5 Pressure Reducing Valves (PRV)

The City's PRVs, with settings as described in Table 1-6, are included in the hydraulic model.

3.5.8.3.6 Distribution System

The City's existing distribution system is modeled for the 2019 model scenarios. 2030 and 2040 model scenarios include distribution system improvements as described in Chapter 8, except for minor distribution system improvements detailed in the M-1.X series which are largely downtown and replacing old, but not undersized pipes.

3.5.8.3.7 Required Fire Flow

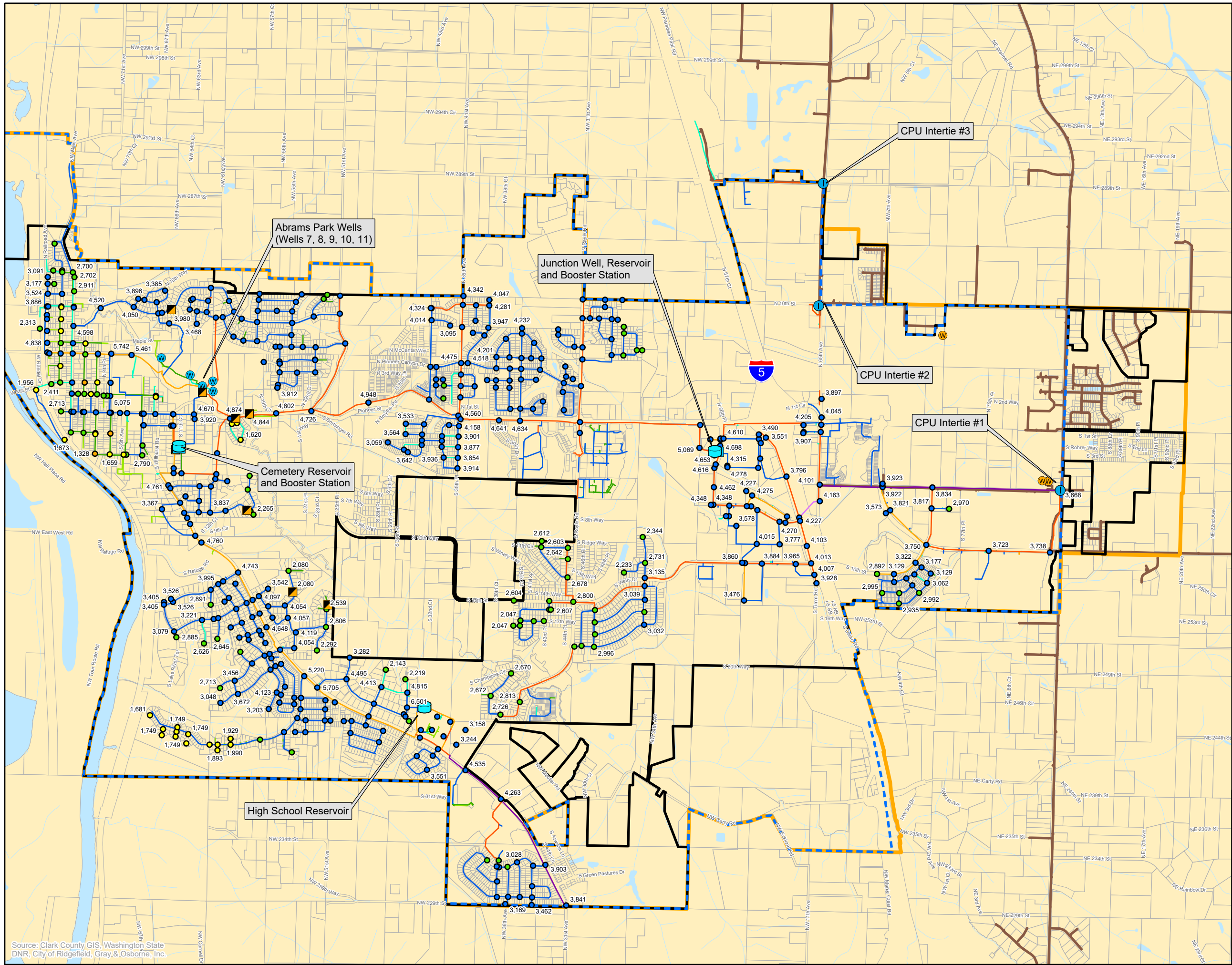
For the fire flow scenarios, each applicable model node was assigned a required fire flow based on the application of the fire flow standards as shown in Table 3-18. Required fire flow was either 1,000 gpm, 1,500 gpm, or 3,000 gpm, depending on the zoning of the area in which the model node was located. Not all model nodes are required to provide fire flow (such as nodes located on 2-inch pipe which serves several homes but has no attached hydrants); these nodes have been excluded from the fire flow analysis.

3.5.8.4 **Model Results**

This section summarizes results of the hydraulic analysis for all modeled peak hour demand and fire flow scenarios. See Appendix F for detailed results. A hydraulic model node map showing the results of the fire flow analysis for 2019 and 2040 are shown on Figures 3-1 and 3-2, respectively.

3.5.8.4.1 Peak Hour Demand Results

According to WAC 246-290, a water system must maintain a minimum pressure of 30 psi in the distribution system under peak hour demand conditions. Table 3-30 summarizes the ability of the Ridgefield water system to meet this requirement under modeled 2019, 2030, and 2040 scenarios where the 2030 and 2040 scenarios include the capital improvement projects slated for each planning horizon.



2019 Available Fireflow

- < 1,000 GPM
- 1,000 - 1,500 GPM
- 1,500 - 2,000 GPM
- 2,000 - 3,000 GPM
- > 3,000 GPM

Water Lines 2024 (Diameter)

- ≤ 3"
- 4"
- 6"
- 8"
- 10"
- 12"
- 14"
- 16"
- CPU Water Lines

Facilities

- Existing Well
- CPU Well
- CPU Intertie
- Existing PRV
- Booster Pump Station
- Existing Reservoir

Reference

- Retail Service Area
- City Limits
- Urban Growth Area
- Parcels
- Surface Water



0 750 1,500 3,000
Feet

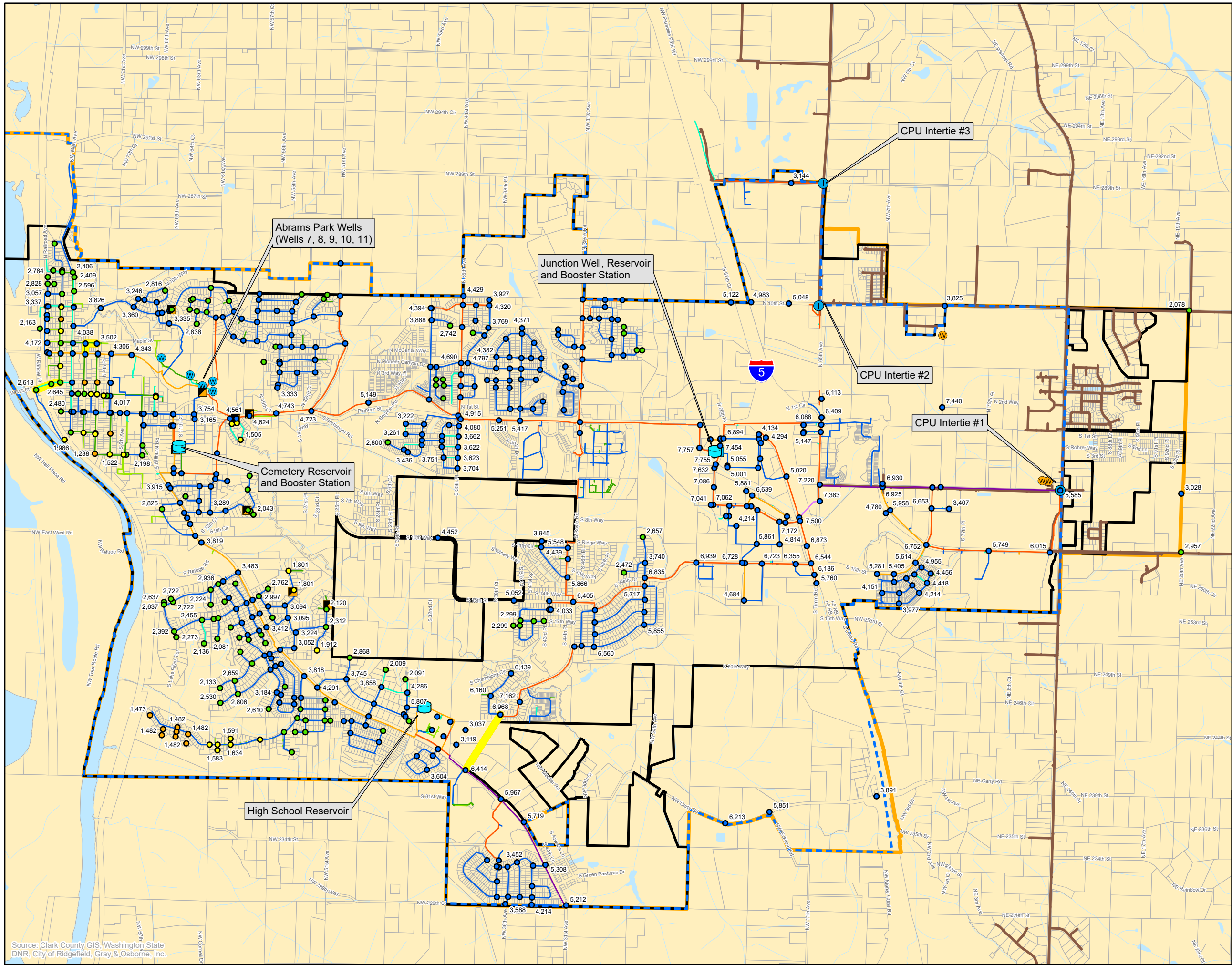
CITY OF RIDGEFIELD

WATER SYSTEM PLAN

FIGURE 3-1

2019 AVAILABLE FIRE FLOW
WITHOUT CIP IMPROVEMENTS





2040 Available Fireflow

- < 1,000 GPM
- 1,000 - 1,500 GPM
- 1,500 - 2,000 GPM
- 2,000 - 3,000 GPM
- > 3,000 GPM

Water Lines 2024 (Diameter)

- ≤ 3"
- 4"
- 6"
- 8"
- 10"
- 12"
- 14"
- 16"

CPU Water Lines

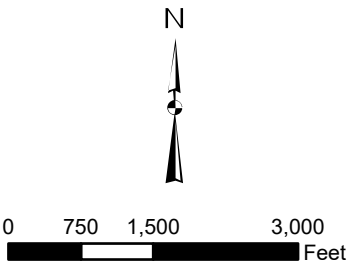
- Pipe Improvements (2035 Planning Horizon)
- Pipe Improvements (2045 Planning Horizon)

Facilities

- Existing Well
- CPU Well
- CPU Intertie
- Existing PRV
- Booster Pump Station
- Existing Reservoir

Reference

- Retail Service Area
- City Limits
- Urban Growth Area
- Parcels
- Surface Water



CITY OF RIDGEFIELD
WATER SYSTEM PLAN
FIGURE 3-2
2040 AVAILABLE FIRE FLOW
WITH CIP IMPROVEMENTS



TABLE 3-30**Lowest System Pressures During Peak Hour Demand (PHD) Conditions**

Zone	PHD Scenario	Model Node	Node Location	Node Elevation (ft)	Pressure at PHD (psi)	Deficiencies
Low Zone	2019	J798	332 South 8 th Court	176	38	None
	2030	J798	332 South 8 th Court	176	37	None
	2040	J798	332 South 8 th Court	176	38	None
High Zone	2019	J370	1506 South 21 st Place	228	50	None
	2030	J74	South 16 th Way and South Dusky Drive	284	42	None
	2040	J972	NE 279 th Street and NE 20 th Avenue	295	49	None

The lowest peak hour pressure in the Low Zone occurs at 332 South 8th Court in all peak hour scenarios, while the location of the lowest peak hour pressure in the High Zone varies depending on the scenario. Under current conditions (2019), it occurs at 1506 South 21st Place, immediately downstream of the Osprey PRV; it should be noted that the setting of the Osprey PRV is the controlling factor here, rather than a limitation in the water system. Under 2030 conditions, the lowest High Zone pressure occurs in the southwest portion of the system, at South 16th Way and South Dusky Drive, at a relatively high elevation within the High Zone. Under 2040 conditions, the lowest High Zone pressure occurs at NE 279th Street and NE 20th Avenue, in a future portion of the water service area with an elevation slightly higher than any existing elevation in the service area.

As shown in the Table 3-30, the 30 psi requirement is met in all peak hour demand scenarios.

3.5.8.4.2 Fire Flow Results

The DOH Water System Design Manual states that a water system should be designed to provide adequate fire flow under maximum day demand conditions, while maintaining a minimum system pressure of 20 psi. The City's water system is generally currently capable of providing the required fire flow, even in the older areas of downtown served by a well-looped network of 4-inch mains. In the future (2030 and 2040) scenarios, the system as modeled with the capital improvement project anticipated for each planning horizon along with the conservative assumptions previously described is expected to be able to meet the fire flow requirements. Fire flow deficiencies identified are summarized in Table 3-31. Model results for 2019 and 2040 are shown in Figures 3-1 and 3-2, respectively.

TABLE 3-31**Summary of Fire Flow Deficiencies**

Fire Flow Scenario	Deficiency No.	Model Node	Node Location	Required Fire Flow (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
2019	1	J134	401 Maple Street	1,000	931	(69)
	2	J272	7509 South 5 th Street	3,000	2,970	(30)
	3	J314	7000 South 10 th Street	3,000	2,982	(18)
	4	J566	7333 South 13 th Street	3,000	2,992	(8)
	5	J568	7144 South Ridge Way	3,000	2,950	(50)
	6	J570	7159 South 13 th Street	3,000	2,935	(65)
	7	J572	1203 South Union Place	3,000	2,995	(5)
2030	No Deficiencies (with Distribution CIPs)					
2040	No Deficiencies (with Distribution CIPs)					

Deficiencies 2 through 7 represent nodes located in the southeast portion of the high zone, east of I-5. These deficiencies are relatively minor, with several nodes marginally failing to meet the applicable industrial fire flow standard of 3,000 gpm. These deficiencies will be addressed by the construction of the proposed standpipe to be located east of I-5, which will serve to improve fire flow on the east side of the system as well as meeting the City's projected storage needs.

The only fire flow not addressed by the construction of this standpipe is Deficiency 1. This deficiency corresponds to the hydrant located in front of 401 Maple Street in the downtown area. This hydrant is served by a dead-end 4-inch main which is not able to provide the required 1,000 gpm of fire flow. This could be remedied by replacing approximately 550 linear feet of 4-inch water main along Maple Street and North 3rd Avenue with 8-inch water main, which will connect to the 10-inch main currently located along Division Street. This project is discussed further in Chapter 8.

Maps of available fire flow for the 2019, 2030, and 2040 fire flow scenarios are included in the back sleeve of this Plan. See Appendix F for tabular model results.

3.6 WATER SYSTEM DEFICIENCIES

This section reviews the foregoing analyses and summarizes any system deficiencies that have been identified. All the deficiencies noted will be addressed by the City's Capital Improvement Program as discussed in Chapter 8.

3.6.1 WATER QUALITY DEFICIENCIES

No water quality deficiencies have been identified. The City should stay up to date on upcoming changes to water quality monitoring including the Revised Lead and Copper Rule's lead service line inventory as well as PFAS regulations. These upcoming water quality monitoring considerations are discussed earlier in this Chapter.

3.6.2 WATER RIGHTS DEFICIENCIES

The City currently has adequate water rights through most the 10-year planning period; however, as shown in Tables 3-12, the City will need additional instantaneous water right by 2032.

3.6.3 SOURCE DEFICIENCIES

At present the City currently has adequate source capacity to meet its goal of supplying maximum day demand in provided 24 hours of source pumping. However, as shown in Table 3-17, The City will need additional source capacity by 2026. Even after adding an additional 1,000 gpm of source capacity via the construction of the fourth CPU intertie, the City is projected to require an additional source by 2035.

3.6.4 TREATMENT DEFICIENCIES

There are no known treatment deficiencies or system limitations that exist within the City's water system.

3.6.5 STORAGE DEFICIENCIES

The City's storage capacity currently meets all regulatory requirements. However, as shown in Tables 3-20, the City will require additional storage capacity by 2026 without planned source capacity improvements. The addition of the new reservoir that is currently in the design and is detail in Chapter 8, should add adequate capacity to meet the City's needs through the 20-year planning horizon

3.6.6 DISTRIBUTION SYSTEM DEFICIENCIES

From a capacity standpoint, the distribution system currently meets all regulatory requirements, with the exception of some minor fire flow deficiencies. See Tables 3-30 and 3-31 for details. All distribution system deficiencies will be addressed through the Capital Improvement Plan discussed in Chapter 8.

As the water system expands to accommodate growth, additional transmission mains will be necessary to serve these areas. All new transmission mains will be properly sized to provide adequate fire flow to the areas they serve while also improving the overall system reliability by providing redundant pathways of water conveyance.

CHAPTER 4

WATER USE EFFICIENCY PROGRAM

4.1 OBJECTIVE

The objectives of this chapter are to identify the conservation and water use efficiency requirements pertaining to the City of Ridgefield, evaluate past conservation efforts, and describe the City's water use efficiency plan for the next 10 years.

4.2 WATER USE EFFICIENCY PLANNING REQUIREMENTS

The Washington Legislature passed the Water Use Efficiency Act of 1989 (43.20.230 RCW), which directs the Department of Health (DOH) to develop procedures and guidelines relating to water use efficiency.

In 2003, the Municipal Water Supply - Efficiency Requirements Act (Municipal Water Law) was passed and amended RCW 90.46 to require additional conservation measures. The Municipal Water Law directed DOH to develop the Water Use Efficiency (WUE) Rule, which was adopted in October 2006. The WUE Rule is outlined in the *Water Use Efficiency Guidebook* (Third Edition), which was most recently revised in January 2017.

These documents provide guidelines and requirements regarding the development and implementation of conservation and efficiency programs for public water systems. Conservation and efficiency programs developed in compliance with these documents are required by DOH as part of water system planning documents, and by the Washington State Department of Ecology (Ecology) as part of an application for water rights. Conservation must be evaluated and implemented as an alternate source of supply before state agencies approve applications for new or expanded water rights.

Conservation can be used effectively to help meet increased demand for water, to protect the environment, to delay the development of costly infrastructure, and to ensure that water is available to meet economic and population growth consistent with the Growth Management Act by using existing supplies more efficiently. Public awareness and participation are necessary for the City to develop an active and beneficial conservation plan.

The third and most recent edition of the WUE Guidebook was released in January 2017. The WUE Rule sets stringent requirements for public water purveyors. The WUE Rule is comprised of the following six sections:

1. WUE Requirements
2. Water Metering
3. Data Collection
4. Distribution System Leakage (DSL)
5. Water Demand Forecasting
6. WUE Goals
7. WUE Measures

4.2.1 WATER USE EFFICIENCY REQUIREMENTS

The WUE Guidebook establishes various implementation and evaluation requirements for municipal water suppliers (MWS). The requirements focus on the importance of measuring water usage and evaluating the effectiveness of the WUE program. The Rule outlines three fundamental elements which include planning, DSL standards, and goal setting and performance reporting.

Table 4-1 provides a summary of the WUE Rule requirements applicable to the City.

TABLE 4-1

Summary of WUE Requirements

Requirement	City Compliance
Include WUE Program in Planning Documents	✓
Set WUE Goals	✓
Submit Service Meter Installation Schedule	✓
Submit First Annual Performance Report	✓
Meet DSL Standard (based on 3-year rolling average)	✓
Complete Installation of All Service Meters	✓

The City meets all requirements in Table 4-1.

4.3 WATER METERING

The WUE Rule requires all sources and customer service connections be metered by January 22, 2017. The City of Ridgefield currently meters all sources, and all customers, and implements a water meter replacement program to assure meter accuracy. The City also meters its hydrant usage and requires contractors to do so as well.

The City does, at times, find illicit unmetered connections, often installed on a bypass around an existing meter. When found, the City works with customer to correct and meter these connections to bring them in compliance with City code and the WUE regulations.

4.4 WATER USE DATA COLLECTION AND REPORTING

The WUE Rule requires regular collection of production and consumption data. Data must be reported in the City's planning documents and annual performance report to DOH. Water use data will be used for the following:

- Calculating leakage;
- Forecasting demand for future water needs;
- Identifying areas for more efficient water use;
- Evaluating the success of your WUE program;
- Describing water supply characteristics;
- Aiding in decision-making about water management.

Table 4-2 summarizes the water use data collection requirements.

TABLE 4-2

Summary of Water Use Data Collection

Data Type	Unit of Measure	Collection Frequency	Comments
Water Production	Gallons	Monthly	Total by month and by year.
Interties	Gallons	N/A	Water transferred through interties is metered and read by Clark Public Utilities.
Water Sold	Gallons	Billing Period	Total sold by customer class for each billing period.
Estimated Unmetered Water Use	Gallons	Billing Period	Estimate and record unmetered water uses for each billing period.
Estimated Identified and Corrected Water System Leaks	Gallons	Billing Period	When leaks are discovered and repaired, the leakage rate and duration are estimated and the resultant leakage volume for the billing period is estimated and recorded.
Accounted-for Water	Gallons	Billing Period	The sum of Water Sold, Estimated Unmetered Water Use, and Estimated Identified and Corrected Water System Leaks.
Distribution System Leakage	Gallons	Billing Period	The difference between monthly Water Production and monthly Accounted-for Water.
Percent Distribution System Leakage	Percent	Billing Period	Distribution System Leakage divided by Water Production times 100 percent (see Chapter 2). Calculated for each billing period and for each year. If the 3-year running average exceeds 10 percent, further actions are required to reduce distribution system leakage.

4.5 DISTRIBUTION SYSTEM LEAKAGE STANDARD

The WUE Rule requires that water distribution systems maintain a DSL rate of less than 10 percent of finished water production based on a 3-year rolling average. DSL is defined as the difference between the total water production and authorized consumption.

Authorized consumption includes metered water consumption by customers and known or credibly estimated uses that were unbilled or unmetered. Unmetered uses typically include cleaning reservoirs, flushing mains, and fire flows. DSL is typically attributed to water loss due to leaks or unauthorized uses such as illegal service connections, accounting errors, inaccurate source and customer meters, and water leaving the system for any unmetered use. DSL for 2014 through 2022 is summarized in Table 4-3.

TABLE 4-3

Distribution System Leakage

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Water Produced and Purchased, MG	212.9	248.0	252.4	292.4	335.1	339.6	397.5	491.9	489.3
Consumption, MG	197.5	236.0	237.9	266.4	311.0	310.4	372.3	459.5	449.7
Other Authorized Use, MG	0.6	1.6	1.3	0.4	1.7	1.5	1.7	6.4	6.0
Total Authorized Consumption, MG	198.1	237.6	239.2	266.8	312.7	311.9	374.0	465.9	455.7
Distribution System Leakage, MG	14.7	10.4	13.2	25.7	22.4	27.7	23.4	26.0	33.6
Distribution System Leakage, %	6.9%	4.2%	5.2%	8.8%	6.7%	8.2%	5.9%	5.3%	6.9%
3-Year Rolling Average DSL	-	-	5.4%	6.1%	6.9%	7.9%	6.9%	6.4%	6.0%

The City's 3-year rolling average DSL was 6 percent in 2022 and has been below the WUE Rule's 10 percent maximum allowable leakage requirement every year, since at least 2016.

4.6 WATER DEMAND FORECASTING

The water demand forecast is presented in Table 2-13 and is based on historic water use data and anticipated population growth. A detailed discussion of demand forecast assumptions and parameters can be found in Chapter 2. These forecasted values will be compared to a similar forecast in which the City meets new conservation goals in Table 4-6.

4.7 WATER USE EFFICIENCY GOALS

The WUE Rule requires that water conservation goals must include a measurable outcome, address water supply and/or demand characteristics, and include an implementation schedule. The goal setting process must be held through a public forum and be re-evaluated every 6 years. The WUE Rule requires that the “governing body of the public water system shall establish water use efficiency goals within 1 year of the effective date of this rule.” The WUE Rule further requires that WUE Goals must “be set in a public forum that provides opportunity for consumers and the public to participate and comment on the water use efficiency goals.” Documentation of the public meeting and adoption of the updated WUE goals, which detailed later in this section, can be found in Appendix I.

This section will first evaluate the City’s previous WUE goals which were first outlined in the 2013 WSP, before outlining new goals for the next 10-year planning period.

4.7.1 PREVIOUS WUE GOALS

Past WUE goals established by City’s 2013 Water System Plan included two specific demand goals and one specific supply goal. These goals will be evaluated by comparing target water use from the previous WSP to the historic water use that actually occurred. The two goals are described below.

1. Demand Side Goal: Reduce ERU_{ADD} by 1 percent per year.

The City’s performance towards meeting this goal is evaluated in Table 4-4.

TABLE 4-4

Previous Demand Side Goal Evaluation

	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average
ERU _{ADD} (gpd/ERU)	257	246	193	212	206	197	194	207	194	212
Percent Change	-	-4.5%	-27.5%	9.0%	-2.9%	-4.6%	-1.5%	6.3%	-6.7%	-4.1%

Despite fluctuations year-to-year, on average the City has managed to decrease water consumption by an average of 4.1 percent per year, surpassing its 1 percent goal.

2. Maintain system DSL below 10 percent.

As shown in Table 4-3, the City has managed to not only meet but surpass this goal, maintaining DSL at 8.8 percent or lower between 2014 and 2022.

4.7.2 UPDATED WUE GOALS

Under the WUE Rule, the City must outline new water use efficiency goals as part of the WSP update, adopt these goals through a public process, and measure progress towards these goals each year. These goals must include a measurable outcome, and address water demand and supply characteristics. The City will continue to strive for the same goals as in the previous WSP in an effort to continue to reduce demand and maintain an acceptable DSL rate. The two new goals are summarized below.

1. Demand Side Goal: Reduce the average day consumption per ERU (ERU_{ADD}) by 1 percent per year for the next 10 years. Table 4-5 shows the impact of meeting the reduced consumption goal.

TABLE 4-5

Water Savings with Consumption Goal

Year	Projected ERUs (Excluding DSL) ⁽¹⁾	No Conservation		Conservation		Annual Water Savings (MG/Y)
		ERU _{ADD} ⁽²⁾	Average Daily Consumption (MG/Y)	ERU _{ADD}	Average Daily Consumption (MG/Y)	
2024	6,786	200	495	198	490	5
2025	7,131		521	196	510	10
2026	7,475		546	194	529	16
2027	7,820		571	192	548	23
2028	8,164		596	190	566	30
2029	8,509		621	188	584	37
2030	8,853		646	186	601	45
2031	9,198		671	185	621	50
2032	9,543		697	183	637	59
2033	9,887		722	181	653	69
Total Estimated 10-Year Water Savings						345

(1) From Table 2-13.

(2) From Table 2-7.

2. Supply Side Goal: Maintain distribution system leakage and loss below 10 percent.

Both goals were implemented as of the date noted in the City's adoption ordinance as detailed in Appendix I.

4.7.3 WATER USE EFFICIENCY MEASURES

The WUE Rule requires that water systems with between 2,500 and 9,999 service connections must implement or evaluate a minimum of six water use efficiency measures. The WUE Guidebook further states that water use efficiency measures that are required in other portions of the WUE Rule cannot be counted as measures to be selected under this requirement. Measures required in other portions of the WUE Rule include the following:

- Installation of source and service meters if meters are not already present;
- Regular calibration of meters;
- Development and implementation of a water loss control program if distribution system leakage exceeds 10 percent;
- Education of consumers about water use efficiency practices once per year;
- Evaluation of water rates; and
- Evaluation of reclaimed water.

The WUE Guidebook suggests several measures can count toward satisfying the required number of water use efficiency measures. An important caveat is that a water system may count an implemented WUE measure once for each customer class that it is applied to.

The City of Ridgefield has adopted the following seven WUE Measures:

- Employing a conservation rate structure for single-family residential customers.
- Employing a conservation rate structure for multi-family residential customers.
- Maintaining a display at City Hall and at City led public social events with materials promoting conservation and leak detection and other educational programs. These materials are also available on the City's website.
- Notifying single-family residential customers of unusually high water usage.
- Notifying multi-family customers of unusually high water usage.

- Notifying commercial/industrial customers of unusually high water usage.
- Notifying irrigation customers of unusually high water usage.

As an additional measure the City also encourage Backyard Habitat Certification where participants prioritize native plants for wildlife and pollinator habitat. Native plants are adapted to the local environment and require less water to establish and maintain. One of the program goals is to increase the number of native plants in yards which will decrease the amount of lawn, which in turn reduces the amount of watering. Planting native plants conserves water.

4.7.4 IMPLEMENT OR EVALUATE WATER USE EFFICIENCY MEASURES

The City of Ridgefield is currently implementing seven WUE measures, exceeding the minimum requirement of six WUE measures. Since the minimum number of WUE measures is being implemented, no evaluation of the cost effectiveness of conservation measures is required.

4.8 WATER USE EFFICIENCY IMPROVEMENTS

The City of Ridgefield has continued interest in being proactive and addressing water conservation as well as potential water shortages both within the its retail service area (RSA) and in its immediate region. Such measures include developing a water shortage plan, improving communication with the public, working with local utilities towards regional water conservation, controlling water used for irrigation as well the possible use of reclaimed water. These potential measures are discussed in more detail below.

4.8.1 WATER SHORTAGE PLAN

In the future, the City may consider implementing a Water Shortage Plan. Such plans typically have tiered measurable trigger points, which may include for example, consecutive dry days, a low level within the Columbia River, change in aquifer levels, or some number of sources that are offline. Increasingly stringent conservation measures as higher tiers of these trigger points are reached, with the goal of limiting consumption during periods of high water demand and low water supply. Possible triggered conservation measures (in order of severity) include issuing an advisory notice, calling for voluntary conservation, implementing an odd/even address irrigation schedule, only allowing two or one day(s) of irrigation per week, and forbidding outdoor irrigation.

A draft Water Shortage Plan can be found in Appendix M. It is recommended that the City review and revise the plan as necessary and that a final Water Shortage Plan is adopted by City Council.

4.8.2 IMPROVEMENTS TO PUBLIC COMMUNICATION

The City plans to invest in simple low-cost measures such as signs and sandwich boards on which they could communicate emergency or seasonal water shortage notices, boil notices, or other pertinent water supply notices. The City could also consider electronic push notifications to customer's cell phones and/or emails in times of emergency.

4.8.3 REGIONAL CONSERVATION

Other water systems in the vicinity of the City of Ridgefield face similar seasonal strains on water supply and several are interconnect via interties. The City is interested in collaborating and sharing educational materials, public notification strategies, expertise, and supply information with adjacent purveyors.

The City should also keep in close contact with Clark Public Utilities (CPU) during periods of drought or source failure at either utility, as the two systems are intertied and may directly impact the demand and availability of water from each other when the intertie is in use.

4.8.4 CONTROLLING IRRIGATION DEMAND

As illustrated in Table 2-5, irrigation demand in the City increased by 74 percent between 2014 and 2022, an average annual increase of 12 percent over the last 9 years. City billing records indicate that 42.8 million gallons of irrigation water was used in 2022, which corresponds to 9.5 percent of total system demand for that year.

Two concrete measures exist for curbing existing and future irrigation water demand. First, the cost of water for irrigation meters could be raised and a tiered structure could be introduced. At present, irrigation customers pay a flat rate per cubic foot of water consumed. The second measure would be to amend the City's municipal code and development standards to encourage or require the use of less water-intensive landscaping such as native and drought resistant plants or even artificial turf. As mentioned, such measures would require City approval and modifications to City Code.

4.8.5 WATER RECLAMATION

The WUE Rule requires that water utilities with more than 1,000 service connections address water reclamation and reuse opportunities in their water system plans.

As discussed in Clark Regional Wastewater District's (CRWWD's) most recent Comprehensive Sewer Plan (Sewer Plan), dated December 2017, Ridgefield transferred ownership and operational responsibility for its wastewater collection system to CRWWD on January 1, 2014, and transferred ownership of its wastewater treatment plant (WWTP) to the Discovery Clean Water Alliance (Alliance) on January 1, 2015. The City currently continues to operate the WWTP under an agreement with the Alliance,

but the long-term strategy to accommodate growth within Ridgefield's Urban Growth Area is to decommission the WWTP and divert all wastewater flows from the Ridgefield system to CRWWD's Salmon Creek Treatment Plant.

The Sewer Plan included a detailed evaluation of water reuse in accordance with RCW 90.48.112 and concluded that water reuse is economically infeasible. As a result, there are currently no plans for new water reclamation facilities within the CRWWD's service area, including the City of Ridgefield.

However, if conditions were to change and CRWWD were to decide to pursue reclaimed water facilities at some point in the future, the City would consider partnering with CRWWD on such facilities at that time.

CHAPTER 5

WELLHEAD PROTECTION PROGRAM

5.1 OBJECTIVE

The objective of this chapter is to document the City's program for wellhead protection to protect and improve source water quality. This program identifies pollutant sources within a zone of contribution that may affect source waters. Protection of these sources can be accomplished through monitoring, limiting and controlling to the best extent possible all adverse effects. Specific criteria against which the adequacy of source water protection is measured are presented in the Washington Administrative Code Sections 246-290-135, 668, and 690.

5.2 BACKGROUND

The City of Ridgefield reduces the potential risk for contamination of groundwater within the identified wellhead protection area through the use of a wellhead protection program. The program identifies potential contaminant sources, describes procedures for notification, education and implementation of actions to protect the groundwater supply, and locally defined spill response procedures for spill incidents within the wellhead protection area. The 2013 Water System Plan provided a fully functional Wellhead Protection Program. This document updates the plan set forth in 2013.

The purpose of a wellhead protection program is to provide local utilities with a program for preventing groundwater contamination. A successful wellhead protection program consists of a number of components that must be developed before the plan can be fully implemented. The major components of the plan are described below and form the basis of the chapter that follows:

- **A Delineated Wellhead Protection Area (WHPA)** based on all reasonably available hydrogeologic information, including an assessment of susceptibility to contamination.
- An **Inventory** of all known and identifiable potential contamination sources within each wellhead protection area.
- A **Spill Response Plan** for each wellhead protection area containing documentation for coordination with local first responders (police, fire, HAZMAT team, etc.).
- **Contingency Plans** for providing alternate sources of drinking water in the event of contamination.

- **A Wellhead Protection Area Management Plan** to reduce the likelihood that potential contaminant sources will pollute the drinking water supply.

5.3 AQUIFER SUSCEPTIBILITY

Completion of a susceptibility assessment is an important initial step in selecting appropriate delineation methods to define wellhead protection area boundaries. Completion of the susceptibility assessment and submittal to the Department of Health (DOH) allows DOH to determine the susceptibility and vulnerability ratings. Sources that receive low susceptibility ratings may receive susceptibility waivers from DOH to reduce or waive the amount of required monitoring for volatile organic compounds (VOCs) and synthetic organic compounds (SOCs). Table 5-1 contains the susceptibility and vulnerability ratings for the City's sources. The susceptibility assessment surveys completed for the Ridgefield wells used the calculated fixed radius method for the WHPA delineations. Groundwater flow directions were not accounted for in the assessments performed. The completed susceptibility assessment forms were previously completed by City of Ridgefield for each of the production wells as part of the requirements for requesting waivers for Phase II and V monitoring required by the SDWA. The completed forms can be found in Appendix J.

TABLE 5-1

City of Ridgefield Source Susceptibility and Vulnerability Ratings

Source	DOH Source #	Susceptibility	Vulnerability
Well 7	S11	Low	Low
Well 8	S08	Low	Low
Well 9	S09	Low	Low
Well 10	S16	Low	Low
Well 11	S17	Low	Low
Junction Well	S12	Low	Low

Susceptibility ratings reflect the sensitivity of a water source to contamination from a variety of contaminant sources. The susceptibility rating is dependent upon factors such as well construction, hydrogeological conditions, and distances to known or suspected contaminant sources. Drinking water wells vary in their susceptibility to contaminants discharged at the surface. Wells with poor construction or improper surface seals have an increased susceptibility to contaminant migration into the saturated zone of the well. In addition, wells located in unconfined aquifers typically have a higher degree of susceptibility than deep wells in confined aquifers. Vulnerability ratings are specific to pesticide contamination. The vulnerability ratings are somewhat dependent on land use characteristics and reflect regional pesticide use and application practices.

5.4 WELLHEAD PROTECTION AREAS

5.4.1 BACKGROUND

The purpose of delineating a wellhead protection area is to estimate the area capable of contributing contaminants to a pumping well. These areas are referred to as zones of contribution (ZOC) and provide a basis for focusing a community's groundwater protection efforts. Multiple methods are used to delineate zones of contribution, which predict the movement of groundwater. A groundwater model simplifies the characteristics of an aquifer in order to provide mathematical estimates of actual conditions. As the groundwater model is increasingly simplified the model becomes easier to use, but the results become less accurate. The most commonly accepted groundwater models for delineating a WHPA (zone of contribution) are the Fixed Radius, Analytical, and Numeric models.

The simplest groundwater model is based on the Calculated Fixed Radius (CFR) method. In the Calculated Fixed Radius method, the delineations are concentric areas around each well, calculated based on pumping data and known or assumed aquifer characteristics. The CFR method is the minimum acceptable delineation for groundwater sources as determined by DOH.

An Analytical model requires basic hydrological information including the direction of groundwater flow, gradient, and certain physical characteristics of the aquifer. These physical characteristics include the aquifer thickness, the rate at which the aquifer will transmit water (transmissivity), and whether the aquifer is confined or unconfined.

A Numeric model requires significantly more data than other methods. In Numeric modeling, a grid is superimposed over the study area. Each square in the grid, called a cell, is characterized by physical parameters which are estimated from data collected from a variety of sources. The sources may include well logs, geologic and hydrogeologic maps, geophysical data, groundwater elevation data, stream flow discharge, and meteorological data. The parameters used to define the hydrogeological characteristics of each cell in the study area include identification of the vertical relationship of each aquifer and confining layer, the transmissivity of each aquifer, the thickness of the fine grained materials which separate the aquifers, the annual recharge, the connection between surface water and groundwater, the relationship between the model area and the surrounding areas (boundary conditions), and lastly, the location and pumping rate of wells. The Numeric method generates more accurate results than the Fixed Radius or Analytical methods. However, Numeric models are relatively costly to develop. Consequently, Numeric models are more commonly used by large utilities, with complex aquifers, who have the resources to collect the extensive model input data required.

A Wellhead Protection Area (WHPA) is defined as the surface and subsurface area surrounding a groundwater source through which contamination can potentially travel and reach the source. WHPAs are based on zones of contribution, which are derived from the estimated time of travel required for a contaminant to move from the point of introduction into the water bearing formation to the source. The Washington Department of Health Wellhead Protection Program requires a WHPA to be subdivided into five zones, which include:

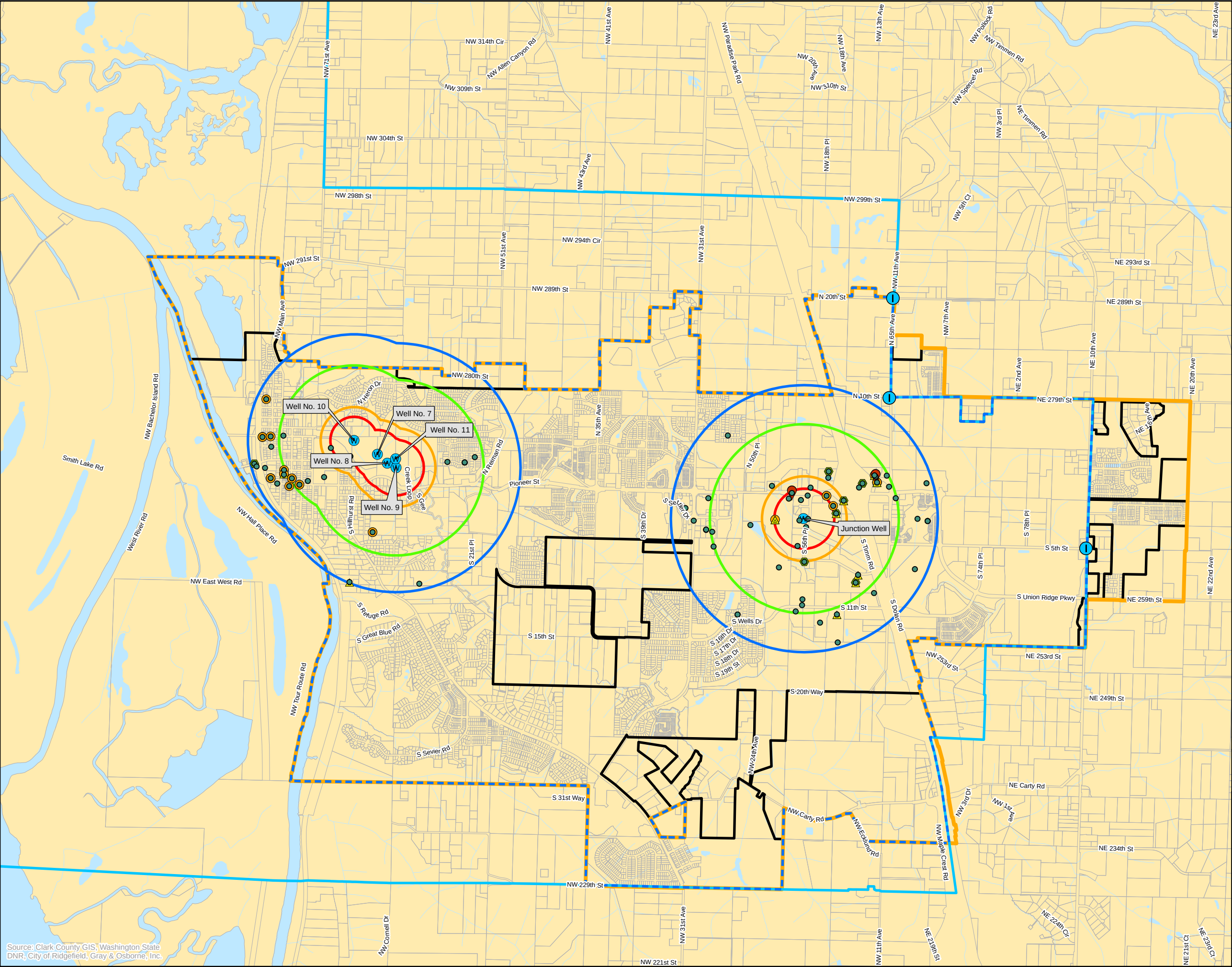
- A sanitary control zone of at least a 100-foot radius, unless engineering justification supports a smaller area (WAC 246-290-135). No source of contamination may be constructed, stored, disposed of, or applied within the sanitary control zone without the permission of DOH and the water purveyor.
- Four primary zones based on 6 month, 1-year, 5-year, and 10-year time of travel boundaries. These zones are referred to as the zones of contribution of the WHPA. Within this report, these zones will be abbreviated as $ZOC_{1/2}$ – 6-month zone of contribution, ZOC_1 – 1-year, ZOC_5 – 5-year, and ZOC_{10} – 10-year zone of contribution.
- One buffer zone (if necessary) extending from ZOC_{10} to a groundwater divide and highlighting areas where the aquifer may be particularly susceptible or vulnerable to contamination.

The ZOC_{10} defines the boundary of the WHPA and defines the area to be inventoried and managed to reduce the risk of contamination.

5.4.2 WELLHEAD PROTECTION ORDINANCE

The Ridgefield Municipal Code currently has Title 18.280.140, which limits the development within the City Wells critical aquifer recharge areas. The critical aquifer recharge area is defined in the Municipal Code as lands within the 10-year zone of contribution (ZOC_{10}). The following list defines new developments that must demonstrate through the land use approval process that the proposed activity will not have any adverse impacts on groundwater in the critical aquifer recharge area based on the Safe Drinking Water Act and the Wellhead Protection Area Program pursuant to Public Water Supplies. Title 18.280.140 is included in Appendix K.

- | | |
|--|---|
| • Landfills | • Facilities that conduct biological research |
| • Class V injection wells | • Boat repair shops |
| • Radioactive disposal sites | • Chemical research facilities |
| • Surface mining operations | • Dry cleaners |
| • Above and below ground storage tanks | • Gasoline service stations |
| | • Pipelines |



● Ecology Facility Sites (2024)

**Department of Ecology
Facilities and Sites by Program**

- ◆ Water Quality
- Toxics
- ▲ Hazardous Waste
- 📍 Spills

Zone of Contribution (ZOC)

- 6 Month
- 1 Year
- 5 Year
- 10 Year

Facilities

- W Wells
- 1 CPU Interties

Reference

- Retail Service Area
- Future Retail Service Area
- City Limits
- Urban Growth Area
- Parcels
- Surface Water

N

0 1,000 2,000 4,000 Feet

CITY OF RIDGEFIELD

WATER SYSTEM PLAN

FIGURE 5-1

WELLHEAD PROTECTION AREAS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

- Printing and publishing shops (that use printing liquid)
- Below-ground transformers and capacitors
- Sawmills (producing over 10,000 board foot per day)
- Solid waste handling and processing
- Vehicle repair, recycling and auto wrecking
- Funeral services
- Furniture stripping
- Motor vehicle service garages
- Photographic Processing
- Chemical manufacture and treatment
- Creosote and asphalt manufacture and treatment
- Electroplating activities
- Petroleum and Petroleum products refining
- Wood products
- Golf course
- Regulated waste treatment storage disposal facilities
- Medium Quantity Generators
- Large Quantity Generator

5.4.3 WELLHEAD PROTECTION AREA DELINEATION

The Calculated Fixed Radius Method was used to analyze the wellhead protection area zones of contribution for the City of Ridgefield Wells. This method is the minimum acceptable method of delineation for public water systems. The following equation is applicable:

$$r = \sqrt{\frac{Qt}{\pi nH}}$$

where

r = Radius of ZOC_t

Q = Volume of water withdrawal (cubic feet per year)

t = travel time (1/2, 1, 5 and 10 years)

n = Porosity = 0.22 (default value)

H = well screen interval (ft)

This equation was used to calculate zone of contribution radii for the 6-month (1/2 year), 1-year, 5-year and 10-year time horizons for the City of Ridgefield's wells. The value to be used for Q , the groundwater withdrawal rate, should be a value that will reflect the maximum annual withdrawal anticipated for each well. As noted in Chapter 3, the City has an annual withdrawal cap of 1,445 acre-feet per year. For the purposes of this analysis, the annual withdrawal used is the maximum instantaneous withdrawal converted to acre-feet per year, as a conservative value. Current well information is detailed in Table 5-2.

TABLE 5-2**Maximum Instantaneous Withdrawals for City of Ridgefield Wells**

Source	Maximum Instantaneous Withdrawal (gpm)	Maximum Instantaneous Withdrawal (Cubic feet/year)	Screened Interval (feet)
Well 7	300	21,080,214	36
Well 8	300	21,080,214	31.5
Well 9	400	28,106,952	37
Well 10	165	11,594,118	21
Well 11	175	12,296,791	40
Junction Well	400	28,106,952	32

Radius values calculated for the various times of travel are presented in Table 5-3.

TABLE 5-3**Wellhead Protection Zones of Contribution for City of Ridgefield Wells
(CFR Method)**

Time of Travel	Zones of Contribution (ZOC) Radius, Feet					
	Well 7	Well 8	Well 9	Well 10	Well 11	Junction Well
6 Month	650	700	740	630	470	800
1 Year	920	980	1,050	890	670	1,130
5 Years	2,060	2,200	2,340	2,000	1,490	2,520
10 Years	2,910	3,110	3,320	2,830	2,110	3,560

The Wellhead Protection Area Map included in the back sleeve of this Plan shows the limits of the sanitary control zone and the 6-month, 1-, 5- and 10-year zones of contribution as determined by the CFR method.

5.5 POTENTIAL CONTAMINANT SOURCES

Within a wellhead protection zone, there are many diverse activities that may contaminate an aquifer, thereby jeopardizing the water supply. It is important that these activities are properly inventoried and, if necessary, regulated to prevent degradation of the groundwater supply. Relevant activities include land use and zoning practices, landfills, commercial and industrial operations, underground storage tanks, septic tanks, dry wells and catch basins, as well as known sites of contamination. A discussion of

these practices, their potential effects on groundwater, and the regulatory requirements which may apply are included in the following sections.

5.5.1 LANDFILLS

A landfill is a disposal facility in which solid waste is permanently placed and is not a land treatment facility. Minimum functional standards for solid waste hauling are regulated by the Washington State Department of Ecology under WAC 173-304. These regulations set siting and closure criteria, performance standards, and operating requirements for landfills. The regulations are highly restrictive in that a proposed landfill site must meet a series of “fatal flaw” tests. A wellhead protection area would qualify as a fatal flaw, thereby prohibiting the construction of a new landfill.

Past landfill practices were not so restrictive, however. Abandoned and improperly maintained landfills and dump sites are often a major source of groundwater contamination. Leachate from landfills poses a threat to groundwater quality should it migrate to the water table. The Department of Ecology is responsible for mitigating dump site cleanup when potentially hazardous leachates are present.

According to long time City residents, land just east of the current City cemetery was previously used as a landfill. It is unknown when this facility was abandoned and if the facility was lined or capped. No other known landfills active or extinct are located within the City of Ridgefield wellhead zones of contribution.

5.5.2 COMMERCIAL AND INDUSTRIAL ACTIVITY

Areas of commercial and industrial land use are located within most wellhead protection boundaries. Businesses that may contribute contaminants to the groundwater include dry cleaners, gas stations and other businesses with fuel storage tanks, auto repair shops, metal plating facilities, asphalt and concrete facilities, and machine shops. Wastes generated at these businesses include substances such as petroleum products, solvents, surfactants, heavy metals, and other organic materials. These wastes can potentially enter the groundwater system through inadequate disposal practices or accidental spills. Table 5-4 presents typical commercial and industrial activities and the potentially hazardous chemicals that may be associated with them.

TABLE 5-4**Chemicals Associated with Commercial and Industrial Activities**

Commercial/Industrial Activity	Potential Contaminants
Automobile/Truck Service	waste oils, solvents, acids, paints, soaps
Boat Yard/Marinas	detergents, gasoline, diesel fuels, batteries, oil, seepage from boat waste disposal areas, wood preservative and treatment chemicals, paints, waxes, varnishes, automotive wastes
Dry Cleaners	solvents (perchloroethylene, petroleum solvents, Freon) spotting chemicals, (trichloroethane, methylchloroform, ammonia, peroxides, hydrochloric acid, rust removers, amyl acetate)
Cemeteries	fertilizers, pesticides
Country Clubs/Golf Courses	fertilizers, herbicides, pesticides, swimming pool chemicals, automotive wastes
Electric/Electronic Equipment Manufacturers	nitric, hydrochloric and sulfuric acid, heavy metal sludges, ammonium persulfate, cutting oil and degreasing solvent, corrosive soldering flux, waste plating solution, cyanide, methylene chloride, perchloroethylene, trichloroethane, acetone methanol
Furniture/Wood Manufacturing	paints, solvents, degreasing and solvent recovery sludge
Metal Plating Shops	sodium and hydrogen cyanide, metallic salts, alkaline solutions, acids, solvents, heavy metal contaminated wastewater/sludge
Lawns and Gardens	fertilizers, herbicides, pesticides
Printers, Publishers	solvents, inks, dyes, oils, miscellaneous organics, photographic chemicals
Sand and Gravel Mining	diesel fuel, motor oil, hydraulic fluids
Scrap, Salvage and Junkyards	used oil, gasoline, antifreeze, polychlorinated biphenyl contaminated oils, lead acid batteries

The siting and operation of facilities which treat, store, or dispose of hazardous waste are subject to the requirements of the Resource Conservation and Recovery Act (RCRA), Subtitle C. In Washington State, the Department of Ecology regulates facilities which generate more than 220 pounds of hazardous waste per month under WAC 173-303, Dangerous Waste Regulations. The regulations are significant in that they establish a number of requirements for these facilities including surveillance and monitoring, record keeping, performance and design criteria, and siting and closure procedures. Ecology divides the facilities into three levels of hazardous waste accumulation: Level 1 facilities generate 2,200 pounds of waste per month or more; level 2 facilities generate between

220 and 2,200 pounds per month; and level 3 facilities generate less than 220 pounds. Level 3 generators are exempt from the regulations. All level 1 and 2 facilities must initially file a report of their activities with Ecology and update those activities annually. From these reports an identifier code is established for each facility. This code is required by a transporter to deliver or accept shipments. A summary of those activities are published annually by Ecology, thereby allowing water purveyors the opportunity to determine the types of activities present within their WHPA.

5.5.3 UNDERGROUND STORAGE TANKS

Underground storage tanks (USTs) and leaking underground storage tanks (LUSTs) are a major threat to groundwater quality. Petroleum products which may contain impurities that are mobile in the groundwater system are the most commonly stored substances in USTs. The EPA estimates that 35 percent of all USTs could be leaking. The most common causes of leaks are structural failure, corrosion, improper fittings, and improper installation. Ecology regulates underground storage tanks in Washington State under WAC Title 173. The regulations require that owners and operators of underground storage tanks comply with the following sections of the regulations:

- Notification, reporting, and record keeping
- Performance standards and operating closure requirements
- Registration and licensing
- Financial responsibility

As of July 1, 1991, owners and operators of all existing nonexempt underground tanks must have a permit from Ecology. A valid permit is a requirement for delivery of regulated substances. The permit must be updated annually. As a condition of the permit, the owner must have completed the following requirements:

- An assessment of the tank condition by an Ecology licensed tank service provider. Replacement of leaking tanks and site cleanup.
- Installation of leak detection devices.
- Proof of insurance to compensate a third party in the event of bodily injury or property damage resulting from a leaking tank. One million dollars insurance is required for petroleum marketing facilities.

By 1998, all existing nonexempt underground storage tanks must provide cathodic protection and spill and overflow containment, in addition to the above requirements.

Installation and replacement of underground storage tanks must meet the specifications and performance and design standards identified in the WAC. On July 18, 2018, Ecology repealed Chapter 173-360 WAC and adopted new Chapter 173-360A WAC,

Underground Storage Tank (UST) Regulations. The new chapter modifies and replaces the repealed chapter. The rule was modified to:

- Incorporate federal rule changes needed to maintain state program approval, as specified in 40 C.F.R. Parts 280 and 281 (such as new operation and maintenance requirements for UST systems and requirements for field-constructed tanks and airport hydrant systems).
- Integrate changes to the state statute that authorizes the program, Chapter 90.76 RCW (such as licensing requirements for UST systems).
- Update other requirements governing the program (such as UST service provider requirements).
- Streamline rule requirements, improve rule clarity, and improve consistency within the rule and with other state and federal laws and rules (such as reorganizing the rule).

Underground storage tank inspections are performed by Ecology primarily through the information developed in the permitting process. Although routine annual inspections are not performed, Ecology inspectors do prioritize sites considered potentially hazardous. Technical assistance visits are also conducted at the request of the owner/operator. This provides another avenue in which Ecology can monitor the status of USTs. Ecology maintains a file on all permitted USTs in Washington State, as required by RCRA, Subtitle 1. The file provides the site name and address, tank identification number, date of installation, size, tank status, and the substance stored at the site.

5.5.4 SEPTIC SYSTEMS

Clark County is responsible for regulating and permitting residential and small commercial on-site sewage disposal systems within the county, excluding federal facilities. Contaminants associated with septic tank effluent include pathogenic organisms, toxic substances, and nitrogen compounds. Ammonia and nitrate nitrogen are highly soluble in water.

Old septic systems within the City limits may remain in use as long as they are not in a utility local improvement district and are not failing. The City of Ridgefield does not allow new septic tanks in the City limits. Currently there are a number of septic systems within the wellhead protection area. Septic system locations are shown on the Wellhead Protection Area Map included in the back sleeve of this Plan.

5.5.5 DRY WELLS, CATCH BASINS, AND IMPROPERLY SEALED OR SECURED WELLS

Stormwater serves as a source of groundwater recharge, but it can also be a source of groundwater contamination. Runoff from streets, parking lots and other impervious surfaces can contain heavy metals, hydrocarbons, petroleum products, pesticides, and animal wastes. Dry wells may be used for stormwater, septic waste, or other wastewater disposal at commercial, industrial, and multi-family residential sites. Dry wells and catch basins may be located along major transportation corridors. Contaminants generated along transportation routes, such as Interstate 5 and railroad corridors, include petroleum products, lead, hazardous chemicals and other emission products. Dry wells and catch basins are potential sites of contamination because their intended use often discharges contaminants directly into the groundwater.

5.5.6 ACCIDENTAL SPILLS IN TRANSPORTATION CORRIDORS

Accidental spills or releases of contaminants can potentially impact groundwater supplies. Potential sources of spills and leaks include underground storage tanks, accidents in transportation corridors and poor disposal practices. State Route 501 passes through the City's 1/2-, 1-, 5- and 10-year ZOCs, and is a potential source of hazardous material spills. The Burlington Northern Railroad (BNRR) corridor also runs through the 10-year WHPA. In addition, Interstate 5 runs through the 5- and 10-year ZOCs around the Junction Well. The probability of a spill on the BNRR line contaminating the water supply is low due to its location on the other side of a ridge from the wellfield, downgradient from the City's source of supply, and its location at the edge of the 10-year ZOC. The other major corridor through the City's WHPA is a portion of the Olympic Pipeline, which runs north and south through the City's 1/2-, 1-, 5- and 10-year ZOCs along the east edge of Abrams Park. Refined petroleum products including diesel fuel, gasoline, and jet fuel, are transported through the City in a 14-inch steel pipe.

The Clark County Fire and Rescue (CCFR) is the first responder to all spills of hazardous material within their jurisdiction. Depending on the extent of the spill, CCFR will contact Clark County Regional Emergency Services Agency (CRESA) and CRESA will activate the Regional Hazardous Materials Response Plan. The Washington State Patrol Fire Marshal has responsibility for hazardous material spills on State and Federal highways and will coordinate any response in the event a spill occurs on SR 501 or Interstate 5.

Any contamination of a public drinking water supply requires notification to DOH and coordination of public notification with State as well as County Health Agencies. These procedures are further outlined in the Emergency Response section of Chapter 6.

5.5.7 FERTILIZERS AND PESTICIDES

The use of fertilizers and pesticides throughout the City could also pose a potential threat to the water system. Land applications of fertilizers and pesticides are most likely to occur at the cemetery, Abrams Park, and the middle school within the WHPA. While it appears that past practices have not had any impact of the water system, Public Works staff should coordinate with maintenance crews and school district staff to ensure that fertilizers and pesticides are applied in a manner that will not adversely impact the water system.

5.5.8 CONFIRMED AND SUSPECTED CONTAMINATION SITES

Under the Model Toxics Control Act Cleanup, WAC 173-340, the Department of Ecology is responsible for ensuring all hazardous waste sites are properly remediated. This includes confirmed and suspected sites of contamination as well as Leaking Underground Storage Tanks (LUSTs). A separate inventory for each, which includes the status of cleanup efforts, is maintained by Ecology. Ecology conducts an initial site investigation within 90 days of learning of a potentially contaminated site. If this investigation shows that remediation action is required, the site will appear on the Confirmed and Suspected Contaminated Sites Report. The sites are also given a Washington Ranking Mode BIN number between 1 and 5. A ranking of 1 indicates the greatest assessed risk to human health and the environment. The contaminant type and the affected media, such as groundwater, is also noted. Once the remedial action has been completed, Ecology's Toxics Cleanup Program determines if the site can be removed from the list.

5.6 INVENTORY OF POTENTIAL SOURCES OF CONTAMINATION

An essential element of wellhead protection is an inventory of all potential sources of groundwater contamination in and around the delineated wellhead protection areas. The purpose of the inventory is to identify past, present, and proposed activities that may pose a threat to the well. Per DOH requirements, the inventory should be updated every two years, or on a more frequent basis if the area is experiencing significant growth or changes in land use.

Other purposes for maintaining an inventory of potential contaminant sources are to help plan management strategies, establish a mailing list to notify businesses located within wellhead protection areas, and notification of agencies regarding inventory findings. An accurate description of inventory data sources is also necessary and can be used to update the Plan as required by WAC 246-290-135.

The previous inventory of Ridgefield's potential sources of contamination was conducted as part of the preparation of the City's 2013 Water System Plan. As part of this plan update, the potential contaminant inventory has been updated. The following sections

describe the steps taken to update the contaminant inventory. The inventory of The City's potential sources of contamination was conducted by reviewing various data sources including the comprehensive Department of Ecology's Facility Site Database. This Facility/Site Identification System provides a central repository of key information for each facility/site of interest to the agency because it has an active or potential impact upon the environment. Ecology oversees programs that cover a wide variety of environmental aspects and conditions including air quality, water quality, shorelands, water resources, toxics cleanup, hazardous waste, toxics reduction, and nuclear waste. The definitions of a facility and/or a site vary significantly across these programs. Examples of facilities/sites include:

- Operation that pollutes the air or water
- Spill cleanup site
- Hazardous waste management facility
- Hazardous waste generator
- Licensed laboratory
- SUPERFUND site
- Solid waste recycling center

In addition to the Ecology database, the following activities were undertaken to conduct the wellhead protection inventory:

1. Collection and analysis of potential sources in the City's service area.
2. Mapping of sources, public and private facilities, and land uses.
3. Field identification and verification of potential sources.
4. Contact with local government and utility officials for coordination of information on potential contamination sources.

Following is the list of data sources utilized to create the inventory for the City's WHPA:

- **Facility/Site Database Interactive Website**

<https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Facility-Site-database>. This website allows access to information on facilities and sites of environmental interest to Ecology including: State Cleanup sites, Federal Superfund sites, Hazardous Waste Generators, Solid Waste Facilities, Underground Storage Tanks, Dairies, and Enforcement. These facilities are summarized in the inventories and located on the maps.

- **Title III Facilities**

Title III facilities are identified as those which generate, treat, store, or dispose of hazardous materials in sufficient quantity to pose a threat to the community. There are several different types of Title III facilities depending upon the amount of and the nature of the material handled. All of these companies must report to the County on an annual basis. This reporting was a result of the 1986 Superfund Amendments and Reauthorization Act. Title III was subsequently renamed to the Emergency Planning and Community Right to Know Act (EPCRA).

- **Septic Systems**

Clark County issues permits for all septic systems within the county, except those on federal facilities.

- **Zoning and Land Use**

Electronic files containing zoning designations were obtained from Clark County.

Table 5-5 summarizes the number of potential known sources of contamination found within the 6-month, 1-, 5-, and 10-year zones of contribution. Appendix J includes an inventory of the Facilities/Sites located within the wellhead protection and includes the Map ID, Department of Ecology Facility ID, Facility Description, Facility Address, Department of Ecology Program, Department of Ecology Interaction Type Code, Department of Ecology Interaction Type Description, and Time of Travel Zone. In addition, the appendix also includes definitions pages which describe in detail the Interaction Type. The Map ID listed in the inventory in Appendix J corresponds to the numbers shown on the Wellhead Protection Area Map provided in the back sleeve of this Plan.

TABLE 5-5

Number of Potential Contaminant Sources Within the Wellhead Protection Area

Potential Source	Zone of Contribution (ZOC)				
	6-Month	1-Year	5-Year	10-Year	All
Hazardous Waste	4	1	10	4	19
Spills	1	0	1	0	2
Toxics	1	3	10	13	27
Water Quality	1	1	6	1	9
Total	7	5	27	18	57

Appendix J includes a sample letter that notifies potential contaminant source generators of their proximity to drinking water sources and the need to protect those sources from contamination. In addition, the letter provides important contact information that allows the recipient to request additional information or to report an incident. Appendix J also contains a more detailed inventory of these sites.

5.7 SPILL RESPONSE PLANNING

5.7.1 BACKGROUND

Spill response planning is an important aspect of both an emergency management plan and a wellhead protection program. The release of hazardous materials in a wellhead protection area can create problems other than the initial contamination of soil and surface water. When the release occurs within the 10-year zone of contribution (or closer), there is the possibility that the spill will eventually contaminate aquifers that supply the City's drinking water. Planning for spill response should reflect the needs and concerns of the community while maintaining the quality of the groundwater. Gaining community support in the preparation of a spill response program is important. Coordination of Federal, State, and more importantly, local emergency response organizations is required as well.

Specific response procedures for wellhead protection areas must be determined prior to the occurrence of a contamination incident. The information obtained as a result of the susceptibility assessment and the wellhead protection area inventory can be used to determine what types of spill response measures are necessary for the protection of drinking water sources. In order to be accepted by local emergency responders, spill response procedures for wellhead protection areas should be realistic and easily implemented.

The following are examples of simple measures that can be taken during a spill/incident response to reduce the likelihood of groundwater contamination in a wellhead protection area.

- In wellhead protection areas, attempt to contain hazardous liquid spills by using absorbents to reduce infiltration into the ground.
- Do not allow spills to be routed into drywells for cleanup.

5.7.2 AGENCY INVOLVEMENT

In order for spill response procedures to be effectively executed, coordination, cooperation, and communication among the responding agencies, organizations, and individuals is imperative. There are many spill response organizations at the local, State, and Federal levels. Depending on the magnitude and type of the release, any of the following organizations may be involved in a spill response.

- **Environmental Protection Agency (EPA)**

The EPA is primarily responsible for all land spills including spills that occur on inland U.S. waters not under the jurisdiction of the United States Coast Guard.

- **Clark County Fire and Rescue**

The Clark County Fire and Rescue is the first responder to any spills or releases of hazardous materials into the environment within city limits. Upon arrival at the scene, they will conduct an appropriate survey of the situation and call for assistance through the Clark County Regional Emergency Services Agency (CRESA), which is responsible for coordinating hazardous material response at the regional level.

- **Department of Ecology (Ecology)**

Ecology's Spill Response Team is responsible for determining the source and cause of the release and the responsible party. If the responsible party is unknown, Ecology will investigate to determine who is responsible and ensure that containment, clean up, and disposal proceedings begin. Additionally, they have a 24-hour on call HAZMAT team should a spill occur. The DOE Spill Response 24-hour Hotline number is 1-800-OILS-911.

- **Department of Health (DOH)**

DOH provides advisory assistance in the event of a spill through a 24-hour Hotline number. The DOH 24-Hour Hotline number is 1-877-481-4901.

- **Washington State Department of Transportation (WSDOT)**

WSDOT can provide spill response assistance through traffic control, equipment, and personnel for non-hazardous cleanup activities on state and interstate highways.

5.7.3 COORDINATION WITH OTHER SPILL RESPONSE PLANS

There are many spill response plans in existence in Washington State. These plans address specific geographical areas such as wellhead protection areas and types of materials such as oil discharges. Organizations involved in the storage and transport of hazardous substances have also been required to develop spill response plans. In addition, clean-up contractors are on call 24 hours a day to respond to spills. These plans are designed to be consistent and compatible with each other to ensure that response efforts are carried out effectively. Examples of the types of Federal and State plans are listed below:

- **Oil and Hazardous Substance Pollution Contingency Plan for Federal Region Ten**

This plan divides responsibilities among Federal, State, and local governments; provides procedures for establishing local contingency plans; and provides procedures for response actions in accordance with the Clean Water Act and the Comprehensive Environmental Response, Compensation, and Liability Act.

- **Washington Statewide Master Oil and Hazardous Substance Spill Contingency Plan**

This plan provides a means for coordinating statewide response to spills by Ecology and other state agencies.

- **Wellhead Protection Program Guidance Document-Spill/Incident Response Planning**

As stated previously, the public water system is required to coordinate with local emergency responders, Ecology's Spill Operations Section, the local health department, and any local emergency planning committee.

5.7.4 CITY OF RIDGEFIELD SPILL RESPONSE PROGRAM

The City of Ridgefield has adopted by reference the Clark Regional Emergency Services Agency (CRESA) Hazardous Materials Emergency Response Plan outlining the standard operating procedures for dealing with a hazardous materials spill within Clark County (including local jurisdictions). Spills which occur within the property boundaries of a facility are handled according to that facility's plans. A copy of the CRESA Hazardous Materials Emergency Response Plan is included in Appendix L.

CRESA provides a single point of contact for spills. When a call is received regarding a spill, the appropriate agencies and Hazardous Materials teams are notified based upon criteria including the type of material spilled, the quantity of material spilled, and the

location of the spill. After being notified of a hazardous material incident, CRESA is responsible for making the following notifications:

- Clark County Fire and Rescue
- Appropriate local law enforcement
- The Department of Ecology
- The State Division of Emergency Management Duty Officer.

If the spill were to occur on Interstate 5, a similar response program would be followed as outlined in the CRESA program. However, the Washington State Patrol is the “Incident Command Agency” for all spills on Interstate highways.

It is important that the City also be notified of any spills which occur within the WHPA. To facilitate notification, the City will provide copies of the WHPA map to Clark County Fire and Rescue and to Ecology. Accompanying each map will be a letter requesting that the agency in question notify the City in the event of a hazardous materials spill.

5.8 CONTINGENCY PLAN

Contingency planning is an important component of a wellhead protection program, however, planning alone cannot account for unanticipated incidents. A worst case scenario would be a contamination event which would render all the Abrams Park wells unusable. This scenario is possible given the distances separating the wells in Abrams Park. Should this happen, the City would be forced to rely on the Junction Well and/or the intertie with Clark Public Utilities (CPU). To address potential water shortages brought about by unanticipated incidences, the City has developed a water shortage response plan. A copy of this plan has been included in Appendix O.

5.9 SUMMARY

In accordance with the requirements of the Washington State Department of Health, a wellhead protection program has been prepared for the City’s wells. The 1-, 5-, and 10-year zones of contribution, more commonly referred to as a Wellhead Protection Area (WHPA) were determined utilizing the calculated fixed radius method. An inventory of potential contamination sources of contamination within the WHPA was developed through research of available records and a visual survey of the area. A map identifying the locations of the potential sources of contamination, overlaid with the WHPA is located in the back sleeve of this Plan. This map can be distributed to the local first responders and businesses to increase public awareness of the location of the boundaries of the wellhead protection area and the significance of potential contaminant sources located in the area.

CHAPTER 6

OPERATION AND MAINTENANCE PROGRAM

6.1 OBJECTIVE

The objective of this chapter is to provide an evaluation of the City's operation and maintenance (O&M) program and its ability to assure satisfactory management of the water system operations in accordance with WAC 246-290 -100, -300, -310, -320, -440, -480, and -490, and WAC 246-292-020, -050, and -090. The City's Operations and Maintenance Manual and other specific component-related documentation is maintained by the City for use by operations personnel. This information is considered sensitive information and is not intended for general distribution to the public.

The O&M Program includes the following elements:

- Water System Management and Personnel
- Operator Certification
- System Operation and Control
- Comprehensive Monitoring Plan
- Emergency Response Program
- Safety Procedures
- Cross-Connection Control Program
- Customer Complaint Response Program
- Recordkeeping and Reporting
- O&M Improvements

The following comments are presented as an assessment of the adequacy of each section of the City's Operation and Management Program.

6.2 WATER SYSTEM MANAGEMENT AND PERSONNEL

The current Public Works Director is Chuck Green, P.E. The current Utilities Supervisor is James Strickler. Kyle Johnson and Julie Swartz are other water system operators.

6.2.1 CHAIN OF COMMAND AND ORGANIZATIONAL CHART

Figure 6-1 provides a general overview of the organization structure of the water utility.

6.2.2 OPERATOR CERTIFICATION

The Department of Health (DOH) requires all Group A systems to have at least one certified Water Distribution Manager (WDM) under WAC 246-292-050. The WDM must further be certified at a level equal to or higher than the water system's classification rating as described in Table 6-1 and in accordance with WAC 246-292-040. From population data as presented in Chapter 2 of this Plan, the City is currently a Class 2 water system.

TABLE 6-1

Distribution System Classification

Classification	Population Served
Class S	Less than 251
Class 1	251 to 1,500
Class 2	1,501 to 15,000
Class 3	15,501 to 50,000
Class 4	Greater than 50,000

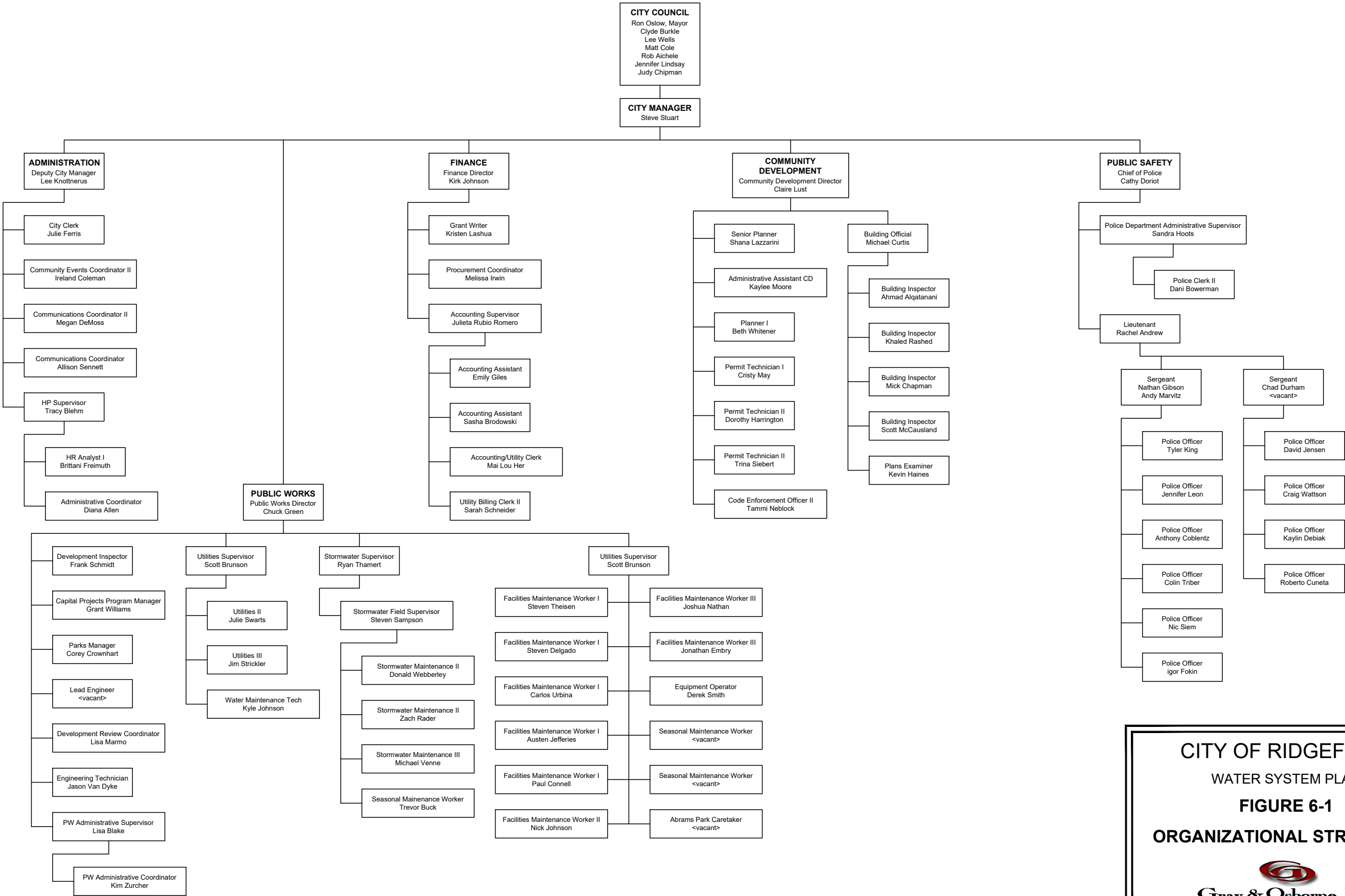
Additionally, the City is required to develop a Cross-Connection Control (CCC) Program and must ensure that a Cross-Connection Specialist (CCS) is responsible for overseeing the program and for periodic inspections of premises for cross-connections. Finally, the City must ensure that a Backflow Assembly Tester (BAT) is responsible for inspecting, testing, and monitoring backflow prevention assemblies in accordance with WAC 246-290-490. The City can perform these tests or can allow the customers to have their device tested by an approved BAT. Currently, the City requires owners to have devices tested annually by contractors. Table 6-2 provides a list of the maintenance personnel, positions and certifications.

TABLE 6-2

City of Ridgefield Personnel Certification

Staff	Position	Certifications
James Strickler	Water System Supervisor	WDM (2) #5141, CCS (1), WTPO (1)
Kyle Johnson	Water Maintenance Tech	WTPO (1) #15912
Julie Swartz	Utilities II	WTPO (2), WDM (2) #12062

CITY OF RIDGEFIELD WATER SYSTEM
ORGANIZATIONAL STRUCTURE



CITY OF RIDGEFIELD
WATER SYSTEM PLAN
FIGURE 6-1
ORGANIZATIONAL STRUCTURE



6.2.3 PROFESSIONAL GROWTH REQUIREMENTS

In order to promote and maintain expertise for the various grades of operator certification, Washington State requires that all certified operators meet professional growth requirements by completing no less than three continuing education units (CEUs) every 3 years. Programs sponsored by both Washington Environmental Training Resource Center (WETRC) and the American Water Works Association (AWWA) Pacific Northwest Subsection are the most popular source of CEUs for certified operators in Washington State. The professional growth requirement may also be met by examination or certification in a different classification.

6.3 SYSTEM OPERATION AND CONTROL

The City staff is responsible for the daily operations of its wells, treatment facility, telemetry equipment, storage facilities, and distribution system.

6.3.1 IDENTIFICATION OF MAJOR SYSTEM COMPONENTS

Identification of the major system components is included in Chapters 1 and 3. The City supplies water to its customers with the use of the following major system components:

- Source of Supply
 - Six Wells.
 - Three interties with Clark Public Utilities (CPU).
- Treatment Systems
 - Chlorination at all wells.
 - Iron and manganese treatment facilities for the Junction Well.
- Three Water Storage Reservoirs
- Two Booster Pump Stations
- Distribution System

See Chapter 1 for detailed descriptions of these major system components and Chapter 3 for analysis related to them.

6.3.2 WATER QUALITY MONITORING

The City receives a yearly statement from the Department of Health defining water quality tests and associated testing frequencies. The monitoring requirements are found in Table 3-2. An analysis of the City's most recent water quality test results and a discussion of existing and upcoming monitoring requirements can be found in Chapter 3.

6.3.3 PREVENTIVE MAINTENANCE

In order to prolong the service life of the various components of the water system, various preventative maintenance tasks are performed on a regular basis. Certain tasks are performed on a daily, weekly, monthly, quarterly, or yearly basis. The tasks associated with the water system include the following:

Daily

- Respond to customer inquiries.
- Respond to service requests.
- Monitor chlorine residuals.
- Monitor for leaks in the system.
- Monitor water level in the reservoirs.
- Record production of each well.
- On-call 24 hours per day.

Weekly

- Inspect well, reservoir, treatment, and booster facilities.

Monthly

- Inspect the static and dynamic water levels and compute the specific capacity of the wells within the system.
- Read water meters (bimonthly for residential meters).
- Complete monthly reports.
- Exercise booster pumps.
- Check alarms to ensure they are functioning properly.
- Replace reagents for the chlorine analyzer at the Junction Treatment Plant.

Yearly

- Inspect all City-owned backflow prevention devices.
- Clean reservoir exterior.
- Inspect wellhead protection areas for contaminant sources.

3 to 5 Years

- Drain, clean, and inspect reservoirs.
- Remove solids from the backwash recycle reservoir.

6.4 EMERGENCY RESPONSE PROGRAM

Water utilities have the responsibility to provide an adequate and reliable quantity of high-quality of water at all times. To meet this requirement, utilities must reduce or eliminate the effects of natural disasters, accidents, and intentional acts. Although it is not possible to anticipate all potential disasters that may impact the City's water system, formulating procedures to manage and remedy common emergencies is appropriate.

6.4.1 WATER SYSTEM PERSONNEL EMERGENCY CALL-UP LIST

Table 6-3 is the City's emergency phone list. In the event of a contaminant spill, the phone list provided in the City's Wellhead Protection Plan in Chapter 5 should also be consulted.

TABLE 6-3**Water System Emergency Phone List**

Agency/Group/Business	Contact	Phone Number
Fire/Police Emergency	--	911
Clark County Sheriff	--	(360) 397-2211
Washington State Patrol	District 5	(360) 449-7999
Clark County Fire and Rescue	--	(360) 887-4609
CRESA, Emergency Management	Dave Fuller, Director	(360) 992-9219
Electrical Contractor	Zach Warning, Advanced Electric	(360) 431-8068
City of Ridgefield Police Department	--	(360) 887-3556
System Integrator	Carl Serpa, Portland Engineering	(503) 256-7718
Chemical Supplies	Cascade Columbia	(503)-625-5293
	Cascade Columbia Emergency Number	(503)-519-3016
	Northstar	(503) 625-3770
Waterworks Supplies	Ferguson Enterprise	(360)-892-0907
	USA Bluebook	(800) 548-1234
Testing Lab (Coliform)	BSK	(360) 750-0055
Washington State Dept. of Health	SW Regional Office, R. Scott Pollock, P.E.	(360) 236-3030
	24-Hour Emergency Number	(877) 481-4901
Washington State	Emergency Management	(800) 258-5990
State Wide One-Call	Utility Locates	(800) 424-5555
Ridgefield Water System On-Call		(360) 518-8146

TABLE 6-3 – (continued)**Water System Emergency Phone List**

Agency/Group/Business	Contact	Phone Number
Ridgefield Water Field Supervisor and Responsible Person In Charge	Jim Strickler	(360) 600-3213
Ridgefield Utilities Manager	Ryan Thamert	(360) 787-8359
Ridgefield Public Works Shop Water System Supervisor	Main Line	(360) 887-8251
Ridgefield Public Works	Chuck Green, P.E.	(360) 499-2132

6.4.2 EMERGENCY PROCEDURES

In the event that any of these situations should arise, the City has three interties with Clark Public Utilities (CPU), two of which feed isolated portions of the City's water system and one which feeds the remainder of the City's distribution system. The City uses all three interties regularly and should be able to receive water from these interties in case of emergency, provided a City emergency does not coincide with system disruptions in CPU's system. The City's Draft Water Shortage Response Plan is provided in Appendix M.

The City utilizes the Clark County Regional Emergency Services Agency (CRESA) as its emergency management agency. CRESA also serves as the Local Emergency Planning Authority under the Superfund Amendments and Reauthorization Act (SARA) Title III (also known as the Emergency Planning and Community Right to Know Act – EPCRA) for communities in Clark County, including the City of Camas, the City of Washougal and the City of Vancouver. In the event that local capabilities to manage an incident are exceeded, the City will utilize mutual aid partners through the CRESA Hazardous Materials Emergency Response Plan, a copy of which is provided in Appendix L.

6.4.2.1 Contamination of Water Supply

In the event of intentional contamination of the City's water supply with a chemical agent, procedures outlined under accidental spill procedures in Chapter 5 should be followed with the following exceptions:

- Jurisdictional law enforcement officials should contact the Federal Bureau of Investigation
- The City should coordinate public notifications with DOH as well as jurisdictional law enforcement officials.

WAC 246-290-320 establishes specific procedures for water utilities to follow should bacteriological contamination be detected in the water system. If the chlorine disinfection residual in the distribution system is reduced, it may be necessary to batch chlorinate the reservoirs and flush distribution piping. For every 1 million gallons of storage, 18 gallons of 5.25 percent sodium hypochlorite, available as household bleach in the supermarket, can be added to provide a chlorine dose of 1.0 mg/L. Table 6-4 lists some potential remedies to address distribution system and reservoir contamination.

TABLE 6-4**Contamination Response Procedures**

Distribution System Contamination	
•	Close valves if possible to isolate source of contamination.
•	Repair and or remove source of pollution.
•	Flush previously-contaminated section and test until free of contamination prior to resumption of use.
Reservoir Contamination	
•	Resample to confirm contamination.
•	Check distribution system for presence of contamination.
•	Isolate reservoir from system.
•	Inspect vent screens, hatches, and piping to identify source of contamination.
•	If reservoir water is contaminated and therefore considered unsuitable for consumption, drain and clean reservoir.
•	Consider disinfecting reservoir if bacteriological standards are exceeded. Follow AWWA Standards.

In the event of suspected intentional contamination with a microbial agent, the protocols for intentional contamination shall be followed in addition to the procedures outlined above. Law enforcement authorities will need to be consulted prior to making public notifications.

6.4.2.2 Boil Water Notification

Emergencies such as floods, earthquakes, and other disasters can result in damage to water system infrastructure, thereby warranting a boil water notice as a cautionary measure. A suggested boil water notification form is presented in Appendix O. The City would issue the order through radio, television, and newspapers serving the local area. Prior to the issuance of a boil water notice, the City should consider the experience gained by other communities in the past and contact DOH prior to the situation being announced to the media. A summary of pertinent information follows:

- An initial press conference should be held following issuance of the boil water notice to advise the public of the situation. All press releases will go through the City's Public Information Officer.

- Consolidated press releases, announced on morning and evening television and radio news broadcasts, can also be used to keep the public informed.
- A 24-hour telephone hotline will be established to respond to public and media inquiries regarding the notice. The hotline should be staffed with knowledgeable representatives from the City and other governmental agencies. In order to maintain the consistency of information released, hotline operators should be provided with standard question and answer sheets and briefed as new information becomes available. The hotline should remain available for 24 hours after the boil water notice has been rescinded to provide relevant information and reassurance for concerned customers. All media inquiries shall be directed to the Public Information Officer.
- During a boil water emergency, DOH should be the jurisdictional agency contacted. Other State, County, and City agencies will be consulted prior to release of information to the public, including the Clark County Health Department. A consensus will be reached among the jurisdictional agencies regarding information to be released and actions to be taken. It is important not to release conflicting information so as not to confuse the public.
- Agencies and hot line phone operators should be aware of difficult questions that could be asked by the public or the press. A few examples follow:
 1. What other utilities are affected?
 2. What should be done about coffee and ice machines that use water directly from the system?
 3. How did the system get contaminated and what is being done about it?
- DOH will set guidelines for rescinding boil water notices. One example includes two consecutive days of no detection of *Cryptosporidium*, *Giardia*, or coliform bacteria in the system.
- Once the boil water notice is rescinded, a notice should be developed to inform the public regarding appropriate measures for use of the water supply including flushing of pipes and fixtures as required.

A thorough investigation of the contamination source should be conducted and strategies developed to avoid similar future occurrences. The public should be informed and provided with updates regarding investigation findings in order to restore confidence in the quality of water provided by the water system.

6.4.2.3 Power Failure

Various types of weather can cause a loss of power. These weather conditions include wind, lightning, freezing rain, or freezing snowstorm. Additionally, power can be lost through traffic accidents.

In the event of a power outage, public works staff will first check reservoir levels visually on a reader board at the Cemetery Reservoir, and monitor the High Zone pressure gauge at the Cemetery Booster Pump Station. The power company will be contacted to determine the length of the power outage. Customers will be notified of the emergency and water conservation will be requested through radio, television, newspaper, and/or police loudspeaker.

The City has auxiliary power to run the Abrams Wells (with the exception of Well 10) as well as the Junction Well. The auxiliary power at each location is from diesel generators with secondary containment.

In the event of cold weather, a space heater in the telemetry building may be utilized to minimize damage to piping and electrical equipment.

6.4.2.4 Severe Earthquake

The County's assessment indicates that of all potential disasters, the City is most vulnerable to a severe earthquake. However, the ability of the City's water system facilities to withstand a major earthquake has not been fully characterized.

The Northridge earthquake, which struck on January 17, 1994, left the Metropolitan Water District of Southern California (MWDSC) facing a major disaster. Fortunately, the MWDSC had established emergency planning procedures that proved to be essential to restoring water service to its customers. Two essential components were an Emergency Response Center and pre-established reconnaissance patrols that were able to quickly conduct damage inspections. The MWDSC had also stockpiled considerable repair parts and materials in order to be virtually self-sufficient in an emergency.

The Pacific Northwest is a very seismically active area. The Clark County Hazard Identification Vulnerability Assessment (HIVA) states that potential earthquake sources in Clark County are not well characterized because of their infrequent occurrence compared to California. Estimations of possible earthquake sources are limited to studies of many small earthquakes, investigations of known faults, and other geological surveys.

CRESA indicates that earthquakes in Clark County are most likely to originate from three sources: (1) the Mt. St. Helens seismic Zone; (2) the Portland/Vancouver Seismic Zone; and (3) the Cascadia Subduction Zone. Descriptions of each of these seismic zones are summarized from the Clark County HIVA below.

1. Mt. St. Helens Seismic Zone – This seismic zone is most commonly a source of several small earthquakes (magnitude <4). The strongest earthquake associated with this zone was the Elk Lake earthquake of February 13, 1981, with a magnitude (M) of approximately 5.5. While this was just a moderate earthquake, it was felt over an area of about 104,000 km² as far north as Ferndale, Washington and as far South as Salem, Oregon. Geologists suggest that the possibility exists for an earthquake as great as 6.5 M originating from this zone.
2. Portland/Vancouver – The Portland metropolitan area is the most seismically active region in Oregon in historic times. In the past 150 years there have been six earthquakes of magnitude 5 or greater. The Washington side of the seismic area is the second most seismically active area in Washington (the Puget Sound area is the most seismically active area in the state). The area between the Lacamas Creek Fault and the Portland Hills Fault borders this seismic region. The existence of the Portland Hills fault was only recently confirmed by the digging of the light rail tunnel through the West Hills of Portland. This discovery, matched with other geophysical studies suggest that earthquakes as large as approximately 6 M should occur in the Portland region every 300 to 350 years and an event of M 6.5 or larger may occur every 800 to 900 years. Earthquakes in this area present what may be the worst-case scenario for Clark County because the epicenters may be quite close. Geologists theorize there may be faults directly underneath the cities of Portland and Vancouver. Recent studies suggest that the epicenter for the 5.5 M earthquake in November 5, 1962 was located underneath the City of Vancouver.
3. Cascadia Subduction Zone – The Cascadia Subduction Zone lies about 50 miles offshore, extending from near Vancouver Island to northern California. The zone is where the oceanic Juan de Fuca plate dives beneath the continental North American plate. These plates are converging at a rate of 1 – 1.5 inches per year.

CRESA considers the entire county population, property, commerce, infrastructure and services as vulnerable to an earthquake. The scope of damage will be a function of earthquake magnitude and level of preparedness. Damage could range from minimal to extreme loss of life and destruction of property.

Most injury, death, and property damage in an earthquake result from seismic impacts on structural and non-structural materials. The vulnerability of certain areas partially depends on the types of structures in that area. A wood frame residential structure that is adequately secured to the foundation is relatively safe. An unreinforced masonry building is at greatest risk from seismic impacts. Most injuries in earthquakes result from non-structural materials such as light fixtures, equipment, and furniture, falling on people and causing injury.

Another factor in earthquake vulnerability is soil type. Water-saturated loose sand and silt lose their ability to support structures in an earthquake. Areas in Clark County that are near floodplains or areas with silt deposits are at the greatest risk during an earthquake.

Within the limits of predictability, CRESA assigns a high probability of occurrence for a damaging earthquake during the next 25 years. A large earthquake could have a catastrophic impact on Clark County suggesting high vulnerability. Earthquake response measures for the City's water system are shown in Table 6-5.

TABLE 6-5**Severe Earthquake Responses**

System Component	Proposed Actions
Reservoirs	• Observe structures for visual signs of structural damage. • If structural damage is apparent, drain reservoir and inspect the interior of the tank • Check storm drainage system for significant flows from the reservoir • If leakage is suspected, isolate one reservoir at a time and monitor water level for at least 24 hours
Distribution Lines	• Close valves to isolate breaks • Check reservoir level • Notify water customers of emergency and request water conservation
Transmission Lines	• Shut down source pumps • Isolate break and check the base water system section maps for valve locations • Repair break • Disinfect isolated section
Booster Stations, Wells, Treatment Facilities and Meters	• Inspect for joint leakage and leaking storage tanks • Inspect wells for operation • Inspect well seals to prevent contamination from entering the wellhead • Inspect for alignment of pump column and casing • Have a contractor inspect well screen integrity with a video camera
Supply Facilities	• Inspect for leakage or other structural damage

6.4.2.5 Major Fire

In the event of a major fire within the service area, low-pressure conditions could result in the distribution system due to fire suppression demand. Proper functioning of pumps should offset this effect. In the event of fire or drastically low static pressures, the system setpoints of pumps and reservoirs should be manually adjusted to ensure all pumps are running.

6.4.2.6 Cold Weather Conditions

The most significant anticipated impact of a severe snowstorm is limiting access to the City's facilities. City personnel may not be able to access water mains, reservoirs or valves for maintenance and/or manual operation of system components. During a severe snowstorm the City will rely on the telemetry system for information on the major system components. Additional hazards to be considered with severe winter storms include:

- Freezing in City Reservoirs – Mitigated by ensuring continuous turnover.
- Water service line breaks – Mitigated by asking customers to be vigilant for flooding around homes and businesses.
- Roof Collapse on City buildings and reservoirs – Mitigated by observing snow levels and having City crews remove snow when roof loads may be exceeded.

6.4.2.7 Floods

The Clark County HIVA states that floods are the most common natural disaster in Washington State and Clark County. The County's climate, topography, and geology are conducive to flooding. Normal annual precipitation ranges from 38 inches on the western floodplains to over 114 inches in the mountainous northeastern part of the county.

6.4.2.7.1 History of Flooding in Clark County and Adjacent Areas

- **December 1933** – The largest flood of record on the Lewis River.
- **May 30, 1948** – The Columbia River crested at 34.4 feet, exceeding the flood stage at that time of 15 feet. This flood destroyed the City of Vanport, the second largest city in Oregon at the time of the disaster, with a population of 18,500. The destruction of the town occurred when a 600-foot section of dike protecting the settlement from the rising Columbia River broke. Unfortunately, few people evacuated Vanport prior to the dam rupture, as there were very few good evacuation routes. Fifteen people died in the flood.

- **June 1956** – Columbia River flooded due to snowmelt runoff.
- **January 1972** – A combination of intense rainfall and snowmelt caused major East Fork of the Lewis River floods.
- **December 1977** – Heavy rainfall and snowmelt caused flooding on the East Fork of the Lewis River. Salmon Creek experienced its largest flood since gages were placed on the Creek. The Washougal River also experienced its largest flood since gages were placed in 1944. This flood was an extremely rare event, greater than a 500-year flood, with an annual exceedance probability of less than 0.2 percent.
- **February 1996** – The Columbia River crested at 27.1 feet on February 9, 1996. This flood produced some of the worst flooding seen in the County since 1948. Approximately 1,500 people were evacuated, and 177 homes were destroyed. This flood occurred because of the confluence of several factors. The winter of 1995/96 was extremely rainy, and prior to the flooding period, the region experienced a cold snap with low elevation freezing, ice, and snow. This was followed by a strong warming trend with heavy precipitation.

In Clark County, the weather that produces the most serious flooding events consists of extended wet conditions that follow a period of mid and high elevation ice and snow pack development. Many rivers in Clark County historically flood every few years, including the East Fork of the Lewis River, Washougal River, Salmon Creek, and the Columbia River. Flooding on these rivers usually occurs between October and February. Long periods of heavy rainfall and mild temperatures coupled with snowmelt contribute to flooding.

There are three types of flood threats:

- Riverine
- Tidal
- Flash and Surface

The greatest threat of flooding in the City is flash and surface flooding due to inundation of stormwater collection and conveyance systems. This may impact the water system operation in several ways, including:

- Restricting access to water system facilities due to flooded streets
- Flooded valve and meter vaults
- Flooded City facilities

Actions the City will consider depending on the extent of flooding and the risks that must be mitigated include.

6.4.2.7.2 Pre-flood

- Sandbagging around essential City facilities;
- Securing large pieces of equipment and materials that could be carried off by floodwaters;
- Raising electronic equipment and computers off the floor;
- Moving valuable records to locations expected to remain dry.

6.4.2.7.3 Post-flood

- Checking coliform levels in the water system for contamination (see incident specific plan for bacteriological contamination);
- Inspecting meters and PRV stations to ensure proper operation;
- Cleaning debris from around reservoirs.

Historically, flooding occurs along one or more of the County's waterways every few years, suggesting a high probability of occurrence. Because of the relative land area and population affected, the County is exposed to moderate vulnerability. Although the vulnerability is moderate, the frequency of flooding, the potential for simultaneous flooding events, plus the historical record of recurrent flooding and cumulative restoration costs, all suggest the assignment of a high risk rating. Flood response measures for the City's water system are shown in Table 6-6.

TABLE 6-6**Severe Flood Responses**

Water System Component	Potential Effects	Recommended Actions
Transmission and Distribution System	Transmission and distribution mains could be affected by landslides or high water levels. City staff transportation for monitoring the system and making repairs may be limited.	Monitor possible areas of concern for waterline conditions. Monitor waterline bridge crossings for possible damage. Prepare to valve off any washed out or damaged waterlines. Contact DOH.
Storage Facilities	Minimum physical/structural impact due to locations. Flooding could cause elevated coliform levels in water system.	Monitor coliform levels. Contact DOH to advise of coliform violations.
Booster Stations	Minimal operational impact.	None.
Wells	Facilities could be overwhelmed by flood waters.	Prepare to disconnect any well affected by flood waters. Contact DOH.

6.4.2.8 Distribution System Low/High Pressure

The water surface elevation in the storage reservoirs and booster station settings control distribution system pressures. Under normal conditions, the reservoir overflow levels set the maximum pressure within the City. The following table proposes investigative and corrective actions for both low and high pressure conditions. Distribution system high/low pressure response measures for the City's water system are shown in Table 6-7.

TABLE 6-7**Distribution System High/Low Pressure Response**

System Component	Proposed Actions	
	High Pressure	Low Pressure
Reservoirs	• Check reservoir levels. • Manually throttle discharge valves on pump.	• Check reservoir levels. • Check drain line. • Check for leakage.
Distribution and Transmission Lines	• Excess pressure may cause damage to some older pipes. Open hydrants at various locations to reduce system pressure. • Check status of pressure reducing valves.	• Contact City Hall, Fire and Police Departments. • Demands due to fires, open hydrant or peak demands may be the cause. • Check roads, storm drainage facilities and sewer manholes along distribution system for excessive flows that would indicate a broken main.

6.5 CROSS-CONNECTION CONTROL PROGRAM

Water utility purveyors have the responsibility to protect customers from water contamination due to cross connections, as required by WAC 246-290-490. A cross-connection is any physical arrangement where the potable water supply is connected, directly or indirectly, to any liquid, gas, or solid of unknown or unsafe quality that may contaminate the public water supply through backflow. The regulation also requires utilities to develop and implement a comprehensive program to control cross connections within the system.

6.5.1 WATER SYSTEM CROSS-CONNECTION CONTROL PROGRAM

Ridgefield Municipal Code Chapter 13.55 – Backflow Cross-Connection Regulations provides specified and detailed rules in order to protect the public potable water supply of the City of Ridgefield from the possibility of contamination or pollution by isolating within the customers' system such contaminants or pollutants which could backflow into the public water system. A copy of Chapter 13.55 is included in Appendix N.

The City's Cross-Connection Control Program establishes minimum standards for the City to protect the public potable water supply from possible contamination due to cross-connections. The Program addresses authority, responsibility, requirements, administrative procedures, minimum requirements, record keeping, and standard forms and letters.

The City conducts plan reviews and is in charge of record management, while the building inspector surveys new facilities, and the water system operators interact with customers to educate and deal with compliance issues. The City utility clerk maintains a list of devices installed throughout the City. The utility clerk also maintains a list of certified contractors, which is mailed to the customers along with the reminder for annual backflow prevention assembly (BPA) testing. After annual testing is completed, the results are sent to the utility clerk for entry into the BPA records. The following records are included in these files:

- Date of inspection
- Results of inspection
- Recommended protection
- List of approved assemblies
- Test and maintenance reports
- List of certified testers
- Customer account number, billing address, service address, phone numbers, device history, and maintenance records

The City's cross-connection control program was implemented by identifying a priority list of services considered potentially hazardous to the water system in the event of back siphonage within the distribution system. An inspection of the premises was conducted by City personnel to evaluate the existing hazard. The inspection established the level of potential hazard and the protection required. Recommendations were then prepared by the City as to what type of cross connection control devices, if any, were required. A copy of the letter, together with a time frame for compliance, was sent to the customer. City staff resurveyed premises at the end of the scheduled time frame to verify compliance.

6.5.2 CROSS-CONNECTION CONTROL PROGRAM REQUIREMENTS

WAC 246-290-490 lists 10 minimum elements of a cross-connection control program required for water purveyors. The following paragraphs describe the requirement and summarize the action taken by the City for each element. Table 6-8 also summarizes these requirements and provides a description how the City currently addresses each element of this regulation.

6.5.2.1.1 Element 1

Element 1 requires the purveyor to establish legal authority, describe the operating policies and technical provisions, and corrective actions used to ensure that consumers comply with the purveyor's cross-connection control requirements. Chapter 13.55 of the City Municipal Code requires landowners or water users receiving their water supply from the City to conform to applicable regulations of the City.

6.5.2.1.2 Element 2

Element 2 pertains to the implementation procedures and schedules for evaluating new and existing connections. Currently, the City conducts a review of all new connections during the project approval process. Existing connections retained from the previous year, are tested by certified contractors and included in the device database. A post-construction site visit is completed by the CCS to verify BPAs have been installed.

6.5.2.1.3 Element 3

Element 3 pertains to the procedures of eliminating cross-connections whenever possible or ensuring approved backflow preventers are installed when necessary. The City conducts a review of all new connections to the water system and ensures approved backflow prevention devices are installed.

Construction activities are also a concern for cross-connections. The connection to a hydrant during construction activities provides a potential cross-connection hazard that can easily be avoided. The use of an approved BPA should be required for all temporary connections to the City's water system to prevent back siphonage.

6.5.2.1.4 Element 4

Element 4 pertains to the purveyor ensuring that at least one person certified as a CCS is employed to help develop and implement the CCC program. Currently James Strickler is the CCS for the City of Ridgefield water system and the Public Works Director, Chuck Green, P.E., manages the program.

6.5.2.1.5 Element 5

Element 5 is designed to ensure that approved backflow preventers are inspected and/or tested as required. Currently, annual testing for BPAs is the responsibility of any property owner with a BPA on said property. The owner then hires an approved BPA testing contractor to complete the BPA testing and submits the results to the City. All information required by DOH is included on the result slip submitted to the City after BPA testing has been completed.

A sample of the City's Backflow Preventer Inspection and Field Test Report Form is included in Appendix N.

6.5.2.1.6 Element 6

Element 6 requires the development and implementation of a backflow prevention assembly testing quality control assurance program including, but not limited to, documentation of tester certification and test kit calibration, test report contents, and time frames for submitting completed test reports. As noted previously, property owners are responsible for testing of the BPAs on their own. All documentation of tester certification, kit calibration, and test reports are included in the result slip submitted to the City.

6.5.2.1.7 Element 7

Element 7 requires the purveyor to develop and implement procedures for responding to backflow incidents. In the event of a backflow incident, the City must meet the minimum record keeping and reporting requirements listed below.

- Notify DOH no later than the end of the next business day when a backflow incident is known to have contaminated the public water system or occurred within the premises of a consumer served by the water system.
- Document details of backflow incidents on a backflow incident form similar to the form included in the most recent edition of the PNWS-AWWA Manual.
- Include all backflow incident reports in the annual cross-connection program summary report required by WAC 246-290-490.

The City submits an Annual Summary Report of its cross-connection control activities in accordance with WAC 246-290-490. A copy of the most recent Annual Summary Report is provided in Appendix N.

6.5.2.1.8 Element 8

Element 8 requires a consumer education program on cross-connection control. The City provides flyers at City Hall and information related to its cross-connection control on its website. See Appendix N for a copy of the consumer education materials provided by the City on its website.

6.5.2.1.9 Element 9

Element 9 pertains to the record keeping of cross-connection control records. The City maintains an inventory of cross-connection control devices on file in their computer network. All new cross connections are added to the inventory as they are constructed. A copy of the current inventory is provided in Appendix N.

6.5.2.1.10 Element 10

Element 10 pertains to purveyors distributing or receiving reclaimed water. Currently the City of Ridgefield does not use reclaimed water. If the City is expecting to use reclaimed water in the future, any cross-connection control requirements imposed by DOH under the required permit for the use of reclaimed water will need to be met.

TABLE 6-8

**Minimum Elements of a Cross-Connection
Control Program as Required by RCW 246-290-490**

Element No.	Description	City of Ridgefield Compliance
1	The purveyor shall adopt a local ordinance, resolution, code, bylaw, or other written legal instrument to establish legal authority, describe the operating policies and technical provisions, and corrective actions used to ensure that consumers comply with the purveyor's cross-connection control requirements.	Complete – The City has adopted a Cross-Connection Control ordinance.
2	The purveyor shall develop and implement procedures and schedules for evaluating new and existing service connections to assess the degree of hazard posed by the consumer's premises to the purveyor's distribution system and notifying the consumer within a reasonable time frame of the hazard evaluation results.	Complete – The City completed an initial survey and conducts an evaluation of new service connections.
3	The purveyor shall develop and implement procedures and schedules for ensuring that: (i) Cross-connections are eliminated whenever possible; (ii) When cross-connections cannot be eliminated, they are controlled by installation of approved backflow preventers commensurate with the degree of hazard; and (iii) Approved backflow preventers are installed	Complete – Procedures for the elimination of cross-connections and installation of BPAs are established in Chapter 13.55 of the City's Municipal Code.

TABLE 6-8 – (continued)

**Minimum Elements of a Cross-Connection
Control Program as Required by RCW 246-290-490**

Element No.	Description	City of Ridgefield Compliance
4	The purveyor shall ensure that personnel, including at least one person certified as a CCS, are provided to develop and implement the cross-connection control program.	Complete – The City has a certified Cross Connection Control Specialist on staff and the Public Works Director manages the cross-connection control program.
5	The purveyor shall develop and implement procedures to ensure that approved backflow preventers are inspected and/or tested (as applicable) as required.	Complete – Annual BPA inspection is done by contractors who submit the results to the City.
6	The purveyor shall develop and implement a backflow prevention assembly testing quality control assurance program, including, but not limited to, documentation of tester certification and test kit calibration, test report contents, and time frames for submitting completed test reports.	Complete – City staff maintains the required documentation.
7	The purveyor shall develop and implement (when appropriate) procedures for responding to backflow incidents	Complete – Incident response procedures have been developed ⁽¹⁾ .
8	The purveyor shall include information on cross-connection control in the purveyor's existing program for educating consumers about water system operation. Such a program may include periodic bill inserts, public service announcements, pamphlet distribution, notification of new consumers and consumer confidence reports (CCR).	Complete – The City provides flyers at City Hall and information related to its cross-connection control on its website (See Appendix N).
9	The purveyor shall develop and maintain an inventory of all devices relied upon to protect the public water system, which include the assessed degree of hazard, assembly location and history of inspections.	Complete – Inventory is complete of known assemblies. See Appendix N for current inventory.

TABLE 6-8 – (continued)

**Minimum Elements of a Cross-Connection
Control Program as Required by RCW 246-290-490**

Element No.	Description	City of Ridgefield Compliance
10	Purveyors who distribute and/or have facilities that receive reclaimed water within their water service area shall meet any additional cross-connection control requirements imposed by the department under a permit issued in accordance with chapter 90.46 RCW.	Not Applicable.

- (1) In the event of a backflow incident, the City will contact DOH immediately, complete backflow incident report form #331-243, and staff will refer to PNWS-AWWA Manual “Backflow Incident Investigation Procedures.”

6.5.3 CROSS-CONNECTION TESTING AND COMPLIANCE

The City uses Tokay’s Backflow Software to generate courtesy letters, track backflow devices and post test results. Letters are sent each year. To assist with enforcement, city code authorizes water shutoff; however, staff works diligently in reaching out to citizens to meet compliance and minimize the need for discontinuance of service. In 2019, the City implemented Webtest (a Tokay on-line reporting feature) and required all test reports to be submitted electronically by the backflow tester. This implementation has been very successful and facilitated communication between program for both the department, backflow testing companies and citizens. The City plans to reinstitute the hazard surveys with a focus on tenant improvements and commercial accounts in 2024.

The City has successfully managed to test and inspect a very high percentage backflow assemblies but continues to strive for full compliance. Testing compliance for 2018 through 2022 is summarized in Table 6-9.

TABLE 6-9

Historical Backflow Assembly Testing Compliance

	2018	2019	2020	2021	2022
Percent Compliance	98%	98%	99%	98%	97%

6.6 CUSTOMER COMPLAINT RESPONSE PROGRAM

The City of Ridgefield does not keep statistical records on customer complaints per say; however, The City of Ridge field has both an mobile application and web-based platform where customers and citizens may report an issue with water system components. Response to a customer concern is made as soon as possible. Telephone calls are promptly returned to determine the nature of the complaint. If additional action is required, the complaint is logged on that customer's billing record and coded Water Quality. A "Service Order" is generated and sent to public works for follow up. The service order is filed after the field personnel responds to the problem and indicates corrective action has been completed. For Water Quality/Health Complaints, the City notes the date, location, nature of complaint, end results on the customer's account and runs a report annually to identify possible problem areas.

Service orders are kept on file for a minimum of 1 year from the initial complaint.

6.7 RECORDKEEPING AND REPORTING

The City keeps water system records for water quantity purchased and sold, water quality, and cross-connection data at the City's office. Bacterial analysis results are kept for a minimum of 5 years. Chemical analysis results are kept for as long as the system is in operation. Records of customer use and water quality records are maintained for a minimum of 10 years. Construction documents, project reports, and any DOH approvals are maintained for the life of the system. Reporting to DOH shall be in accordance with WAC 246-290-480. This requires reporting of:

- Monthly reports before the tenth of the following month
- MCL violation within 48 hours
- Updated WFI on an annual basis
- Bacteriological presence in accordance with WAC 246-290-480 (2)(f)
- Disinfection by-products in accordance with WAC 246-290-300 (7) as specified in 40 CFR 141.134
- Copy of all water quality testing results required by the WAC

CHAPTER 7

DISTRIBUTION FACILITIES DESIGN AND CONSTRUCTION STANDARDS

7.1 OBJECTIVE

The objective of this chapter is to document the City of Ridgefield's design and construction standards to allow the City to utilize DOH's submittal exception process for design of water distribution facilities. Through this process, a purveyor needs no further approval from DOH for distribution related projects. Source of supply facilities, booster pump stations, and reservoirs are not eligible for the alternative review process.

This chapter includes the following elements:

- System Standards, Policies and Procedures
- Project Review Procedures
- Policies and Requirements for Outside Parties
- Design Standards
- Construction Standards
- Construction Inspection Procedures
- Preparation and Retention of Design and Record Drawings

The majority of these items can be found in the water portions of the City's *Engineering Standards for Public Works Construction (May 2017)*, included in Appendix G.

7.2 SYSTEM STANDARDS, POLICIES AND PROCEDURES

The City has developed design and construction standards, *Engineering Standards for Public Works Construction (May 2017)* for:

- Any improvement within the public right-of-way and/or public easements;
- All improvements required within the proposed right-of-way of new subdivisions;
- All improvements intended for maintenance by the City; and
- All other improvements for which the City Code requires approval from the Public Works Department.

See Appendix G for details of the City's system standards, policies, and procedures.

7.3 PROJECT REVIEW PROCEDURES

Project reports and construction documents are submitted to the City’s Engineer and the Public Works Director for review and approval. Construction documents that do not meet the standards are returned for resubmittal if the deviation is significant, or returned with corrections noted if the deviation is minor. Construction may not proceed unless the Public Works Director signed the drawings “Approved.”

7.4 POLICIES AND REQUIREMENTS FOR OUTSIDE PARTIES

The policies and requirements for development within the City can be found in Appendix G. These are taken from the City’s *Engineering Standards for Public Works Construction (May 2017)*. Included in the Appendix are written descriptions of the policies regarding the water system and standard details showing the infrastructure requirements.

Any project requiring City approval must meet these design requirements.

7.5 DESIGN STANDARDS

Appendix G includes copies of the water design standards from the City’s *Engineering Standards for Public Works Construction Vol. 1 (May 2017)*.

Any improvements not specifically covered by the City’s Public Works Standards must meet or exceed the current version of the WSDOT *Standard Specifications for Road, Bridges, and Municipal Construction*, which the City has adopted by reference

7.6 CONSTRUCTION STANDARDS (MATERIALS AND METHODS)

Appendix G includes copies of the water construction standards from the City’s *Engineering Standards for Public Works Construction (May 2017)*.

7.7 CONSTRUCTION INSPECTION PROCEDURES

The City inspects all new construction during and after construction to ensure that the projects are constructed in accordance with the construction standards. This inspection includes being present during pressure test procedures and, if applicable, disinfection and water quality sampling procedures to ensure that all have been properly performed. As-builts of the final system are to be submitted for each project. Service will not be provided until all requirements are satisfied.

If a Project Report is required for the project by WAC 246-290-040, the developer for the new development prepares the Project Report. New development Project Reports are submitted to the City's Engineer and the Public Works Director for review and approval.

7.8 PREPARATION AND RETENTION OF DESIGN AND RECORD DRAWINGS

The City retains all as-built drawings indefinitely. Developer design and record drawings are completed by the developer. For Public Works projects, the City's consulting engineer or City staff complete the design and record drawings. City staff reviews and approves the drawings for construction and the record drawings in both situations.

CHAPTER 8

IMPROVEMENT PROGRAM

8.1 OBJECTIVE

The objective of this chapter is to present a Capital Improvement Program (CIP) in accordance with the requirements of WAC 246-290. Recommended water system improvements and associated costs, along with scheduling information are presented in the following sections according to analyses, identified deficiencies, and recommendations identified in Chapter 3 of this Plan. The preferred alternatives for correcting deficiencies have been prioritized for implementation over the 10- and 20-year planning periods. Financing of these improvements is further discussed in Chapter 9.

The chapter includes capital improvement projects for source of supply, storage, booster pumps, distribution, and other identified capital and non-capital improvements.

In addition, this chapter includes the City's Asset Management Plan, which inventories the City's key water system assets in order to estimate the total cost of owning, operating, upgrading, and replacing these assets while delivering the appropriate level of service.

8.2 PREVIOUS CAPITAL IMPROVEMENTS

The City has completed numerous capital improvements since the 2013 Water System Plan. The status of the capital improvements proposed in the 2013 Water System Plan is summarized in Section 1.2.3.

8.3 CAPITAL IMPROVEMENT PROJECTS

Proposed capital improvement projects have been categorized as Source of Supply (SO- prefix), Storage (ST- prefix), Distribution System (D- prefix), and Maintenance & Upkeep (M- prefix). Projects are described in the following sections. All projects except those categorized as Maintenance are shown in Figure 8-1. Detailed cost estimates for most projects can be found in Appendix Q.

8.3.1 SOURCE OF SUPPLY

The analysis in Chapter 3 shows that the City currently has adequate source of supply but that additional source capacity will be needed by 2026 in order to accommodate increased water use from the projected population growth. Information regarding the source improvements, including estimated costs, is incorporated from the *City of Ridgefield Groundwater Source Development Report (August 2019)* prepared by GSI Water Solutions, Inc. (see Appendix C). Recommended source of supply projects are described below.

8.3.1.1 SO-1: Kennedy Farms Wells (2024-2029)

Estimated project cost in 2024 dollars: \$6,700,000

Additional Source Capacity: 1,200 gpm

This project includes drilling, equipping, and obtaining water rights for up to four new production wells with a nominal capacity of 300 gpm each (1,200 gpm total) on the Kennedy Farms site as described in the *City of Ridgefield Groundwater Source Development Report (August 2019)* included in Appendix C.

8.3.1.2 SO-2: North Royle Road Transmission Main and Intertie (2026)

Estimated project cost in 2024 dollars: \$3,580,000

Additional Source Capacity: 1,000 gpm

This project includes construction of approximately 6,300 LF of new 12-inch transmission main along NW 31st Avenue between the northern City Limits (i.e., NW 289th Street) and the existing CPU transmission main located at approximately 31000 NW 31st Avenue. It also includes the construction of new intertie near the intersection of North Royle Road and NW 289th Street. As described in the CPU intertie agreement (see Appendix B), this project will allow for an additional 1,000 gpm of supply from CPU to the City's water system. The design and construction costs of this project may be shared by the City and CPU in accordance with the terms of a pending agreement between the parties. SO-2 must be completed subsequent to or concurrently with project D-6.

8.3.1.3 SO-3: Teal Crest Wells (2036-2040)

Estimated project cost in 2024 dollars: \$4,250,000

Additional Source Capacity: 600 gpm

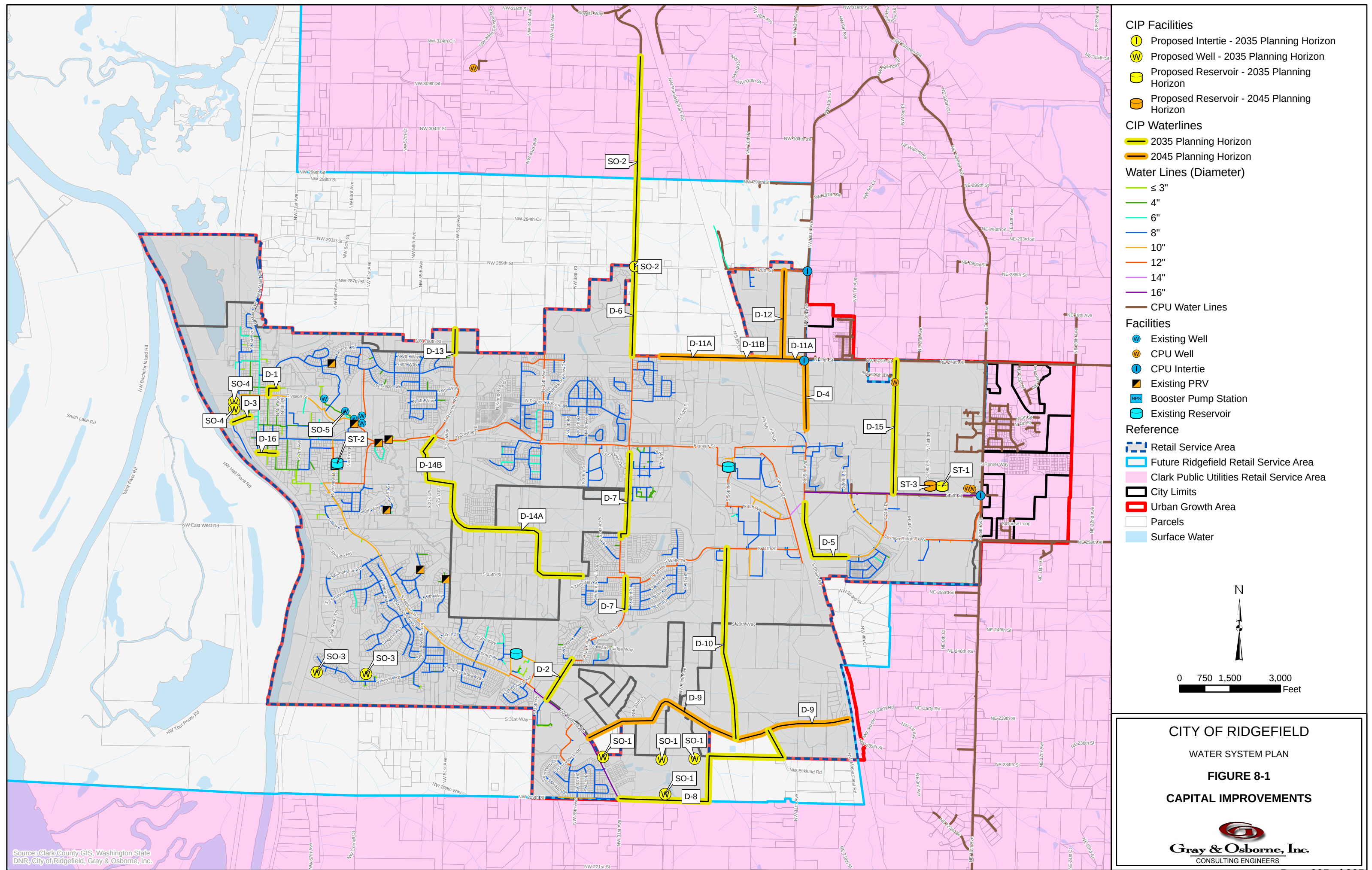
This project includes drilling, equipping, and obtaining water rights for up to two new production wells with a nominal capacity of 300 gpm each (600 gpm total) on the Teal Crest in the southwest of the water service area site as described in the *City of Ridgefield Groundwater Source Development Report (August 2019)* included in Appendix C.

8.3.1.4 SO-4: Port of Ridgefield Wells (2038-2040)

Estimated project cost in 2024 dollars: \$5,000,000

Additional Source Capacity: 900 gpm

This project includes drilling, equipping, and obtain water rights for up to four new production wells with a nominal capacity of 150 gpm each (900 gpm total) in the vicinity of the Port of Ridgefield as described in the *City of Ridgefield Groundwater Source Development Report (August 2019)* included in Appendix C. As noted in this document,



water quality issues would have to be carefully evaluated before developing these wells due to the history of contamination in the area from industrial land uses.

8.3.1.5 SO-5: Well 7 Reconstruction (2035+)

Estimated project cost in 2024 dollars: \$856,000

This project includes drilling and equipping a replacement for Well 7, and connecting it to the system. The existing well has documented sedimentation problems and past video inspections have revealed a bent casing. At present the existing Well 7 is able to function at a lower production capacity than it was designed for. The City would like to restore the capacity of this well.

8.3.2 WATER TREATMENT

No deficiencies to the City's water treatment system were identified in Chapter 3 of this Plan. However, as additional sources are developed, new treatment facilities will need to be constructed. The costs associated with these facilities are included in the respective source development costs.

8.3.3 WATER STORAGE

The City of Ridgefield water storage facilities were evaluated and deficiencies were identified in Chapter 3 of this Plan. The evaluation showed that the City of Ridgefield will require additional storage capacity to serve its long-term water storage needs. Given that most of the projected growth will occur in the upper pressure zone, all new storage facilities will be located there.

Recommended storage projects are listed and described below.

8.3.3.1 ST-1: Eastside Elevated Reservoir (2024-2025)

Estimated project cost in 2024 dollars: \$17,000,000

This project includes the construction of a new elevated reservoir located east of Interstate 5 and accessed from South 5th Street. The reservoir will have at least 1.7 MG of available storage at a sufficient elevation to supply a minimum of 30 psi to the upper zone. As of 2024, the estimated tank volume is 2.5 MG. The project will likely include additional public works facilities as part of a larger site plan. The design phase of this project began in early 2024 and the City has outlined an aggressive schedule, hoping to bring the reservoir online before the end of 2025.

8.3.3.2 ST-2: High School Reservoir Recoating (2033)

Estimated project cost in 2024 dollars: \$1,246,000

The High School Reservoir's existing coating will reach the end of its anticipated useful life near the end of the 10-year planning period. This project will include blasting and recoating both the interior and exterior of the reservoir as well as any metal repair. The existing reservoir appurtenances including the vent, guardrail, ladder, and fall arrest system are in good working order. The High School Reservoir will need to be taken offline for this work to be completed. As a result, this project cannot be undertaken until the new Eastside Reservoir, ST-1, is constructed and brought online.

8.3.3.3 ST-3 Second East Side Reservoir (2035+)

Estimated project cost in 2024 dollars: \$6,560,000

A second 2.0 MG reservoir will be built at the Eastside elevated Reservoir Site in the latter half of the 10 to 20-year planning horizon. This reservoir may be an elevated reservoir or a ground level reservoir with a pump station.

8.3.4 DISTRIBUTION SYSTEM

The City of Ridgefield water distribution facilities were evaluated, and deficiencies were described in Chapter 3 of this Plan. The City plans on expanding its water distribution and transmission system to provide water service to developing areas, and a number of projects have been identified both to address deficiencies and to expand water mains throughout the water service area.

Cost estimates provided for distribution system projects are planning-level total project costs based on the pipe size, type, and length, and are based on analysis of bid tabs for water main projects over the past several years in western Washington. All distribution system project costs include sales tax, a 20 percent construction contingency, and an additional 30 percent total for engineering, construction management, and contract administration. The cost estimates assume that projects are designed and constructed using standard public works bidding procedures. It should be noted that several distribution projects are likely to be constructed by developers at lower costs than estimated herein. The City's current oversizing ordinance allows the City to compensate developers for the oversizing of planned water mains through System Development Charge credits or other means, where appropriate. Many projects may be constructed either sooner or later than assumed, in order to provide additional capacity to serve new developments or redevelopments, depending on the pace of development.

In addition, the City has identified many minor distribution system improvement projects to replace aging or undersized water lines as part of its Water Main Replacement Program. It is anticipated these projects will be City-funded rather than developer-

funded. Specific minor distribution system improvements are discussed later in the “Maintenance” project section in this chapter.

Recommended distribution projects are listed and described below.

8.3.4.1 D-1: North 3rd Avenue and Maple Street – Division Street to North 4th Avenue Extension (2025)

Estimated Project Cost in 2024 Dollars: \$325,000

Pipe Description: 480 Linear Feet of 8-Inch Ductile Iron Pipe

This project includes replacing approximately 480 LF of existing 4-inch pipe along North 3rd Avenue and Maple Street with 8-inch DI pipe in order to meet fire flow requirements at the hydrant located at 401 Maple Street. It addresses fire flow deficiencies identified in the hydraulic analysis section of Chapter 3.

8.3.4.2 D-2: South Royle Road – NW Hillhurst Road to South Royle Court (2029)

Estimated Project Cost in 2024 Dollars: \$961,000

Pipe Description: 1,410 Linear Feet of 12-Inch Ductile Iron Pipe

This project includes the installation of approximately 1,410 LF of new 12-inch pipe along South Royle Road between NW Hillhurst Road and South Royle Court. It will create a new route to move water between the eastern and western portions of the system and reduce reliance on the overburdened transmission mains along South Hillhurst Road and Pioneer Street. Project D-2 will improve the ability of the High School Reservoir to set a consistent hydraulic grade throughout the system and thereby significantly reduce the surge and pressure instability issues that have historically created operational challenges within the eastern and southeastern portions of the system.

8.3.4.3 D-3: Mill Street – North 1st Avenue to North Krause Avenue (2031)

Estimated Project Cost in 2024 Dollars: \$589,000

Pipe Description: 560 Linear Feet of 8-Inch Ductile Iron Pipe

This project includes upsizing approximately 560 LF of 6-inch pipe to 8-inch along Mill Street between North 1st Avenue and North Krause Avenue. While hydraulic modeling does not indicate fire flow deficiencies in the area, the existing 6-inch main acts as a bottleneck that limits available fire flow to the 8-inch main south of West Mill Street. In addition, the City’s standard is to require 8-inch pipe for any dead-end mains providing fire flow. The project will include 480 LF of open cutting to install 8-inch ductile iron water main, and trenchless installation of 80 LF of 8-inch ductile iron water main in steel casing under the railroad tracks.

8.3.4.4 D-4: North 65th Avenue – North 1st Circle to NW 279th Street (2035+)

Estimated Project Cost in 2024 Dollars: \$1,061,000

Pipe Description: 1,560 Linear Feet of 12-Inch Ductile Iron Pipe

This project includes the installation of approximately 1,560 LF of 12-inch pipe along North 65th Avenue between the existing City mains located at North 1st Circle and NW 279th Street. Currently, the City mains at NW 279th Street only serve the Clark County Fire Station and are not connected to the rest of the City water system; instead, they are supplied exclusively by CPU Intertie 2. If completed before projects D-11A and D-11B, Project D-4 will also include the decommissioning of CPU Intertie 2 in accordance with the intertie agreement included in Appendix B.

8.3.4.5 D-5: East Service Area – South Dolan Road to South 10th Street Loop (2035+)

Estimated Project Cost in 2024 Dollars: \$1,815,000

Pipe Description: 2,590 Linear Feet of 12-Inch Ductile Iron Pipe

This project includes the installation of approximately 2,590 LF of 12-inch pipe along South Dolan Road between approximately South 5th Street and South 10th Street. It will provide a redundant means of water distribution between the portions of the water system on the east and west sides of South 65th Avenue. Currently there is only one 16-inch main along South 5th Street that provides this capability, which increases the vulnerability of the system in the event of a break on this main.

8.3.4.6 D-6: North Royle Road – NW 10th Street to NW 289th Street (2026)

Estimated Project Cost in 2024 Dollars: \$2,013,000

Pipe Description: 2,660 Linear Feet of 12-Inch Ductile Iron Pipe

This project includes the installation of approximately 2,660 LF of 12-inch pipe along North Royle Road between North 10th Street and the proposed intertie with Clark Public Utilities that will be installed as part of project SO-2. In addition to serving future development along North Royle Road, this project will connect the proposed North Royle Road Transmission Main (see project SO-2 description) to the City's distribution system. Note that this project must be completed simultaneously with or prior to project SO-2.

8.3.4.7 D-7: South Royle Road – South 10th Way to Pioneer Street (2024)

Estimated Project Cost in 2024 Dollars: \$2,013,00

Pipe Description: 2,660 Linear Feet of 12-Inch Class 52 Ductile Iron Pipe

This project includes the installation of approximately 2,660 LF of 12-inch pipe, primarily along South Royle Road between South 10th Way and Pioneer Street and South Wells Drive and South 19th Street. It will provide service to the developments along South Royle Road and improve distribution system capacity. As of early 2024 this project is partially constructed and will be finished before the end of 2024.

8.3.4.8 D-8: Future Streets – NW Hillhurst Road to NW Carty Road Loop (2035+)

Estimated Project Cost in 2024 Dollars: \$4,740,000

Pipe Description: 7,140 Linear Feet of 16-Inch Ductile Iron Pipe

This project includes the installation of approximately 7,140 LF of 16-inch pipe along future streets and NW Ecklund Road between NW Hillhurst Road and NW Carty Road. This project will improve distribution and transmission capacity in the southern portion of the service area and may connect the proposed Kennedy Farms wells (Project SO-1) to the rest of the distribution system (depending on the final location selected for the wells). If required based on the final location of the Kennedy Farms wells, and if the mains have not yet been constructed by a developer, the City may complete a portion of Project D-8 concurrent with project SO-1.

8.3.4.9 D-9: NW Carty Road – NW Hillhurst Road to I-5 (2035+)

Estimated Project Cost in 2024 Dollars: \$5,598,000

Pipe Description: 8,530 Linear Feet of 12-Inch Ductile Iron Pipe

This project includes the installation of approximately 8,530 LF of 12-inch pipe along NW Carty Road between NW Hillhurst Road and the western boundary of Interstate 5. The new main will serve development along NW Carty Road and improve distribution system capacity.

8.3.4.10 D-10: Future Street – South 11th Street to NW Carty Road (2035+)

Estimated Project Cost in 2024 Dollars: \$3,158,000

Pipe Description: 5,750 Linear Feet of 12-Inch Ductile Iron Pipe

This project includes the installation of approximately 5,750 LF of 12-inch pipe along a future street between South 11th Street and NW Carty Road. The new main will serve development along the future street and improve distribution system capacity.

8.3.4.11 D-11A: North 10th Street – North 48th Avenue Extension to North 65th Avenue (2035+)

Estimated Project Cost in 2024 Dollars: \$2,998,000

Pipe Description: 4,000 Linear Feet of 12-Inch Ductile Iron Pipe

This project includes the installation of approximately 4,000 LF of 12-inch pipe along North 10th Street between the extension of North 48th Avenue and North 65th Street, not including the trenchless crossing of Interstate 5 (which is included separately as project D-11B). This project, in conjunction with project D-11B, will provide a transmission main between the west and east sides of I-5 in the northeast part of the service area. If completed before project D-4, Project D-11A would also include decommissioning the existing CPU Intertie 2 in accordance with the intertie agreement included in Appendix B.

8.3.4.12 D-11B: North 10th Street – Trenchless Crossing of I-5 (2035+)

Estimated Project Cost in 2024 Dollars: \$845,000

Pipe Description: 300 Linear Feet of 12-Inch Pipe

This project includes the installation of approximately 300 LF of 12-inch minimum inner diameter pipe under Interstate 5 between North 10th Street on the east and west sides of Interstate 5 using trenchless installation methods. For the purposes of the cost estimate, auger boring has been assumed, but other trenchless methods (including but not limited to horizontal directional drilling) will also be considered during project design. This project, in conjunction project D-11A, will provide a transmission main between the west and east sides of I-5 in the northeast part of the service area.

8.3.4.13 D-12: Future Street – North 10th Street to North 20th Street (2035+)

Estimated Project Cost in 2024 Dollars: \$1,473,000

Pipe Description: 2,620 Linear Feet of 12-Inch Ductile Iron Pipe

This project includes the installation of approximately 2,620 LF of 12-inch pipe along a future street between North 10th Street and North 20th Street between I-5 and North 65th Avenue. The new main will serve development along the future street as well as connecting to a portion of the City water system along and to the north of North 20th Street that is currently served solely through CPU Intertie 3. The project also includes decommissioning of this intertie in accordance with the intertie agreement included in Appendix B.

8.3.4.14 D-13: NW 51st Avenue – City Limits to UGA Limits (2035+)

Estimated Project Cost in 2024 Dollars: \$537,000

Pipe Description: 670 Linear Feet of 12-Inch Ductile Iron Pipe

This project includes the installation of approximately 670 LF of 12-inch pipe along NW 51st Avenue near NW 280th Street between the City Limits and the UGA limits. It will serve development along this portion of NW 51st Avenue.

8.3.4.15 D-14A: Gee Creek Plateau Subarea – NW 259th Street to South 15th Street (2026-2027)

Estimated Project Cost in 2024 Dollars: \$2,943,000

Pipe Description: 4,500 Linear Feet of 12-Inch Ductile Iron Pipe

This project includes the installation of approximately 4,500 LF of 12-inch pipe along the Gee Creek Plateau Subarea and adjoining areas between NW 259th Street and South 15th Street. The Gee Creek Plateau Subarea is currently located outside City Limits and maintains a rural character, but it is anticipated that more intensive development, including, but not limited to, the extension of City water lines into the area, will occur in the future. Section 18.210.135 of the City's Municipal Code enumerates special development provisions for the Gee Creek Plateau Subarea. The proposed water main will serve development within the Subarea and improve distribution system capacity, along with Project D-14B.

8.3.4.16 D-14B: Gee Creek Plateau Subarea – South 25th Place to Pioneer Street (2035+)

Estimated Project Cost in 2024 Dollars: \$2,709,000

Pipe Description: 4,140 Linear Feet of 12-Inch Ductile Iron Pipe

This project includes the installation of approximately 4,140 LF of 12-inch pipe along the Gee Creek Plateau Subarea and adjoining areas between Pioneer Street and South 25th Place. The Gee Creek Plateau Subarea is currently located outside City Limits and maintains a rural character, but it is anticipated that more intensive development, including, but not limited to, the extension of City waterlines into the area, will occur in the future. Section 18.210.135 of the City's Municipal Code enumerates special development provisions for the Gee Creek Plateau Subarea. The proposed water main will serve development within the Subarea and improve distribution system capacity, along with Project D-14A.

8.3.4.17 D-15: Future Street – South 5th Street to NW 279th Street (2035+)

Estimated Project Cost in 2024 Dollars: \$2,174,000

Pipe Description: 3,940 Linear Feet of 12-Inch 2 Ductile Iron Pipe

This project includes the installation of approximately 3,940 LF of 12-inch pipe along a future street between South 5th Street and NW 279th Street near South 74th Place. The new main will serve development in the vicinity of the future street.

8.3.4.18 D-16 South Sargent Street – South Main Street to South 3rd Avenue (2025)

Estimated Project Cost: \$414,000

Pipe Description: 600 Linear Feet of 8-inch Ductile Iron Pipe

This project includes the installation of approximately 600 LF of 8-inch pipe along Sargent Street between South Main Street and South 3rd Avenue. This project will upsize a portion of the existing 4-inch waterline along Sargent Street.

8.3.5 MAINTENANCE AND UPKEEP

In order to maintain quality infrastructure, the City has identified a program of system upkeep to periodically replace components of the City's water system. Each of the elements of this program represents a recurring annual (rather than one-time) expense.

Recommended system upkeep projects are listed and described below, and are shown on Figure 8-2.

8.3.5.1 M-1.X: Water Main Replacement Program (Annual)

Estimated Project Cost in 2024 Dollars: \$120,000 Annually

The City has budgeted \$120,000 annually for its water main replacement program. This program includes minor distribution system improvements to replace aged and undersized pipes in the locations shown in Figure 8-2. In addition, it includes general water main replacement in areas identified by the City on an ongoing basis as part of the program that may not be known at this time. Table 8-1 lists water replacement projects identified as part of the program and provides estimated project costs based on the estimates provided in the City's 2013 Water System Plan (plus an allowance for cost increases since 2013). The aggregate dollar amount for the program over the 20-year planning period (in 2024 dollars) is \$2,400,000.

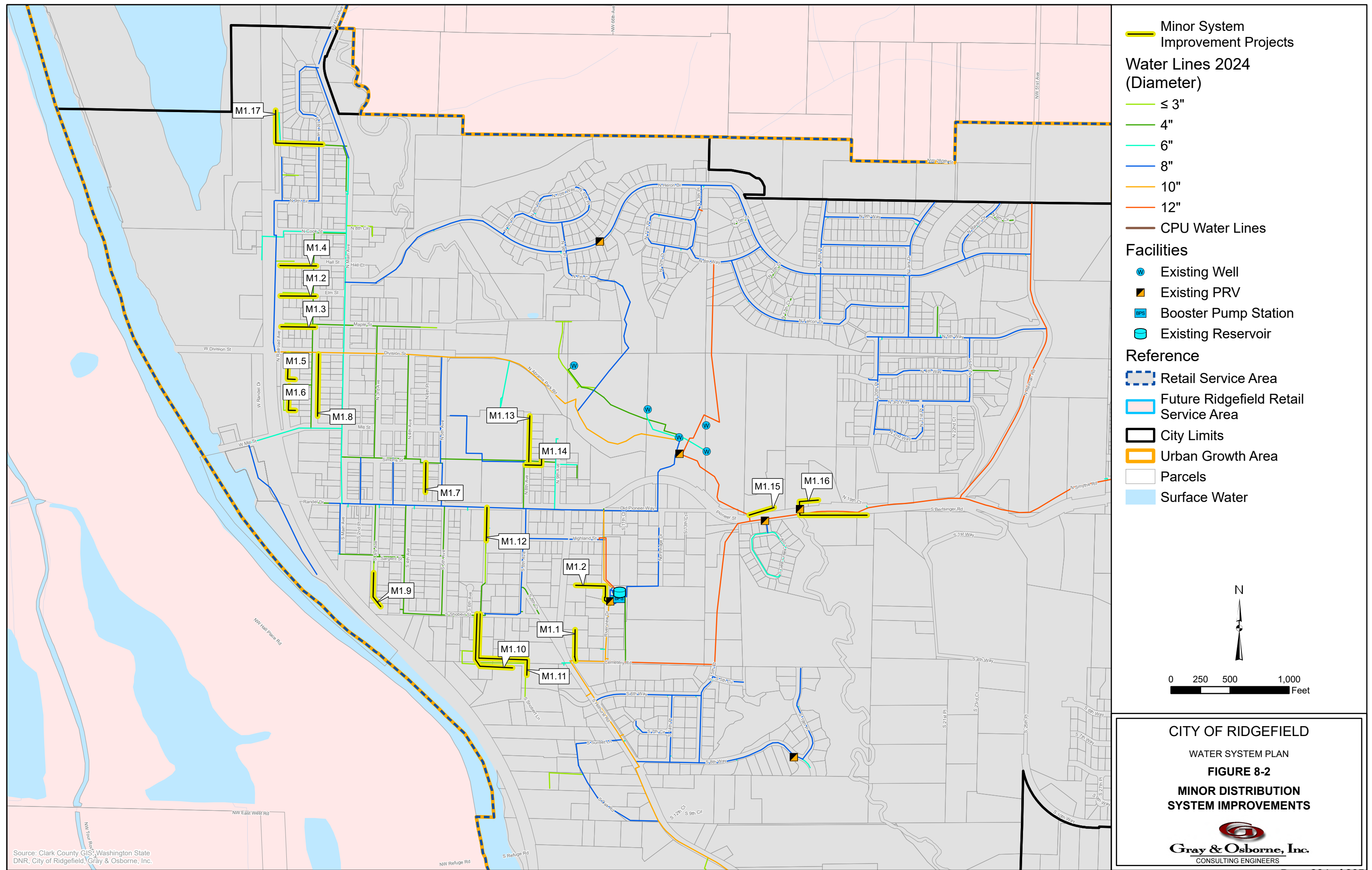


TABLE 8-1

City of Ridgefield Water Main Replacement Program

Project ID⁽¹⁾	Project Description	Completion Year Range	Project Cost (2024 dollars)
M1.1	South 9 th Court	2024 – 2035	\$42,000
M1.2	Elm Street	2024 – 2035	\$64,000
M1.3	Maple Street	2024 – 2035	\$53,000
M1.4	Hall Street	2024 – 2035	\$42,000
M1.5	North Railroad Avenue	2024 – 2035	\$54,000
M1.6	North Railroad Avenue	2024 – 2035	\$44,000
M1.7	Alley between North 4 th Avenue and North 5 th Avenue	2024 – 2035	\$57,000
M1.8	North 1 st Avenue	2024 – 2035	\$106,000
M1.9	South 3 rd Avenue	2024 – 2035	\$57,000
M1.10	Shobert Lane	2024 – 2035	\$123,000
M1.11	Shobert Lane Going Only to 625 Block	2024 – 2035	\$173,000
M1.12	7 th Avenue from Pioneer Street (Unknown Length)	2024 – 2035	\$180,000
M1.13	North 8 th Avenue	2024 – 2035	\$75,000
M1.14	North Simmons Street	2024 – 2035	\$29,000
M1.15	Off of North side of Pioneer Street	2024 – 2035	\$51,000
M1.16	On and Under the Gee Creek Bridge	2024 – 2035	\$116,000
M1.17	North Depot Street	2024 – 2035	\$67,000
-	General Water Main Maintenance and Replacement, 2021 – 2030 ⁽²⁾	2024 – 2035	\$42,000
<i>Subtotal, 2024 – 2035</i>			<i>\$1,333,000</i>
-	General Water Main Maintenance and Replacement, 2031 – 2040 ⁽²⁾	2036 – 2045	1,200,000
<i>Subtotal, 2036 – 2045</i>			<i>1,200,000</i>
Total			\$2,533,000

(1) See Figure 8-2.

(2) Locations as determined by the City on an ongoing basis.

8.3.5.2 M-2: Hydrant Replacement Program (Annual)

Estimated Project Cost in 2024 Dollars: \$30,000 Annually

The City has budgeted \$30,000 annually for its hydrant replacement program. This program targets the replacement of approximately five fire hydrants annually, identified by City staff.

8.3.6 SUMMARY OF RECOMMENDED IMPROVEMENTS

A prioritization schedule and cost summary for the recommended 10- and 20-year improvements is shown in Table 8-2. All costs shown are in 2024 dollars. Figure 8-1 and Figure 8-2 show the site-specific capital improvement projects detailed in this chapter.

TABLE 8-2

Capital Improvement Program Schedule (2024-2035)

Project ID	Project Description	Year	Cost Estimate⁽¹⁾
M-1	Water Main Replacement Program	Annual	\$120,000
M-2	Hydrant Replacement Program	Annual	\$30,000
D-7	South Royle Road – South 10 th Way to Pioneer Street	2024	\$899,500
ST-1	Eastside Reservoir	2024-2025	\$17,000,000
SO-1	Kennedy Farms Wells 1 and 2	2024-2029	\$3,350,000
D-1	North 3 rd Avenue and Maple Street – Division Street to North 4 th Avenue Extension	2025	\$325,000
D-15	South Sargent Street – South Main Street to South 3 rd Avenue	2025	\$414,000
D-6	North Royle Road – North 10 th Street to NW 289 th Street	2026	\$2,013,000
D-14A	Gee Creek Plateau Subarea – NW 259 th Street to South 15 th Street	2026- 2027	\$2,943,000
SO-2	North Royle Road Transmission Main and Intertie	2026	\$3,580,000
D-2	South Royle Road – NW Hillhurst Road to South Royle Court	2029	\$961,000
SO-1	Kennedy Farms Wells Phase 3 and 4	2028-2029	\$3,350,000
D-3	Mill Street – North 1 st Avenue to North Krause Avenue	2031	\$589,000
ST-2	High School Reservoir Recoat	2033	\$1,246,000
Total by 2035 Horizon			\$38,470,500

(1) Estimated Costs are in 2024 dollars.

8.4 ASSET MANAGEMENT PLAN

8.4.1 BACKGROUND

Asset management is defined by DOH as “... the practice of managing all utility assets to address the total cost of owning, operating, upgrading, and replacing them, while delivering the appropriate level of service.” As part of this Water System Plan, the City has completed an Asset Management Plan. This Asset Management Plan includes an Asset Inventory that summarizes the age, condition rating, replacement cost, and criticality of the City’s major water system assets and relates these items to the planned Capital Improvement Projects previously described in this chapter. This inventory is then used to assess the adequacy of the City’s Capital Improvement Program to maintain current levels of service over the long term.

8.4.2 ASSUMPTIONS

The Condition Rating system used in preparing the City of Ridgefield’s Asset Management Plan is adapted from the document “*Asset Management: The 5 Core Components*” prepared by the Southwest Environmental Finance Center. The Condition Rating system used is summarized in Table 8-3.

TABLE 8-3

Asset Condition Rating System

Rank	Condition	Description
A	Excellent	Asset is new or nearly new; asset has no known or suspected condition issues
B	Very Good	Asset has no known or suspected condition issues, but is no longer a new asset
C	Good	Asset has few known or suspected issues
D	Average	Asset has known or suspected issues
E	Fair	Asset has known or suspected issues that may impact the asset’s ability to continue to perform in the next several years
F	Poor	Asset has known or suspected condition issues and they are likely to impact the asset’s ability to function in the near future (1 to 2 years)

Each asset is assigned a Consequence of Failure (CoF) and a Likelihood of Failure (LoF) on a scale of 1 to 5 in accordance with the rating system shown in Table 8-4. The criticality of each asset is defined as the product of the CoF rating and the LoF rating, with the lowest possible criticality being 1 ($1 \times 1 = 1$) and the highest possible criticality being 25 ($5 \times 5 = 25$).

8.4.3 ASSET INVENTORY

The City's Public Works department utilizes Asset Essentials by Brightly which is a web-based software to track utility assets. The City's tabulated Asset Inventory is provided in Table 8-4. This inventory was compiled with help from City staff. The criticality of assets are detailed in in Table 8-4. The inventory includes all major components of the City's water system.

TABLE 8-4

Asset Inventory

No.	Asset	Asset Description	Asset Type	Asset Location	Year Installed	Age (years)	Expected Useful Life (years)	Remaining Useful Life (years)	Condition Rating	Consequence of Failure (CoF)	Likelihood of Failure (LoF)	Criticality (CoF x LoF)	Related Capital Improvement Projects	Replacement Cost (\$2024) ⁽¹⁾	Annualized Replacement Cost (\$2024)
Wells															
1	Well 7	145 feet deep 8-inch diameter well	Well	Abrams Park	1986	38	50	12	E	3	3	9	SO-7	\$500,000	\$10,000
2	Well 8	153 feet deep 8-inch diameter well	Well	Abrams Park	1986	38	50	12	C	3	2	6	-	\$500,000	\$10,000
3	Well 9	162 feet deep 8-inch diameter well	Well	Abrams Park	1986	38	50	12	C	3	2	6	-	\$500,000	\$10,000
4	Well 10	135 feet deep 12-inch diameter well	Well	Abrams Park	2009	15	50	35	B	3	2	6	-	\$500,000	\$10,000
5	Well 11	217 feet deep 10-inch diameter well	Well	Abrams Park	2019	5	50	45	A	3	2	6	-	\$600,000	\$12,000
6	Junction Well	460 feet deep 8-inch diameter well	Well	225 S 56th Pl	1986	38	50	12	A	3	2	6	-	\$700,000	\$14,000
7	Well 7 Pumping Facilities	300 gpm 40-hp well pump, pump motor, electrical, piping, well building, shared electrical/controls building	Well Pumping Facilities	Abrams Park	1986	38	40	2	C	3	2	6	-	\$30,000	\$750
8	Well 8 Pumping Facilities	300 gpm 40-hp well pump, pump motor, electrical, piping, well building, shared electrical/controls building	Well Pumping Facilities	Abrams Park	1986	38	40	2	C	3	2	6	-	\$30,000	\$750
9	Well 9 Pumping Facilities	400 gpm 60-hp well pump, pump motor, electrical, piping, well building, shared electrical/controls building	Well Pumping Facilities	Abrams Park	1986	38	40	2	C	3	2	6	-	\$40,000	\$1,000
10	Well 10 Pumping Facilities	165 gpm 30-hp well pump, pump motor, electrical, piping, well building, shared electrical/controls building	Well Pumping Facilities	Abrams Park	2009	15	40	25	B	3	2	6	-	\$25,000	\$625
11	Well 11 Pumping Facilities	150 gpm 30-hp well pump, pump motor, electrical, piping, well building, shared electrical/controls building	Well Pumping Facilities	Abrams Park	2020	4	40	36	A	3	2	6	-	\$25,000	\$625
12	Junction Well Pumping Facilities	400-gpm well pump, pump motor, electrical, piping,	Well Pumping Facilities	225 South 56 th Place	2017	7	40	33	A	3	2	6	-	\$40,000	\$1,000
Interties															
13	CPU Intertie 1	Master meter at well facility	Intertie	South 5 th Street and South 65 th Avenue	1999	22	50	28	A	3	2	6	-	\$200,000	\$4,000
14	CPU Intertie 2	Master meter, Vault	Intertie	North 10 th Street and North 65 th Avenue	2006	15	50	35	B	3	2	6	-	\$200,000	\$4,000
15	CPU Intertie 3	Master meter, Vault	Intertie	North 20 th Street and North 65 th Avenue	2006	18	50	32	B	4	2	8	-	\$200,000	\$4,000
Treatment Facilities															
16	Junction Treatment Facilities	Pyrolusite filtration w/potassium permanganate feed, sodium hypochlorite disinfection, shared building	Treatment	225 South 56 th Place	2015	9	40	31	A	4	2	8	-	\$700,000	\$17,500
17	Abrams Park Treatment Facilities	Sodium hypochlorite disinfection facility for Abrams Park wells, shared building	Treatment	Abrams Park	2006	18	40	22	A	4	2	8	-	\$1,000,000	\$25,000
Booster Stations															
18	Cemetery Booster Station	2x 120 gpm end suction centrifugal pumps, 2x 10-hp motors, electrical, piping, building	Booster Pumping Facilities	Ridgefield Cemetery	2018	3	40	37	A	2	2	4	-	\$450,000	\$11,250
19	Junction Booster Station	1x 200 gpm and 3x 1,000 gpm end suction centrifugal pumps with VFD, 1x 15-hp and 3x 50-hp motors, electrical, piping, shared building	Booster Pumping Facilities	225 South 56 th Place	2020	1	40	39	A	4	2	8	-	\$1,250,000	\$31,250
Reservoirs															
20	High School Reservoir	616,000 gal Welded Steel Standpipe	Reservoir	Ridgefield High School	1986	38	75	37	C	4	2	8	ST-2	\$1,500,000	\$20,000
21	Cemetery Reservoir	400,000 gal Bolted Steel Ground Level Tank	Reservoir	Ridgefield Cemetery	1999	25	75	50	A	4	2	8	-	\$1,000,000	\$13,333
22	Junction Reservoir	1.0 MG Welded Steel Ground Level Tank	Reservoir	225 South 56 th Place	2015	9	75	66	A	4	2	8	-	\$2,000,000	\$26,667
PRV Stations															
65	Abrams Park Well 7 PRV Station	3-Inch Closed PRV	PRV Station	Abrams Park	1996	30	40	10	C	1	2	2	-	\$2,500	\$63
66	Gee Creek Wells PRV Station	2-Inch and 4-Inch PRVs feeding the Low Zone	PRV Station	South of Gee Creek	2016	30	40	10	B	2	2	4	-	\$5,500	\$138

TABLE 8-4 – (continued)

Asset Inventory

No.	Asset	Asset Description	Asset Type	Asset Location	Year Installed	Age (years)	Expected Useful Life (years)	Remaining Useful Life (years)	Condition Rating	Consequence of Failure (CoF)	Likelihood of Failure (LoF)	Criticality (CoF x LoF)	Related Capital Improvement Projects	Replacement Cost (\$2024) ⁽¹⁾	Annualized Replacement Cost (\$2024)
67	Gee Creek Mobile Home PRV Station	1.5-Inch and 4-Inch PRVs feeding Gee Creek Meadows mobile home park in the High Zone	PRV Station	Gee Creek/1651 Pioneer Street	2019	30	40	10	A	2	2	4	-	\$5,500	\$138
68	Gee Creek Bridge PRV Station	2-Inch PRV to Abrams Park	PRV Station	Gee Creek Bridge SE Corner	1996	28	40	12	C	2	2	4	-	\$2,200	\$55
69	Hillhurst PRV Station	1.5-Inch and 6-Inch PRVs feeding 16 lots in the Hillhurst development	PRV Station	Hillhurst Road/South 8 th Way	2006	18	40	22	C	2	2	4	-	\$7,200	\$180
70	Osprey PRV Station	2-Inch and 6-Inch PRVs feeding 7 lots in the Osprey Point development	PRV Station	1507 South 21 st Place	2004	20	40	20	C	2	2	4	-	\$7,200	\$180
71	Cassini PRV Station	2x 2-Inch PRVs feeding seven lots in the Cassini View development	PRV Station	1520 South 24 th Place	2003	21	40	19	C	2	2	4	-	\$5,000	\$125
72	North Heron Drive PRV Station	2-Inch and 6-Inch PRVs feeding the Low Zone	PRV Station	1009 North Heron Drive	2002	22	40	18	C	3	2	6	-	\$7,200	\$180
73	Oak Street PRV Station	2-Inch and 6-Inch PRVs feeding lots between Hillhurst Drive and Lake River	PRV Station	North of 1029 Oak Street	2019	5	40	35	B	2	2	4	-	\$7,200	\$180
74	Pioneer Street PRV Station	2-Inch PRV feeding a few homes near Abrams Park	PRV Station	1710 Pioneer Street	1996	28	40	12	C	2	2	4	-	\$2,200	\$55
75	Northridge Drive PRV Station	4-Inch PRV feeding some homes along Northridge Drive	PRV Station	End of Northridge Drive	2023	1	40	39	A	2	2	4	-	\$3,300	\$83
76	S 56th PRV Station	4-Inch and 8-Inch PRVs feeding the Cemetery Reservoir	PRV Station	South 56 th Street	2000	24	40	16	C	3	2	6	-	\$8,500	\$213
Emergency Power															
77	Abrams Emergency Generator	Diesel Generator; 382-gallon fuel tank capacity	Emergency Generator	Abrams Park	2001	23	30	7	C	3	2	6	-	\$110,000	\$3,667
78	Junction Well Emergency Generator	Diesel Generator; 278-gallon fuel tank capacity	Emergency Generator	Junction Well	1995	29	30	1	C	3	2	6	-	\$110,000	\$3,667
Miscellaneous Water System Components															
79	Water Main <8 inches	Approximately 44,630 linear feet	Water Main	City of Ridgefield Water Service Area	Varies	Varies	60	Varies	B	2	2	4	D-1 thru D-15 and M-1	\$6,700,000	\$111,667
80	Water Main ≥8 inches	Approximately 273,730 linear feet	Water Main	City of Ridgefield Water Service Area	Varies	Varies	75	Varies	B	3	2	6	D-1 thru D-15 and M-1	\$68,400,000	\$912,000
81	Service Meters	5,013 service meters of various sizes (3/4" - 6")	Service Meters	City of Ridgefield Water Service Area	Varies	Varies	20	Varies	B	1	2	2	D-1 thru D-15 and M-1	\$1,800,000	\$90,000
82	Service Connections	5,013 service connections of various sizes (3/4" - 6")	Service Lines	City of Ridgefield Water Service Area	Varies	Varies	50	Varies	B	1	2	2	D-1 thru D-15 and M-1	\$800,000	\$16,000
83	Blowoff Valves	Close approximation of 70 blowoff valves throughout the distribution system	Blowoff Valves	City of Ridgefield Water Service Area	Varies	Varies	20	Varies	B	1	2	2	D-1 thru D-15 and M-1	\$25,500	\$1,275
84	Air & Vacuum Release Valves	Close approximation of 60 air and vacuum release valves throughout the distribution system	Air and Vacuum Release Valves	City of Ridgefield Water Service Area	Varies	Varies	20	Varies	B	1	2	2	D-1 thru D-15 and M-1	\$90,000	\$4,500
85	Fire Hydrants	Close approximation of 600 fire hydrants provided fire protection throughout the service area	Fire Hydrant	City of Ridgefield Water Service Area	Varies	Varies	50	Varies	B	1	2	2	M-2	\$3,600,000	\$72,000
86	SCADA System	System of centralized monitoring and control for wells, booster pumps, reservoirs, and miscellaneous other system components	SCADA	City of Ridgefield Water Service Area	Varies	Varies	25	Varies	C	4	2	8	-	\$400,000	\$16,000
Total (\$2024)														\$88,299,000	\$1,460,113

(1) Replacement costs are based on the general type of asset and have been prepared exclusively for the purposes of this Asset Management Plan. Prior to allocating funds for any water system improvement project, it is recommended that a detailed cost estimate Replacement costs are based on the general type of asset and have been prepared exclusively for the purposes of this Asset Management Plan. Prior to allocating funds for any water system improvement project, it is recommended that a detailed cost estimate be prepared as part of the preliminary engineering work for that specific project.

CHAPTER 9

FINANCIAL ANALYSIS

This chapter discusses the City of Ridgefield's (City) existing rate and fee structure as well as historical revenues and expenditures for the water utility. The historic data is used to project the utility's future financial position to determine whether the funds can adequately support operation and maintenance activities and the capital improvement projects outlined in Chapter 8's Capital Improvement Program. The analysis considers potential rate increases, inflation, and operational costs as well as the City's Capital Improvement Program schedule as outlined in Chapter 8. Potential funding sources for capital projects are noted at the end of this chapter.

9.1 FINANCIAL STATUS OF EXISTING WATER UTILITY

9.1.1 CURRENT WATER RATES

Water rates and charges for the City of Ridgefield were last updated by Ordinance No. 1403 in May 2023, and are listed in RMC 13.35. The City charges for water service on a bi-monthly basis. Water service rates consist of a bi-monthly base charge that is dependent on the meter size. There is no water volume included in the base charge, and customers are charged for water consumption per cubic foot (cf) based on meter readings. Table 9-1 list the City's base rate while Table 9-2 lists the City's volume charges

TABLE 9-1

2023 Water Rate Schedule (Base Rate)⁽¹⁾

Size of Service	Bimonthly Service Charge
Residential	\$45.25
Non-Residential Irrigation	
1" and Under	\$45.25
1-1/2"	\$90.49
2"	\$144.79
3"	\$271.46
4"	\$452.46
6"	\$904.89
8"	\$1,447.83
10"	\$5,203.15
12"	\$9,727.62

(1) Source: RMC 13.35.010.

TABLE 9-2**2023 Water Rate Schedule (Volume Charges)**

Volume Used (CF)	\$ per Cubic Foot			
	Residential	Residential Conservation Rate⁽¹⁾	Non- Residential	Irrigation
1-1,000	\$0.0056	\$0.0512	\$0.0306	\$0.0321
1,001-2,000	\$0.0216	\$0.0512	\$0.0306	\$0.0321
2,001-3,500	\$0.0266	\$0.0512	\$0.0306	\$0.0321
3,501-5,000	\$0.0302	\$0.0512	\$0.0306	\$0.0321
OVER 5,000	\$0.0393	\$0.0512	\$0.0306	\$0.0321

(1) Residential customers with meters 1 inch and smaller are able to opt into a higher conservation rate per RMC 13.35.020.

9.1.2 CURRENT SYSTEM DEVELOPMENT FEES

The City's system development fees (also known as connection charges or general facility charges) are specified in Ordinance No. 1387. These charges are applicable only to new customers connecting to the system and are intended to repay existing customers for facilities already installed, as well as to provide funds for constructing new facilities. In addition to the system development fee, a new customer is charged an installation fee to cover the cost of installing the meter, and the cost of installing the service line is determined at the time of installation. Table 9-3 lists system development fees.

TABLE 9-3**Water System Development Fees⁽¹⁾**

Meter Size	System Development Fee	Water Meter Installation Fee⁽²⁾
5/8" – 3/4"	\$4,440.26	\$480
1"	\$11,100.65	\$580
1.5"	\$22,201.29	Time and Materials
2"	\$35,522.07	
3"	\$66,603.88	
4"	\$111,006.47	
6"	\$222,012.95	
8"	\$355,220.71	
Outside City Limits	1.5x In-City Charge	N/A

(1) City of Ridgefield 2023 Fee Schedule.

(2) Water service installation is charged on a timer-and-materials basis.

9.1.3 HISTORICAL REVENUE AND EXPENSES

The City operates three separate funds, the Water Fund (406 Fund), Capital Fund (410 Fund), and System Development Fund (416 Fund) which together fund water utility operations, maintenance, and capital improvements.

The Water Fund draws revenue from water bills and pays the water utility's operations and maintenance expenses. Historically, the Water Fund has also contributed to capital projects. Table 9-4 provides the historical operating revenue and expenses for the years 2017 through 2022 for the Water Fund.

TABLE 9-4**Historical Water Fund (406 Fund) Revenue and Expenses**

	2017	2018	2019	2020	2021	2022
Revenue⁽¹⁾						
Water Sales	\$1,398,180	\$1,521,563	\$1,737,179	\$1,993,820	\$2,452,018	\$2,502,850
Service Meter Fees	\$100,233	\$173,250	\$181,402	\$288,977	\$281,907	\$156,600
Late Fees/Penalties	\$17,815	\$17,330	\$21,356	\$2,452	\$10,815	\$28,085
Investments	\$9,236	\$7,213	\$6,097	\$14,237	(\$2,327)	(\$29,284)
Other Revenue ⁽⁵⁾	\$1,956	\$1,824	\$325	\$22,178	\$1,000	\$1,050
Prior Period Adjustments	\$132,427	\$0	\$0	\$0	\$0	\$37,585
Interfund Transfer ⁽²⁾	\$213,868	\$203,276	\$200,310	\$198,530	\$2,564,193	\$0
Total Revenue	\$1,873,715	\$1,924,455	\$2,146,669	\$2,520,195	\$5,307,605	\$2,696,885
Expenses						
Adjustments ⁽³⁾	\$288,995	(\$157,630)	(\$157,737)	\$23,376	(\$2,533,132)	(\$87)
Equipment	\$0	\$5,902	\$0	\$21,138	\$0	\$0
Depreciation and Amortization	\$269,969	\$318,086	\$356,413	\$396,459	\$461,486	\$477,254
Salaries and Benefits	\$598,090	\$652,393	\$593,378	\$659,866	\$586,136	\$772,166
Other Personnel Expenses	\$200,780	\$301,380	\$366,358	\$330,695	\$376,578	\$432,671
Office Expenses	\$74,585	\$54,472	\$42,796	\$45,838	\$65,905	\$77,672
Operations and Maintenance	\$141,590	\$209,827	\$233,304	\$391,864	\$405,675	\$487,435
Professional Services	\$26,875	\$12,729	\$46,498	\$25,164	\$72,564	\$28,263
Leases	\$0	\$30,000	\$11,806	\$13,100	\$12,676	\$1,800
Utilities	\$101,686	\$104,154	\$118,337	\$170,848	\$302,640	\$371,625
Interfund Transfers ⁽⁴⁾	\$0	\$264,566	\$7,251	\$36,092	\$173,648	\$60,470
Excise Tax	\$70,641	\$79,941	\$85,966	\$99,732	\$127,114	\$129,974
Loans	\$200,799	\$202,683	\$200,310	\$197,937	\$2,554,701	\$0

TABLE 9-4 – (continued)**Historical Water Fund (406 Fund) Revenue and Expenses**

	2017	2018	2019	2020	2021	2022
CIPs						
Permits	\$3,057	\$3,641	\$3,641	\$4,297	\$5,207	\$6,042
Meter Replacement Program	\$178,662	\$184,280	\$0	\$0	\$0	\$0
Water Main Replacement	\$61,464	\$0	\$0	\$0	\$0	\$0
SCADA Upgrade	\$0	\$37,686	\$0	\$0	\$0	\$0
Upgrade PW Ops Facility	\$63,436	\$10,089	\$0	\$0	\$0	\$0
Pioneer PRV Replacement	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$2,280,630	\$2,314,198	\$1,908,322	\$2,416,406	\$2,611,198	\$2,845,285
Fund Balance						
Beginning Balance	\$1,291,752	\$884,837	\$495,094	\$733,440	\$837,229	\$3,533,637
Revenues	\$1,873,715	\$1,924,455	\$2,146,669	\$2,520,195	\$5,307,605	\$2,696,885
Expenses	(\$2,280,630)	(\$2,314,198)	(\$1,908,322)	(\$2,416,406)	(\$2,611,198)	(\$2,845,285)
Net Revenue	(\$406,915)	(\$389,743)	\$238,347	\$103,789	\$2,696,407	(\$148,400)
Ending Balance	\$884,837	\$495,094	\$733,440	\$837,229	\$3,533,637	\$3,385,237

- (1) Does not include illiquid assets such as unrealized investment gains or accounts receivable balances. Does not include donated capital valuation or gains/losses on disposal of assets.
- (2) Transfer from SDC fund.
- (3) Includes DOH Loan Asset Offset and prior period adjustments.
- (4) Transfer to Capital and Equipment Replacement funds.
- (5) Includes COVID relief, ERF Revenue, and insurance recoveries.

The water utility also includes a Capital Fund (410 Fund), which is used to fund capital projects. Revenue into the capital fund is provided by the System Development Fund, which collects system development charges, as well as loans intended for capital projects, investment interest, and transfers from the Water Operating Fund. Expenses include capital project expenditures. The Capital Fund is configured such that essentially all revenue into the fund is transferred out to other funds to be used for capital expenses. Table 9-5 includes the historical revenue and expenses for this fund.

TABLE 9-5**Historical Water Capital Fund (410 Fund) Revenue and Expenses**

	2017	2018	2019	2020	2021	2022
Starting Balance	(\$226,024)	\$16,525	\$16,528	\$16,532	\$16,535	\$16,536
Revenue	\$954,538	\$625,347	\$739,292	\$1,025,724	\$177,276	\$272,412
Expenses	(\$711,990)	(\$625,343)	(\$739,288)	(\$1,025,721)	(\$177,276)	(\$272,412)
Net Income	\$242,548	\$4	\$4	\$3	\$0	\$0
Ending Balance	\$16,525	\$16,528	\$16,532	\$16,535	\$16,536	\$16,536

The System Development Fund (416 Fund) revenues come from water connection fees, bonds, and investment interest. Expenses include taxes and interfund transfers to the Capital Fund and Water Operating Fund. Table 9-6 includes the historical Revenue and Expenses for this fund.

TABLE 9-6**Historical Water System Development Fund (416 Fund) Revenue and Expenses**

	2017	2018	2019	2020	2021	2022
Starting Balance	\$4,709,682	\$4,894,610	\$6,351,935	\$7,196,708	\$8,815,705	\$8,299,333
Revenue	\$919,390	\$2,051,626	\$1,808,365	\$2,888,979	\$2,735,293	\$1,177,019
Expenses	(\$734,463)	(\$594,301)	(\$963,592)	(\$1,269,982)	(\$3,251,665)	(\$257,553)
Net Income	\$184,928	\$1,457,325	\$844,773	\$1,618,997	(\$516,372)	\$919,465
Ending Balance	\$4,894,610	\$6,351,935	\$7,196,708	\$8,815,705	\$8,299,333	\$9,218,798

Table 9-7 includes the historical fund balances for the three funds.

TABLE 9-7**Total Fund Balance**

	2017	2018	2019	2020	2021	2022
406 Fund Ending Balance ⁽¹⁾	\$884,837	\$495,094	\$733,440	\$837,229	\$3,533,637	\$3,385,237
410 Fund Ending Balance	\$16,525	\$16,528	\$16,532	\$16,535	\$16,536	\$16,536
416 Fund Ending Balance	\$4,894,610	\$6,351,935	\$7,196,708	\$8,815,705	\$8,299,333	\$9,218,798
Total	\$5,795,971	\$6,863,557	\$7,946,681	\$9,669,469	\$11,849,505	\$12,620,571

(1) Only includes liquid assets including cash and investments. Does not include illiquid assets such as unrealized investment gains, asset or land valuation, or accounts receivable balances.

9.2 FORECASTED FINANCIAL ANALYSIS

The City hired FCS Group to conduct a rate study for the water utility in 2022, and this rate analysis was used as a starting point for the financial analysis in this Plan.

The CIP schedule from this Plan was used to update the rate projections from the prior rate study. The population growth projections in the rate study were also updated to match the growth rates estimated in this Plan.

9.2.1 FORECAST FACTORS

Various factors are used to project future expenses and revenues as shown in Table 9-8. These factors are used to develop year-over-year cost increases for the operational and capital expenses.

TABLE 9-8**Summary of Projection Development Factors**

Factors	Annual Percentage Increase
Salary	4.5%
Benefits	6%
General Inflation	4%
Population Growth Rate	Approx. 3% to 5% (see Chapter 2)

9.2.2 PROJECTED REVENUES AND EXPENDITURES

9.2.2.1 Revenue

Future revenues have been projected based on the latest rate study prepared by FCS Group, which was provided by the City, in conjunction with the forecast factors summarized in Table 9-8.

Water sales, the largest revenue stream for the Water Fund, are expected to increase by approximately 3 percent to 5 percent annually as a result of the ERU growth rate, as described in Chapter 2. Water sales will also be influenced by the rate increases described later in this chapter. Revenue from System Development Charges (SDCs) is also projected to increase based on the population growth rate, as shown in Table 9-7, though the charge itself on a per-ERU basis is not assumed to increase. Projected revenue for the Water Fund is summarized, along with expenditures and year end balances in Table 9-9, for both the Operating Reserve and the Capital Reserve, as well as both funds combined.

9.2.2.2 Expenditures

Future expenses have been projected based on a review of the historical financial data provided by the City, in conjunction with the forecast factors given in Table 9-8.

When forecasting the Water Fund expenditures, salaries and benefits are forecasted to increase at a rate of 4.5 percent and 6 percent per year, respectively, while office and operating supplies, vehicles and equipment, miscellaneous expenditures, and professional services will increase at 4 percent per year. Excise taxes are 5.029 percent of water sales, state B&O tax is 1.75 percent of water sales, and a City utility tax of percent is applied. The debt service will follow the debt service schedule provided by the City. The CIP schedule is detailed in Chapter 8 and provided in Table 9-9. It is worth noting that, in accordance with the FCS Group's rate study, the cost of capital improvement projects falling between 2034 and 2043 were divided evenly across the 10-year period in order to reflect uncertainty of actual project start date while ensuring the required funds are also quantified in financial projections. As a result, the last 2 years of the projects presented in this chapter contain 20 percent of the costs of all projects occurring between 2034 and 2043. Capital project costs are adjusted based on the scheduled year by applying a 4 percent per year inflation factor. Loan funding is assumed for projects SO-2, ST-1, and D-14A, assuming a rate of 3 percent, a term of 20-years, and an origination fee of 1 percent. Projected expenditures for the Water Fund and Capital Fund are summarized, along with forecasted revenue and year end balances in Table 9-10.

TABLE 9-9

Capital Improvement Schedule Expenses⁽¹⁾⁽²⁾

Project Number	Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	Project Total
SO-1	Kennedy Farms Wells	\$100,000	\$100,000	\$2,000,000	\$1,500,000	\$1,500,000	\$1,500,000							\$6,700,000
SO-2	North Royle Road Transmission Main and Intertie			\$3,580,000										\$3,580,000 ³
SO-3	Teal Crest Wells ⁽⁴⁾											\$425,000	\$425,000	\$850,000
SO-4	Port of Ridgefield Wells ⁽⁴⁾											\$500,000	\$500,000	\$1,000,000
ST-1	South 5 th Street Reservoir	\$1,000,000	\$11,000,000	\$5,000,000										\$17,000,000 ³
ST-2	High School Reservoir Recoat										\$1,246,000			\$1,246,000
D-1	North 3 rd Avenue and Maple Street – Division Street to North 4 th Avenue Extension and end of Maple		\$325,000											\$325,000
D-2	South Royle Road – NW Hillhurst Road to South Royle						\$961,000							\$961,000
D-3	Mill Street – North 1 st Avenue to North Krause Avenue								\$589,000					\$589,000
D-4	North 65 th Avenue – North 1 st Circle to NW 279 th Street ⁽⁴⁾											\$81,900	\$81,900	\$163,800
D-5	East Service Area – South Dolan Road to South 10 th Street Loop		\$1,400,000											\$1,400,000
D-6	North Royle Road – North 10 th Street to NW 289 th Street			\$2,013,000										\$2,013,000
D-7	South Royle Road – South 10 th Way to Pioneer Street	\$899,500												\$899,500
D-8	Future Streets – NW Hillhurst Road to NW Carty Road Loop ⁽⁴⁾											\$428,400	\$428,400	\$856,800
D-9	NW Carty Road – NW Hillhurst Road to I-5 ⁽⁴⁾											\$447,800	\$447,800	\$895,600
D-10	Future Street – South 11 th Street to NW Carty Road ⁽⁴⁾											\$301,900	\$301,900	\$603,800
D-11A	North 10 th Street – North 48 th Avenue Extension to North 65 th Avenue ⁽⁴⁾											\$210,000	\$210,000	\$420,000
D-11B	North 10 th Street – Trenchless Crossing of I-5 ⁽⁴⁾											\$30,000	\$30,000	\$60,000
D-12	Future Street – North 10 th Street to North 20 th Street ⁽⁴⁾											\$137,600	\$137,600	\$275,200
D-13	NW 51 st Avenue – City Limits to UGA Limits ⁽⁴⁾											\$35,200	\$35,200	\$70,400
D-14A	Gee Creek Plateau Subarea – Pioneer Street to South 15 th Street			\$1,471,500	\$1,471,500									\$2,943,000 ³
D-15	Future Street – South 5 th Street to NW 279 th Street ⁽⁴⁾											\$206,900	\$206,900	\$413,800
D-16	NE 264 th Street – NE 10 th Avenue to NE 20 th Avenue ⁽⁴⁾		\$102,300											\$102,300
D-17	NE 20 th Avenue Extension – NE 259 th Street to NE 279 th Street ⁽⁴⁾											\$274,600	\$274,600	\$549,200
M-1.X	Water Main Replacement Program	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$1,440,000
M-2	Hydrant Replacement Program	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$360,000
	Total	\$2,149,500	\$12,975,000	\$14,214,500	\$3,121,500	\$1,650,000	\$2,611,000	\$150,000	\$739,000	\$150,000	\$1,396,000	\$3,289,300	\$3,289,300	\$45,717,400

- (1) Schedule established in Table 8-1.
- (2) In 2024 dollars.
- (3) Assumed to be funded by loans in Table 9-10.
- (4) The costs of projects occurring sometime between 2034 and 2043 are divided evenly across the 10-year period. As a result, 2034 and 2035 each shown 10 percent of the project costs for each year.

TABLE 9-10

Forecasted Water Fund Revenue and Expenses⁽¹⁾⁽⁸⁾

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Rate Increase	--	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Sample Residential Bill ⁽⁶⁾	\$88.75	\$91.41	\$94.15	\$96.98	\$99.89	\$102.89	\$105.97	\$109.15	\$112.43	\$115.80	\$119.27	\$122.85	\$126.54
Operating Reserve													
Beginning Balance	\$665,031	\$665,031	\$822,104	\$1,339,232	\$1,475,329	\$1,752,078	\$2,158,166	\$2,697,081	\$3,402,125	\$2,755,035	\$2,224,811	\$2,029,054	\$2,222,084
(+) Rate Revenues ⁽²⁾	\$2,673,886	\$2,891,808	\$3,121,533	\$3,363,077	\$3,616,384	\$3,881,321	\$4,157,671	\$4,449,414	\$4,752,464	\$5,071,259	\$5,624,131	\$6,237,278	\$6,917,271
(+) Non-Rate Revenues	\$290,951	\$240,951	\$1,745,663	\$1,761,177	\$1,765,260	\$1,773,562	\$1,785,745	\$1,801,912	\$323,064	\$303,651	\$287,744	\$281,872	\$287,663
(-) Operating Expenses	\$2,697,069	\$2,769,330	\$2,886,015	\$3,011,685	\$3,142,679	\$3,279,213	\$3,421,517	\$3,547,404	\$3,702,162	\$3,863,645	\$4,040,303	\$4,225,405	\$4,419,380
(-) Debt Service ⁽³⁾			\$1,245,314	\$1,771,508	\$1,771,508	\$1,771,508	\$1,771,508	\$1,771,508	\$1,771,508	\$1,771,508	\$1,771,508	\$1,771,508	\$1,771,508
(-) System Reinvestment Funding	\$192,091	\$202,120	\$209,728	\$190,611	\$170,428	\$171,256	\$177,495	\$185,548	\$198,616	\$210,410	\$223,441	\$242,137	\$258,190
Net Revenue	\$75,677	\$157,073	\$517,127	\$136,098	\$276,749	\$406,088	\$538,915	\$705,044	(\$647,091)	(\$530,224)	(\$195,756)	\$193,030	\$651,974
Transfer to Capital Fund ⁽⁴⁾	(\$75,677)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Ending Balance	\$665,031	\$822,104	\$1,339,232	\$1,475,329	\$1,752,078	\$2,158,166	\$2,697,081	\$3,402,125	\$2,755,035	\$2,224,811	\$2,029,054	\$2,222,084	\$2,874,058
Capital Reserve ⁽⁷⁾													
Beginning Balance	\$11,673,589	\$13,973,259	\$14,029,687	\$18,221,771	\$10,564,605	\$7,592,391	\$6,170,230	\$3,402,524	\$3,689,626	\$4,660,192	\$6,484,553	\$8,562,097	\$8,009,212
(+) System Reinvestment Funding	\$192,091	\$202,120	\$209,728	\$190,611	\$170,428	\$171,256	\$177,495	\$185,548	\$198,616	\$210,410	\$223,441	\$242,137	\$258,190
(+) SDC Revenue	\$1,681,695	\$1,670,590	\$1,683,954	\$1,691,251	\$1,692,134	\$1,686,288	\$1,673,440	\$1,696,869	\$1,672,634	\$1,687,642	\$3,725,987	\$4,011,841	\$4,319,626
(+) Loan Income for CIP Projects	\$0	\$0	\$17,521,920	\$7,403,697	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
(-) Transfer to Operating ⁽⁵⁾	\$0	\$0	(\$1,500,000)	(\$1,500,000)	(\$1,500,000)	(\$1,500,000)	(\$1,500,000)	(\$1,500,000)	\$0	\$0	\$0	\$0	\$0
(+) Interest Earnings	\$350,208	\$419,198	\$420,891	\$546,653	\$316,938	\$227,772	\$185,107	\$102,076	\$110,689	\$139,806	\$194,537	\$256,863	\$240,276
(-) Capital Expenditures	\$0	(\$2,235,480)	(\$14,144,408)	(\$15,989,379)	(\$3,651,713)	(\$2,007,477)	(\$3,303,748)	(\$197,390)	(\$1,011,373)	(\$213,497)	(\$2,066,421)	(\$5,278,788)	(\$5,489,939)
Ending Capital Fund Balance	\$13,973,259	\$14,029,687	\$18,221,771	\$10,564,605	\$7,592,391	\$6,170,230	\$3,402,524	\$3,689,626	\$4,660,192	\$6,484,553	\$8,562,097	\$8,009,212	\$7,561,029
Combined Funds													
Combined Beginning Balance	\$12,338,620	\$14,638,290	\$14,851,791	\$19,561,003	12,039,934	\$9,344,469	\$8,328,396	\$6,099,605	\$7,091,752	\$7,415,227	\$8,709,364	\$10,591,151	\$10,231,296
Combined Ending Balance	\$14,638,290	\$14,851,791	\$19,561,003	\$12,039,934	\$9,344,469	\$8,328,396	\$6,099,605	\$7,091,752	\$7,415,227	\$8,709,364	\$10,591,151	\$10,231,296	\$10,435,087

- (1)Expense and Revenue forecast is primarily sourced from rate study conducted for the City by FCS Group in 2022. Combined fund balance at the start of 2023 differs from the combined fund balance noted in Table 9-7, likely due to the older financial data used for the rate study; however, the rate study is more conservative, assuming a lower total balance.
- (2)Rate revenues include annual rate increases noted in this table.
- (3)City currently has no outstanding debt service. All debt service assumed here is to fund future capital projects, with a loan term of 20-years, an interest rate of 3 percent, and origination fee of 1 percent.
- (4)It is assumed that no funds are transferred from the Operations Fund to the Capital Fund for the next 10 years.
- (5)Funds transferred from Capital Reserve Fund to Operating Fund to fund debt service incurred by capital projects. Income from loans is assumed to automatically be transferred to Capital Fund, while debt service is paid from Operating Fund.
- (6)Assumes a single-family 5/8" meter using approximately 14 ccf per billing cycle.
- (7)Includes the 416 System Development Fund and 410 Capital Fund.
- (8)Negative numbers are indicated in parentheses.

9.3 AVAILABLE CAPITAL PROJECT FUNDING SOURCES

This section describes several funding sources available to the City without reference to any specific project, which may be suitable for capital projects:

Loans: Public Works Trust Fund Loan
 Drinking Water State Revolving Fund
 USDA Rural Development (RD)
 Community Economic Revitalization Board

Bonds: Revenue Bonds

9.3.1 PUBLIC WORKS TRUST FUND

The Public Works Trust Fund (PWTF) is a revolving loan fund designed to help local governments finance necessary public works projects through low-interest loans and technical assistance. The PWTF, established in 1985 by the legislature, offers loans below market rates, payable over periods ranging up to 20 years.

Interest rates are typically set at 0.5 percent, 1.0 percent, or 2.0 percent, with the lower rates providing an incentive for a higher financial share. For the local community to qualify for a 2.0-percent loan, it must provide a minimum of 5 percent of the project's costs. A 10-percent local share qualifies the applicant for a 1.0 percent interest rate, and a 15-percent local share qualifies for a 0.5-percent loan. The useful life of the project determines the loan term, with a maximum term of 20 years.

To be eligible, an applicant must be a local government such as a city, town, county, or special purpose utility district, and have a long-term plan for financing its public work needs. If the applicant is a city, town, or county it must adopt a 1/4-percent real estate excise tax dedicated to capital purposes. Eligible public works systems include streets and roads, bridges, storm sewers, sanitary sewers, and domestic water. Loans were historically offered only for the purposes of repair, replacement, rehabilitation, reconstruction or improvement of existing systems. A recent change has also made projects eligible for PWTF funding if they are intended to meet future growth, as detailed in a 20-year growth management plan.

An applicant can apply to the construction program for up to \$10,000,000 per biennium. Applications for the construction program are due in May of each year, with funds available approximately one year later. Preconstruction loans are limited to \$1,000,000 per biennium and can be submitted throughout the year. A preconstruction application must be submitted to the Public Works Board on or before the 15th of each month. The Board meets on a monthly basis and makes the award decisions at that time. Preconstruction funds are available as soon as the contracts can be issued.

9.3.2 DRINKING WATER STATE REVOLVING FUND (DWSRF)

The State provides loan funding for water system projects through the DWSRF program. Health and safety projects receive the highest rankings and are more likely to receive funding. Water main projects, even those intended for fire flow improvements, are not often ranked high enough to receive funding.

9.3.3 COMMUNITY ECONOMIC REVITALIZATION BOARD (CERB)

The Community Economic Revitalization Board's prime mission is to partner with business and industry and local governments to maintain and create jobs. Established by the Legislature in 1982, CERB provides low-interest loans or, in unique circumstances, grants to help finance local public infrastructure necessary to develop or retain stable business and industrial activities. Projects eligible for funding include domestic and industrial waters systems, sanitary and storm sewers, port facilities, and telecommunications.

Typically, CERB provides loans of \$1 million and, where applicable, grants of \$300,000. The loan interest rate is tied to the current cost of a 10-year bond and a local match of 10 percent is required.

Eligible applicants include Washington State subdivisions in partnership with private enterprise. If there is no economic partner, a local government can produce a feasibility study that documents realistic job retention or creation associated with the project. Applications must be submitted 45 days prior to a regularly scheduled CERB Meeting, which typically occurs in January, March, July, and November.

9.3.4 REVENUE BONDS

The most common source of funds for construction of major utility improvements is the sale of revenue bonds, which are tax-free bonds issued by a city or town. The major source of funds for debt service on revenue bonds is from monthly water or sewer service charges. In order to qualify to sell revenue bonds marketable to investors, the bonds typically have contractual provisions for the city or town to meet debt coverage requirements. The city or town must show that its annual net operating income (gross income less operation and maintenance expenses) is equal to or greater than a factor, typically 1.2 to 1.4 times the annual debt service on all par debt. If a coverage factor has not been specified, it will be determined at the time of any future bond issues.

9.3.5 DEVELOPER FINANCING

Developers may fund the construction of water system extensions to properties within new plats. The developer extensions are turned over to the City for operation and maintenance when completed.

It may be necessary, in some cases, to require the developer to construct more facilities or improvements beyond those required by the development in order to provide sufficient capacity within the water system to serve the development area. The City may, by policy, reimburse the Developer through either direct outlay, latecomer charges, or reimbursement agreements for the additional cost of facilities, including increased size of pipelines over those required to serve the property in question. Compensation for oversizing is usually considered when it is necessary to construct a pipe larger than eight inches in diameter in a residential area in order to comply with the intent of the City's comprehensive plan, with an eye toward future development that may be served by the oversized main. Construction of any pipe in commercial or industrial areas that is larger than the size required to serve the development should also be considered as an oversized line and; therefore, may be eligible for compensation. Developer reimbursement (latecomer) agreements are structured to allow developers to receive payment over a specified time period from other future connections made to the developer-financed improvements.

9.4 RECOMMENDATIONS

The City's financial outlook is generally positive. It is recommended that the City continue to pursue cost sharing measure for capital projects whenever possible by collaborating with other City departments, Clark County Regional Wastewater, the Cowlitz Tribe, and Clark Public Utilities as opportunities arise. It is also recommended that the City pursue loans and grants to help fund larger capital improvements projects in order to minimize and soften impacts on its water rate payers.

APPENDIX A

WFI

WATER FACILITIES INVENTORY (WFI) FORM

ONE FORM PER SYSTEM

Quarter: 1
Updated: 02/16/2024

Printed: 3/21/2024
WFI Printed For: On-Demand
Submission Reason: Pop/Connect
Update

RETURN TO: Central Services - WFI, PO Box 47822, Olympia, WA, 98504-7822 or email wfi@doh.wa.gov

1. SYSTEM ID NO. 72400 V	2. SYSTEM NAME RIDGEFIELD PUBLIC WORKS	3. COUNTY CLARK	4. GROUP A	5. TYPE Comm															
6. PRIMARY CONTACT NAME & MAILING ADDRESS R SCOTT BRUNSON [UTILITY SUPERVISOR] PO BOX 608 RIDGEFIELD, WA 98642		7. OWNER NAME & MAILING ADDRESS RIDGEFIELD, CITY OF CHUCK GREEN PO BOX 608 RIDGEFIELD, WA 98642 PW DIRECTOR																	
STREET ADDRESS IF DIFFERENT FROM ABOVE ATTN PUBLIC WORKS OPERATIONS CENTER ADDRESS 487 S 56TH PLACE CITY RIDGEFIELD STATE WA ZIP 98642		STREET ADDRESS IF DIFFERENT FROM ABOVE ATTN PUBLIC WORKS OPERATIONS CENTER ADDRESS 487 S 56TH PLACE CITY RIDGEFIELD STATE WA ZIP 98642																	
9. 24 HOUR PRIMARY CONTACT INFORMATION Primary Contact Daytime Phone: (360) 887-8251 Primary Contact Mobile/Cell Phone: (360) 518-8990 Primary Contact Evening Phone: (360) 518-8416 Fax: (360) 887-2507 E-mail: sxxxxxxxxxn@ridgefieldwa.us		10. OWNER CONTACT INFORMATION Owner Daytime Phone: (360) 857-5022 Owner Mobile/Cell Phone: (360) 449-2132 Owner Evening Phone: Fax: (360) 887-2507 E-mail: cxxxxxxxxxn@ridgefieldwa.us																	
11. SATELLITE MANAGEMENT AGENCY - SMA (check only one) ☒ Not applicable (Skip to #12) ☐ Owned and Managed SMA NAME: _____ SMA Number: _____ ☐ Managed Only ☐ Owned Only																			
12. WATER SYSTEM CHARACTERISTICS (mark all that apply) <table border="0"><tr><td>☐ Agricultural</td><td>☒ Hospital/Clinic</td><td>☒ Residential</td></tr><tr><td>☒ Commercial / Business</td><td>☒ Industrial</td><td>☒ School</td></tr><tr><td>☒ Day Care</td><td>☒ Licensed Residential Facility</td><td>☐ Temporary Farm Worker</td></tr><tr><td>☒ Food Service/Food Permit</td><td>☒ Lodging</td><td>☒ Other (church, fire station, etc.): _____</td></tr><tr><td>☒ 1,000 or more person event for 2 or more days per year</td><td>☒ Recreational / RV Park</td><td></td></tr></table>					☐ Agricultural	☒ Hospital/Clinic	☒ Residential	☒ Commercial / Business	☒ Industrial	☒ School	☒ Day Care	☒ Licensed Residential Facility	☐ Temporary Farm Worker	☒ Food Service/Food Permit	☒ Lodging	☒ Other (church, fire station, etc.): _____	☒ 1,000 or more person event for 2 or more days per year	☒ Recreational / RV Park	
☐ Agricultural	☒ Hospital/Clinic	☒ Residential																	
☒ Commercial / Business	☒ Industrial	☒ School																	
☒ Day Care	☒ Licensed Residential Facility	☐ Temporary Farm Worker																	
☒ Food Service/Food Permit	☒ Lodging	☒ Other (church, fire station, etc.): _____																	
☒ 1,000 or more person event for 2 or more days per year	☒ Recreational / RV Park																		
13. WATER SYSTEM OWNERSHIP (mark only one) <table border="0"><tr><td>☐ Association</td><td>☐ County</td><td>☐ Investor</td><td>☐ Special District</td></tr><tr><td>☒ City / Town</td><td>☐ Federal</td><td>☐ Private</td><td>☐ State</td></tr></table>				☐ Association	☐ County	☐ Investor	☐ Special District	☒ City / Town	☐ Federal	☐ Private	☐ State	14. STORAGE CAPACITY (gallons) 2,000,000							
☐ Association	☐ County	☐ Investor	☐ Special District																
☒ City / Town	☐ Federal	☐ Private	☐ State																

- SEE NEXT PAGE FOR A COMPLETE LIST OF SOURCES -

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO. 72400 V	2. SYSTEM NAME RIDGEFIELD PUBLIC WORKS	3. COUNTY CLARK	4. GROUP A	5. TYPE Comm
------------------------------------	--	---------------------------	----------------------	------------------------

15	16 SOURCE NAME	17 INTERTIE	18 SOURCE CATEGORY														19 USE	20	21 TREATMENT						22 DEPTH	23	24 SOURCE LOCATION			
Source Number	LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	INTERTIE SYSTEM ID NUMBER	WELL	WELL FIELD	WELL IN A WELL FIELD	SPRING	SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER	RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN INTERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4, 1/4 SECTION	SECTION NUMBER	TOWNSHIP	RANGE		
S07	WF (S08, S09)			X									X			Y		X					153	600	SE NW	19	04N	01E		
S08	ABRAMS #8 WW AFP607				X								X			Y		X					153	300	SE NW	19	04N	01E		
S09	ABRAMS #9 WW AFP606				X								X			Y		X					163	300	SE NW	19	04N	01E		
S11	ABRAMS #7 AFP608		X										X			Y		X					145	240	SE NW	19	04N	01E		
S12	33344 / POR 255 S 56th PL		X										X			Y		X	X				326	375	NW SE	21	04N	01E		
S13	13333/CPU #1(Flow 5)800 NE 264th St	13333 X													X	Y	X							1200		NE SE	22	04N	01E	
S14	13333/CPU #2(Flow 7)N 10th / N 65th	13333 X											X			Y	X							1200			00N	00E		
S15	13333/CPU #3(Flow 6)N 20th / N 65th	13333 X											X			Y	X							1200			00N	00E		
S16	ABRAMS #10 APP678		X										X			Y		X					106	165	SE NW	19	04N	01E		
S17	Abrams Well #11 AAP938		X										X			Y		X					170	150	NW SE	19	04N	01E		

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
72400 V	RIDGEFIELD PUBLIC WORKS	CLARK	A	Comm

	ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED CONNECTIONS
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)		5192	Unspecified
A. Full Time Single Family Residences (Occupied 180 days or more per year)	4839		
B. Part Time Single Family Residences (Occupied less than 180 days per year)	0		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)			
A. Apartment Buildings, condos, duplexes, barracks, dorms	24		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	353		
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year	0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)			
A. Recreational Services and/or Transient Accommodations (Campsites, RV sites, hotel/motel/overnight units)	0	0	
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.	264	264	
28. TOTAL SERVICE CONNECTIONS		5456	

29. FULL-TIME RESIDENTIAL POPULATION													
A. How many residents are served by this system 180 or more days per year? 15180													

30. PART-TIME RESIDENTIAL POPULATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?												
B. How many days per month are they present?												

31. TEMPORARY & TRANSIENT USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?	20000	20000	20000	20000	29000	29000	39000	29000	29000	20000	20000	20000
B. How many days per month is water accessible to the public?	30	30	30	30	30	30	30	30	30	30	30	30

32. REGULAR NON-RESIDENTIAL USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students, daycare children and/or employees are present each month that are NOT already included in the residential population?	3523	3523	3523	3523	3523	3523	2126	2126	2126	3523	3523	3523
B. How many days per month are they present?	30	30	30	30	30	30	30	30	30	30	30	30

33. ROUTINE COLIFORM SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	20	20	20	20	20	20	20	20	20	20	20	20

34. NITRATE SCHEDULE	QUARTERLY	ANNUALLY	ONCE EVERY 3 YEARS
(One Sample per source by time period)			

35. Reason for Submitting WFI:
☐ Update - Change
 ☐ Update - No Change
 ☐ Inactivate
 ☐ Re-Activate
 ☐ Name Change
 ☐ New System
 ☐ Other _____

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: _____	DATE: _____
PRINT NAME: _____	TITLE: _____

Intentionally left blank

<u>WS ID</u>	<u>WS Name</u>
72400	RIDGEFIELD PUBLIC WORKS

Total WFI Printed: 1



Water Facilities Inventory (WFI)

Report Create Date: 3/21/2024
Water System Id(s): 72400V
Print Data on Distribution Page: ALL
Print Copies For: DOH Copy
Water System Name: ALL
County: -- Any --
Region: ALL
Group: ALL
Type: ALL
Permit Renewal Quarter: ALL
Water System Is New: ALL
Water System Status: ALL
Water Status Date From: ALL **To** ALL
Water System Update Date ALL **To** ALL
Owner Number: ALL
SMA Number: ALL
SMA Name: ALL
Active Connection Count From: ALL **To:** ALL
Approved Connection Count ALL **To:** ALL
Full-Time Population From: ALL **To:** ALL
Water System Expanding ALL
Source Type: ALL
Source Use: ALL
WFI Printed For: On-Demand

APPENDIX B

INTERTIE AGREEMENT

Water Supply and Aid to Construction Agreement between Clark Public Utilities and the City of Ridgefield for Calendar Years 2021 - 2040

THIS AGREEMENT is made and entered into this ____ day of February 2021, by and between Clark Public Utilities (“Clark”) and the City of Ridgefield (the “City”), collectively the “Parties.”

WHEREAS, the authority for this Agreement is granted by the Public Water System Coordination Act of 1977, Chapter 70.116 RCW; and

WHEREAS, such an agreement promotes efficient water resource management within Salmon Creek and Lewis River Basins by utilizing existing water right permits in accordance with WACs 173-527 and 173-528; and

WHEREAS, such an agreement is consistent with the Clark County Coordinated Water System Plan (“CWSP”) to meet regional supply needs; and

WHEREAS, water service areas for each party and responsibilities for water supply service are designated in the CWSP to help assure that time, effort, and money are best used by avoiding unnecessary duplication of infrastructure to properly manage the areas’ valuable resources; and

WHEREAS, water system interties are mutually beneficial as part of a cooperative effort to better manage groundwater resources, protect in-stream flows and to provide safe and adequate water supply to North Clark County; and

WHEREAS, during certain times of the year, Clark provides the City with a significant portion of its water supply that is needed to serve the City’s residents; and

WHEREAS, Clark currently provides water service to the City through various interties; and

WHEREAS, based on certain additional improvements to its water system, as requested by the City, Clark anticipates that it will have the ability to provide excess water from its system to the City to help the City meet its current and future water supply needs; and

WHEREAS, the system improvements requested by the City (and the City of Battle Ground) would not have been performed by Clark at this time, but for this Agreement; and

WHEREAS, the City had agreed to share the cost of these improvements with the City of Battle Ground; and

WHEREAS, the City is relying on the water provided under this Agreement to meet its requirements under its water system plan; and

WHEREAS, the Parties recognize that Clark has a legal duty to service its customers equally.

NOW, THEREFORE, the Parties, having entered into this Agreement by their signature, agree with the following:

I. GENERAL TERMS AND OBJECTIVES

1. This Agreement shall replace all prior water service agreements, including the Regional Water Supply Agreement signed April 3, 2003, and the Short-Term Water Supply Agreement executed by Parties on May 17, 2006.
2. The Term of this agreement shall commence on the date fully executed by both Parties and shall continue until December 31, 2040. This Agreement may be extended or terminated or amended only by written agreement of the Parties.
3. Clark primarily provides water service to the City through Intertie #1, located at 800 NE 264th Street, along S 5th Street, east of N 85th Avenue.

Clark also provides water service to the City through two additional temporary points of connection. The first connection point, Intertie #2, serves Clark County Fire and Rescue Station 21, located at 911 N 65th Avenue. The second connection point, Intertie #3, serves the North Pacific Union Conference of The Seventh-Day Adventists building and the Washington State Department of Transportation Weigh Station. This intertie is located on the NW corner of N 20th Street and NW 11th Avenue.

Interties #2 and #3 are planned to be disconnected once direct water service is established through the development of a new water transmission line, as described in Section I (5) below.

4. Clark is currently supplying water to the City on an emergency basis through Intertie #1, as measured by Clark's 2-inch meter. As additional water supply becomes available through Clark's development of the new Paradise Point Regional Water Supply System, which includes the Paradise Point Wellfield and Treatment Plant, Clark will be able to provide the City with up to 1,000 gpm, which will be measured by a new 6-inch meter.

In order to enable Clark to provide this additional water supply, the City has agreed to pay Clark an aid to construction charge for work associated with certain

improvements to the Paradise Point Regional Water Supply System, as outlined herein. The City will pay Clark an amount equal to one-half the total costs associated with installing an additional production well (plus associated equipment) at the Paradise Point Wellfield, to be designated as Well #4. In addition, the City will also pay Clark for one-half the cost of one (1) filter bank at the Paradise Treatment Plant. Clark will design, construct, own, and operate these additional facilities in the Paradise Point Regional Water Supply System.

Well #4 (plus associated equipment) and the filter bank cost is \$1,184,128 for a half payment due of \$592,064. Construction of these facilities is complete, and the City will pay Clark its share of the actual material and construction costs, which will be invoiced by Clark and payable by June 30, 2021.

5. The Parties intend to construct a new transmission main for a new intertie, located at the City's northern water service boundary, spanning between the City's service area and Clark's existing water main located at approximately 31000 NE 31st Ave, which will be known as the "N. Royle Road Transmission Main." Once completed, the new water main will have a capacity of up to 2,000 gpm. The design and construction costs of this new line will be addressed under a separate agreement. The Parties will work together to develop the planning and construction schedule for the N. Royle Rd Transmission Main, which is anticipated to begin construction no later than January 1, 2030.

Once this new transmission line is operational, Clark will have the ability to serve the City with up to 2,000 gpm, which represents the maximum capacity available to the City through all interties.

6. Clark acknowledges that during certain times of the year, the City will depend on this additional water capacity to serve its residents. Clark agrees that it will work to meet the City's water supply needs, as outlined in this Agreement, and to provide uninterrupted service. But the Parties recognize that Clark must treat all of its water customers equally and that it cannot guarantee that it will be able to meet any specific customer's water demand when Clark experiences water shortages as a result of drought, equipment failure, or other causes outside of Clark's control.
7. Once Clark completes construction of its facilities, it shall maintain them at its own expense.
8. Clark will monitor the interties using its Supervisory Control and Data Acquisition (SCADA) system. If curtailment becomes necessary due to an emergency or limited water supply, Clark and the City will coordinate to minimize the impact to the City's customers. During such event, Clark will provide the City with as much advance notice as possible.
9. Clark and the City will continue to provide service within their respective water service boundaries, as designated within the CWSP, and as shown on the Clark

County GIS mapping system.

10. The City and Clark shall periodically review the City's population and demand projections to insure that the planning documents are up to date.
11. Each Party will be responsible for complying with all state and federal water quality standards and for maintaining water mains and infrastructure within its respective water system.

II. CONDITIONS OF SERVICE

1. All interties with the City will be metered and such meters will be owned and maintained by Clark.
2. Clark will monitor and maintain water quality to the City's interties. The City will be responsible for monitoring its distribution system's water quality. Water quality testing at the interties will be coordinated by the Parties.

Clark will be responsible for installation of the meter assembly and will maintain/monitor it.

III. COST OF WATER SUPPLY

1. Clark will charge the City its prevailing rate for water service (Public Authority Service rate class), which rate is subject to change by Clark's Board of Commissioners. Attached as Exhibit "A" is Clark's current water rates. Clark agrees to meet with the City and review any information provided by the City to reevaluate the City's appropriate water rate class.
2. Meter set fees and monthly charges for services under this Agreement will also be applied in accordance with the Public Authority Service rate class.
3. The capacity of the water provided through the proposed 6-inch meter at Intertie #1 will not be increased. Future additional capacity will be provided through the N Royle Road intertie as needed to meet the City's water demand. With installation of additional meter capacity, the City will be responsible to pay Clark the applicable system development charge (SDC).
4. Payments made by the City for one-half of the construction of Well #4, its associated facilities, and the filter bank at the Paradise Point Treatment Plant, which amount is \$592,064, will be treated as payments in lieu of the City's future SDCs for increased meter capacity on the Intertie #1, and N Royle Road Intertie, up to the amount paid by the City under this Agreement. The opportunity to use these in lieu payments for SDCs on the interties will expire on December 31, 2030.

IV. SYSTEM DEVELOPMENT CHARGES

Presently, the City uses the equivalent of a two-inch (2") meter for its water service through Intertie #1. Once Well # 4 is operational and the City is authorized to use up to 1,000 gpm, the City will be responsible for a SDC for the equivalent of a six-inch (6") meter that can measure up to 1,000 gpm. Once this occurs, the value of the City's current two-inch (2") meter SDC will be credited to the applicable six-inch (6") meter SDC and the available in lieu payment described under Section IV (4) will also be applied.

V. COOPERATION FOR FUTURE WATER RIGHTS

To assist Clark in the development of future water supply sources, the City will support Clark's efforts to acquire additional water rights and its pursuit of any water system development grants or loans. Additionally, the City and Clark agree to continue exploring partnerships regarding Coordinated Water System Planning and regional source development.

VI. ASSIGNMENT/SUBCONTRACTING

No party to this Agreement shall transfer or assign, in whole or in part, its respective rights or obligations under this Agreement without the prior written consent of the other parties. Consent for assignment or transfer shall not be unreasonably withheld.

VII. INDEPENDENT CAPACITY

Employees or agents of a Party engaged in the performance of projects under this Agreement shall continue to be employees or agents of that Party and shall not be considered employees or agents of any other Party to this Agreement.

VIII. ALTERATIONS AND AMENDMENTS

This Agreement may only be amended by written agreement between the Parties that is signed by personnel authorized to bind each Party.

IX. DISPUTES

The principal executive or their designee of each Party shall attempt to resolve all disputes regarding the terms of this Agreement in good faith. In the event the dispute is not resolved by the Parties, the matter will be referred to the Superior Court of the State of Washington in and for Clark County.

Parties shall bear their own legal fees, costs, and expenses related to enforcing rights and responsibilities of this Agreement.

X. RECORDS MAINTENANCE

The Parties shall retain project records that sufficiently and properly reflect all direct and indirect costs incurred for the performance of services in this Agreement. Records shall be subject to inspection, review, or audit by each Party and the Office of the Washington State Auditor. All records shall be retained in accordance with the State of Washington records retention schedule.

XI. GOVERNANCE

This Agreement is entered into under the authority granted by the State of Washington and provisions of the Agreement shall be construed to conform to Washington State laws.

XII. WAIVER AND SEVERABILITY

Failure by any Party to this Agreement to exercise rights under this Agreement shall not preclude that Party from subsequent exercise of those rights and shall not constitute a waiver of those rights or any other right under this Agreement. Waiver of any rights under this Agreement requires a written statement signed by an authorized representative of the Party waiving such rights.

If any provision of this Agreement or provision of a document incorporated by reference to this Agreement is found invalid, the invalidity shall not affect other provisions of this Agreement if the other provisions can be given effect without the invalid provision. The provisions of this Agreement are declared severable. In the event that certain language or a section of this Agreement is invalidated, the Parties will negotiate alternative terms to effectuate the Parties' intent. If the Parties are unable to reach agreement on alternative terms within 30 days of the invalidity determination, this Agreement will terminate.

XIII. ENTIRE AGREEMENT

This Agreement contains all the terms and conditions agreed upon by the parties on the subject of this Agreement. No other understandings, oral or otherwise, exist or bind the Parties.

XIV. INDIRECT OR THIRD-PARTY BENEFICIARIES

The Parties do not intend, by this Agreement, to assume contractual obligations to any other party than the Parties named in this Agreement. There are no indirect or third-party beneficiaries to this Agreement.

XV. NOTICES

Any notices given under this Agreement shall be delivered and addressed to:

Clark Public Utilities

Attn: Director of Water
PO Box 8900
Vancouver, WA 98668

Copy to: General Counsel

City of Ridgefield

Attn: City Manager
230 Pioneer Street Ridgefield, WA 98642

The undersigned Parties agree to all of the terms and conditions contained in this Agreement.

IN WITNESS WHEREOF, the Parties execute this Agreement by their duly authorized officers as of the ____ day of _____, 2021.

CLARK PUBLIC UTILITIES

BY: _____

TITLE: _____

DATE: _____

Approved as to form:

John Eldridge/General Counsel

CITY OF RIDGEFIELD

BY: _____

TITLE: _____

DATE: _____

Approved as to form:

/City Attorney

Exhibit A

CLARK'S CURRENT WATER RATES

Rate Class (per Resolution No, 6974)

PUBLIC AUTHORITIES SERVICE REVENUE CLASS 0

APPLICABILITY

This revenue class applies to schools, municipalities, political subdivisions, or agencies of county, state, or federal governments.

MONTHLY CHARGE

The sum of the basic charge per meter and the volume charge for water used.

MONTHLY VOLUME CHARGE

\$1.85 per 100 cubic feet (ccf) – Block 1

\$2.40 per 100 cubic feet (ccf) – Block 2

\$2.95 per 100 cubic feet (ccf) – Block 3

These rates will be applied on a daily basis using a 30-day average.

MONTHLY BASIC CHARGE AND VOLUME PER BLOCK

<u>Schedule (Suffix)</u>	<u>Meter</u>	<u>Basic Charge</u>	<u>Block 1</u> (Cubic Feet)	<u>Block 2</u> (Cubic Feet)	<u>Block 3</u> (Cubic Feet)
53 (A or A/B Meter)	5/8" x 3/4"	\$9.00	0 - 1,800	1,801 - 3,600	Over 3,600
54 (B Meter)	1"	\$16.10	0 - 4,500	4,501 - 9,000	Over 9,000
55 (C Meter)	1 1/2"	\$36.00	0 - 9,000	9,001 - 18,000	Over 18,000
56 (D Meter)	2"	\$64.15	0 - 18,000	18,001 - 36,000	Over 36,000
57 (E Meter)	3"	\$144.00	0 - 41,400	41,401 - 82,800	Over 82,800
58 (F Meter)	4"	\$256.05	0 - 73,800	73,801 - 147,600	Over 147,600
59 (G Meter)	6"	\$572.80	0 - 165,600	165,601 - 331,200	Over 331,200
60 (H Meter)	8"	\$1018.15	0 - 295,200	295,201 - 590,400	Over 590,400

TERMS OF SERVICE

Service under this rate is subject to the District's general terms and conditions for water service. The District reserves the right to regulate at all times the hours when customers will be permitted to use District water for any nonessential household purposes.

SERVICE INSTALLATION FEES (per Resolution No. 7196)**Service Size Fee**

Up to 1" \$2,200

1 ½" and larger Time and Materials

Customers requesting services larger than one inch will be billed for time and material costs for the installation of the service.

Meter Set Only
(Lots in subdivisions that currently have boxes)

Size	<u>Current Charge</u>	<u>(Breakdown)</u>
5/8 x ¾	\$3,255	\$355 meter + \$2,900 SD
¾"	\$4,540	\$370 meter + \$4,170 SD
1"	\$7,890	\$460 meter + \$7,430 SD
1 ½"	\$17,380	\$670 meter + \$16,710 SD
2" Meter	\$30,820	\$1,130 meter + \$29,690 SD
3" Meter	\$68,290	\$1,480 meter + \$66,810 SD
4" Meter	\$121,110	\$2,320 meter + \$118,790 SD
6" Meter	\$271,030	\$3,760 meter + \$267,270 SD

Meter Set and Service
(Land without meter box but water main in the street)

Size	Total Charge
5/8 x ¾ Meter	\$5,455 total cost
¾" Meter	\$6,740 total cost
1" Meter	\$10,090 total cost
1 ½" Meter	\$19,580*
2" Meter	\$33,020*
3" Meter	\$70,490*
4" Meter	\$123,310*
6" Meter	\$273,230*

*Meter sizes greater than 1 ½" are subject to an additional time & material charge.

APPENDIX C

KENNEDY FARMS WATER RIGHTS DRAFT MEMO AND GROUNDWATER SOURCE DEVELOPMENT PLAN



Technical Memorandum

Date: May 1, 2018

Project No.: 727.001.004.003

To: Bryan Kast, PE / City of Ridgefield, WA

From: Kenny Janssen, LG and Larry Eaton, LHG / GSI Water Solutions, Inc., and Jason McCormick, CWRE / McCormick Water Strategies, LLC

RE: KENNEDY FARMS – WATER RIGHT FILE REVIEW, HISTORICAL WATER USE ASSESSMENT, AND PRELIMINARY HYDROGEOLOGIC INVESTIGATION

Introduction

The City of Ridgefield (City) is conducting a due diligence investigation to evaluate the extent and validity of water rights held by Kennedy Farms (Farm). The City is pursuing the option to acquire the rights for municipal supply purposes. This technical memorandum summarizes results from the first three subtasks of the due diligence investigation:

- Subtask 4.1 – Water Right File Review
- Subtask 4.2 – Historical Water Use Assessment
- Subtask 4.3 – Preliminary Hydrogeologic Investigation

Water Rights Records

Water right documents of the Farm were obtained by submitting a full file content public disclosure request (PDR) with Ecology. In response to the PDR, teaming partner McCormick Water Strategies (MWS) received and reviewed the file record and summarized key documents, included in Attachment A. Key attributes of the water right records are summarized in Table 1.

Table 1 – Key Attributes of Kennedy Farms Water Rights

Water Right No.	WR Doc ID	Priority Date	Qi	Qa (ac-ft)	Purpose	Acres	Source	Notes
S2-*10195CWRIS (Cert 4718)	2212489	2/26/1953	0.2 cfs	--	IR	20	Gee Creek	--
G2-26625CWRIS (G2-26625C)	2215552	11/3/1984	140 gpm	119	IR, GD, ST	40	Well	20 acres non-additive to Cert. 4718
G2-109021CL	2170102	1930's	10 gpm	--	SD	--	Well	Permit-exempt claim

NOTES: Qi is instantaneous quantity, Qa is annual quantity, ac-ft is acre-feet, IR is irrigation, GD is Group Domestic, ST is stock water, and SD is Single Domestic

Generally, the water right record is consistent with the presentation of the water rights by Kennedy Farms' representative, Tom Pors, and consistent with Ecology policy and procedures. Upon review of the water right G2-26625C files however, it was found that the subject water right was issued as a Family Farm Act water right, and contains the following provision:

That portion of this authorization relating to irrigation is classified as a Family Farm Permit in accordance with Chapter 90.66 RCW (Initiative Measure No. 59). This means the land being irrigated under this authorization shall comply with the following definition: Family Farm – a geographic area including not more than 2,000 acres of irrigated agricultural lands, whether contiguous or noncontiguous, the controlling interest in which is held by a person having controlling interest in no more than 2,000 acres of irrigated agricultural lands in the State of Washington which are irrigated under water rights acquired after December 8, 1977. Furthermore, the land being irrigated under this authorization must continue to conform to the definition of a family farm.

While there has been litigation around changes of Family Farm Act irrigation water rights to municipal purposes, the litigation has focused on the change and transfer of unperfected and/or inchoate water rights to municipal purposes (e.g., City of West Richland v. Ecology). In the City's situation, the subject water right is a perfected and certificated water right within the urban growth boundary of the City of Ridgefield. Additional research and pre-application meeting(s) with Ecology will be necessary to confirm the transferability of the subject water right.

A key point summary of the water rights is provided below:

- Total irrigation of 40 acres authorized under the surface and groundwater certificates.
- Groundwater use for domestic residences (3 homes) is included in G2-26625C and G2-109021CL.
- G2-26625C provides for 37.5 acre-feet of Stockwater (including dairy use).
- Stockwater is not limited to the amounts authorized in the water rights in the table above. Valid additional stockwater and industrial rights could have been beneficially used under the State's Groundwater Permit Exemption, RCW 90.44.050, which can be accounted for during the administrative change process.

- Irrigation authorized under G2-26625C is classified as Family Farm Act water right (Chapter 90.66 RCW). Additional review and communication with Ecology will be necessary to develop a permitting approach for the change of these water rights to municipal water supply purposes.

Water Right Legal Description Review

The three subject water right places of use and points of diversion/withdrawal have been mapped by Ecology through the Geographic Water Right Information System (GWIS). Ecology GWIS data were used for the verification of the subject water right's legal descriptions. Using the GWIS data, it was determined that the water right place of use legal descriptions are accurate with the actual places of use at the Farm, with one exception. As to the points of withdrawal and diversion, the surface water diversion and one of the groundwater points of withdrawal match the legal description in the certificates.

A discrepancy does exist with the groundwater point of withdrawal where the groundwater certificate authorizes a single point of withdrawal (well tag ID# BAR-862) in Section 32, but there are three wells serving the purposes of use in Sections 32 and 33. It is likely that these wells provided both certificated and permit-exempt water. Furthermore, the two additional points of withdrawal (well tag ID#s BAR-863 and BCR-525) in Section 32 are not in the same legally described point of withdrawal areas as the certificate. Water law tends to favor water use over non-use, so this discrepancy can most likely be worked out during the water right administrative change process, following a purchase and sale agreement.

Site Visit

A site visit to the Farm was completed on March 19, 2018. Participants included Bryan Kast (City), Jason McCormick (MWS), Kenny Janssen and Robyn Cook (GSI Water Solutions), and the landowner Bill Kennedy. During the site visit, participants reviewed the groundwater wells, irrigation infrastructure, surface water diversion, irrigated fields on the Farm and leased lands, dairy barns and facilities, lagoons, and domestic residences. Photographs taken during the site visit are provided in Attachment B. The following information was revealed during the site visit:

- Beginning in the early 2000's, Arwana Farms (Kennedy) experienced a spray field manure discharge event from the Back Field (Kennedy owned) into Gee Creek. As a result, a penalty was issued by Ecology to Arwana Farms, and the penalty was appealed to the Pollution Control Hearings Board. A settlement was reached between Arwana Farms and Ecology, and from that settlement agreement Arwana Farms entered into a USDA NRCS Dairy and Manure Management Plan. Standards and practices for the application of Dairy discharge (Lagoon Water) onto owned and leased lands was codified by the plan. At the same time this supports Bill Kennedy's assertion that spray field water has been consistently beneficially used on owned and leased lands.
- The Unnamed Stream, tributary to Gee Creek, was impounded for the purposes of irrigation under the surface water certificate. To irrigate the Back Field, groundwater was comingled with surface water in the impoundment, and pumped at the surface water pump station to the Back Field irrigation system (big gun sprinkler).

- Three lagoons were managed to store and regulate dairy discharge to the spray fields. These three lagoons held an estimated total of 7 million gallons (21.5 acre-feet). Lagoon water was fully evacuated up to three times per year (64 acre-feet).
- Surface water was stored in the early spring until inflow ceased in June. Groundwater was comingled with surface water storage for the remainder of the season.
- Groundwater was also mixed in, at times, with Lagoon Water to dilute the solids for application on spray fields. Actual mixing rates were unclear from discussion during the site visit.
- Well BAR-863 provides water for the three houses, and provided industrial water for the milk barn while the dairy was in operation. Wells BCR-525 and BAR-862 provided irrigation water, Lagoon Water mixing, and stockwater for the dairy. Well logs are provided in Attachment C.
- In recent years, the Farms' owned and leased land supported up to 1,000 head of dairy and beef cattle.

Irrigation Infrastructure

Water use on Kennedy Farms was comingled between surface and groundwater (clean water), and Lagoon Water. Groundwater was discharged into the surface water impoundment, and comingled clean water was applied to the Back Field and adjacent fields. In addition, groundwater was mixed with Lagoon Water to dilute and liquify solids for pumping and application to spray fields.

Spray field and irrigation water infrastructure extended beyond owned lands to Hutchison and Ridgefield School Property leased lands to the south and west.

Irrigation and spray field water was applied through the periodic and systematic usage of three big gun high volume sprinklers. These sprinkler systems are operated via a large tractor movable hose reel system that automatically retract the high volume sprinkler head across the field during operation. Big gun irrigation is a common application system for low value forage crops.

Aerial Photograph Review

MWS obtained, reviewed, and evaluated aerial photographs of the site available during a period of record from 1991 through 2017. The evaluation consisted of delineating the irrigated fields listed in Table 2 and calculating corresponding acreages, using geographic information systems software and aerial photograph interpretation methodologies accepted by Ecology. Data sources used in the evaluation included maps provided by the seller's representatives and information gained from the site visit. The delineated areas are overlain on a 2016 Google Earth image and historical aerial photographs of the site (see Attachment D).

Based on the review and evaluation, water use at the Farms' owned and leased land appears to be consistent during the period of record, and demonstrates some seasonal and annual crop rotation and fallowing during that time.

Irrigation during the period of record consistently exceeded the 40 acres authorized under the groundwater and surface water rights. Based on information provided by Kennedy Farms, spray application of the Lagoon Water accounted for the balance of irrigation during those years.

In total, it is likely that 218 acres were consistently irrigated during the period of record. Of the 218 acres, 40 acres are authorized for irrigation under groundwater and surface water certificates, while the balance of 178 or more acres were irrigated with the spray application treatment practices of dairy discharge.

Table 2: Aerial Photograph Irrigation Summary

Field No.	Field Name	Ownership	Acres	Source
1	Back Field	Kennedy	26.26	Clean
2	Lagoon Field	Kennedy	14.25	Clean
3	North of Barns	Kennedy	7.09	Clean/Lagoon
Subtotal			47.60	--
5	Phase I East Spray Field	Kennedy (since sold)	25.47	Lagoon
6	Phase II West Spray Field	Kennedy (since sold)	22.93	Lagoon
Subtotal			48.40	--
4	Hutchinson Spray Field East	Hutchinson	30.11	Lagoon
8	Hutchinson Spray Field Center	Hutchinson	15.56	Lagoon
9	Hutchinson Spray Field West	Hutchinson	8.82	Lagoon
10	Hutchinson Spray Field South	Hutchinson	11.95	Lagoon
11	Hutchinson Spray Field West	Hutchinson	15.93	Lagoon
12	Hutchinson Spray Field Southwest	Hutchinson	13.00	Lagoon
Subtotal			95.37	--
7	School Property Spray Field	Ridgefield	27.61	Lagoon
Subtotal			27.61	--
TOTAL			218.98	--

NOTES: Field numbers and names listed correspond with aerial imagery provided in Attachment D.

Gee Creek Surface Water Review and Reliability Analysis

A review and reliability analysis of the Gee Creek surface water right is currently underway and will be completed as part of the Subtask 4.4 (Consumptive Use Estimates).

Initial Risk Evaluation and Conclusions

Upon review of the water right record, information gathered during the site visit, and aerial photo record review and assessment, it has been concluded that the water right record is accurate and complete, and that the water rights (including permit exemptions) appear to have been fully beneficially used during the period of record. Consequently, the findings suggest that the City can move forward with confidence into negotiations with Kennedy Farms to acquire the rights. Below however, are some potential risks that the City should be aware of moving forward:

- S2-*10195CWRIS – While the water right record is complete and beneficial use is clear, it appears that there is some risk of receiving a reduced season of use (i.e., April to June) from Ecology based on water right availability from the surface water source (Unnamed Stream/Gee Creek). It is however, unlikely that a reduction of the season of use will change the annual quantity. We anticipate this water right change risk level to be low.
- G2-26625C – Water right record is complete, and consistent beneficial use for irrigation, domestic uses, and stockwater is evident. There are however, two water right concerns that emerged from the file review: (1) two points of withdrawal are in the wrong section, and (2) this water right is provisioned as a Family Farm Act water right limiting uses to irrigation. Additional preparation and clarification with Ecology during the water right change pre-application meeting is advisable. Additionally, spray field uses of the discharged stockwater and dairy facility water consistent with the Manure Management Plan and standard dairy practices increase consumptive use considerably. Spray field uses should be included in any proposal to Ecology with the understanding that Ecology may not acknowledge all of the consumptive use. We anticipate this water right change risk level to be moderate-to-low.
- G2-109021CL and permit-exempt uses – Domestic water use was claimed back to the 1930's, and the state's groundwater permit exemption (RCW 90.44.050) provides for industrial use of up to 5,000 gallons per day and unlimited stockwater (Five Corners Family Farmers v. Ecology). It is possible to assert and certificate permit-exempt uses for the dairy and facilities, and the discharge of said uses as spray field water stands as a valid water right. If Ecology acknowledges the validity of the permit-exempt uses, it could add considerable consumptive use to the transaction. We anticipate this water right change risk level to be moderate.

Preliminary Hydrogeologic Investigation

The City is located in the northern portion of the Portland Basin, a northwest-southeast trending topographic and structural depression bounded by volcanic and sedimentary bedrock. The basin is approximately 40 miles long and 20 miles wide, and filled by up to 1,800 feet of consolidated and unconsolidated sediments.

The regional geologic and hydrogeologic framework for the area was first developed by Mundorff (1964), with more recent investigations and mapping conducted by Swanson et al. (1993), Pacific Groundwater Group (2003), Evarts (2004), and Golder Associates (2007; 2008).

Hydrostratigraphic Units

The hydrostratigraphic framework beneath the City is described and illustrated by more recent site-specific studies conducted by Golder Associates (2007; 2008). From the surface downward, the hydrostratigraphic units present in the area include:

- **Pleistocene Alluvial Deposits** – Undifferentiated sediments associated with flood deposits of the Columbia River. Well logs indicate that the Pleistocene deposits are predominantly unconsolidated with thicknesses that generally range between 50 and 200 ft in the surrounding area, and composed of sediments ranging from boulders to clay.
- **Upper Troutdale Aquifer** – The aquifer ranges between 50 and 100 feet thick and is largely composed of sand and gravel. Zones of silt and clay and partially-cemented coarse sands and gravels noted on local well logs limit the transmissivity of this unit. Wells completed in this aquifer typically yield less than 100 gallons per minute (gpm) and are mainly for domestic supplies.
- **Upper Confining Unit** – Composed of low-permeability sediments of silt and clay. This unit typically underlies the Upper Troutdale Aquifer. Based on the available well logs however, the Upper Confining Unit appears to be discontinuous or absent in the vicinity of the City's Junction Well and Abrams Park well field wells. Its presence is noted in areas south of the Junction well and in the vicinity of Gee Creek. Where present, the unit ranges up to approximately 50 feet thick.
- **Lower Troutdale Aquifer** – Composed predominately of sand with interlayers of medium sand and silt. The aquifer ranges in thickness between approximately 20 and 100 feet thick. The Lower Troutdale Aquifer is typically confined and overlain by the Upper Confining Unit. In areas where the Upper Confining Unit is absent however, the Lower Troutdale Aquifer is directly overlain by the Upper Troutdale Aquifer.
- **Lower Confining Unit** – Composed predominantly of clay with some sand and gravel, ranging between approximately 20 and 100 feet thick. Well logs indicate that the Lower Confining Unit is present over a broad area in the vicinity of Gee Creek and City's Junction Well and Abrams Park well field wells.
- **Sand and Gravel Aquifer (SGA)** – This aquifer is confined and primarily composed of sand, sandy gravel, and silt, though contains also some cemented sand and gravel layers and silt and clay interbeds. The SGA exists over a broad area throughout the Portland Basin. Locally, the top contact of the SGA is typically found at depths of roughly 130 and 300 feet and is between approximately 60 and 160 feet thick in the vicinity of Abrams Park and the City's Junction Well. Relatively few wells penetrate the SGA and groundwater development within the SGA is primarily by public water-supply systems. The City's Junction Well and Abrams Park well field wells are completed in this aquifer.

- **Undifferentiated Sediments** – Fine-grained sedimentary deposits primarily composed of fine- to medium-grained sand, silt and clay with small lenses of sand.
- **Basalt Bedrock** – Bedrock underlying the sedimentary deposits in this area is composed of dense volcanic rock (basalt) of the Columbia River Basalt Group.

Structural Features

Low-lying hills located approximately 4-6 miles southeast of downtown Ridgefield may indicate the presence of an underlying geologic structural feature. Mundorff (1964) and Swanson et al. (1993) interpreted the feature as a north-northwest-trending anticline. Snyder et al. (1993) however, associate the shallow hills with dome-like aeromagnetic highs and suggest they were formed by uplift from the intrusion of basalt sills or small basalt laccoliths into the overlying basin-fill sediments.

Mapped along the northeast flank of the inferred anticlinal feature described in the paragraph above and trending in a similar north-northwest direction is an inferred reverse fault (Evarts 2004). The fault is projected to extend across the Ridgefield quadrangle from Lancaster Lake located north of Ridgefield to Lacamas Lake in Camas, Washington to the southeast. Geologic cross-sections by Evarts (2004) illustrate some displacement along the fault near Lancaster Lake where basin-fill sediments are juxtaposed at the surface against Grande Ronde Basalt. No offsetting of underlying geologic units however, is shown along the fault to the southeast.

City Wells

The City currently obtains its water supply from five municipal wells. Four wells (Wells 7, 8, 9, and 10) are located in Abrams Park on the flood plain of Gee Creek canyon. The fifth (Junction well) is located approximately two miles east of downtown Ridgefield near Interstate 5. The City has access to five other municipal wells, though two have been decommissioned (Wells 1 and 2) and the remaining three (Wells 3, 5, and 6) are currently inactive and/or serve as emergency supply sources. The five currently active wells are completed in water-bearing sediments of the SGA within the Portland Basin.

Abrams Park Well Field Wells

The Abrams Park well field Wells 7, 8, 9, and 10 (well report ID#s 1043, 1042, 1044, and 487846, respectively) are located in the SE¼ of the NW¼ of Section 19, T4N, R1E, W.M., less than a ½-mile northeast of downtown Ridgefield. Well logs for these wells are included in Attachment E. The wells range in completed depth from 135 feet below ground surface (bgs) at Well 10 (bottom elevation of -90 feet amsl) to 208 feet bgs at Well 9 (bottom elevation of -161 feet amsl). Static water levels at Wells 7, 8, and 9 reported during June 1986 post-construction measured approximately 20 feet bgs (25 feet elevation amsl). The static water level at Well 10 after it was constructed in July 2007 measured 16 feet bgs (29 feet elevation amsl).

Junction Well

The Junction Well (well report ID# 270570) is located in the NW¼ of the SE¼ of Section 21, T4N, R1E, W.M. The 8-inch diameter well is completed to a depth of 460 feet bgs (bottom elevation of -204.1 feet amsl). The static water level measured 212.7 feet bgs (43.2 feet elevation amsl) on July 9, 1985 after the

well was constructed, and 228.5 feet bgs (27.4 feet elevation amsl) on November 4, 2007 prior to conducting a 72-hour constant-rate pumping test (Golder Associates 2008).

Kennedy Farms Wells

Kennedy Farms is located approximately 2.75 miles southeast of downtown Ridgefield and 1.75 miles southwest of the Junction Well. Four wells were identified at the Farm during a site visit conducted on March 19, 2018. One of the wells was capped and no longer in service, and no well tag or logs were discovered. Of the three remaining wells, two are active (well tag ID#s BCR-525 and BAR-863) and one is for backup supply needs (well tag ID# BAR-862). Of the two active wells, one is for permit-exempt domestic uses (well tag ID# BAR-863) and the other is the primary supply well for irrigation and stockwater. Available well logs are provided in Attachment C.

Primary Well

The primary well (BCR-525) is reported on the well log to be located in the NE¼ of the NE¼ of Section 32, T4N, R1E, W.M., though appears from the site visit to be located in the SW¼ of the NW¼ of Section 33 (Attachment D). The 8-inch diameter well is completed to a depth of 358 feet bgs (bottom elevation of -75 feet amsl). The static water level measured 228 feet bgs (56 feet elevation amsl) on June 12, 2013 after the well was constructed. The well is reported to yield 265 gpm, and is interpreted from information provided on the well log and from geologic cross-sections developed by Golder Associates (2007; 2008) to be completed in water-bearing sediments of the SGA.

This well was drilled as an additional well for use under water right certificate G2-26625C authorized by a showing of compliance with RCW 90.44.100(3). The original well now functions as a backup supply source.

Backup Well

The backup supply well for the Farm (BAR-862) is located in the SE¼ of the NE¼ of Section 32, T4N, R1E, W.M. The 6-inch diameter well is completed to a depth of 315 feet bgs (bottom elevation of -31 feet amsl). The static water level measured 217 feet bgs (67 feet elevation amsl) on April 23, 1984 after the well was constructed. The well is interpreted from information provided on the well log and from geologic cross-sections developed by Golder Associates (2007; 2008) to be completed in water-bearing sediments of the SGA.

Same Body of Groundwater

Applications for change or water right permits and certificates are governed by Revised Code of Washington (RCW) 90.44.100, which states in part that the holder of a valid right to withdraw public groundwater may construct wells at a new location in substitution for or in addition to those at the original location. Any amendment shall be issued by Ecology only under the conditions that (1) an additional or substitute well or wells shall tap the same body of public groundwater as the original well or wells, (2) use of the original well or wells shall be discontinued upon construction of the substitute well or wells, (3) construction of an additional well or wells shall not enlarge the right conveyed by the original permit or certificate, and (4) all existing water rights shall not be impaired. Ecology may specify an approved manner of well construction and shall require a showing of compliance with the provisions of the amendment.

The SGA exists over a broad area throughout the Portland Basin and the inferred geologic structural formations mapped in vicinity of the well sites (i.e., Junction well, Abrams Park wells, and Kennedy Farms wells) are not considered hydraulic barriers to groundwater presence or flow within the SGA. The localized, tabular intrusions thought to form the low-lying hills 4-6 miles southwest of Ridgefield are located south of Kennedy Farms, and no offset of underlying geologic units is shown along the fault between the well sites. Consequently, new or additional wells located in the vicinity of the Farm and constructed similar to the primary well authorized under water right certificate G2-26625C is anticipated to be completed in the SGA, which is interpreted to be the same body of groundwater sourced by the City's Junction and Abrams Park wells.

Conclusion and Summary

All three water rights appear to have been consistently beneficially used through 2016 and potentially 2017. It would be advisable to temporarily place the subject water rights in Ecology's State Trust Water Right Program (TWRP) at the soonest possible convenience. The TWRP continues beneficial use of the water rights, thus preventing relinquishment of the subject water rights during the administrative process associated with the acquisition and water right changes.

In summary, the water rights appear valid and exercised to their full extent during the period of record. Initial review has revealed a couple of discrepancies, but none of those discrepancies immediately rise to the level of greatly reducing the value of the subject water rights. That being said, the Family Farm Act irrigation water right is a concern, and a condition should be added to a purchase and sale agreement contingent upon the successful purpose of use change to municipal water supply purposes.

Based on previous work conducted in the area, the City's Junction Well and Abrams Park wells are interpreted to be completed in water-bearing sediments of the SGA, a laterally extensive aquifer unit found throughout the Portland Basin. The Kennedy Farms' wells also are interpreted to be completed in the SGA. Geologic structural features (e.g., faults or folds) mapped in the area do not appear to be barriers to SGA groundwater flow. Consequently, new or additional wells located in the vicinity of Kennedy Farms and constructed similar to the Farm wells would be completed in the SGA, and interpreted to draw from the same body of public groundwater as the City's Junction and Abrams Park wells.

Next Steps

The findings presented herein support the following next steps:

- Develop consumptive use estimates for the full extent of irrigation (and spray field application) following Ecology's Guidance/Policy/Procedure 1210, and complete water right review and water availability analysis for Gee Creek.
- Share the City's intended use for the water rights with Ecology's Southwest Regional Office and discuss potential concerns that may develop during a transaction.
- Research the water market in the area and establish a purchase offer for the water rights.

References

- City of West Richland, et al v. Washington Department of Ecology. Court of Appeals Division III 22648-4-III. December 16, 2004.
- Evarts, R.C., 2004, Geologic map of the Ridgefield quadrangle, Clark and Cowlitz Counties, Washington: U.S. Geological Survey Scientific Investigations Map 2844, scale 1:24,000
- Five Corners Family Farmers, et al v. Washington Department of Ecology. Supreme Court 84632-4. December 22, 2011.
- Golder Associates, Inc., 2007, Estimates of streamflow reduction in Gee Creek from operating the Junction Well: Technical Memorandum submitted to Washington State Department of Ecology, February 15, 2007
- Golder Associates, Inc., 2008, Junction Well hydrogeologic analysis; prepared for Gray and Osborne, February 5, 2008
- Mundorff, M.J., 1964, Geology and ground-water conditions of Clark County Washington, with a description of a major alluvial aquifer along the Columbia River: U.S. Geological Survey Water-Supply Paper 1600, 268 p., 3 pls., scale 1:48,000
- Pacific Groundwater Group (2003), Groundwater/Surface-Water relationships East Fork Lewis River Watershed: Technical Memorandum 10 (Task 8a), WRIA 27/28 Watershed Plan; prepared for Lower Columbia Fish Recovery Board, December 2003
- Snyder, S.L., Felger, T.J., Blakely, R.J., and Wells, R.E., 1993, Aeromagnetic map of the Portland-Vancouver metropolitan area, Oregon and Washington: U.S. Geological Survey Open-File Report 93-211, scale 1:100,000.
- Swanson, R.D., McFarland, W.D., Gonthier, J.B., and others, 1993, A description of hydrogeologic units in the Portland Basin, Oregon and Washington: U.S. Geological Survey Water-Resources Investigations Report 90-4196

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ATTACHMENT A

Key Water Rights Documents

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

- ☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- ☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
November 3, 1984	G 2-26625	G 2-26625 P	G 2-26625 C

NAME

ARWANA FARMS

ADDRESS (STREET)

(CITY)

(STATE)

(ZIP CODE)

23115 N.W. Hillhurst Road

Ridgefield

Washington

98642

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown, but is limited to an amount actually beneficially used.

PUBLIC WATER TO BE APPROPRIATED

SOURCE

Well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	140	119

QUANTITY, TYPE OF USE, PERIOD OF USE

1.5 acre-feet per year

group domestic supply (3 homes)

continuously

37.5 acre-feet per year

stockwater (including dairy use)

continuously

80.0 acre-feet per year

irrigation of 40 acres

May 1 to October 1

(40 acre-feet per year primary and 40 acre-feet per year supplemental)

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL

500 feet North and 225 feet West of the East Quarter Corner of Section 32.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, 1E. OR W.1 W.M.	W.R.I.A.	COUNTY
SE1NE1	32	4	1 E.	28	Clark

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

The S1/4NW1/4 Sec. 33, and that part of the S1/4NE1/4 Sec. 32, lying east of the County Road, all in T. 4 N., R. 1 E.W.M.

PROVISIONS

"The total annual quantity for irrigation approved under this application and Surface Water Certificate No. 4718 shall not exceed 80 acre-feet per year."

The access port shall be maintained at all times on the well (s).

That portion of this authorization relating to irrigation is classified as a Family Farm Permit in accordance with Chapter 90.66 RCW (Initiative Measure No. 59). This means the land being irrigated under this authorization shall comply with the following definition: Family Farm a geographic area including not more than 2,000 acres of irrigated agricultural lands, whether contiguous or noncontiguous, the controlling interest in which is held by a person having a controlling interest in no more than 2,000 acres of irrigated agricultural lands in the State of Washington which are irrigated under water rights acquired after December 8, 1977. Furthermore, the land being irrigated under this authorization must continue to conform to the definition of a family farm.

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The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia, Washington, this ...8th... day of May, 1987,.....

Andrea Beatty Riniker, Director
Department of Ecology

Clark Haberman

Clark Haberman, Regional Manager

ENGINEERING DATA

OK *us*

FOR COUNTY USE ONLY

[illegible]

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

- ☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- ☒ Ground Water (Issued in accordance with the provisions of Chapter 203, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE November 3, 1984	APPLICATION NUMBER G 2-26625	PERMIT NUMBER	CERTIFICATE NUMBER
NAME ARHANA FARMS			
ADDRESS (STREET) 23115 N.W. Hillhurst Road	(CITY) Ridgefield	(STATE) Washington	(ZIP CODE) 98642

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 140	MAXIMUM ACRE-FEET PER YEAR 119
QUANTITY, TYPE OF USE, PERIOD OF USE		
1.5 acre-feet per year	group domestic supply (3 homes)	continuously
37.5 acre-feet per year	stockwater (including dairy use)	continuously
80.0 acre-feet per year	irrigation of 40 acres	May 1 to October 1
(40 acre-feet per year primary and 40 acre-feet per year supplemental)		

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
500 feet North and 225 feet West of the East Quarter Corner of Section 32.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SE $\frac{1}{4}$ NE $\frac{1}{4}$	SECTION 32	TOWNSHIP N. 4	RANGE, (E. OR W.) W.M. 1 E.	W.R.I.A. 28	COUNTY Clark
--	---------------	------------------	--------------------------------	----------------	-----------------

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED		

The S $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 33, and that part of the S $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 32, lying east of the County Road, all in T. 4 N., R. 1 E.W.M.

DESCRIPTION OF PROPOSED WORKS

Well 6" x 320' - 15 HP submersible pump rated at 140 gallons per minute. 2000' of 4" diameter pipe, 1200' of 3" diameter pipe, 1000' of 2" diameter pipe, and approximately 40 sprinklers.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:
Started

COMPLETE PROJECT BY THIS DATE:
October 1, 1986

WATER PUT TO FULL USE BY THIS DATE:
October 1, 1987

REPORT**BACKGROUND:**

This application was submitted and accepted in this office of the Department of Ecology on November 3, 1984. The applicant has requested the right to withdraw water from a well in the amount of 140 gallons per minute (gpm) to be used for group domestic supply (3 homes), stockwater including dairy use for 600 head of stock, and the irrigation of 40 acres of land.

The application was duly published in The Columbian of Vancouver, Washington, on December 21, and 28, 1984. No objections to this application were submitted to this office.

INVESTIGATION:

A field examination of this application was conducted on January 10, 1985. The application and use of water were discussed with Mr. Kennedy during the examination. The applicants are presently using the water for three homes and for stockwater including dairy use for 600 head of stock. The 600 head of stock break down as follows: 290 milkers and 310 dry stock and calves.

The applicant also plans on irrigating 40 acres of land in the near future.

Surface Water Certificate Number 4718 is appurtenant to the lands described in this application. The certificate is for 20 acres of irrigation in the amount of 0.20 cubic foot per second (cfs). 0.20 cfs equals 90 gpm. Therefore, any permit issued under this application will be a primary right for 20 acres of irrigation and a supplemental right for 20 acres of irrigation. Under this application and Surface Water Certificate No. 4718, the total land irrigated will not exceed 40 acres.

The applicant also has another well that has been used for domestic supply for years. This older well is exempt from permit requirements and will only be used as standby domestic supply.

The annual quantities of water to be approved under this application are based on the following computations:

Group domestic supply - 3 homes x 0.5 acre-foot per year per home equals 1.5 acre-feet per year;

Stockwater including dairy use - 290 milkers times 100 gallons per day per head equals 32.5 acre-feet per year; and

310 dry stock and calves times 15 gallons per day per head equals 5 acre-feet per year.

Total annual quantity for stockwater is 37.5 acre-feet per year.

Irrigation is based on 2 acre-feet per acre per year times 40 acres equals 80 acre-feet per year.

The normal irrigation season for western Washington is May 1 through October 1.

CONCLUSION:

In accordance with Section 90.03 and 90.44 RCW, I find that there is water available for appropriation from the source in question and that the appropriation as recommended is a beneficial use and will not impair existing rights or be detrimental to the public welfare. Therefore, permit should issue, subject to existing rights and indicated provisions.

RECOMMENDATIONS:

It is recommended that this application be approved for 140 gpm and 119 acre-feet per year. The 119 acre-feet per year is to be broken down by use and time as follows:

Group domestic supply - 1.5 acre-feet per year continuously;

Stockwater - 37.5 acre-feet per year continuously; and

Irrigation of 40 acres - 80 acre-feet from May 1 to October 1 of each year.

"The total annual quantity for irrigation approved under this application and Surface Water Certificate No. 4718 shall not exceed 80 acre-feet per year."

1) A well log of the completed well shall be submitted by the driller to the Department of Ecology within thirty (30) days of completion of this well. This well log shall be complete and all information concerning the static water level in the completed well, in addition to any pump test data, shall be submitted as it is obtained.

C Installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required. An air line and gauge may be installed in addition to the access port.

Water user should understand that quantities recommended and the number of acres to be irrigated may be reduced at the time of issuance of a final water right commensurate with the capacity of the installed system and the number of acres actually irrigated.

Use of the waters to be appropriated under this application will be for a public water supply. State Board of Health rules require every owner of a public water supply to obtain written approval from the Water Supply and Waste Section, Department of Social and Health Services, Mail Stop LD 11, Building 4, Olympia, Washington 98504, prior to any new construction or alterations of a public water supply.

That portion of this authorization relating to irrigation is classified as a Family Farm Permit in accordance with Chapter 90.66 RCW (Initiative Measure No. 59). This means the land being irrigated under this authorization shall comply with the following definition: Family Farm a geographic area including not more than 2,000 acres of irrigated agricultural lands, whether contiguous or noncontiguous, the controlling interest in which is held by a person having a controlling interest in no more than 2,000 acres of irrigated agricultural lands in the State of Washington which are irrigated under water rights acquired after December 8, 1977. Furthermore, the land being irrigated under this authorization must continue to conform to the definition of a family farm.

REPORTED BY: Charles H. Hannon

DATE: MARCH 1, 1985

The statutory permit fee for this application is thirty-six dollars (\$36.00).

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
Division of Water Resources

Permit to Appropriate Public Waters of the State of Washington

Book No. 22 of Permits, on Page 7293 Under Application No. 10195

ALTON W. SANDMANN

of Ridgefield, Washington

is hereby granted a permit to appropriate the following described public waters of the State of Washington, subject to existing rights and to the following limitations and provisions: Permittee shall construct and maintain at his own expense a weir, or other suitable device, for measuring any water granted herein for irrigation purposes and such appropriation shall be subject to a reasonable rotation system if ordered by the State Supervisor of Water Resources. **It is also provided that the diversion intake shall be tightly screened with wire having a mesh opening not greater than .125 (1/8) inch.**

Priority date of this permit is February 26, 1951

Source of the proposed appropriation is an unnamed stream
tributary of Gas Creek

The quantity of water appropriated shall be limited to the amount which can be beneficially applied and not to exceed 0.20 cubic feet per second, or its equivalent in case of rotation, to be used for the following purposes: irrigation

as more definitely set out below.

The approximate point of diversion is located 300 feet South of Northwest corner of SE $\frac{1}{4}$ of NW $\frac{1}{4}$ of Sec. 33

being within S $\frac{1}{2}$ of NW $\frac{1}{4}$ of Sec. 33, Twp. 4 N., Rge. 1 E. W. M.,
county of Clark

The use, or uses, to which water is to be applied:

FOR DOMESTIC SUPPLY AND MISCELLANEOUS USES: _____ cubic feet per second during entire year for _____ to be used

within _____ Sec. _____, Twp. _____ N., Rge. _____ W. M.

FOR IRRIGATION: 0.20 cubic feet per second, from April 15th to October 1st
each year, for irrigation of 20 acres, described as follows:

S $\frac{1}{2}$ of NW $\frac{1}{4}$ of Sec. 33, Twp. 4 N., Rge. 1 E.W.M.

FOR POWER: cubic feet per second continuously each year. Total power to be developed theoretical horse power. Total fall to be utilized feet.
Nature of works by means of which power is to be developed

Works to be located in Sec., Twp. N., Rge. W. M.

Water to be returned to

Point of return Sec., Twp. N., Rge. W. M.

Use to which power is to be applied.....

FOR MUNICIPAL SUPPLY: cubic feet per second during entire year to supply

DESCRIPTION OF DIVERSION WORKS

Height of dam 15 ft.; Length on top 150 ft.; Length on bottom 40 ft.

Material to be used and character of construction Wasteway around dam

Description of headgate No headgate

CANAL SYSTEM

AT HEADGATE: Width on top (at water line) ft.; Width on bottom ft.;

Depth of water ft.; Grade ft. fall per one thousand feet.

AT MILES FROM HEADGATE: Width on top (at water line) ft.; Width on

bottom ft.; Depth of water ft.; Grade feet per one thousand feet.

(Please read carefully provisions below)

Construction work shall begin on or before June 1, 1952

and shall thereafter be prosecuted with reasonable diligence and completed on or before

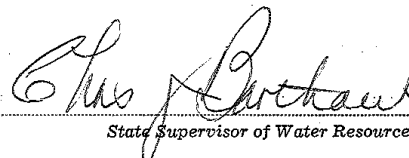
June 1, 1953

and complete application of water to proposed uses shall be made on or before

June 1, 1954

Given under my hand and the seal of this office at Olympia, Washington, this 12th day of

June, 1951.


State Supervisor of Water Resources

REPORT OF EXAMINATION

Date of Appli. 2-26-51 Date of Exam. 5-10-51 Appli. No. 10195

Name Alton W. Sandmann Address Route 2, Box 71; Ridgefield

Quantity Applied for 0.20 c.f.s. Use irrigation

Source of Approp. unnamed stream Trib. of Gee Creek

Legal Sub. S¹ NW¹ Sec. 33 Twp. 4 Rge. 1 E. County Clark

Measured or Estimated Quantity 0.10 Probable low flow 0

Quantity Previously Approp: W.T. 0.28 C.W.T. 0.28 E.T. 0

Other use made of water None known

Diversion works contemplated or observed Contemplates dam 40' thick at

bottom and 16' crest width; earth fill. Soil Conservation checked OK on material.
12-15' high

Other Equipment None

Irrigable Acreage: Planned 15 Present Feasible 20

Soil & Topography Sandy clay - red loam. Gentle roll from stream.

Progress of Project Not begun--to start in June

Quantity Recommended (Total) 0.20 Irrig. 0.20 Domestic

Power Municipal Other uses

Dept. of Fisheries and Game report See below

Special Remarks and Provisions:

Intake shall be tightly screened at all times with wire having a mesh opening not larger than 0.125 (1/8) inch.

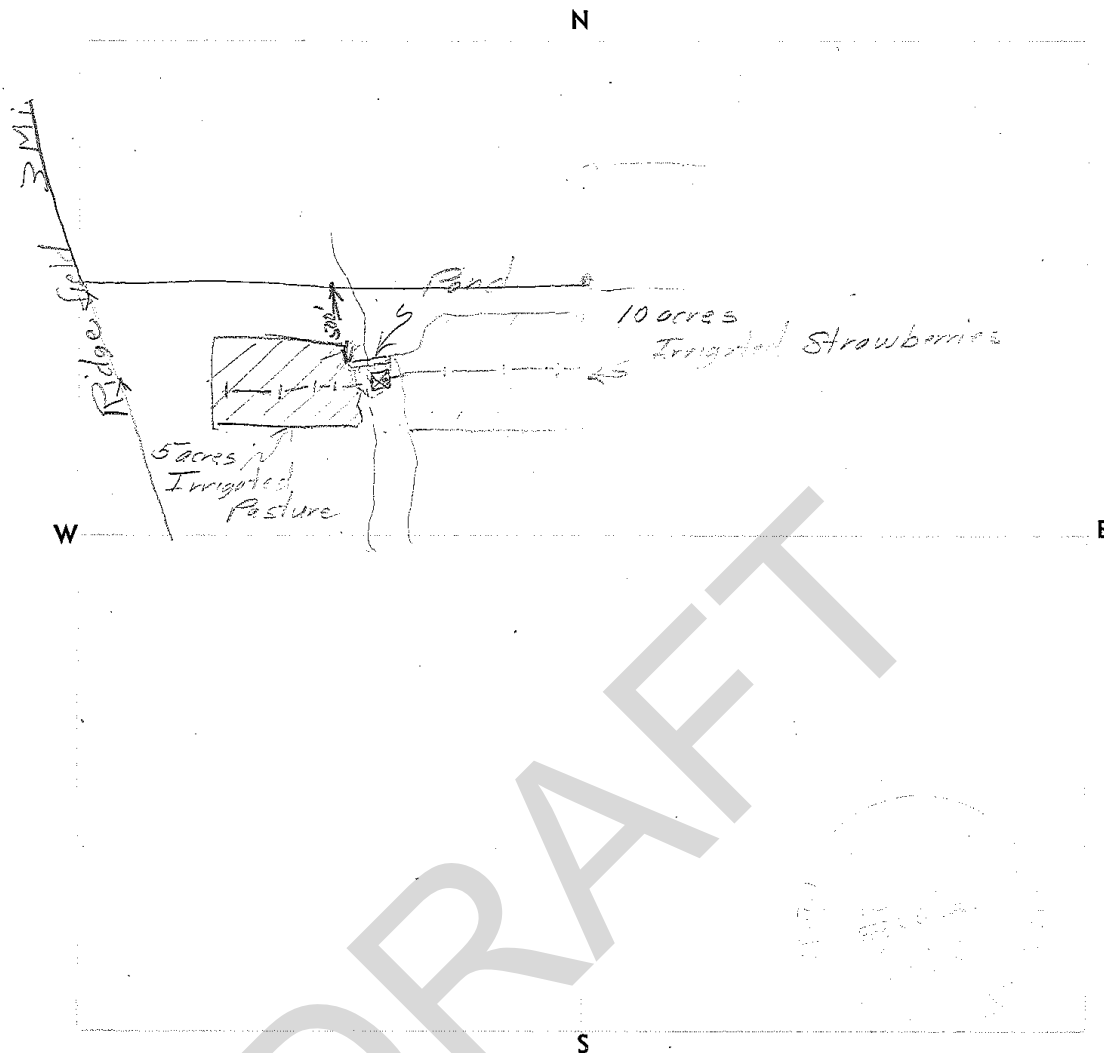
Contemplates damming small ravine; top of dam to serve as roadway to acreage on north. Will store rain water as stream dries up in latter part of summer.

Should survey show 10 acre-feet or greater storage, plans for said dam must be approved by this office and a reservoir permit should be applied for.

Signed this 18th day of May, 1951

Fred D. Hahn
FRED D. HAHN
Engineer

200

Sec. 33 Twp. 4 N. R. 1 E W M

Be sure to show distance and bearing of point of diversion from nearest 40-acre corner. Also traveling directions from nearest town on main highway.

Scale: 1 inch = 800 feet.

10155

CERTIFICATE RECORD No. 10, Page No. 4718STATE OF WASHINGTON, COUNTY OF Clark**CERTIFICATE OF SURFACE WATER RIGHT**

(In accordance with the provisions of Chapter 122, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.)

This is to certify that ALTON W. SANDMANNof Blaine, State of Washington, has made

proof to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use

of the waters of an unnamed stream, a tributary of Goa Creekwith point or points of diversion within the S $\frac{1}{2}$ of NE $\frac{1}{4}$ ofSec. 33, Twp. 4 N., R. 1 E., W. M., under and subject to provisions contained inAppropriation Permit No. 7293 issued by the State Supervisor of Water Resources, and

that said right to the use of said waters has been perfected in accordance with the laws of Washington,

and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of

record in Volume 10, at Page 4718, on the 3rd day of July, 1952that the priority date of the right hereby confirmed is February 26, 1951; that the

amount of water under the right hereby confirmed, for the following purposes is limited to an amount

actually beneficially used and shall not exceed

0.20 cfs a cubic foot per second for thepurpose of the irrigation of 20 acres.

A description of the lands under such right to which the water right is appurtenant, and the place where such water is put to beneficial use, is as follows:

S $\frac{1}{2}$ of NE $\frac{1}{4}$ of Sec. 3, Twp. 4 N., R. 1 E. W. 11.

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Water Resources affixed this

3rd day of July, 1952.Charles Burdick
State Supervisor of Water Resources.

RECORDING DATA

OF Blaine



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION

WATER RIGHT CLAIM

RECEIVED
DEPARTMENT OF ECOLOGY
JAN 25 1965
OFFICE OF THE CLERK

1. NAME Arthur E. Kennedy
ADDRESS 2315 N. W. Hillhurst Rd.
Ridgfield, Wa. ZIP CODE 98642
2. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: Ground Water
(SURFACE OR GROUND WATER)
W.R.I.A. 27
(LEAVE BLANK)
- A. IF GROUND WATER, THE SOURCE IS Well
B. IF SURFACE WATER, THE SOURCE IS _____
3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:
A. QUANTITY OF WATER CLAIMED 25 gals a minute PRESENTLY USED 20 gal
(CUBIC FEET PER SECOND OR GALLONS PER MINUTE)
B. ANNUAL QUANTITY CLAIMED 361 PRESENTLY USED 241
(ACRE FEET PER YEAR)
C. IF FOR IRRIGATION, ACRES CLAIMED _____ PRESENTLY IRRIGATED _____
D. TIME(S) DURING EACH YEAR WHEN WATER IS USED: _____
4. DATE OF FIRST PUTTING WATER TO USE: MONTH Feb YEAR 1965
5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL: 1950 FEET South AND 96
FEET East FROM THE N.W. CORNER OF SECTION 33
BEING WITHIN #21 OF SECTION 33 T. 4 N., R. 1E (E. OR W.) W.M.
IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT _____ BLOCK _____ OF _____
(GIVE NAME OF PLAT OR ADDITION) _____
6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED: Same as above
7. PURPOSE(S) FOR WHICH WATER IS USED: 3-Homes domestic - stock water
8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED: appropriation

DO NOT USE THIS SPACE
THE FILING OF A STATEMENT OF CLAIM DOES NOT CONSTITUTE AN ADJUDICATION
OF ANY CLAIM TO THE RIGHT TO USE OF WATERS AS BETWEEN THE WATER USE
CLAIMANT AND THE STATE OR AS BETWEEN ONE OR MORE WATER USE CLAIMANTS
AND ANOTHER OR OTHERS. THIS ACKNOWLEDGEMENT CONSTITUTES RECEIPT FOR
THE FILING FEE.

DATE RETURNED _____ THIS HAS BEEN ASSIGNED
WATER RIGHT CLAIM REGISTRY NO. JAN 21 1965 09021

DIRECTOR - DEPARTMENT OF ECOLOGY

I HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND
ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF

X Arthur E. Kennedy

DATE 6-24-74
IF CLAIM FILED BY DESIGNATED REPRESENTATIVE, PRINT OR TYPE
FULL NAME AND MAILING ADDRESS OF AGENT BELOW

☐ ADDITIONAL INFORMATION RELATING TO WATER QUALITY
AND/OR WELL CONSTRUCTION IS AVAILABLE.

A FEE OF \$2.00 MUST ACCOMPANY THIS WATER RIGHT CLAIM
ORIGINAL DWR

RETURN ALL THREE COPIES WITH CARBONS INTACT, ALONG WITH YOUR FEE TO
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION
P.O. BOX 829 OLYMPIA, WASHINGTON 98504

DRAFT

ATTACHMENT B

Photographs from Site Visit



Photograph 1 – Well BAR-863 tag.



Photograph 2 – Well BAR-863 location.



Photograph 3 – Well BCR-525 wellhead.



Photograph 4 – Well BCR-525.



Photograph 5 – Kennedy Farms pressure tanks.



Photograph 6 – Well BAR-862 wellhead.



Photograph 7 – Well BAR-862.



Photograph 8 – Dairy lagoon.



Photograph 9 – Dairy lagoon pumping station (lagoon watering).



Photograph 10 – Service electrical panels for lagoon and groundwater.



Photograph 11 – Gee Creek impoundment.



Photograph 12 – Kennedy east field.



Photograph 13 – Kennedy field (left) and Hutchison field (right).



Photograph 14 – Hutchison field.

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ATTACHMENT C

Well Logs – Kennedy Farms

Page 517 of 895

I understand the acceptance of this affidavit, and any attachments, by the Department of Ecology shall not be construed as affirming the validity of any water right permit or certificate. The responsibility to comply with RCW 90.44.100(3) is with the water right permit or certificate holder asserting an amendment pursuant to RCW 90.44.100(3).

Bill Kennedy
Name

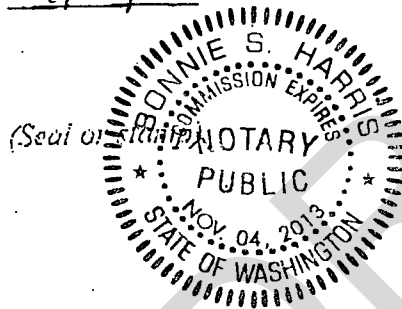
06/27/2013
Date

Acknowledgement:

State of Washington
County of Clark

I certify that I know or have satisfactory evidence that Bill Kennedy is the person who appeared before me, and said person acknowledged that (he/she) signed this affidavit and acknowledged it to be (his/her) free and voluntary act for the uses and purposes mentioned in the affidavit.

Dated: 06/27/2013



Bonnie S. Harris
(Signature)
Washington, Clark County, Ridgefield WA
Residing in
Notary
Title
My appointment expires: 11/04/2013

If you have any questions please contact the Water Resources Section of the closest regional office. Please submit copies of new well logs and decommissioned well logs along with this completed and notarized form to the nearest regional office.

Northwest Regional Office
3190 - 160th Avenue SE
Bellevue, WA 98008-5452
(425) 649-7000; TDD (425) 649-4259

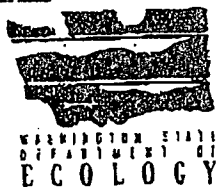
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775
(360) 407-6300; TDD (360) 407-6306

Eastern Regional Office
N. 4601 Monroe, Suite 202
Spokane, WA 99205-1295
(509) 456-2926; TDD (509) 458-2055

Central Regional Office
15 W. Yakima Ave., Suite 200
Yakima, WA 98902-3452
(509) 575-2597; TDD (509) 454-7673

Vancouver Field Office
2108 Grand Boulevard
Vancouver, WA 98661-4622
(360) 690-7171; TDD (360) 690-7147

Nooksack Field Office
1204 Railroad Ave., Suite 200
Bellingham, WA 98225
(360) 738-6250; TDD (425) 649-4259



DEPARTMENT OF ECOLOGY

Showing of Compliance with RCW 90.44.100(3)

Water Right Certificate or Permit Number: G-2-26625 CParcel tax identification number: 21669000Landowner(s) name: Bill Kennedy ARWANA FARMS

Part of complying with RCW 90.44.100(3) is for the project proponent to notify the Department of Ecology (Ecology) that the statutory criteria of RCW 90.44.100(3) have been satisfied. Please attach to this document the water well report for the additional or replacement well and any additional information you have to support your affidavit.

Affidavit:

I, BILL KENNEDY, do certify that I caused the well described in the attached water well report to be drilled as an additional or replacement well(s) for use under Water Right Number G-2-26625 C. This notice and attached documents describe and support my assertion that the replacement or additional well(s) complies with RCW 90.44.100(3) (a-g) and RCW 90.44.100(4):

- a. The well is an additional or replacement well(s) that will tap the same body of public ground water as the original well;
- b. If a replacement well is constructed, the use of the original well(s) shall be discontinued and the original well(s) shall be properly decommissioned;
- c. The combined withdrawal of water from the additional or replacement well(s) and the original well authorized by the water right certificate does not enlarge the water right conveyed by the original water right certificate to the extent the certificate has been developed (perfected) and maintained by use of water;
- d. The construction and use of the additional or replacement well(s) does not interfere with or impair water rights with an earlier priority date;
- e. The additional or replacement well(s) is located no closer than the original well to a well or surface water body it might interfere with;
- f. A specified manner of construction for the additional or replacement well(s) has been complied with, if required, and the new well was constructed in compliance with chapter 18.104 RCW and chapter 173-160 WAC;
- g. The additional or replacement well(s) is located within the area described as the point of withdrawal in the public notice published for the original application for water right, or the most current legal description published for the right. Both the original well and the additional or replacement well(s) are located in SECTION 32 T4N R1E NE4 (legal description).

ORIGINAL WELL TO BE MAINTAINED FOR BACK UP IN CASE OF PUMP FAILURE

Therefore the well is in compliance with the requirements for a statutorily granted amendment to the water right permit or certificate.

Depth 358 Static level 228'10 from top of 8" + 2 ft

[illegible]

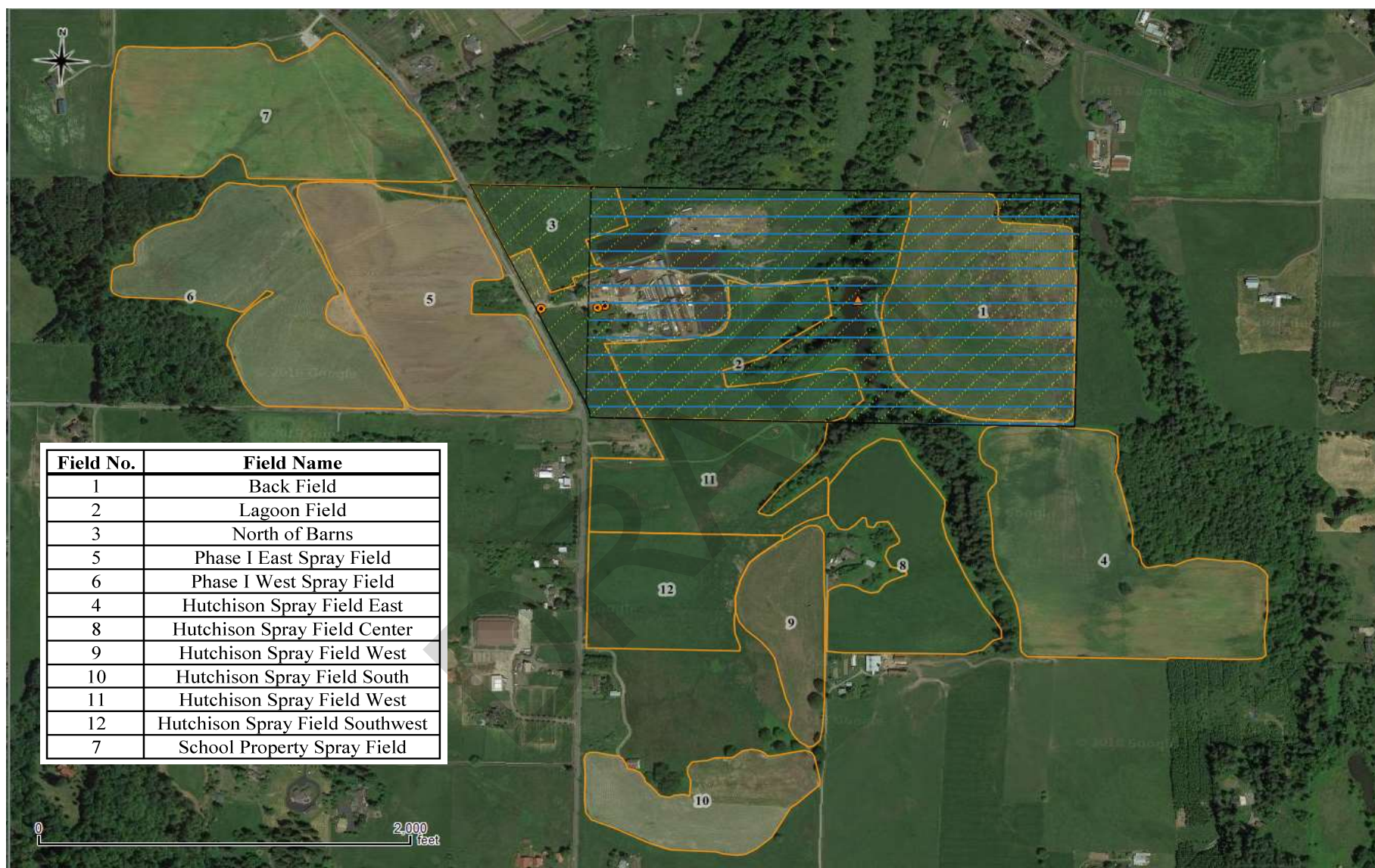
The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

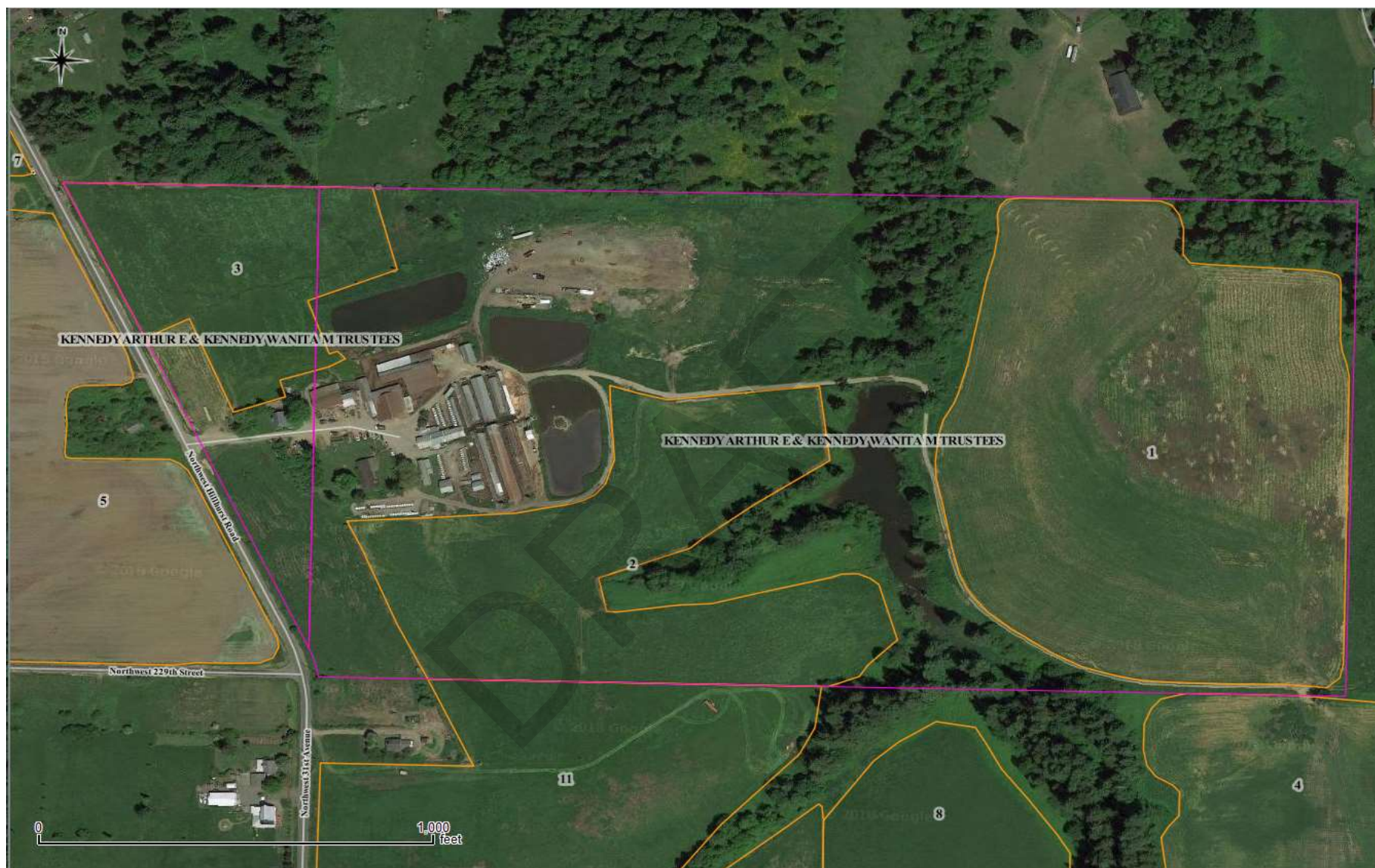
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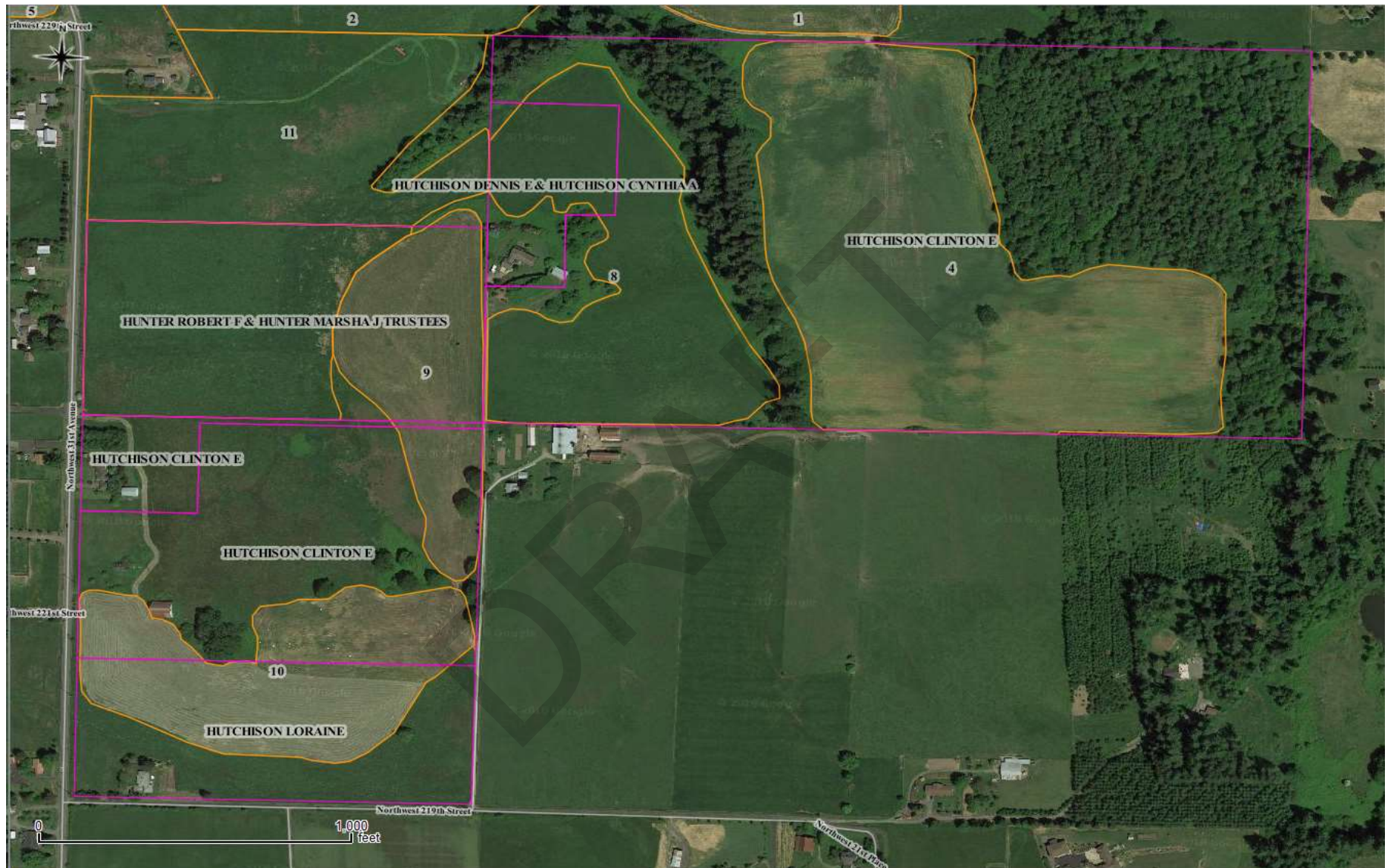
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ATTACHMENT D

Place of Use Maps and Aerial Photographs – Kennedy Farms













McCORMICK
WATER STRATEGIES

04/19/2018

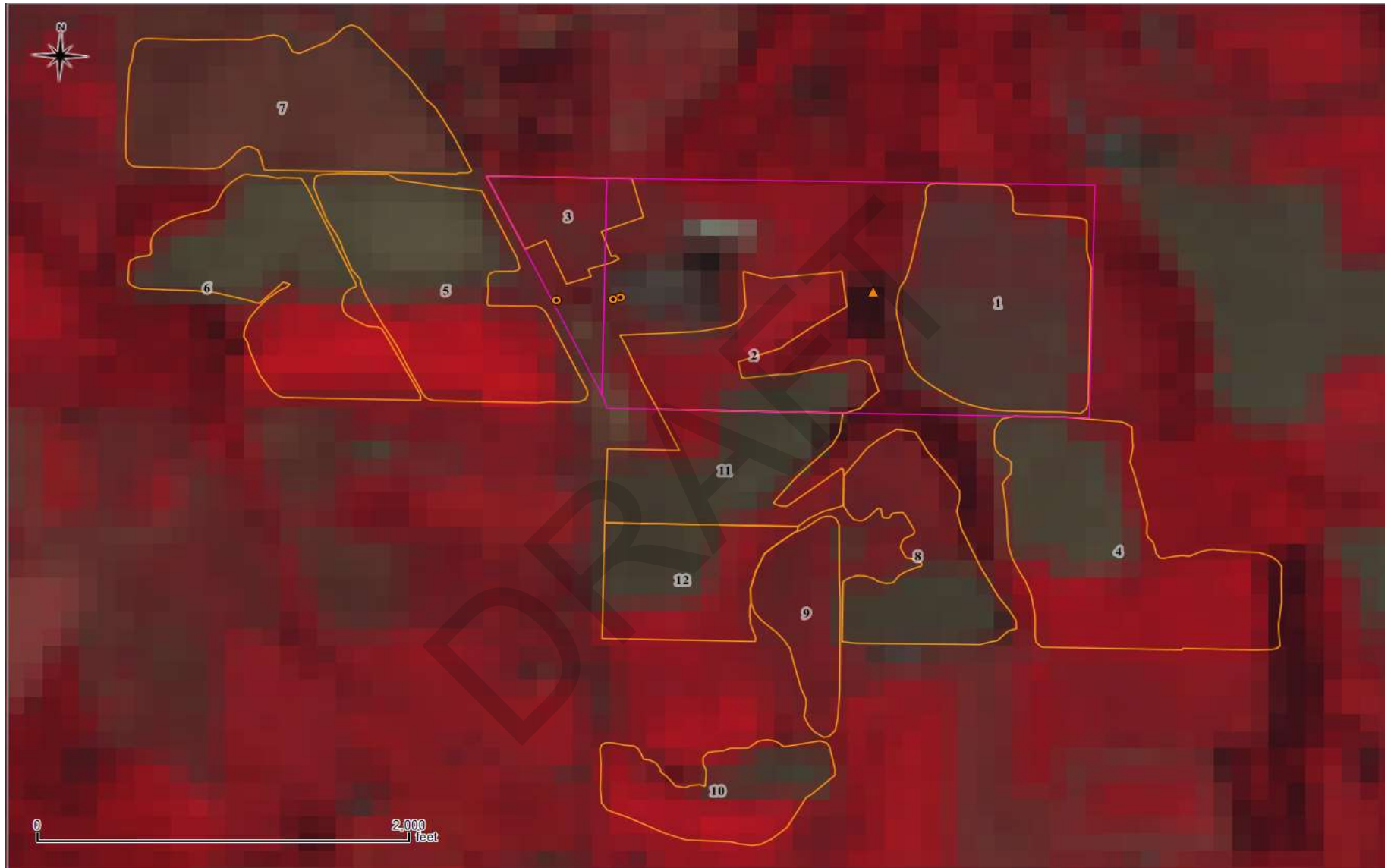
G2-26625CWRIS
Kennedy Farms
City of Ridgefield
Ridgefield, WA

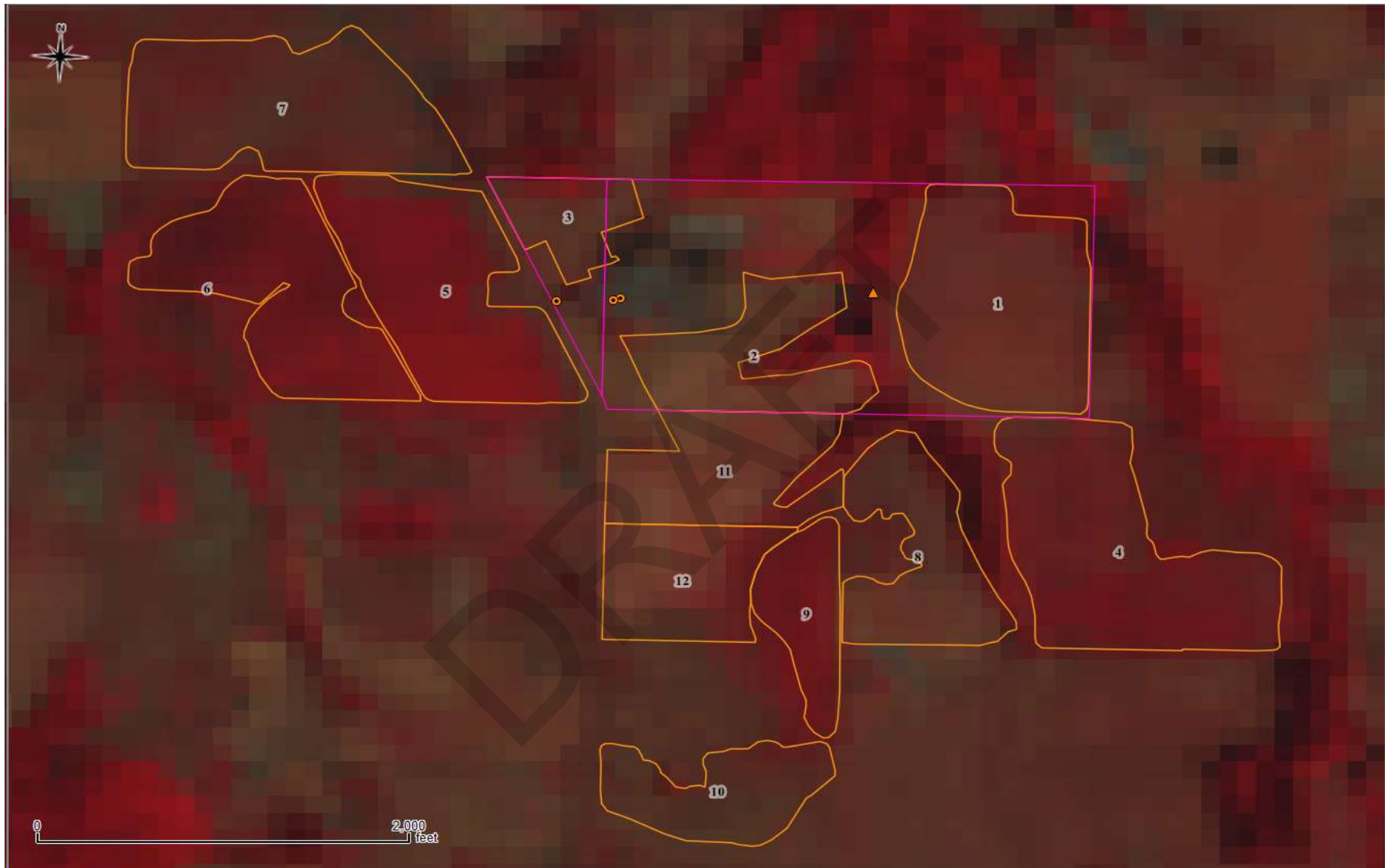


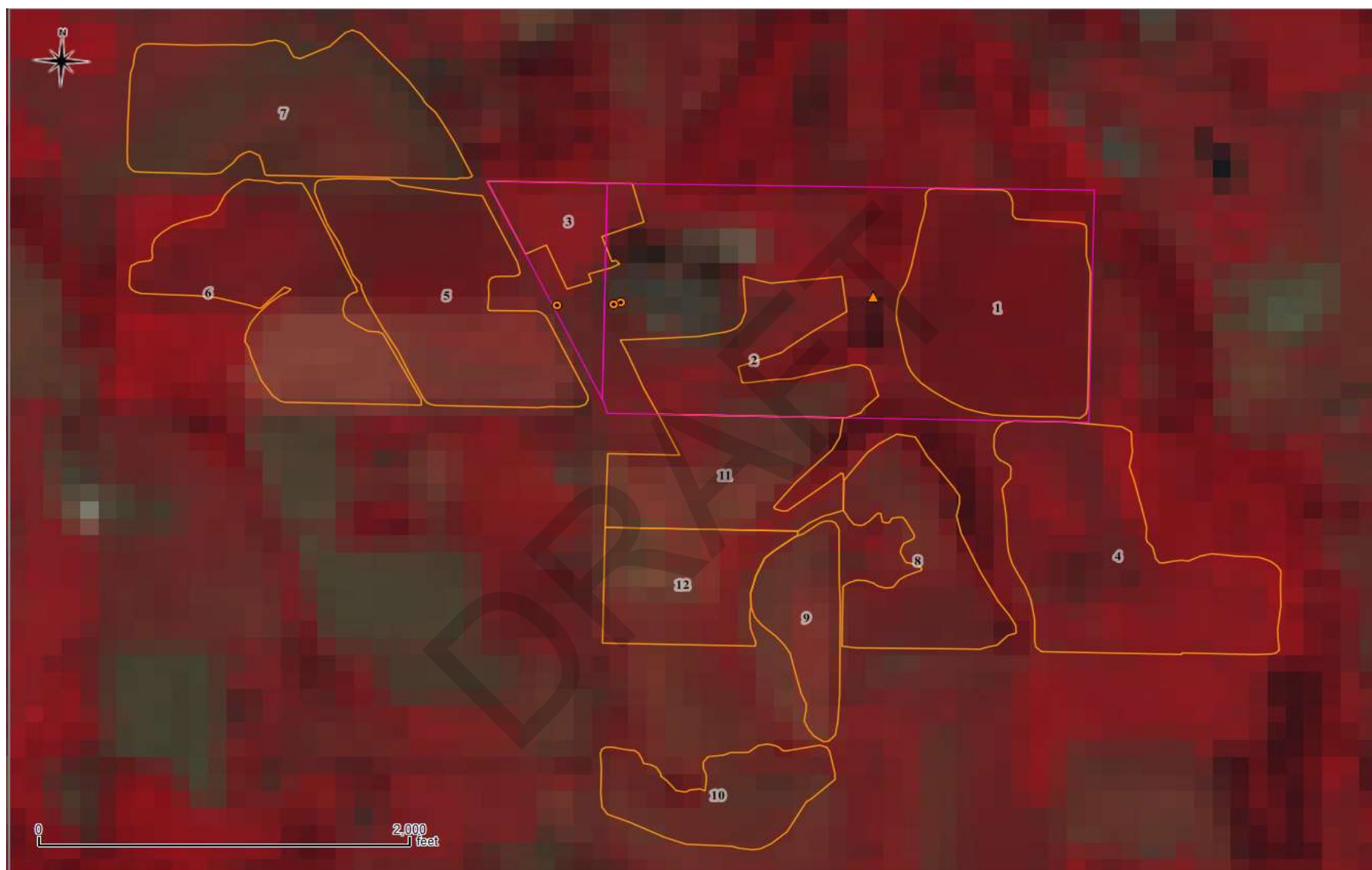


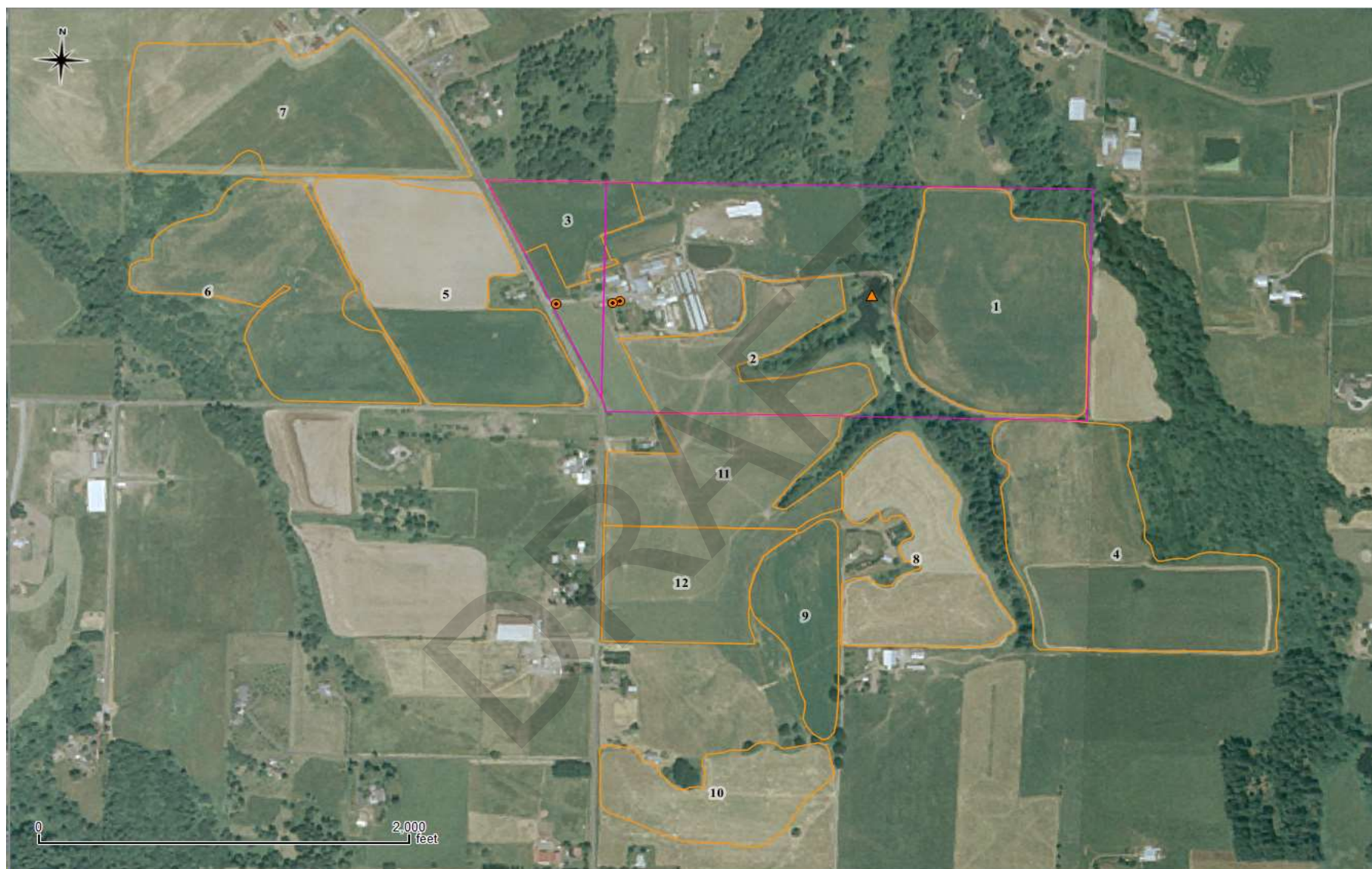


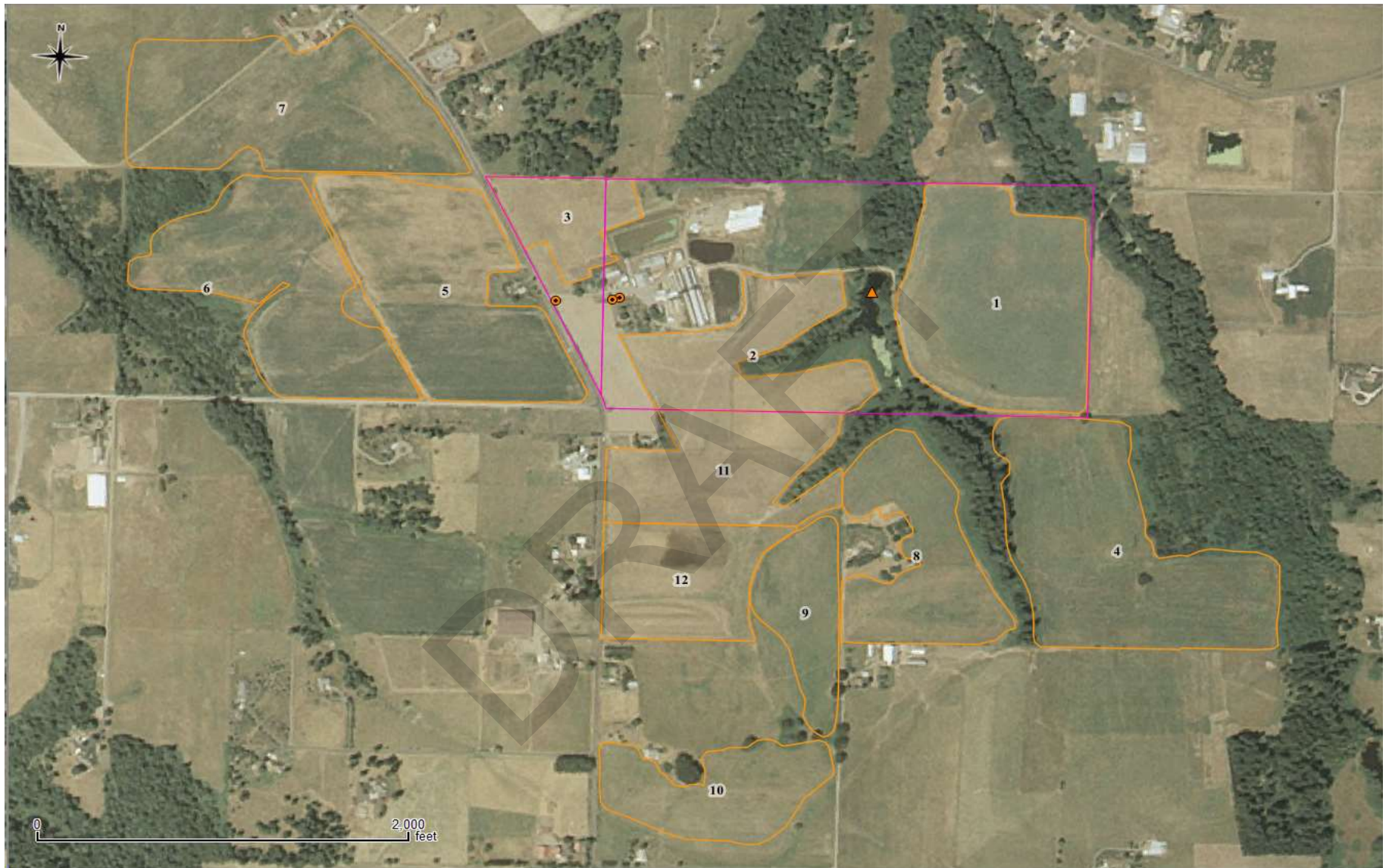


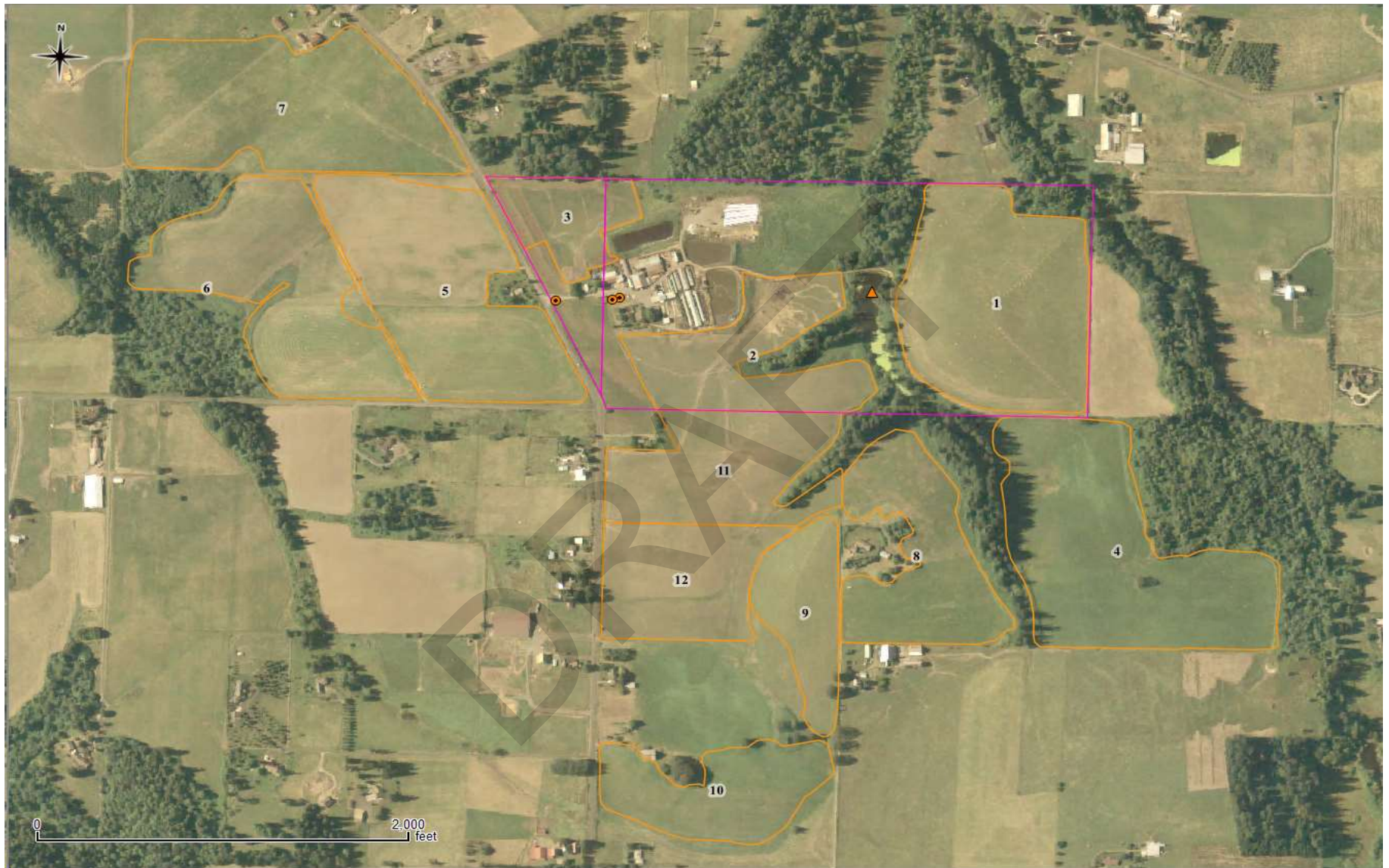


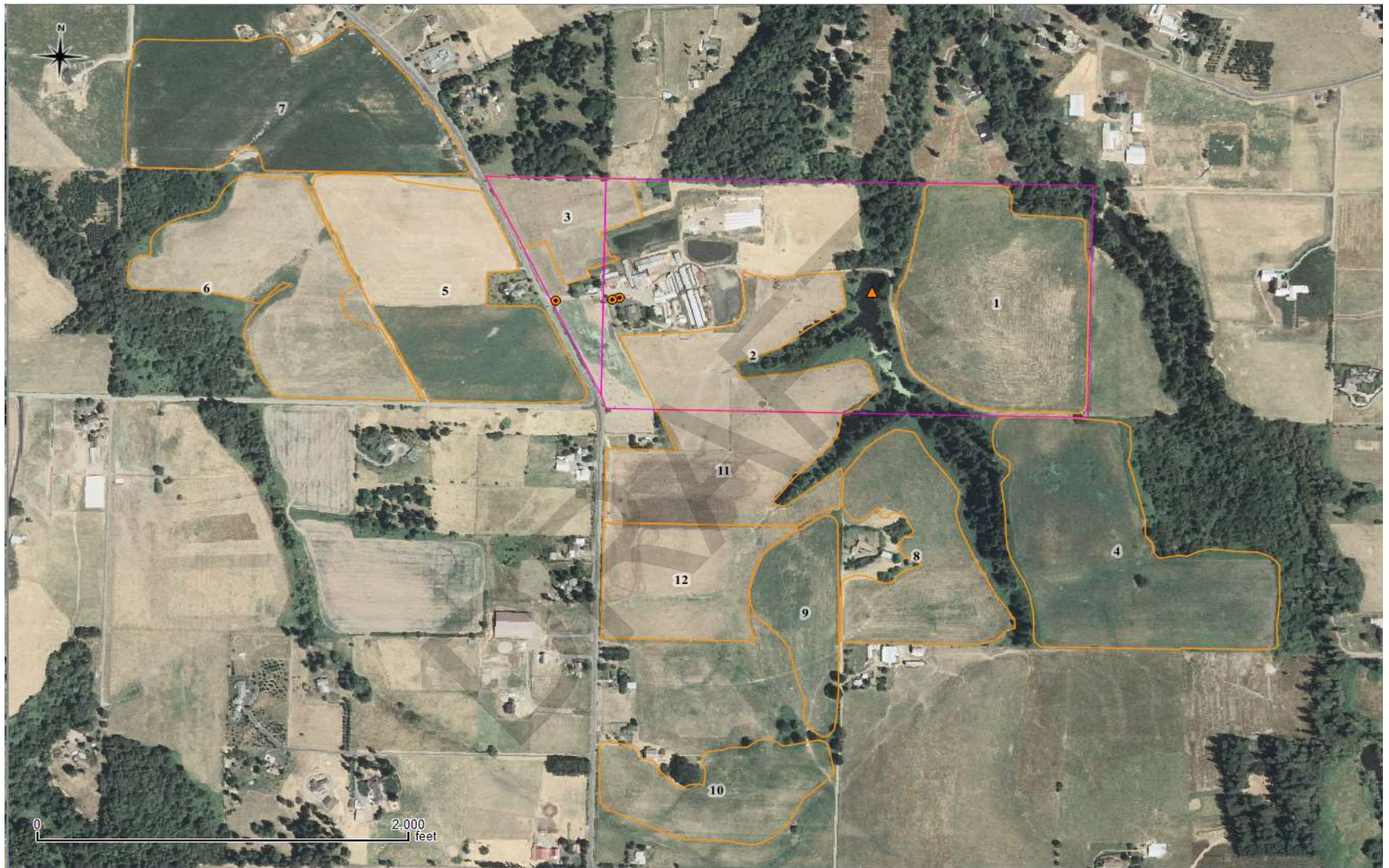


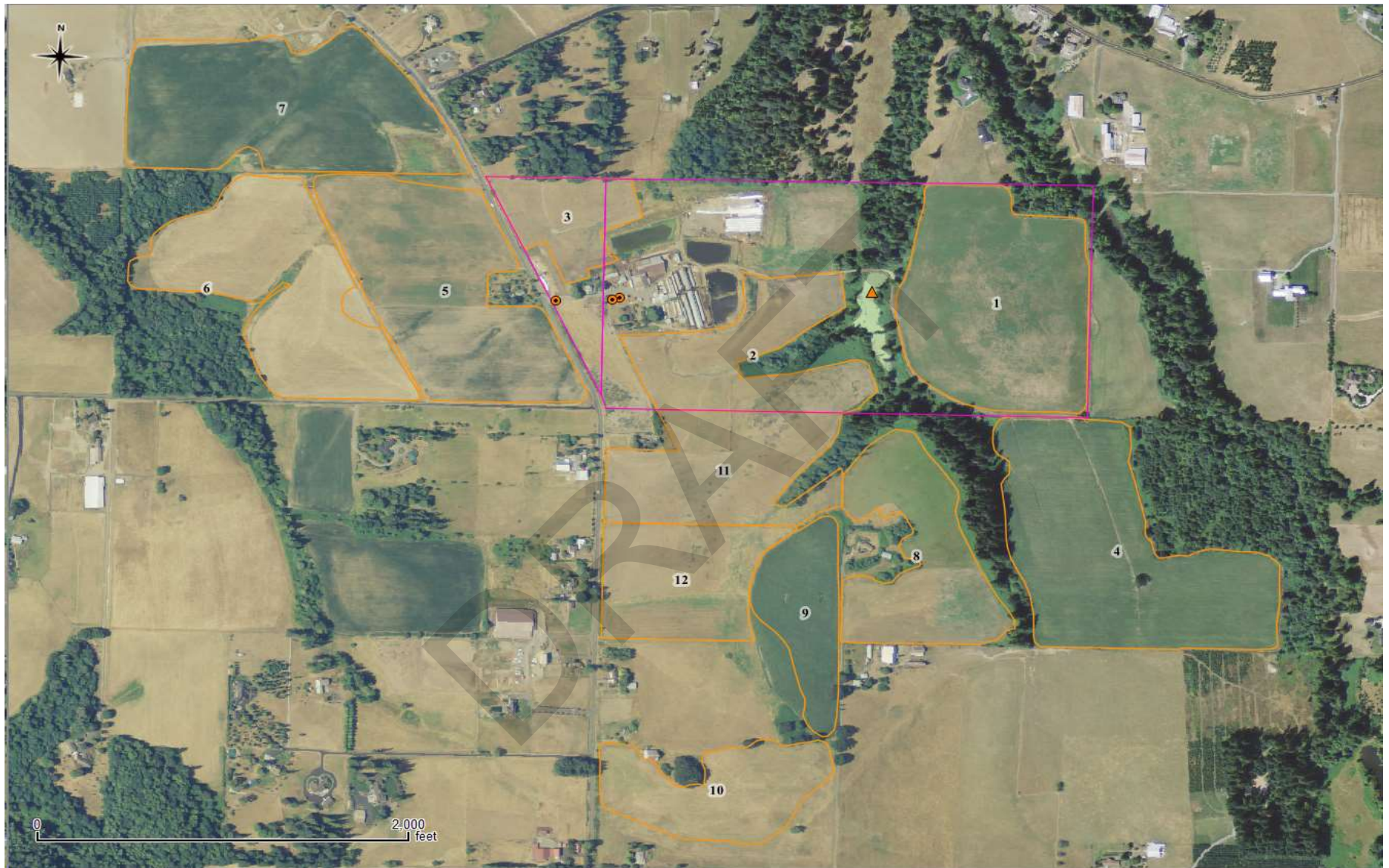




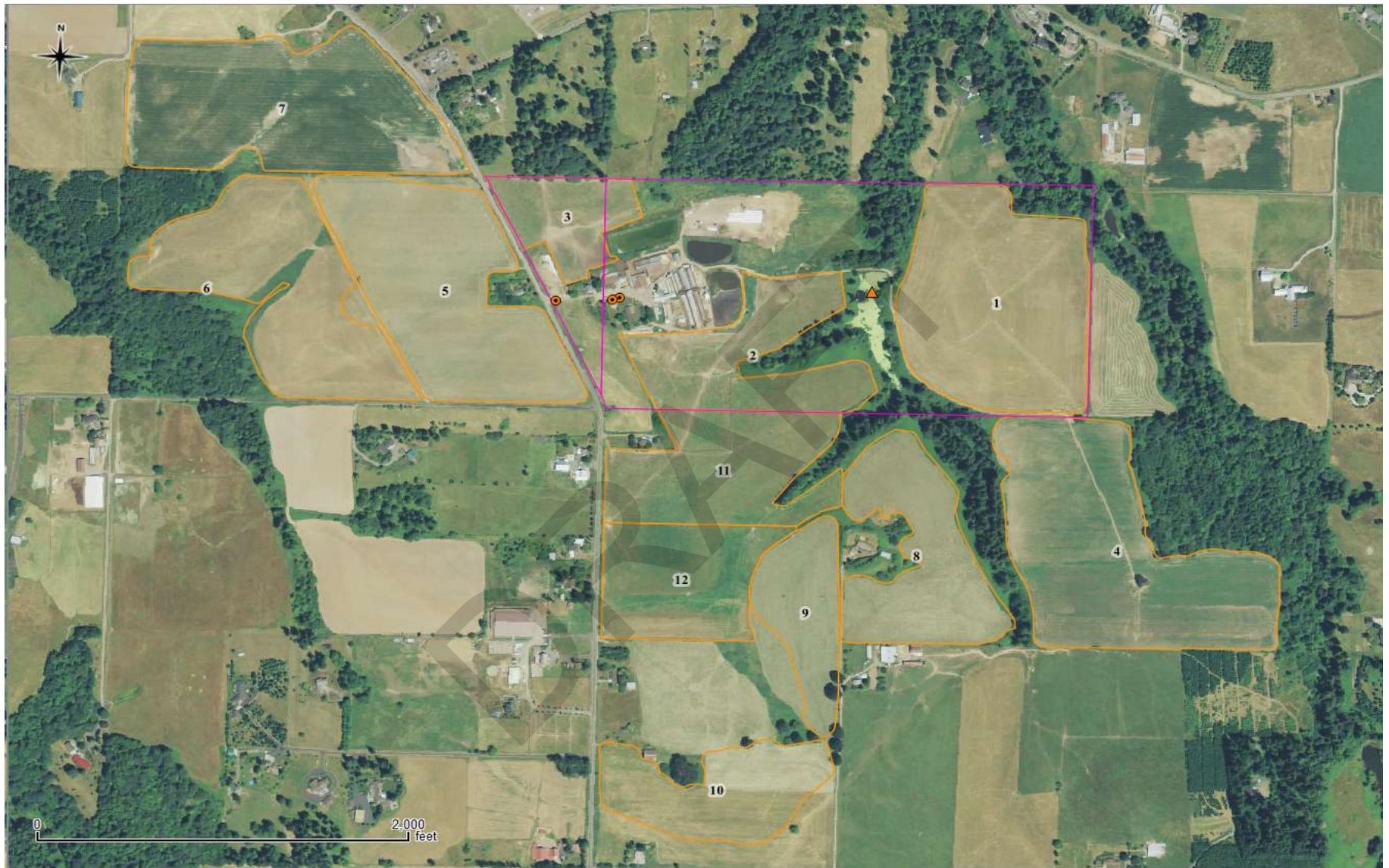


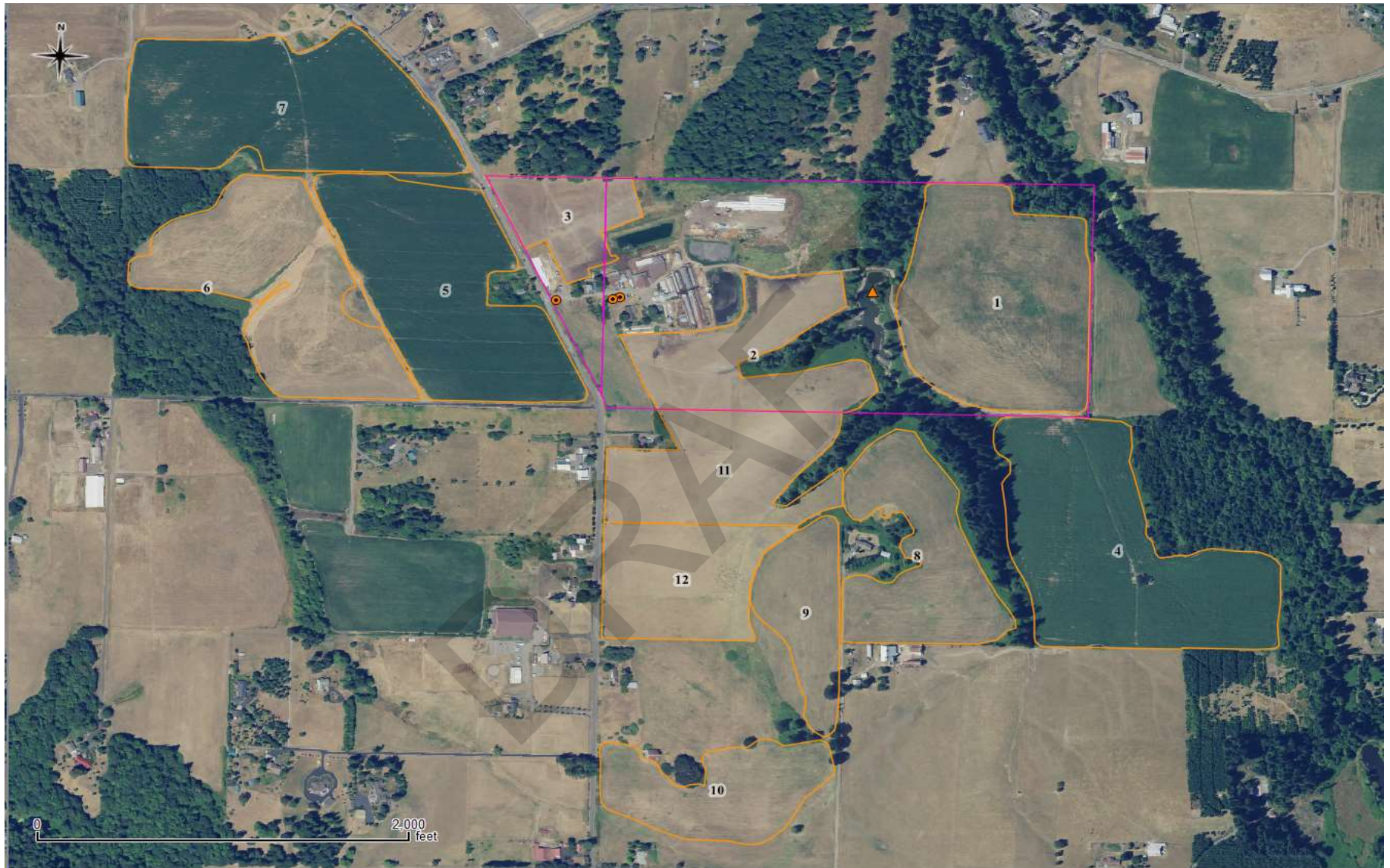














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ATTACHMENT E

Well Logs – City Wells

WATER WELL REPORT
STATE OF WASHINGTON

Application No.

Permit No.

(1) **OWNER:** Name City of Ridgefield Address Ridgefield, WA 98642
 (2) **LOCATION OF WELL:** County Clark SE NW 19 4 N. R. 1 W. 1/4
 Bearing and distance from section or subdivision corner

(3) **PROPOSED USE:** Domestic ☐ Industrial ☐ Municipal ☒
 Irrigation ☐ Test Well ☐ Other ☐

(4) **TYPE OF WORK:** Owner's number of well (if more than one) 7
 New well ☒ Method: Dug ☐ Bored ☐
 Deepened ☐ Cable ☐ Driven ☐
 Reconditioned ☐ Rotary ☒ Jetted ☐

(5) **DIMENSIONS:** Diameter of well 8 inches.
 Drilled 355 ft. Depth of completed well 195.3 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8 " Diam. from 2.35 ft. to 146 ft.
 Threaded ☐ " Diam. from ft. to ft.
 Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
 Type of perforator used
 SIZE of perforations in. by in.
 perforations from ft. to ft.
 perforations from ft. to ft.
 perforations from ft. to ft.

Screens: Yes ☒ No ☐
 Manufacturer's Name UOP Johnson
 Type Stainless Steel Model Pipe Size
 Diam. 5 Slot size 0.30 from 145.3 ft. to 166 ft.
 Diam. 5 Slot size 0.30 from 171 ft. to 186.2 ft.

Gravel packed: Yes ☒ No ☐ Size of gravel: Aqua 8
 Gravel placed from 129.5 ft. to 195 ft.

Surface seal: Yes ☒ No ☐ To what depth? 40 ft.
 Material used in seal cement
 Did any strata contain unusable water? Yes ☐ No ☒
 Type of water? Depth of strata
 Method of sealing strata off

(7) **PUMP:** Manufacturer's Name
 Type: HP

(8) **WATER LEVELS:** Land-surface elevation 43.8 ft. above mean sea level.
 Static level 19.83 ft. below top of well Date 6/11/86
 Artesian pressure lbs. per square inch Date
 Artesian water is controlled by (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
 Was a pump test made? Yes ☒ No ☐ If yes, by whom Carr/Assoc.
 Yield: 400 gal./min. with 41.35 ft. drawdown after 4 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
1 min	36.42	37	25.00	151	22.30
5	30.22	65	23.79	210	21.88
10	28.31	122	22.60	266	20.67

Date of test 6/5/86
 Bailor test gal./min. with ft. drawdown after hrs.
 Artesian flow g.p.m. Date
 Temperature of water Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Top Soil	0	2
Clay, gravel, sand	2	5
Gravel, cemented	5	14
Sand, gravel, clay	14	17
Gravel, sand, boulders, clay	17	22
Sand, black	22	28
Clay	28	28.9
Clay, gravel	29	32
Clay, sand, gravel	32	38
Sand, gravel	38	46
Sand, reddish brown gravel	46	55
Sand, blue brown red, gravel	55	64
Sand, brown, yellow, gravel	64	75
Sand, blue, brown	75	78
Sand, clay, yellow brown	78	80
Sand, yellow brown	80	93
Gravel	93	94
Clay, blue green	94	123
Clay, sandy, blue green	123	137
Sand, grey, water	137	143
Sand, brown, water	143	162
Sand, cemented, clay, dry	162	167
Sand, brown, water	167	187
Sand, wood	187	188
Rock, soft red	188	196
Clay, red	196	230
Clay, yellow brown, sand & gravel	230	270
Clay, brown, sand & gravel	270	285
Mudstone, dark brown	285	308
Clay, orange brown, sand & gravel	308	320
Sand, clay, some water	320	330
Clay, yellow, sand & gravel	330	340
Rock, basalt	340	355+

Work started 5-1, 19 86 Completed 6-6, 19 86

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Dale McGhee & Sons Well Drilling, I
 (Person, firm, or corporation) (Type or print)

Address 3032 Allen St., Kelso, WA 98626

[Signed] [Signature] (Well Driller)

License No. 0298 Date July 10, 19 86

(USE ADDITIONAL SHEETS IF NECESSARY)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

File Original and First Copy with
Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No.

Permit No.

(1) OWNER: Name City of Ridgefield Address Ridgefield, Wa 98642
(2) LOCATION OF WELL: County Clark — SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 19 T.4 N., R.1 W.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well 8
(if more than one) ...
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 212 ft. Depth of completed well 193 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8 " Diam. from +1.65 ft. to 153 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒

Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐

Manufacturer's Name UOP Johnson
Type stainless Steel Model No. Pipe Size
Diam. 5 Slot size 0.30 from 153 ft. to 184.5 ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☒ No ☐ Size of gravel: Agua 8
Gravel placed from 130.5 ft. to 193 ft.

Surface seal: Yes ☒ No ☐ To what depth? 40 ft.
Material used in seal cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: HP

(8) WATER LEVELS: Land-surface elevation 45 ft.
above mean sea level....
Static level 19.84 ft. below top of well Date 6/11/86
Artesian pressure lbs. per square inch Date
Artesian water is controlled by
(Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is
lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Carr/Assoc
Yield: 400 gal./min. with 42.5 ft. drawdown after 4 hrs.

Time	Water Level	Time	Water Level	Time	Water Level
1 min.	30.85	7	26.77	34	23.80
3	28.35	10	26.05	72	22.43
5	27.37	15	25.35	100	21.92

Date of test 6/11/86
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Top Soil	0	2
Clay, Brown	2	4
Gravel, Clay	4	14
Clay, Blue, Some gravel	14	32
Gravel, cemented	32	44
Sand, Brown, water	44	92
Sand, some water	92	106
Clay, Blue green	106	147
Clay, Sandy, Blue grey	147	149
Sand, Brown, water	149	188
Sand, Clay, Brown	188	197
Sand, Brown, water	197	207
Clay, Gravel, Sand, Grey	207	212

RECEIVED
JUL 14 11:29
S. W. RICHMOND W. H. H.

Work started 5-29, 1986 Completed 6-13, 1986

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Dale McGhee & Sons Well Drilling,
(Person, firm, or corporation) (Type or print)

Address 3032 Allen St., Kelso, WA 98626

[Signed] Dale McGhee
(Well Driller)

License No. 0298 Date July 10, 1986

(USE ADDITIONAL SHEETS IF NECESSARY)

File Original and First Copy with
Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No.

Permit No.

(1) OWNER: Name City of Ridgefield Address Ridgefield, WA 98642

(2) LOCATION OF WELL: County Clark SE 1/4 NW 1/4 Sec 19 T. 4 N. R. 1 W. 1

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well 9
(if more than one)....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 240 ft. Depth of completed well 208 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8 " Diam. from 1.2 ft. to 162 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒

Type of perforator used UOP Johnson
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐

Manufacturer's Name UOP Johnson
Type Stainless Steel Model Pipe Size
Diam. 5 Slot size 0.30 from 162.5 ft. to 199.5 ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☒ No ☐ Size of gravel: Aqua 208
Gravel placed from 141 ft. to 208 ft.

Surface seal: Yes ☒ No ☐ To what depth? 40 ft.
Material used in seal cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: HP

(8) WATER LEVELS: Land-surface elevation 46.5
above mean sea level...
Static level 19.7 ft. below top of well Date 6/11/86
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Carr/Asso
Yield: 400 gal./min. with 37.9 ft. drawdown after 24 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
1 min.	33.07	30	26.52	140	23.22
5	30.11	65	24.85	180	22.75
15	27.92	90	24.20	210	22.46

Date of test 5-23-86

Basin test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Top Soil	0	2
Clay, sandy	2	5
Gravel, clay, sand	5	13
Clay, sandy	13	21
Clay	21	206
Gravel, boulders	26	42
Sand, Gravel	42	51
Sand, Dark Brown	51	68
Sand, some gravel	68	73
Claystone, sandy, brown	73	76
Sand, brown, yellow, water	76	114
Clay, blue green	114	141
Sand, brown, some gravel	141	143
Clay, blue gray, hard	143	145
Clay, grey brown	145	149
Sand, Brown, small gravels	149	155
Sand, grey brown, dirty	155	165
Sand, brown, some gravel, water	165	205
Sand, brown, silty	205	215
Sand, brown, with wood	215	220
Sand, grey w/clay and wood	220	235
Clay, soft rock, red, dry	235	240

Work started 5-8, 1986. Completed 5-24, 1986

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Dale McGhee & Sons Well Drilling, Inc.
(Person, firm, or corporation) (Type or print)

Address 3032 Allen St., Kelso, WA 98626

[Signed] Dale McGhee
(Well Driller)

License No. 0298 Date July 10, 1986

(USE ADDITIONAL SHEETS IF NECESSARY)



WATER WELL REPORT

Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller

Construction/Decommission ("x" in circle)

☒ Construction

☐ Decommission ORIGINAL INSTALLATION Notice

266957 of Intent Number

PROPOSED USE ☐ DeWater ☐ Domestic ☐ Irrigation ☐ Industrial ☐ Test Well ☒ Municipal ☐ Other

TYPE OF WORK Owner's number of well (if more than one) 10
☒ New well ☐ Reconditioned Method ☐ Dug ☐ Bored ☐ Driven
☐ Deepened ☐ Cable ☒ Rotary ☐ Jetted

DIMENSIONS Diameter of well 1 inches, drilled 223 ft.
 Depth of completed well 135 ft.

CONSTRUCTION DETAILS

Casing ☒ Welded 12" Diam from +1.5 ft to 108.5 ft
 Installed ☐ Liner installed Diam from ft. to ft.
☐ Threaded Diam. from ft to ft

Perforations ☐ Yes ☒ No

Type of perforator used

SIZE of perfs in. by in. and no. of perfs from ft to ft.

Screens. ☒ Yes ☐ No ☐ K-Pac Location

Manufacturer's Name Johnson

Type V-wire Stainless Steel

Model No

Diam. 8 5/8 Slot size 28 from 109.2 ft to 129.7 ft

Diam. 8 5/8 Slot size 28 from 106.1 ft to 108.7 ft

Gravel/Filter packed ☒ Yes ☐ No Size of gravel/sand 16/30

Materials placed from 102 ft to 135 ft

Surface Seal ☒ Yes ☐ No To what depth? 18 ft

Material used in seal Bentonite Chips

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? Depth of strata

Method of sealing strata off

PUMP Manufacturer's Name

Type HP

WATER LEVELS Land-surface elevation above mean sea level ft

Static level 16 ft below top of well Date 7/6/07

Artesian pressure lbs per square inch Date

Artesian water is controlled by (cap, valve etc)

WELL TESTS Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes by whom?

Yield gal/min with ft drawdown after hrs

Yield gal/min with ft drawdown after hrs

Yield gal/min with ft drawdown after hrs

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time Water Level Time Water Level Time Water Level

Time Water Level Time Water Level Time Water Level

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CURRENT

Notice of Intent No. WE06634

Unique Ecology Well ID Tag No APP-678

Water Right Permit No G2-20381

Property Owner Name City of Ridgefield

Well Street Address East end of Division - Abrams Park

City Ridgefield County Clark

Location SW 1/4-1/4 NW 1/4 Sec 19 Twn 4 R 1 EWM or WWM ☒ circle one

Lat/Long (s, t, r) Lat Deg N 45 Lat Min/Sec 49'07"

Still REQUIRED) Long Deg W 122 Long Min/Sec 44'19"

Tax Parcel No 67888002

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation Describe by color, character size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY)

MATERIAL	FROM	TO
Brown silty sand	0	15
Gray glacial till	15	19
Gray cobbles, gravel, sand, small boulder, some water	19	53
Brown sand, some water, some gravel	53	57
Gray sandy silt, some pea gravel, wet	57	71
Blue-green sandstone	71	78
Blue-green silty sand, mica	78	88
Brown-gray sand, silt, water	88	101
Grayish-brown sand, some clay, some water	101	135
Light brown clay, some sand	135	151
Light brown clay, some gravel, some sand	151	153
Light brown sand, clay	153	156
Light brown clayey gravel, some sand	156	163
Red clay	163	166
Layered brown / red / gray clay, some sand	166	218
Broken weathered basalt, brown to gray clay	218	221
Black basalt	221	223

Two days of development, abandon bottom of hole with bentonite chips, 3' pea gravel 135'-138'

JUL 24 2007

Washington State

Department of Ecology

Job 07-1526-04

Start Date 05/30/2007

Completed Date 07/06/2007

WELL CONSTRUCTION CERTIFICATION I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Mark Wiese

Driller/Engineer/Trainee Signature

Driller or trainee License No 2432

Drilling Company Tacoma Pump & Drilling Co, Inc

Address 30316 Mountain Highway

City State Zip Graham, WA 98338

Contractor's

Registration No TACOMPD203PF

Date 07/16/2007

Ecology is an Equal Opportunity Employer

If TRAINEE,
 Driller's Licensed No
 Driller's Signature



WATER WELL REPORT

Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller

Construction/Decommission ("x" in circle)

☒ Construction

☐ Decommission ORIGINAL INSTALLATION Notice

266957 of Intent Number

PROPOSED USE: ☐ Domestic ☐ Industrial ☒ Municipal
☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other

TYPE OF WORK: Owner's number of well (if more than one)

☒ New well ☐ Reconditioned Method: ☐ Dug ☐ Bored ☐ Driven
☐ Deepened ☐ Cable ☒ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 1 inches, drilled 223 ft.
 Depth of completed well 135 ft.

CONSTRUCTION DETAILS

Casing ☒ Welded 12" Diam. from +1.5 ft. to 108.5 ft.
 Installed: ☐ Liner installed " Diam. from " ft. to " ft.
☐ Threaded " Diam. from " ft. to " ft.

Perforations: ☐ Yes ☒ No

Type of perforator used

SIZE of perfs in. by in. and no. of perfs from ft. to ft.

Screens: ☒ Yes ☐ No ☐ K-Pac Location

Manufacturer's Name Johnson

Type V-wire Stainless Steel

Model No.

Diam. 8 5/8 Slot size 28 from 109.2 ft. to 129.7 ft.

Diam. 8 5/8 Slot size 28 from 106.1 ft. to 108.7 ft.

Gravel/Filter packed: ☒ Yes ☐ No ☐ Size of gravel/sand 16/30

Materials placed from 102 ft. to 135 ft.

Surface Seal: ☒ Yes ☐ No To what depth? 18 ft.

Material used in seal Bentonite Chips

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? Depth of strata

Method of sealing strata off

PUMP: Manufacturer's Name

Type: H.P.

WATER LEVELS: Land-surface elevation above mean sea level ft.

Static level 16 ft. below top of well Date 7/6/07

Artesian pressure lbs. per square inch Date

Artesian water is controlled by (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom?

Yield: gal/min. with ft. drawdown after hrs.

Yield: gal/min. with ft. drawdown after hrs.

Yield: gal/min. with ft. drawdown after hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test

Bailer test gal/min. with ft. drawdown after hrs.

Airtest 100 gal/min. with stem set at 110-130 ft. for 9/8 hrs.

Artesian flow g.p.m. Date

Temperature of water Was a chemical analysis made? ☐ Yes ☒ No

CURRENT

Notice of Intent No. WE06634

Unique Ecology Well ID Tag No. APP-678

Water Right Permit No. G2-20381

Property Owner Name City of Ridgefield

Well Street Address East end of Division - Abrams Park

City Ridgefield County Clark

Location SE 1/4-1/4 NW 1/4 Sec 19 Twn 4 R 1 EWM ☒ circle
 or WWM ☐ one

Lat/Long (s, t, r) Lat Deg Lat Min/Sec

Still REQUIRED) Long Deg Long Min/Sec

Tax Parcel No. 67888002

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Brown silty sand.	0	15
Gray glacial till.	15	19
Gray cobbles, gravel, sand, small boulder, some water	19	53
Brown sand, some water, some gravel.	53	57
Gray sandy silt, some pea gravel, wet.	57	71
Blue-green sandstone.	71	78
Blue-green silty sand, mica.	78	88
Brown-gray sand, silt, water.	88	101
Grayish-brown sand, some clay, some water.	101	135
Light brown clay, some sand.	135	151
Light brown clay, some gravel, some sand.	151	153
Light brown sand, clay.	153	156
Light brown clayey gravel, some sand.	156	163
Red clay.	163	166
Layered brown / red / gray clay, some sand.	166	218
Broken weathered basalt, brown to gray clay.	218	221
Black basalt.	221	223

Two days of development; abandon bottom of hole with bentonite chips; 3' pea gravel 135'-138'.

JUL 24 2007

Washington State

Department of Ecology

Job 07-1526-04

Start Date 05/30/2007

Completed Date 07/06/2007

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Mark Wiese

Driller/Engineer/Trainee Signature

Driller or trainee License No. 2432

If TRAINEE,

Driller's Licensed No.

Driller's Signature

Drilling Company Tacoma Pump & Drilling Co., Inc.

Address 30316 Mountain Highway

City, State, Zip Graham, WA 98338

Contractor's

Registration No. TACOMPD203PF

Date 07/16/2007

Ecology is an Equal Opportunity Employer.

WATER WELL REPORT

Application No.

STATE OF WASHINGTON

Permit No.

(1) OWNER: Name Port of Ridgefield Address P.O.Box 55 Ridgefield, WA 98642
(2) LOCATION OF WELL: County Clark — NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 21 T. 4 N. R. 1E W.M.
Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 5 inches.
Drilled 460 ft. Depth of completed well 458.4 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 8 " Diam. from 0 ft. to 326.3
Threaded ☐ 5 " Diam. from 300 ft. to 458.4 ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☐
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name UOP-Johnson
Type 304 SS Model No. 326.3 342
Diam. 5 ps Slot size 0.030 from 326.3 ft. to 342 ft.
Diam. Slot size from 357.3 ft. to 377.8 ft.

Gravel packed: Yes ☒ No ☐ Monterey #8
Gravel placed from 306 ft. to 460 ft.

Surface seal: Yes ☒ No ☐ To what depth? 41.7 ft.
Material used in seal Bent-Cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: HP

(8) WATER LEVELS: Land-surface elevation approx. 250
212.7 ft. above mean sea level. 7/9/85 ft.
Static level ft. below top of well Date
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? J. R. Carr/Assoc.
Yield: 330 gal./min. with 20.2 ft. drawdown after 24 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
2 min	217.1	11	216.5	60	215.74
3 min	216.87	25	216.11	200	215.41
5.5	216.84	45	215.87		

Date of test 7/9/85
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water 53.5 Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

	FROM	TO
Sandy Topsoil		
Sandy Topsoil	0	14
Clay	14	25
Brown Sandy Clay	25	45
Brown Silty Sand	45	62
Silty Sand & Gravel	62	81
Sand & Gravel	81	171
Brown-Orange Sand fn-crs	171	225
Gray Sand, minor gravel	225	230
same w/layers Blue Clay	230	235
Blue Clay, minor gravel	235	255
Green Clay, minor gravel	255	265
Blue Clay	265	275
Sandy Clay, fn-micaceous sand	275	285
Clayey Sand, micaceous	285	300
Brown Silty Sand	300	305
same w/Wood chips	305	315
Gray-Blue Sand, minor gravel	315	360
same w/Wood chips	360	370
Gray-Blue Sand, minor gravel	370	395
Silty Sand w/Wood chips	395	399
Sand & Gravel	399	420
Silty Sand, fn Gray	420	435
same w/ MONTEREY gravel	435	450
Silty Sand, fn Gray	450	458
Blue Clay, Sand, Gravel	458	460

Note: Cable Tool String & SWAB tool
Buried and filled with
monterey sand to 408 feet.

Work started 6/12 1985 Completed 7/18 1985

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Hansen Drilling Co. Inc.
(Person, firm, or corporation) (Type or print)

Address 6711 NE 58th Ave. Vancouver WA

0455 Marvin Sample
[Signed] Marvin Sample
(Well Driller)

License No. C-51 Date July 28 1985

223-02HA-NS-ED-*377NT

(USE ADDITIONAL SHEETS IF NECESSARY)

Report

City of Ridgefield Groundwater Source Development Report

Prepared for
City of Ridgefield, Washington

August 2019

Prepared by



In Cooperation with
Murraysmith, Inc.
McCormick Water Strategies, LLC



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Appendix A Well Logs

Appendix B City of Ridgefield Source Water Availability Assessment – McCormick Water Strategies, LLC.

Executive Summary

The City of Ridgefield (City) is pursuing development of additional groundwater supply sources and acquisition of new municipal water rights to meet projected growth and future water demand needs. The City's 2013 Water System Plan Update estimates that the City will have an instantaneous (Q_i) municipal supply demand rate of more than 4,000 gallons per minute (gpm), equivalent to roughly 5.8 million gallons per day (mgd), and an annual withdrawal volume (Q_a) need of more than 2,600 acre-feet within the next 20 years. The current production capacity of the City's five existing wells is approximately 1,435 gpm, or roughly two million gallons per day (mgd). The total production capacity of the wells and City's existing water right allowances are not sufficient to meet the long-term demand projections. Additional water rights and source capacity will be needed to meet these growth projections.

This report includes a summary of the hydrogeologic evaluation which was used to identify potential groundwater source locations, a review of water availability, an evaluation water right permitting considerations, and provides planning-level cost estimates for developing additional groundwater sources to meet the City's increasing demand. The City recognizes that groundwater development of between four and six wells likely represents a short-term solution to meeting incremental growth demands. In order to help the City with long-range decision making, planning-level cost estimates to develop groundwater sources are provided so that these costs may be compared to the cost of connecting to the Clark Public Utilities' (CPU) Paradise Point regional water supply system at some point in the future.

This alternative source evaluation focused on the western and southern portions of Ridgefield, in close proximity to Lake River and the Columbia River. The City identified several potential groundwater development sites that are currently owned by the City or other government entities (such as Clark County). Seven sites were included in this evaluation (Figure 1) and are grouped into the following three geographic areas, collectively referred to as the Study Area:

- Port Area: Area northwest of downtown Ridgefield, which includes the location of decommissioned City Wells 5 and 6.
- Downtown Area: Proposed City park near downtown, and a parcel near the entrance to the Ridgefield National Wildlife Refuge (RNWR).
- South Area: Southern areas of Ridgefield, at a planned subdivision (Teal Crest), an existing lift station property, the Kennedy Farms parcel, and land currently owned by Clark County.

The South Area emerged as the best candidate option for future groundwater development. The Teal Crest and Kennedy Farms development sites appear to be capable of supporting an estimated four to six wells, totaling an estimated 1,200 to 1,800 gpm, equivalent to approximately 1.7 to 2.6 mgd. Additional development in the South Area may be possible

on land currently owned by Clark County, though access to and use of the site would need to be authorized by the County.

Current development at the Teal Crest location presents slightly more of a challenge for siting and supplying the necessary infrastructure to a well source than the undeveloped Kennedy Farms location (i.e., pavement and roads have already been constructed at Teal Crest, which would need to be cut to install water and power to the well locations). If the City does move forward with groundwater development at the Teal Crest site, one of the parcels likely needs to be purchased to secure a well location that would meet setback requirements for municipal drinking water supply wells.

Surface water, opposed to groundwater as a source of drinking water supply, was also identified as a potential development option. Findings indicate that the Columbia River and Lake River are open for appropriation and water rights are currently available from these sources in the Ridgefield area. The feasibility and costs for developing a surface water source option however, were not evaluated as part of this effort. We recommend moving forward that the City evaluate the feasibility and costs of a surface water intake from either Lake River or the Columbia River. Water from either source is physically and legally available without the need to mitigate for potential impacts to existing users. Factors to consider for surface water feasibility assessment include water quality and treatment costs, infrastructure needs, and permitting through other agencies (e.g., Washington Department of Fish and Wildlife).

Introduction and Water System Background

The City is interested in pursuing development of additional groundwater supply sources and acquisition of new municipal water rights to meet projected growth and future water demand needs. The City currently obtains its water supply from five municipal wells (shown on Figure 1). Four wells (Wells 7, 8, 9, and 10) are located in Abrams Park on the floodplain of Gee Creek canyon. The fifth well (Junction Well) is located approximately two miles east of downtown Ridgefield near Interstate 5. The current production capacity of these five wells totals approximately 1,435 gpm, or roughly two million gallons per day (mgd). The City previously had access to five other municipal wells, although four have been decommissioned (Wells 1, 2, 5 and 6) and the remaining well (Well 3) is currently inactive and serves as emergency supply source. The City's existing wells are completed in water-bearing sediments of the Sand and Gravel Aquifer (SGA) unit within the Portland Basin.

The 2013 Water System Plan Update estimates that the City will have an instantaneous (Q_i) municipal supply demand of more than 4,000 gpm (or roughly 5.8 mgd) and an annual withdrawal volume (Q_a) need of more than 2,600 acre-feet within the next 20 years. The total production capacity of the wells and City's existing water right allowances ($Q_i = 2,275$ gpm and $Q_a = 1,445$ acre-feet, which include the Junction Well water right permit G2-29174) are not sufficient to meet the long-term demand projections.

Based on the long-term projected shortfall, this report has been prepared to provide planning-level cost estimates for developing additional groundwater sources to meet the City's increasing demand. The City recognizes that groundwater development of between four and six wells likely represents a short-term solution to meeting increased demands.

Objectives

The overall objectives of this project are to identify locations with the potential for developing additional municipal groundwater supply sources and acquiring new municipal water rights to support projected demands. One of the primary goals for the City is to identify potential groundwater sources that are available for appropriation without the need for mitigation. Another objective is to provide planning-level cost estimates to develop groundwater sources, so that the City can evaluate whether a possible intertie with CPU is a cost-effective alternative for long-term water supply.

Approach and Evaluation Methods

This desktop evaluation is the result of a review of existing hydrogeologic information, including well logs and prior groundwater studies in the Ridgefield area. The primary factors that determine which locations could potentially support groundwater source expansion include: aquifer yield, water quality, infrastructure needs, land ownership, and water rights permitting.

This evaluation focused on developing groundwater on the western and southern portions of the City. Based on water right permitting of the City's Junction Well, the likelihood for needing to provide mitigation to offset potential impacts to surface water bodies from pumping groundwater increases for development areas that are closer to the East Fork Lewis River (shown on Figure 1). The potential need for surface water mitigation decreases westward because water is physically and legally available for appropriation from Lake River and the Columbia River. Therefore, this evaluation focused on several potential groundwater development sites closer to Lake River that are currently owned by the City or other government entities (such as Clark County). Of the numerous government-owned parcels within and surrounding Ridgefield, the City selected seven parcels as the focus this evaluation (Figures 1 and 2). These seven sites are grouped into the following three geographic areas, collectively referred to as the Study Area:

- **Port Area:** This area is northwest of downtown Ridgefield, and includes the locations of decommissioned City Wells 5 and 6.
- **Downtown Area:** This area includes a proposed City park near downtown and a parcel near the south entrance to the Ridgefield National Wildlife Refuge (RNWR).
- **South Area:** South of downtown Ridgefield, a planned subdivision (Teal Crest), an existing lift station property, the Kennedy Farms parcel, and land currently owned by Clark County are were all potential sites evaluated in this area.

The evaluation focused on the physical and legal availability of groundwater and used several factors to develop a ranking of candidate sites. The ranking is intended to guide the development of conveyance and treatment cost estimates, and the selection of potential sites recommended for future groundwater expansion and/or further investigation. Each potential site was evaluated relative to the following siting factors to identify benefits, risks and key uncertainties:

- Proximity to existing and future infrastructure (i.e., where the City anticipates growth and demand).
- Legal availability of water and ability to secure a new water right, ideally without the need for mitigation.
- Favorable hydrogeologic conditions (i.e., physical availability of water).
- Developable area for supply wells (i.e., meets sanitary control area needs and minimum setback requirements).
- Resource protection (i.e., proximity to known or suspected sources of contamination).
- General groundwater quality.

Regional Geology and Hydrogeology

This section summarizes the geologic and hydrogeologic setting of the Study Area. Surficial geology and mapped geologic structures are shown on Figure 2. General descriptions of the hydrogeologic units are based on well log descriptions and prior reports. General construction information for the wells shown on Figure 2 is summarized in Table 1 and well logs are included in Appendix A.

Hydrogeologic Setting

The City is located in the northern portion of the Portland Basin, a northwest-southeast trending topographic and structural depression bounded by volcanic and sedimentary bedrock. The basin is approximately 40 miles long and 20 miles wide, and filled by up to 1,800 feet of consolidated and unconsolidated sediments.

Hydrostratigraphic Units

The regional geologic and hydrogeologic framework for the area was first developed by Mundorff (1964), with more recent investigations and mapping conducted by Swanson et al. (1993), Pacific Groundwater Group (2003), Evarts (2004), and Golder Associates (2007; 2008). The hydrostratigraphic framework beneath the City is described by more recent site-specific studies conducted by Golder Associates (2007; 2008). From the surface downward, the hydrostratigraphic units present in the area include:

- **Quaternary Alluvium (Qa)** – The recent alluvial material deposited along surface water features is not considered a target aquifer source, due to its limited saturated thickness and lateral extent. This unit however, may provide recharge to underlying aquifer units where the low-permeability Pleistocene Alluvial Deposits and Upper or Lower Confining Units are absent.
- **Pleistocene Alluvial Deposits (Qfs)** – Undifferentiated sediments associated with flood deposits of the Columbia River. Well logs indicate that the Pleistocene deposits are predominantly unconsolidated with thicknesses that generally range between 50 and 200 feet in the surrounding area, and composed of sediments ranging from boulders to clay. Well logs in the vicinity of the Study Area indicate that this unit is predominantly clay.
- **Upper Troutdale Aquifer (QTc)** – The aquifer ranges between 50 and 100 feet thick and is largely composed of sand and gravel. Zones of silt and clay and partially-cemented coarse sands and gravels noted on local well logs limit the groundwater transmissivity of this unit. Wells completed in this aquifer typically yield less than 100 gpm and are mainly for domestic supplies.
- **Upper Confining Unit** – Composed of low-permeability sediments of silt and clay. This unit typically underlies the Upper Troutdale Aquifer. Based on the available well logs however, the Upper Confining Unit appears to be discontinuous or absent

in the vicinity of the City's Abrams Park well field wells (Wells 7-10; Figure 1). Its presence is noted in areas along the southwest portion of the City and in the vicinity of Gee Creek. Where present, the unit ranges up to approximately 50 feet thick. This unit is not a target aquifer source.

- **Lower Troutdale Aquifer** – Composed predominately of sand with interlayers of sand and silt. The aquifer ranges in thickness between approximately 20 and 100 feet. Where present, the Lower Troutdale Aquifer is typically confined and overlain by the Upper Confining Unit. In areas where the Upper Confining Unit is absent however, the Lower Troutdale Aquifer is directly overlain by the Upper Troutdale Aquifer. Well yields in this unit vary widely by location, but within the Study Area, generally produce less than 100 gpm.
- **Lower Confining Unit** – Composed predominantly of clay with some sand and gravel, ranging between approximately 20 and 100 feet thick. Well logs indicate that the Lower Confining Unit is generally present within the Study Area. This confining unit is not a target aquifer source.
- **Sand and Gravel Aquifer (SGA)** – Also referred to as Sandy River Mudstone, this aquifer is confined due to the overlying Lower Confining Unit and primarily composed of sand, sandy gravel, and silt, though it also contains some cemented sand and gravel layers, and silt and clay interbeds. The SGA exists over a broad area throughout the Portland Basin. Locally, the top contact of the SGA is typically found at depths of roughly 130 to 300 feet and is between approximately 60 and 160 feet thick in the vicinity of Abrams Park and the City's Junction Well. Relatively few wells penetrate the SGA in the Study Area and groundwater development within the SGA is primarily by public water-supply systems. The City's Junction Well and Abrams Park well field wells are completed in this aquifer. Well yields are reported to range from 15 to almost 400 gpm.
- **Columbia River Basalt Group (CRBG)** – Bedrock underlying the sedimentary deposits in the northwest portion of the Study Area is composed of dense volcanic rock (basalt) of the Columbia River Basalt Group (CRBG). Basalt was encountered at a depth of 200 feet bgs in a well drilled at the RNWR (well ID 256468), and at approximately 340 feet in the City's Well 7 (well ID 1043). The RNRW well log indicates the presence of elevated iron associated with groundwater produced from the basalt. Geologic mapping (Evarts 2004) indicates that this unit of the CRBG is limited in thickness and extent, and is not present under most of the Study Area. Although wells completed in the CRBG elsewhere (i.e., Beaverton, Tigard, Salem, etc.) can have high yields, the CRBG is not considered a priority target aquifer in the Study Area due to water quality concerns, unknown productivity, and likely limited extent.
- **Volcanic Bedrock** – Underlying the SGA for the majority of the Study Area is bedrock consisting of lava units formed during the Eocene (34 to 56 million years ago). This unit consists of subaerial lava flows interbedded with volcanoclastic rocks that formed in a volcanic arc environment (Evarts 2004). None of the wells reviewed to the south of the City encountered volcanic bedrock (at depths of up to 400 feet

bgs). This unit is not considered a potential aquifer source due to the high degree of uncertainty associated with depth, thickness, water quality, and productivity.

Structural Features

Low-lying QTc hills located approximately 4-6 miles southeast of downtown Ridgefield (Figure 2) may indicate the presence of an underlying geologic structural feature. Mundorff (1964) and Swanson et al. (1993) interpreted the feature as a north-northwest-trending anticline. Snyder et al. (1993) however, associate the shallow hills with dome-like aeromagnetic highs and suggest they were formed by uplift from the intrusion of basalt sills or small basalt laccoliths into the overlying basin-fill sediments.

Mapped along the northeast flank of the inferred anticlinal feature described in the paragraph above and trending in a similar north-northwest direction is an inferred reverse fault (Evarts 2004; Figure 2). The fault is projected to extend across the Ridgefield quadrangle from Lancaster Lake located north of Ridgefield to Lacamas Lake in Camas, Washington to the southeast. Geologic cross-sections by Evarts (2004) illustrate some displacement along the fault near Lancaster Lake where basin-fill sediments are juxtaposed at the surface against Grande Ronde Formation of the CRBG. No offsetting of underlying geologic units however, are shown along the fault to the southeast.

Groundwater and Surface Water Regime

Groundwater in the shallow and unconfined aquifers is primarily recharged through precipitation and discharges to the many small surface water tributaries within the Study Area (e.g., Gee Creek, Teal Creek, Flume Creek, and others). Groundwater in the deeper, confined aquifers is likely recharged through leakage from overlying deposits where confining units are absent, and/or from incised surficial drainage where the units crop out at the surface up-gradient from the Study Area. Groundwater within the deeper units discharges to the Columbia River and/or the East Fork Lewis River. A potentiometric surface for the SGA developed by Golder (2008) shows that groundwater movement through the SGA in the Ridgefield area flows toward the Columbia River and Lake River. The potentiometric map suggests the presence of a groundwater divide, with groundwater within the SGA to the north of the City's Junction Well, and to the northeast of the City flowing north-northwest to the East Fork Lewis River. Areas to the south of the City flow southwest and west to Lake River and the Columbia.

Along the western portion of Ridgefield, hydrogeologic units that are in connection with Lake River and the Columbia River include the Pleistocene alluvial deposits and the upper portion of the Upper Troutdale Aquifer. These units are likely tidally influenced where in direct connection with the Columbia River. The lower portions of the East Fork Lewis River and the smaller tributaries are also likely tidally influenced near the convergence with the Columbia River (or Lake River).

Very little information is available regarding the interaction between surface water features and the deeper groundwater system in the Study Area. Golder (2008) performed an aquifer test at the Junction Well (completed in the SGA) during the water right permitting process. After pumping for three days, no hydraulic response was observed in the Lower Troutdale Aquifer, alluvial deposits, or surface water features. Results from a streamflow depletion model determined that pumping the Junction Well would have an impact to the lower

reaches of the East Fork Lewis River between a range of 40 and 160 gpm. The City offset the impact through 100 percent habitat related mitigation.

Groundwater Quality

The City currently treats water produced from the Junction Well for iron and manganese. The quality of the water produced from the Abram's Park wells is sufficient quality that only disinfection is required. Apart from the City's wells, very little is known about the water quality of the groundwater systems within the Study Area. Information included on domestic water wells completed within the sedimentary units indicate that iron is present at concentrations ranging from 0.1 to 6 milligrams per liter (mg/L).

The provenance of the lithology that composes the Troutdale Formation and SGA is the Cascade volcanics, which are rich in iron and manganese. Consequently, other municipalities with production wells completed in the Troutdale aquifer (Upper and/or Lower Troutdale) and SGA have varying concentrations of iron and manganese in their raw groundwater. High iron concentrations have also been observed in the basalt well drilled on the RNWR property. Under the right conditions, these metals can become a food source for bacteria, which can result in biofouling of water supply wells. Even when concentrations of iron and manganese are below the secondary maximum concentration limits (SMCLs), these constituents can cause aesthetic issues and municipalities frequently treat water containing iron and manganese. There are no enforceable limits on secondary contaminants.

Inventory of Potential Contaminants

The Washington Department of Ecology's (Ecology) Cleanup Site database identifies several properties within and near the downtown area. A review of these properties was conducted to identify the nature of contamination and the status of cleanup efforts. Eight locations with former or current contamination (concentrations of constituents in soil or groundwater that exceed cleanup levels) are shown on Figure 3 and summarized in Table 2. A summary of water quality information is included in the discussion for each of the three general areas considered for future groundwater source expansion.

Water Rights Evaluation

This section summarizes findings from a review of watershed planning documents, instream flow rules, salmonid distribution data, and salmon recovery plans to identify general areas of opportunities for legal and physical water availability for water rights permitting within Water Resources Inventory Areas (WRIA) 27 and 28 and near the City. Details of the findings are provided in a memorandum provided in Appendix B.

This water rights evaluation seeks to broadly guide the City's water supply source development over the next 20 years to meet a projected water demand in excess of 4,000 gpm, or approximately 2,655 acre-feet/year. Further water rights analyses and well drilling and testing will be required at candidate groundwater development sites to further evaluate groundwater-surface water hydraulic continuity and to determine the actual legal and physical water availability at each site. Site-specific preliminary water rights analysis would be based on a water right pre-application submission and consultation with Ecology.

Water Rights Permitting and the Four-Part Test

Under state law, water rights permitting is administered by Ecology under Chapter 90.03 RCW for surface water and Chapter 90.44 RCW for groundwater. Both surface and groundwater appropriation rely on the appropriation procedure, known as the Four-Part Test, as outlined and defined in Chapter 90.03 RCW, Hillis 1997, and Kittitas 2011. The Four-Part Test is as follows:

1. That the use be for a beneficial purpose
2. That the use be in the public interest
3. That water be available for the appropriation (physical water availability)
4. That the proposed use not impair existing water rights (legal water availability)

Since the City's municipal use is a well-documented beneficial use and in the public's interest, the remainder of this assessment focuses on the legal and physical availability of water (Parts 3 and 4). Legal water availability has been interpreted as whether the water right has been previously allocated to another user(s), or whether it is required to sustain instream resources (i.e., fish and wildlife). Physical water availability has been interpreted as a measure of whether water is available in sufficient quantities to satisfy the proposed use.

Source Water Region

Ridgefield is located within both the WRIA 27 Lewis Basin and the WRIA 28 Salmon-Washougal Basin (Figure 2). Within WRIA 27 and 28, Ridgefield is positioned in three Subbasins: the East Fork Lewis and Lower Lewis Subbasins of WRIA 27, and the Salmon Subbasin of WRIA 28 (Figure 2; Appendix B). Prominent Columbia River tributaries within and adjacent to the municipal boundary of Ridgefield include: Lake River, Flume Creek,

Teal Creek, Gee Creek, Allen Creek, McCormick Creek, Lower Lewis River, and the East Fork Lewis River (Figure 1).

Instream Flow Rules

Instream flow rules for both WRIA 27 and 28 apply to the Study Area. Each Instream Flow Rule closed water to appropriations, set minimum instream flow requirements, established reservations, and created areas where water is predetermined to be legally and physically available, termed as Regional Supply Areas (RSA). WRIAs 27 and 28 RSAs are spread along the Columbia River from Washougal to Woodland, Washington (Appendix B, Figure A.2). This report focuses on the Vancouver Lake Lowland RSA, which is located along the Columbia River near the City.

WRIA 27 Instream Flow Rule

A RSA was established at the confluence of the Lewis River and the East Fork Lewis River for future groundwater withdrawals (Appendix B, Figure A.2). The Instream Flow Rule for WRIA 27 closed the following surface water sources to further appropriation:

- East Fork Lewis River, including tributaries
- Gee Creek, including tributaries
- Lower Lewis River from river mile (RM) 7.1 to Merwin Dam outflow, including tributaries

The Instream Flow Rule did not specifically close these surface water sources to further appropriation:

- The tidally influenced Columbia River and backwater areas (i.e., Lake River)
- Lower Lewis River below RM 7.1
- Allan Creek

The Instream Flow Rule established a reservation from the East Fork Lewis River Subbasin (including Gee Creek). This reservation represents a volume of streamflow depletion that may be appropriated for certain uses. Initially, a reservation of 2.2 cubic feet per second (cfs) was established for use by CPU, the City of Battle Ground and the City of Ridgefield. When the City acquired a right for the Junction Well, part of this reservation was depleted, leaving 1.95 cfs available for the Subbasin. The Instream Flow Rule for WRIA 27 does not mention tidally influenced stream reaches.

WRIA 28 Instream Flow Rule

The Instream Flow Rule for WRIA 28 established the Vancouver Lake Lowland RSA for future groundwater withdrawals. This RSA stretches from Vancouver Lake to Bachelor Island near Ridgefield, and is located along the Columbia River (to the west of the railway in the vicinity of the City). The Instream Flow Rule for WRIA 28 closed the following surface water sources to further appropriation:

- Salmon Creek from its confluence with Lake River to its headwaters, including tributaries

- Whipple Creek from its confluence with Lake River to its headwaters, including tributaries

Both Salmon and Whipple Creeks, and associated tributaries, are located to the south of the Study Area. The Instream Flow Rule for WRIA 28 did not specifically close these water sources to appropriation:

- The tidally influenced Columbia River and backwater areas (Lake River), and
- Flume and Teal Creeks. Both creeks however, are documented by the Washington State Department of Fish and Wildlife (WDFW) to contain listed Endangered Species Act (ESA) fish.

The Instream Flow Rule established a reservation from the Salmon Creek Subbasin 0.13 cfs net streamflow depletion for use by CPU, the City of Battle Ground and the City of Ridgefield. To date, none of this reservation has been appropriated. The Instream Flow Rule for WRIA 27 does not mention tidally influenced stream reaches.

Salmon Recovery and Endangered Species Act Listings

This region has experienced declining fisheries populations of ESA listed fish, and many of the tributaries in the Study Area provide habitat for these species. In response to ESA listings of multiple salmonid species in the Lower Columbia, the Lower Columbia Fish Recovery Board, acting as Lead Entity, developed a comprehensive Lower Columbia Salmon Recovery and Fish and Wildlife Subbasin Plan (Recovery Plan) for the Columbia River and tributaries from the Gorge to the Pacific Ocean, adopted December 15, 2004. The Recovery Plan serves to guide the recovery of ESA listed salmonid species and inform the Watershed Plan and process. Recovery Plans are critical to consider when reviewing physical and legal water availability because they identify and address limiting factors. Furthermore, restoration measures for salmonids are required when accessing instream flow reservations.

Lower Columbia River Listed Species

The Lower Columbia River serves as habitat for four ESA listed salmonids. Those ESA listed salmonids include:

- Chum – ESA listed as Threatened in 1999
- Winter and Summer Steelhead – ESA listed as Threatened in 1998
- Fall Chinook – ESA listed as Threatened in 1999
- Spring Chinook – ESA listed as Threatened in 1999

Ecology must be mindful of these listings when determining legal and physical water availability. ESA listings have the potential to affect water rights appropriations and mitigation offset approaches in surface water sources within WRIAs 27 and 28 and under both Instream Flow Rules.

WDFW maintains a database for tracking listed and non-listed species distribution by stream. Table 3 summarizes fish present in the streams within the Study Area. Groundwater

or surface water withdrawals from streams (especially those that were not specifically closed under the Instream Flow Rule, but contain ESA listed species) have the potential to limit legal water availability.

Site Assessment Results

Several selection criteria were considered when ranking each of the three geographic areas for future groundwater expansion. Current ownership of or potential access to the land parcel, proximity to existing and future infrastructure, favorable conditions for water rights application, favorable hydrogeologic conditions, developable area (i.e., meeting required setback distances), resource protection, and water quality issues were evaluated. A summary of the rankings are provided in Table 4, and the results of the desktop analysis for each of the three geographic areas is provided below. Each of the areas evaluated and discussed below are shown on Figure 2.

Port Area

Land Ownership

The City owns and/or has access to the parcels included in this area.

Proximity to Current and Future Infrastructure

The City has existing infrastructure in this area, as it is currently served with City water. City Wells 5 and 6 have been decommissioned. The City does not anticipate significant future growth (or demand) in this area.

Water Right Permitting

A portion of the Vancouver Lake Lowlands RSA within WRIA 28 is located to the west of the Port Area. This RSA has been designated by Ecology as a location where groundwater is legally and physically available for appropriation. Depending on subsurface geology, locating wells adjacent to Lake River is preferable if there are any signs of hydraulic connection to Lake River because this surface water body is open to appropriation. Groundwater hydraulic continuity to Gee Creek, a tributary closed to further appropriation, would likely require mitigation measures to offset any potential impacts from pumping new wells in the Port Area.

Hydrogeologic Setting

The nature and extent of the SGA in this location is not well characterized. According to the well log for well ID 6044 (see Figure 2 and Table 1), a well on the Pacific Wood Treating Company (PWTC) property produced 155 gpm from a zone of sand and gravel present from 128 to 139 feet below ground surface (bgs), which is likely the SGA. This log suggests that locally the SGA is productive, but a geologic cross section for this area (Evarts 2004) indicates that the thickness of the SGA thins and pinches out to the west and the north. A well for the RNRW (well ID 256468; Figure 2 and Table 1), which is located approximately one mile south of well ID 6044, encountered basalt at a depth of 201 feet bgs after drilling through fine-grained sediments associated with the base of the SGA. This spatial variation indicates that the permeability characteristics of the SGA may not be uniform at some locations west of the City. The apparent reduction in the thickness and areal extent of the

SGA in this area could limit the long-term development and sustainability of this source (i.e., hydrogeologic boundary condition).

Setback Requirements and Resource Protection

There are plenty of locations for siting one or more wells that would meet applicable setback requirements for municipal supply wells. The presence of a known cleanup site however (former PWTC site; Table 2, Figure 3), raises concerns for the ability to protect wells from future contamination. The Port Area is also in close proximity to the railroad, which could present significant water quality risks if a spill of hazardous materials were to occur.

Water Quality

The PWTC site is currently being monitored after environmental remediation for the presence of volatile organic compounds (VOCs) and for arsenic in soil and both shallow and deep groundwater (up to approximately 120 feet deep). City Wells 5 and 6 were located on the eastern edge of this property. Both wells were decommissioned due to the contamination from the PWTC site. The former industrial use and remaining contamination of the PWTC site raises concerns for both source protection in this area and potential long-term water quality impacts. Developing groundwater supply sources in this area would carry a high risk for contamination.

Estimated Production Capacity

The site is estimated to be capable of supporting up to an estimated six wells depending on hydrogeologic characteristics across the site and interference drawdown impacts amongst simultaneously pumping wells. Assuming a yield of 150 gpm per well based on test results reported at well ID 6044, the total production capacity of the Port Area is estimated at 900 gpm. The potential for adverse impacts to groundwater quality from known or potential sources of contaminants and long-term sustainability concerns of the aquifer source however, indicate unfavorable conditions for groundwater development in this area.

Downtown Area

Land Ownership

Two parcels were identified near the downtown area. The first is a small parcel at the intersection of South Main Avenue and Sargent Street (proposed for development as a park), and the second is a parcel adjacent to the railroad tracks near the entrance to the RNWR. The City owns and/or has access to the parcels included in this area.

Proximity to Current and Future Infrastructure

The City has existing infrastructure near both the proposed park and the RNWR site. The RNWR site is closer to future proposed developments (the Hillhurst area).

Water Right Permitting

Surface water is legally and physically available in Lake River and groundwater is legally and physically available for aquifers in hydraulic continuity with Lake River. The proximity of both of the locations to Lake River and the Vancouver Lake Lowlands RSA are favorable for water right permitting. These locations are also farther from other surface water bodies

(Gee, Teal and Flume Creeks) than other parcels that were evaluated. If groundwater at either location is found to be in hydraulic connection with any of these creeks however, mitigation measures to offset impacts from pumping new wells may be required.

Hydrogeologic Setting

Very few wells exist in this area and the hydrogeologic conditions are not well characterized. A domestic well located near the proposed park (well ID 372230; Figure 2 and Table 1) was drilled to a depth of 357 feet bgs. This well has limited productivity from a sandy unit (75 gpm) presumably completed in fine-grained deposits in the lower portion of the SGA. Well logs (IDs 372230 and 256468) and information from a previous study by Golder (2006) indicate that the SGA may be limited in vertical extent in areas near Lake River at locations near downtown Ridgefield. Based on the limited data available, this area may be slightly more favorable than the Port Area, though the small size of the parcels and setback requirements are not favorable enough for developing multiple new wells with the goal of meeting the City's target yield.

Setback Requirements and Resource Protection

The size of the proposed park parcel limits the location and number of wells that could be constructed at this site. In order to meet a 100-foot radius of ownership setback around the well, a single well could possibly be placed in the center of the parcel, but the City may need to obtain restrictive use covenants from adjacent property owners.

The developable area for the location near the RNWR entrance is small and also limits the location and number of wells that could be constructed. Though it appears the site could support up to two wells, a particular concern for this location is the proximity to the railroad. The railroad could present a significant risk to groundwater quality should a spill of hazardous materials take place. The limited space for developing wells and the proximity to the railroad make this area less favorable for future groundwater expansion.

Water Quality

Very little groundwater quality data are available in this area. Water quality test results for deep domestic wells reported on drillers' logs (where available) indicate the presence of iron. These wells are most likely completed in the Troutdale aquifer. Secondary contaminants of iron and manganese are likely present, though concentrations (and treatment requirements) are unknown and require further evaluation to characterize.

Estimated Production Capacity

In total, both parcels could possibly support up to three wells. Assuming a yield of between an estimated 75 and 100 gpm per well based on pump test results at well ID 372230, the total production capacity of the Downtown Area is estimated at 225 to 300 gpm.

South Area

Land Ownership

The City has indicated that they will be able to work with developers at the Teal Crest and Kenney Farms development sites (Figure 2) to locate (and possibly purchase) lots for groundwater supply infrastructure and development. The City currently owns a lift station

directly to the east of the proposed Teal Crest development and has identified this parcel as a possible well location. The City is interested in working with Clark County at some point in the future to potentially develop wells on the parcel owned by the County.

Proximity to Current and Future Infrastructure

This area is seeing rapid growth, with several residential development projects in the planning and construction stages. The City has recognized that this area would be ideal for groundwater development to serve new and growing demands, but the infrastructure is not yet in place. The parcel currently owned by Clark County is far removed from existing water (and possibly adequate power) infrastructure. The proposed developments off Hillhurst Road (Teal Crest and Kennedy Farms sites) are located short distances from existing waterlines in Hillhurst Road and the new developments will include the infrastructure improvements necessary to support new source development.

Water Right Permitting

The western portion of the Clark County land is near Lake River, but Flume and Teal Creeks also bisect this parcel. Both creeks are tributaries with ESA listed salmonid species. Teal Creek is within roughly 200 feet of the proposed Teal Crest subdivision. Groundwater in hydraulic connection with either creek would require consultation with WDFW and Ecology outside of the Instream Flow Rule. Low-permeability deposits of silt and clay and additional low-permeability interlayering within the Troutdale Formation may confine hydraulic effects from pumping new wells to the deep portion of the hydrogeologic system, and may result in little effect on the overlying hydrologic system potentially in connection with the creeks. An exploratory drilling and testing investigation would be necessary to further assess well yield, performance, water quality, and potential impacts to surface water bodies.

The water rights associated with the Kennedy Farms parcel have been evaluated and summarized under a separate memorandum (GSI 2018). It may be possible to utilize one of the existing wells for pump testing to assess the potential for hydraulic connection between the SGA and Gee Creek (and other surface water tributaries).

Hydrogeologic Setting

Several domestic wells have been drilled at the Maple Heights subdivision (off NW 234th Street), which is east of the Clark County land (Figure 2). Some of the wells appear to be completed in the SGA (at depths of around 380 feet bgs). Although these are domestic wells with low production needs, the aquifer appears to be somewhat more productive than what is needed for domestic purposes. Estimated yields of the domestic wells reported on the well logs after the wells were constructed range between 10 and 60 gpm. The domestic wells however, are small diameter (5- to 6-inch) and none were drilled through the full thickness of the SGA, so it is unclear what the saturated thickness of the aquifer is at this location or what the yield potential might be for larger well completions. Two of the Kennedy Farms wells also appear to be completed in the SGA, and at least one (well ID 870447) is reported to produce approximately 265 gpm.

Setback Requirements and Resource Protection

The City has an existing lift station located near the end of S. Sevier Road. The lift station however, is planned for decommissioning as a proposed subdivision to the west (Teal Crest) is developed. Based on the current understanding of setbacks and development plans at this location, this parcel could be used to site and develop a single municipal supply well once the lift station is decommissioned.

Immediately south of the proposed Teal Crest subdivision is an undeveloped parcel of land owned by Clark County. A portion of this land is within the City's boundary. The City is currently in the process of acquiring the Kennedy Farms parcel and associated water rights. There are no known sources of contamination in these areas. It is presumed that the City will be able to work with the developer(s) to locate one or more wells within the proposed subdivisions that would meet applicable setback requirements for municipal supply wells.

Water Quality

Like the Downtown Area, very little groundwater quality data are available in this area. Most nearby domestic wells indicate the presence of iron. Water quality is not available for the three wells located on the Kennedy Farms property. It is likely that both the Troutdale aquifer and the SGA have iron and manganese, but the concentrations are unknown and may vary from site to site, and it may also be different between the Troutdale aquifer and the SGA.

Estimated Production Capacity

The Teal Crest development could possibly support up to two wells, and the Kennedy Farms parcel could possibly support up to four wells. Assuming a yield of up to 300 gpm per well based on test results reported at the Kennedy Farms well (well ID 870447), the total production capacity of the South Area (excluding the Clark County parcel) is estimated at 1,800 gpm. Subsurface exploratory drilling and testing, particularly at the Teal Crest development site, would be required to confirm this estimated production capacity. The number of wells that could be developed at Kennedy Farms would need to be confirmed by pump-testing the existing well (well ID 870447) and monitoring other Kennedy Farms well completed in the same unit.

Ranking of Candidate Sites

Each of the various selection criteria considered in this evaluation are presented in Table 4, with each being subjectively ranked from "Good" to "Poor" for each of the three geographic areas assessed for future groundwater expansion. The overall ranking for the sites are based on an unweighted median (Good = 5 and Poor = 1), not considering land ownership since all but the Clark County site have already been identified on City-owned property or property that the City could access. Results of the ranking indicate that the South sites (Teal Crest Subdivision, Kennedy Farms and Clark County available land) are the preferred development options, though additional information is needed to assess aquifer conditions and potential hydraulic connection with surface water bodies in this area.

The proposed park parcel ranked relatively high compared to the other sites, though the developable area and footprint needed for constructing municipal supply wells at this site is

small (only one well could be located here). Also, developing the site for a well could have impacts on the future use of the park.

The North area consisting of the Port and former City Wells 5 and 6 locations scored lowest overall compared to the other sites, particularly because of (1) the presence of known contamination, (2) the site not being located near growing demands, and (3) unknown hydrogeologic and groundwater quality conditions.

Conceptual Designs and Planning-Level Cost Estimates – South Area

This section provides assumptions regarding concept designs and a range of cost estimates for developing additional groundwater sources at two site locations in the South Area: Teal Crest and Kennedy Farms. This area ranked highest for potential groundwater development.

Conceptual Designs

Production Wells

The Teal Crest and Kennedy Farms development sites appear capable of supporting a total of four production wells, two at each site (Figures 5 and 6). A conservative production rate of 300 gpm per well is assumed. The production zone for each well will target the SGA, which is likely deeper than 300 feet at the Teal Crest location and around 260-280 feet deep at the Kennedy Farms location. The conceptual well designs (Figure 4) assume 10-inch diameter steel production casing to the depth of the SGA, and a 6-inch diameter stainless steel well screen targeting the production zone(s).

Pumping System

Design of the pumping system for the proposed wells will be examined further with a more detailed siting study once a site is selected. It is likely however, that a pumping system will be configured with a well pump and motor sized to deliver water to the surface, through pressure filter treatment units, and directly into the distribution system. This alternative is the least complex and would likely have the lowest capital cost. The well pump and motor assembly would be approximately 60 horsepower (hp).

Water Treatment

The City's existing groundwater sources receive treatment on-site to meet Federal Safe Drinking Water Act (SDWA) regulations. Treatment consists of disinfection via chlorination (liquid sodium hypochlorite) at all sites and the addition of potassium permanganate followed by filtration at the Junction Well to remove iron and manganese.

The limited groundwater quality data available were reviewed for the purpose of evaluating the need for potential treatment beyond disinfection. Data included an inventory of wells in the southern area of Ridgefield and their associated measures of iron, pH, and hardness.

All wells inventoried in the southern area of Ridgefield contained iron. Values ranged from a low of 0.5 mg/L to greater than 3 mg/L. The SMCL for iron is 0.3 mg/L therefore all wells exceeded the SMCL.

Iron and manganese are not regulated as primary contaminants under the SDWA. They are however, classified as secondary contaminants because of their effect on the aesthetics of

drinking water like taste, color, and odor. While treatment to remove iron and manganese in drinking water is not required at this time, some utilities like Ridgefield opt to remove it to meet the expectations of their customers. The City's Junction Well was rehabilitated in 2015 to increase capacity and add treatment for removal of iron and manganese.

The proposed wells at the Teal Crest and Kennedy Farms locations are assumed to be located in the same aquifer (SGA) as both the Junction Well and the inventoried wells in the South Area of Ridgefield. Therefore, it is assumed that the proposed wells will contain levels of iron and manganese above the SMCL. Based on discussions with the City, treatment to remove iron and manganese for new groundwater wells is anticipated. Removal is assumed to be through filtration within a pressure vessel such as those constructed by ATEC Systems Associates. Facilities required for the possible recycle and disposal of backwash water will be examined in further detail based on specific site selection. Required facilities and equipment will be in addition to those needed for disinfection.

Conveyance

Proposed well locations are within existing and proposed residential developments served by minimum eight-inch diameter water mains. Water mains of this size are large enough to accommodate the proposed well production rate of 300 gpm and domestic demand, therefore no additional or larger infrastructure will be required to convey finished water.

Depending on the final location of multiple wells in a development, construction of raw water transmission mains from each well to a common treatment building with electrical controls may be determined to be the most cost effective arrangement.

Electrical Power Availability

Murraysmith contacted CPU to review electrical power availability to serve the proposed wells in the preferred groundwater development areas (Teal Crest and Kennedy Farms). Preliminary well pump sizing assumes approximately 458 feet total dynamic head at 300 gpm capacity results in a 60 hp motor requirement. Total electrical loads including the well pump and treatment building should be accommodated with a 480V, 3-phase, 200 amp service. CPU reviewed power availability for the Kennedy Farms site and the proposed loads can be supplied with appropriate planning prior to subdivision construction. Routing power to the Teal Crest sites will require additional cost as the subdivision project is already under construction.

Planning-Level Cost Estimates

Methods

Cost estimates for planning and decision-making purposes were developed from contractor estimates (includes prevailing wage rates), recent equipment and materials costs from vendors, and average costs from the *2018 RS Means Heavy Construction Cost Data* (RSMeans) publication. The cost estimates include water right permitting and allowances for construction contingency (30 percent), engineering (20 percent), administration (10 percent), and new source and facility permitting (5 percent). The estimates have been prepared in accordance with the guidelines of the American Association of Cost Engineering (AACE

International) and are categorized as Class 5 estimates, per the following definition (AACE International, 2011):

Class 5 estimates are generally prepared based on very limited information, and subsequently have wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner.

Class 5 estimates are prepared for any number of strategic business planning purposes, such as but not limited to market studies, assessment of initial viability, evaluation of alternate schemes, project screening, project location studies, evaluation of resource needs and budgeting, long-range capital planning, etc.

Typical accuracy ranges for Class 5 estimates are -20% to -30% on the low side, and +30% to +50% on the high side, depending on the construction complexity of the project, appropriate reference information and other risks (after inclusion of an appropriate contingency determination). Ranges could exceed those shown if there are unusual risks.

All costs identified in this section reference 2018 U.S. dollars. The Engineering News Record Construction Cost Index (ENR CCI) basis is 11,116 (20-city average, July 2018).

Teal Crest and Kennedy Farms

Planning-level cost estimates have been prepared for drilling, constructing, testing, and applying for water rights for four wells, two at each of the Teal Crest and Kennedy Farms development sites. Costs to include up to two additional wells at Kennedy Farm (for a total of six wells) are not included in this estimate, because additional evaluation is needed to determine how many wells could be developed at Kennedy Farms. The cost to increase from two to four wells at Kennedy Farms would not be double, due to redundancies and the ability to treat the water at a centrally located building. Planning-level cost estimates to develop two wells at each of the Teal Crest and Kennedy Farms sites are summarized in Table 5. These cost include outfitting the wells with pumps, motors, and auxiliary below-ground equipment and general site improvements (control/treatment building).

Well Drilling, Construction and Testing

The planning-level cost for well drilling, construction and testing is estimated at \$600,000 for two wells at Teal Crest and \$500,000 for two wells at Kennedy Farms. The cost to drill a single well at either location is estimated at \$300,000 (Table 5).

Well/Treatment Building and Auxiliary Equipment

The estimated planning-level costs for the well building and auxiliary equipment for the Kennedy Farms and Teal Crest sites are \$1.5M and \$1.7M, respectively. These costs assume that two wells will be drilled at each development and that raw water will be conveyed from one well through a pitless adaptor to a treatment building located at the second well. A treatment building and auxiliary equipment for one stand-alone well is estimated to cost \$900,000. These totals for Teal Crest or Kennedy Farms include cost estimates for the following:

- Mobilization, bonds, permitting, and insurance and items not directly related to construction

- Site preparation
- Complete pumping unit(s), which includes the bowl assembly, motor, discharge head, and column/shaft assembly, and auxiliary downhole equipment. A line-shaft turbine pump is assumed for a stand-alone well, and for a well located within the treatment building if two wells are drilled at Teal Crest or Kennedy Farms. The second well at either Teal Crest or Kennedy Farms would be outfitted with a submersible pump and pitless adaptor
- One mechanical building at each development (e.g., Teal Crest or Kennedy Farms) for electrical and treatment equipment
- Site piping and site improvements including fencing, landscaping, and asphalt pavement
- CPU electrical service and site electrical (no backup generator)

Provisions for the discharge and disposal of backwash water onsite are not included. It is assumed backwash water will be discharged directly to the sanitary sewer.

Water Rights

The estimated planning-level cost to prepare a groundwater application for a single development site (e.g., Teal Crest or Kennedy Farms) on behalf of the City is \$20,000. This cost includes the following:

- Prepare a pre-application and participate in a pre-application meeting with the City and Ecology
- Finalize water right application
- Prepare a State Environmental Policy Act (SEPA) checklist for review by State and/or Federal Agencies
- Prepare a public notice in compliance with Ecology rules
- Conduct a site visit and investigation
- Prepare a hydrogeologic memorandum in support of the water right application
- Prepare a Record of Examination (ROE) summarizing the hydrogeologic information, water availability, four-part test, and a recommended decision

These cost estimates do not include mitigation options that may be required to offset potential impacts to surface water bodies closed to further appropriation from pumping the new wells.

Total Planning Level Cost Estimate

The total planning-level cost is estimated to range between \$5.3M and \$11.3M in 2018 dollars to develop four wells.

Constructing two wells at each of the two development sites is estimated to produce around 600 gpm (0.9 mgd) per development, for a total of 1,200 gpm if four wells are developed. Accordingly, the cost per mgd of capacity is estimated to range between approximately

\$3M/mgd and \$7M/mgd for the Teal Crest location and between \$3M/mgd and \$6M/mgd for the Kennedy Farms location.

Capital and operations and maintenance costs for a water supply connection with CPU were not provided by the utility and a comparison with the range of groundwater development costs could not be made.

During the design phase of the project, the project definition, scope, and specific information should be verified. Final costs will depend on actual labor and material costs, site conditions, competitive market conditions, regulatory requirements, project schedule, and other factors. Because of these factors and to help ensure proper project evaluation and adequate funding, project feasibility and risks must be carefully reviewed before making specific financial decisions or establishing project budgets.

Recommendations

This section provides recommendations and next steps for planning and conducting additional assessment to address data gaps and better guide capital planning, decision-making and future source water expansion for the City.

Data Gaps and Uncertainties

The hydrogeologic information included in this report is based on a limited number of well logs within the Study Area. The anticipated depth to the top of the SGA at Teal Crest and Kennedy Farms (Figure 4) is based on the geologic interpretation of nearby well logs. None of these wells were drilled to the base of the SGA, so the aquifer thickness near Teal Crest and Kennedy Farms is unknown. The potential productivity of the SGA is based on the production from the City's Junction well and Kennedy Farms main production well and the limited aquifer test information included on available logs in the Study Area (Table 1).

There is a potential for wells completed at either site to be in hydraulic connection with surface water. The magnitude and potential mitigation needs however, are currently unknown. If groundwater is connected to surface water, there will be implications for water right permitting, mitigation requirements, cost, and development schedule. The potential for connection with surface water needs to be evaluated as part of a site-specific feasibility assessment.

Water quality of the SGA near Teal Crest and Kennedy Farms is not well documented. Nearby domestic wells indicate that varying concentrations of iron are present within the SGA, and the City's Junction well requires treatment for iron and manganese.

Based on the data gaps identified, the following sections provide recommended next steps to further explore either groundwater or surface water source options.

Next Steps

Due to the short-term water supply needs, we recommend that the City move forward with additional assessment of groundwater and/or surface water source options. The following are recommended next steps should the City decide to move forward with either of the two alternatives listed below.

Additional Groundwater Expansion Feasibility Assessment

The Teal Crest Subdivision and Kennedy Farms site were identified as preferred locations recommended for further drilling and/or and testing exploration. We have identified the following items for the City to consider when choosing which potential groundwater development site (Teal Crest or Kennedy Farms) to proceed with developing further.

Teal Crest

Findings from the evaluation indicate that the Teal Crest site could potentially support up to two production wells totaling an estimated combined capacity of 600 gpm. The following

items should be considered should this site be considered for future groundwater development:

- The existing pump station site (shown as Site 2 on Figure 5) likely has adequate power installed and could be available with the abandonment of the sewer lift station. It appears a treatment building could possibly fit on this parcel within the footprint of the existing lift station, but final building sizing would require confirmation with planning on required setbacks, etc.
- The location of the stormwater facility and discharge swale will likely require a need to request a reduced Sanitary Control Area (SCA) with the Washington Department of Health (DOH), depending on the final well location. Given the proposed conceptual well design that includes a deep seal constructed into a low-permeability confining unit, we do not anticipate that this will be an issue.
- The well head on the pump station site will be located in the existing park area.
- The Site 1 well location (Figure 5) will require an easement on the flag lot or for the City to purchase the flag lot identified. If purchased, this lot could possibly be used for locating the treatment building.
- The new subdivision has utilities installed and the road is graded. For this location however, the extension of 3-phase power and the raw water line between the two well sites will require pavement cuts and restoration.

Exploratory drilling and pump testing is recommended to assess the (1) thickness, productivity, and performance of the aquifer in this area, (2) potential to impact streamflow from pumping new wells, and (3) existing groundwater quality conditions at this location.

The City should be aware however, that this potential groundwater development alternative appears more expensive than the Kennedy Farms option primarily due to the need to establish power at the site, route the raw waterline through existing paved roads, and the purchase of a subdivision lot.

Should the Teal Crest site be selected for groundwater development, we recommend the following next steps:

- Collect groundwater samples from homeowners with domestic wells located near the Teal Crest developments and analyze the samples for a complete suite of drinking water contaminants to develop a better understanding of water quality and potential treatment needs and costs.
- Drill and test an exploratory test well. This test well could be drilled with a large enough diameter to be converted to a municipal supply drinking well if hydrogeologic conditions appear favorable after testing. A planning-level cost estimate for drilling, construction and testing is approximately \$250,000 for a single well, excluding hydrogeologic and engineering consulting fees.
- Conduct step- and constant-rate pumping tests at the test well to evaluate the aquifer's hydraulic response to pumping and potential hydraulic connection with the local creeks closed to appropriation.

- Consult with Ecology regarding the pumping test results and identify and discuss potential mitigation needs and options. If favorable, then pursue water rights permitting, convert the test well to a production well, and build out the well building and treatment, with capacity for treating water from a potential second well.
- Concurrently with a subsurface exploration program, evaluate the feasibility and costs of acquiring additional properties in strategic locations for future groundwater sources.

Kennedy Farms

Findings from the alternative source evaluation indicate that the Kennedy Farms site could potentially support up to four production wells totaling an estimated combined capacity of 1,200 gpm. The total number of wells will depend on aquifer properties and the amount of drawdown interference mutually caused by pumping individual wells. The following items should be considered should this site be considered for future groundwater development:

- Since this development has not yet been constructed, there is more flexibility in terms of siting wells and installing the necessary infrastructure, including a means for back flushing the well system.
- While several potential well locations are presented on Figure 6, well siting would need to be spaced out to decrease the amount of interference caused by each well during pumping. That means that two wells cannot be sited at locations 1 and 2, but one well could be placed at either Site 1 or 2 and additional wells could potentially be located at Site 3, 4, and/or 5.

This option provides more flexibility and is less expensive due to the current status of the development construction.

Should the Kennedy Farms site be selected for groundwater development, we recommend the following next steps:

- Conduct step- and constant-rate pumping tests at the Kennedy Farms well (well ID 870447) to evaluate the aquifer's hydraulic response to pumping, potential interference with additional proposed wells, and potential hydraulic connection with the local creeks closed to appropriation.
- Collect a groundwater quality sample at the end of the constant-rate pumping test A and analyze the sample for a complete suite of drinking water contaminants to develop a better understanding of water quality and potential treatment needs and costs.
- Consult with Ecology regarding the pumping test results and identify and discuss potential mitigation needs and options. If favorable, then pursue water rights permitting, locate and drill a production well, and build out the well building and treatment, with capacity for treating water from potential additional wells. A planning-level cost estimate for drilling and construction is approximately \$250,000 for a single well, excluding hydrogeologic and engineering consulting fees.

- Concurrently with a subsurface exploration program, evaluate the feasibility and costs of acquiring additional properties in strategic locations for future groundwater sources.

Evaluate Surface Water as a Potential Alternative Source of Supply

The water rights investigation conducted during the course of this groundwater expansion evaluation discovered that surface water from Lake River or the Columbia River is open for further appropriation. The option to move to surface water for a future drinking water source was briefly discussed as a potential alternative option for the City. The feasibility and costs for this option however, were not evaluated as part of this effort. We recommend moving forward that the City evaluate the feasibility and costs of a surface water intake from either Lake River or the Columbia River. Water from either source is physically and legally available without the need to mitigate for potential impacts to existing users. Factors to consider for the feasibility of developing a surface water source include water quality and treatment costs, infrastructure needs, and permitting through other agencies (e.g., WDFW).

Assumptions

The results of this desktop evaluation reflect our understanding of available information. Few wells are completed in the areas that were evaluated and few are completed in and obtain water from the SGA. These wells were also constructed for domestic and/or irrigation uses and the pump test information included on well logs likely does not reflect the actual productivity of the aquifer(s). Exploratory drilling and pump testing are recommended to improve the limited understanding of the hydrogeologic system and to better inform (1) production well design and individual production rates, (2) potential drawdown interference from pumping multiple wells, (3) potential impacts to existing users and surface water bodies, and (4) groundwater quality and potential treatment needs.

The proposed locations of wells at the preferred groundwater development sites are based on our current understanding of the development plans. As these plans are updated, well sites may no longer be feasible due to setback requirements. A potential requirement to mitigate impact to surface water in order to appropriate groundwater will need to be assessed at each proposed well location through pump testing and monitoring, and possibly groundwater modeling.

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Tables

Table 1 - General Well Construction Information

	Well Construction								Well Testing			
Well Log ID	Well Diameter (in)	Total Depth (ft)	Screened Interval		Targeted Aquifer	Well Owner	Static WL	Date	Type of test	Flow Rate (gpm)	Drawdown (ft)	Specific Capacity (gpm/ft)
			Top	Bottom								
6044	8	139	129	139	SGA	PACIFIC WOOD TREATING CORP.	29	10/1/1975	Pump test	155	48	3.2
1043	8	195.3	145.5	166	SGA	CITY OF RIDGEFIELD WELL 7	20	6/11/1986	Pump test	400	41.4	9.7
			171	186.5								
1042	8	193	153	184.5	SGA	CITY OF RIDGEFIELD WELL 8	20	6/11/1986	Pump test	400	42.5	9.4
1044	8	208	162.5	199.5	SGA	CITY OF RIDGEFIELD WELL 9	20	6/11/1986	Pump test	400	38	10.5
487846	12	135	106.7	108.7	Upper Troutdale	CITY OF RIDGEFIELD WELL 10	16	7/6/2007	Air Test	100	--	--
			109.2	129.7								
270570	8	458	326	342	SGA	CITY OF RIDGEFIELD JUNCTION WELL	213	7/9/1985	Pump test	330	20	16.5
			367	377								
			437	443								
372230	6	357	341.25	357	SGA	JEFF DOUGHERTY	155	8/28/2003	Air Test	75	95	0.8
								150		280	0.5	
256468	6	202	150	155	Lower Troutdale/SGA	DEPT. OF INT./RIDGEFIELD W.L. REFUGE	18	8/8/2000	Pump test	80	17	4.7
8202	6	201	--	--	Upper Troutdale	VERA AILSHIE	170	2/5/1974	Bailer Test	8	20	0.4
3938	6	58	--	--	Upper Troutdale	JIM ADAMS / BOB KEILS	22	7/10/1979	Bailer Test	15	21	0.7
533933	6	356	351	356	SGA	BTG VENTURES LLC	230	6/6/2008	Bailer Test	18	5	3.6
533931	6	379	374	379	SGA	BTG VENTURES LLC	240	6/16/2008	Bailer Test	15	5	3
456105	6	197	194	197	Upper Troutdale	GERALD HINTON	167	10/12/2006	Pump test	11	1	11
5497	6	225	--	--	Upper Troutdale	MERLE PHEIFER	177	3/13/1993	Air Test	15.5	--	--
256	6	315	300.5	315.5	SGA	ART KENNEDY	217	4/23/1984	Air Test	66	24	3
870447	8	358	332	358	SGA	BILL KENNEDY	228	6/12/2013	Pump test	265	23	11.5
2893	6	178	--	--	Upper Troutdale	GENE & ROSEANN BLANKENSHIP	120	5/6/1997	Air Test	9.5	--	--
270373	6	205	--	--	Upper Troutdale	JAMES REIDEL	178	12/11/1993	Air Test	9.5	--	--
5587	6	237	--	--	Upper Troutdale	MIGUEL & MA CONCEPCION SANTANA	169	4/12/1996	Air Test	18	--	--
584067	6	204	--	--	Upper Troutdale	WAYNE TORJUSEN	178	2/25/1993	Air Test	8	--	--
2477	6	173	--	--	Upper Troutdale	ELMER ROTH	131	9/7/1977	Bailer Test	20	22	0.91

NOTE: See Figure 2 for well location

Table 2 - Summary of Cleanup Sites

Site Name Address	Contaminated Media*	Contaminants of Concern	Cleanup Status
Wertz and Weeks Property Pioneer St and 3rd Ave	S, GW, A	Petroleum, Lead	Awaiting cleanup
Schaffer Property 204-206 N. Main Ave	S, GW	Halogenated Organics; Petroleum	Awaiting cleanup
Ridgefield School District (Bus Barn) 304 Pioneer Ave	S, GW	Petroleum	Awaiting cleanup
D & L Logging 327 Pioneer St	S, GW	Petroleum, Organics	No Further Action required
Park Laundry 122 N. Main Ave.	S, GW	Halogenated Organics (PCE)	RI/FS submitted to Ecology; characterization complete
Hinrichs Property 126 N Main Ave	S, GW	Halogenated Organics (PCE)	Awaiting cleanup
Pacific Wood Treating Company 111 W Division St	S, SD, SW, GW	Dioxin, Halogenated Organics, Metals, Petroleum, Phenolic Compounds, Polycyclic Aromatic Hydrocarbons	Cleanup started; ongoing monitoring
RJ Frank Property 5 Mill St	S, SD	Halogenated Organics; Petroleum; PCBs	No Further Action required

*NOTE: S = Soil, GW = Groundwater, SW = Surface Water, A = Air, SD = Sediment

Table 3 - Fish Species Distribution by Stream

Water Body	WRIA	Winter Steelhead*	Summer Steelhead*	Chum	Coho	Fall Chinook*	Spring Chinook*	Surface Water Closure
Gee Creek	27	•	•	•	•			
Allen Creek		•	•	•	•			
McCormick Creek		•	•	•	•			
Lewis River (tidal)		•	•	•	•	•	•	
East Fork Lewis River		•	•	•	•	•	•	
Lake River	28	•	•	•	•	•		
Flume Creek		•			•			
Teal Creek		•			•			

*NOTE: Endangered Species Act (ESA) listed species

Table 4 - Summary of Candidate Site Rankings

Site	Site Ownership	Near Existing Infrastructure	Near Future Infrastructure Needs	Water Right Acquisition	Hydrogeology	Developable Area for Wells	Resource Protection	Water Quality*	OVERALL RANKING
NORTH									
Port Area	●	◐	◑	◐	◑	◐	◐	○	◐
Well 5/6 Replacement	●	◐	◑	◐	◑	◐	◐	○	◐
North of Port	●	◐	◑	◐	◑	◐	◐	○	◐
DOWNTOWN AREA									
Proposed City Park	●	●	◑	◐	◑	○	◐	--	◐
RNWR Entrance	●	◑	◑	◐	◑	◑	◐	--	◐
SOUTH									
Teal Crest Subdivision/Lift Station	◐	◐	●	◑	◐	◑	◐	--	◐
Kennedy Farms	◐	◐	●	◐	◐	◐	◐	--	◐
Clark County Land	◐	○	◐	◐	◐	●	●	--	◐

● Good

◐ ↓

◑ ↓

○ Poor

-- Unknown

* Very limited water quality data are available. Domestic well test results reported on drillers' well logs indicate the presence of iron in most deep wells. Secondary contaminants of iron and manganese are likely present, though concentrations (and treatment requirements) are unknown and require further evaluation to characterize.

Table 5 - Estimated Project Costs - Construction and Permitting

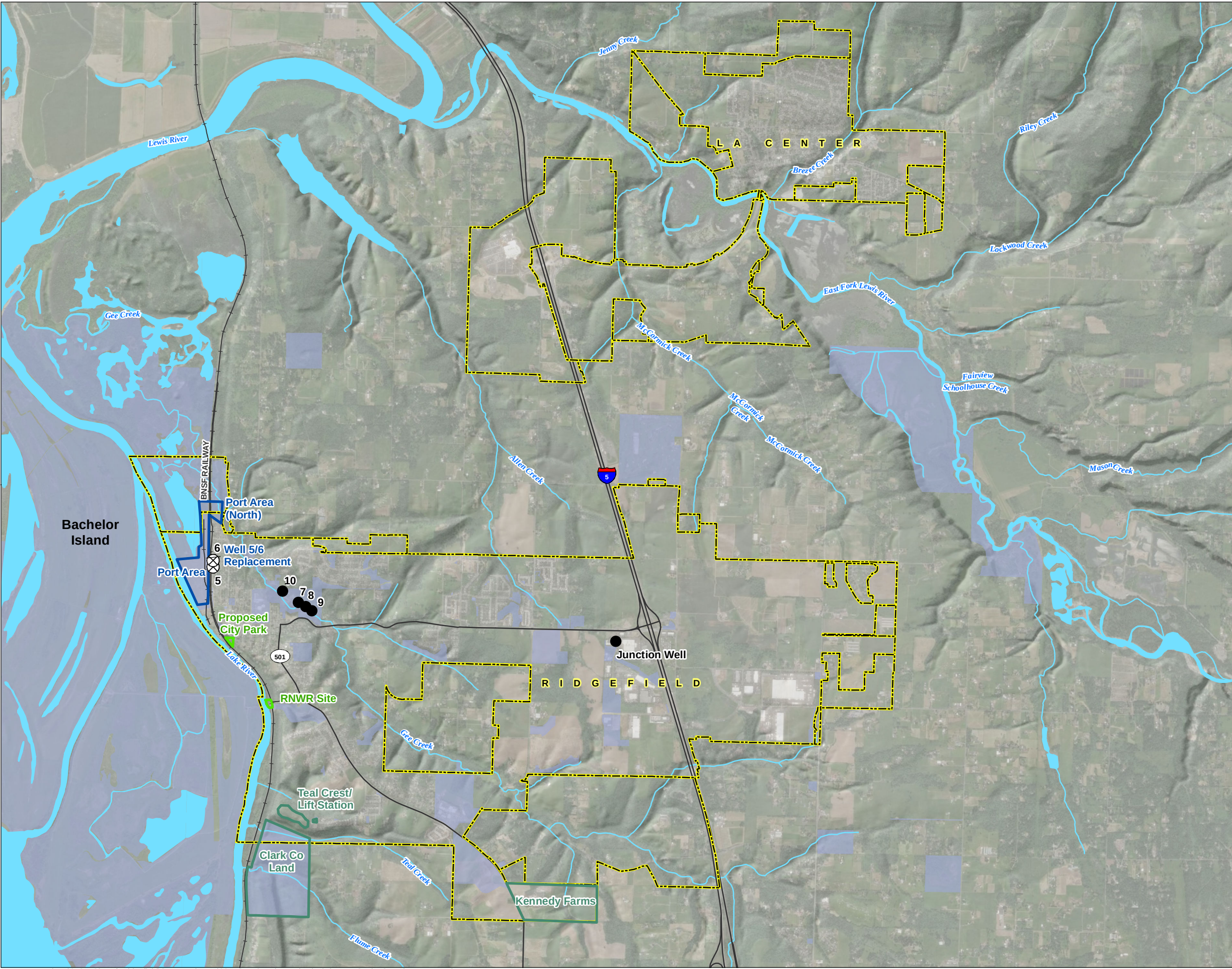
Item	Estimated Cost		
	Teal Crest (two wells)	Kennedy Farms (two wells)	Stand-Alone Well (either site)
Drilling, Construction and Testing Well(s)	\$ 600,000	\$ 500,000	\$ 300,000
⁽¹⁾ Pump, Motors, Well House, Electrical, Piping	\$ 1,700,000	\$ 1,500,000	\$ 900,000
<i>Construction Subtotal</i>	<i>\$ 2,300,000</i>	<i>\$ 2,000,000</i>	<i>\$ 1,200,000</i>
Construction contingency (30%)	\$ 690,000	\$ 600,000	\$ 360,000
Construction Subtotal	\$ 2,990,000	\$ 2,600,000	\$ 1,560,000
Sales Tax (8.4%)	\$ 251,160	\$ 218,400	\$ 131,040
Engineering (20%)	\$ 598,000	\$ 520,000	\$ 312,000
Administration (10%)	\$ 299,000	\$ 260,000	\$ 156,000
⁽²⁾ Permitting (5%)	\$ 30,000	\$ 25,000	\$ 15,000
<i>Sales Tax, Engineering, Admin, and Permitting Subtotal</i>	<i>\$ 1,178,160</i>	<i>\$ 1,023,400</i>	<i>\$ 614,040</i>
⁽³⁾ TOTAL ESTIMATED CONSTRUCTION COST	\$ 4,020,000	\$ 3,495,000	\$ 2,095,000
⁽⁴⁾ Estimated Water Rights Permitting Costs	\$ 19,000	\$ 19,000	\$ 19,000
⁽³⁾ TOTAL ESTIMATED PROJECT COSTS	\$ 4,040,000	\$ 3,515,000	\$ 2,115,000
⁽³⁾ TOTAL ESTIMATED COST (-30%)	\$ 2,830,000	\$ 2,460,000	\$ 1,480,000
⁽³⁾ TOTAL ESTIMATED COST (+50%)	\$ 6,060,000	\$ 5,275,000	\$ 3,175,000
⁽⁵⁾ Yield Estimate (mgd)	0.86	0.86	0.4
⁽³⁾ Total Estimated Cost per mgd (-30%)	\$ 3,270,000	\$ 2,735,000	\$ 3,440,000
⁽³⁾ Total Estimated Cost per mgd (+50%)	\$ 7,010,000	\$ 5,850,000	\$ 7,385,000

NOTES:

- (1) Assumes that only one well house with treatment is constructed at each development, with capacity for two wells. A pitless adaptor would be installed at the second well with a raw water line to treatment. The Stand-Alone Well cost is for the construction and appurtenances for an individual well at either site. Costs include above ground facilities, site improvements, control systems, disinfection systems, and connections to the distribution system.
- (2) 5% permitting fees exclude costs for pumps, motors, and other downhole appurtenances
- (3) All estimated cost values are in 2018 dollars and rounded to the nearest \$5,000
- (4) Permitting costs are shown for one application per development. If two applications are prepared concurrently there may be some cost savings due to redundancy, assuming the groundwater source is the same.
- (5) Yield estimate assumes 300 gpm per well, for a total of 600 gpm for each location.

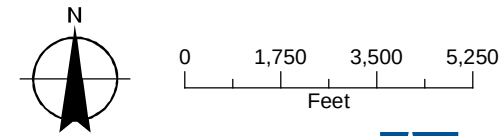
Figures

FIGURE 1
Study Overview Map
Ridgefield, Washington



LEGEND

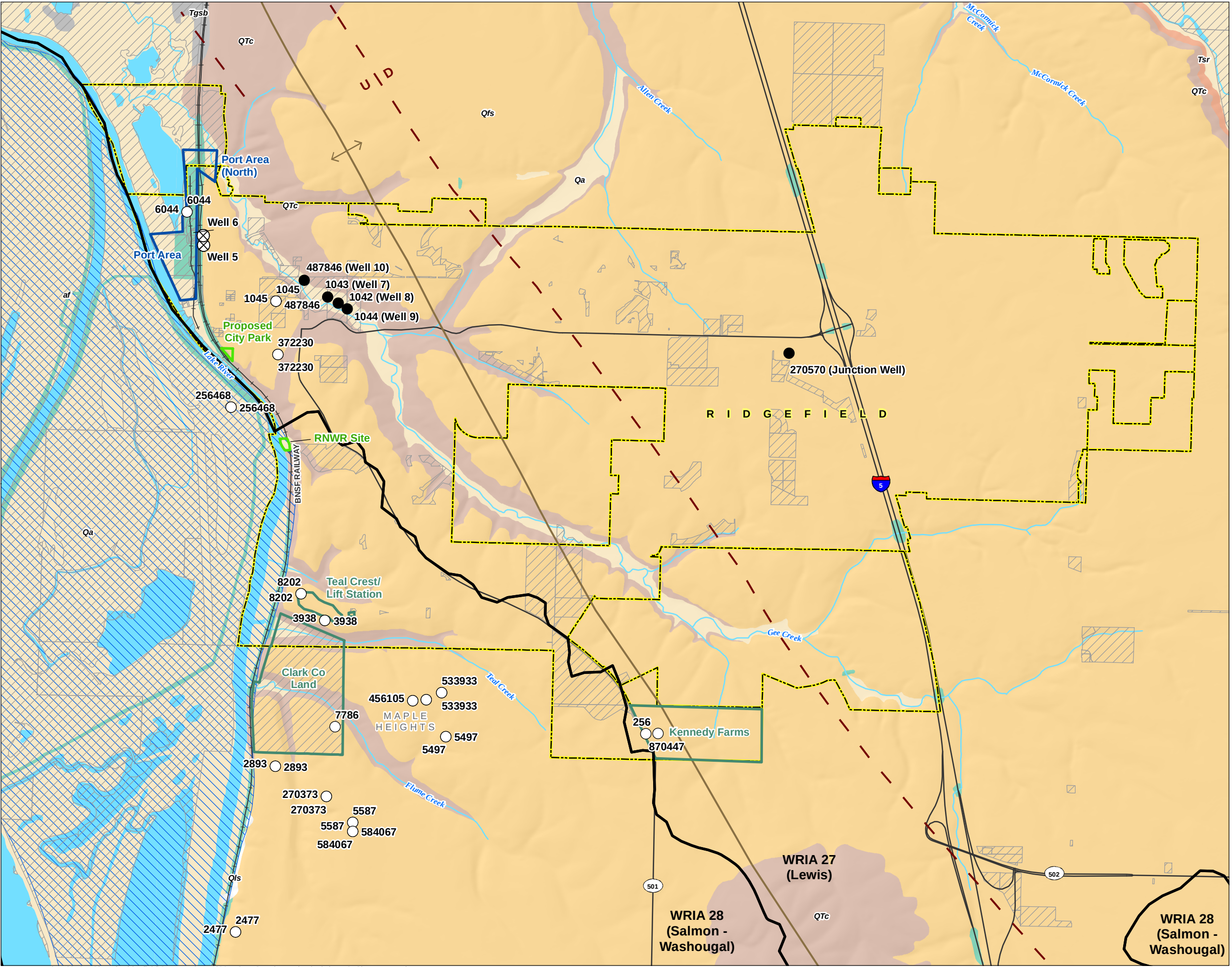
- Existing Municipal Well
 - ⊗ Decommissioned Well
 - Government Owned Taxlot
- Well Siting Options**
- Port
 - Downtown
 - South
- All Other Features**
- City Boundary
 - Railroad
 - Major Road
 - Watercourse
 - Waterbody



Date: April 29, 2019
Data Sources: Ecology, ESRI, USGS,
DigiGlobe 2016, DNR



FIGURE 2
Site Map
Ridgefield, Washington



LEGEND

- Well
- Existing City Well
- Decommissioned Well
- WRIA Boundary
- Government Owned Taxlot
- Vancouver Lake Lowland Regional Supply Area

Well Siting Areas

- Port
- Downtown
- South

Geology

- QTc, Quaternary-Tertiary Sedimentary Rocks and Deposits (Upper Troutdale Formation)
- Qa, Quaternary Alluvium
- Qfs, Pleistocene Flood Deposits
- Tgsb, Columbia River Basalt Group (CRBG) - Grande Ronde Basalt
- Tsr, Tertiary Sedimentary Rocks (Sandy River Mudstone; SGA)
- af, Artificial Fill
- Fault (approximate)
- Fold (anticline)

All Other Features

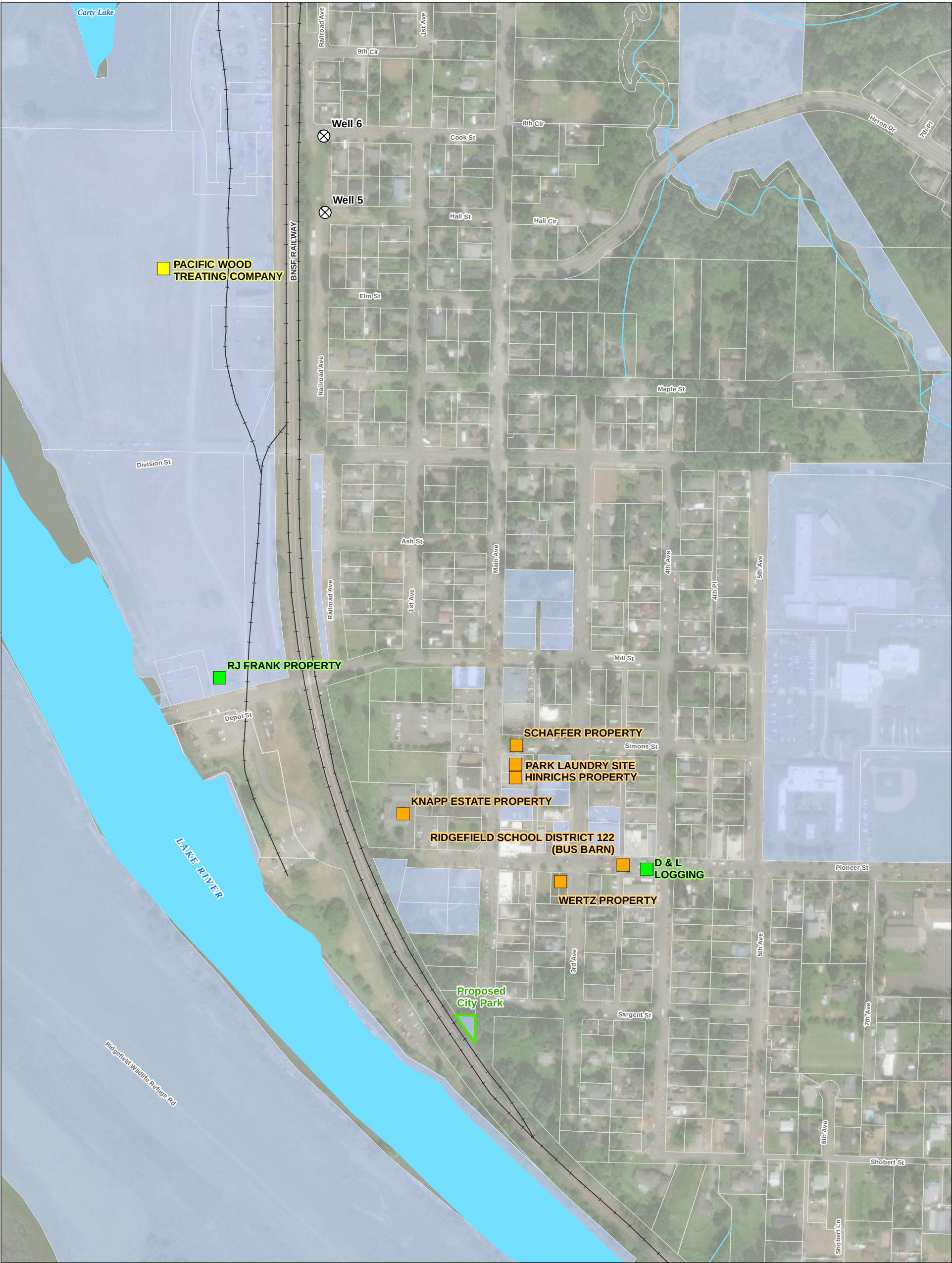
- City Boundary
- Railroad
- Major Road
- Watercourse
- Waterbody

NOTE:
WRIA = Water Resource Inventory Area

0 1,200 2,400 3,600
Feet

GSI
Water Solutions, Inc.

Date: June 25, 2019
Data Sources: Ecology, ESRI, USGS, DigiGlobe 2016, DNR



LEGEND

- ⊗ Decommissioned Well

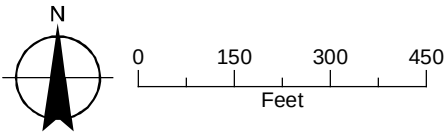
Cleanup Site Status:

 - Awaiting Cleanup
 - Cleanup in Progress
 - No Further Action Required
- All Other Features**

 - Government Owned Tax Lot
 - Proposed City Park
 - Tax Lot
 - Railroad
 - Watercourse
 - Waterbody

FIGURE 3
Cleanup Site Overview
Groundwater Availability Report

Date: April 29, 2019
Data Sources: Ecology, ESRI, USGS



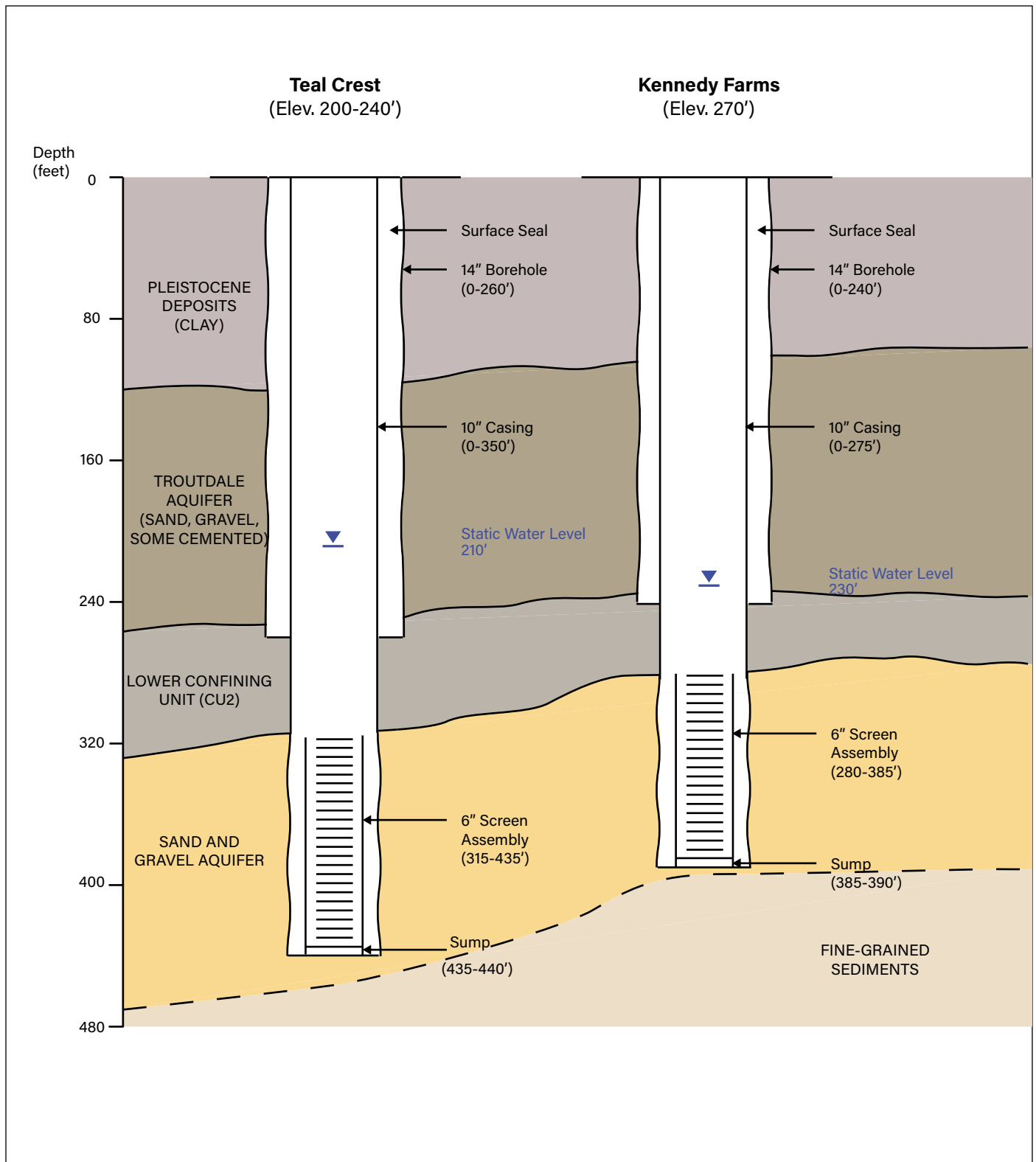


FIGURE 4

Conceptual Well Design
Groundwater Availability Report
City of Ridgefield, WA

NOTE:
Conceptual design for planning purposes only.
Actual design and depths to be based on
conditions encountered during drilling.

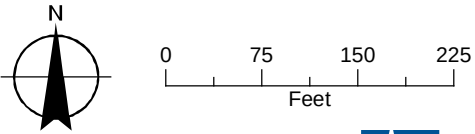
Date: June 20, 2019





FIGURE 5
Potential Well Siting Locations
Teal Crest Development
Groundwater Availability Report
Ridgefield, Washington

- LEGEND**
- Potential Well Site
 - Approximate Development Parcels
- All Other Features**
- Tax Lot
 - Watercourse
 - Waterbody



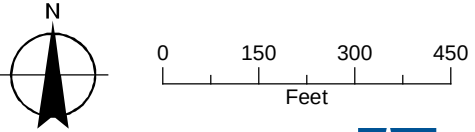
Date: December 11, 2018
Data Sources: Ecology, ESRI, USGS,
DigiGlobe 2016





FIGURE 6
Potential Well Siting Locations
Kennedy Farms - East
Groundwater Availability Report
Ridgefield, Washington

- LEGEND**
- Potential Well Site
 - All Other Features
 - Tax Lot
 - Ridgefield Boundary
 - Watercourse
 - Waterbody



Date: December 11, 2018
Data Sources: Ecology, ESRI, USGS,
DigiGlobe 2016



Attachment A

Well Logs

WATER WELL REPORT

STATE OF WASHINGTON

Application No. G2-23760
Permit No. G2-23760P

(1) OWNER: Name Pacific Wood Treating Corp. Address 111 W. Division St., Ridgefield, Wa.
(2) LOCATION OF WELL: County Clark NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 24 T. 4 N. R. 15 W.M.
Bearing and distance from section or subdivision corner 180' south and 800' east of N $\frac{1}{4}$ corner Section 24

(3) PROPOSED USE: Domestic ☐ Industrial ☒ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) 2
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 139 ft. Depth of completed well 139 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 8 " Diam. from 0 ft. to 129 ft.
Threaded ☐ " Diam. from _____ ft. to _____ ft.
Welded ☒ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☒ No ☐ UOP Johnson
Manufacturer's Name _____
Type stainless steel Model No. 304
Diam. 8 Slot size 30 from 129 ft. to 139 ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.
Screen = 10'-8", Hiser = 3'-0"
Gravel packed: Yes ☐ No ☒ Size of gravel: _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____
Type: _____ H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 29 ft. below top of well Date 10/1/75
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? driller
Yield: 155 gal./min. with 47 ft. drawdown after 8 hrs.
" " " " " "
" " " " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
0:00	76'	3:00	36'	20:00	31'-1"
2:00	55'	5:00	34'	45:00	29'-6"
2:00	40'	10:00	32'-665:00	29'-0"	

Date of test 9/30/75
Baller test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water 51 Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Fill gravel	0	2'
Sand, brown, gravel & boulders, with clay seams	2'	27'
Sand, brown & gravel, water bearing	27'	44'
Cemented gravel & boulders, gray	44'	115'
Sand, gray, fine, with gravel & seams of gray clay	115'	127'
Clay, brown & gravel	127'	128'
Water bearing sand, gray & gravel	128'	139'

NOV 7 1975

Work started 9/9, 19 75 Completed 10/1, 19 75

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME NORRIS DRILLING & PUMP CO., INC.
11026 N.E. ST. JOHN'S BLVD.
Address Vancouver, Washington 98642

[Signed] O. J. Norris (Well Driller)
License No. 0566 Date Oct. 8, 19 75

WATER WELL REPORT

Application No.

STATE OF WASHINGTON

Permit No.

(1) OWNER: Name City of Ridgefield Address Ridgefield, WA 98642
(2) LOCATION OF WELL: County Clark SE 1/4 NW 1/4 Sec. 19 T. 4 N., R. 1 WKM

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well 7
(if more than one) 7
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 355 ft. Depth of completed well 195.3 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8 " Diam. from 2.35 ft. to 146 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name UOP Johnson
Type Stainless Steel Model N Pipe Size
Diam. 5 Slot size .030 from 145.5 ft. to 166 ft.
Diam. 5 Slot size .030 from 171 ft. to 186 ft.

Gravel packed: Yes ☒ No ☐ Size of gravel: Aqua 8
Gravel placed from 129.5 ft. to 195 ft.

Surface seal: Yes ☒ No ☐ To what depth? 40 ft.
Material used in seal cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type HP

(8) WATER LEVELS: Land-surface elevation 43.8 ft.
above mean sea level
Static level 19.83 ft. below top of well Date 6/11/86
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom Carr/Assoc.
Yield: 400 gal./min. with 41.35 ft. drawdown after 4 hrs.
" " " " " "
" " " " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
1 min	36.42	37	25.00	151	22.30
5	30.22	65	23.79	210	21.88
10	28.31	122	22.60	266	20.67

Date of test 6/5/86
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Top Soil	0	2
Clay, gravel, sand	2	5
Gravel, cemented	5	14
Sand, gravel, clay	14	17
Gravel, sand, boulders, clay	17	22
Sand, black	22	28
Clay	28	28.9
Clay, gravel	29	32
Clay, sand, gravel	32	38
Sand, gravel	38	46
Sand, reddish brown gravel	46	55
Sand, blue brown red, gravel	55	64
Sand, brown, yellow, gravel	64	75
Sand, blue, brown	75	78
Sand, clay, yellow brown	78	80
Sand, yellow brown	80	93
Gravel	93	94
Clay, blue green	94	123
Clay, sandy, blue green	123	137
Sand, grey, water	137	143
Sand, brown, water	143	162
Sand, cemented, clay, dry	162	167
Sand, brown, water	167	187
Sand, wood	187	188
Rock, soft red	188	196
Clay, red	196	230
Clay, yellow brown, sand & gravel	230	270
Clay, brown, sand & gravel	270	285
Mudstone, dark brown	285	308
Clay, orange brown, sand & gravel	308	320
Sand, clay, some water	320	330
Clay, Yellow, sand & gravel	330	340
Rock, basalt	340	355+

Work started 5-1 19 86 Completed 6-6 19 86

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

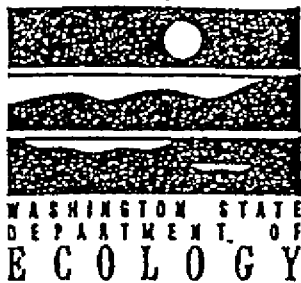
NAME Dale McGhee & Sons Well Drilling, I
(Person, firm, or corporation) (Type or print)

Address 3032 Allen St., Kelso, WA 98626

[Signed] J. Steve McGhee
(Well Driller)

License No. 0298 Date July 10, 19 86

(USE ADDITIONAL SHEETS IF NECESSARY)



UNIQUE WELL I.D. NUMBER

ABS/41
X Y Z 1 2 3

WELL TAGGING FORM

Date of Field Visit 9/20/94 By SAS C. Covert

ADDITIONAL WELL IDENTIFIERS

Department of Health System ID Number 72400V Source Number SO 7

USGS Site Identification _____

RECORD VERIFICATION

- ☒ Well Report available (*please attach*)
☐ Well Report not available
☐ Verification inconclusive

WELL OWNERSHIP, IF DIFFERENT FROM WELL REPORT

Name _____

Street address _____

City _____ State _____

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

Well Address _____

City _____ County _____

T. _____ N. R. _____ W.M. Sec. _____ 1/4 of the _____

Latitude _____

Longitude _____

- ☐ GPS (raw data)
☐ GPS (corrected)
☐ Topographic Map
☐ Survey
☐ Computer generated
☐ Other _____

Elevation at land surface _____ feet/meters (*circle one*)

- ☐ Digital Altimeter
☐ Topographic Map
☐ Other _____

Additional information, if available:

☐ Location marked on topographic map (please attach)

☐ Location marked on air photo (please attach)

Water Right # G 2-27103 C

Priority Date. 13 Aug 1986

Circle one: Application Permit Certificate Claim Exempt

WELL CHARACTERISTICS

Physical Description of Well (size of casing, type of well, housing, etc.): well head has

8" casing & is located in Abrams park

Location of Well Identification Tag: _____

Inside Vault at the well head.

Was Supplemental Tag needed for ease of identifying well?

☒ NO

☐ YES

If yes, where was tag placed? _____

Scale 1:24,000 (1"=2,000')

D	C	B	A
E		G	H
M	L	K	J
N	P	Q	R

Indicate the location of the well within the Section by drawing a dot at that point.

SECTION 19 SE 1/4 NW 1/4

COMMENTS: _____

WATER WELL REPORT

Application No

STATE OF WASHINGTON

Permit No

(1) OWNER: Name City of Ridgefield Address Ridgefield, WA 98642
(2) LOCATION OF WELL. County Clark — SE 1/4 NW 1/4 Sec 19 T 4 N, R 1 XXX
Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK Owner's number of well (if more than one) 7
New well ☒ Method Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches
Drilled 355 ft Depth of completed well 195.3 ft

(6) CONSTRUCTION DETAILS:

Casing installed: 8 " Diam from +2.35 ft to 146 ft
Threaded ☐ " Diam from — ft to — ft
Welded ☒ Diam from — ft to — ft

Perforations: Yes ☐ No ☒
Type of perforator used — — — — —
SIZE of perforations — in by — in
— — — — — perforations from — ft to — ft
— — — — — perforations from — ft to — ft
— — — — — perforations from — ft to — ft

Screens: Yes ☒ No ☐
Manufacturer's Name UOP Johnson
Type Stainless Steel Model No — Pipe Size —
Diam 5 Slot size .030 from 145.5 ft to 166 ft
Diam 5 Slot size .030 from 171 ft to 186.5 ft

Gravel packed: Yes ☒ No ☐ Size of gravel Aqua 8
Gravel placed from 129.5 ft to 195 ft

Surface seal: Yes ☒ No ☐ To what depth? 40 ft
Material used in seal cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? — — — — — Depth of strata — — — — —
Method of sealing strata off. — — — — —

(7) PUMP: Manufacturer's Name — — — — —
Type — — — — — HP — — — — —

(8) WATER LEVELS. Land-surface elevation 43.8 ft
Static level 19.83 ft above mean sea level
Artesian pressure — — — — — lbs per square inch Date 6/11/86
Artesian water is controlled by — — — — — (Cap, valve, etc.)

(9) WELL TESTS:

Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes by whom Carr/Assoc
Yield 400 gal/min with 41.35 ft drawdown after 4 hrs

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
1 min	36.42	37	25.00	151	22.30
5	30.22	65	23.79	210	21.88
10	28.31	122	22.60	266	20.67

Date of test 6/5/86
Bailer test — gal/min with — ft drawdown after — hrs
Artesian flow — gpm Date —
Temperature of water — Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG

Formation Describe by color character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation

MATERIAL	FROM	TO
Top Soil	0	2
Clay, gravel, sand	2	5
Gravel, cemented	5	14
Sand, gravel, clay	14	17
Gravel, sand, boulders, clay	17	22
Sand, black	22	28
Clay	28	29
Clay, gravel	29	32
Clay, sand, gravel	32	38
Sand, gravel	38	46
Sand, reddish brown gravel	46	55
Sand, blue brown red, gravel	55	64
Sand, brown, yellow, gravel	64	75
Sand, blue, brown	75	78
Sand, clay, yellow brown	78	80
Sand, yellow brown	80	93
Gravel	93	94
Clay, blue green	94	123
Clay, sandy, blue green	123	137
Sand, grey, water	137	143
Sand, brown, water	143	162
Sand, cemented, clay, dry	162	167
Sand, brown, water	167	187
Sand, wood	187	188
Rock, soft red	188	196
Clay, red	196	230
Clay, yellow brown, sand & gravel	230	270
Clay, brown, sand & gravel	270	285
Mudstone, dark brown	285	308
Clay, orange brown, sand & gravel	308	320
Sand, clay, some water	320	330
Clay, Yellow, sand & gravel	330	340
Rock, basalt	340	355+

Work started 5-1 19 86 Completed 6-6 19 86

WELL DRILLER'S STATEMENT

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

NAME Dale McGhee & Sons Well Drilling, Inc
(Person, firm, or corporation) (Type or print)

Address 3032 Allen St., Kelso, WA 98626

[Signed] _____ (Well Driller)

License No _____ Date _____, 19 _____

CERTIFICATE OF WATER RIGHT

- ☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917 and amendments thereto and the rules and regulations of the Department of Ecology)
- ☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
August 13, 1986	G 2-27103	G 2-27103 P	G 2-27103 C

NAME City of Ridgefield			
ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
230 Pioneer Avenue	Ridgefield	Washington	98668

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown, but is limited to an amount actually beneficially used

PUBLIC WATER TO BE APPROPRIATED

SOURCE Well No. 7
TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	300	241

QUANTITY	TYPE OF USE	PERIOD OF USE
241 acre-feet per year (Supplemental)	Municipal supply	As needed year round

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL 820 feet North and 620 feet West of the center of Section 19.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N	RANGE (E OR W) W M	W R I A	COUNTY
SE 1/4 NW 1/4	19	4	1E	27	Clark

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Ridgefield.

WATER WELL REPORT

Application No.

STATE OF WASHINGTON

Permit No.

(1) OWNER: Name City of Ridgefield Address Ridgefield, Wa 98642

(2) LOCATION OF WELL: County Clark — SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 19 T4 N, R. 1 XXXX

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) 8
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 212 ft. Depth of completed well 193 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8 " Diam. from +1.65 ft. to 153 ft.
Threaded ☐ " Diam. from _____ ft. to _____ ft.
Welded ☒ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☒ No ☐
Manufacturer's Name UOP Johnson
Type stainless steel Model No. Pipe Size
Diam. 5 Slot size .030 from 153 ft. to 184.5 ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☒ No ☐ Size of gravel Agua 8
Gravel placed from 130.5 ft. to 193 ft.

Surface seal: Yes ☒ No ☐ To what depth? 40 ft.
Material used in seal cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____
Type: _____ H.P.

(8) WATER LEVELS: Land-surface elevation 45 ft.
Static level 19.84 ft. below top of well Date 6/11/86
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Carr/Assoc
Yield: 400 gal./min. with 42.5 ft. drawdown after 4 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
1 min.	30.85	7	26.77	34	23.80
3	28.35	10	26.05	72	22.43
5	27.37	15	25.35	100	21.92

Date of test 6/11/86
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Top Soil	0	2
Clay, Brown	2	4
Gravel, Clay	4	14
Clay, Blue, Some gravel	14	32
Gravel, cemented	32	44
Sand, Brown, water	44	92
Sand, some water	92	106
Clay, Blue green	106	147
Clay, Sandy, Blue grey	147	149
Sand, Brown, water	149	188
Sand, Clay, Brown	188	197
Sand, Brown, water	197	207
Clay, Gravel, Sand, Grey	207	212

RECEIVED
JUL 14 11:29
INFORMATION UNIT
STATE OF WASHINGTON

Work started 5-29, 1986 Completed 6-13, 1986

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Dale McGhee & Sons Well Drilling,
(Person, firm, or corporation) (Type or print)

Address 3032 Allen St., Kelso, WA 98626

[Signed] [Signature] (Well Driller)

License No. 0298 Date July 10, 1986

(USE ADDITIONAL SHEETS IF NECESSARY)

WATER WELL REPORT

Application No.

STATE OF WASHINGTON

Permit No.

(1) OWNER: Name City of Ridgefield Address Ridgefield, WA 98642

(2) LOCATION OF WELL: County Clark — SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 19 T. 4 N., R. 1 ~~W~~

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well 9
(if more than one) ...
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 240 ft. Depth of completed well 208 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8 " Diam. from +1.2 ft. to 162 ft.
Threaded ☐ " Diam. from _____ ft. to _____ ft.
Welded ☒ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒

Type of perforator used _____ in. by _____ in.
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☒ No ☐

Manufacturer's Name UOP Johnson
Type Stainless Steel Model N Pipe Size _____
Diam. 5 Slot size .030 from 162.5 ft. to 199.5 ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☒ No ☐ Size of gravel: Aqua 08
Gravel placed from 141 ft. to 208 ft.

Surface seal: Yes ☒ No ☐ To what depth? 40 ft.

Material used in seal cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____
Type: _____ H.P.

(8) WATER LEVELS: Land-surface elevation 46.5 ft.
Static level 19.7 ft. below top of well Date 6/11/86
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☒ No ☐ If yes, by whom? Carr/Assoc
Yield: 400 gal./min. with 37.9 ft. drawdown after 24 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
1 min.	33.07	30	26.52	140	23.22
5	30.11	65	24.85	180	22.75
15	27.92	90	24.20	210	22.46

Date of test 5-23-86

Ballor test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Top Soil	0	2
Clay, sandy	2	5
Gravel, clay, sand	5	13
Clay, sandy	13	21
Clay	21	26
Gravel, boulders	26	42
Sand, Gravel	42	51
Sand, Dark Brown	51	68
Sand, some gravel	68	73
Claystone, sandy, brown	73	76
Sand, brown, yellow, water	76	114
Clay, blue green	114	141
Sand, brown, some gravel	141	143
Clay, blue gray, hard	143	145
Clay, grey brown	145	149
Sand, Brown, small gravels	149	155
Sand, grey brown, dirty	155	165
Sand, brown, some gravel, water	165	205
Sand, brown, silty	205	215
Sand, brown, with wood	215	220
Sand, grey w/clay and wood	220	235
Clay, soft rock, red, dry	235	240

RECEIVED
JUL 14 1986
CLARK COUNTY
REGISTRATION OFFICE

Work started 5-8, 1986. Completed 5-24, 1986

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Dale McGhee & Sons Well Drilling, Inc.
(Person, firm, or corporation) (Type or print)

Address 3032 Allen St., Kelso, WA 98626

[Signed] Dale McGhee
(Well Driller)

License No. 0298 Date July 10, 1986

(USE ADDITIONAL SHEETS IF NECESSARY)



WATER WELL REPORT

Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller

Construction/Decommission ("x" in circle)

☒ Construction

☐ Decommission ORIGINAL INSTALLATION Notice

266957 of Intent Number

PROPOSED USE ☐ DeWater ☐ Domestic ☐ Irrigation ☐ Industrial ☐ Test Well ☒ Municipal ☐ Other

TYPE OF WORK Owner's number of well (if more than one) 10

☒ New well ☐ Reconditioned ☐ Deepened Method ☐ Dug ☐ Bored ☐ Driven ☐ Cable ☒ Rotary ☐ Jetted

DIMENSIONS Diameter of well 1 inches, drilled 223 ft. Depth of completed well 135 ft.

CONSTRUCTION DETAILS

Casing ☒ Welded 12" Diam from +1.5 ft to 108.5 ft
Installed ☐ Liner installed Diam from ft to ft
☐ Threaded Diam from ft to ft

Perforations ☐ Yes ☒ No

Type of perforator used

SIZE of perfs in. by in. and no. of perfs from ft to ft.

Screens ☒ Yes ☐ No ☐ K-Pac Location

Manufacturer's Name Johnson

Type V-wire Stainless Steel Model No

Diam. 8 5/8 Slot size 28 from 109.2 ft to 129.7 ft

Diam. 8 5/8 Slot size 28 from 106.1 ft to 108.7 ft

Gravel/Filter packed ☒ Yes ☐ No Size of gravel/sand 16/30

Materials placed from 102 ft to 135 ft

Surface Seal ☒ Yes ☐ No To what depth? 18 ft

Material used in seal Bentonite Chips

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? Depth of strata

Method of sealing strata off

PUMP Manufacturer's Name

Type HP

WATER LEVELS Land-surface elevation above mean sea level ft

Static level 16 ft below top of well Date 7/6/07

Artesian pressure lbs per square inch Date

Artesian water is controlled by (cap, valve etc)

WELL TESTS Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes by whom?

Yield gal/min with ft drawdown after hrs

Yield gal/min with ft drawdown after hrs

Yield gal/min with ft drawdown after hrs

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time Water Level Time Water Level Time Water Level

Date of test

Bailer test gal/min with ft drawdown after hrs

Artest 100 gal/min. with stem set at 110-130 ft for 9/8 hrs

Artesian flow g.p.m. Date

Temperature of water Was a chemical analysis made? ☐ Yes ☒ No

CURRENT

Notice of Intent No. WE06634

Unique Ecology Well ID Tag No APP-678

Water Right Permit No G2-20381

Property Owner Name City of Ridgefield

Well Street Address East end of Division - Abrams Park

City Ridgefield County Clark

Location SW 1/4-1/4 NW 1/4 Sec 19 Twn 4 R 1 EWM or WWM ☒ circle one

Lat/Long (s, t, r) Lat Deg N 45 Lat Min/Sec 49' 07"

Still REQUIRED) Long Deg W 122 Long Min/Sec 44' 19"

Tax Parcel No 67888002

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation Describe by color, character size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY)

MATERIAL	FROM	TO
Brown silty sand	0	15
Gray glacial till	15	19
Gray cobbles, gravel, sand, small boulder, some water	19	53
Brown sand, some water, some gravel	53	57
Gray sandy silt, some pea gravel, wet	57	71
Blue-green sandstone	71	78
Blue-green silty sand, mica	78	88
Brown-gray sand, silt, water	88	101
Grayish-brown sand, some clay, some water	101	135
Light brown clay, some sand	135	151
Light brown clay, some gravel, some sand	151	153
Light brown sand, clay	153	156
Light brown clayey gravel, some sand	156	163
Red clay	163	166
Layered brown / red / gray clay, some sand	166	218
Broken weathered basalt, brown to gray clay	218	221
Black basalt	221	223

Two days of development, abandon bottom of hole with bentonite chips, 3' pea gravel 135'-138'

JUL 24 2007

Washington State

Department of Ecology

Job 07-1526-04

Start Date 05/30/2007

Completed Date 07/06/2007

WELL CONSTRUCTION CERTIFICATION I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Mark Wiese

Driller/Engineer/Trainee Signature

Driller or trainee License No 2432

If TRAINEE, Driller's Licensed No

Driller's Signature

Drilling Company Tacoma Pump & Drilling Co., Inc

Address 30316 Mountain Highway

City State Zip Graham, WA 98338

Contractor's

Registration No TACOMPD203PF

Date 07/16/2007

Ecology is an Equal Opportunity Employer



WATER WELL REPORT

Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller

Construction/Decommission ("x" in circle)

☒ Construction

☐ Decommission ORIGINAL INSTALLATION Notice

of Intent Number

PROPOSED USE: ☐ Domestic ☐ Industrial ☒ Municipal
☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other

TYPE OF WORK: Owner's number of well (if more than one)

☒ New well ☐ Reconditioned Method: ☐ Dug ☐ Bored ☐ Driven
☐ Deepened ☐ Cable ☒ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 1 inches, drilled 223 ft.
 Depth of completed well 135 ft.

CONSTRUCTION DETAILS

Casing ☒ Welded 12" Diam. from +1.5 ft. to 108.5 ft.
 Installed: ☐ Liner installed " Diam. from " ft. to " ft.
☐ Threaded " Diam. from " ft. to " ft.

Perforations: ☐ Yes ☒ No

Type of perforator used

SIZE of perfs in. by in. and no. of perfs from ft. to ft.

Screens: ☒ Yes ☐ No ☐ K-Pac Location

Manufacturer's Name Johnson

Type V-wire Stainless Steel

Model No.

Diam. 8 5/8 Slot size 28 from 109.2 ft. to 129.7 ft.

Diam. 8 5/8 Slot size 28 from 106.1 ft. to 108.7 ft.

Gravel/Filter packed: ☒ Yes ☐ No ☐ Size of gravel/sand 16/30

Materials placed from 102 ft. to 135 ft.

Surface Seal: ☒ Yes ☐ No To what depth? 18 ft.

Material used in seal Bentonite Chips

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? Depth of strata

Method of sealing strata off

PUMP: Manufacturer's Name

Type: H.P.

WATER LEVELS: Land-surface elevation above mean sea level ft.

Static level 16 ft. below top of well Date 7/6/07

Artesian pressure lbs. per square inch Date

Artesian water is controlled by (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom?

Yield: gal/min. with ft. drawdown after hrs.

Yield: gal/min. with ft. drawdown after hrs.

Yield: gal/min. with ft. drawdown after hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test

Bailer test gal/min. with ft. drawdown after hrs.

Airtest 100 gal/min. with stem set at 110-130 ft. for 9/8 hrs.

Artesian flow g.p.m. Date

Temperature of water Was a chemical analysis made? ☐ Yes ☒ No

CURRENT

Notice of Intent No. WE06634

Unique Ecology Well ID Tag No. APP-678

Water Right Permit No. G2-20381

Property Owner Name City of Ridgefield

Well Street Address East end of Division - Abrams Park

City Ridgefield County Clark

Location SE 1/4-1/4 NW 1/4 Sec 19 Twn 4 R 1 EWM ☒ circle
 or WWM ☐ one

Lat/Long (s, t, r) Lat Deg Lat Min/Sec

Still REQUIRED) Long Deg Long Min/Sec

Tax Parcel No. 67888002

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Brown silty sand.	0	15
Gray glacial till.	15	19
Gray cobbles, gravel, sand, small boulder, some water	19	53
Brown sand, some water, some gravel.	53	57
Gray sandy silt, some pea gravel, wet.	57	71
Blue-green sandstone.	71	78
Blue-green silty sand, mica.	78	88
Brown-gray sand, silt, water.	88	101
Grayish-brown sand, some clay, some water.	101	135
Light brown clay, some sand.	135	151
Light brown clay, some gravel, some sand.	151	153
Light brown sand, clay.	153	156
Light brown clayey gravel, some sand.	156	163
Red clay.	163	166
Layered brown / red / gray clay, some sand.	166	218
Broken weathered basalt, brown to gray clay.	218	221
Black basalt.	221	223

Two days of development; abandon bottom of hole with bentonite chips; 3' pea gravel 135'-138'.

JUL 24 2007

Washington State

Department of Ecology

Job 07-1526-04

Start Date 05/30/2007

Completed Date 07/06/2007

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Mark Wiese

Driller/Engineer/Trainee Signature

Driller or trainee License No. 2432

If TRAINEE,

Driller's Licensed No.

Driller's Signature

Drilling Company Tacoma Pump & Drilling Co., Inc.

Address 30316 Mountain Highway

City, State, Zip Graham, WA 98338

Contractor's

Registration No. TACOMPD203PF

Date 07/16/2007

Ecology is an Equal Opportunity Employer.

WATER WELL REPORT

STATE OF WASHINGTON

Application No.

Permit No.

(1) OWNER: Name Port of Ridgefield Address P.O.Box 55 Ridgefield, WA 98642
(2) LOCATION OF WELL: County Clark — NW 1/4 SE 1/4 Sec. 21 T. 4 N. R. 1E W.M.
Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 5 inches.
Drilled 460 ft. Depth of completed well 458.4 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 8 " Diam. from 0 ft. to 326.3
Threaded ☐ 5 " Diam. from 300 ft. to 458.4 ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☐
Type of perforator used
SIZE of perforations in. by in.
..... perforations from ft. to ft.
..... perforations from ft. to ft.
..... perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name UOP-Johnson
Type 304 SS Model No. 342
Diam. 5 ps Slot size 0.030 from 326.3 ft. to 342 ft.
Diam. Slot size from 357.3 ft. to 377.8 ft.

Gravel packed: Yes ☒ No ☐ Monterey #8
Gravel placed from 306 ft. to 460 ft.

Surface seal: Yes ☒ No ☐ To what depth? 41.7 ft.
Material used in seal Bent-Cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: HP

(8) WATER LEVELS: Land-surface elevation approx. 250
212.7 ft. above mean sea level. 7/9/85 ft.
Static level ft. below top of well Date
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? J.R. Carr/Assoc.
Yield: 330 gal./min. with 20.2 ft. drawdown after 24 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
2 min	217.1	11	216.5	60	215.74
3 min	216.87	25	216.11	200	215.41
5.5	216.84	45	215.87		

Date of test 7/9/85
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water 53.5 Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

	FROM	TO
Sandy Topsoil	0	14
Sandy Topsoil	14	25
Clay	25	45
Brown Sandy Clay	45	62
Brown Silty Sand	62	81
Silty Sand & Gravel	81	171
Sand & Gravel	171	225
Brown-Orange Sand fn-crs	225	230
Gray Sand, minor gravel	230	235
same w/layers Blue Clay	235	255
Blue Clay, minor gravel	255	265
Green Clay, minor gravel	265	275
Blue Clay	275	285
Sandy Clay, fn-micaceous sand	285	300
Clayey Sand, micaceous	300	305
Brown Silty Sand	305	315
same w/Wood chips	315	360
Gray-Blue Sand, minor gravel	360	370
same w/Wood chips	370	395
Gray-Blue Sand, minor gravel	395	399
Silty Sand w/Wood chips	399	420
Sand & Gravel	420	435
Silty Sand, fn Gray	435	450
same w/ MONTEREY gravel	450	458
Silty Sand, fn Gray	458	460
Blue Clay, Sand, Gravel		

Note: Cable Tool String & SWAB tool
Buried and filled with
monterey sand to 408 feet.

Work started 6/12 1985 Completed 7/18 1985

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Hansen Drilling Co. Inc.
(Person, firm, or corporation) (Type or print)

Address 6711 NE 58th Ave. Vancouver WA

0455 Marvin Sample

[Signed] Marvin Sample
(Well Driller)

License No. C-51 Date July 28 1985

223-02HA-NS-ED-*377NT

(USE ADDITIONAL SHEETS IF NECESSARY)

WATER WELL REPORT

Application No.

STATE OF WASHINGTON

Permit No.

(1) OWNER: Name Port of Ridgefield Address P.O.Box 55 Ridgefield, WA 98642
(2) LOCATION OF WELL: county Clark NW 1/4 SE 1/4 Sec. 21 T. 4 N. R. 1E W.M.
bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 5 inches.
Drilled 460 ft. Depth of completed well 458.4 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 8 " Diam. from 0 ft. to 326.3 ft.
Threaded ☐ 5 " Diam. from 300 ft. to 458.4 ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☐
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name UOP-Johnson
Type 304 SS Metal No. 342
Diam. 5 " Slot size 0.030 " from 357.8 ft. to 441.8 ft.
Diam. Slot size " from ft. to ft.

Gravel packed: Yes ☒ No ☐ Monterey #8
Gravel placed from 306 ft. to 460 ft.

Surface seal: Yes ☒ No ☐ To what depth? 41.7 ft.
Material used in seal Bent-Cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation approx. 250
212.7 ft. above mean sea level 7/9/85
Static level ft. below top of well Date
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? J.B. Carr/ASSOC
Yield: 330 gal./min. with 20.2 ft. drawdown after 24 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
2 min	217.1	11	216.5	60	215.74
3 min	216.87	25	216.11	200	215.41
4.5	216.84	45	215.87		

Date of test 7/9/85
Ballot test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water 53.5 Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Sandy Topsoil	0	14
Sandy Topsoil	14	25
Clay	25	45
Brown Sandy Clay	45	62
Brown Silty Sand	62	81
Silty Sand & Gravel	81	171
Sand & Gravel	171	225
Brown-Orange Sand fn-crs	225	230
Gray Sand, minor gravel	230	235
same w/layers Blue Clay	235	255
Blue Clay, minor gravel	255	265
Green Clay, minor gravel	265	275
Blue Clay	275	285
Sandy Clay, fn-micaceous sand	285	300
Clayey Sand, micaceous	300	305
Brown Silty Sand	305	315
same w/Wood chips	315	360
Gray-Blue Sand, minor gravel	360	370
same w/Wood chips	370	395
Gray-Blue Sand, minor gravel	395	399
Silty Sand w/Wood chips	399	420
Sand & Gravel	420	435
Silty Sand, fn Gray	435	450
same w/XXXXXXX gravel	450	458
Silty Sand, fn Gray	458	460
Blue Clay, Sand, Gravel		

Work started 6/12 19 85 Completed 7/18 19 85

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

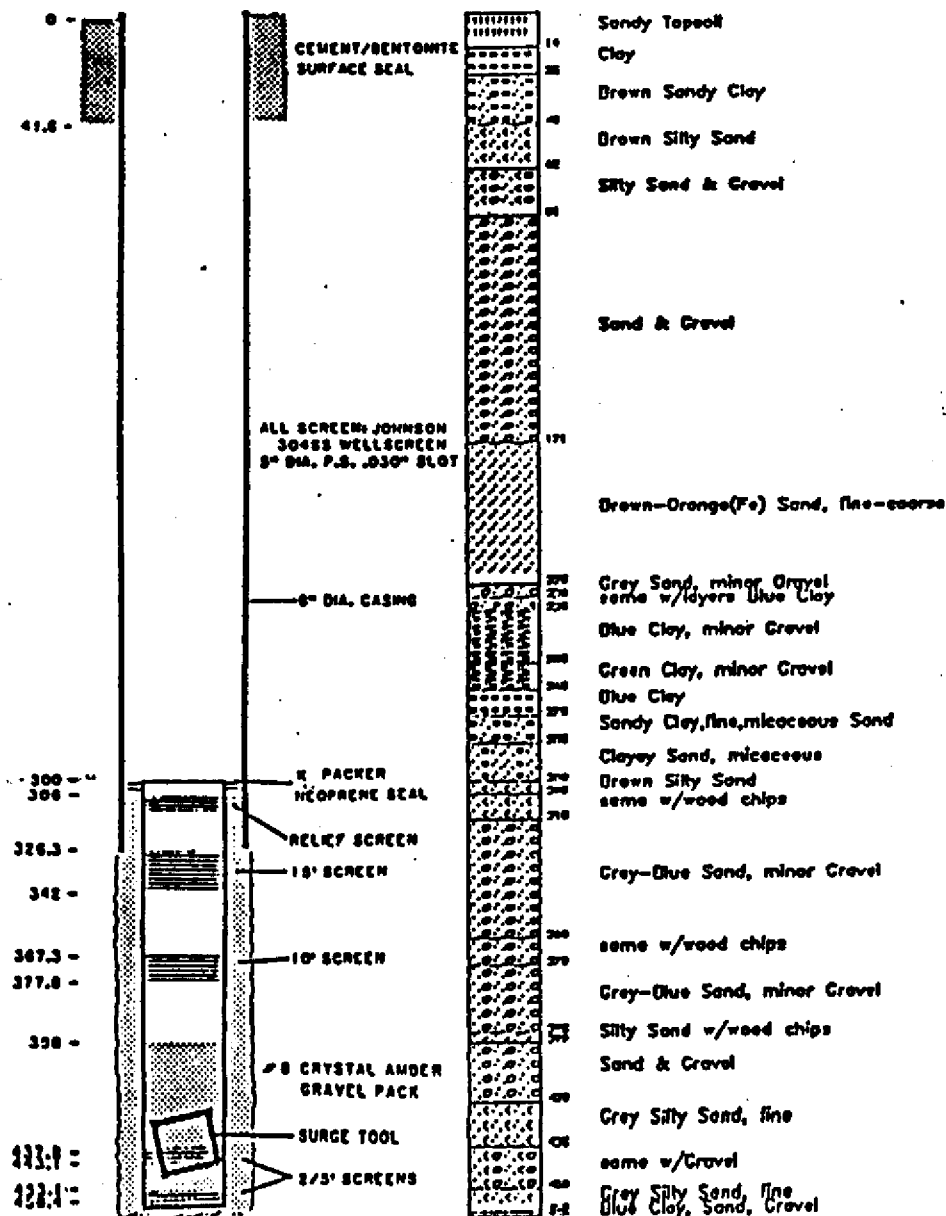
NAME Hansen Drilling Co. Inc.
(Person, firm, or corporation) (Type or print)
6711 NE 58th Ave. Vancouver WA
Address

[Signed] (Well Driller)

License No. Date 19

PORT OF RIDGEFIELD

Construction and Testing of Production Well 1



JULY 1985

PREPARED BY: J.R. CARR/ASSOCIATES

JAMES R. CARR

TRACY L. MOGG

WATER SAMPLE INFORMATION FOR INORGANIC CHEMICAL ANALYSE

FOR INSTRUCTION

G. NUMBER 9102530 (CO) 27 CITY 07/10/85 DATE RECEIVED 07/10/85 DATE COLLECTED 07/10/85 COLLECTED BY: Tracy
 Telephone: 851-5562

Is this a follow up of a previous out of compliance sample? Yes ☐ No ☒

If yes, what was the laboratory number of the previous sample? _____

SYSTEM I.D. NO. _____ SYSTEM NAME: Port of Ridgefield SYSTEM CLASS (circle one) 1 2 3 4 COUNTY Pierce
 SAMPLE LOCATION 1 THIS SAMPLE TAKEN BEFORE TREATMENT ☒ AFTER ☐ IF TAKEN AFTER TREATMENT WAS IT ☐ FILTERED ☐ FLUORID.
 SOURCE TYPE: 3 1. SURFACE ☒ 2. SPRING ☐ 3. WELL ☐ 4. PURCHASE ☐ SOURCE NO. _____ IF SOURCE IS LAKE OR STREAM, ENTER NAME _____ IF SAMPLE WAS DRAWN FROM DISTRIBUTION IT WAS COLLECTED FROM SYSTEM AT: (A) _____
 DATE OF FINAL REPORT: 07/18/85

REMARKS:

DNW well

SEND REPORT TO: (PRINT FULL NAME & ADDRESS)

J.R. Carr & Assoc.

Name

P.O. Box 1158

Street

Gig Harbor

City

WA

98335

ZIP CODE

Telephone: 206, 851-5562

Area Code

LABORATORY REPORT (DO NOT WRITE BELOW THIS LINE)

TESTS	*MCL	Less Than	RESULTS		Compliance YES NO	Chemist Initials	Laboratory Number (If different than above)
Arsenic As	0.05	P	<u>0.005</u>	mg/l	☒	JTV	
Barium Ba	1.0	P	<u>0.02</u>	mg/l	☒	JTV	
Cadmium Cd	0.01	P	<u>0.001</u>	mg/l	☒	JTV	
Chromium Cr	0.05	P	<u>0.001</u>	mg/l	☒	JTV	
Iron Fe	0.3	P	<u>0.078</u>	mg/l	☒	JTV	
Lead Pb	0.05	P	<u>0.001</u>	mg/l	☒	JTV	
Manganese Mn	0.05	P	<u>0.192</u>	mg/l	☒	JTV	
Mercury Hg	0.002	P	<u>0.001</u>	mg/l	☒	DLA	
Selenium Se	0.01	P	<u>0.002</u>	mg/l	☒	JTV	
Silver Ag	0.05	P	<u>0.001</u>	mg/l	☒	JTV	
Sodium Na			<u>0.009</u>	mg/l	☒	JTV	
Hardness			<u>0.67</u>	mg/l As CaCO ₃	☒	DLA	
Conductivity	700		<u>0.181</u>	Microhm/cm 25° C	☒	DLA	
Turbidity	1.0	P	<u>0.121</u>	NTU	☒	DLA	
Color	15.0		<u>0.05</u>	Color Units	☒	DLA	
Fluoride F	2.0	P	<u>0.001</u>	mg/l	☒	DLA	
Nitrate as N	10.0	P	<u>0.002</u>	mg/l	☒	DLA	
Chloride Cl	250		<u>0.036</u>	mg/l	☒	JTV	
Sulfate SO ₄	250			mg/l			

*MCL is the Maximum Contaminant Level Allowed

P Primary Standard

DS115 4-02G (10-79)

DATA PROCESSING—SEATTLE REGIONAL OFFICE

Don Anderson Laboratory Supervisor

Water Quality

Water quality analyses by W.M.A. Laboratory of a sample taken from the completed well after 24 hours of pumping is attached. The concentration of iron (0.78 mg/L) exceeds the Department of Social and Health Services' maximum contaminant level (MCL) of 0.3 mg/L. The concentration of manganese (0.192 mg/L) also exceeds the D.S.H.S. MCL of 0.05 mg/L. These MCL levels are based on aesthetic considerations and are not related to any toxicological considerations. These elevated levels may present a water quality problem. Both iron and manganese can cause staining of laundry and plumbing fixtures. Iron is detectable in taste by some persons at concentrations above 0.3 mg/L. Various methods to reduce the concentrations of iron and manganese include:

- * Chemical precipitation
- * pH adjustment
- * Aeration
- * Blending

The Port may wish to consider one or more of these treatments at the Ridgefield Junction site.

Conclusions and Recommendations

- 1) The well has been tested at a discharge rate of 330 gpm with a pumping level at 233 feet below ground surface (specific capacity = 16 gpm/ft-drawdown).

- 2) Production Well 1 is capable of sustaining a safe yield of 400 gpm, however, the test rate of 330 gpm should not be exceeded prior to performing a 24 hour pumping test at the higher rate.
- 3) A surge tool left in the well has not significantly altered the well yield or the water quality.
- 4) The permanent pump intake should be set at 285 feet below ground surface.
- 5) A permanent water meter should be installed on the pump discharge.
- 6) The well head design should include provisions for:
 - * a water level sounding port
 - * a tee to open discharge
 - * a sampling port
- 7) A 1/2-inch diameter sounding pipe should be installed with the pump for future water level measurements.
- 8) Samples for chemical and bacteriological analyses should be taken following installation of the permanent pump and thorough chlorination.

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that the Land Use Hearing Examiner will conduct a public hearing on Wednesday, March 18th, 19 87 . at 7:00 p.m. in the Franklin Center Building, 1013 Franklin Street, Vancouver, Washington, Commissioner's Hearing Room, 2nd Floor, to consider the following:

APPLICANT: CUP #87-07-2941
City of Ridgefield

REQUEST: The applicant requests a Conditional Use Permit to construct a water tower, on the Ridgefield School District Property.

LOCATION: North side of N.E. Hillhurst Road, west of N.W. Royle Road.

LEGAL DESCRIPTION: Parcel "A"
That portion of the Southwest (SW) quarter of Section Twenty-nine (29), Township Four (4) North, Range One (1) East of the Willamette Meridian, described as follows: BEGINNING at a point that is South 89°11'52" East 1576.00 feet from the quarter corner on the West boundary of said Section 29; thence South 89°11'52" East 743.19 feet to the center of said Section; thence South 0°59'40" West, along the East line of said Southwest (SW) quarter, 2056.80 feet to the Northerly right of way line of County Road No. 15; thence North 53°05'15" West, along said right of way, 345.71 feet; thence along the arc of a curve to the left having a radius of 602.56 feet, through a central angle of 11°04'15" an arc distance of 116.51 feet; thence North 64°59'30" West 345.43 feet; thence North 0°52'57" East, parallel with the East line of the Southwest (SW) quarter, 1658.11 feet to the point of beginning.
EXCERPT that portion conveyed to Clark County, Washington, by deed recorded March 20, 1962, under auditor's file No. 3 327832.

Parcel "B"
That portion of the Northwest (NW) quarter of the Southeast (SE) quarter of Section Twenty-nine (29), Township Four (4) North, Range One (1) East of the Willamette Meridian, described as follows: BEGINNING at a point on the South line of the Northwest (NW) quarter of the Southeast (SE) quarter of said Section Twenty-nine (29), that is South 89°22'53" East 643.50 feet from the Southwest corner thereof; thence North 0°58'40" East 60.00 feet; thence South 89°22'53" East 335.74 feet to the easterly right of way line of County Road No. 25; thence South 31°57'22" West, along said right of way, 70.25 feet; thence North 89°22'53" West 247.60 feet to the point of beginning.
EXCERPT that portion conveyed to Clark County, Washington, by deed recorded March 20, 1962, under auditor's file No. 3 327832.

For more information regarding this request, please contact Clark County Planning and Code Administration, 1408 Franklin Street, Vancouver, Washington, (206) 699-2394.



WATER WELL REPORT

Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller

Construction/Decommission ("x" in circle)

☒ Construction

☐ Decommission ORIGINAL CONSTRUCTION Notice of Intent Number

PROPOSED USE: ☒ Domestic ☐ Industrial ☐ Municipal
☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other

TYPE OF WORK: Owner's number of well (if more than one)
☒ New Well ☐ Reconditioned Method ☐ Dug ☐ Bored ☐ Driven
☐ Deepened ☐ Cable ☒ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 6" inches, drilled 357 ft
 Depth of completed well 357 ft

CONSTRUCTION DETAILS

Casing ☒ Welded 6" Diam from +1'10 1/4" ft to 340 ft
 Installed: ☐ Liner installed 5" Head Diam from 335'7" ft to 341'3"
☐ Threaded Diam from ft to ft

Perforations: ☐ Yes ☒ No

Type of perforator used
 SIZE of perfs in by in and no of perfs from ft to ft

Screens: ☒ Yes ☐ No ☐ K-Pac Location 335'7"
 Manufacturer's Name Johnson
 Type Stainless steel Model No
 Diam 5" Slot Size 14 from 341'3" ft to 357 ft
 Diam Slot Size from ft to ft

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand
 Materials placed from ft to ft

Surface Seal: ☒ Yes ☐ No To what depth? 20 ft

Materials used in seal Hole plug/quick grout

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? Depth of strata

Method of sealing strata off

PUMP: Manufacturer's Name
 Type HP

WATER LEVELS: Land-surface elevation above mean sea level ft
 Static level 155 ft below top of well Date 8-28-03
 Artesian pressure lbs per square inch Date
 Artesian water is controlled by (cap, valve, etc)

WELL TESTS: Drawdown is amount water level is lowered below static level
 Was a pump test made? ☐ Yes ☒ No If yes, by whom?

Yield gal/min with ft drawdown after hrs
 Yield gal/min with ft drawdown after hrs
 Yield gal/min with ft drawdown after hrs

Recovery data (time taken as zero when pump turned off)(water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
 Water test 75 gal/min with 95 ft drawdown after 1 hrs

Air test 150 gal/min with stem set at 280 ft for 3 hrs

Artesian flow g p m. Date

Temperature of water Was a chemical analysis made? ☐ Yes ☒ No

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Mark Blackburn

Driller/Engineer/Trainee Signature

Driller or Trainee License No. 2296

If trainee, licensed driller's
 Signature and License no.

CURRENT
 Notice of Intent No. W 168512

Unique Ecology Well ID Tag No AGO 875

Water Right Permit No.

Property Owner Name Jeff Dougherty

Well Street Address 621 Shobert Lane

City Ridgefield County Clark

Location NW 1/4- 1/4 SW 1/4 Sec 19 Twn 4N R 1E EWM circle or one WWM

Lat/Long. Lat Deg Lat Min/Sec
 (s, t, r still REQUIRED) Long Deg Long Min/Sec

Tax Parcel No.

CONSTRUCTION OR DECOMMISSION PROCEDURE
 Formation. Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. Indicate all water encountered (USE ADDITIONAL SHEETS IF NECESSARY)

MATERIAL	FROM	TO
Top soil	0	1
Brown clay	1	15
Brown sand	15	23
Grey sticky clay with gravel	23	30
Brown sticky clay	30	70
Clay & gravel brown	70	100
Sand & gravel loose	100	170
Loose sand & gravel	170	185
Brown/grey sand little gravel, water	185	230
Grey clay	230	235
Black & grey cemented sand, water	235	245
Grey shaley clay with siltstone	245	260
Brown sand & water	260	355
Cemented brown sand	355	357

Hardness 6

Iron .3

PH 7.3

RECEIVED

SEP 05 2003

Washington State
 Department of Ecology

Start Date 8-22-03 Completed Date 8-28-03

City, State, Zip Vancouver Wa 98661

Contractor's
 Registration No. HANSED*377NT Date 8-29-03

Ecology is an Equal Opportunity Employer ECY 050-1-20 (Rev 4/01)

WATER WELL REPORT

STATE OF WASHINGTON

Notice of Intent W 102775
UNIQUE WELL I.D. # AFF 434

Water Right Permit No.

(1) OWNER: Name Dept. of Int./Ridgefield W.L. Refuge Address 911 N.E. 11th Avenue, Portland, OR 97232
(2) LOCATION OF WELL: County Clark - SE 1/4 SE 1/4 Sec 24 T. 4N N.R. 1W W.M.
(2a) STREET ADDRESS OF WELL (or nearest address) Bachelor Island Compound
TAX PARCEL NO.

(3) PROPOSED USE: ☒ Domestic ☐ Industrial ☐ Municipal
☐ Irrigation ☐ Test Well ☐ Other
☐ DeWater

(4) TYPE OF WORK: Owner's number of well (if more than one) _____
☒ New Well Method: ☐ Dug ☐ Bored
☐ Deepened ☐ Cable ☐ Driven
☐ Reconditioned ☒ Rotary ☐ Jetted
☐ Decommission

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 340 feet. Depth of completed well 156 ft.

(6) CONSTRUCTION DETAILS:
Casing installed:
☒ Welded 6 " Diam. from +2 ft. to 149.5 ft.
☐ Liner installed 6 " Diam. from 155 ft. to 202 ft.
☐ Threaded _____ " Diam. from _____ ft. to _____ ft.

Perforations: ☐ Yes ☒ No
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: ☒ Yes ☐ No ☒ K-Pac Location 146
Manufacturer's Name Cook
Type Stainless Model No. _____
Diam. 6 Slot size .008 from 150 ft. to 155 ft.
Diam. 5.56 Slot size riser from 147 ft. to 150 ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand _____
Material placed from _____ ft. to _____ ft.

Surface seal: ☒ Yes ☐ No To what depth? 21 ft.
Material used in seal Bentonite 3/8 hole plug
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____
Type: _____ H.P.

(8) WATER LEVELS: Land-surface elevation _____ ft.
above mean sea level _____ ft.
Static level 18 ft. below top of well Date 8/8/2000
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____
(Cap, valve, etc)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? ☒ Yes ☐ No If yes, by whom? Mike Zent
Yield: 80 gal./min. with 16.5 ft. drawdown after 1min hrs.
Yield: 80 gal./min. with 17 ft. drawdown after 5min hrs.
Yield: 80 gal./min. with 17 ft. drawdown after 2hrs hrs.
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
:30	21	1:00	19	1:30	18.5
2:00	18				

Date of test 8/8/2000
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analyses made? ☐ Yes ☒ No

(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION:
Formation. Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. Indicate all water encountered.

MATERIAL	FROM	TO
Iron-4, pH-7, Hardness-undetermined. Fish and Wildlife service will be doing many chemical analysys on this water.		
Well was drilled to 340. Encountered 4 GPM at 218 and 6 GPM at 263. Drilled on looking for more water. Water was high in Iron. We abandon lower hole by filling with 3/4 hole plug to 204. Set cement plug 204 to 201. Filled with 3/4 hole plug 160. Cut casing at 155. Used clean 5/8 gravel for established bottom at 156. Screen has 1 foot tail pipe.		
Gravel fill and sandy silt	0	1
Silt and sand, brown, dry	1	19
Silt and sand, gray, seems of clay, water, odor	19	43
Sand, gray, fine, clean, water, odor seams to disapate after 120 or so	43	158
Silt, clay, sand	158	201
Rock, gray, hard	201	210
Rock, layered	210	218
brown, gray, green, medium, water		218
Rock, gray, hard	218	263
Rock, brown, med., water	263	265
Rock, gray/green, med.	265	270
Rock, gray, med./hard	270	275
Rock, gray, hard	275	340

Washington State
Department of Ecology

Work Started 7/26/2000, 19. Completed 8/8/2000, 19

WELL CONSTRUCTION CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Type or Print Name Mike Zent License No. 2491
(Licensed Driller/Engineer)

Trainee Name _____ License No. _____

Drilling Company Zent Drilling, Inc.

(Signed) Mike Zent License No. 2491
(Licensed Driller/Engineer)

Address 7310 St. Johns Road, Vancouver, WA. 98665

Contractor's
Registration No. ZENTDI 027BF Date 8/10/00, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (360) 407-6600. The TDD number is (360) 407-6006.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

WATER WELL REPORT

STATE OF WASHINGTON

Application No.

Permit No.

(1) OWNER: Name Mrs. Vera Ailshie Address 5409 NW. Sevier Rd. Ridgefield

(2) LOCATION OF WELL: County Clark 1/4 SW 1/4 Sec. 30 T. 4 N. R. 1 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 201 ft. Depth of completed well 200 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 200 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒

Type of perforator used

SIZE of perforations in. by in.

..... perforations from ft. to ft.

..... perforations from ft. to ft.

..... perforations from ft. to ft.

Screens: Yes ☐ No ☒

Manufacturer's Name

Type Model No

Diam. Slot size from ft. to ft.

Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:

Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.

Material used in seal bentonite

Did any strata contain unusable water? Yes ☐ No ☒

Type of water? Depth of strata

Method of sealing strata off

(7) PUMP: Manufacturer's Name

Type: HP

(8) WATER LEVELS: Land-surface elevation above mean sea level. ft.

Static level 170 ft. below top of well Date 2-5-74

Artesian pressure lbs. per square inch Date

Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☒ If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

" " " " " "

" " " " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time Water Level Time Water Level Time Water Level

.....

.....

.....

Date of test

Bailer test 8 gal./min. with 20 ft. drawdown after 1 hrs.

Artesian flow g.p.m. Date 2-5-74

Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
topsoil	0	2
brown sandy clay	2	16
lt. brown sandy clay	16	28
brown sandy clay	28	56
brown clay & few gravel	56	78
cemented gravel	78	112
cemented gravel & sand	112	130
cemented gravel & few cobbles	130	171
hard packed gravel	171	190
med. hard gravel & little water	190	200

Work started 1-22, 1974 Completed 2-5, 1974

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Hansen Drilling Co. Inc.
(Person, firm, or corporation) (Type or print)

Address 6711 NE 58th Ave. Vancouver, Wa.

[Signed] Murnett Johnson Lic. #0221

By Sam Johnson (Well Driller)

License No. 223 02 1155 Date Feb. 20, 1974

(USE ADDITIONAL SHEETS IF NECESSARY)

Page 479 of 895



WATER WELL REPORT

Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller

Construction/Decommission ("x" in circle)

☒ Construction

☐ Decommission ORIGINAL INSTALLATION Notice

300694 of Intent Number

PROPOSED USE: ☒ Domestic ☐ Industrial ☐ Municipal
☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other

TYPE OF WORK: Owner's number of well (if more than one)

☒ New well ☐ Reconditioned ☐ Method: ☐ Dug ☐ Bored ☐ Driven
☐ Deepened ☐ Cable ☒ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 358 ft.
 Depth of completed well 356 ft.

CONSTRUCTION DETAILS

Casing ☒ Welded 6" Diam. from +2'6" ft to 351'6" ft.
 Installed: ☐ Liner installed Diam. from ft. to ft.
☐ Threaded 5" Header Diam. from 346'4" ft. to 350'9" ft.

Perforations: ☐ Yes ☒ No

Type of perforator used

SIZE of perfs. in by in and no. of perfs from ft. to ft.

Screens: ☒ Yes ☐ No ☒ K-Pac Location 346'4"

Manufacturer's Name Johnson

Type Stainless steel Model No.
 Diam. 5" Slot size 15 from 350'9" ft. to 356 ft.
 Diam. Slot size from ft. to ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand
 Materials placed from ft. to ft.

Surface Seal: ☒ Yes ☐ No To what depth? 19 ft

Material used in seal 3/8" Bentonite

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? Depth of strata

Method of sealing strata off

PUMP: Manufacturer's Name

Type: H.P.

WATER LEVELS: Land-surface elevation above mean sea level ft.

Static level 230 ft. below top of well Date 6-6-08

Artesian pressure lbs per square inch Date

Artesian water is controlled by (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

Yield: gal./min. with ft. drawdown after hrs.

Yield: gal./min. with ft. drawdown after hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

CURRENT

Notice of Intent No. W 188829

Unique Ecology Well ID Tag No. ALH-495

Water Right Permit No.

Property Owner Name BTG Ventures LLC.

Well Street Address Off NW. 234th St. West of 51st Ave.

City Ridgefield County Clark Lot # 2

Location SE 1/4-1/4 NE 1/4 Sec 31 Twn 4NR 1E ☒ EWM or WWM circle one

Lat/Long (s, t, r) Lat Deg Lat Min/Sec

Still REQUIRED) Long Deg Long Min/Sec

Tax Parcel No. 216246-000 / Maple Heights II Subdivision

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Top soil	0	1
Brown sandy clay	1	65
Cemented sand & gravel	65	155
Brown sand	155	160
Cemented sand & gravel	160	235
Grey clay	235	240
Brown sand & gravel	240	245
Brown sand & water	245	260
Grey clay	260	280
Brown clay	280	285
Greyish brown clay	285	290
Grey clay	290	330
Grey sand, fine	330	345
Brown sand & water	345	358

PH. 7.5

Iron 0.1

Hardness 7

RECEIVED

JUL 0 7 2008

Washington State
 Department of Ecology

Start Date 6-4-08 Completed Date 6-6-08

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Mark D. Blackburn

Driller/Engineer/Trainee Signature

Driller or trainee License No. 2296

IF TRAINEE,

Driller's Licensed No.

Driller's Signature

Drilling Company Hansen Drilling Co., Inc.

Address 6711 NE. 58th Ave.

City, State, Zip Vancouver, WA 98661

Contractor's

Registration No. HANSED*377NT Date 6-10-08

Ecology is an Equal Opportunity Employer.



WATER WELL REPORT

Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller

Construction/Decommission ("x" in circle)

☒ Construction

☐ Decommission ORIGINAL INSTALLATION Notice

300696 of Intent Number

PROPOSED USE: ☒ Domestic ☐ Industrial ☐ Municipal
☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other

TYPE OF WORK: Owner's number of well (if more than one)

☒ New well ☐ Reconditioned Method: ☐ Dug ☐ Bored ☐ Driven
☐ Deepened ☐ Cable ☒ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 379 ft.
 Depth of completed well 379 ft.

CONSTRUCTION DETAILS

Casing ☒ Welded 6" Diam. from 2'7 1/2" ft. to 373 ft.
 Installed: ☐ Liner installed Diam. from ft. to ft.
☐ Threaded 5" header Diam. from 368 ft. to 373'9" ft.

Perforations: ☐ Yes ☒ No

Type of perforator used

SIZE of perfs. in. by in. and no. of perfs from ft. to ft.

Screens: ☒ Yes ☐ No ☒ K-Pac Location 368

Manufacturer's Name Johnson

Type Stainless steel Model No.
 Diam. 5" Slot size 14 from 373'9" ft. to 379 ft.
 Diam. Slot size from ft. to ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand ft.
 Materials placed from ft. to ft.

Surface Seal: ☒ Yes ☐ No To what depth? 19 ft.

Material used in seal 3/8" Bentonite

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? Depth of strata

Method of sealing strata off

PUMP: Manufacturer's Name

Type: H.P.

WATER LEVELS: Land-surface elevation above mean sea level ft.

Static level 240 ft. below top of well Date 6-16-08

Artesian pressure lbs. per square inch Date

Artesian water is controlled by (cap. valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

Yield: gal./min. with ft. drawdown after hrs.

Yield: gal./min. with ft. drawdown after hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top in water level)

Time Water Level Time Water Level Time Water Level

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CURRENT

Notice of Intent No. W 251069

Unique Ecology Well ID Tag No. ALH-497

Water Right Permit No.

Property Owner Name BTG Ventures LLC.

Well Street Address Off NW. 234th St. West of 51st Ave.

City Ridgefield County Clark Lot # 3

Location SE 1/4-1/4 NE 1/4 Sec 31 Twn 4N R 1E ☒ EWM circle one

Lat/Long (s, t, r) Lat Deg Lat Min/Sec

Still REQUIRED) Long Deg Long Min/Sec

Tax Parcel No. 216246-000 / Maple Heights II Subdivision

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Top soil	0	1
Brown sandy clay	1	45
Brown sandy clay & scattered rock	45	70
Brown sand & gravel cemented	70	248
Brown sandy clay & gravel	248	253
Brown sand, water	253	265
Grey sandy clay	265	285
Brownish grey clay	285	290
Brown clay	290	295
Grey clay	295	320
Brown clay	320	360
Brown sand & water	360	379

PH. 7.0

Hardness 7

Iron 0.5

RECEIVED

JUL 0 7 2008

Washington State
Department of Ecology

Start Date 6-11-08

Completed Date 6-16-08

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Mark D. Blackburn

Driller/Engineer/Trainee Signature Mark D. Blackburn

Driller or trainee License No. 2296

If TRAINEE, Driller's Licensed No.

Driller's Signature

Drilling Company Hansen Drilling Co., Inc.

Address 6711 NE. 58th Ave.

City, State, Zip Vancouver, WA 98661

Contractor's

Registration No. HANSED*377NT Date 6-18-08

Ecology is an Equal Opportunity Employer.



WATER WELL REPORT

Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller

Construction/Decommission ("x" in circle)

☒ Construction

☐ Decommission ORIGINAL INSTALLATION Notice

207276 of Intent Number

PROPOSED USE: ☒ Domestic ☐ Industrial ☐ Municipal
☐ DeWater ☒ Irrigation ☐ Test Well ☐ Other

TYPE OF WORK: Owner's number of well (if more than one)

☒ New well ☐ Reconditioned Method: ☐ Dug ☐ Bored ☐ Driven
☐ Deepened ☐ Cable ☒ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 197 ft.
Depth of completed well 196.5 ft.

CONSTRUCTION DETAILS

Casing ☒ Welded 6" Diam. from +2 ft. to 194 ft.
Installed: ☒ Liner installed 4" Diam. from 2.5 ft. to 194 ft.
☐ Threaded " Diam. from ft. to ft.

Perforations: ☐ Yes ☒ No

Type of perforator used

SIZE of perfs in. by in. and no. of perfs from ft. to ft.

Screens: ☒ Yes ☐ No ☐ K-Pac Location

Manufacturer's Name Alloy Machine Works

Type Stainless Model No.

Diam. 4 Slot size .025 from 194 ft. to 196.5 ft.

Diam. Slot size from ft. to ft.

Gravel/Filter packed: ☒ Yes ☐ No ☒ Size of gravel/sand 10-20

Materials placed from 181 ft. to 197 ft.

Surface Seal: ☒ Yes ☐ No To what depth? 20 ft.

Material used in seal Bentonite chips

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? Depth of strata

Method of sealing strata off

PUMP: Manufacturer's Name

Type: H.P.

WATER LEVELS: Land-surface elevation above mean sea level ft.

Static level 166.5 ft. below top of well Date 10/12/06

Artesian pressure lbs. per square inch Date

Artesian water is controlled by (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☒ Yes ☐ No If yes, by whom? Marlin

Yield: 11 gal./min. with 1 ft. drawdown after 1 hrs.

Yield: gal./min. with ft. drawdown after hrs.

Yield: gal./min. with ft. drawdown after hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
------	-------------	------	-------------	------	-------------

Date of test 10/12/2006

Bailer test gal./min. with ft. drawdown after hrs.

Airtest gal./min. with stem set at ft. for hrs.

Artesian flow g.p.m. Date

Temperature of water Was a chemical analysis made? ☒ Yes ☐ No

CURRENT

Notice of Intent No. W 205745

Unique Ecology Well ID Tag No. ALL 483

Water Right Permit No.

Property Owner Name Gerald Hinton

Well Street Address North of 5308 NW 234th Street

City Ridgefield County Clark

Location NW 1/4-1/4 NE 1/4 Sec 31 Twn4N R1 EWM or WWM ☒ check one

(Lat/Long (s, t, r Lat Deg Lat Min/Sec

Still REQUIRED) Long Deg Long Min/Sec

Tax Parcel No.

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Sandy brown soil	0	2
Clay, brown, medium	2	15
Sand, brown, fine, silty	15	21
Sand, gray, fine, silty	21	32
Clay, gray, medium	32	43
Clay, brown, medium	43	66
Gravel, small to med. loose and cemented layers	66	156
Gravel and cobbles, cemented	156	165
Gravel, small to medium, sand, fine, brown	165	180
Gravel and sand, lightly cemented, water	180	197

Iron .4, hardness 7, ph 6.5

RECEIVED

NOV 03 2006

Washington State
Department of Ecology

Start Date 10/10/2006

Completed Date 10/12/2006

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Marlin Zent

Driller/Engineer/Trainee Signature

Driller or trainee License No. 0547

Drilling Company Zent Drilling Inc.

Address 7310 St. Johns Road

City, State, Zip Vancouver, WA 98665

Contractor's
Registration No. ZENTDI*027BF

Date 10/16/2006

If TRAINEE,

Driller's Licensed No.

Driller's Signature

WATER WELL REPORT

Start Card No. 202996

STATE OF WASHINGTON

Water Right Permit No.

(1) OWNER: Name Merle Praifer Address _____

(2) LOCATION OF WELL: County Clark NE SE Sec 31 T. 4 N. R. 1 E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) approx. 22700 N. W. 51 St Ave Ridgefield Wa.

(3) PROPOSED USE: ☒ Domestic ☐ Industrial ☐ Municipal ☐
☐ Irrigation ☐ Test Well ☐ Other ☐
☐ DeWater

(4) TYPE OF WORK: Owner's number of well (If more than one) _____
Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 225 feet. Depth of completed well 225 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from plus 1/8 ft. to 210 ft.
Welded ☒ 1 1/2 " Diam. from 205 ft. to 225 ft.
Liner installed ☒
Threaded ☐ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☒ No ☐
Type of perforator used SAW
SIZE of perforations 1/8 in. by 4 in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☒ No ☐
Manufacturer's Name _____ Model No. _____
Type _____
Diam. _____ Slot size _____ from _____ ft. to _____ ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____
Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 177 ft. below top of well Date 3/13/93
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

" " " " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test: _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest 15.5 gal./min. with stem set at 214 ft. for 1 hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
silty soil	0	2
clay brown silty firm	2	6
clay tan firm	6	16
clay brown firm	16	23
clay tan firm	23	47
clay brown firm sandy	47	58
clay tan hard	58	63
clay brown sandy soft	63	75
gravel sand & silt	75	149
gravel cemented large hard rocks	149	165
gravel & sand cemented	165	207
sand cemented & water	207	217
gravel cemented med to large rocks	217	222
gravel & sand	222	

T 1.1
PH 7.5
H 6

Work started 3/10/93, 19. Completed 3/13/93, 19.

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Zent Drilling Inc (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 7310 St Johns Rd. Vano Wa.

(Signed) Mark Zent License No. 1652
(WELL DRILLER)

Contractor's Registration No. ZENTDI-28500 Date 3/15/93, 19.

(USE ADDITIONAL SHEETS IF NECESSARY)

STATE OF WASHINGTON

Water Right Permit No.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

(1) OWNER: Name Gene & RoseAnn Blankenship Address P.O. Box 5964, Vancouver, Wa. 986

(2) LOCATION OF WELL: County Clark NE SW Sec. 31 T. 4 N. R. 1E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) 22723 NW 67th Ave, Ridgefield, Wa.

(3) PROPOSED USE: ☒ Domestic ☐ Industrial ☐ Municipal ☐
☐ Irrigation ☐ Test Well ☐ Other ☐
☐ DeWater

(4) TYPE OF WORK: Owner's number of well (if more than one)
Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 178' feet. Depth of completed well 178 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6" Diam. from Ø+1 ft. to 176 ft.
Welded ☒ " Diam. from _____ ft. to _____ ft.
Liner installed ☐ " Diam. from _____ ft. to _____ ft.
Threaded ☐ " Diam. from _____ ft. to _____ ft.
Perforations: Yes ☐ No ☒
Type of perforator used _____
Size of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
Screens: Yes ☐ No ☒
Manufacturer's Name _____ Model No. _____
Type _____ Slot size _____ from _____ ft. to _____ ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.
Gravel packed: Yes ☐ No ☒ Size of gravel _____
Gravel placed from _____ ft. to _____ ft.
Surface seal: Yes ☒ No ☐ To what depth? 31 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____ H.P. _____
Type: _____

(8) WATER LEVELS: Land surface elevation above mean sea level _____ ft.
Static level 120 ft. below top of well Date 5/6/97
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
" " " " " " " "
" " " " " " " "
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)
Time Water Level Time Water Level Time Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airstest 9½ gal./min. with stem set at 175 ft. for 1 hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION
Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Clay Soil -Brown	0	2
Clay -Lt. Brown	2	19
Clay Hard -Brown	19	54
Clay-Gravel - Rust Brown	54	133
Gravel-Clay-Lt. Sand Brown	133	156
Gravel Water (5 gpm) - Gray	156	159
Gravel Clay (dry) Brown	159	163
Gravel - Black	163	170
Gravel/water Brown	170	178

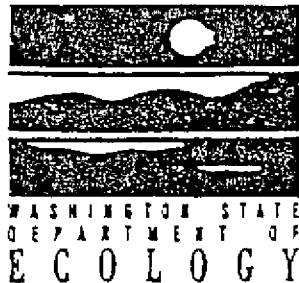
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MAY 16 1997
DEPARTMENT OF ECOLOGY
SHORELANDS AND
WATER RESOURCES PROGRAM

Work started 5-2-97, 19. Completed 5-6-97, 19.

WELL CONSTRUCTOR CERTIFICATION:
I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME PITNER DRILLING & PUMP (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address P.O. Box 1570, Woodland, Wa. 98674
(Signed Coral Kuts) License No. 0392
(WELL DRILLER)
Contractor's Registration No. PITNED201PF Date May 9, 1997

(USE ADDITIONAL SHEETS IF NECESSARY)



UNIQUE WELL I.D. NUMBER

A C P 9 2 3
X Y Z 1 2 3

WELL TAGGING FORM

Date of Field Visit 6-25-91By J. Smith

ADDITIONAL WELL IDENTIFIERS

Department of Health System ID Number _____ Source Number SO _____

USGS Site Identification _____

RECORD VERIFICATION

☒ Well Report available (please attach)☐ Well Report not available☐ Verification inconclusive

WELL OWNERSHIP, IF DIFFERENT FROM WELL REPORT

Name ~~Campbell~~ BAKER POINTStreet address 22723 NW 67th Ave.City RIDGEBELD. State WA

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

Well Address 22723 NW 67th Ave.City RIDGEBELD WA County CLATSOPT. 4 N. R. 1 E.W.M. Sec. 31 NE $\frac{1}{4}$ of the 50 $\frac{1}{4}$

Latitude _____

Longitude _____

Elevation at land surface _____ feet/meters (circle one)

- ☐ GPS (raw data)
☐ GPS (corrected)
☐ Topographic Map
☐ Survey
☐ Computer generated
☐ Other _____

- ☐ Digital Altimeter
☐ Topographic Map
☐ Other _____

Additional information, if available:

☐ Location marked on topographic map (please attach)☐ Location marked on air photo (please attach)

Water Right # _____

Priority Date _____

Circle one: Application Permit Certificate Claim Exempt

WELL CHARACTERISTICSPhysical Description of Well (size of casing, type of well, housing, etc.): 6" DOMESTICMILLER WELLLocation of Well Identification Tag: STRAPPED TO CASING BELOWWELL CAP

Was Supplemental Tag needed for ease of identifying well?

☒ NO☐ YES

If yes, where was tag placed? _____

Scale 1:24,000 (1"=2,000')

D	C	B	A
E	F	G	H
M	<u>(X)</u> L	K	J
N	P	Q	R

Indicate the location of the well within the Section by drawing a dot at that point.

SECTION 31COMMENTS: 31' HOLE - LOG SEAL

WATER WELL REPORT

Start Card No. 1055277

STATE OF WASHINGTON

Water Right Permit No.

1) OWNER. Name James C. Peterson, Landowner Address 5111 Hwy 3031, Woodland, Wa.
2) LOCATION OF WELL County Clark NE & SE 1/4 Sec 02 T. 4 N. R. 15 WM
2a) STREET ADDRESS OF WELL (or nearest address) 22723 NW 37th Ave, Ridgefield, Wa.

3) PROPOSED USE ☒ Domestic ☐ Industrial ☐ Municipal ☐
☐ DeWater ☐ Test Well ☐ Other ☐

4) TYPE OF WORK. Owner's number of well (if more than one) _____
Abandoned ☐ New well ☐ Method Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

5) DIMENSIONS. Diameter of well _____ inches
Drilled 175 feet Depth of completed well 173 ft

6) CONSTRUCTION DETAILS
Casing installed 5 ft Diam from 2+1 ft to 175 ft
Welded ☐ _____ ft to _____ ft
Liner installed ☐ _____ ft to _____ ft
Threaded ☐ _____ ft to _____ ft

Perforations Yes ☐ No ☒
Type of perforator used _____
SIZE of perforations _____ in by _____ in
_____ perforations from _____ ft to _____ ft
_____ perforations from _____ ft to _____ ft
_____ perforations from _____ ft to _____ ft

Screens: Yes ☐ No ☒
Manufacturer's Name _____
Type _____ Model No. _____
Diam _____ Slot size _____ from _____ ft to _____ ft
Diam _____ Slot size _____ from _____ ft to _____ ft

Gravel packed: Yes ☐ No ☒ Size of gravel _____
Gravel placed from _____ ft to _____ ft

Surface seal Yes ☒ No ☐ To what depth? 31 ft
Material used in seal Pentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

7) PUMP Manufacturer's Name _____
Type _____ H.P. _____

8) WATER LEVELS. Land surface elevation above mean sea level _____ ft
Static level 120 ft below top of well Date 5/6/97
Artesian pressure _____ lbs per square inch Date _____
Artesian water is controlled by _____ (Cap valve etc.)

9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes by whom? _____
Yield _____ gal./min. with _____ ft drawdown after _____ hrs

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)
Time Water Level Time Water Level Time Water Level

Date of test: _____
Bailer test _____ gal./min. with _____ ft drawdown after _____ hrs
Artest 24 gal./min. with stem set at 175 ft for 1 hrs
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation Describe by color character size of material and structure and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Clay Soil - Brown	0	2
Clay - Lt. Brown	2	10
Clay Card - Brown	10	54
Clay-Gravel - Rust Brown	54	103
Gravel-Clay-Lt. Sand Brown	103	156
Gravel Water (5 sec) - Brown	156	157
Gravel Clay (dry) Brown	157	163
Gravel - Blue	163	170
Gravel/water Brown	170	173

Work started 5-2-97 19 _____ Completed 5-6-97 19 _____

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME PITNER DRILLING & PUMP
(PERSON FIRM OR CORPORATION) (TYPE OR PRINT)

Address P.O. Box 1570, Woodland, Wa. 98674

(Signed) Corral R. Pittner License No. 0392
(WELL DRILLER)

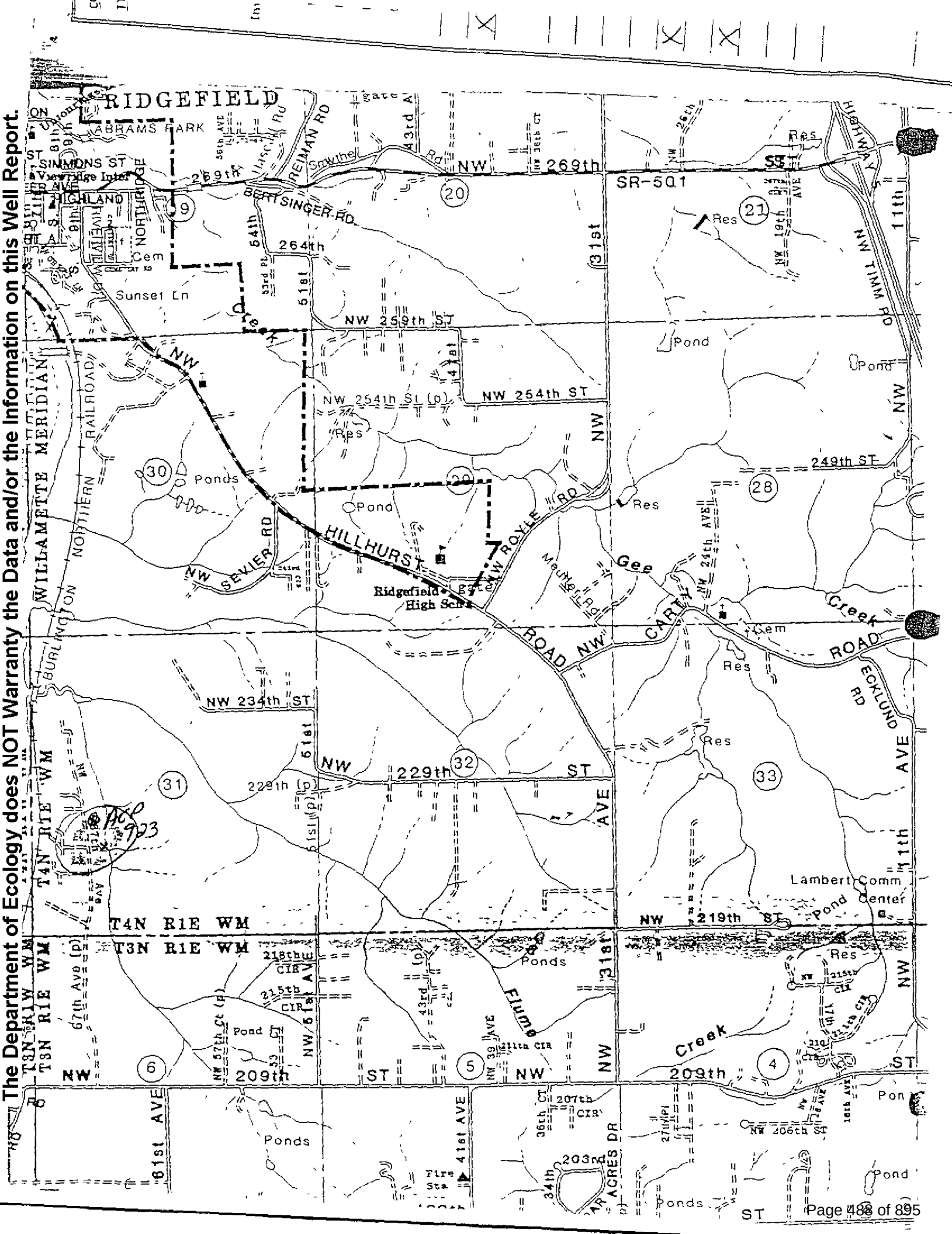
Contractor's Registration No. 5111ED201PF Date May 9 19 97

(USE ADDITIONAL SHEETS IF NECESSARY)



48553

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.



WATER WELL REPORT

Start Card No. **32568**

STATE OF WASHINGTON

Water Right Permit No. _____

(1) OWNER: Name **JAMES REIDEL** Address **11813 NE 4th St VANCOUVER, WA 98684**

(2) LOCATION OF WELL: County _____ **SW 1/4 NE 1/4 Sec 31 T. 4N. R. 1E W.M.**

(2a) STREET ADDRESS OF WELL (or nearest address) _____

(3) PROPOSED USE: ☒ Domestic ☐ Industrial ☐ Municipal ☐
☐ Irrigation ☐ Test Well ☐ Other ☐
☐ DeWater

(4) TYPE OF WORK: Owner's number of well (if more than one) _____
Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well **6** inches.
Drilled **205** feet. Depth of completed well **205** ft.

(6) CONSTRUCTION DETAILS:

Casing installed: **6** " Diam. from **+0** ft. to **204** ft.
Welded ☒ " Diam. from _____ ft. to _____ ft.
Liner installed ☐ " Diam. from _____ ft. to _____ ft.
Threaded ☐ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒

Type of perforator used _____

SIZE of perforations _____ in. by _____ in.

_____ perforations from _____ ft. to _____ ft.

_____ perforations from _____ ft. to _____ ft.

_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☒

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel _____

Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? **31** ft.

Material used in seal **BENTONITE & REDDIE CLAY**

Did any strata contain unusable water? Yes ☐ No ☒

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level **178** ft. below top of well Date **12-11-93**

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (Cap. valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☒ If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

" " " " " "

" " " " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time Water Level Time Water Level Time Water Level

Date of test _____

Bailer test **9.5** gal./min. with _____ ft. drawdown after _____ hrs.

Airtest **9.5** gal./min. with stem set at **195** ft. for **1** hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
CLAY SOIL, LT. BROWN	0'	2'
CLAY, LT. BROWN	2'	10'
SILTY CLAY, DK BROWN	10'	30'
CLAY, BLUE GRAY	30'	45'
CLAY, BROWN	45'	95'
SAND GRAVEL, CEMENTED, GRAY	95'	160'
SAND GRAVEL, BROWN	160'	196'
SAND GRAVEL, WATER, BROWN	196'	205'

FROM 1.5
HARDNESS
PH 7.5

Work started **12-09-93** Completed **12-11-93**

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME **PITNER DRILLING & PUMP** (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

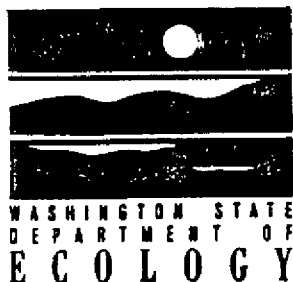
Address **18505 NE BLUNCOMBE HOLLOW RD WOODLAND WA 98674**

(Signed) **Conrad R. Pitner** License No. **0392** (WELL DRILLER)

Contractor's Registration No. **PITNER DRILLING & PUMP** Date **12-14-93**

(USE ADDITIONAL SHEETS IF NECESSARY)





UNIQUE WELL I.D. NUMBER A A D 5 2 8
X Y Z 1 2 3

WELL TAGGING FORM

Date of Field Visit 1-20-94 By Lissa Strickland

ADDITIONAL WELL IDENTIFIERS

Southwest Washington
Health District

Department of Health System ID Number _____ Source Number SO

USGS Site Identification _____ Sept 2nd 91 23001

RECORD VERIFICATION

- ☒ Well Report available (please attach)
☐ Well Report not available
☐ Verification inconclusive

WELL OWNERSHIP, IF DIFFERENT FROM WELL REPORT

Name James and Toni Riedl

Street address 11813 NE 4th St

City Vancouver State 98684

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

Well Address north of 22406 NW Cornell Drive

City Ridgefield County Clark

T. 4 N. R. 1 W.M. Sec. 31 SE 1/4 of the SW 1/4

Latitude _____ ° _____ ' _____ "

Longitude _____ ° _____ ' _____ "

- ☐ GPS (raw data)
☐ GPS (corrected)
☐ Topographic Map
☐ Survey
☐ Computer generated
☐ Other _____

Elevation at land surface _____ feet/meters (circle one)

- ☐ Digital Altimeter
☐ Topographic Map
☐ Other _____

Additional information, if available:

- ☐ Location marked on topographic map (please attach)
- ☐ Location marked on air photo (please attach)

Water Right # _____ Priority Date _____

Circle one: Application Permit Certificate Claim Exempt

WELL CHARACTERISTICS

Physical Description of Well (size of casing, type of well, housing, etc.): 6" casing
drilled well.

Location of Well Identification Tag: Strapped below sanitary
seal.

Was Supplemental Tag needed for ease of identifying well?

☒ NO

☐ YES

If yes, where was tag placed? _____

Scale 1:24,000 (1"=2,000')

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

Indicate the location of the well within the Section by drawing a dot at that point.

SECTION 31

COMMENTS: _____

WATER WELL REPORT

Start Card No. 32562

STATE OF WASHINGTON

Water Right Permit No.

(1) OWNER Name DAVID REIDEL

Address 11313 MC 45th VANDERBILT

(2) LOCATION OF WELL County

SW 1/4 NE 1/4 Sec 31 T 4N R 1E WM

(2a) STREET ADDRESS OF WELL (or nearest address)

(3) PROPOSED USE

☒ Domestic ☐ Industrial ☐ Municipal ☐
☐ Irrigation ☐ Test Well ☐ Other ☐
☐ DeWater ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation Describe by color character, size of material and structure and show thickness of aquifers and the kind and nature of the material in each stratum penetrated with at least one entry for each change of information

MATERIAL	FROM	TO
CLAY SOIL, LT. BROWN	0'	2'
CLAY, LT. BROWN	2'	10'
SILT CLAY, DK BROWN	10'	30'
CLAY, PINK GRAY	30'	45'
CLAY, BROWN	45'	95'
SAND GRAVEL, CEMENTED GRAY	95'	160'
SAND GRAVEL, BROWN	160'	195'
SAND GRAVEL, WHITE, BROWN	195'	205'

(4) TYPE OF WORK Owner's number of well (if more than one)

Abandoned ☐ New well ☒ Method Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS Diameter of well 10 inches

Drilled 31 feet Depth of completed well 205 ft

(6) CONSTRUCTION DETAILS

Casing installed 6 Diam from 1 1/2 ft to 204 ft
Welded ☒ Diam from _____ ft to _____ ft
Liner installed ☐ Diam from _____ ft to _____ ft
Threaded ☐ Diam from _____ ft to _____ ft

Perforations Yes ☐ No ☒

Type of perforator used _____

SIZE of perforations _____ in by _____ in

_____ perforations from _____ ft to _____ ft

_____ perforations from _____ ft to _____ ft

_____ perforations from _____ ft to _____ ft

Screens Yes ☐ No ☒

Manufacturer's Name _____

Type _____ Model No _____

Diam _____ Slot size _____ from _____ ft to _____ ft

Diam _____ Slot size _____ from _____ ft to _____ ft

Gravel packed Yes ☐ No ☒ Size of gravel _____

Gravel placed from _____ ft to _____ ft

Surface seal Yes ☒ No ☐ To what depth? 31 ft

Material used in seal PORTLAND CEMENT & SUEDE CLAY

Did any strata contain unusable water? Yes ☐ No ☒

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

(7) PUMP Manufacturer's Name _____

Type _____ HP _____

(8) WATER LEVELS Land surface elevation _____ ft

Static level 173 ft above mean sea level _____ ft

Artesian pressure _____ lbs per square inch Date 12-11-93

Artesian water is controlled by _____ (Cap valve etc.)

(9) WELL TESTS Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☒ If yes by whom? _____

Yield _____ gal / min with _____ ft drawdown after _____ hrs

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time Water Level Time Water Level Time Water Level

Date of test _____

Bailer test _____ gal / min with _____ ft drawdown after _____ hrs

Air test 9.5 gal / min with stem set at 195 ft for 1 hrs

Artesian flow _____ gpm Date _____

Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☒

Work started 12-19-93 Completed 12-11-93

WELL CONSTRUCTOR CERTIFICATION

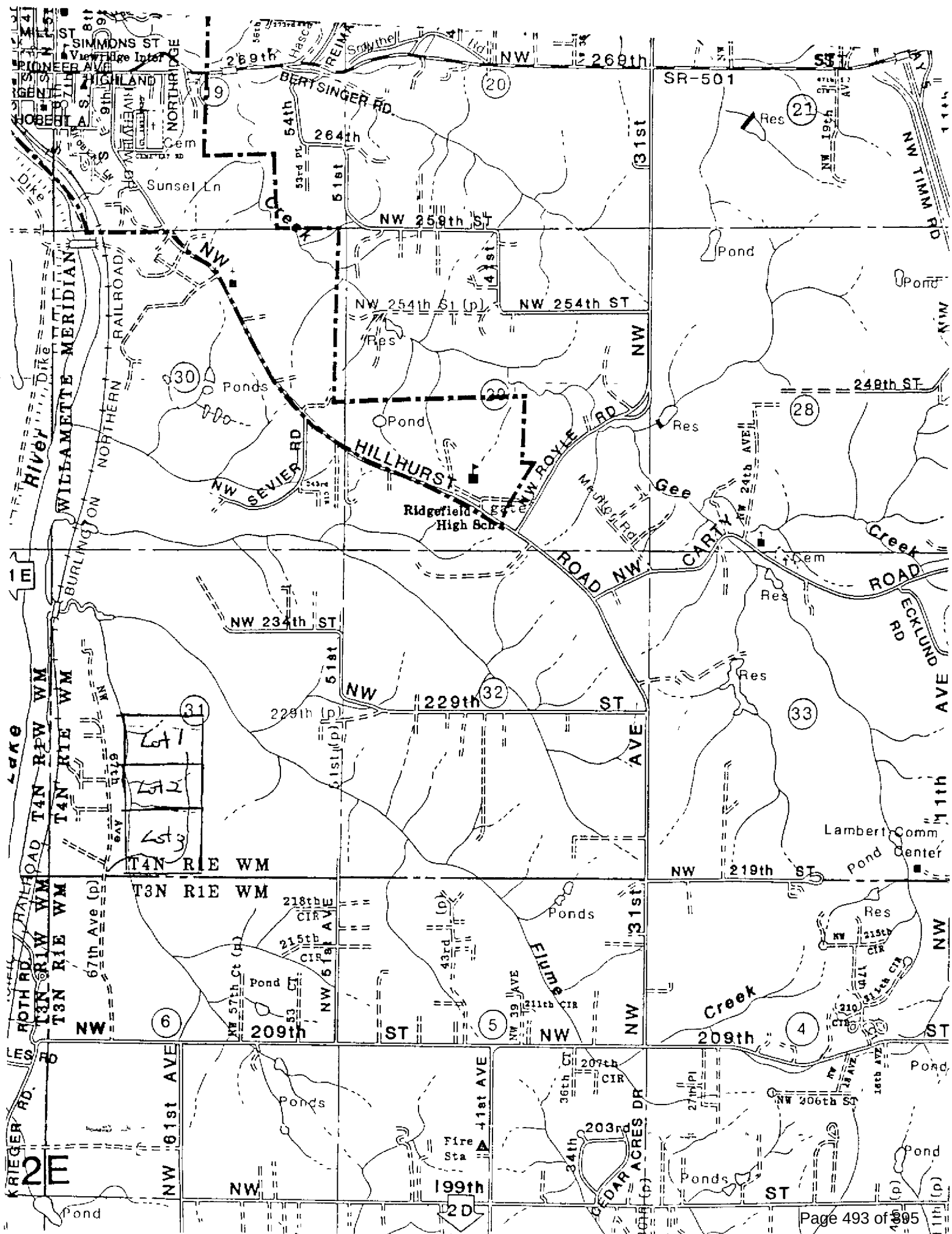
I constructed and/or accept responsibility for construction of this well and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME DAVID REIDEL (PERSON, FIRM OR CORPORATION) (TYPE OR PRINT)

Address 12505 NE BULLOCK RD, WOODLAND WA 98674

(Signed) David Reidel License No. 0392

Contractor's Registration No. DAVID REIDEL Date 12-14-93



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Attachment B

City of Ridgefield Source Water Availability Assessment

Summary by McCormick Water Strategies, LLC.



December 12, 2018

Kenny Janssen, LG
GSI Water Solutions, Inc.
55 SW Yamhill St., Suite 300
Portland, OR 97204

Re: City of Ridgefield Source Water Availability Assessment (Project No. 17008)

Dear Mr. Janssen:

This letter summarizes our findings for the City of Ridgefield (Ridgefield) Source Water Availability Assessment in Water Resources Inventory Areas (WRIA) 27 and 28 in support of GSI Water Solutions, Inc.'s (GSI) Groundwater Source Development Scope of Work. McCormick Water Strategies, LLC (MWS) reviewed regional geography, watershed planning documents, instream flow rules, salmonid distribution data, salmon recovery plans, and discussed options with Washington State Department of Ecology (Ecology) staff to identify general areas of opportunities for legal and physical water availability for water rights permitting.

It is understood that this assessment seeks to broadly guide Ridgefield's water supply source development to meet a projected instantaneous water demand in excess of 4,000 gallons per minute (gpm), and an approximate annual water demand of 2,666 acre-feet/year by 2031 (Ridgefield, 2013). Assessment of specific sites, and groundwater-surface water hydraulic continuity, will require detailed analysis to determine actual legal and physical water availability at each specific site.

Findings

Based on the regional geography, planning documents, instream flow rules, and other key documents, MWS provides the following analysis of surface and groundwater legal and physical water availability in consideration of future Ecology water rights permitting for the purposes of Ridgefield municipal water supply source development. Copies of maps and key documents are included with this report.

Water Rights Permitting and the Four-Part Test

Under state law, water rights permitting is administered by Ecology under Chapter 90.03 RCW for surface water and Chapter 90.44 RCW for groundwater. Both surface and groundwater appropriation rely on the appropriation procedure, known as the Four-Part Test, as outlined and defined in Chapter 90.03 RCW, Hillis, 1997, and Kittitas, 2011. The Four-Part Test is as follows:

1. That the use be for a beneficial purpose.
2. That the use be in the public interest.
3. That water be available for the appropriation (physical water availability).
4. That the proposed use not impair existing water rights (legal water availability).

Since Ridgefield's municipal use is a well-documented beneficial use, and it is well understood that said use is in the public's interest, the remainder of this analysis will focus on the third and fourth parts of the test, *legal and physical water availability*. Legal water availability has been interpreted as whether the water right has been previously allocated to another user(s), or whether it's required to sustain instream resources (i.e. fish and wildlife). Physical water availability has been interpreted as a measure of whether water is available in sufficient quantities to satisfy the proposed use.

Summary of Source Water Region

The following is a summary of the surface and groundwater sources inside and immediately outside of the municipal boundary of Ridgefield. More generally, Ridgefield is located within both the WRIA 27 Lewis Basin and the WRIA 28 Salmon-Washougal Basin (Figure 1). Within WRIA 27 and 28 Ridgefield is positioned in three Subbasins: the East Fork Lewis and Lower Lewis Subbasins of WRIA 27, and the Salmon Subbasin of WRIA 28. Prominent Columbia River tributaries within and adjacent to the municipal boundary of Ridgefield include: Lake River, Flume Creek, Teal Creek, Gee Creek, Allen Creek, McCormick Creek, Lower Lewis River, and the East Fork Lewis River.

Water has previously been appropriated in many, if not all, of these tributaries. Also, the region has experienced declining fisheries populations and Endangered Species Act (ESA) listings, which affects water availability. Thus, a local lead entity, Lower Columbia Fish Recovery Board (Board), as well as the Counties of Clark, Cowlitz, and Skamania, responded to the state's Watershed Management Act (Chapter 90.82 RCW) by reviewing both WRIAs 27 and 28 to develop Watershed Plans assessing overall watershed health, instream flows, and allocations of future water supplies. This review led to Ecology's adoption of the WRIA 27 and 28 Instream Flow Rules.

WRIA 27/28 Watershed Planning

As a result of Board-led Watershed Management Act planning, a watershed plan was produced to guide instream and out-of-stream resource management in WRIA 27 and 28 in 2006 (Board, 2006). The Salmon-Washougal and Lewis Watershed Management Plan WRIAs 27-28 (Watershed Plan) established the conditions under which Ecology's Instream Flow Rules were adopted. Since Ridgefield's potential water sources straddle WRIA 27 and 28, both WRIA 27 and 28 Instream Flow Rules apply.

In addition, Chapter 3.3.5 of the Watershed Plan concluded that tidally influenced reaches of stream are different from free-flowing reaches of stream. In tidally influenced reaches, during the time of day when water is backed up, the water level in the stream is controlled by the water level in the Columbia River. At these times, water withdrawals for water supply purposes do not have measurable effects on the depth of water levels in the stream, and therefore do not impact flow-related habitat conditions. As such, the Watershed Plan recommended that stream closures administered by Ecology and low flow conditions on new water rights should not apply to tidally influenced reaches. Not all of the Watershed Plan's recommendations translated into the Ecology Instream Flow Rules, such as the tidal reach of some tributaries (including Gee Creek).

Ecology Instream Flow Rules

Given the geographic location of Ridgefield, situated in both WRIAs 27 and 28, both Ecology WRIA 27 and 28 Instream Flow Rules apply. Each Instream Flow Rule closed water to appropriations, set minimum instream flow requirements, established reservations, and created

areas where water is predetermined to be legally and physically available, termed as Regional Supply Areas (RSA). WRIAs 27 and 28 RSAs are spread along the Columbia River from Washougal to Woodland, Washington (Figure 2). For the purposes of this report, research is focused on the RSAs in Ridgefield's vicinity.

WRIA 27 Instream Flow Rule

Through the authority granted to Ecology by the State Legislature, as well as the use of the Overriding Consideration of Public Interest (OCPI) under RCW 90.54.020(3)(a), Ecology adopted the instream flow rule and out-of-stream reservations for WRIA 27 under Chapter 173-527 WAC (Attachment 1) on December 19, 2008. The following points are summaries from the WRIA 27 Instream Flow Rule concerning legal and physical water availability relevant to Ridgefield:

1. Ridgefield is situated in both the East Fork Lewis and Lower Lewis Subbasins of WRIA 27. The East Fork Lewis subbasin includes both Gee Creek and the East Fork Lewis River and tributaries. The Lower Lewis Subbasin includes both Allen Creek and the Lower Lewis River (Figure 1).
2. The WRIA 27 Instream Flow Rule established the confluence of the Lewis River and East Fork Lewis River RSAs adjacent to the City of Woodland and north of Ridgefield (Figure 3) as RSAs for future groundwater withdrawals with physical and legal water availability.
3. The Instream Flow Rule closed these water sources to appropriation:
 - a. East Fork Lewis River, including tributaries.
 - b. Gee Creek, including tributaries.
 - c. Lower Lewis River from River Mile (RM) 7.1 to Merwin Dam outflow, including tributaries.
4. The Instream Flow Rule did not specifically close these water sources to appropriation:
 - a. The tidally influenced Columbia River and backwater areas.
 - b. Lower Lewis River below RM 7.1.
 - c. Allen Creek, see note in number 5 below.
5. It is unclear if the Instream Flow Rule closure affects Allen Creek where it merges with the Lewis River, situated at RM 1.8 below the Lewis River RM 7.1, including tributaries, as described in the closure language (WAC 173-527-070(1)). Additional research is necessary to determine the intent of the closure language.
6. Reservation allocations under WAC 173-527-110:
 - a. Reservation of 2.20 cfs net streamflow depletion for Clark Public Utility, City of Battle Ground, and Ridgefield from the East Fork Lewis River Subbasin (including Gee Creek).
 - b. It is found that Ridgefield previously accessed 400 gpm and 483 acre-feet of the East Fork Lewis Subbasin reservation (WAC 173-527-110) under the Junction Well Report of Examination and Permit (Attachment 3). This Report of Examination subtracted 0.25 cfs from the East Fork Lewis Subbasin Instream Flow Rule reservation of 2.2 cfs net streamflow depletion, leaving 1.95 cfs net streamflow depletion remaining for the subbasin.

- c. Reservation of 0.37 cfs net streamflow depletion for Clark County public water systems from the Lower Lewis River (upstream of River Mile 7.1), Middle Lewis, and Upper Lewis River Subbasins.

7. The WRIA 27 Instream Flow Rule does not mention tidally influenced stream reaches.

WRIA 28 Instream Flow Rule

Through the authority granted to Ecology by the State Legislature, as well as the use of the Overriding Consideration of Public Interest (OCPI) under RCW 90.54.020(3)(a), Ecology adopted the instream flow rule and out-of-stream reservations for WRIA 28 under Chapter 173-528 WAC (Attachment 2) on December 19, 2008. The following points are summaries from the WRIA 28 Instream Flow Rule concerning legal and physical water availability relevant to Ridgefield:

1. Ridgefield is situated in the Salmon Subbasin of WRIA 28. This subbasin includes Salmon Creek and Whipple Creek. Both Salmon Creek and Whipple Creek are south of Flume Creek (Figure 1).
2. The WRIA 28 Instream Flow Rule established two RSAs for future groundwater withdrawals with legal and physical water availability. The Vancouver Lake Lowlands Area RSA (WAC 173-528-090(2)(a)) is adjacent to and south of Ridgefield (Figures 4 and 5). The Steigerwald Wildlife Refuge Area RSA (WAC 173-528-090(2)(b)) is much further upriver and adjacent to Washougal and Camas, Washington, which makes it beyond reasonable reach for Ridgefield (Figure 2).
3. The Instream Flow Rule closed these water sources to appropriation:
 - a. Salmon Creek from its confluence with Lake River to its headwaters, including tributaries.
 - b. Whipple Creek from its confluence with Lake River to its headwaters, including tributaries.
4. The Instream Flow Rule did not specifically close these water sources to appropriation:
 - a. The tidally influenced Columbia River and backwater areas.
 - b. Flume and Teal Creeks. However, both creeks are documented by the Washington State Department of Fish and Wildlife (WDFW) to contain ESA listed species.
 - c. The Lake River adjacent to Ridgefield.
5. A reservation allocation under WAC 173-528-110 of 0.13 cfs net streamflow depletion in the Salmon Subbasin was established for Clark Public Utility, City of Battle Ground, and Ridgefield.
6. The WRIA 28 Instream Flow Rule does not mention tidally influenced stream reaches.

Salmon Recovery and Endangered Species Act Listings

In response to ESA listings of multiple salmonid species in the Lower Columbia, the Board, acting as Lead Entity, developed a comprehensive Lower Columbia Salmon Recovery and Fish and Wildlife Subbasin Plan (Recovery Plan) for the Columbia River and tributaries from the Gorge to the Pacific Ocean, adopted December 15, 2004. The Recovery Plan serves to guide the recovery of ESA listed salmonid species and inform the Watershed Plan and process. Recovery Plans are critical to consider when reviewing physical and legal water availability because they identify and address limiting factors. Furthermore, restoration measures for salmonids are required when accessing instream flow reservations.

In addition, WDFW is tasked with the management and oversight of recovery of ESA listed and non-listed species in Washington State. WDFW maintains a database, SalmonScape, for tracking species distribution by stream. Table 1, below, summarizes WDFW salmonid species distribution in streams adjacent to Ridgefield along with their respective Instream Flow Rule closure status (WDFW, 2018). Groundwater or surface water withdrawals from streams (especially those that were not specifically closed under the Instream Flow Rule, but contain ESA listed species) have the potential to limit legal water availability.

Table 1: Fish Species Distribution by Stream.

Water Body	WRIA	Winter Steelhead*	Summer Steelhead*	Chum*	Coho	Fall Chinook*	Spring Chinook*	Surface Water Closure
Lake River	28	x	x	x	x	x		No
Flume Creek	28	x			x			No
Teal Creek (Unnamed Stream)	28	x			x			No
Gee Creek	27	x	x	x	x			Yes
Allen Creek	27	x	x		x			No
McCormick Creek	27	x	x	x	x			Yes
Lewis River (tidal)	27	x	x	x	x	x	x	No
East Fork Lewis River	27	x	x	x	x	x	x	Yes

* Denotes ESA listed species.

Lower Columbia Listed Species

The Lower Columbia River serves as habitat for four ESA listed salmonids. Those ESA listed salmonids include:

- Chum – ESA listed as Threatened in 1999.
- Winter and Summer Steelhead – ESA listed as Threatened in 1998.
- Fall Chinook – ESA listed as Threatened in 1999.
- Spring Chinook – ESA listed as Threatened in 1999.

Ecology must be mindful of these listings when determining legal and physical water availability. ESA listings have the potential to affect water rights appropriations and mitigation offset approaches in surface water sources within WRIs 27 and 28 and under both Instream Flow Rules.

Ecology Guidance and Case Law

In May 2018, Jason McCormick, MWS, spoke with Mike Gallagher, Ecology Water Resources Section Manager Southeast Region. On October 23, 2018, Jason McCormick, MWS, and Kenny Janssen and Robyn Cook, GSI, met with Mike Gallagher at Ecology's headquarters in Lacey, Washington. Key takeaways from discussions with Mike Gallagher are as follows:

- The *Foster v. Ecology et al* (Foster, 2015) court case focused on Ecology's use of OCPI, RCW 90.54.020(3)(a) for determining water right permitting approvals. Ecology lost this case on appeal at the Washington State Supreme Court. This case, and several others, found that Ecology had inappropriately used OCPI to allow impacts to instream flows. This sets a concerning precedent for Ridgefield because both WRIA 27 and 28 Instream Flow Rules were established by Ecology using OCPI.
- Since OCPI was used to establish the WRIA 27 and 28 Instream Flow Rules, there is some long-term risk with utilizing water under the reservation if the Instream Flow Rules (or permitting use of the Instream Flow Rules) were appealed. That is, if a water right permit was appealed due to reliance on the WRIA 27 or 28 reservations, there is some risk of the permit being denied, which could potentially result in a reversal of other authorizations relying on the Instream Flow Rules.
- Mr. Gallagher, in person and via email, focused water right permitting discussions on the following sources with legal and physical water availability:
 - Tidally influenced Columbia River.
 - Lake River adjacent to Ridgefield.
 - Pleistocene Alluvial Aquifer (hydraulic continuity with Columbia River).
 - Troutdale Formation (hydraulic continuity with Columbia River).
- Per the conversation, the general rule of thumb is to locate wells as far as possible from closed surface water bodies (i.e. East Fork Lewis River) to limit the potential for impacts.

Proposed Well Sites

GSI has proposed six well sites in and around the Ridgefield municipal boundary. MWS plotted GSI's proposed well sites amongst Ridgefield's city limits, Vancouver Lake Lowlands RSA, and regional streams (Figure 6). GSI's proposed sites include:

- Port/Marina – Lands located between Lake River and Gee Creek. Depending on subsurface geology, locating wells adjacent to Lake River (where water is legally and physically available) is preferable if there are any signs of hydraulic continuity with Lake River. Groundwater hydraulic continuity to Gee Creek, a closed tributary, would require mitigation measures.
- City Park – Lands adjacent to Lake River. Surface water is legally and physically available in Lake River and groundwater is legally and physically available in hydraulic continuity with Lake River and the Columbia River.

- Teal Creek Subdivision and Lift Station – Two adjacent sites near Teal Creek, also listed as the Unnamed Stream in Table 1, above. If there is groundwater to surface water hydraulic continuity from wells, impacts could be to Teal Creek, a tributary with ESA listed salmonid species. Groundwater hydraulic continuity to Teal Creek would require consultation with WDFW and Ecology outside of the Instream Flow Rule.
- Clark County Land – Lands adjacent to Flume Creek. If there is groundwater to surface water hydraulic continuity from wells, impacts could be to Flume Creek, a tributary with ESA listed salmonid species. Groundwater hydraulic continuity to Flume Creek would require consultation with WDFW and Ecology outside of the Instream Flow Rule.
- Kennedy Farms – Lands located between Teal Creek (Unnamed Stream) and Gee Creek. If there is groundwater to surface water hydraulic continuity from wells located at Kennedy Farms, impacts could be to a closed tributary, Gee Creek, and Teal Creek with ESA listed salmonid species. Groundwater hydraulic continuity to either creek could require mitigation measures and/or consultation with WDFW and Ecology outside of the Instream Flow Rule.

Conclusions

The following is concluded upon evaluation of the Watershed Plan, WRIA 27 and 28 Instream Flow Rules, Lower Columbia Salmon Recovery Plan and ESA Listings, and communication with Ecology:

1. Ridgefield is situated in a water resources geography that provides legal and physical water availability opportunities and options that are not available to many communities around the State of Washington. Many communities, particularly in the Columbia River Basin upstream of Bonneville Dam, have no legally available water supply options, and are thus either required to purchase existing water rights, conserve water, or go to great lengths to develop additional water supplies. There may be some physical and legal water availability challenges with developing a long-term water supply in one given location or source at this time. However, with a broad vision, approach, and wise capital investments, Ridgefield can leverage water supplies well into the future. A near-term to long-term plan can include elements such as:
 - a. Water right acquisition and mitigation.
 - b. Development of (permitting) legal and physically available water supplies.
 - c. Capital investments and broad vision.
 - d. Temporary or permanent wholesale water agreements.
2. It is concluded that water is legally and physically available in the following surface and groundwater sources:
 - a. Vancouver Lowlands Regional Supply Area (groundwater).
 - b. Groundwater in hydraulic continuity with the Columbia River and Lake River (groundwater).
 - c. Mainstem Columbia River and side channels (surface water).
 - d. Lake River (surface water).
 - e. Lower Lewis River (surface water and groundwater).

3. It is concluded that water is not legally and physically available (without accessing a reservation) in the following surface water bodies:
 - a. Gee Creek, including tributaries.
 - b. East Fork Lewis River, including tributaries (listed above).
 - c. McCormick Creek (tributary to East Fork Lewis River).
4. Questions remain whether water is physically and legally available in the following surface water bodies due to uncertainties in the Instream Flow Rules and ESA listed species:
 - a. Flume Creek.
 - b. Teal Creek (Unnamed Creek).
 - c. Allen Creek.
5. Following the issuance of the Junction Well Permit (G2-29174P), Ecology subtracted the East Fork Lewis River reservation (WAC 173-527-100) by 0.25 cfs from the Instream Flow Rule reservation of 2.2 cfs, leaving 1.95 cfs of the reservation remaining at this time.
6. Ecology's Instream Flow Rules, reservations, and mitigation measures for WRIAs 27 and 28 were established under Ecology's OCPI authority. The *Foster* case challenged Ecology's use of OCPI and prevailed, reversing Yelm's water right authorization. As a result of *Foster*, some level of risk exists when accessing reserved water under Ecology's WRIA 27 and 28 Instream Flow Rules. Utilization of the reservations should be considered only after assessing all other reasonable alternatives.

Recommendations

The following is recommended upon evaluation of the watershed plan, WRIA 27 and 28 Instream Flow Rules, Lower Columbia Salmon Recovery Plan and ESA Listings, and communication with Ecology:

- It is recommended that Ridgefield focus their vision, planning, and development of source water supply options on areas where there is: (1) legal and physical water availability, and (2) limited to no impacts on ESA listed species. One option is water supply sources that have groundwater in hydraulic continuity with Lake River, Lower Lewis River, and Columbia River, including backwater and sloughs. Another option is surface water supply sources from Lake River, Lower Lewis River, and Columbia River, including backwater and sloughs.
- It is recommended that if a groundwater source must be developed near a closed tributary or a tributary containing ESA listed species, that site specific hydraulic evaluation be conducted so as to prevent or limit impacts to surface water bodies.
- It is recommended that Ridgefield consider the cost alternatives of seeking a surface water source and water treatment from Lake River, Lower Lewis River, or the Columbia River where water is legally and physically available, as those sources would exhibit the least risk from a water rights permitting perspective. Additionally, opportunities may exist to access legally available groundwater in hydraulic continuity with the Lower Lewis River and legally and physically available water in the WRIA 27 RSA between Ridgefield and Woodland.

- It is recommended that surface water source options, capital investments, and operational costs be considered and ranked against groundwater source options.
- It is recommended to consider acquisition of water rights for the purposes of in-kind mitigation in tributaries that are likely to be affected by groundwater withdrawals.
- It is recommended to further research legal and physical water availability in Flume Creek, Teal Creek, and Allen Creek.
- Upon the selection of candidate well sites and prior to design engineering and construction, it is recommended to conduct preliminary water rights analysis and due diligence to determine potential physical and legal water availability constraints. The preliminary water rights analysis can be further refined through a pre-application submission and consultation with Ecology specific to the well site.
- To facilitate a transfer of an existing water right and/or obtain a new groundwater right from the criteria of legal and physical water availability, it is recommended to evaluate GSI's well site ranking in order of most to least likely candidate, as follows:
 1. City Park – proximity to Lake River.
 2. Port/Marina – proximity to Lake River.
 3. Kennedy Farms – distance from Teal Creek and Gee Creek. Potential to access groundwater in hydraulic continuity with the Columbia River.
 4. Clark Co. Land – proximity to Flume Creek, yet near Lake River.
 5. Teal Creek Subdivision and Lift Station – proximity to Teal Creek.

Limitations

Work for this project was performed for GSI Water Solutions, Inc. (Client), and this letter was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This letter does not represent a legal opinion. No other warranty, express or implied, is made.

All reports prepared by McCormick Water Strategies (MWS) for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party and without liability to MWS. MWS's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

Sincerely,

MCCORMICK WATER STRATEGIES, LLC



Jason D. McCormick, CWRE
Principal
jason@mccormickwater.com

Figures:

Figure A.1 – Ridgefield Regional WRIA and Surface Waters

Figure A.2 – WRIA 27/28 Regional Supply Areas Overview

Figure A.3 – WRIA 27 Regional Supply Areas

Figure A.4 – WRIA 28 Vancouver Lake Lowland Regional Supply Area

Figure A.5 – Vancouver Lake Lowland Regional Supply Area (Ridgefield Portion)

Figure A.6 – Proposed Well Sites

Attachments:

Attachment A.1 – WAC 173-527

Attachment A.2 – WAC 173-528

Attachment A.3 – Junction Well Report of Examination (G2-29174P)

**References:**

Foster, Sara v. Ecology, City of Yelm, WA. Washington State Supreme Court. Docket No. 90386-7. 2015.

Hillis v. Department of Ecology, 131 Wn.2d 373, 932 P.2d 139. 1997.

Kittitas County, et al vs. Eastern Washington Growth Management Hearings Board, et al. 172 Wash.2d 144, 256 P.3d 1193. 2011

Lower Columbia Fish Recovery Board. Lower Columbia Salmon Recovery and Fish & Wildlife Subbasin Plan, Volume II, Chapters G, H and L. December 15, 2004.

Lower Columbia Fish Recovery Board. Salmon-Washougal & Lewis Watershed Management Plan WRIAs 27-28. July 21, 2006

Personal communication with Mike Gallagher, Washington State Department of Ecology. Water Resources Section Manager, Southwest Region. Jason McCormick. May and October 2018.

Ridgefield, City of. Water System Plan Update. September 2013.

Washington State Department of Fish and Wildlife. SalmonScape.
<<http://apps.wdfw.wa.gov/salmonscape/map.html>> Accessed on October 22, 2018.

Figure A.1 – Ridgefield Regional WRIA and Surface Waters

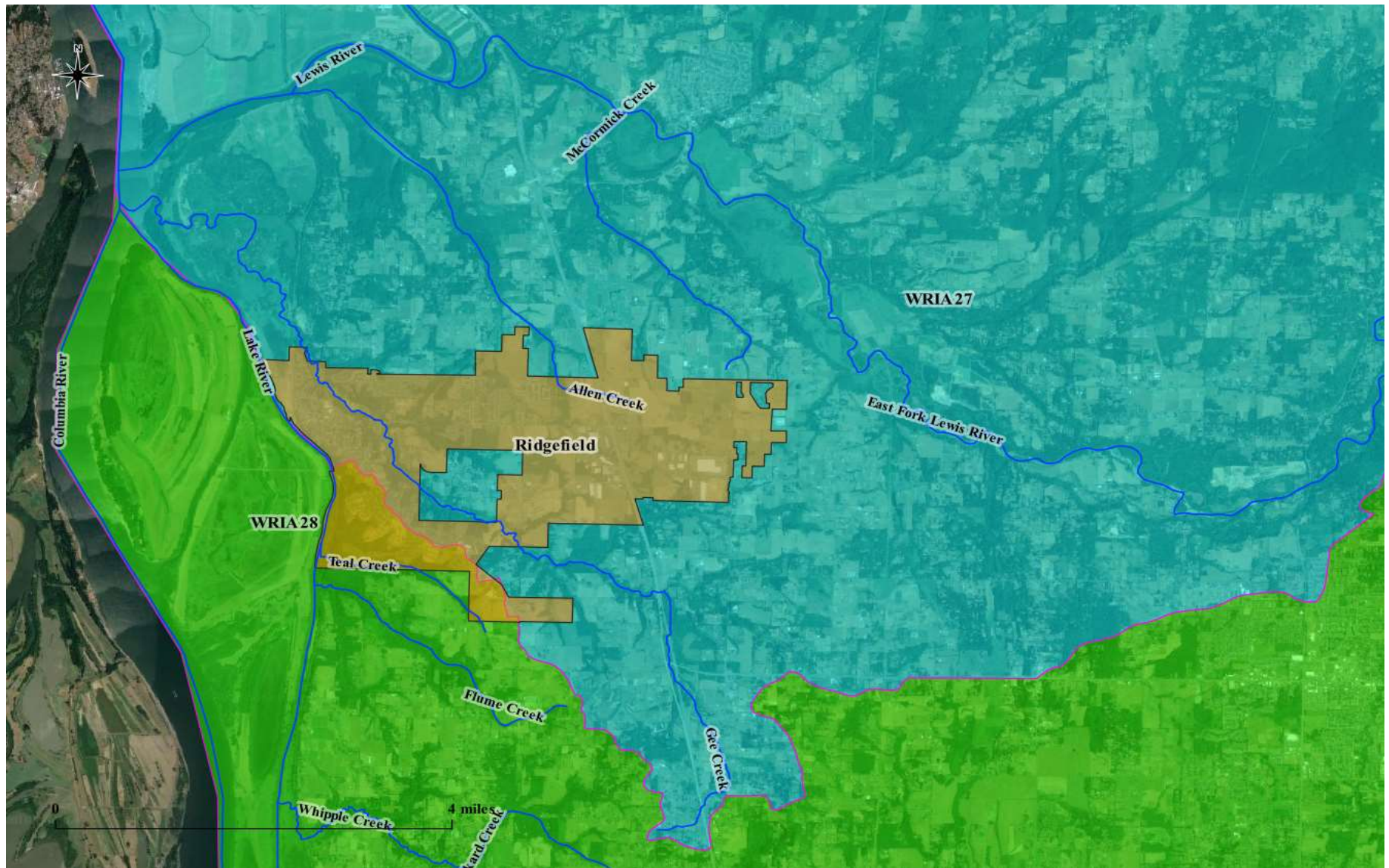


Figure A.2 – WRIA 27/28 Regional Supply Areas Overview

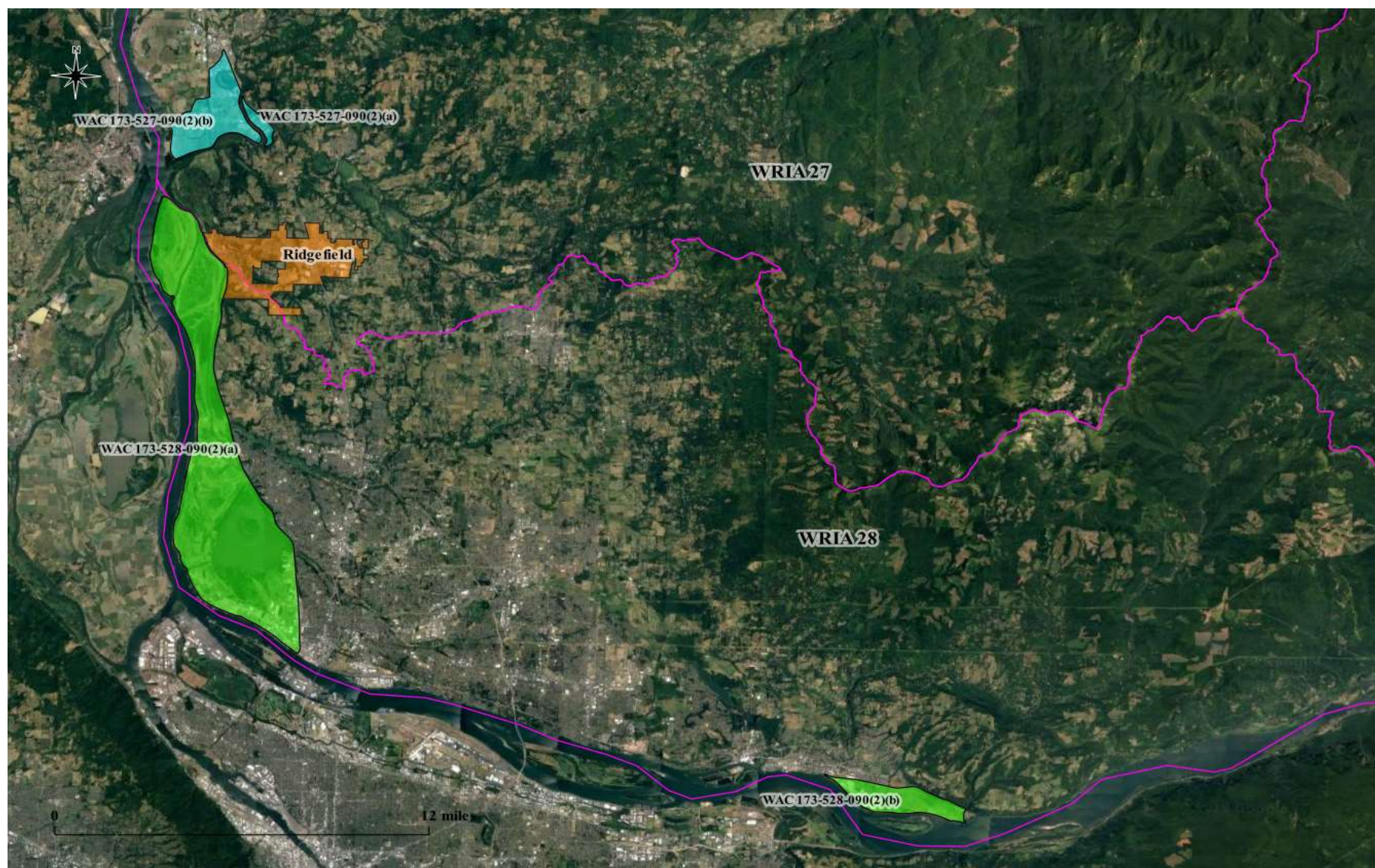


Figure A.3 – WRIA 27 Regional Supply Areas

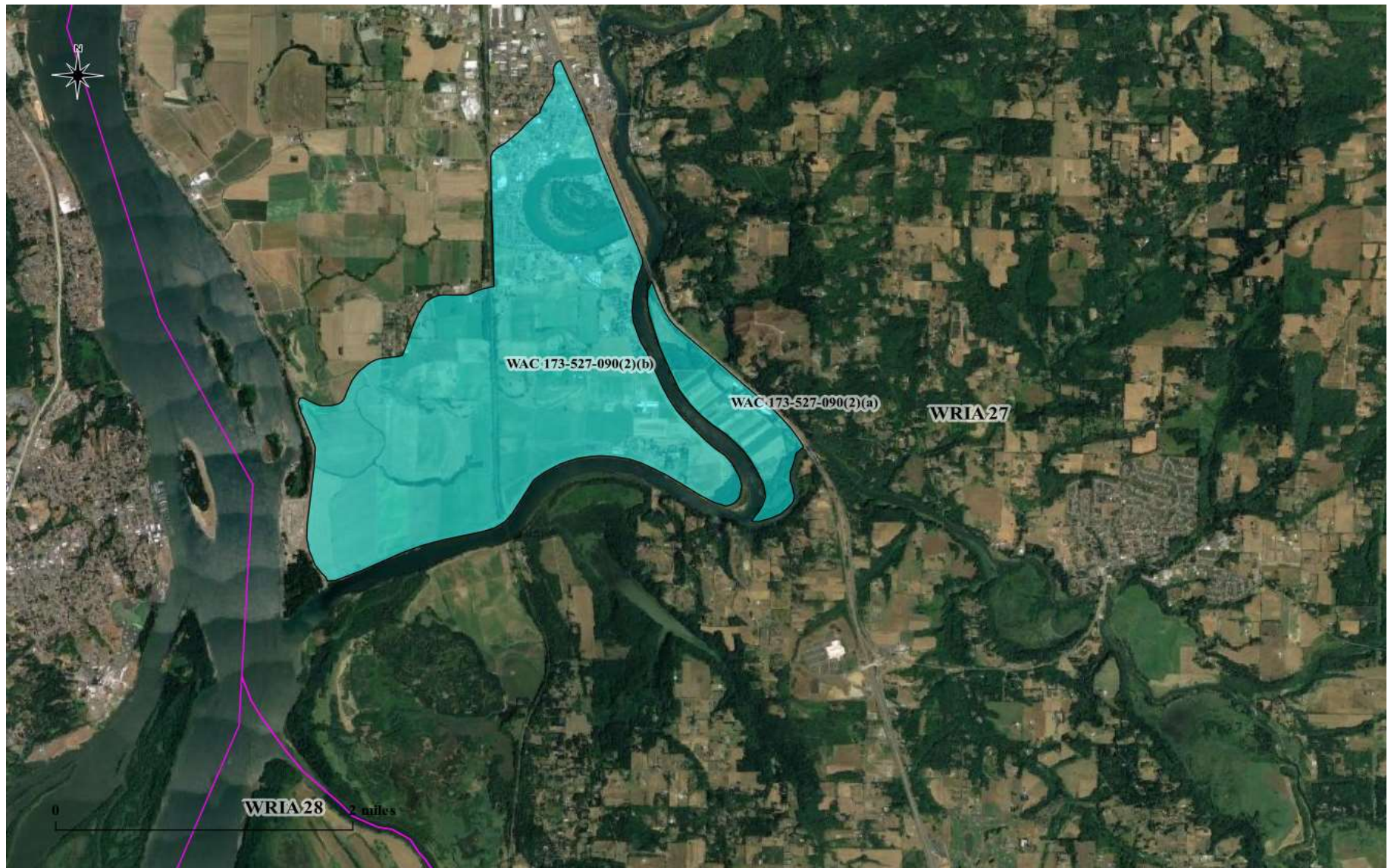


Figure A.4 – WRIA 28 Vancouver Lake Lowland Regional Supply Area



Figure A.5 – Vancouver Lake Lowland Regional Supply Area (Ridgefield Portion)

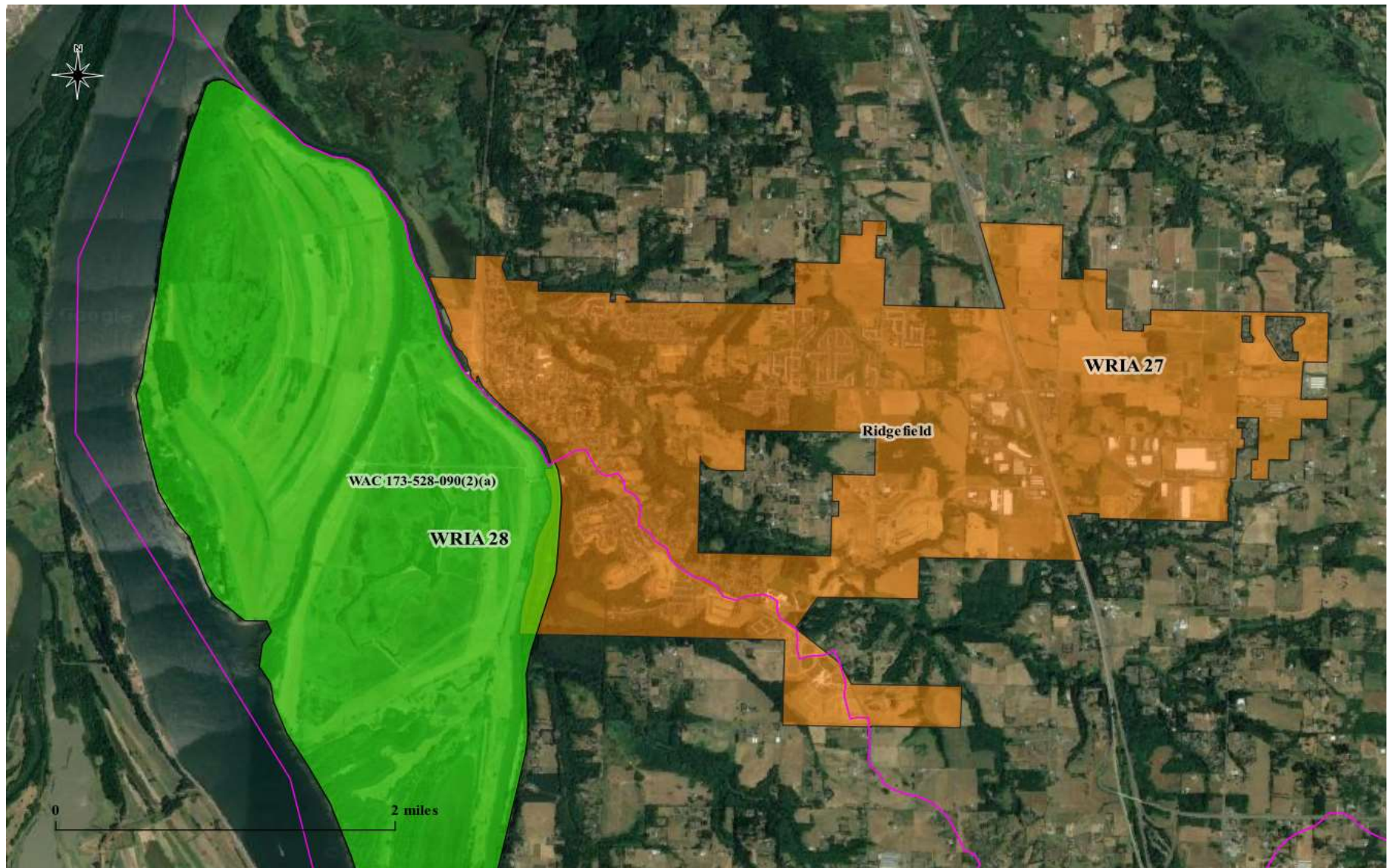
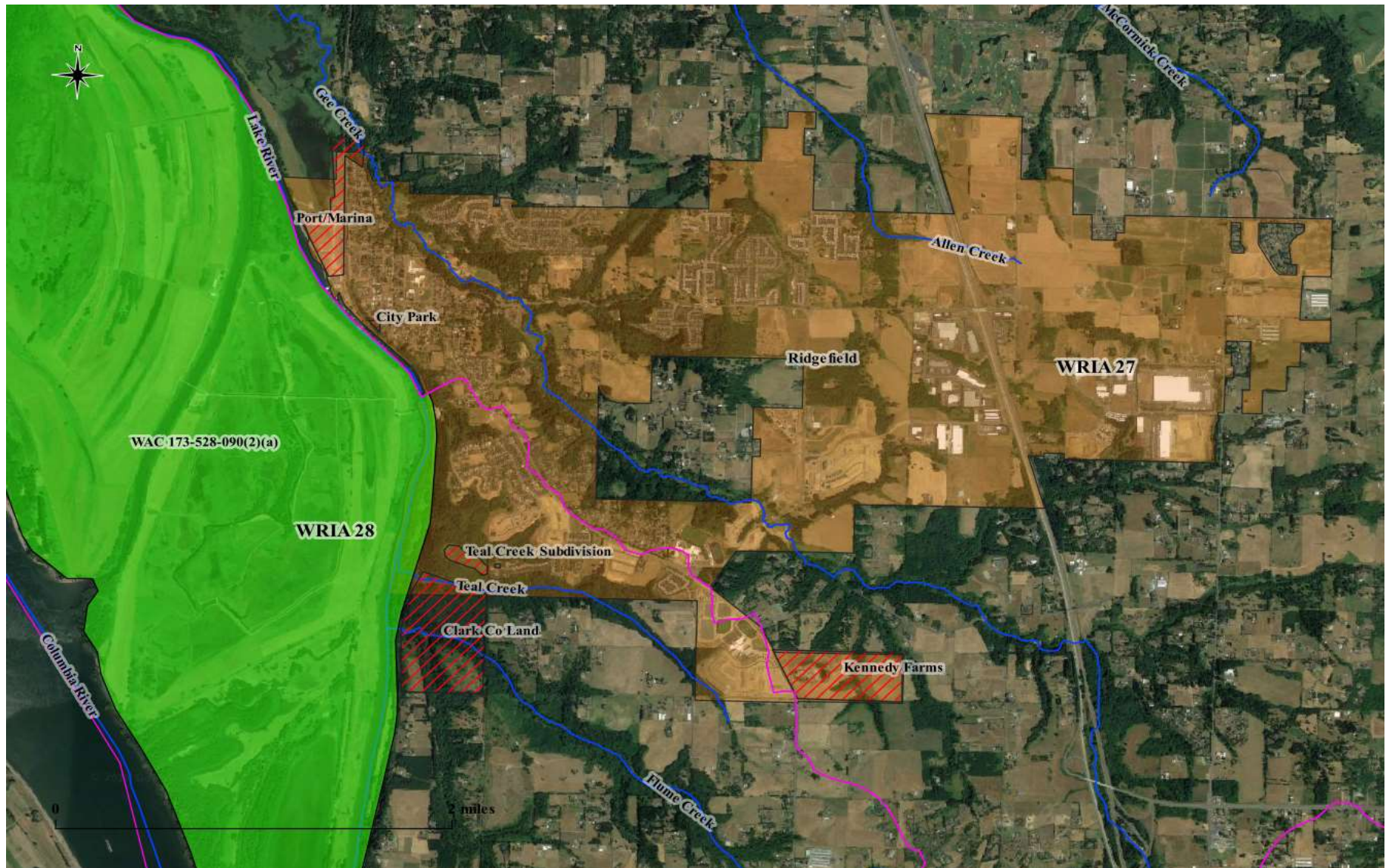


Figure A.6 – Proposed Well Sites



Attachment A.1 – WAC 173-527

Chapter Listing

Chapter 173-527 WAC

Last Update: 12/19/08

WATER RESOURCES MANAGEMENT PROGRAM FOR THE LEWIS BASIN, V

WAC Sections

PART A GENERAL

- 173-527-010** Authority and purpose.
- 173-527-020** Definitions.
- 173-527-030** Map.
- 173-527-040** Compliance and enforcement.

PART B INSTREAM FLOWS AND CLOSURES

- 173-527-050** Stream management control points.
- 173-527-060** Instream flows.
- 173-527-070** Surface and groundwater closed to further consumptive appropriations.

PART C FUTURE WATER RIGHTS

- 173-527-080** Future water rights—Generally.
- 173-527-090** Regional supply areas for future groundwater withdrawals.
- 173-527-100** Future appropriations for interruptible use.
- 173-527-110** Reservation of surface and groundwater for future uses.
- 173-527-120** Priority dates of reservation and repeal of chapter 173-592 WAC.
- 173-527-130** Accounting for use under the reservation.
- 173-527-140** Future surface water withdrawals for environmental restoration.

173-527-010

Authority and purpose.

(1) The department of ecology (ecology) adopts this chapter under the Watershed Planning Act (chapter **90.82** RCW), Water Resources Act of 1971 (chapter **90.54** RCW), Minimum Water Flows and Levels Act (chapter **90.22** RCW), Water code (chapter **90.03** RCW), Regulation of public groundwaters (chapter **90.44** RCW), RCW **43.21A.064**(9), and **43.21A.080**.

(2) This chapter shall not affect existing water rights, unless otherwise stated in the conditions of the water right in question. It shall also not affect federal Indian and non-Indian reserved rights.

(3) This chapter does not limit ecology's authority to establish flow requirements or conditions under other laws, including hydropower licensing under RCW **90.48.260**.

(4) The Salmon-Washougal and Lewis watershed management plan (plan) recommendations were approved in 2006 by the Salmon-Washougal and Lewis planning unit (planning unit) in accord with RCW **90.82.130**. The planning unit is a group made up of Clark, Skamania, and Cowlitz county commissioners and a broad range of water use interests. Ecology shall use the plan as the framework for making future water resource decisions in the Lewis watershed. Ecology shall rely upon the plan as a primary consideration in determining the public interest related to such decisions, including this rule adoption.

(5) Ecology shall initiate a review of this chapter whenever new information, changing conditions, or statutory modifications make it necessary to consider revisions. Ecology and the planning unit should periodically evaluate the effectiveness of this chapter.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-010, filed 12/19/08, effective 1/19/09.]

173-527-020

Definitions.

For purposes of this chapter, the following definitions shall be used:

"Allocation" means the designation of specific amounts of water for specific beneficial uses.

"Appropriation" means a beneficial use of waters of the state, authorized by and consistent with all applicable laws and regulations.

"Community water supplier" means an entity that supplies water for fifteen or more residential service connections or for providing residential use of water for a nonresidential population that is, on average, at least twenty-five people for at least sixty days a year.

"Consumptive use" means a use of water whereby there is diminishment of the amount or quality of the water source.

"Ecology" means the Washington state department of ecology.

"Environmental restoration project" or "ERP" means a project with a primary purpose of restoring salmonids, requiring a temporary use of water.

"Habitat-forming function" means a physical, chemical, or biological function that is necessary to create and maintain natural or desired habitat conditions that benefit fish and other aquatic life. Habitat forming functions include but are not limited to creating and maintaining the following: Channel migration, gravel and sediment transport, water quality, nutrients, large woody material recruitment, flood plain flows, and riparian habitat.

"Habitat-related action" means reestablishment of predisturbance or other desirable riparian, stream, wetland, or flood plain functions and related biological, chemical, and physical processes.

"Instream flow" means a level of stream flow, established under chapters **90.03**, 90.22, 90.54 and **90.82** RCW, needed in perennial streams to preserve wildlife, fish, scenic, aesthetic, and other environmental and navigational values. The term instream flow is synonymous with "minimum flow" as used in chapters **90.03** and **90.22** RCW, "base flow" as used in chapter **90.54** RCW, and "minimum instream flow" as used in chapter **90.82** RCW.

"Interruptible use" means a type of water use that relies upon withdrawals on a periodic or seasonal basis that if interrupted would not cause substantial hardship or health or safety concerns, or that is highly unlikely to be interrupted during the expected period of use.

For the purposes of this chapter, interruptible uses are subject to the instream flows set in WAC **173-527-060**.

"Net stream flow depletion" means the total depletion of water from a subbasin that may be available for future use under the reservation set in this chapter. The net stream flow depletion equals the flow depletion that remains after performance of offsetting actions, and is available for use only after applicable conditions in WAC **173-527-110** have been met.

"Nonconsumptive use" means a type of water use where either there is no diversion or withdrawal from a source or where there is no diminishment of the amount or quality of the water source.

"Permit-exempt withdrawal" or "permit exemption" means a groundwater withdrawal exempted from permit requirements under RCW **90.44.050**, but otherwise subject to the surface and groundwater statutes and other applicable laws. For the purpose of this chapter, stockwater use does not include feedlots or other activities not related to normal grazing land uses.

"Planning unit" means the Salmon-Washougal and Lewis watershed planning unit, established under chapter **90.82** RCW, and all successors, formally designated by the Salmon-Washougal and Lewis watershed planning initiating governments.

"Public water system" means any system, excluding a system serving only one single-family residence and a system with four or fewer connections all of which serve residences on the same farm, providing piped water for human consumption, including any collection, treatment, storage, or distribution facilities under control of the purveyor and used primarily in connection with the system; and collection or pretreatment storage facilities not under control of the purveyor but primarily used in connection with the system.

"Regional supply area" means a defined area where ecology finds water to be available for future groundwater withdrawal. Regional supply areas are designated by WAC **173-527-090** or by public order of ecology.

"Reservation" means a one time, finite allocation of water for future beneficial uses. For the purposes of this chapter, the reservation is not subject to instream flows set in WAC **173-527-060**, nor to closures set in WAC **173-527-070**. The reservation is senior to the instream flow water rights set in WAC **173-527-060**.

"Water-related action" means an offsetting activity that provides a quantity of water during certain times and at certain places that essentially replaces water at or upstream of where a proposed water right would impact surface flow. Water-related actions include but are not limited to acquiring an active water right or donating a water right to the trust water right program under chapter **90.42** RCW.

"Water right" means a right to make beneficial use of public waters of the state, including any water right established for instream flow purposes or a permit-exempt groundwater withdrawal.

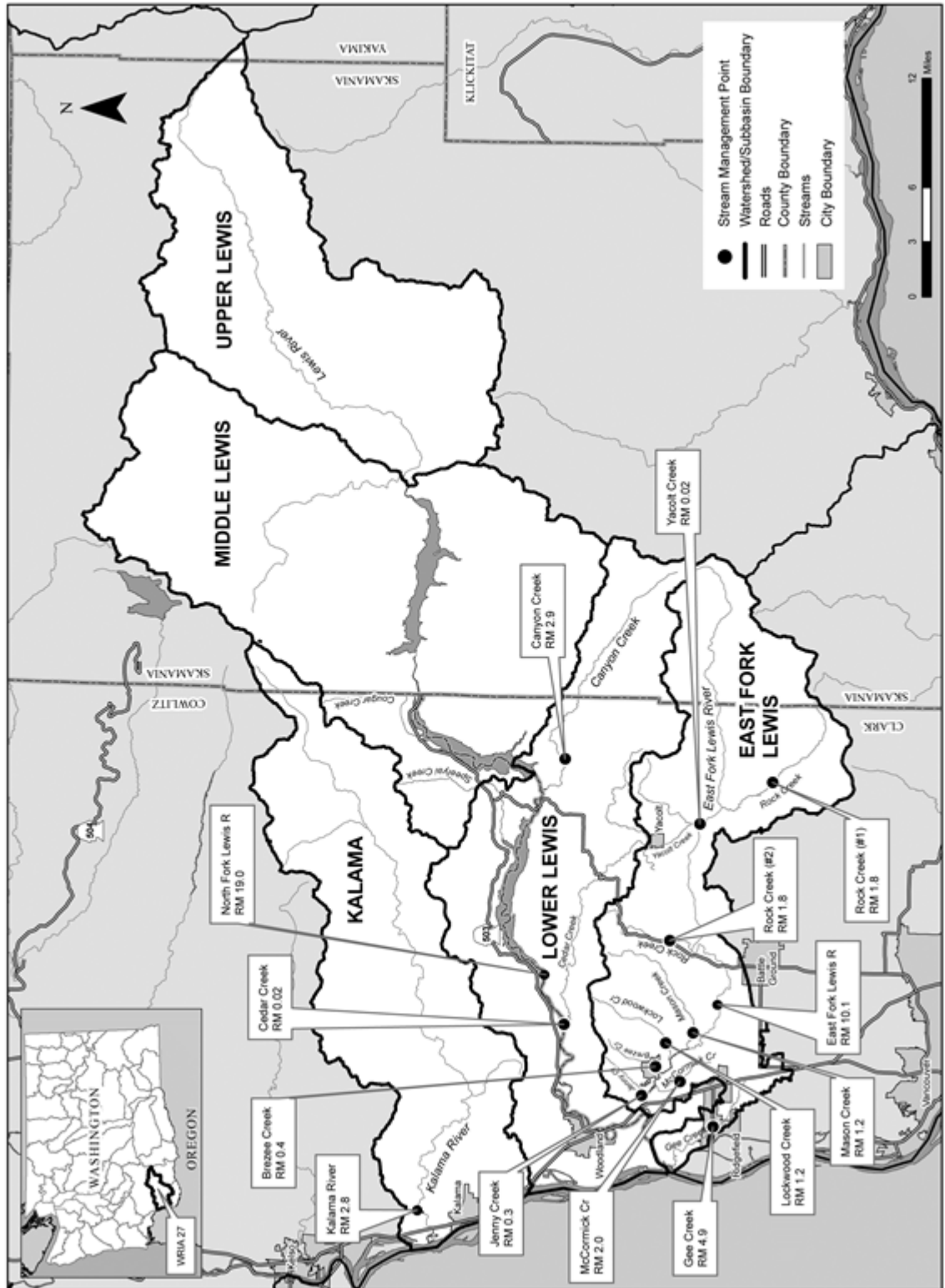
"Watershed plan" means the Salmon-Washougal and Lewis watershed management plan, adopted on July 21, 2006, by the Clark, Cowlitz, and Skamania county commissioners.

"Withdrawal" means the extraction of groundwater, or the diversion of surface water for a beneficial use.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-020, filed 12/19/08, effective 1/19/09.]

173-527-030
Map.

WRIA 27 Stream Management Subbasins and Control Points



[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-030, filed 12/19/08, effective 1/19/09.]

173-527-040

Compliance and enforcement.

(1) Ecology shall prepare and make available to the public, technical and educational information regarding the scope and requirements of this chapter. This is intended to assist the public in complying with the requirements of their water rights and applicable water laws and rules.

(2) When ecology determines that a violation of this chapter has occurred, it shall:

(a) First attempt to achieve voluntary compliance, except in appropriate cases involving potential harm to other water rights or the environment. An approach to achieving voluntary compliance is to offer information and technical assistance to a violator. The information or technical assistance identifies, in writing, one or more means to accomplish the person's purposes within the framework of the law.

(b) If education and technical assistance do not achieve compliance, ecology has the authority to issue a notice of violation, a formal administrative order under RCW **43.27A.190**, or assess penalties under RCW **43.83B.336** and **90.03.600**, or may seek criminal enforcement under RCW **90.03.400**, **90.03.410**, and **90.44.120**.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-040, filed 12/19/08, effective 1/19/09.]

173-527-050

Stream management control points.

Ecology hereby establishes the following stream management control points shown in Table I. Management point locations are shown in WAC **173-527-030**.

Table I
Stream Management Control Point
Information

Stream Management Point Name	Control Station by River Mile (RM); Latitude (Lat.), Longitude (Long.)
Kalama River (at USGS gage #14223500)	RM 2.8; 46°02'51"N, 122°50'10"W
Cedar Creek (near Lewis River Hatchery)	RM 0.02; 45°56'09"N, 122°37'09"W
North Fork Lewis River (at USGS gage #14220500)	RM 19.0; 45° 57'07"N, 122°33'46"W

Canyon Creek (at NE Healy Road)	RM 2.9; 45°56'24"N, 122°18'58"W
Jenny Creek (at Pacific Highway/Clark Co. Road)	RM 0.3; 45°52'22"N, 122°41'53"W
McCormick Creek (at 11th Ave. crossing)	RM 2.0; 45°50'34"N, 122°40'51"W
Brezee Creek (at La Center, Co. Rd. 42 crossing)	RM 0.4; 45°51'45"N, 122°39'52"W
Lockwood Creek (at Co. Rd. 42)	RM 1.2; 45°51'17"N, 122°38'14"W
Mason Creek (at J.A. Moore Rd. crossing)	RM 1.2; 45°50'00"N, 122°37'30"W
East Fork Lewis River (at Ecology gage 27D090)	RM 10.1; 45°48'51"N, 122°35'30"W
Rock Creek #2 (at 319th St. Bridge off Highway 503)	RM 1.8; 45°51'13"N, 122°31'14"W
Yacolt Creek (at confluence at Moulton Falls)	RM 0.02; 45°49'56"N, 122°23'13"W
Rock Creek #1 (1/2 mile south of Dole)	RM 1.8; 45°46'31"N, 122°20'16"W
Gee Creek (at Ridgefield, Highway 501 crossing)	RM 4.9; 45°48'55"N, 122°43'52"W

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-050, filed 12/19/08, effective 1/19/09.]

173-527-060

Instream flows.

(1) The instream flows established in this chapter are based on the recommendations of the planning unit; consultation with the department of fish and wildlife, department of agriculture, and department of community, trade, and economic development; and public input received during the rule-making process. The planning unit recommended these instream flow levels by unanimous vote.

(2) Instream flows established in this chapter are water rights, which protect instream values and functions from future appropriations. The priority date of the instream flows is the effective date of this chapter. In accordance with RCW **90.82.080**, this priority date received unanimous approval from the planning unit.

(3) Instream flow rights shall be protected from impairment by any new water rights commenced after the effective date of this chapter and by all future changes and transfers of

senior and junior water rights, including both surface and groundwater rights. The following water rights are not subject to the instream flows:

(a) A water right put to beneficial use before the effective date of this chapter, unless otherwise stated in the conditions of the water right or change authorization.

(b) Water rights appropriated from the reservation of water established in WAC **173-527-110**.

(c) Future withdrawals for environmental restoration purposes under WAC **173-527-140** unless included as a permit condition.

(4) Instream flows, expressed in cubic feet per second (cfs), are measured at the stream management control points in WAC **173-527-050**. Instream flows apply to all stream reaches that contribute to flow at stream management control points, as shown in Table II of this section. For reaches that are downstream of all management points, the flows set for the nearest upstream management control point shall apply to those reaches. However, if a point of withdrawal is downstream of the confluence of two or more branches, each having a designated management point, the combined flows of the management points shall apply to that withdrawal.

Table II
Instream Flows in the Lewis Basin
(cubic feet per second)

Month	Stream Management Control Point				
	Kalama River, RM 2.8	Cedar Creek, RM 0.02	Lower Lewis River, RM 19.0	Canyon Creek, RM 2.9	Gee Creek, RM 4.9
January	950	125	2000	66	23
February	950	156	2000	66	42
March	950	156	2000 for Mar. 1, 2200 from Mar. 2 to Mar. 15, 2500 from Mar. 16 to Mar. 30, 2700 for Mar. 31	208	42
April	950	156	2700	208	42
May	950	156	2700	208	42
June	900	104	2700	139	28
July	616	104	2300 from July 1 to July 10, 1900 from July 11 to July 20, 1500 from July 21 to July 30, 1200 for July 31	139	28
August	434 from Aug. 1 to Aug. 15, 400 from Aug. 16 to Aug. 31	46	1200	66	9
September	589	188	1200	66	9
October	1050	188	1200 from Oct. 1 to Oct. 15, 2500 from Oct. 16 to Oct. 31	66	23
November	1050	188	4200	66	23
December	1050	125	4200 from Dec. 1 to Dec. 15, 2000 from Dec. 16 to Dec. 31	66	23
Month	Stream Management Control Point				

	Jenny Creek, RM 0.3	McCormick Creek, RM 2.0	Brezee Creek, RM 0.4	Lockwood Creek, RM 1.2	Mason Creek, RM 1.2	East Fork Lewis River, RM 10.1	Rock Creek #2, RM 1.8	Yacolt Creek, RM 0.02	Rock Creek #1, RM 1.8
January	19	15	31	30	23	500	23	59	75
February	36	28	39	54	42	500	43	97	121
March	36	28	39	54	42	460	43	97	121
April	36	28	39	54	42	460	43	97	121
May	36	28	39	54	42	460	43	97	121
June	24	28	39	36	28	420	29	66	80
July	24	28	39	36	28	233	29	66	80
August	8	6	8	13	9	122	10	26	34
September	8	6	8	13	9	175 from Sep. 1 to Sep. 15, 295 from Sep. 16 to Sep. 30	10	26	34
October	19	15	21	30	23	500	23	59	75
November	19	15	21	30	23	500	23	59	75
December	19	15	21	30	23	500	23	59	75

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-060, filed 12/19/08, effective 1/19/09.]

173-527-070

Surface and groundwater closed to further consumptive appropriations.

(1) Based on historical and current low flows and the water withdrawals by existing water right holders, ecology has determined that no waters are reliably available for new consumptive uses from certain surface water sources in the basin. Therefore, all surface waters listed in Table III are closed to any further consumptive appropriation, except as provided in WAC **173-527-080**.

Table III
Surface Water Closures

Subbasin Name*	Affected Reach
Kalama River	

	Kalama River from mouth to headwaters, including tributaries.
Middle Lewis River	Lewis River from Forest Road 90 bridge (46°1'13"N, 122°1'13"W) to headwaters, including tributaries.
Upper Lewis River	All surface waters in the subbasin.
Lower Lewis River	Lewis River from RM 7.1 (45° 54'53"N, 122°44'12"W) to Merwin Dam outflow (45° 33'21"N, 122°33'21"W), including tributaries.
East Fork Lewis River	East Fork Lewis River from Interstate Highway 5 bridge crossing (45°52'23"N, 122° 42'42"W) to headwaters, including tributaries. Gee Creek from mouth at Columbia River to headwaters, including tributaries.
*Subbasin boundaries are shown in WAC 173-527-030 , and are consistent with the boundary descriptions used in the watershed plan.	

(2) Based on the hydrogeology of the basin, and the location and depth where groundwater withdrawals generally occur, there is a high likelihood that future groundwater withdrawals would capture water that affects closed surface waters. Therefore, the basin is closed to new withdrawals of groundwater (including any new permit-exempt withdrawals) that would affect closed surface waters, except as provided in WAC **173-527-080**.

(3) Applications for a withdrawal that would not affect the closed reaches, listed in Table III, shall be evaluated on a case-by-case basis under applicable law.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-070, filed 12/19/08, effective 1/19/09.]

173-527-080

Future water rights—Generally.

A new surface or groundwater appropriation (including any permit-exempt withdrawal) may be commenced only if consistent with the surface and groundwater statutes and other applicable requirements of law and if any one of the following seven conditions (subsections (1) through (7) of this section) apply:

- (1) The proposed water use is nonconsumptive.
- (2) The proposed surface water diversion is not located on any of the surface waters closed in WAC **173-527-070**, Table III.

(3) The proposed groundwater withdrawal is located where it would not affect any of the surface waters closed in WAC **173-527-070**, Table III by either meeting condition (a) or (b) of this subsection:

(a) The person or entity seeking to commence a proposed groundwater use shows, through scientifically sound studies and technical analysis, that the groundwater use would not affect any of the closed surface waters identified in WAC **173-527-070**, Table III.

(b) The proposed groundwater withdrawal occurs in a regional supply area designated in WAC **173-527-090** or by order of ecology.

(4) The person or entity seeking to commence the new appropriation submits a scientifically sound mitigation plan, and such plan is approved by ecology. A mitigation plan may be approved if the proponent can demonstrate to ecology's satisfaction that when the mitigation is implemented the proposed withdrawal(s) will not impair senior water rights, including instream flow rights, adversely impact instream resources, or diminish water quality. A mitigation plan can be submitted to mitigate for an individual withdrawal or to mitigate for multiple withdrawals in a defined region.

An approved mitigation plan shall include a monitoring and reporting plan. It shall also include conditions that the plan be implemented as long as the associated water right is used and that any water provided for mitigation purposes be prohibited from being applied to any other purpose. If monitoring of a mitigation plan shows the mitigation is not effective, departmental approval of the mitigation plan shall be suspended and the water use shall cease until the department approves a new or revised mitigation plan.

(5) The proposed water use qualifies as an interruptible use as defined in WAC **173-527-020**, and meets the criteria in WAC **173-527-100**.

(6) The proposed water use qualifies for the reservation established and as conditioned in WAC **173-527-110**.

(7) The proposed use is for an environmental restoration project and meets the criteria in WAC **173-527-140**.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-080, filed 12/19/08, effective 1/19/09.]

173-527-090

Regional supply areas for future groundwater withdrawals.

(1) Ecology finds there to be certain locations where water is potentially available on a year-round basis for future groundwater withdrawals. Ecology further finds that withdrawals in these areas are unlikely to affect surface waters closed in WAC **173-527-070**, Table III or instream flow values protected under RCW **90.54.020**(3). Such regional supply areas are recognized in the watershed plan and supported by the public interest as preferred locations for developing future water supply. Groundwater withdrawals (including permit-exempt withdrawals) may be commenced in the designated regional supply areas to the extent such withdrawals are consistent with chapters **90.03** and **90.44** RCW, and any other applicable requirements of law.

(2) Based on local hydrology, ecology finds that groundwater withdrawals made in areas designated below meet the conditions for regional supply areas in subsection (1) of this section and are so designated:

(a) All lands west of Interstate Highway 5, north of the East Fork Lewis River, and east of the Lewis River mainstem;

(b) All lands west of Interstate Highway 5, north of Lewis River mainstem, and within the Lower Lewis subbasin.

(3) Ecology, in consultation with the department of fish and wildlife, may by order designate other regional supply areas that meet the criteria in subsection (1) of this section.

(4) In order to protect instream values of surface waters in regional supply areas, ecology reserves the right to deny any withdrawals whereby drawdown effects from pumping would create a significant impact to local surface waters. For the purposes of this section, significant impact includes but is not limited to a noticeable reduction in lake level or flow in local streams.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-090, filed 12/19/08, effective 1/19/09.]

173-527-100

Future appropriations for interruptible use.

(1) Ecology finds there may be water available above existing water rights and instream flows, which may be captured for interruptible use. This water is only available from November 16 to May 14 and may only be withdrawn from the Kalama, North Fork Lewis (below Merwin Dam), and East Fork Lewis rivers.

(2) Prior to commencement, the person or entity seeking a new interruptible appropriation must demonstrate a seasonal need and provide assurances that any effects on surface water that may result from withdrawals will be limited to the above time period and locations.

(3) Ecology shall deny an appropriation for interruptible use if such use, or the cumulative effects of such uses, would compromise habitat-forming functions provided by high flows. In no case shall new individual or cumulative allocations exceed the values indicated in Table IV as specified for each river. However, these allocation limits may be lowered on a case-by-case basis whenever more protection of habitat-forming functions is needed.

(4) Interruptible uses are subject to existing water rights and instream flows set in WAC **173-527-060**.

Table IV
Limits on Future Allocation for Interruptible
Uses

River Name	Allocation Limit* (cubic feet per second)
Kalama River	150
Lewis River (from river mile 7.1 to Merwin Dam)	200
East Fork Lewis	90
*The allocation limits in this table are based upon an allowance for ten percent of the average historic flow. Due to case-by-case determinations of flow for	

habitat-forming function needs, the maximum allocation may be less.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-100, filed 12/19/08, effective 1/19/09.]

173-527-110

Reservation of surface and groundwater for future uses.

(1) Ecology has weighed the public interest that supports the reservation of a limited amount of water for future consumptive uses against the potential for negative impact to instream resources. Ecology finds that the public interest advanced by a limited reservation clearly overrides the small potential for negative impacts on instream resources.

Based on this finding, ecology hereby allocates an amount and rate of use of water for specific water users and subbasins, as indicated under the subtitle "Net streamflow depletion" in Table V. The reservations are a one time, finite resource. When and if water is fully appropriated from the reservation, all remaining waters in closed areas are hereby appropriated for instream flow use.

This reservation is available to a user only if the conditions set forth in subsection (2) or (6) of this section are met, as well as any applicable requirements of law, including but not limited to all water resource laws and regulations.

(2) Ecology may approve a water right application for water from the reservation if all of the following conditions in (a), (b), (c), and (d) of this subsection are met:

Alternatives analysis

(a) The applicant demonstrates that no practicable supply alternatives to the reservation are available. In order to satisfy this condition, an applicant must demonstrate consideration of other regional water sources to supply water for the same use now being proposed, including:

- (i) Existing public water system supply;
- (ii) Water from a ground or surface water source, which may be withdrawn without affecting any of the surface waters closed in WAC **173-527-070**, such as water from a hydraulically disconnected deep aquifer source;
- (iii) Supply options from surface and groundwater storage;
- (iv) Water savings from conservation techniques, such as reuse of waste water; and
- (v) Mitigation and minimization considerations to the extent required in (d) of this subsection, impact analysis.

Water-related offset

(b) The applicant demonstrates it will offset the overall streamflow depletion(s) through water-related actions to the maximum extent practicable. Applicants should offset at least one-half of the overall streamflow depletion(s) through water-related actions.

(i) In evaluating the adequacy of water-related actions to offset depletions, ecology will evaluate the action based on the degree of aquatic benefit it would provide. A water-related offset may have a greater or lesser benefit due to the seasonality, location, or quality of water provided. The level of benefit will be used to determine if any additional offsets will be required of the applicant.

(ii) Ecology will consider water-related offsets only to the extent that reasonable assurance exists that such offsets will be successfully delivered or donated to the trust water right program under chapter **90.42** RCW where delivery is legally guaranteed.

Habitat-related offset

(c) After satisfying the water-related offset requirement in (b) of this subsection, an applicant must offset any remaining streamflow depletion through habitat-related actions that create or enhance habitat. Habitat-related offsets must compensate for the habitat loss or degradation that will result from the net streamflow depletion.

An applicant must provide adequate assurances that a habitat-related action in fact occurs. Ecology, as appropriate, shall condition use of the reservation with performance standards and monitoring requirements, or require financial assurance mechanisms prior to reservation use.

Impact analysis

(d) In keeping with the findings of the watershed plan, ecology finds that the public interest supports avoidance and minimizing impacts to tributaries. The applicant must demonstrate one of the following:

- (i) The proposed withdrawal does not impact tributaries to subbasin mainstems; or
- (ii) An impact to a tributary to a subbasin mainstem is unavoidable, as demonstrated by an impact analysis, included as part of the alternatives analysis under (a) of this subsection. In addition to demonstrating the necessary considerations under (a) of this subsection, the impact analysis must demonstrate consideration of water supply options that avoid the impact to the tributary as well as supply options that may minimize such impact.

Ecology, in consultation with the department of fish and wildlife, may require an applicant to monitor affects of a groundwater withdrawal as a condition of water use.

Application review and permitting

(3) In determining practicability in subsection (2) of this section, ecology will consider both economic and logistic considerations, as well as guidance from the watershed plan.

(4) Ecology, in consultation with the department of fish and wildlife, will evaluate the adequacy of proposed offsets and alternatives analysis in subsection (2) of this section. The evaluation shall be consistent with the watershed plan and guidance documents approved by ecology. Ecology will also consider recommendations and technical advice received from the planning unit or by an advisory committee, formally designated by the planning unit.

(5) Ecology will issue a permit for use of water equal to the amount it determines appropriate to allocate from the reservation, and such amount will be debited from the total reservation amount. The total quantity of water appropriated shall not exceed the amount and rate listed under the subtitle "Net streamflow depletion" in Table V. However, ecology will issue a permit for a quantity beyond the amount debited from the reservation for the following:

- (a) Water-related offsets to the extent such offsets are water-for-water, to the satisfaction of RCW **90.03.380** or **90.44.100**, any other applicable laws, and terms of an approved mitigation plan under WAC **173-527-080**(4); and
- (b) Water use to the extent closed water sources are not affected and to the satisfaction of applicable requirements of law, including but not limited to all water resource laws and regulations.

Permit-exempt groundwater use

(6) The requirements in subsection (2) of this section do not apply to permit-exempt withdrawals. However, permit-exempt withdrawals under RCW **90.44.050** are subject to both of the following conditions in order to occur under the reservation:

(a) Future permit-exempt well use may not occur where connection to an existing community water supplier can be provided in a timely and reasonable manner. Determinations of timely and reasonable shall be consistent with public water system plans, local laws, and state laws, including but not limited to Clark County Code 40.370.020 and chapter **246-290** WAC.

(b) Water use from a permit-exempt groundwater well must be consistent with the allocation limits of this reservation and the Clark, Cowlitz, and Skamania County code and other applicable laws, including the statute on permit exemptions, RCW **90.44.050**. Single or group domestic uses under the permit exemption shall not exceed five thousand gallons per day. Irrigation of lawn and noncommercial garden under the permit exemption shall not exceed one-half acre.

Table V
Allocation of Reservation

Subbasin Name*	Water User**	Expected Streamflow Depletion without Offset (overall depletion) cubic feet per second (cfs)	Expected Water-related Offset Requirement (cfs)	Net Streamflow Depletion*** (cfs)
Kalama River	City of Kalama	1.92	0.00	1.92
	Other public water systems	0.37	0.19	0.19
	Permit-exempt groundwater wells	0.16	0.00	0.16
Lower Lewis River, Middle Lewis, and Upper Lewis Rivers	Public water systems in Cowlitz County	0.37	0.19	0.19
	Public water systems in Clark County	0.75	0.37	0.37
	Public water systems in Skamania County	0.40	0.00	0.40
	Permit-exempt groundwater wells in Cowlitz County	0.07	0.00	0.07
	Permit-exempt groundwater wells in Clark County	0.12	0.00	0.12
	Permit-exempt groundwater wells in Skamania County	0.40	0.00	0.40
	Commercial use in Skamania County****	0.21	0.00	0.21
		4.40	2.20	2.20

East Fork Lewis River Subbasin	Clark Public Utility, City of Battle Ground and Ridgefield			
	Other public water systems in Clark County	0.37	0.19	0.19
	Permit-exempt groundwater wells in Clark County	0.47	0.00	0.47
	Permit-exempt groundwater wells in Skamania County	0.02	0.00	0.02
*Subbasin boundaries are shown in WAC 173-527-030 , and are consistent with the boundary descriptions used in the watershed plan. **In the watershed plan, the term "domestic wells" has the same meaning as "permit-exempt groundwater wells" and the term "small community water systems" has the same meaning as "public water systems." *** If conditions in subsections (2) and (6) of this section are satisfied, the net depletion of a closed water source, set in WAC 173-527-070 , shall not exceed the quantities listed for specific users. ****Withdrawal impacts shall be limited to segments of the mainstem North Fork Lewis River that are located upstream of the Forest Road 90 bridge crossing (46°1'13"N, 122°1'13"W).				

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-110, filed 12/19/08, effective 1/19/09.]

173-527-120

Priority dates of reservation and repeal of chapter **173-592 WAC.**

(1) The reservation created in WAC **173-527-110** is not subject to the instream flows or closures set in this chapter, and the priority date of the reservation for all areas outside Clark County is the effective date of this chapter.

(2) Ecology hereby transfers unappropriated water from the existing reservation for Clark County in WAC **173-592-070** in such quantities and to the users and areas of use in Clark County as set forth in WAC **173-527-110**, Table V and WAC **173-528-110**, Table IV. Pursuant to this transfer, the priority date of withdrawals from all Clark County portions of the reservation in WAC **173-527-110** is August 13, 1986. However, the designation of specific municipal suppliers in this reservation does not create a right for these entities to use such water. Such a right will arise only if a permit is applied for by such municipal suppliers to use water under the reservation and approved by ecology after applying the legal tests for a new appropriation. With respect to any water for which a permit has not been granted, ecology reserves the right to modify in all respects or rescind the reservation by future rule making.

(3) Based on new information made available through the local watershed planning process and hydrologic conditions as of the time of this rule making, ecology has determined that the remaining water reserved under WAC **173-592-070**, which was not transferred in subsection (2) of this section or previously appropriated is no longer supported by available

information and science. Therefore, chapter **173-592** WAC is hereby repealed in its entirety and all water reserved under that rule that has not been transferred or appropriated is hereby returned to the state. This repeal is not intended to affect any existing water rights issued under the reservation.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-120, filed 12/19/08, effective 1/19/09.]

173-527-130

Accounting for use under the reservation.

- (1) A record of all appropriations from the reservation shall be maintained by ecology.
- (2) For an appropriation under a permit, ecology will account for water use under the reservation based on authorized quantities under water right permits or certificates, and according to WAC **173-527-110**(5).
- (3) For permit-exempt groundwater appropriations, ecology will deduct a standard amount of two hundred forty gallons per day for each well. For a group domestic water system under the permit-exemption, the standard amount will be applied for each domestic or residential service connection. The standard amount will be adjusted periodically to reflect actual use during low flow conditions. The standard amount assumes a rate of septic recharge from an on-site septic system. In the event that on-site septic recharge is known not to occur, ecology will deduct an additional five hundred and sixty gallons per day. Additionally, ecology reserves the right to account for water use based on the best available information contained in well logs, approvals issued by local jurisdictions, or other documents.
- (4) If a water user under the reservation subsequently abandons or relinquishes the withdrawal, ecology will credit back to the reservation the actual amount of water used and/or debited from the reservation, upon demonstration to ecology that the well or surface water diversion has been decommissioned through written certification.
- (5) Ecology shall notify either Clark, Skamania, or Cowlitz County and the planning unit; when it determines that fifty percent, seventy-five percent, and one hundred percent, respectively, of the reservation is appropriated for a water user in Table V.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-130, filed 12/19/08, effective 1/19/09.]

173-527-140

Future surface water withdrawals for environmental restoration.

In keeping with the findings of the watershed plan, ecology finds that the public interest advanced by future withdrawals for ERPs, as defined and conditioned in this section, clearly overrides the minimal negative impacts on instream flows.

- (1) A future withdrawal for an ERP may be approved only if it meets all the following:
 - (a) The proposed water use is for a bypass flow for salmonid restoration or riparian planting project, and the primary purpose of the project is restoration of salmonids.

(b) The proposed project will result in aquatic habitat benefits, and such benefits will exceed any detriment to aquatic habitat that may be caused by reductions in flow at specific locations and times of withdrawal.

(c) The proposed use qualifies for a temporary permit.

(2) Ecology, in consultation with the department of fish and wildlife, will evaluate proposed ERPs. ERPs approved by ecology are not subject to closures or instream flows set in this chapter, unless otherwise conditioned by the permit.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-126 (Order 08-02), § 173-527-140, filed 12/19/08, effective 1/19/09.]

Attachment A.2 – WAC 173-528

Chapter Listing

Chapter 173-528 WAC

Last Update: 12/19/08

WATER RESOURCES MANAGEMENT PROGRAM FOR THE SALMON-WASH WRIA 28

WAC Sections

PART A GENERAL

- 173-528-010** Authority and purpose.
- 173-528-020** Definitions.
- 173-528-030** Map.
- 173-528-040** Compliance and enforcement.

PART B INSTREAM FLOWS AND CLOSURES

- 173-528-050** Stream management control points.
- 173-528-060** Establishment of instream flows.
- 173-528-070** Surface and groundwater closed to further consumptive appropriations.

PART C FUTURE WATER RIGHTS

- 173-528-080** Future water rights, generally.
- 173-528-090** Regional supply areas for future groundwater withdrawals.
- 173-528-100** Future appropriations for interruptible use from the Washougal River.
- 173-528-110** Reservation of surface and groundwater for future uses.
- 173-528-120** Priority dates of reservation and repeal of chapter 173-592 WAC.
- 173-528-130** Accounting for use under the reservation.
- 173-528-140** Future surface water withdrawals for environmental restoration.

173-528-010

Authority and purpose.

(1) The department of ecology (ecology) adopts this chapter under the Watershed Planning Act (chapter **90.82** RCW), Water Resources Act of 1971 (chapter **90.54** RCW), Minimum Water Flows and Levels Act (chapter **90.22** RCW), Water code (chapter **90.03** RCW), Regulation of public groundwaters (chapter **90.44** RCW), RCW **43.21A.064**(9), and **43.21A.080**.

(2) This chapter shall not affect existing water rights, unless otherwise stated in the conditions of the water right in question. It shall also not affect federal Indian and non-Indian reserved rights.

(3) This chapter does not limit ecology's authority to establish flow requirements or conditions under other laws, including hydropower licensing under RCW **90.48.260**.

(4) The Salmon-Washougal and Lewis watershed management plan (plan) recommendations were approved in 2006 by the Salmon-Washougal and Lewis planning unit (planning unit) in accord with RCW **90.82.130**. The planning unit is a group made up of Clark, Skamania, and Cowlitz county commissioners and a broad range of water use interests. Ecology shall use the plan as the framework for making future water resource decisions in the Salmon-Washougal watershed. Ecology shall rely upon the plan as a primary consideration in determining the public interest related to such decisions, including this rule adoption.

(5) Ecology shall initiate a review of this chapter whenever new information, changing conditions, or statutory modifications make it necessary to consider revisions. Ecology and the planning unit should periodically evaluate the effectiveness of this chapter.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-127 (Order 08-03), § 173-528-010, filed 12/19/08, effective 1/19/09.]

173-528-020

Definitions.

For purposes of this chapter, the following definitions shall be used:

"Allocation" means the designation of specific amounts of water for specific beneficial uses.

"Appropriation" means a beneficial use of waters of the state, authorized by and consistent with all applicable laws and regulations.

"Community water supplier" means an entity that supplies water for fifteen or more residential service connections or for providing residential use of water for a nonresidential population that is, on average, at least twenty-five people for at least sixty days a year.

"Consumptive use" means a use of water whereby there is diminishment of the amount or quality of the water source.

"Ecology" means the Washington state department of ecology.

"Environmental restoration project" or "ERP" means a project with a primary purpose of restoring salmonids, requiring a temporary use of water.

"Habitat-forming function" means a physical, chemical, or biological function that is necessary to create and maintain natural or desired habitat conditions that benefit fish and other aquatic life. Habitat forming functions include but are not limited to creating and maintaining the following: Channel migration, gravel and sediment transport, water quality, nutrients, large woody material recruitment, flood plain flows, and riparian habitat.

"Habitat-related action" means enhancing desirable riparian, stream, wetland, or flood plain functions and related biological, chemical, and physical processes.

"Instream flow" means a level of stream flow, established under chapters **90.03**, 90.22, 90.54 and **90.82** RCW, necessary in perennial streams to preserve wildlife, fish, scenic, aesthetic, and other environmental and navigational values. The term instream flow is synonymous with "minimum flow" as used in chapters **90.03** and **90.22** RCW, "base flow" as used in chapter **90.54** RCW, and "minimum instream flow" as used in chapter **90.82** RCW.

"Interruptible use" means a type of water use that relies upon withdrawals on a periodic or seasonal basis that if interrupted would not cause substantial hardship or health or

safety concerns, or that is highly unlikely to be interrupted during the expected period of use. For the purposes of this chapter, interruptible uses are subject to the instream flows set in WAC **173-528-060**.

"Net stream flow depletion" means the total depletion of water from a subbasin that may be available for future use under the reservation set in this chapter. The net stream flow depletion equals the flow depletion that remains after performance of offsetting actions, and is available for use only after applicable conditions in WAC **173-528-110** have been met.

"Nonconsumptive use" means a type of water use where either there is no diversion or withdrawal from a source or where there is no diminishment of the amount or quality of the water source.

"Permit-exempt withdrawal" or "permit exemption" means a groundwater withdrawal exempted from permit requirements under RCW **90.44.050**, but otherwise subject to surface and groundwater statutes and other applicable laws. For the purpose of this chapter, stockwater use does not include feedlots or other activities not related to normal grazing land uses.

"Planning unit" means the Salmon-Washougal and Lewis watershed planning unit, established under chapter **90.82** RCW, and all successors, formally designated by the Salmon-Washougal and Lewis watershed planning initiating governments.

"Public water system" means any system, excluding a system serving only one single-family residence and a system with four or fewer connections all of which serve residences on the same farm, providing piped water for human consumption, including any collection, treatment, storage, or distribution facilities under control of the purveyor and used primarily in connection with the system; and collection or pretreatment storage facilities not under control of the purveyor but primarily used in connection with the system.

"Regional supply area" means a defined area where ecology finds water to be available for future groundwater withdrawal. Regional supply areas are designated by WAC **173-528-090** or by order of ecology.

"Reservation" means a one time, finite allocation of water for future beneficial uses. For the purposes of this chapter, the reservation is not subject to instream flows set in WAC **173-528-060**, nor to closures set in WAC **173-528-070**. The reservation is senior to the instream flow water rights set in WAC **173-528-060**.

"Water-related action" means an offsetting activity that provides a quantity of water during certain times and at certain places that essentially replaces water at or upstream of where a proposed water right would impact surface flow. Water-related actions include but are not limited to acquiring an active water right or donation of a water right to the trust water right program under chapter **90.42** WAC.

"Water right" means a right to make beneficial use of public waters of the state, including any water right established for instream flow purposes or a permit-exempt groundwater withdrawal.

"Watershed plan" means the Salmon-Washougal and Lewis watershed management plan, adopted on July 21, 2006, by the Clark, Cowlitz, and Skamania county commissioners.

"Withdrawal" means the extraction of groundwater, or the diversion of surface water for a beneficial use.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-127 (Order 08-03), § 173-528-020, filed 12/19/08, effective 1/19/09.]

173-528-030

Map.

Map of the Columbia River Watershed

Legend:

- Stream Management Point
- Watershed/Subbasin Boundary
- Roads
- Streams
- County Boundary
- City Boundary

Subbasins and Key Features:

- LACAMAS:** Morgan Creek RM 1.8, Rock Creek RM 0.3, Upper Lacamas Creek RM 5.5, Weaver Creek RM 0.04, Mill Creek RM 0.02, Whipple Creek RM 2.7, Burnt Bridge Creek RM 3.0.
- SALMON:** Burnt Bridge Creek RM 3.0.
- WASHOUGAL:** Washougal R RM 3.6, Little Washougal R RM 0.02, Lower Lacamas Creek RM 0.4, Gibbons Creek RM 1.6, Lawton Creek RM 0.45, W.F. Washougal R RM 0.8, Duncan Creek RM 0.3, Woodward Creek RM 0.25, Hardy Creek RM 1.6, Hamilton Creek RM 1.3, Greenleaf Creek RM 0.3.
- COLUMBIA RIVER TRIBUTARIES:** Greenleaf Creek RM 0.3, Hamilton Creek, Hardy Creek, Duncan Creek, Woodward Creek, Hardy Creek RM 1.6, Hamilton Creek RM 1.3, Greenleaf Creek RM 0.3.

Scale: 0 to 10 Miles

Inset Map: Shows the location of the watershed within the Pacific Northwest region, including Washington, Oregon, and Idaho.

<http://app.leg.wa.gov/wac/default.aspx?cite=173-528&full=true>

173-528-040**Compliance and enforcement.**

(1) Ecology shall prepare and make available to the public, technical and educational information regarding the scope and requirements of this chapter. This is intended to assist the public in complying with the requirements of their water rights and applicable water laws and rules.

(2) When ecology determines that a violation of this chapter has occurred, it shall:

(a) First attempt to achieve voluntary compliance, except in appropriate cases involving potential harm to other water rights or the environment. An approach to achieving voluntary compliance is to offer information and technical assistance to a violator. The information or technical assistance identifies, in writing, one or more means to accomplish the person's purposes within the framework of the law.

(b) If education and technical assistance do not achieve compliance, ecology has the authority to issue a notice of violation, a formal administrative order under RCW **43.27A.190**, assess penalties under RCW **43.83B.336** and **90.03.600**, or may seek criminal enforcement under RCW **90.03.400**, **90.03.410**, and **90.44.120**.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-127 (Order 08-03), § 173-528-040, filed 12/19/08, effective 1/19/09.]

173-528-050**Stream management control points.**

Ecology hereby establishes the following stream management control points shown in Table I. Management point locations are shown in WAC **173-528-030**.

Table I
Stream Management Control Point
Information

Stream Management Point Name	Control Station by River Mile (RM); Latitude (Lat.), Longitude (Long.)
Whipple Creek (at 179th St. crossing)	RM 2.7; 45°45'00"N, 122°42'52"W
Mill Creek (at North Salmon Creek Rd.)	RM 0.02; 45°43'50"N, 122°37'39"W
Weaver Creek (at 199th Rd. crossing)	RM 0.04; 45°44'33"N, 122°32'48"W
Morgan Creek (at 182nd St. crossing)	RM 1.8; 45°44'47"N, 122°29'13"W
Rock Creek (near 213th Rd.)	RM 0.3; 45°46'40"N, 122°26'47"W
Little Washougal River (at Highway 140 crossing)	RM 0.02; 45°36'26"N, 122°20'37"W

Washougal River (at Hathaway Park, Ecology gage 28B090)	RM 3.6; 45°35'02"N, 122°20'36"W
West Fork Washougal River (at Skamania Hatchery)	RM 0.8; 45°37'18"N, 122°13'07"W
Gibbons Creek (at Frontage Rd. crossing)	RM 1.6; 45°34'31"N, 122°18'53"W
Lawton Creek (at Highway 14 crossing)	RM 0.45; 45°33'39"N, 122°16'00"W
Duncan Creek (at Highway 14 crossing)	RM 0.3; 45°36'47"N, 122°03'16"W
Woodward Creek (at Beacon Rock State Park Rd. crossing)	RM 0.25; 45°37'17"N, 122°01'25"W
Hardy Creek (at Highway 14 crossing)	RM 1.6; 45°38'07"N, 122°00'13"W
Hamilton Creek (near North Bonneville)	RM 1.3; 45°38'28"N, 121°58'39"W
Greenleaf Creek (at Cascade Drive crossing)	RM 0.3; 45°39'15"N, 121°57'29"W
Upper Lacamas Creek (at NE Goodwin Rd. crossing)	RM 5.5; 45°38'20"N, 122°27'25"W
Lower Lacamas Creek (NE 3rd Ave. crossing)	RM 0.4; 45°35'26"N, 122°23'28"W
Burnt Bridge Creek (at Arnold Park)	RM 3.0; 45°39'05"N, 122°38'57"W

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-127 (Order 08-03), § 173-528-050, filed 12/19/08, effective 1/19/09.]

173-528-060

Establishment of instream flows.

(1) The instream flows established in this chapter are based on the recommendations of the planning unit; consultation with the department of fish and wildlife, department of agriculture, and department of community, trade, and economic development; and public input received during the rule-making process. The planning unit recommended these instream flow levels by unanimous vote.

(2) Instream flows established in this chapter are water rights, which protect instream values and functions from future appropriations. The priority date of the instream flows is the effective date of this chapter. In accordance with RCW **90.82.080**, this priority date received unanimous approval from the planning unit.

(3) Instream flow rights shall be protected from impairment by any new water rights commenced after the effective date of this chapter and by all future changes and transfers of

senior and junior water rights, including both surface and groundwater rights. The following water rights are not subject to the instream flows:

(a) A water right put to beneficial use before the effective date of this chapter, unless stated in the conditions of the water right or change authorization.

(b) Water rights appropriated from the reservation of water established in WAC **173-528-110**.

(c) Water rights for environmental restoration purposes under WAC **173-528-140**, unless included as a permit condition.

(4) Instream flows, expressed in cubic feet per second (cfs), are measured at the stream management control points in WAC **173-528-050**. Instream flows apply to all stream reaches that contribute to flow at stream management control points, as shown in Table II of this section. For reaches that are downstream of all management points, the flows established for the nearest upstream management control point shall apply to those reaches. However, if a point of withdrawal is downstream of the confluence of two or more branches, each having a designated management point, the combined flows of the management points shall apply to that withdrawal.

Table II
Instream Flows in the Salmon/Washougal Basin (cubic feet per second)

Month	Stream Management Control Point						
	Whipple Creek, RM 2.7	Mill Creek, RM 0.02	Weaver Creek, RM 0.04	Morgan Creek, RM 1.8	Rock Creek, RM 0.3	Burnt Bridge Creek, RM 3.0	Lower Lacamas Creek, RM 0.4
January	28	27	12	17	36	20	112
February	51	50	23	33	63	38	112
March	51	50	23	33	63	38	96
April	51	50	23	33	63	38	96
May	51	50	23	33	63	38	96
June	34	33	15	22	42	25	64
July	34	33	15	22	42	25	64
August	12	11	4	7	15	8	27
September	12	11	4	7	15	8	112
October	28	27	12	17	36	20	112
November	28	27	12	17	36	20	112
December	28	27	12	17	36	20	112

Month	Stream Management Control Point						
	Upper Lacamas Creek, RM 5.5	Washougal River, RM 3.6	Little Washougal River, RM 0.02	W.F. Washougal River, RM 0.8	Gibbons Creek, RM 1.6	Lawton Creek, RM 0.45	Duncan Creek, RM 0.3
January	39	425	193	205	27	24	21
February	39	425	193	205	49	44	39
March	39	375	160	169	49	44	39
April	39	375	160	169	49	44	39
May	39	375	160	169	49	44	39
June	39	525	107	112	33	29	26

July	39	240	107	112	33	29	26
August	39	168	48	51	11	10	8
September	39	264/425*	193	205	11	10	8
October	39	425	193	205	27	24	21
November	39	425	193	205	27	24	21
December	39	425	193	205	27	24	21

*The Washougal River, RM 3.6, instream flow right is for 264 cubic feet per second from September 1 to September 15, and 425 cubic feet per second from September 16 to September 30.

Month	Stream Management Control Point			
	Woodward Creek, RM 0.25	Hardy Creek, RM 1.6	Hamilton Creek, RM 1.3	Greenleaf Creek, RM 0.3
January	42	40	72	31
February	72	69	117	55
March	72	69	117	55
April	72	69	117	55
May	72	69	117	55
June	48	46	78	37
July	48	46	78	37
August	18	17	33	13
September	18	17	33	13
October	42	40	72	31
November	42	40	72	31
December	42	40	72	31

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-127 (Order 08-03), § 173-528-060, filed 12/19/08, effective 1/19/09.]

173-528-070

Surface and groundwater closed to further consumptive appropriations.

(1) Based on historical and current low flows and the water withdrawals by existing water right holders, ecology has determined that no waters are reliably available for new consumptive uses from certain surface water sources in the basin. Therefore, all surface waters listed in Table III are closed to any further consumptive appropriation, except as provided in WAC **173-528-080**.

Table III
Surface Water Closures

Subbasin Name*	Affected Reach
Salmon Creek	Salmon Creek from confluence with Lake River (45°43'32"N, 122°44'07"W) to headwaters, including tributaries.

	Whipple Creek from confluence with Lake River (45°45'30"N, 122°44'57"W) to headwaters, including tributaries.
Burnt Bridge Creek	Burnt Bridge Creek from mouth at Vancouver Lake to headwaters, including tributaries.
Lacamas Creek	Lacamas Creek from confluence with Washougal River (45°35'13"N, 122°23'40"W) to headwaters, including tributaries.
Washougal River	Washougal River from mouth at Columbia River to headwaters, including tributaries.
Columbia River Tributaries	All surface waters in the Columbia River tributaries subbasin from mouth at Columbia River to headwaters, including tributaries.

*Subbasin boundaries are shown in WAC **173-528-030**, and are consistent with the boundary descriptions used in the watershed plan.

(2) Based on the hydrogeology of the basin, and the location and depth where groundwater withdrawals generally occur, there is a high likelihood that future groundwater withdrawals would capture water that affects closed surface waters. Therefore, the basin is closed to new withdrawals of groundwater (including any new permit-exempt withdrawals) that would affect closed surface waters, except as provided in WAC **173-528-080**.

(3) Applications for a withdrawal that would not affect the closed reaches, listed in Table III, shall be evaluated on a case-by-case basis under applicable law.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-127 (Order 08-03), § 173-528-070, filed 12/19/08, effective 1/19/09.]

173-528-080

Future water rights, generally.

A new surface or groundwater appropriation (including any permit-exempt withdrawal) may be commenced only if consistent with the surface and groundwater statutes and other applicable requirements of law and if any one of the following seven conditions (subsections (1) through (7) of this section) apply:

(1) The proposed water use is nonconsumptive.

(2) The proposed surface water diversion is not located on any of the surface waters closed in WAC **173-528-070**, Table III.

(3) The proposed groundwater withdrawal is located where it would not affect any of the surface waters closed in WAC **173-528-070**, Table III by either meeting condition (a) or (b) of this subsection:

(a) The person or entity seeking to commence a proposed groundwater use shows, through scientifically sound studies and technical analysis, that the groundwater use would not affect any of the closed surface waters identified in WAC **173-528-070**, Table III.

(b) The proposed groundwater withdrawal occurs in a regional supply area designated in WAC **173-528-090** or by order of ecology.

(4) The person or entity seeking to commence the new appropriation submits a scientifically sound mitigation plan, and such plan is approved by ecology. A mitigation plan may be approved if the proponent can demonstrate to ecology's satisfaction that when the mitigation is implemented the proposed withdrawal(s) will not impair senior water rights, including instream flow rights, adversely impact instream resources, or diminish water quality. A mitigation plan can be submitted to mitigate for an individual withdrawal or to mitigate for multiple withdrawals in a defined region.

An approved mitigation plan shall include a monitoring and reporting plan. It shall also include conditions that the plan be implemented as long as the associated water right is used and that any water provided for mitigation purposes be prohibited from being applied to any other purpose. If monitoring of a mitigation plan shows the mitigation is not effective, departmental approval of the mitigation plan shall be suspended and the water use shall cease until the department approves a new or revised mitigation plan.

(5) The proposed water use qualifies as an interruptible use as defined in WAC **173-528-020**, and meets the criteria in WAC **173-528-100**.

(6) The proposed water use qualifies for the reservation established and as conditioned in WAC **173-528-110**.

(7) The proposed use is for an environmental restoration project and meets the criteria in WAC **173-528-140**.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-127 (Order 08-03), § 173-528-080, filed 12/19/08, effective 1/19/09.]

173-528-090

Regional supply areas for future groundwater withdrawals.

(1) Ecology finds there to be certain locations where water is potentially available on a year-round basis for future groundwater withdrawals. Ecology further finds that withdrawals in these areas are unlikely to affect surface waters closed in WAC **173-528-070**, Table III or instream flow values protected under RCW **90.54.020**(3). Such regional supply areas are recognized in the watershed plan and supported by the public interest as preferred locations for developing future water supply. Groundwater withdrawals (including permit-exempt withdrawals) may be commenced in the designated regional supply areas to the extent such withdrawals are consistent with chapters **90.03** and **90.44** RCW, and any other applicable requirements of law.

(2) Based on local hydrology, ecology finds that groundwater withdrawals made in areas designated below meet the conditions for regional supply areas in subsection (1) of this section and are so designated:

(a) The Vancouver Lake Lowlands Area, defined as all lands located west of the Burlington Northern Santa Fe Railroad right of way that are within Water Resource Inventory Area 28; and

(b) The Steigerwald Wildlife Refuge Area, defined as all lands located east of 15th Street in the city of Washougal, south of Washington State Highway 14, and west of Lawton Creek.

(3) Ecology, in consultation with the department of fish and wildlife, may by order designate other regional supply areas that meet the criteria in subsection (1) of this section.

(4) In order to protect instream values of surface waters in regional supply areas, ecology reserves the right to deny any withdrawals whereby drawdown effects from pumping would create a significant impact to local surface waters. For the purposes of this section, significant impact includes but is not limited to a noticeable reduction in lake level or flow in local streams.

[Statutory Authority: Chapters 90.82, 90.54, 90.22, 90.03, and 90.44 RCW. WSR 09-01-127 (Order 08-03), § 173-528-090, filed 12/19/08, effective 1/19/09.]

173-528-100

Future appropriations for interruptible use from the Washougal River.

(1) Ecology finds there may be water available in the Washougal River, above existing water rights and instream flows, which could be captured for interruptible use. This water is only available from November 16 to May 14.

(2) Prior to commencement, the person or entity seeking a new interruptible appropriation must demonstrate a seasonal need and provide assurances that any effects on surface waters that may result from withdrawals will be limited from November 16 to May 14 and only from the Washougal River.

(3) Ecology shall deny an appropriation for interruptible use if such use, or the cumulative effects of such uses, would compromise habitat-forming functions provided by high flows. In no case shall new individual or cumulative allocations exceed one hundred cubic feet per second. This allocation limit is based upon an allowance for ten percent of the average historic flow. The allocation limit may be lowered on a case-by-case basis whenever more protection of habitat-forming functions is needed.

(4) Interruptible uses are subject to existing water rights and instream flows set in WAC 173-528-060.

[Statutory Authority: Chapters 90.82, 90.54, 90.22, 90.03, and 90.44 RCW. WSR 09-01-127 (Order 08-03), § 173-528-100, filed 12/19/08, effective 1/19/09.]

173-528-110**Reservation of surface and groundwater for future uses.**

(1) Ecology has weighed the public interest that supports the reservation of a limited amount of water for future consumptive uses against the potential for negative impact to instream resources. Ecology finds that the public interest advanced by a limited reservation clearly overrides the small potential for negative impacts on instream resources.

Based on this finding, ecology hereby allocates an amount and rate of use of water for specific water users and subbasins, as indicated under the subtitle "Net streamflow depletion" in Table IV. The reservations are a one time, finite resource. When and if water is fully appropriated from the reservation, all remaining waters in closed areas are hereby appropriated for instream flow use.

This reservation is available to a user only if the conditions set forth in subsection (2) or (6) of this section are met, as well as any applicable requirements of law, including but not limited to all water resource laws and regulations.

(2) Ecology may approve a water right application for water from the reservation if all of the following conditions in (a), (b), (c), and (d) of this subsection are met:

Alternatives analysis

(a) The applicant demonstrates that no practicable supply alternatives to the reservation are available. In order to satisfy this condition, an applicant must demonstrate consideration of other regional water sources to supply water for the same use now being proposed, including:

- (i) Existing public water system supply;
- (ii) Water from a ground or surface water source, which may be withdrawn without affecting any of the surface waters closed in WAC **173-528-070**, such as water from a hydraulically disconnected deep aquifer source or regional supply area;
- (iii) Supply options from surface and groundwater storage;
- (iv) Water savings from conservation techniques, such as reuse of waste water; and
- (v) Mitigation and minimization considerations to the extent required in (d) of this subsection, impact analysis.

Water-related offset

(b) The applicant demonstrates it will offset the overall streamflow depletion(s) through water-related actions to the maximum extent practicable. Applicants should offset at least one-half of the overall streamflow depletion(s) through water-related actions.

(i) In evaluating the adequacy of water-related actions to offset depletions, ecology will evaluate the action based on the degree of aquatic benefit it would provide. A water-related offset may have a greater or lesser benefit due to the seasonality, location, or quality of water provided. The level of benefit will be used to determine if any additional offsets will be required of the applicant.

(ii) Ecology will consider water-related offsets only to the extent that reasonable assurance exists that such offsets will be successfully delivered or donated to the trust water right program under chapter **90.42** RCW where delivery is legally guaranteed.

Habitat-related offset

(c) After satisfying the water-related offset requirement in (b) of this subsection, an applicant must offset any remaining streamflow depletion through habitat-related actions that create or enhance habitat. Habitat-related offsets must compensate for the habitat loss or degradation that will result from the net streamflow depletion.

An applicant must provide adequate assurances that a habitat-related action in fact occurs. Ecology, as appropriate, shall condition use of the reservation with performance standards and monitoring requirements, or require financial assurance mechanisms prior to reservation use.

Impact analysis

(d) In keeping with the findings of the watershed plan, ecology finds that the public interest supports avoidance and minimizing impacts to tributaries. The applicant must demonstrate one of the following:

- (i) The proposed withdrawal does not impact tributaries to subbasin mainstems; or
- (ii) An impact to a tributary to a subbasin mainstem is unavoidable, as demonstrated by an impact analysis, included as part of the alternatives analysis under (a) of this subsection. In addition to demonstrating the necessary considerations under (a) of this subsection, the impact analysis must demonstrate consideration of water supply options that avoid the impact to the tributary as well as supply options that may minimize such impact.

Ecology, in consultation with the department of fish and wildlife, may require an applicant to monitor affects of a groundwater withdrawal as a condition of water use.

Application review and permitting

(3) In determining practicability in subsection (2) of this section, ecology will consider both economic and logistic considerations, as well as guidance from the watershed plan.

(4) Ecology, in consultation with the department of fish and wildlife, will evaluate the adequacy of proposed offsets and alternatives analysis in subsection (2) of this section. The evaluation shall be consistent with the watershed plan and guidance documents approved by ecology. Ecology will also consider recommendations and technical advice received from the planning unit or by an advisory committee, formally designated by the planning unit.

(5) Ecology will issue a permit for use of water equal to the amount it determines appropriate to allocate from the reservation, and such amount will be debited from the total reservation amount. The total quantity of water appropriated shall not exceed the amount and rate listed under the subtitle "Net streamflow depletion" in Table IV. However, ecology will issue a permit for a quantity beyond the amount debited from the reservation for the following:

- (a) Water-related offsets to the extent such offsets are water-for-water, to the satisfaction of RCW **90.03.380** or **90.44.100**, any other applicable laws, and terms of an approved mitigation plan under WAC **173-528-080**(4); and
- (b) Water use to the extent closed water sources are not affected and to the satisfaction of applicable requirements of law, including but not limited to all water resource laws and regulations.

Permit-exempt groundwater use

(6) The requirements in subsection (2) of this section do not apply to permit-exempt withdrawals. However, permit-exempt withdrawals under RCW **90.44.050** are subject to both of the following conditions in order to occur under the reservation:

(a) Future permit-exempt well use may not occur where connection to an existing community water supplier can be provided in a timely and reasonable manner. Determinations of timely and reasonable shall be consistent with public water system plans, local laws, and state laws, including but not limited to Clark County Code 40.370.020 and chapter **246-290** WAC.

(b) Water use from a permit-exempt groundwater well must be consistent with the allocation limits of this reservation and the Clark and Skamania County code and other applicable laws, including the statute on permit exemptions, RCW **90.44.050**. Single or group

domestic uses under the permit exemption shall not exceed five thousand gallons per day. Irrigation of lawn and noncommercial garden under the permit exemption shall not exceed one-half acre.

Table IV
Allocation of Reservation

Subbasin Name*	Water User**	Expected Streamflow Depletion without Offset (overall depletion) cubic feet per second (cfs)	Expected Water-related Offset Requirement (cfs)	Net Streamflow Depletion*** (cfs)
Salmon Creek	Clark Public Utility, Battle Ground and Ridgefield	0.25	0.13	0.13
	Permit-exempt groundwater wells	0.12	0.00	0.12
Burnt Bridge	City of Vancouver	0.04	0.02	0.02
Lacamas Creek	City of Camas	1.00	0.50	0.50****
	Clark Public Utility	0.60	0.30	0.30
	Other public water systems	0.37	0.19	0.19
	Permit-exempt groundwater wells	0.17	0.00	0.17
Washougal River	City of Camas	1.00	0.50	0.50****
	Other public water systems in Clark County	0.37	0.19	0.19
	Permit-exempt groundwater wells in Clark County	0.17	0.00	0.17
	Other public water systems in Skamania County	0.20	0.10	0.10
	Permit-exempt groundwater wells in Skamania County	0.64	0.00	0.64
Columbia River Tributaries	Public water systems in Clark County	0.21	0.10	0.10
	Permit-exempt groundwater wells in Clark County	0.12	0.00	0.12
	Public water systems in Skamania County	0.21	0.10	0.10

	Permit-exempt groundwater wells in Skamania County	0.12	0.00	0.12
*Subbasin boundaries are shown in WAC 173-528-030 , and are consistent with the boundary descriptions used in the watershed plan. ** In the Salmon-Washougal and Lewis watershed management plan, the term "domestic wells" has the same meaning as "permit-exempt groundwater wells" and the term "small community water systems" has the same meaning as "public water systems." *** If conditions in subsections (2) and (6) of this section are satisfied, the net depletion of a closed water source, set in WAC 173-528-070 , shall not exceed the quantities listed for specific users. ****The total net stream flow depletion for the city of Camas from both Lacamas and Washougal river subbasins shall not exceed 0.50 cfs.				

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-127 (Order 08-03), § 173-528-110, filed 12/19/08, effective 1/19/09.]

173-528-120

Priority dates of reservation and repeal of chapter **173-592** WAC.

(1) The reservation created in WAC **173-528-110** is not subject to the instream flows or closures set in this chapter, and the priority date of the reservation for all areas outside Clark County is the effective date of this chapter.

(2) Ecology hereby transfers unappropriated water from the existing reservation for Clark County in WAC **173-592-070** in such quantities and to the users and areas of use in Clark County as set forth in WAC **173-528-110**, Table IV and WAC **173-527-110**, Table V. Pursuant to this transfer, the priority date of withdrawals from all Clark County portions of the reservation in WAC **173-528-110** is August 13, 1986. However, the designation of specific municipal suppliers in this reservation does not create a right for these entities to use such water. Such a right will arise only if a permit is applied for by such municipal suppliers to use water under the reservation and approved by ecology after applying the legal tests for a new appropriation. With respect to any water for which a permit has not been granted, ecology reserves the right to modify in all respects or rescind the reservation by future rule making.

(3) Based on new information made available through the local watershed planning process and hydrologic conditions as of the time of this rule making, ecology has determined that the remaining water reserved under WAC **173-592-070**, which was not transferred in subsection (2) of this section or previously appropriated is no longer supported by available information and science. Therefore, chapter **173-592** WAC is hereby repealed in its entirety and all water reserved under that rule that has not been transferred or appropriated is hereby returned to the state. This repeal is not intended to affect any existing water rights issued under the reservation.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-127 (Order 08-03), § 173-528-120, filed 12/19/08, effective 1/19/09.]

173-528-130**Accounting for use under the reservation.**

- (1) A record of all appropriations from the reservation shall be maintained by ecology.
- (2) For an appropriation under a permit, ecology will account for water use under the reservation based on authorized quantities under water right permits or certificates, and according to WAC **173-528-110**(5).
- (3) For permit-exempt groundwater appropriations, ecology will deduct a standard amount of two hundred forty gallons per day for each well. For a group domestic water system under the permit-exemption, the standard amount will be applied for each domestic or residential service connection. The standard amount will be adjusted periodically to reflect actual use during low flow conditions. The standard amount assumes a rate of septic recharge from an on-site septic system. In the event that on-site septic recharge is known not to occur, ecology will deduct an additional five hundred sixty gallons per day. Additionally, ecology reserves the right to account for water use based on the best available information contained in well logs, approvals issued by local jurisdictions, or other documents.
- (4) If a water user under the reservation subsequently abandons or relinquishes the withdrawal, ecology will credit back to the reservation the actual amount of water used and/or debited from the reservation, upon demonstration to ecology that the well or surface water diversion has been decommissioned through written certification.
- (5) Ecology shall notify either Clark or Skamania County and the planning unit, when it determines that fifty percent, seventy-five percent, and one hundred percent, respectively, of the reservation is appropriated for a water user in Table IV.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-127 (Order 08-03), § 173-528-130, filed 12/19/08, effective 1/19/09.]

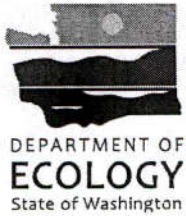
173-528-140**Future surface water withdrawals for environmental restoration.**

In keeping with the findings of the watershed plan, ecology finds that the public interest advanced by future withdrawals for ERPs, as defined and conditioned in this section, clearly overrides the minimal negative impacts on instream flows.

- (1) A future withdrawal for an ERP may be approved only if it meets all the following:
 - (a) The proposed water use is for a bypass flow for salmonid restoration or riparian planting project, and the primary purpose of the project is restoration of salmonids.
 - (b) The proposed project will result in aquatic habitat benefits, and such benefits will exceed any detriment to aquatic habitat that may be caused by reductions in flow at specific locations and times of withdrawal.
 - (c) The proposed use qualifies for a temporary permit.
- (2) Ecology, in consultation with the department of fish and wildlife, will evaluate proposed ERPs. ERPs approved by ecology are not subject to closures or instream flows set in this chapter, unless otherwise conditioned by the permit.

[Statutory Authority: Chapters **90.82**, 90.54, 90.22, 90.03, and **90.44** RCW. WSR 09-01-127 (Order 08-03), § 173-528-140, filed 12/19/08, effective 1/19/09.]

Attachment A.3 – Junction Well ROE (G2-29174P)



State of Washington
REPORT OF EXAMINATION
FOR WATER RIGHT APPLICATION

PRIORITY DATE
January 3, 1995

WATER RIGHT NUMBER
G2-29174

MAILING ADDRESS
CITY OF RIDGEFIELD
230 PIONEER AVENUE
RIDGEFIELD WA 98642

SITE ADDRESS (IF DIFFERENT)

Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
400	GPM	483

Purpose

PURPOSE	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)		PERIOD OF USE (mm/dd)
	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	
Municipal, continuously	400		GPM	483		01/01 - 12/31

PUBLIC WATER SYSTEM INFORMATION

WATER SYSTEM ID	CONNECTIONS
72400V	

Source Location

COUNTY	WATERBODY	TRIBUTARY TO	WATER RESOURCE INVENTORY AREA
Clark	Groundwater		27

SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWP	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Well			04N	01E	21	NW SE		

Place of Use (See Attached Map)

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

The place of use (POU) of this water right is the service area described in the most recent City of Ridgefield Water System Plan approved by the Washington State Department of Health, so long as the water system is and remains in compliance with the criteria in RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the place of use of this water right.

Proposed Works

The existing well, referred to as the Junction Well, is currently not in use because of high levels of iron and manganese. This well will be redeveloped and will provide treatment for iron and manganese. The well be equipped with a 400-gallon per minute (gpm) pump and will supply the Junction Reservoir, an existing 100,000 gallon above ground storage tank. The Junction Booster Station consists of three 1,000 gpm end suction centrifugal pumps and one 10 gpm vertical multi-stage pump. The Junction Booster Station provides water to the water system High Zone from the Junction Reservoir.

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Begun	January 1, 2015	March 1, 2020

Measurement of Water Use

How often must water use be measured?	Monthly
How often must water use data be reported to Ecology?	Upon Request by Ecology
What volume should be reported?	Total Annual Volume
What rate should be reported?	Annual Peak Rate of Withdrawal (gpm or cfs)

Provisions**Measurements, Monitoring, Metering and Reporting**

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", WAC 173-173.

WAC 173-173 describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements.

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the project location, and to inspect at reasonable times, records of water use, wells, diversions, measuring devices and associated distribution systems for compliance with water law.

Mitigation Performance

By February 1, 2013, the City shall submit a monitoring and maintenance plan for the habitat enhancement project (EF-20) that will ensure performance standards are met for a period of at least 10 years.

Proof of Appropriation

The water right holder shall file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution system has been constructed and the quantity of water required by the project has been put to full beneficial use. The certificate will reflect the extent of the project perfected within the limitations of the permit. Elements of a proof

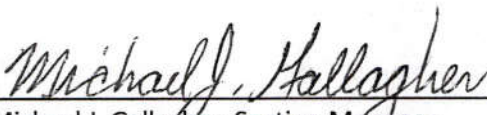
inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and satisfaction of provisions.

Findings of Facts

Upon reviewing the investigator's report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. Furthermore, I concur with the investigator that water is available from the source in question; that there will be no impairment of existing rights; that the purpose(s) of use are beneficial; and that there will be no detriment to the public interest.

Therefore, I ORDER approval of Application No. G2-29174 subject to existing rights and the provisions specified above.

Signed at Olympia, Washington, this 14th day of September 2012.


Michael J. Gallagher, Section Manager

Your Right To Appeal

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of the Order.

File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.

- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.
- You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Mailing Addresses	Street Addresses
Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903	Pollution Control Hearings Board 1111 Israel RD SW Ste 301 Tumwater, WA 98501
Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608	Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503

For additional information visit the Environmental Hearings Office Website: <http://www.eho.wa.gov>. To find laws and agency rules visit the Washington State Legislature Website: <http://www1.leg.wa.gov/CodeReviser>.

BACKGROUND

The subject application was submitted to Ecology by the City of Ridgefield and assigned a priority date of January 3, 1995. The application is for appropriation of groundwater to provide additional supply the Ridgefield Water System, a Class A system (Washington State Department of Health [DOH] identification number 72400V). The most recent water system plan was prepared in 2005 by Gray & Osborne, Inc.

Attributes of Application

Table 1 Application Summary

<i>Name</i>	<i>City of Ridgefield</i>
Priority Date	1/3/1995
Instantaneous Rate	400 gpm
Annual Quantity	483 af/yr
Purpose(s) of Use	Municipal
Period of Use	Continuous use
Place(s) of Use	Area served by Ridgefield

Table 2 Proposed Point of Withdrawal

<i>Source Name</i>	<i>Parcel</i>	<i>WellTag</i>	<i>Twp</i>	<i>Rng</i>	<i>Sec</i>	<i>QQ Q</i>	<i>Latitude</i>	<i>Longitude</i>
Junction Well			04N	01E	21	NW SE		

Legal Requirements for Approval of Appropriation of Water

RCWs 90.03 and 90.44 authorizes the appropriation of public water for beneficial use and describes the process for obtaining water rights. Laws governing the water right permitting process are addressed in RCW 90.03.250 through 90.03.340 and RCW 90.44.050. In accordance with RCW 90.03.290, Ecology must make determinations on these four criteria in order to approve an application for water rights:

- Water must be available for appropriation.
- There must be no impairment of existing rights.
- The water use must be a beneficial use.
- Approving the application must not be detrimental to the public interest.

This report serves as the written findings of fact concerning all things investigated regarding Water Right Application Number G2-29174.

Public Notice

The applicant published a public notice for this project proposal in *The Daily News* of Cowlitz County once a week for two consecutive weeks beginning on April 14 and ending April 21, 1994. No protests or letters of concern in response to this notice.

State Environmental Policy Act (SEPA)

A SEPA determination evaluates if a proposed withdrawal will cause significant adverse environmental impacts. A SEPA threshold determination is required for:

- 1) Surface water applications for more than 1 cubic feet per second (cfs). For agricultural irrigation, the threshold increases to 50 cfs, if the project isn't receiving public subsidies.
- 2) Groundwater applications requesting more than 2,250 gpm.
- 3) Projects with several water right applications where the combined withdrawals meet the conditions listed above.
- 4) Projects subject to SEPA for other reasons (e.g., the need to obtain other permits that are not exempt from SEPA).
- 5) Applications that are part of several exempt actions that collectively trigger SEPA under WAC 197-11-305.

This application does not meet any of these conditions and is categorically exempt from SEPA.

INVESTIGATION

This investigation included, but was not limited to, research or review of:

- Records of water rights and well logs in the vicinity
- Topographic and local area maps
- Groundwater modeling performed by Golder Associates, Inc.
- City of Ridgefield Mitigation Proposal, 2012

Project Description

The City of Ridgefield is located in southwestern Washington approximately two miles east of the Columbia River and 25 miles north of Portland, Oregon. Rolling hills and ravines surround the City. Lake River borders Ridgefield to the west and the existing city limits extend past I-5 to the east. Gee Creek is the primary surface water body through the City's service area. Elevations range from a maximum of approximately 300 feet above mean sea level (msl) on the east side of I-5 to a minimum of 0 feet msl at Lake River.

The Junction Well is located approximately two miles east of the city of Ridgefield business district along SR-501. The well lies at an elevation of approximately 285 ft MSL within the East Fork Lewis River Subbasin of WRIA 27 and within the surface water drainage basin of Allen Creek. The well is located on land owned by the Port of Ridgefield and leased to the City of Ridgefield.

Table 2 shows the City's existing water rights.

Table 2

<i>Source</i>	<i>WR number</i>	<i>Instantaneous Withdrawal (gpm)</i>	<i>Annual Withdrawal (acre-feet) Additive</i>	<i>Annual Withdrawal (acre-feet) Non-Additive</i>
Well No. 1	018511	200	323	
Well No. 2	G2-20381	300	240	
Well No. 3	2449	150	180	
Well No. 5	G2-20379	200	119	42
Well No. 6	G2-20380	125	100	
Well No. 7	G2-27103	300		241
Well No. 8	G2-27104	300		241
Well No. 9	G2-27105	300		241
	TOTAL	1,875	962	

Proposed Use and Basis of Water Demand

Groundwater is requested for municipal supply used continuously year round. Bringing the Junction Well on line will help meet Ridgefield's projected water demand over the next 20 years. In 2003, the City of Ridgefield supplied water to serve 1,022 equivalent residential units (ERUs) based on an annual average consumption of 232 gallons per day (gpd) per ERU. By 2024 demand is projected to be 11,161 ERUs.

Hydrologic/Hydrogeologic Evaluation

General Area Hydrogeology

The regional geologic and hydrogeologic framework for Clark County was first developed by Mundorff (1964); additional regional hydrogeologic investigation and interpretation was performed by Swanson and others (1993). Detailed geologic mapping of the west-central portion of Clark County, including the Ridgefield, Saint Helens, and Battle Ground quadrangles, has been done by Everts (2004a, 2004b) and Howard (2002). Hydrostratigraphic cross sections of west-central Clark County were developed by Pacific Groundwater Group and presented in PGG (2003). Golder Associates (2007, 2008) developed detailed hydrostratigraphic cross sections and potentiometric surface maps of the Ridgefield area, focusing on the Junction Well vicinity, in support of the present application.

Ridgefield lies in the northern part of the Portland Basin, a northwest-southeast trending topographic and structural basin approximately 40 miles long and 20 miles wide. The basin is flanked by Eocene through Miocene volcanic and sedimentary bedrock. The deepest parts of the basin, near Vancouver, are filled by up to 1,800 ft of late Miocene and younger unconsolidated sediments primarily carried in from the east by the Columbia River.

The unconsolidated basin-fill sediments consist of layers of coarse-grained sand, gravel, and cobble deposits and layers of fine-grained silt and clay deposits. The coarse-grained deposits from the principal aquifers and the fine grained deposits act as aquitards or confining units which separate the aquifers from one another. Groundwater in the shallow, unconfined aquifers is typically recharged via infiltration of precipitation and discharges to smaller surface-water tributaries such as Gee Creek. Groundwater in the deeper, confined systems is recharged via downward leakage from overlying aquifers and typically discharges to the Columbia River or larger tributaries such as the East Fork Lewis River.

Understanding of the hydrogeology of the Portland Basin has been evolving over the past 40 years and terminology and stratigraphic relationships are sometimes inconsistent between workers. For the purposes of this report, the stratigraphic framework of the most recent site-specific study (Golder Associates 2007, 2008) is presented. Based on this work, the Ridgefield area is underlain, from the surface downward, by the following hydrostratigraphic units:

- *Pleistocene Alluvial Deposits* - Undifferentiated sediments associated with flood deposits of the Columbia River. Well logs indicate that the Pleistocene deposits are predominantly unconsolidated with thicknesses that generally range between 50 and 200 feet in the surrounding area, and are composed of sediments ranging from boulders to clay. At the Junction Well, the Pleistocene Alluvial Deposits are approximately 50 feet thick.
- *Upper Troutdale Aquifer* - This aquifer is approximately 100 feet thick at the Junction Well and is largely composed of sand and gravel. Zones of silt and clay and partially-cemented coarse sands and gravels noted in local well logs limit the transmissivity of this unit. The aquifer supplies many of the local domestic wells in the area, and typically has well yields less than 100 gpm.
- *Upper Confining Unit* - Composed of low-permeability sediments of silt and clay, this unit typically underlies the Upper Troutdale Aquifer. However, based on the available well logs, the Upper Confining Unit appears to be discontinuous or absent in the vicinity of the Junction Well.
- *Lower Troutdale Aquifer* - Composed predominately of sand with interlayers of medium sand and silt, and is approximately 50 feet thick at the Junction Well. The Lower Troutdale Aquifer is typically confined and overlain by the Upper Confining Unit; however, with the apparent absence of the Upper Confining Unit in the vicinity of the Junction Well, the Lower Troutdale Aquifer is directly overlain by the Upper Troutdale Aquifer.
- *Lower Confining Unit* - Composed predominantly of clay with some sand and gravel. In the vicinity of the Junction Well, this confining unit is approximately 50 to 70 feet thick. Well logs southeast and southwest of the Junction Well indicate that the Lower Confining Unit is relatively uniform in thickness and is present over a broad area including in the vicinity of Gee Creek and the Junction Well.
- *Sand and Gravel Aquifer (SGA)* - This unit is confined and is approximately 160 feet thick at the Junction Well. The top contact of the SGA is found at a depth of 300 feet below ground surface (bgs), or approximate elevation -67 feet msl. It is primarily composed of sand, sandy gravel, and silt. This unit also contains some cemented sand and gravel layers, and silt and clay interbeds. The SGA exists

over a broad area of the Portland Basin. Relatively few wells tap the SGA and groundwater development within the SGA is primarily by public water-supply systems.

- *Pliocene and Miocene Undifferentiated Sediments* - Fine-grained sedimentary deposits primarily composed of fine- to medium-grained sand, silt and clay with small lenses of sand.
- *Miocene Basalt Bedrock* - Bedrock underlying the sedimentary deposits in this area is composed of basalt of the Columbia River Basalt Group.

Geologic mapping by Evarts (2004a), shows the SGA to have been incised by streams in the lower reaches of the study area near base-level elevations that discharge to the tidally influenced areas of the lower portions of the East Fork Lewis River, Lewis River, and Lake River systems. The SGA is mapped intermittently along some portions of the East Fork Lewis River floodplain, the lower reaches of Allen Canyon Creek upstream of Mud Lake, the lower reaches of McCormick Creek upstream of its confluence with the East Fork Lewis River, and along slopes east of Lancaster Lake near the Lake River system.

The Junction Well taps the Sand and Gravel Aquifer. The driller's log for this well indicates that it penetrates clays of the Pleistocene Alluvial Deposits to a depth of between 45 and 62 feet bgs, sands and gravels of the Upper Troutdale Aquifer to 171 feet bgs, sands of the Lower Troutdale Aquifer to between 225 and 230 feet bgs, clays of the Lower Confining Unit to a depth of between 285 and 300 feet bgs, and sands with some gravel of the SGA to 458 feet bgs. The well is gravel packed from 306 to 458 feet bgs and screened from approximately 326 to 342 feet bgs and from 438 to 443 feet bgs.

Impairment Considerations

Impacts to Area Groundwater Users

Ecology's Water Right Tracking System (WRTS) database was queried to identify senior groundwater rights in the vicinity of the Junction Well. Cross referencing these records with Ecology's Well Log Database and the well inventory presented in Golder (2008) indicates that the nearest senior certificated groundwater rights associated with wells tapping the SGA are G2-28630 and G2-28956. These are located about 1 mile northeast and 1.4 miles east of the Junction Well, respectively and are for deep production wells owned by CPU. The characteristics of the CPU water rights are summarized in Table 3.

Table 3. Senior Groundwater Rights in the Vicinity of the Junction Well

File #	Owner	Priority Date	Purpose	Qi (gpm)	Qa (acre-feet/year)	TRS
G2-28630	Clark Public Utilities	8/13/1986	Domestic, multiple	500	403	04N01E22
G2-28956	Clark Public Utilities	8/13/1986	Municipal	700	565	04N01E22

Other certificated water rights associated with SGA wells are G2-27103CWRIS, G2-27104CWRIS, and G2-27105CWRIS; these rights are for City of Ridgefield production wells which are located about 0.9 miles west of the Junction Well. In addition, there are 151 records of groundwater claims within about 1.5 miles of the Junction Well.

There are 229 well logs in Ecology's Well Log Database within about 1.5 miles of the Junction well. Most of these wells tap shallow aquifers above the Lower Confining Unit. The nearest well tapping the SGA appears to be the Ellertson Well (the owner shown on the well log is N. Fiorito Co. Inc.); this well is located about 0.5 miles east-northeast of the Junction Well.

Upward propagation of effects from pumping the SGA are limited by the overlying Lower Confining Unit and no interference to wells in aquifers above this unit (the Pleistocene Alluvial Deposits and the Upper Troutdale Aquifer) is expected.

Because of the high transmissivity of the SGA and the distance of other SGA wells to the Junction well, interference to other SGA wells from pumping are expected to be observable but insignificant. This conclusion is supported by the limited hydraulic response of the Ellertson Well (~0.5 feet) during the pumping test. Even under long-term pumping of the Junction Well (one year continuously at 400 gpm), these analyses indicate that interference to existing wells between 0.5 and 1 mile of the Junction Well would be less than 3.5 feet. The nearest well that is in use is located approximately 0.9 miles to the west of the Junction Well.

Impacts to Surface Waters and Instream Flows

Initial modeling indicated relatively minor effects to area streams. When the draft ROE was posted on the internet, a comment was received that called into question the accuracy of the modeling. Golder Associates reassessed the work and, using a different model (Deep Aquifer Yield Model, CH2MHILL, 2001), determined that the impact of the pumping would have an impact to the lower reaches of the East Fork Lewis River between a range of 40 and 160 gpm, with an overall average of 113 gpm or 0.25 cfs (Golder 2009). This is in line with the model results conducted for Clark Public Utilities nearby Pioneer wellfield.

Ecology adopted WAC 173-527, the instream flow rule for the Lewis River watershed in January 2009. The East Fork Lewis River subbasin is closed to new withdrawals of groundwater that would affect flow in the river, except under certain conditions listed in WAC 173-527-080. Instream flows established under WAC 173-527 constitute water rights whose priority date is the effective date of the regulation.

Mitigation proposal

While WAC 173-527 closed all streams in the WRIA to further consumptive appropriation, there are reserves of water set aside for domestic uses within some of the subbasins, including the East Fork Lewis River. There is a reservation allowing for a net streamflow depletion of 2.2 cfs on the East Fork Lewis River for municipal supply for Clark Public Utility, the City of Battleground, and the City of Ridgefield.

To access the reserves, the entities are to bring a mitigation plan to the table that includes water placed in trust equal to half the predicted streamflow depletion, and habitat mitigation based on calculations in

the WRIA 27/28 Mitigation Guidance document. The 50% water requirement can be waived under certain conditions.

After several years of searching for suitable water rights to purchase without avail, the city began discussions with the WRIA Planning Unit for a waiver of the water replacement requirement and to allow 100% habitat related mitigation. The City formalized this proposal in their March 17, 2012 mitigation proposal which was submitted to the Lower Columbia Fish Recovery Board for discussion at the Planning Unit. The Planning Unit ultimately decides whether the mitigation plan is adequate and gives a recommendation to Ecology.

Highlights of the plan include:

- 100% habitat related mitigation
- 0.25 cfs will be debited from the 2.2 cfs reservation on the East Fork Lewis River
- Ridgefield will fully fund the Upper Daybreak Stream Habitat Enhancement Project (EF-20)

Details of the plan can be found in the Mitigation Proposal, Appendix A of this Report.

In a letter to Ecology dated June 14, 2012, the Planning Unit supported the City's mitigation plan and issuance of the water right permit. The Planning Unit also recommended that the City develop a monitoring and maintenance plan to ensure performance of the mitigation for a ten year lifespan. This has been included as a provision of this water right.

Public Interest Considerations

Approving G2-29174 is not detrimental to the public interest.

FINDINGS AND CONCLUSIONS

This application requests water for municipal supply. Based on my evaluation, I find that:

- The use of water for Municipal Supply is a beneficial use.
- Water is available in sufficient quantities to provide a reliable source for municipal supply, based on well and pump information. Water is legally available through the reservation established in WAC 173-527 and the mitigation plan proposed by the City.
- The issuance of this water right will not impair any senior water right holders.
- Approving this appropriation is not detrimental to the public interest.

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend that this request for a water right be approved in the amounts and in the limitations listed below and subject to the provisions listed above.

Purpose of Use and Authorized Quantities

The amount of water recommended is a maximum limit and the water user may only use that amount of water within the specified limit that is reasonable and beneficial:

- 400 gpm
- 485 ac-ft per year
- Municipal Supply

Point of Withdrawal:

- NW¼ SE¼, Section 21, Township 4 North, Range 1 E.W.M.

Place of Use:

- Area served by the City of Ridgefield.

Phil Crane

Phil Crane

9/14/2012

Date

If you need this publication in an alternate format, please call Water Resources Program at (360) 407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

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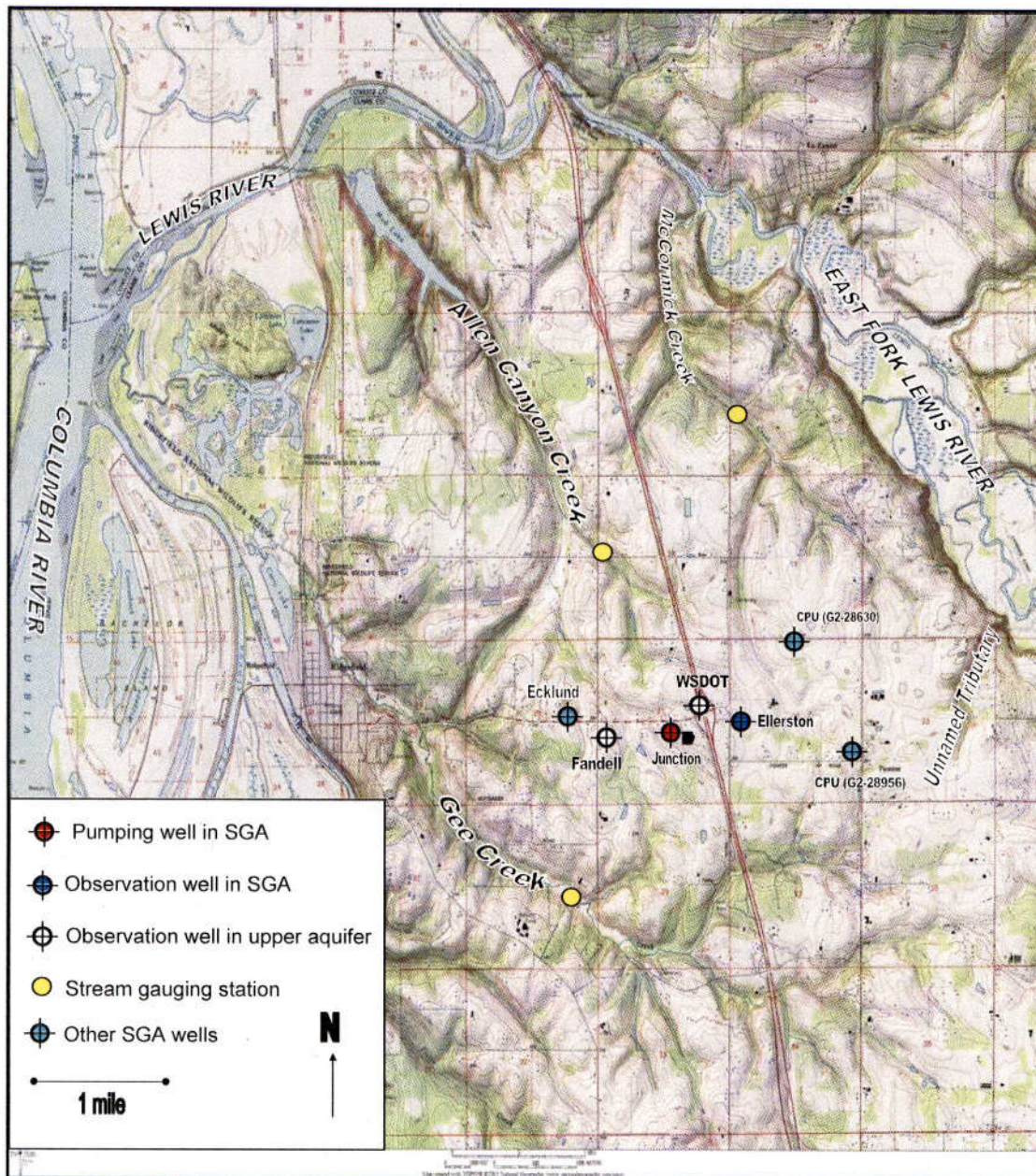
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APPENDIX D

WATER QUALITY MONITORING SCHEDULE, DBP MONITORING PLAN, AND COLIFORM MONITORING PLAN

**CITY OF RIDGEFIELD - DOH ID 72400V
COLIFORM MONITORING PLAN (DEC 2019)**

Sample Locations				
Pressure Zone	Map ID	Address	Upstream	Downstream
High	X1	2749 S. Redtail Loop	2747 Redtail Loop	2743 Redtail Loop
High	X2	1717 S. Harrier Rd.	1749 Harrier Rd.	1695 Harrier Rd.
Low	X3	127 S. Main Ave.	301 Sargent St.	1245 S. Main Ave.
Low	X4	1405 N. Main Ave.	1320 N. 1st Ave.	1240 N. 1st Ave.
High	X5	3251 N. Pioneer Canyon Dr.	333 N. 33rd Ct.	3174 N. Canyon Cir.
High	X6	700 N. 47th Ave.	732 N. 47th Ave.	627 N. 47th Ave.
High	X7	1102 S. Fieldcrest Dr.	1103 S. Fieldcrest Dr.	4201 S. 11th Way
Low	X8	5 Ash St.	6 Ash St.	101 Ash St.
Low	X9	401 Maple St.	405 Maple St.	319 Maple St.
High	X10	131 N. 43rd Pl.	132 N. 43rd Pl.	129 N 43rd Pl.
High	X11	4841 S. 19th St.	4856 S. 19th St.	4833 S. 19th St.
Low	X12	204 S. 8th Ave.	200 S. 8th Ave.	206 S. 8th Ave.
High	X13	1100 S. Union Pl.	7020 S. 11th St.	1101 S. Union Pl.
Low	X14	109 W. Division St.	5 Cook St.	111 W. Division St.
Low	X15	230 Pioneer St.	304 Pioneer St.	220 Pioneer St.

**CITY OF RIDGEFIELD (DOH ID 72400V)
COLIFORM MONITORING PLAN (DEC 2019)**

X3	127 S. Main Ave.	
X4	1405 N. Main Ave.	
X8	5 Ash St.	
X9	401 Maple St.	Low Zone
X12	204 S. 8th Ave.	
X14	109 W. Division St.	
X15	230 Pioneer St.	

X1	2749 S. Redtail Loop	
X2	1717 S. Harrier Rd.	
X5	3251 N. Pioneer Canyon Dr.	
X6	700 N. 47th Ave.	
X7	1102 S. Fieldcrest Dr.	High Zone
X10	131 N. 43rd Pl.	
X11	4841 S. 19th St.	
X13	1100 S. Union Pl.	

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Week 1	X1	X11	X6	X1	X11	X6	X1	X11	X6	X1	X11	X6
	X2	X12	X7	X2	X12	X7	X2	X12	X7	X2	X12	X7
	X3	X13	X8	X3	X13	X8	X3	X13	X8	X3	X13	X8
	X4	X14	X9	X4	X14	X9	X4	X14	X9	X4	X14	X9
	X5	X15	X10	X5	X15	X10	X5	X15	X10	X5	X15	X10

Week 2	X6	X1	X11	X6	X1	X11	X6	X1	X11	X6	X1	X11
	X7	X2	X12	X7	X2	X12	X7	X2	X12	X7	X2	X12
	X8	X3	X13	X8	X3	X13	X8	X3	X13	X8	X3	X13
	X9	X4	X14	X9	X4	X14	X9	X4	X14	X9	X4	X14
	X10	X5	X15	X10	X5	X15	X10	X5	X15	X10	X5	X15

Tests Per Month	15	15	15	15	15	15	10	10	10	15	15	15
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Exploratory samples once per month
 911 N. 65th Ave. Fire Hall coffee break room
 5709 20th St. kitchen sink

First Week

Alternate reservoir samples once per month

High School reservoir	Jan	Apr	Jul	Oct
Cemetery reservoir	Feb	May	Aug	Nov
56th Place reservoir	Mar	Jun	Sep	Dec

Second Week

CITY OF RIDGEFIELD (DOH ID 72400V)
COLIFORM MONITORING PLAN (DEC 2019)

Routine and repeat sample sites:

Low Zone

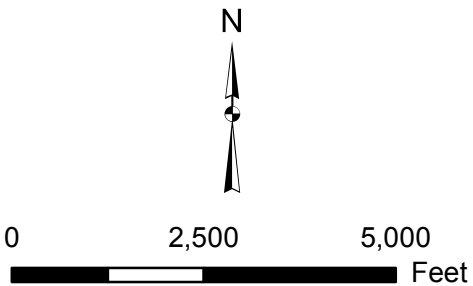
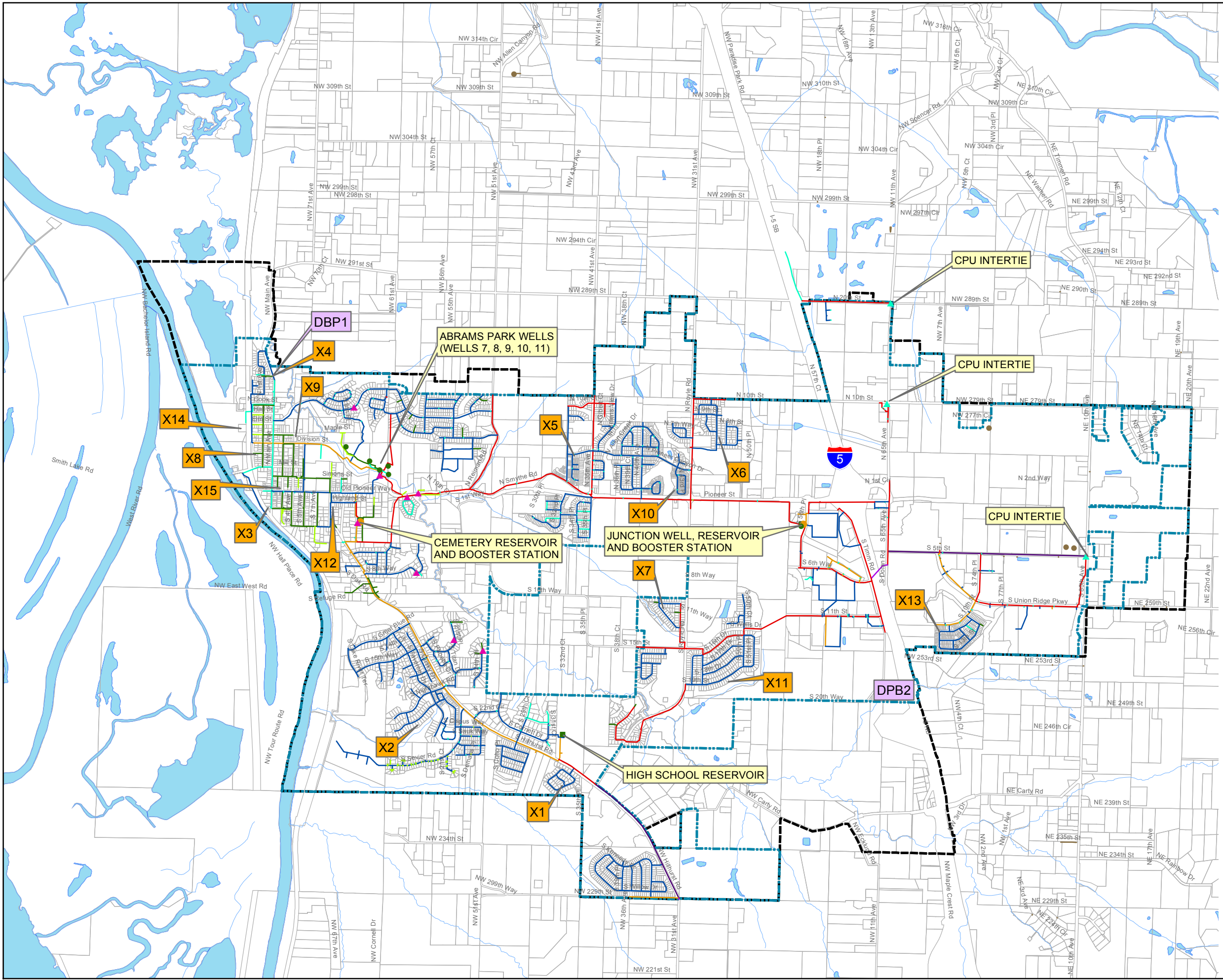
X3	RSS	127 S. Main Ave.
	RUS	301 Sargent St.
	RDS	1245 S. Main Ave.
X4	RSS	1405 N. Main Ave.
	RUS	1320 N. 1st Ave.
	RDS	1240 N. 1st Ave.
X8	RSS	5 Ash St.
	RUS	6 Ash St.
	RDS	101 Ash St.
X9	RSS	401 Maple St.
	RUS	405 Maple St.
	RDS	319 Maple St.
X12	RSS	204 S. 8th Ave.
	RUS	200 S. 8th Ave.
	RDS	206 S. 8th Ave.
X14	RSS	109 W. Division St.
	RUS	5 Cook St.
	RDS	111 W. Division St.
X15	RSS	230 Pioneer St.
	RUS	304 Pioneer St.
	RDS	220 Pioneer St.

**CITY OF RIDGEFIELD (DOH ID 72400V)
COLIFORM MONITORING PLAN (DEC 2019)**

Routine and repeat sample sites:

High Zone

X1	RSS	2749 S. Redtail Loop
	RUS	2747 Redtail Loop
	RDS	2743 Redtail Loop
X2	RSS	1717 S. Harrier Rd.
	RUS	1749 Harrier Rd.
	RDS	1695 Harrier Rd.
X5	RSS	3251 N. Pioneer Canyon Dr.
	RUS	333 N. 33rd Ct.
	RSD	3174 N. Canyon Cir.
X6	RSS	700 N. 47th Ave.
	RUS	732 N. 47th Ave.
	RDS	627 N. 47th Ave.
X7	RSS	1102 S. Fieldcrest Dr.
	RUS	1103 S. Fieldcrest Dr.
	RDS	4201 S. 11th Way
X10	RSS	131 N. 43rd Pl.
	RUS	132 N. 43rd Pl.
	RDS	129 N 43rd Pl.
X11	RSS	4841 S. 19th St.
	RUS	4856 S. 19th St.
	RDS	4833 S. 19th St.
X13	RSS	1100 S. Union Pl.
	RUS	7020 S. 11th St.
	RDS	1101 S. Union Pl.



- LEGEND:**
- EXISTING WELL
 - BOOSTER PUMP STATION
 - ▲ EXISTING INTERTIE
 - ▲ EXISTING PRV
 - EXISTING RESERVOIR
 - CPU WELL
 - CPU WATER LINE
 - 3-INCH AND LESS WATER LINE
 - 4-INCH WATER LINE
 - 6-INCH WATER LINE
 - 8-INCH WATER LINE
 - 10-INCH WATER LINE
 - 12-INCH WATER LINE
 - 14-INCH WATER LINE
 - 16-INCH WATER LINE
 - CITY LIMITS
 - UGA LIMITS AND RETAIL SERVICE AREA
 - RIVERS AND STREAMS
 - WATER
- COLIFORM MONITORING LOCATION**
- DBP MONITORING LOCATION**

CITY OF RIDGEFIELD

WATER QUALITY MONITORING LOCATIONS



Gray & Osborne, Inc.
CONSULTING ENGINEERS



Water Quality Monitoring Schedule

System: RIDGEFIELD PUBLIC WORKS
Contact: R Scott Brunson

PWS ID: 72400 V
Group: A - Comm

Region: SOUTHWEST
County: CLARK

NOTE: To receive credit for compliance samples, you must fill out laboratory and sample paperwork completely, send your samples to a laboratory accredited by Washington State to conduct the analyses, AND ensure the results are submitted to DOH Office of Drinking Water. There is often a lag time between when you collect your sample, when we credit your system with meeting the monitoring requirement, and when we generate the new monitoring requirement.

Coliform Monitoring Requirements

	Dec 2019	Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	Sep 2020	Oct 2020	Nov 2020
Coliform Monitoring Population	13581	13581	13581	13581	13581	13881	13881	12047	11714	11714	13581	13581
Number of Routine Samples Required	10	15	15	15	15	15	15	10	10	10	15	15

- Collect samples from representative points throughout the distribution system.
- Collect required repeat samples following an unsatisfactory sample. In addition, collect a sample from each operating groundwater source.
- For systems that chlorinate, record chlorine residual (measured when the coliform sample is collected) on the coliform lab slip.

Chemical Monitoring Requirements

Distribution Monitoring

<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>	
Lead and Copper	30	Jan 2018 - Dec 2020	standard - 3 year	08/31/2017	Aug 2020	
Asbestos	0	Jan 2011 - Dec 2019	waiver - 9 year			
Total Trihalomethane (THM)	2	Jan 2019 - Dec 2019	reduced - 1 year	08/07/2019		
Halo-Acetic Acids (HAA5)	2	Jan 2019 - Dec 2019	reduced - 1 year	08/07/2019		

Water Quality Monitoring Schedule

Notes on Distribution System Chemical Monitoring

- For *Lead and Copper*:
- Collect samples from the COLD WATER side of a KITCHEN or BATHROOM faucet that is used daily.
 - Before sampling, make sure the water has sat unused in the pipes for at least 6 hours, but no more than 12 hours (e.g. overnight).
 - If you are sampling from a faucet that has hot water, make sure cold water is the last water to run through the faucet before it sits overnight.
 - If your sampling frequency is annual or every 3 years, collect samples between June 1 and September 30.

For *Asbestos*: Collect the sample from one of your routine coliform sampling sites in an area of your distribution system that has asbestos concrete pipe.

For *Disinfection Byproducts (HAA5 and THM)*: Collect the samples at the locations identified in your Disinfection Byproducts (DBP) monitoring plan.

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S07	WF (S08, S09)	Well Field	Use - Permanent	Susceptibility - Low		
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>	
Nitrate	1	Jan 2019 - Dec 2019	standard - 1 year	08/07/2019		
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	07/31/2013		
Arsenic	1	Jan 2017 - Dec 2019	standard - 3 year	08/07/2019		
Iron	1	Jan 2017 - Dec 2019	standard - 3 year	08/07/2019		
Manganese	1	Jan 2017 - Dec 2019	standard - 3 year	08/07/2019		
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	08/03/2016		
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	08/08/2018		
Pesticides	0	Jan 2017 - Dec 2019	waiver - 3 year	05/14/2009		
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year			
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	07/29/2015		
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	07/29/2015		

Water Quality Monitoring Schedule

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S11	ABRAMS #7 AFP608	Well	Use - Permanent	Susceptibility - Low		
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>	
Nitrate	1	Jan 2019 - Dec 2019	standard - 1 year	08/07/2019		
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	07/31/2013		
Volatile Organics (VOC)	1	Jan 2017 - Dec 2022	waiver - 6 year	08/08/2018		
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	08/08/2018		
Pesticides	0	Jan 2017 - Dec 2019	waiver - 3 year	05/14/2009		
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year			
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	08/03/2016		
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	08/03/2016		

Source S12	33344 / POR 255 S 56th PL	Well	Use - Permanent	Susceptibility - Low		
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>	
Nitrate	1	Jan 2019 - Dec 2019	standard - 1 year	08/07/2019		
Complete Inorganic (IOC)	1	Jan 2017 - Dec 2019	standard - 3 year	08/15/2017		
Iron	1	Jan 2017 - Dec 2019	standard - 3 year	08/15/2017		
Manganese	1	Jan 2017 - Dec 2019	standard - 3 year	08/15/2017		
Volatile Organics (VOC)	1	Jan 2017 - Dec 2022	waiver - 6 year	08/31/2017		
Herbicides	1	Jan 2017 - Dec 2025	waiver - 9 year	08/15/2017		
Pesticides	0	Jan 2017 - Dec 2019	waiver - 3 year	08/15/2017		
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year			
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	08/15/2017		
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	08/15/2017		

Water Quality Monitoring Schedule

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S16	ABRAMS #10 APP678	Well	Use - Permanent	Susceptility - Moderate		
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u>	<u>Next Sample Due</u>	
Nitrate	1	Jan 2019 - Dec 2019	standard - 1 year	08/07/2019		
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	07/31/2013		
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	08/08/2018		
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	08/03/2016		
Pesticides	0	Jan 2017 - Dec 2019	waiver - 3 year	07/20/2007		
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year			
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	08/03/2016		
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	08/03/2016		

Water Quality Monitoring Schedule

Other Information

Other Reporting Schedules	Due Date
Measure chlorine residuals and submit monthly reports if your system uses continuous chlorination:	monthly
Submit Consumer Confidence Report (CCR) to customers and ODW (Community systems only):	07/01/2019
Submit CCR certification form to ODW (Community systems only):	10/01/2019
Submit Water Use Efficiency report online to ODW and to customers (Community and other municipal water systems only):	07/01/2019
Send notices of lead and copper sample results to the customers sampled:	30 days after you receive the laboratory results
Submit Certification of customer notification of lead and copper results to ODW:	90 days after you notify customers

Special Notes

None

Southwest Regional Water Quality Monitoring Contacts

For questions regarding chemical monitoring:	Sophia Petro: (360) 236-3046 or sophia.petro@doh.wa.gov
For questions regarding DBPs:	Regina Grimm, p.e.: (360) 236-3046 or regina.grimm@doh.wa.gov
For questions regarding coliform bacteria and microbial issues:	Southwest Office: (360) 236-3030 or SWRO.Coli@doh.wa.gov

Additional Notes

The information on this monitoring schedule is valid as of the date in the upper left corner on the first page. However, the information may change with subsequent updates in our water quality monitoring database as we receive new data or revise monitoring schedules. There is often a lag time between when you collect your sample and when we credit your system with meeting the monitoring requirement.

We have not designed this monitoring schedule to display all compliance requirements. The purpose of this schedule is to assist water systems with planning for most water quality monitoring, and to allow systems to compare their records with DOH ODW records. Please be aware that this monitoring schedule does not include constituents that require a special monitoring frequency, such as monitoring affiliated with treatment.

Any inaccuracies on this schedule will not relieve the water system owner and operator of the requirement to comply with applicable regulations.

If you have any questions about your monitoring requirements, please contact the regional office staff listed above.



DBP Monitoring Plan (Annual Schedule)

This template should be used by:

- * Surface water systems who serve less than 500 population
- * Surface water systems who serve between 500-3,300 population on reduced monitoring
- * Groundwater systems who serve less than 10,000 population
- * Groundwater systems who serve 500-99,999 population on reduced monitoring

For more information, refer to the Reference Sheets on the separate tabs

System Name:	CITY OF RIDGEFIELD
PWSID#:	72400V
Population:	7,261
Type of Source Water:	GROUNDWATER
Completed by:	SCOTT BRUNSON
Date:	12/23/2019

Monitoring Requirments

Monitoring Frequency:

Number of TTHM Samples Required:

Number of HAA5 Samples Required:

Annual
2
2

Monitoring Locations and Month Assigned

Monitoring Location (Name of Site)	Month Assigned
DBP1: 1405 N MAIN AVE	AUGUST
DBP2: GEE CREEK I-5 SB REST AREA	AUGUST

Determining Compliance for TTHM and HAA5

Our system is required to monitor annually. Compliance will be achieved if the TTHM and the HAA5 at each monitoring location is less than or equal to 0.080 mg/L for TTHM and less than or equal to 0.060 mg/l for HAA5. If these levels are exceeded the monitoring frequency will be increased to quarterly.

To qualify for reduced monitoring:

The TTHM LRAA must be less than or equal to 0.040 mg/l AND the HAA LRAA must be less than or equal to 0.030 mg/l at each monitoring location.

If your system is on reduced annual monitoring, to remain on reduced monitoring:

The TTHM LRAA must be less than or equal to 0.060 mg/l AND the HAA LRAA must be less than or equal to 0.045 mg/l at each monitoring location. If these levels are exceeded, but the MCL is not exceeded, the monitoring frequency will be returned to quarterly.

Disinfectant Residual Monitoring

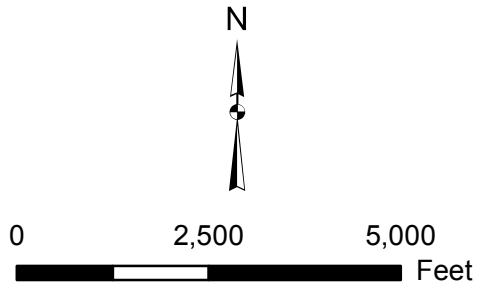
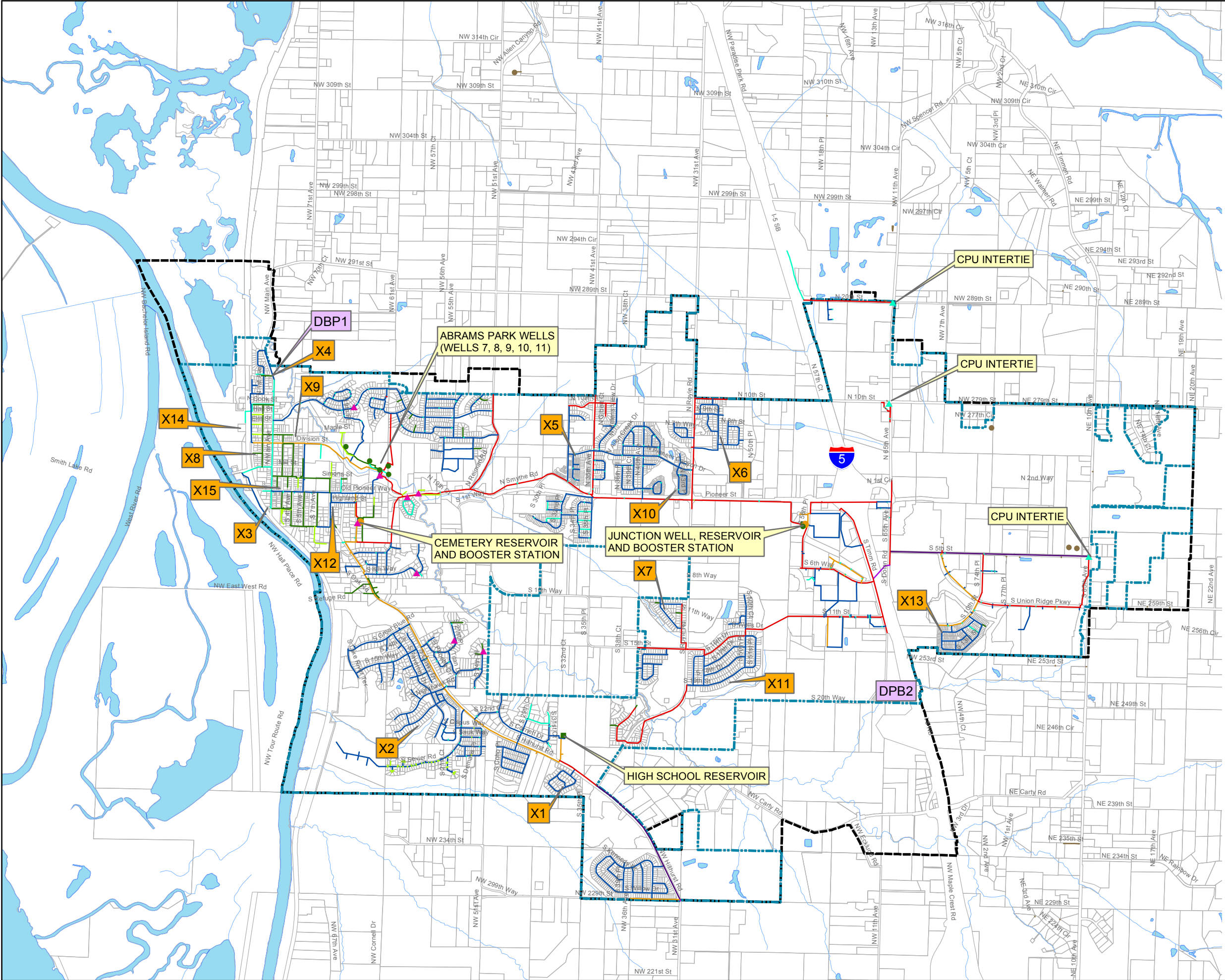
Chlorine residuals must be measured at the same time and place as routine or repeat coliform samples
MRDL for chlorine and chloramines = 4.0 mg/l as Cl₂

Determining Compliance for disinfectant residuals

Compliance is based on the running annual average (RAA) of 12 consecutive months

Daily residual measurements will / will not be included in the compliance calculations (circle one)

(Attach a distribution map with sample locations. You will need to print a hard copy for your records and make it available upon request. You do not need to submit a copy to DOH. If you need this publication in an alternate format, call (800) 525-0127. For TTY/TDD call (800) 833-6388.)



LEGEND:

- EXISTING WELL
- BOOSTER PUMP STATION
- ▲ EXISTING INTERTIE
- ▲ EXISTING PRV
- EXISTING RESERVOIR
- CPU WELL
- CPU WATER LINE
- 3-INCH AND LESS WATER LINE
- 4-INCH WATER LINE
- 6-INCH WATER LINE
- 8-INCH WATER LINE
- 10-INCH WATER LINE
- 12-INCH WATER LINE
- 14-INCH WATER LINE
- 16-INCH WATER LINE
- CITY LIMITS
- UGA LIMITS AND RETAIL SERVICE AREA
- RIVERS AND STREAMS
- WATER

COLIFORM MONITORING LOCATION

DBP MONITORING LOCATION

CITY OF RIDGEFIELD

WATER QUALITY MONITORING LOCATIONS


Gray & Osborne, Inc.
CONSULTING ENGINEERS

APPENDIX E

CONSUMER CONFIDENCE REPORT



Water Quality Report 2022

2022 Water Quality Report

The City of Ridgefield is pleased to present a summary of the quality of water provided to you during 2022. This report contains information about your drinking water as required by the Environmental Protection Agency (EPA). Ridgefield is proud to inform you that our water quality continues to exceed state and federal standards. We are committed to efficiently provide you with a safe and reliable water supply. This report, also called the “Consumer Confidence Report”, is produced under regulations established by the Washington State Department of Health. Please contact the Public Works Department at (360) 887-8251 if you have any questions about the information contained in this Water Quality Report.



How Our Drinking Water is Provided

The City of Ridgefield water distribution system consists of approximately 62 miles of distribution lines, one 600,000 gallon reservoir, one 400,000 gallon reservoir, and a 1.0 million gallon reservoir. The City's water system also includes treatment facilities to chlorinate the water, and a filter plant for removal of minerals. A key to maintaining good water quality is effectively managing the water distribution system. It is important for water to remain fresh and retain sufficient chlorine for disinfection. The City strives to keep dead end mains flushed and has a cross-connection control program designed to keep potential contaminants originating in homes and businesses from entering the potable water system.

Ridgefield Water Source

GROUND WELLS: The City of Ridgefield (Public Water System 72400V) has five wells commonly identified as Well Nos. 7, 8, 9, 10, 11, located at Abrams Park & a sixth well located on S 56th Pl, known as the Junction Well. Department of Health Source Numbers are S07, S11, S12, S16, S17.

CLARK PUBLIC UTILITIES: In addition, we purchase water from Clark Public Utilities as a back-up to the City's own water sources. For a copy of their Water Quality Report go to: <https://www.clarkpublicutilities.com/wp-content/uploads/2023/04/Water-report-for-web-2023.pdf>

TROUTDALE AQUIFER: The groundwater wells pump water from the Troutdale aquifer located at depths between approximately 130 and 170 feet below ground surface. These wells can produce over 2 million gallons of water per day.

WATER TREATMENT: The City voluntarily chlorinates its water supply with 4% sodium hypochlorite solution to effectively kill any pathogenic bacteria. The City does not fluoridate your water.

MODERATELY HARD WATER: The City has moderately hard water (determined by mineral level content) rated at an average of 100 parts per million when last tested. In addition, City water typically contains 55 parts per million silica. While hard water is not a health hazard, it can result in spots or deposits left from tap water that has dried on glass or chrome. A water softener may be added to soften your water; however, a water softener will not remove the silica. Glass and chrome surfaces should be wiped dry to avoid spotting or deposits.

A Message about Water Quality

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791), or <https://www.epa.gov/ground-water-and-drinking-water>

IMPORTANCE OF WATER CONSERVATION

Using Water Wisely

Water Conservation is something everyone can participate in to help ensure adequate water supply is maintained. The average family uses 200 gallons of water a day. However, peak use can exceed 500 gallons a day due to irrigation use. Every household could do their part by using water more wisely, especially during summer months. The City has implemented a public education outreach program for our citizens to let them know the importance of water conservation. **We request that you water your lawn on odd/even days of the month based on the last digit of your address (odd/even) to reduce daily demands.**

Water Use Efficiency Goal

The City continues to promote water conservation through its tiered rate structures and encourages smart irrigation usage. Ridgefield is in the process of updating our Water System Plan (WSP), which is expected to be completed by the end of 2023. The new WSP will be a collaborative effort with the community, and will update our water efficiency goals as well as steps to capture efficiencies. To view our latest report click here: <https://ridgefieldwa.us/government/water-service/>



Current Utility Rate Structure

City council recently changed the water utility rate structure to reflect the priority of water conservation. For information on new rates, contact customer service at 360.887.3557 or click on this link: <https://ridgefieldwa.us/DocumentCenter/View/996/Water-Rates-Effective-July-1-2023-PDF>

Check your Water Consumption

On your water bill paper statement, you can see current and prior year water usage. For information on how to understand your bill graphic, please contact customer service at 360.887.3557 or click here: <https://ridgefieldwa.us/DocumentCenter/View/997/Understanding-Your-Bill-PDF>



Conservation Tips

Here are some ways you can help us maintain our water use efficiency goals by saving even more water around your house:

- ◆ If possible, wait until the dishwasher is full before running a load
- ◆ Wash full loads of laundry
- ◆ Fix leaky faucets immediately
- ◆ Take shorter showers, reduce bath water
- ◆ Check toilets for leaks
- ◆ Irrigate lawns early before 6am or late after 8pm
- ◆ Sweep walkways and driveways
- ◆ Install water-efficient toilets, faucets, and showerheads
- ◆ Use a hose with a shut-off nozzle
- ◆ Contact the city immediately if you suspect a water leak on any public street (360) 887-8251 or after hours (360) 518-8146

In addition, our staff can provide information on:

- ◆ [The City's Cross Connection Control Program](#)
- ◆ [Backflow prevention devices](#)
- ◆ [Detecting and identifying leaks in your water system](#)
- ◆ [Water conservation rates](#)
- ◆ [Tips in addressing high or low water pressure problems](#)
- ◆ [Other water conservation measures](#)

The City of Ridgefield's Public Works Department provides you with excellent and efficient water service. The Public Works Director can be contacted by telephone at (360) 887-8251 and has office hours from 8 a.m. to 5 p.m. on weekdays. **For after hours emergencies, you can call our emergency pager number at (360) 518-8146.**

Test Results Summary

This table shows the results of our Department of Health required water quality analysis for 2017 through 2022. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken. The table contains the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health (MCLG), the amount detected and the usual sources of contamination. **Note: Values may include negative numbers because the reading is relatively less than a base sample.** We regularly take water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants, including pesticides and herbicides and had no detection for the (number of analytes) tested. Based on all tests, Ridgefield's water is safe.

REGULATED IN THE DISTRIBUTION SYSTEM

Substance (unit)	Ideal Goal (MCLG)	Maximum Level Allowed (MCL)	Range of Level (Low-High) Detected	SRL	Sample Year	Violations	Typical Sources of Contaminant
Total Trihalomethanes (ug/L)	NA	80	ND - 6.31	NA	2022	NO	By-product of disinfection
Haloacetic Acids (ug/L)	NA	60	ND - 3.4	NA	2021	NO	By-product of disinfection
Substance (Unit)	Ideal Goal (MRDLG)	Highest Level Allowed (MRDL)	Range of Level (Low-High) Detected	SRL	Sample Year	Violations	Typical Sources of Contaminant
Chlorine (ppm)	4	4	0.21 - 0.81	NA	2022	NO	Additive for disinfectant residual

PRIMARY REGULATED AT THE WELL

Substance (unit)	Ideal Goal (MCLG)	Maximum Level Allowed (MCL)	Range of Level (Low-High) Detected	SRL	Sample Year	Violations	Typical Sources of Contaminant
Arsenic (ppb)	NA	10	1.7 - 1.7	1	2022	NO	Naturally occurring mineral
Chromium (ppb)	100	100	20 - 20	7	2021	NO	Discharge from steel & pulp mill; erosion of natural deposits
Fluoride (ppm)	NA	4	0.2 - 0.2	0.2	2017	NO	Erosion of natural deposits
Nitrate-N (ppm)	10	10	0.53- 0.69	0.5	2022	NO	Runoff from fertilizer use

SECONDARY REGULATED AT THE WELL

Substance (unit)	Ideal Goal (MCLG)	Maximum Level Allowed (MCL)	Range of Level (Low-High) Detected	SRL	Sample Year	Violations	Typical Sources of Contaminant
Iron (ppb)	NA	300	ND - 230	100	2021	NO	Leaching from natural deposits; industrial waste
Manganese (ppb)	NA	50	ND - 14	10	2021	NO	Leaching from natural deposits
Chloride (ppm)	NA	250	3.2 - 6.1	20	2022	NO	Erosion of natural deposits
Conductivity (umhos/cm)	NA	700	220 - 240	70	2022	NO	Erosion of natural deposits
Sulfate (ppm)	NA	250	2.2 - 3.5	50	2022	NO	Erosion of natural deposits

ADDITIONAL SUBSTANCES OF CUSTOMER INTEREST

Substance (unit)	Ideal Goal (MCLG)	Maximum Level Allowed (MCL)	Range of Level (Low-High) Detected	SRL	Sample Year	Violations	Typical Sources of Contaminant
Calcium (ppm)	NA	NA	20 - 24	0.05	2022	NO	Naturally Occurring
Sodium (ppm)	NA	NA	8.5 - 10	5	2022	NO	Erosion of natural deposits
Hardness (ppm)	NA	NA	86 - 110	10	2022	NO	Erosion of natural deposits
Turbidity (NTU)	NA	NA	0.13 - 0.16	0.1	2022	NO	Erosion of natural deposits

LEAD AND COPPER *(Tap water samples were collected for lead and copper analyses from sample sights throughout the city.)*

Substance (unit)	MCLG	AL	Your Water (90th % Tie)	Sample Year	# of Samples Exceeding the AL	Violations	Typical Sources of Contaminant
Lead (ppm)	0	0.015	0.0028	2020	Zero out of 30 samples	NO	By-product of disinfection
Copper (ppm)	0	1.3	0.92	2020	Zero out of 30 samples	NO	By-product of disinfection

The City is required to monitor your drinking water for specific contaminants on a regular basis, including lead and copper. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. In 2020, samples collected from our customers' taps showed that levels of lead and copper are both well below the EPA's action level.

See next page for definitions

Glossary EPA Water Quality Definitions



*"I take my job seriously
because water is life."*

Meet Julie,
our water quality technician,
collecting water from a water
sample station.

ppb: parts per billion. Equivalent to microgram per liter (ug/L) unit of measure. One part per billion is comparable to one penny out of \$10,000,000.

ppm: parts per million. Equivalent to milligrams per liter (mg/L) unit of measure. One part per million is comparable to one penny out of \$10,000,000.

Umhos/cm: Micro Sieman per centimeter. A measure of electrical conductance.

AL: Action Level. The concentration of a contaminant which, if exceeded, triggers additional treatment by the public system.

Color: Color Units. A unit used to measure color.

NA: None Applicable.

ND: Non Detect. Indicates that the substance was not found by laboratory analysis.

NTU: Nephelometric Turbidity Units. A measure of water clarity.

MCL: Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available technology.

MCLG: Maximum Contaminant Level Goal. The level of a contaminant in drinking water below which there is no known risk to health. MCLGs allow for a margin of safety.

MRDL: Maximum Residual Disinfectant level. The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of disinfectant is necessary for microbial contaminants.

MRDLG: Maximum Residual Disinfectant Goal. The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

SRL: State Reporting Level

ug/L: Micrograms per Liter

Water Sources and Contaminants

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include: **Microbial contaminants**, such as viruses, parasites and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; **Inorganic contaminants**, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and farming; **Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; **Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and **Radioactive contaminants**, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the Department of Health (DOH) and the Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and the Washington Department of Agriculture regulations establish limits for contaminants in bottled water that must provide the same protection for public health. The Department of Health (DOH) has compiled a source water assessment program (SWAP) data for all community water systems in Washington. Please contact the Public Works Director at 360-887-8251 if you would like additional information in this regard.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Ridgefield is responsible for providing high quality drinking water, but cannot control the variety of materials used in the plumbing components in your home. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or <https://www.epa.gov/ground-water-and-drinking-water>

Special Information: Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline or website as listed above.

Bacteriological Testing - The City collected on average a minimum of 15 samples per month in 2021 in different areas to test for coliform bacteria. No sample collected during 2021 showed any indication of bacteriological growth. The City also collects samples from new construction sites, new exploratory sample points, or when there is any question pertaining to water quality.

City of Ridgefield Public Works Operations, Engineering and Administrative Staff

The Public Works Department oversees the design, construction, operation, and maintenance of all City-owned public infrastructure. This includes: Streets, sidewalks, water utility, stormwater system, parks, trails, open space and city cemetery.



City of Ridgefield Public Works Operations, Engineering and Administrative Staff:

Jason Van Dyke, Chuck Green, Don Webberley, Zach Rader, Frank Schmidt, Grant Williams, Ryan Thamert, Harrison Hanna, Mike Venne, Kelly Melroy, Kyle Johnson, Steve Theisen, Nick Johnson, Scott Brunson, Austen Jefferies, Derek Smith, Josh Johnson, Laura Loucks, Galina Burley, Kim Zurcher, Holly Naramore, James Barhitte, Johnathan Embry, Julie Swarts, Joshua Nathan, Paul Connell, Lisa Blake.

Contact Us!

Public Works Department
487 S 56th Place
Ridgefield, WA 98642
www.ridgefieldwa.us
city.mail@ridgefieldwa.us

Hours - (weekdays) 7:00 a.m.— 4:30 p.m.
Closed 12:00 p.m.—1:00 p.m.

General (360) 887-8251
After Hours Emergency (360) 518-8146

Water Quality Report 2022



APPENDIX F

HYDRAULIC MODEL RESULTS

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: FIRE FLOW SCENARIOS**

Node ID	Required Fire Flow (gpm)	2019 FIRE FLOW		2030 FIRE FLOW (W/IMPROVEMENTS)		2040 FIRE FLOW (W/IMPROVEMENTS)	
		Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
J-10	1,000	2,978	1,978	2,762	1,762	2,642	1,642
J100	1,000	3,032	2,032	2,563	1,563	2,416	1,416
J-100	1,500	4,371	2,871	4,066	2,566	3,835	2,335
J102	1,000	3,636	2,636	2,970	1,970	2,802	1,802
J-102	1,500	4,492	2,992	4,194	2,694	3,942	2,442
J104	1,000	4,077	3,077	3,323	2,323	3,094	2,094
J-104	1,500	4,514	3,014	4,176	2,676	3,935	2,435
J106	1,000	3,995	2,995	3,172	2,172	2,936	1,936
J-106	1,500	2,570	1,070	2,406	906	2,334	834
J108	1,000	3,547	2,547	2,821	1,821	2,635	1,635
J-108	1,500	2,209	709	2,066	566	1,998	498
J110	1,000	2,891	1,891	2,384	1,384	2,224	1,224
J-110	1,000	1,969	969	1,846	846	1,790	790
J112	1,000	3,526	2,526	2,892	1,892	2,722	1,722
J-112	1,500	4,859	3,359	4,330	2,830	3,908	2,408
J114	1,000	3,059	2,059	2,656	1,656	2,800	1,800
J-114	1,000	1,328	328	1,272	272	1,238	238
J116	1,000	3,604	2,604	3,135	2,135	3,392	2,392
J-116	1,000	1,659	659	1,561	561	1,522	522
J118	1,000	3,792	2,792	3,183	2,183	3,560	2,560
J-118	1,000	1,262	262	1,194	194	1,178	178
J12	3,000	4,616	1,616	7,460	4,460	7,632	4,632
J-12	1,000	2,354	1,354	2,226	1,226	2,152	1,152
J120	1,000	3,642	2,642	3,167	2,167	3,436	2,436
J-120	1,500	5,054	3,554	4,282	2,782	3,865	2,365
J122	1,000	4,019	3,019	3,383	2,383	3,889	2,889
J-122	1,500	5,071	3,571	4,297	2,797	3,879	2,379
J124	1,000	3,918	2,918	3,257	2,257	3,711	2,711
J-124	1,500	5,075	3,575	4,458	2,958	4,017	2,517
J126	1,000	3,564	2,564	2,948	1,948	3,261	2,261
J-126	1,500	2,180	680	2,059	559	1,997	497
J128	1,000	3,533	2,533	2,917	1,917	3,222	2,222
J-128	1,000	1,480	480	1,458	458	1,412	412
J130	1,000	3,888	2,888	3,219	2,219	3,668	2,668
J-130	1,000	1,504	504	1,442	442	1,398	398
J132	1,000	4,158	3,158	3,379	2,379	4,080	3,080
J-132	1,500	4,878	3,378	4,467	2,967	4,092	2,592
J134	1,000	4,073	3,073	3,296	2,296	3,933	2,933
J-134	1,000	931	(69)	3,660	2,660	3,502	2,502
J136	1,000	3,901	2,901	3,137	2,137	3,662	2,662
J-136	1,000	4,567	3,567	4,269	3,269	4,068	3,068
J138	1,000	4,074	3,074	3,297	2,297	3,934	2,934
J-138	1,500	5,742	4,242	4,758	3,258	4,306	2,806
J-14	1,000	2,996	1,996	2,768	1,768	2,641	1,641
J140	1,000	4,031	3,031	3,257	2,257	3,863	2,863
J142	1,000	3,877	2,877	3,181	2,181	3,622	2,622
J144	1,000	3,936	2,936	3,238	2,238	3,751	2,751

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: FIRE FLOW SCENARIOS**

Node ID	Required Fire Flow (gpm)	2019 FIRE FLOW		2030 FIRE FLOW (W/IMPROVEMENTS)		2040 FIRE FLOW (W/IMPROVEMENTS)	
		Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
J146	1,000	3,854	2,854	3,190	2,190	3,623	2,623
J148	1,000	3,914	2,914	3,236	2,236	3,704	2,704
J150	1,000	4,014	3,014	3,355	2,355	3,888	2,888
J-150	1,000	1,827	827	1,703	703	1,661	661
J152	1,000	4,176	3,176	3,394	2,394	4,098	3,098
J-152	1,500	4,933	3,433	4,184	2,684	3,788	2,288
J154	1,000	4,035	3,035	3,261	2,261	3,866	2,866
J-154	1,500	4,850	3,350	4,084	2,584	3,736	2,236
J156	1,000	3,319	2,319	2,620	1,620	2,889	1,889
J-156	1,500	4,769	3,269	3,992	2,492	3,646	2,146
J158	1,000	3,184	2,184	2,583	1,583	2,800	1,800
J-158	1,000	4,757	3,757	3,994	2,994	3,660	2,660
J-16	1,000	2,700	1,700	2,513	1,513	2,406	1,406
J160	1,000	3,074	2,074	2,434	1,434	2,636	1,636
J-160	1,000	4,757	3,757	3,991	2,991	3,659	2,659
J162	1,000	2,913	1,913	2,361	1,361	2,520	1,520
J-162	1,000	5,362	4,362	4,467	3,467	4,049	3,049
J164	1,000	2,501	1,501	2,027	1,027	2,125	1,125
J-164	1,000	4,199	3,199	3,502	2,502	3,234	2,234
J166	1,000	4,475	3,475	3,696	2,696	4,690	3,690
J-166	1,000	4,235	3,235	3,535	2,535	3,263	2,263
J168	1,000	4,433	3,433	3,675	2,675	4,599	3,599
J-168	1,000	2,796	1,796	2,441	1,441	2,281	1,281
J170	1,000	3,273	2,273	2,673	1,673	2,922	1,922
J-170	1,000	2,790	1,790	2,349	1,349	2,198	1,198
J172	1,000	3,947	2,947	3,276	2,276	3,769	2,769
J-172	1,000	6,099	5,099	5,246	4,246	4,850	3,850
J174	1,000	3,874	2,874	3,185	2,185	3,657	2,657
J-174	1,000	6,692	5,692	5,608	4,608	5,100	4,100
J176	1,000	4,518	3,518	3,747	2,747	4,797	3,797
J178	1,000	4,510	3,510	3,732	2,732	4,765	3,765
J18	1,000	1,879	879	1,681	681	1,571	571
J180	1,000	4,536	3,536	3,757	2,757	4,819	3,819
J-180	1,000	6,551	5,551	5,359	4,359	4,811	3,811
J182	1,000	4,559	3,559	3,782	2,782	4,872	3,872
J-182	1,000	6,561	5,561	5,385	4,385	4,834	3,834
J184	1,000	4,539	3,539	3,761	2,761	4,801	3,801
J186	1,000	4,336	3,336	3,615	2,615	4,665	3,665
J188	1,000	3,610	2,610	2,979	1,979	3,408	2,408
J190	1,000	3,498	2,498	2,940	1,940	3,294	2,294
J-190	1,000	4,670	3,670	3,942	2,942	3,754	2,754
J192	1,000	3,831	2,831	3,115	2,115	3,680	2,680
J194	1,000	4,005	3,005	3,282	2,282	4,006	3,006
J196	1,000	4,259	3,259	3,534	2,534	4,497	3,497
J198	1,000	3,798	2,798	3,126	2,126	3,661	2,661
J20	1,000	1,893	893	1,693	693	1,583	583
J-20	1,000	3,244	2,244	2,996	1,996	2,859	1,859

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: FIRE FLOW SCENARIOS**

Node ID	Required Fire Flow (gpm)	2019 FIRE FLOW		2030 FIRE FLOW (W/IMPROVEMENTS)		2040 FIRE FLOW (W/IMPROVEMENTS)	
		Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
J200	1,000	3,743	2,743	3,083	2,083	3,585	2,585
J202	1,000	3,473	2,473	2,890	1,890	3,247	2,247
J204	1,000	4,000	3,000	3,305	2,305	4,016	3,016
J-204	1,000	4,050	3,050	3,606	2,606	3,360	2,360
J206	1,000	3,485	2,485	2,931	1,931	3,285	2,285
J-206	1,000	4,077	3,077	3,641	2,641	3,407	2,407
J208	1,000	4,394	3,394	3,708	2,708	4,820	3,820
J-208	1,000	3,980	2,980	3,525	2,525	3,335	2,335
J210	1,000	4,299	3,299	3,605	2,605	4,598	3,598
J-210	1,000	4,027	3,027	3,647	2,647	3,408	2,408
J212	1,000	4,312	3,312	3,651	2,651	4,610	3,610
J-212	1,000	3,761	2,761	3,336	2,336	3,112	2,112
J214	1,000	4,340	3,340	3,657	2,657	4,666	3,666
J-214	1,000	3,896	2,896	3,446	2,446	3,246	2,246
J216	1,000	4,363	3,363	3,667	2,667	4,731	3,731
J-216	1,000	3,780	2,780	3,343	2,343	3,121	2,121
J218	1,000	4,333	3,333	3,656	2,656	4,652	3,652
J22	1,000	1,943	943	1,733	733	1,619	619
J-22	1,000	3,524	2,524	3,233	2,233	3,057	2,057
J220	1,000	4,301	3,301	3,650	2,650	4,589	3,589
J222	1,000	4,232	3,232	3,650	2,650	4,371	3,371
J224	1,000	4,218	3,218	3,615	2,615	4,408	3,408
J-224	1,000	4,891	3,891	3,813	2,813	4,531	3,531
J226	1,000	4,135	3,135	3,491	2,491	4,266	3,266
J-226	1,000	4,874	3,874	3,805	2,805	4,561	3,561
J228	1,000	4,201	3,201	3,571	2,571	4,382	3,382
J-228	1,000	1,669	669	1,563	563	1,548	548
J230	1,000	3,669	2,669	3,215	2,215	3,649	2,649
J-230	1,000	4,838	3,838	3,814	2,814	4,206	3,206
J232	1,000	3,707	2,707	3,222	2,222	3,697	2,697
J234	1,000	4,079	3,079	3,585	2,585	4,268	3,268
J-234	1,000	4,687	3,687	3,717	2,717	4,036	3,036
J236	1,000	4,329	3,329	3,818	2,818	4,765	3,765
J238	1,000	3,732	2,732	3,180	2,180	3,725	2,725
J-238	1,000	4,718	3,718	3,717	2,717	4,036	3,036
J24	1,000	1,990	990	1,757	757	1,634	634
J-24	1,000	3,177	2,177	2,952	1,952	2,828	1,828
J240	1,000	3,409	2,409	2,890	1,890	3,277	2,277
J-240	1,000	4,620	3,620	3,725	2,725	3,998	2,998
J242	1,000	2,273	1,273	2,114	1,114	2,093	1,093
J244	1,000	2,333	1,333	2,130	1,130	2,102	1,102
J246	1,000	4,459	3,459	3,480	2,480	3,666	2,666
J248	1,000	4,374	3,374	3,442	2,442	3,599	2,599
J250	1,000	4,113	3,113	3,186	2,186	3,323	2,323
J-250	1,000	4,684	3,684	3,631	2,631	3,803	2,803
J252	1,000	4,431	3,431	3,460	2,460	3,642	2,642
J-252	1,000	4,761	3,761	3,690	2,690	3,915	2,915

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: FIRE FLOW SCENARIOS**

Node ID	Required Fire Flow (gpm)	2019 FIRE FLOW		2030 FIRE FLOW (W/IMPROVEMENTS)		2040 FIRE FLOW (W/IMPROVEMENTS)	
		Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
J254	1,000	3,237	2,237	2,573	1,573	2,569	1,569
J256	1,000	4,539	3,539	3,549	2,549	3,765	2,765
J-256	1,000	4,648	3,648	3,710	2,710	3,412	2,412
J258	1,000	4,672	3,672	3,659	2,659	3,935	2,935
J-258	1,000	4,914	3,914	3,818	2,818	3,503	2,503
J26	1,000	1,929	929	1,709	709	1,591	591
J-26	1,000	2,975	1,975	2,777	1,777	2,669	1,669
J260	1,000	4,173	3,173	3,486	2,486	3,618	2,618
J-260	1,500	5,220	3,720	4,172	2,672	3,818	2,318
J-262	1,500	5,705	4,205	4,703	3,203	4,291	2,791
J264	3,000	3,573	573	4,708	1,708	4,780	1,780
J-264	1,000	4,495	3,495	3,958	2,958	3,745	2,745
J266	3,000	3,821	821	5,746	2,746	5,958	2,958
J-266	1,000	6,555	5,555	5,971	4,971	5,633	4,633
J268	3,000	3,750	750	5,889	2,889	6,752	3,752
J-268	1,000	6,475	5,475	5,841	4,841	5,436	4,436
J270	3,000	3,817	817	6,252	3,252	6,653	3,653
J-270	1,000	3,282	2,282	2,994	1,994	2,868	1,868
J272	3,000	2,970	(30)	3,413	413	3,407	407
J-272	1,000	4,413	3,413	4,058	3,058	3,858	2,858
J276	3,000	3,723	723	5,482	2,482	5,749	2,749
J-276	1,000	4,815	3,815	4,469	3,469	4,286	3,286
J278	3,000	3,738	738	6,019	3,019	6,015	3,015
J28	1,000	2,637	1,637	2,338	1,338	2,212	1,212
J-28	1,000	3,091	2,091	2,893	1,893	2,784	1,784
J280	3,000	3,668	668	5,733	2,733	5,585	2,585
J-280	1,000	6,501	5,501	6,069	5,069	5,807	4,807
J282	3,000	3,965	965	6,077	3,077	6,355	3,355
J-282	1,000	5,454	4,454	5,027	4,027	4,818	3,818
J284	3,000	3,884	884	6,156	3,156	6,723	3,723
J286	3,000	3,476	476	4,493	1,493	4,684	1,684
J288	3,000	3,860	860	6,111	3,111	6,728	3,728
J-288	3,000	7,138	4,138	8,211	5,211	8,504	5,504
J290	1,000	2,143	1,143	2,060	1,060	2,009	1,009
J-290	3,000	7,975	4,975	8,766	5,766	8,717	5,717
J292	1,000	2,219	1,219	2,145	1,145	2,091	1,091
J294	1,000	4,314	3,314	3,536	2,536	3,251	2,251
J296	1,000	4,748	3,748	3,679	2,679	3,895	2,895
J298	1,000	4,629	3,629	3,577	2,577	3,720	2,720
J30	1,000	3,010	2,010	2,597	1,597	2,418	1,418
J-30	1,000	3,886	2,886	3,525	2,525	3,337	2,337
J300	1,000	4,765	3,765	3,743	2,743	4,066	3,066
J302	1,000	4,605	3,605	3,859	2,859	5,045	4,045
J-302	1,000	4,726	3,726	3,697	2,697	4,723	3,723
J304	1,000	4,580	3,580	3,809	2,809	4,956	3,956
J-304	1,500	4,575	3,075	4,077	2,577	6,273	4,773
J306	1,000	4,560	3,560	3,791	2,791	4,915	3,915

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: FIRE FLOW SCENARIOS**

Node ID	Required Fire Flow (gpm)	2019 FIRE FLOW		2030 FIRE FLOW (W/IMPROVEMENTS)		2040 FIRE FLOW (W/IMPROVEMENTS)	
		Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
J308	1,000	4,313	3,313	3,662	2,662	4,589	3,589
J310	1,000	4,634	3,634	3,946	2,946	5,417	4,417
J312	3,000	3,834	834	6,764	3,764	6,741	3,741
J314	3,000	2,892	(108)	3,286	286	5,281	2,281
J-314	3,000	5,176	2,176	5,754	2,754	7,127	4,127
J316	3,000	4,013	1,013	6,254	3,254	6,544	3,544
J318	1,000	4,647	3,647	3,633	2,633	3,348	2,348
J32	1,000	3,101	2,101	2,674	1,674	2,502	1,502
J-32	1,000	4,136	3,136	3,756	2,756	3,549	2,549
J320	1,000	4,565	3,565	3,583	2,583	3,315	2,315
J-320	3,000	5,069	2,069	6,391	3,391	7,757	4,757
J322	1,500	4,610	3,110	4,059	2,559	6,081	4,581
J-322	3,000	4,698	1,698	7,236	4,236	7,454	4,454
J324	3,000	3,514	514	3,461	461	3,380	380
J-324	3,000	4,649	1,649	6,971	3,971	7,146	4,146
J326	3,000	3,245	245	3,190	190	3,120	120
J-326	3,000	4,649	1,649	6,116	3,116	6,170	3,170
J328	3,000	3,158	158	3,103	103	3,037	37
J-328	3,000	4,639	1,639	6,900	3,900	7,066	4,066
J330	3,000	3,244	244	3,189	189	3,119	119
J-330	3,000	4,610	1,610	6,748	3,748	6,894	3,894
J332	3,000	3,548	548	3,496	496	3,413	413
J334	3,000	4,342	1,342	4,305	1,305	4,210	1,210
J-334	3,000	4,315	1,315	5,071	2,071	5,055	2,055
J336	1,000	4,144	3,144	3,280	2,280	3,038	2,038
J-336	3,000	4,278	1,278	5,020	2,020	5,001	2,001
J338	1,000	3,880	2,880	2,846	1,846	2,906	1,906
J34	1,000	3,411	2,411	2,872	1,872	2,685	1,685
J-34	1,000	3,641	2,641	3,347	2,347	3,203	2,203
J340	1,000	3,712	2,712	2,797	1,797	2,837	1,837
J342	1,000	3,836	2,836	2,816	1,816	2,863	1,863
J-342	3,000	3,659	659	3,838	838	3,812	812
J344	1,000	3,468	2,468	2,787	1,787	2,838	1,838
J-344	3,000	3,659	659	3,864	864	3,840	840
J346	1,000	3,739	2,739	2,741	1,741	2,765	1,765
J-346	3,000	3,490	490	4,141	1,141	4,134	1,134
J348	1,000	3,872	2,872	2,844	1,844	2,905	1,905
J-348	3,000	3,551	551	4,292	1,292	4,294	1,294
J350	1,000	3,822	2,822	2,828	1,828	2,881	1,881
J-350	3,000	3,426	426	3,992	992	3,940	940
J352	1,000	3,682	2,682	2,793	1,793	2,831	1,831
J-352	3,000	3,391	391	3,875	875	3,828	828
J-354	3,000	3,796	796	4,970	1,970	5,020	2,020
J-356	3,000	4,462	1,462	6,991	3,991	7,086	4,086
J-358	3,000	4,348	1,348	6,925	3,925	7,062	4,062
J36	1,000	3,672	2,672	3,038	2,038	2,827	1,827
J-36	1,000	3,830	2,830	3,472	2,472	3,302	2,302

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: FIRE FLOW SCENARIOS**

Node ID	Required Fire Flow (gpm)	2019 FIRE FLOW		2030 FIRE FLOW (W/IMPROVEMENTS)		2040 FIRE FLOW (W/IMPROVEMENTS)	
		Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
J-360	3,000	4,299	1,299	6,695	3,695	6,818	3,818
J362	1,000	2,333	1,333	2,130	1,130	2,102	1,102
J-362	3,000	4,255	1,255	6,627	3,627	6,763	3,763
J-364	3,000	4,227	1,227	6,555	3,555	6,691	3,691
J-366	3,000	4,269	1,269	6,871	3,871	7,063	4,063
J-368	3,000	3,777	777	4,794	1,794	4,814	1,814
J370	1,000	2,080	1,080	1,880	880	1,801	801
J-370	3,000	4,015	1,015	5,726	2,726	5,861	2,861
J-372	3,000	3,578	578	4,230	1,230	4,214	1,214
J374	1,000	4,520	3,520	4,145	3,145	3,826	2,826
J-374	3,000	3,905	905	4,961	1,961	4,983	1,983
J376	1,000	3,385	2,385	2,971	1,971	2,816	1,816
J378	1,000	3,851	2,851	3,036	2,036	3,245	2,245
J-378	3,000	4,214	1,214	7,031	4,031	7,406	4,406
J38	1,000	3,785	2,785	3,152	2,152	2,903	1,903
J-38	1,000	3,375	2,375	3,129	2,129	2,981	1,981
J380	1,000	4,802	3,802	3,756	2,756	4,743	3,743
J-380	3,000	4,227	1,227	7,178	4,178	7,500	4,500
J382	1,000	4,948	3,948	3,945	2,945	5,149	4,149
J384	1,000	4,641	3,641	3,928	2,928	5,251	4,251
J-384	3,000	4,163	1,163	7,330	4,330	7,383	4,383
J386	1,000	4,022	3,022	3,326	2,326	3,886	2,886
J-386	3,000	4,165	1,165	6,000	3,000	6,843	3,843
J388	1,000	3,837	2,837	3,242	2,242	3,289	2,289
J-388	3,000	4,128	1,128	5,812	2,812	6,661	3,661
J390	1,000	2,330	1,330	2,129	1,129	2,102	1,102
J-390	3,000	4,045	1,045	5,497	2,497	6,409	3,409
J392	1,000	3,697	2,697	3,026	2,026	2,847	1,847
J-392	3,000	4,101	1,101	7,216	4,216	7,220	4,220
J394	1,000	3,627	2,627	2,979	1,979	2,767	1,767
J396	1,000	2,419	1,419	2,105	1,105	1,960	960
J-396	3,000	3,727	727	4,471	1,471	4,462	1,462
J-398	1,000	1,628	628	1,544	544	1,531	531
J40	1,000	3,905	2,905	3,225	2,225	2,962	1,962
J-40	1,000	3,852	2,852	3,496	2,496	3,325	2,325
J-400	3,000	4,103	1,103	6,599	3,599	6,873	3,873
J402	1,000	3,625	2,625	2,934	1,934	3,084	2,084
J-402	1,000	4,270	3,270	3,258	2,258	3,704	2,704
J404	1,000	3,289	2,289	2,558	1,558	2,617	1,617
J-404	1,000	4,058	3,058	3,189	2,189	3,491	2,491
J406	1,000	2,775	1,775	2,187	1,187	2,210	1,210
J-406	1,000	3,942	2,942	3,119	2,119	3,380	2,380
J408	1,000	3,095	2,095	2,546	1,546	2,742	1,742
J-408	1,000	4,071	3,071	3,172	2,172	3,471	2,471
J410	1,000	4,324	3,324	3,658	2,658	4,394	3,394
J-410	1,000	3,596	2,596	2,833	1,833	2,992	1,992
J412	1,000	4,342	3,342	3,648	2,648	4,429	3,429

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: FIRE FLOW SCENARIOS**

Node ID	Required Fire Flow (gpm)	2019 FIRE FLOW		2030 FIRE FLOW (W/IMPROVEMENTS)		2040 FIRE FLOW (W/IMPROVEMENTS)	
		Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
J-412	1,000	4,085	3,085	3,106	2,106	3,451	2,451
J414	1,000	4,324	3,324	3,658	2,658	4,394	3,394
J-414	1,000	3,810	2,810	2,887	1,887	3,127	2,127
J416	1,000	4,342	3,342	3,648	2,648	4,429	3,429
J-416	1,000	2,865	1,865	2,219	1,219	2,249	1,249
J418	1,000	4,261	3,261	3,567	2,567	4,284	3,284
J-418	1,000	4,180	3,180	3,248	2,248	3,536	2,536
J42	1,000	3,690	2,690	3,033	2,033	2,818	1,818
J-42	1,000	1,654	654	1,583	583	1,542	542
J420	1,000	4,099	3,099	3,411	2,411	4,016	3,016
J-420	1,000	4,210	3,210	3,231	2,231	3,592	2,592
J422	1,000	4,281	3,281	3,587	2,587	4,320	3,320
J-422	1,000	3,960	2,960	3,063	2,063	3,310	2,310
J424	1,000	4,047	3,047	3,419	2,419	3,927	2,927
J-424	1,000	3,722	2,722	2,869	1,869	3,039	2,039
J426	1,000	3,899	2,899	3,245	2,245	5,562	4,562
J-426	1,000	3,984	2,984	3,061	2,061	3,307	2,307
J428	1,000	3,778	2,778	3,160	2,160	5,448	4,448
J-428	1,000	4,088	3,088	3,172	2,172	3,422	2,422
J430	1,000	3,477	2,477	3,050	2,050	3,849	2,849
J-430	1,000	4,279	3,279	3,304	2,304	3,622	2,622
J432	1,000	3,688	2,688	3,160	2,160	4,253	3,253
J-432	1,000	4,379	3,379	3,309	2,309	3,628	2,628
J434	1,000	3,778	2,778	3,160	2,160	4,873	3,873
J-434	1,000	4,106	3,106	3,269	2,269	3,499	2,499
J436	1,000	3,562	2,562	2,947	1,947	4,393	3,393
J-436	1,000	4,287	3,287	3,217	2,217	3,477	2,477
J438	1,000	3,438	2,438	2,821	1,821	3,996	2,996
J-438	1,000	4,221	3,221	3,196	2,196	3,418	2,418
J44	1,000	3,565	2,565	2,958	1,958	2,754	1,754
J-44	1,000	2,702	1,702	2,515	1,515	2,409	1,409
J440	1,000	2,964	1,964	2,429	1,429	3,099	2,099
J-440	1,000	4,135	3,135	3,116	2,116	3,300	2,300
J442	1,000	2,849	1,849	2,345	1,345	2,919	1,919
J-442	1,000	3,820	2,820	2,857	1,857	2,933	1,933
J444	1,000	2,675	1,675	2,256	1,256	2,692	1,692
J-444	1,000	4,257	3,257	3,206	2,206	3,452	2,452
J446	1,000	2,719	1,719	2,244	1,244	2,753	1,753
J448	1,000	2,578	1,578	2,140	1,140	2,572	1,572
J450	1,000	3,574	2,574	2,948	1,948	4,541	3,541
J452	1,000	3,320	2,320	2,736	1,736	3,866	2,866
J454	1,000	3,647	2,647	3,015	2,015	4,715	3,715
J456	1,000	3,623	2,623	3,006	2,006	5,102	4,102
J458	1,000	3,572	2,572	2,958	1,958	4,932	3,932
J46	1,000	4,054	3,054	3,292	2,292	3,052	2,052
J-46	1,000	2,911	1,911	2,707	1,707	2,596	1,596
J460	1,000	3,632	2,632	3,016	2,016	5,217	4,217

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: FIRE FLOW SCENARIOS**

Node ID	Required Fire Flow (gpm)	2019 FIRE FLOW		2030 FIRE FLOW (W/IMPROVEMENTS)		2040 FIRE FLOW (W/IMPROVEMENTS)	
		Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
J462	1,000	3,505	2,505	2,868	1,868	5,123	4,123
J464	1,000	3,384	2,384	2,763	1,763	4,945	3,945
J466	1,500	4,575	3,075	4,077	2,577	6,374	4,874
J468	1,000	2,604	1,604	3,438	2,438	5,052	4,052
J470	1,000	2,603	1,603	3,473	2,473	5,548	4,548
J472	1,000	2,612	1,612	3,209	2,209	3,945	2,945
J474	1,000	2,642	1,642	3,411	2,411	4,439	3,439
J476	1,000	2,678	1,678	3,708	2,708	5,866	4,866
J478	1,000	2,734	1,734	3,841	2,841	5,702	4,702
J48	1,000	4,119	3,119	3,414	2,414	3,224	2,224
J-48	1,500	2,313	813	2,215	715	2,163	663
J480	1,000	2,645	1,645	3,405	2,405	4,222	3,222
J482	1,000	2,607	1,607	3,308	2,308	4,033	3,033
J484	1,000	2,047	1,047	2,178	1,178	2,299	1,299
J-484	1,000	4,743	3,743	3,730	2,730	3,483	2,483
J486	1,000	2,047	1,047	2,178	1,178	2,299	1,299
J-486	1,000	4,760	3,760	3,807	2,807	3,819	2,819
J488	1,000	2,047	1,047	2,178	1,178	2,299	1,299
J-488	1,000	1,620	620	1,537	537	1,505	505
J490	1,000	2,047	1,047	2,178	1,178	2,299	1,299
J-490	1,500	4,535	3,035	5,755	4,255	6,414	4,914
J492	1,000	2,047	1,047	2,160	1,160	2,253	1,253
J494	1,000	2,945	1,945	4,796	3,796	7,016	6,016
J-494	1,000	2,800	1,800	4,147	3,147	6,405	5,405
J496	1,000	2,854	1,854	5,760	4,760	6,201	5,201
J-496	1,000	3,085	2,085	5,216	4,216	6,733	5,733
J498	1,000	2,983	1,983	5,508	4,508	6,664	5,664
J-498	3,000	3,854	854	6,065	3,065	6,649	3,649
J50	1,000	2,806	1,806	2,441	1,441	2,312	1,312
J-50	1,000	4,221	3,221	3,838	2,838	3,623	2,623
J500	1,000	2,996	1,996	5,273	4,273	6,560	5,560
J-500	3,000	4,007	1,007	5,924	2,924	6,186	3,186
J502	1,000	2,997	1,997	5,213	4,213	6,543	5,543
J504	1,000	2,983	1,983	5,077	4,077	6,319	5,319
J506	1,000	3,039	2,039	4,831	3,831	5,717	4,717
J508	1,000	2,976	1,976	4,635	3,635	5,379	4,379
J510	1,000	3,032	2,032	4,962	3,962	5,855	4,855
J512	1,000	2,670	1,670	5,978	4,978	6,139	5,139
J514	1,000	2,813	1,813	6,558	5,558	7,162	6,162
J516	1,500	2,672	1,172	5,980	4,480	6,160	4,660
J518	1,000	2,233	1,233	2,441	1,441	2,472	1,472
J-518	1,000	3,909	2,909	2,947	1,947	3,252	2,252
J52	1,000	2,292	1,292	2,012	1,012	1,912	912
J-52	1,000	1,601	601	1,534	534	1,498	498
J520	1,000	2,731	1,731	3,515	2,515	3,740	2,740
J522	1,000	2,344	1,344	2,613	1,613	2,657	1,657
J-522	1,000	3,566	2,566	2,923	1,923	5,039	4,039

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: FIRE FLOW SCENARIOS**

Node ID	Required Fire Flow (gpm)	2019 FIRE FLOW		2030 FIRE FLOW (W/IMPROVEMENTS)		2040 FIRE FLOW (W/IMPROVEMENTS)	
		Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
J524	1,000	3,135	2,135	5,302	4,302	6,835	5,835
J526	3,000	4,274	1,274	6,718	3,718	6,865	3,865
J528	3,000	4,227	1,227	5,794	2,794	5,881	2,881
J530	3,000	4,275	1,275	6,529	3,529	6,639	3,639
J-530	3,000	3,897	897	4,962	1,962	6,113	3,113
J532	3,000	4,278	1,278	6,905	3,905	7,102	4,102
J534	3,000	4,270	1,270	6,963	3,963	7,172	4,172
J-534	1,000	3,815	2,815	3,382	2,382	3,164	2,164
J536	3,000	4,348	1,348	6,925	3,925	7,041	4,041
J538	3,000	3,928	928	5,566	2,566	5,760	2,760
J54	1,000	2,539	1,539	2,227	1,227	2,120	1,120
J-54	1,000	1,722	722	1,648	648	1,609	609
J540	3,000	4,205	1,205	5,763	2,763	6,088	3,088
J542	3,000	4,000	1,000	5,162	2,162	5,487	2,487
J544	3,000	3,907	907	4,889	1,889	5,147	2,147
J-544	1,000	4,874	3,874	3,805	2,805	4,561	3,561
J546	3,000	3,923	923	6,953	3,953	6,930	3,930
J548	3,000	3,922	922	6,946	3,946	6,925	3,925
J-548	1,000	5,637	4,637	4,848	3,848	4,495	3,495
J550	3,000	3,923	923	6,953	3,953	6,930	3,930
J552	3,000	3,129	129	3,757	757	5,405	2,405
J554	3,000	3,322	322	4,228	1,228	5,614	2,614
J556	3,000	3,075	75	3,686	686	4,758	1,758
J558	3,000	3,177	177	3,860	860	4,955	1,955
J-56	1,000	4,485	3,485	4,099	3,099	3,864	2,864
J560	3,000	3,068	68	3,681	681	4,661	1,661
J-560	1,000	2,983	1,983	2,765	1,765	2,645	1,645
J562	3,000	3,133	133	3,718	718	4,595	1,595
J564	3,000	3,062	62	3,644	644	4,418	1,418
J-564	1,000	3,761	2,761	3,329	2,329	3,120	2,120
J566	3,000	2,992	(8)	3,463	463	4,214	1,214
J-566	1,000	2,976	1,976	2,771	1,771	2,847	1,847
J568	3,000	2,950	(50)	3,354	354	4,044	1,044
J570	3,000	2,935	(65)	3,317	317	3,977	977
J572	3,000	2,995	(5)	3,439	439	4,151	1,151
J574	3,000	3,004	4	3,497	497	4,295	1,295
J-58	1,000	4,838	3,838	4,433	3,433	4,172	3,172
J582	1,000	4,813	3,813	4,451	3,451	4,231	3,231
J584	1,000	4,237	3,237	3,813	2,813	3,605	2,605
J586	1,000	3,945	2,945	3,557	2,557	3,365	2,365
J588	1,000	3,727	2,727	3,401	2,401	3,199	2,199
J590	1,000	3,459	2,459	3,137	2,137	2,953	1,953
J592	1,000	3,526	2,526	3,225	2,225	3,053	2,053
J594	1,000	3,769	2,769	3,498	2,498	3,365	2,365
J596	1,000	3,903	2,903	4,541	3,541	5,308	4,308
J598	1,000	3,454	2,454	3,842	2,842	4,207	3,207
J60	1,000	4,057	3,057	3,321	2,321	3,095	2,095

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: FIRE FLOW SCENARIOS**

Node ID	Required Fire Flow (gpm)	2019 FIRE FLOW		2030 FIRE FLOW (W/IMPROVEMENTS)		2040 FIRE FLOW (W/IMPROVEMENTS)	
		Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
J-60	1,000	2,714	1,714	2,555	1,555	2,479	1,479
J600	1,000	3,028	2,028	3,259	2,259	3,452	2,452
J602	1,000	3,367	2,367	3,690	2,690	3,981	2,981
J604	1,000	3,402	2,402	3,754	2,754	4,083	3,083
J606	1,000	3,176	2,176	3,454	2,454	3,695	2,695
J608	1,000	3,077	2,077	3,304	2,304	3,491	2,491
J610	1,000	2,978	1,978	3,177	2,177	3,338	2,338
J612	1,000	3,017	2,017	3,227	2,227	3,398	2,398
J614	1,000	3,036	2,036	3,251	2,251	3,426	2,426
J616	1,000	3,012	2,012	3,186	2,186	3,320	2,320
J618	1,000	3,020	2,020	3,231	2,231	3,403	2,403
J62	1,000	4,045	3,045	3,315	2,315	3,090	2,090
J-62	1,000	5,357	4,357	4,750	3,750	4,280	3,280
J620	1,000	2,829	1,829	2,958	1,958	3,055	2,055
J622	1,000	2,959	1,959	3,119	2,119	3,242	2,242
J624	1,000	3,462	2,462	3,840	2,840	4,214	3,214
J626	1,000	3,169	2,169	3,393	2,393	3,588	2,588
J628	1,000	3,841	2,841	4,433	3,433	5,212	4,212
J630	3,000	5,730	2,730	6,919	3,919	7,307	4,307
J632	1,000	4,189	3,189	4,399	3,399	4,365	3,365
J634	1,000	3,599	2,599	3,696	2,696	3,657	2,657
J636	1,000	3,551	2,551	3,644	2,644	3,604	2,604
J638	1,000	4,415	3,415	3,511	2,511	3,216	2,216
J64	1,000	4,054	3,054	3,320	2,320	3,094	2,094
J-64	1,500	5,223	3,723	4,771	3,271	4,316	2,816
J640	1,000	3,623	2,623	2,905	1,905	2,696	1,696
J642	1,000	2,868	1,868	2,398	1,398	2,231	1,231
J644	1,000	4,496	3,496	3,568	2,568	3,265	2,265
J646	1,000	4,535	3,535	3,597	2,597	3,292	2,292
J648	1,000	4,532	3,532	3,595	2,595	3,291	2,291
J650	1,000	3,246	2,246	2,681	1,681	2,502	1,502
J652	1,000	4,562	3,562	3,617	2,617	3,310	2,310
J654	1,000	4,542	3,542	3,604	2,604	3,299	2,299
J656	1,000	4,123	3,123	3,426	2,426	3,184	2,184
J658	1,000	4,015	3,015	3,311	2,311	3,109	2,109
J-66	1,500	5,261	3,761	4,780	3,280	4,315	2,815
J660	1,000	3,392	2,392	2,844	1,844	2,647	1,647
J662	1,000	4,515	3,515	3,689	2,689	3,389	2,389
J664	1,000	4,102	3,102	3,411	2,411	3,167	2,167
J666	1,000	4,316	3,316	3,574	2,574	3,315	2,315
J668	1,000	3,203	2,203	2,767	1,767	2,610	1,610
J670	1,000	3,456	2,456	2,843	1,843	2,659	1,659
J672	1,000	3,672	2,672	3,002	2,002	2,806	1,806
J674	1,000	2,713	1,713	2,288	1,288	2,133	1,133
J676	1,000	3,048	2,048	2,665	1,665	2,530	1,530
J678	1,000	3,367	2,367	2,818	1,818	2,825	1,825
J68	1,000	2,080	1,080	1,880	880	1,801	801

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: FIRE FLOW SCENARIOS**

Node ID	Required Fire Flow (gpm)	2019 FIRE FLOW		2030 FIRE FLOW (W/IMPROVEMENTS)		2040 FIRE FLOW (W/IMPROVEMENTS)	
		Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
J680	1,000	6,919	5,919	5,706	4,706	5,193	4,193
J682	1,000	5,671	4,671	4,730	3,730	4,263	3,263
J684	1,000	3,526	2,526	2,892	1,892	2,722	1,722
J686	1,000	3,405	2,405	2,802	1,802	2,637	1,637
J688	1,000	3,405	2,405	2,802	1,802	2,637	1,637
J690	1,000	3,079	2,079	2,559	1,559	2,392	1,392
J692	1,000	2,885	1,885	2,424	1,424	2,273	1,273
J694	1,000	3,221	2,221	2,639	1,639	2,455	1,455
J696	1,000	2,626	1,626	2,258	1,258	2,136	1,136
J70	1,000	3,542	2,542	2,944	1,944	2,762	1,762
J-70	1,000	1,817	817	1,733	733	1,691	691
J72	1,000	4,097	3,097	3,246	2,246	2,997	1,997
J-72	1,500	2,411	911	2,733	1,233	2,645	1,145
J722	1,000	3,910	2,910	3,050	2,050	3,294	2,294
J724	1,000	3,919	2,919	3,056	2,056	3,303	2,303
J726	1,000	3,405	2,405	2,834	1,834	2,926	1,926
J728	1,000	3,981	2,981	3,119	2,119	3,393	2,393
J730	1,000	3,943	2,943	3,097	2,097	3,361	2,361
J732	1,000	3,912	2,912	3,084	2,084	3,343	2,343
J734	1,000	3,906	2,906	3,074	2,074	3,328	2,328
J736	1,000	3,912	2,912	3,078	2,078	3,333	2,333
J738	1,000	3,912	2,912	3,078	2,078	3,333	2,333
J74	1,000	4,305	3,305	3,385	2,385	3,119	2,119
J-74	1,500	2,923	1,423	2,733	1,233	2,645	1,145
J740	1,000	3,777	2,777	2,952	1,952	3,157	2,157
J742	1,000	4,107	3,107	3,381	2,381	4,187	3,187
J744	1,000	3,259	2,259	2,732	1,732	2,523	1,523
J746	1,000	1,749	749	1,581	581	1,482	482
J748	1,000	1,749	749	1,581	581	1,482	482
J750	1,000	1,749	749	1,581	581	1,482	482
J752	1,000	1,749	749	1,581	581	1,482	482
J754	1,000	1,712	712	1,554	554	1,461	461
J756	1,000	1,749	749	1,581	581	1,482	482
J758	1,000	1,749	749	1,581	581	1,482	482
J76	1,000	3,761	2,761	3,040	2,040	2,855	1,855
J-76	1,500	1,956	456	2,676	1,176	2,613	1,113
J760	1,000	1,681	681	1,552	552	1,473	473
J778	1,000	2,580	1,580	2,395	1,395	2,315	1,315
J78	1,000	4,069	3,069	3,234	2,234	2,974	1,974
J-78	1,500	1,673	173	2,041	541	1,986	486
J784	1,500	2,220	720	2,098	598	2,036	536
J786	1,500	1,903	403	1,822	322	1,757	257
J790	1,000	1,887	887	1,757	757	1,713	713
J794	1,000	1,762	762	1,598	598	1,526	526
J80	1,000	3,590	2,590	2,924	1,924	2,745	1,745
J-80	1,000	4,598	3,598	4,252	3,252	4,038	3,038
J800	1,000	2,700	1,700	2,282	1,282	2,137	1,137

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: FIRE FLOW SCENARIOS**

Node ID	Required Fire Flow (gpm)	2019 FIRE FLOW		2030 FIRE FLOW (W/IMPROVEMENTS)		2040 FIRE FLOW (W/IMPROVEMENTS)	
		Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
J806	1,000	1,869	869	1,755	755	1,704	704
J814	1,000	2,162	1,162	2,030	1,030	1,966	966
J818	3,000	5,461	2,461	4,825	1,825	4,343	1,343
J82	1,000	4,159	3,159	3,298	2,298	3,036	2,036
J-82	1,000	4,617	3,617	4,330	3,330	4,110	3,110
J834	1,000	4,099	3,099	3,231	2,231	3,488	2,488
J84	1,000	4,065	3,065	3,254	2,254	3,011	2,011
J-84	1,000	5,562	4,562	4,740	3,740	4,271	3,271
J842	1,000	3,978	2,978	3,118	2,118	3,391	2,391
J848	1,000	2,790	1,790	2,633	1,633	2,536	1,536
J856	1,000	4,638	3,638	3,601	2,601	3,679	2,679
J86	1,000	4,115	3,115	3,325	2,325	3,093	2,093
J-86	1,000	1,850	850	4,425	3,425	4,205	3,205
J860	1,000	4,744	3,744	3,718	2,718	3,774	2,774
J862	1,000	4,607	3,607	3,557	2,557	3,662	2,662
J874	1,000	2,265	1,265	2,076	1,076	2,043	1,043
J88	1,000	3,350	2,350	2,770	1,770	2,589	1,589
J-88	1,000	2,189	1,189	4,167	3,167	3,973	2,973
J880	1,000	4,844	3,844	3,789	2,789	4,624	3,624
J892	1,000	2,628	1,628	3,548	2,548	5,608	4,608
J896	3,000	3,129	129	3,695	695	4,456	1,456
J90	1,000	4,175	3,175	3,295	2,295	3,040	2,040
J-90	1,500	3,895	2,395	3,581	2,081	3,392	1,892
J902	1,000	3,920	2,920	3,303	2,303	3,165	2,165
J908	3,000	4,653	1,653	7,566	4,566	7,755	4,755
J910	1,000	2,726	1,726	6,304	5,304	6,968	5,968
J916	3,000	4,263	1,263	5,228	2,228	5,967	2,967
J92	1,000	3,199	2,199	2,565	1,565	2,364	1,364
J-92	1,500	4,009	2,509	3,683	2,183	3,486	1,986
J920	1,000	#N/A	#N/A	#N/A	#N/A	4,452	3,452
J922	1,000	#N/A	#N/A	#N/A	#N/A	4,467	3,467
J924	3,000	#N/A	#N/A	#N/A	#N/A	6,939	3,939
J926	1,000	#N/A	#N/A	#N/A	#N/A	6,213	5,213
J928	3,000	#N/A	#N/A	#N/A	#N/A	5,719	2,719
J930	1,500	#N/A	#N/A	#N/A	#N/A	3,891	2,391
J932	1,000	#N/A	#N/A	#N/A	#N/A	5,851	4,851
J934	1,500	#N/A	#N/A	#N/A	#N/A	5,122	3,622
J936	3,000	#N/A	#N/A	#N/A	#N/A	4,983	1,983
J94	1,000	3,318	2,318	2,649	1,649	2,465	1,465
J-94	1,500	2,191	691	2,085	585	2,022	522
J940	3,000	#N/A	#N/A	#N/A	#N/A	5,048	2,048
J942	3,000	#N/A	#N/A	#N/A	#N/A	3,144	144
J96	1,000	2,645	1,645	2,222	1,222	2,081	1,081
J-96	1,500	4,345	2,845	4,037	2,537	3,810	2,310
J960	3,000	#N/A	#N/A	6,720	3,720	6,700	3,700
J962	3,000	#N/A	#N/A	#N/A	#N/A	3,825	825
J966	3,000	#N/A	#N/A	7,287	4,287	7,440	4,440

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: FIRE FLOW SCENARIOS**

Node ID	Required Fire Flow (gpm)	2019 FIRE FLOW		2030 FIRE FLOW (W/IMPROVEMENTS)		2040 FIRE FLOW (W/IMPROVEMENTS)	
		Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)	Available Fire Flow (gpm)	Surplus/ (Deficit) (gpm)
J968	1,000	#N/A	#N/A	#N/A	#N/A	3,028	2,028
J970	1,000	#N/A	#N/A	#N/A	#N/A	2,957	1,957
J972	1,000	#N/A	#N/A	#N/A	#N/A	2,078	1,078
J974	1,000	#N/A	#N/A	#N/A	#N/A	3,164	2,164
J98	1,000	4,211	3,211	3,409	2,409	3,170	2,170
J-98	1,500	2,713	1,213	2,550	1,050	2,480	980

CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J-10	30	79	49	77	47	81	51
J100	30	64	34	52	22	60	30
J-100	30	75	45	74	44	75	45
J102	30	61	31	48	18	57	27
J-102	30	74	44	72	42	74	44
J104	30	61	31	48	18	57	27
J-104	30	74	44	72	42	74	44
J106	30	61	31	49	19	58	28
J-106	30	75	45	74	44	75	45
J108	30	55	25	43	13	52	22
J-108	30	72	42	70	40	72	42
J110	30	58	28	45	15	55	25
J-110	30	69	39	67	37	69	39
J112	30	79	49	66	36	80	50
J-112	30	73	43	71	41	73	43
J114	30	91	61	72	42	78	48
J-114	30	69	39	67	37	69	39
J116	30	92	62	73	43	79	49
J-116	30	64	34	62	32	64	34
J118	30	77	47	58	28	64	34
J-118	30	65	35	63	33	65	35
J12	30	84	54	67	37	67	37
J-12	30	84	54	83	53	86	56
J120	30	91	61	72	42	78	48
J-120	30	67	37	65	35	67	37
J122	30	76	46	57	27	63	33
J-122	30	68	38	66	36	68	38
J124	30	73	43	54	24	60	30
J-124	30	65	35	64	34	66	36
J126	30	74	44	54	24	60	30
J-126	30	75	45	73	43	75	45
J128	30	73	43	54	24	60	30
J-128	30	76	46	74	44	77	47
J130	30	72	42	53	23	59	29
J-130	30	76	46	74	44	76	46
J132	30	67	37	48	18	54	24
J-132	30	67	37	65	35	67	37
J134	30	73	43	54	24	60	30
J-134	30	79	49	77	47	80	50
J136	30	64	34	45	15	51	21
J-136	30	78	48	76	46	79	49
J138	30	74	44	55	25	61	31
J-138	30	73	43	71	41	73	43
J-14	30	92	62	90	60	93	63
J140	30	74	44	55	25	61	31
J142	30	68	38	49	19	55	25
J144	30	75	45	56	26	62	32

CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J-144	30	61	31	59	29	60	30
J146	30	72	42	53	23	59	29
J-146	30	58	28	56	26	58	28
J148	30	85	55	66	36	72	42
J-148	30	57	27	56	26	57	27
J150	30	71	41	52	22	58	28
J-150	30	56	26	54	24	56	26
J152	30	73	43	54	24	60	30
J-152	30	62	32	60	30	62	32
J154	30	72	42	53	23	59	29
J-154	30	61	31	59	29	61	31
J156	30	70	40	51	21	57	27
J-156	30	56	26	54	24	56	26
J158	30	69	39	50	20	56	26
J-158	30	55	25	53	23	55	25
J-16	30	77	47	75	45	78	48
J160	30	69	39	50	20	56	26
J-160	30	55	25	53	23	55	25
J162	30	68	38	49	19	55	25
J-162	30	52	22	50	20	52	22
J164	30	64	34	45	15	51	21
J-164	30	54	24	52	22	53	23
J166	30	71	41	52	22	58	28
J-166	30	54	24	52	22	53	23
J168	30	73	43	54	24	60	30
J-168	30	56	26	54	24	56	26
J170	30	70	40	51	21	57	27
J-170	30	49	19	48	18	49	19
J172	30	72	42	53	23	59	29
J-172	30	41	11	40	10	41	11
J174	30	72	42	53	23	59	29
J-174	30	41	11	39	9	40	10
J176	30	72	42	53	23	59	29
J178	30	69	39	50	20	56	26
J18	30	77	47	65	35	71	41
J180	30	67	37	48	18	54	24
J-180	30	50	20	49	19	50	20
J182	30	69	39	50	20	56	26
J-182	30	50	20	49	19	50	20
J184	30	72	42	53	23	59	29
J186	30	71	41	52	22	58	28
J188	30	70	40	51	21	57	27
J190	30	76	46	56	26	62	32
J-190	30	50	20	49	19	50	20
J192	30	64	34	45	15	51	21
J-192	30	63	33	62	32	64	34
J194	30	66	36	47	17	53	23

CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J-194	33	94	61	92	59	94	61
J196	30	70	40	51	21	57	27
J198	30	69	39	50	20	56	26
J20	30	76	46	65	35	71	41
J-20	30	80	50	78	48	82	52
J200	30	69	39	50	20	56	26
J202	30	73	43	54	24	60	30
J204	30	66	36	46	16	52	22
J-204	30	68	38	68	38	69	39
J206	30	76	46	56	26	62	32
J-206	30	53	23	52	22	53	23
J208	30	78	48	58	28	64	34
J-208	30	52	22	51	21	53	23
J210	30	68	38	49	19	55	25
J-210	30	51	21	50	20	51	21
J212	30	75	45	56	26	61	31
J-212	30	50	20	49	19	50	20
J214	30	78	48	59	29	65	35
J-214	30	63	33	62	32	63	33
J216	30	83	53	64	34	69	39
J-216	30	59	29	58	28	59	29
J218	30	86	56	67	37	73	43
J22	30	78	48	67	37	73	43
J-22	30	90	60	88	58	92	62
J220	30	83	53	64	34	70	40
J-220	48	144	96	127	79	135	87
J222	30	85	55	66	36	72	42
J224	30	74	44	54	24	60	30
J-224	49	145	96	128	79	135	86
J226	30	69	39	50	20	56	26
J-226	51	147	96	130	79	137	86
J228	30	70	40	51	21	57	27
J-228	30	58	28	58	28	58	28
J230	30	86	56	67	37	73	43
J-230	30	85	55	69	39	76	46
J232	30	83	53	63	33	69	39
J234	30	83	53	64	34	70	40
J-234	30	63	33	47	17	54	24
J236	30	81	51	62	32	67	37
J238	30	76	46	56	26	62	32
J-238	30	65	35	49	19	56	26
J24	30	72	42	61	31	67	37
J-24	30	90	60	88	58	92	62
J240	30	76	46	57	27	63	33
J-240	30	65	35	49	19	56	26
J242	30	74	44	74	44	74	44
J244	30	54	24	54	24	54	24

CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J246	30	72	42	57	27	64	34
J248	30	61	31	45	15	52	22
J250	30	59	29	43	13	51	21
J-250	30	62	32	47	17	54	24
J252	30	67	37	51	21	59	29
J-252	30	71	41	55	25	63	33
J254	30	61	31	46	16	53	23
J256	30	64	34	49	19	56	26
J-256	30	57	27	45	15	52	22
J258	30	67	37	51	21	59	29
J-258	30	59	29	47	17	54	24
J26	30	72	42	60	30	66	36
J-26	30	84	54	82	52	85	55
J260	30	78	48	62	32	70	40
J-260	30	56	26	47	17	52	22
J-262	30	57	27	49	19	53	23
J264	30	75	45	58	28	58	28
J-264	30	58	28	51	21	54	24
J266	30	74	44	56	26	56	26
J-266	30	59	29	54	24	56	26
J268	30	76	46	59	29	59	29
J-268	30	57	27	53	23	54	24
J270	30	71	41	54	24	54	24
J-270	30	68	38	62	32	65	35
J272	30	72	42	55	25	55	25
J-272	30	58	28	53	23	55	25
J274	30	77	47	59	29	59	29
J276	30	74	44	56	26	56	26
J-276	30	60	30	58	28	58	28
J278	30	82	52	65	35	65	35
J28	30	80	50	69	39	75	45
J-28	30	89	59	87	57	90	60
J280	30	69	39	52	22	52	22
J-280	30	57	27	54	24	55	25
J282	30	72	42	54	24	53	23
J-282	30	55	25	52	22	53	23
J284	30	76	46	58	28	57	27
J286	30	72	42	54	24	53	23
J288	30	74	44	57	27	55	25
J-288	30	57	27	55	25	54	24
J290	30	73	43	69	39	70	40
J-290	30	60	30	58	28	57	27
J292	30	67	37	64	34	65	35
J294	30	63	33	52	22	58	28
J296	30	70	40	54	24	61	31
J298	30	59	29	43	13	50	20
J30	30	71	41	59	29	66	36

CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J-30	30	89	59	87	57	90	60
J300	30	72	42	56	26	64	34
J302	30	69	39	50	20	56	26
J-302	45	131	86	114	69	122	77
J304	30	68	38	49	19	55	25
J-304	30	73	43	54	24	60	30
J306	30	68	38	49	19	55	25
J308	30	69	39	50	20	55	25
J310	30	69	39	50	20	56	26
J312	30	71	41	54	24	54	24
J314	30	70	40	53	23	53	23
J-314	30	80	50	62	32	65	35
J316	30	74	44	57	27	56	26
J318	30	57	27	44	14	52	22
J32	30	68	38	57	27	63	33
J-32	30	89	59	87	57	91	61
J320	30	56	26	44	14	51	21
J-320	30	86	56	69	39	71	41
J322	30	83	53	63	33	69	39
J-322	30	78	48	60	30	61	31
J324	30	56	26	54	24	54	24
J-324	30	77	47	60	30	60	30
J326	30	55	25	53	23	53	23
J-326	30	82	52	65	35	65	35
J328	30	55	25	53	23	53	23
J-328	30	76	46	59	29	59	29
J330	30	55	25	53	23	53	23
J-330	30	75	45	58	28	58	28
J332	30	56	26	54	24	54	24
J334	30	56	26	54	24	54	24
J-334	30	84	54	67	37	67	37
J336	30	64	34	51	21	60	30
J-336	30	85	55	68	38	68	38
J338	30	81	51	62	32	71	41
J-338	30	79	49	62	32	62	32
J34	30	64	34	52	22	59	29
J-34	30	87	57	86	56	89	59
J340	30	70	40	52	22	60	30
J342	30	73	43	55	25	63	33
J-342	30	75	45	58	28	58	28
J344	30	79	49	61	31	69	39
J-344	30	73	43	55	25	56	26
J346	30	62	32	44	14	52	22
J-346	30	72	42	55	25	55	25
J348	30	69	39	51	21	59	29
J-348	30	72	42	55	25	54	24
J350	30	70	40	52	22	60	30

CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J-350	30	73	43	55	25	55	25
J352	30	69	39	51	21	59	29
J-352	30	76	46	59	29	58	28
J-354	30	74	44	56	26	56	26
J-356	30	74	44	57	27	57	27
J-358	30	75	45	58	28	58	28
J36	30	67	37	56	26	62	32
J-36	30	77	47	75	45	79	49
J360	30	108	78	92	62	99	69
J-360	30	74	44	57	27	57	27
J362	30	50	20	50	20	50	20
J-362	30	71	41	54	24	53	23
J-364	30	71	41	53	23	53	23
J-366	30	73	43	56	26	55	25
J368	30	79	49	66	36	74	44
J-368	30	72	42	54	24	54	24
J370	30	50	20	50	20	50	20
J-370	30	71	41	53	23	53	23
J-372	30	70	40	52	22	52	22
J374	40	102	62	101	61	103	63
J-374	30	72	42	54	24	54	24
J376	30	47	17	47	17	48	18
J378	30	71	41	53	23	60	30
J-378	30	80	50	62	32	62	32
J38	30	69	39	58	28	64	34
J-38	30	81	51	79	49	83	53
J380	46	143	97	126	80	134	88
J-380	30	80	50	62	32	62	32
J382	30	83	53	65	35	72	42
J384	30	68	38	49	19	55	25
J-384	30	75	45	58	28	58	28
J386	30	68	38	49	19	55	25
J-386	30	72	42	55	25	54	24
J388	30	82	52	67	37	74	44
J-388	30	72	42	55	25	54	24
J390	30	67	37	67	37	67	37
J-390	30	71	41	54	24	53	23
J392	30	60	30	48	18	56	26
J-392	30	71	41	54	24	53	23
J394	30	59	29	47	17	54	24
J396	30	74	44	63	33	69	39
J-396	30	73	43	56	26	55	25
J-398	30	55	25	55	25	55	25
J40	30	66	36	55	25	62	32
J-40	30	78	48	76	46	79	49
J-400	30	74	44	57	27	56	26
J402	30	75	45	57	27	65	35

CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J-402	30	97	67	79	49	87	57
J404	30	67	37	49	19	56	26
J-404	30	71	41	53	23	60	30
J406	30	65	35	47	17	55	25
J-406	30	71	41	53	23	61	31
J408	30	72	42	52	22	59	29
J-408	30	70	40	52	22	59	29
J410	30	80	50	61	31	67	37
J-410	30	70	40	52	22	60	30
J412	30	75	45	56	26	62	32
J-412	30	75	45	57	27	65	35
J414	30	81	51	62	32	68	38
J-414	30	73	43	56	26	63	33
J416	30	84	54	65	35	71	41
J-416	30	67	37	49	19	56	26
J418	30	71	41	52	22	58	28
J-418	30	68	38	50	20	57	27
J42	30	60	30	48	18	55	25
J-42	30	81	51	79	49	83	53
J420	30	69	39	50	20	56	26
J-420	30	72	42	54	24	62	32
J422	30	75	45	56	26	62	32
J-422	30	72	42	54	24	61	31
J424	30	76	46	57	27	63	33
J-424	30	71	41	53	23	61	31
J426	30	87	57	68	38	74	44
J-426	30	77	47	59	29	67	37
J428	30	85	55	65	35	72	42
J-428	30	77	47	59	29	66	36
J430	30	89	59	69	39	76	46
J-430	30	78	48	60	30	67	37
J432	30	89	59	70	40	77	47
J-432	30	77	47	59	29	66	36
J434	30	86	56	67	37	73	43
J-434	30	74	44	56	26	63	33
J436	30	70	40	51	21	57	27
J-436	30	67	37	49	19	57	27
J438	30	72	42	52	22	59	29
J-438	30	74	44	56	26	64	34
J44	30	61	31	50	20	56	26
J-44	30	77	47	75	45	78	48
J440	30	70	40	51	21	57	27
J-440	30	65	35	47	17	55	25
J442	30	75	45	56	26	63	33
J-442	30	66	36	48	18	56	26
J444	30	74	44	55	25	61	31
J-444	30	72	42	55	25	62	32

CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J446	30	69	39	50	20	56	26
J-446	38	97	59	95	57	97	59
J448	30	69	39	50	20	56	26
J450	30	69	39	50	20	56	26
J452	30	70	40	51	21	57	27
J454	30	71	41	52	22	58	28
J456	30	72	42	53	23	60	30
J458	30	70	40	51	21	57	27
J46	30	58	28	46	16	53	23
J-46	30	78	48	76	46	79	49
J460	30	70	40	51	21	57	27
J462	30	71	41	52	22	58	28
J464	30	66	36	47	17	53	23
J466	30	72	42	53	23	59	29
J468	30	76	46	57	27	53	23
J470	30	74	44	56	26	53	23
J-470	34	94	60	93	59	94	60
J472	30	86	56	68	38	65	35
J-472	56	156	100	139	83	147	91
J474	30	84	54	65	35	62	32
J476	30	81	51	62	32	59	29
J478	30	78	48	60	30	57	27
J48	30	65	35	53	23	61	31
J-48	39	98	59	96	57	100	61
J480	30	80	50	62	32	59	29
J482	30	80	50	62	32	59	29
J484	30	81	51	63	33	60	30
J-484	30	60	30	47	17	54	24
J486	30	86	56	67	37	64	34
J-486	30	62	32	48	18	55	25
J488	30	90	60	71	41	68	38
J-488	30	59	29	59	29	59	29
J490	30	90	60	72	42	68	38
J-490	30	53	23	51	21	50	20
J492	30	91	61	72	42	69	39
J494	30	83	53	64	34	62	32
J-494	30	83	53	65	35	62	32
J496	30	87	57	68	38	66	36
J-496	30	77	47	59	29	56	26
J498	30	88	58	69	39	67	37
J-498	30	74	44	57	27	56	26
J50	30	80	50	68	38	75	45
J-50	30	90	60	88	58	92	62
J500	30	90	60	72	42	70	40
J-500	30	74	44	57	27	56	26
J502	30	93	63	75	45	72	42
J504	30	85	55	67	37	64	34

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS**

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J506	30	79	49	60	30	58	28
J508	30	78	48	59	29	57	27
J510	30	89	59	70	40	68	38
J512	43	137	94	119	76	117	74
J514	30	105	75	86	56	85	55
J516	30	100	70	81	51	80	50
J518	30	79	49	61	31	59	29
J-518	30	61	31	44	14	51	21
J52	30	71	41	59	29	67	37
J-52	30	81	51	79	49	83	53
J520	30	78	48	60	30	58	28
J522	30	84	54	65	35	63	33
J-522	30	67	37	48	18	55	25
J524	30	79	49	61	31	58	28
J526	30	72	42	55	25	54	24
J528	30	79	49	62	32	61	31
J530	30	77	47	60	30	60	30
J-530	30	72	42	55	25	54	24
J532	30	79	49	61	31	61	31
J534	30	75	45	57	27	57	27
J-534	30	45	15	45	15	45	15
J536	30	77	47	59	29	59	29
J538	30	74	44	57	27	56	26
J54	30	81	51	69	39	76	46
J-54	30	80	50	78	48	82	52
J540	30	71	41	54	24	53	23
J-540	30	59	29	59	29	59	29
J542	30	71	41	53	23	53	23
J544	30	71	41	53	23	53	23
J-544	50	147	97	130	80	137	87
J546	30	75	45	58	28	58	28
J548	30	75	45	58	28	58	28
J-548	30	56	26	49	19	52	22
J550	30	75	45	57	27	57	27
J552	30	71	41	54	24	53	23
J554	30	76	46	59	29	58	28
J556	30	71	41	54	24	53	23
J558	30	73	43	56	26	56	26
J-56	30	91	61	89	59	93	63
J560	30	72	42	55	25	55	25
J-560	30	79	49	77	47	80	50
J562	30	72	42	55	25	55	25
J564	30	74	44	56	26	56	26
J-564	30	44	14	44	14	44	14
J566	30	70	40	53	23	53	23
J-566	30	100	70	79	49	91	61
J568	30	70	40	53	23	53	23

CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J570	30	70	40	53	23	53	23
J572	30	72	42	55	25	55	25
J574	30	70	40	53	23	53	23
J-58	36	92	56	90	54	95	59
J582	30	54	24	51	21	52	22
J584	30	57	27	52	22	53	23
J586	30	66	36	62	32	63	33
J588	30	64	34	59	29	61	31
J590	30	54	24	49	19	51	21
J592	30	58	28	53	23	55	25
J594	30	72	42	67	37	69	39
J596	30	58	28	55	25	54	24
J598	30	54	24	52	22	51	21
J60	30	74	44	62	32	70	40
J-60	30	79	49	77	47	81	51
J600	30	52	22	50	20	49	19
J602	30	55	25	53	23	52	22
J604	30	53	23	51	21	50	20
J606	30	55	25	53	23	52	22
J608	30	60	30	58	28	57	27
J610	30	54	24	52	22	51	21
J612	30	63	33	61	31	60	30
J614	30	64	34	62	32	61	31
J616	30	60	30	58	28	57	27
J618	30	64	34	62	32	61	31
J62	30	61	31	49	19	57	27
J-62	30	79	49	77	47	81	51
J620	30	62	32	59	29	58	28
J622	30	60	30	58	28	57	27
J624	30	54	24	51	21	50	20
J626	30	60	30	58	28	56	26
J628	30	57	27	55	25	54	24
J630	30	55	25	53	23	52	22
J632	30	55	25	53	23	52	22
J634	30	57	27	55	25	54	24
J636	30	57	27	55	25	54	24
J638	30	63	33	51	21	58	28
J64	30	74	44	61	31	69	39
J-64	35	92	57	90	55	95	60
J640	30	55	25	43	13	50	20
J642	30	58	28	46	16	53	23
J644	30	73	43	61	31	68	38
J646	30	71	41	60	30	67	37
J648	30	67	37	56	26	62	32
J650	30	60	30	47	17	55	25
J652	30	67	37	55	25	62	32
J654	30	65	35	53	23	60	30

CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J656	30	69	39	58	28	64	34
J658	30	62	32	51	21	58	28
J66	30	77	47	77	47	77	47
J-66	30	89	59	88	58	92	62
J660	30	62	32	50	20	57	27
J662	30	62	32	51	21	58	28
J664	30	62	32	50	20	57	27
J666	30	66	36	55	25	61	31
J668	30	69	39	58	28	65	35
J670	30	62	32	50	20	57	27
J672	30	74	44	62	32	69	39
J674	30	59	29	47	17	54	24
J676	30	73	43	62	32	69	39
J678	30	75	45	59	29	67	37
J68	30	63	33	63	33	63	33
J-68	30	90	60	89	59	92	62
J680	30	41	11	39	9	40	10
J682	30	78	48	76	46	79	49
J684	30	80	50	67	37	81	51
J686	30	80	50	67	37	82	52
J688	30	79	49	66	36	81	51
J690	30	62	32	49	19	62	32
J692	30	63	33	50	20	63	33
J694	30	60	30	48	18	58	28
J696	30	67	37	55	25	65	35
J698	32	94	62	92	60	94	62
J70	30	63	33	51	21	58	28
J-70	30	79	49	77	47	81	51
J700	31	94	63	92	61	94	63
J702	30	94	64	92	62	94	64
J710	58	157	99	140	82	147	89
J712	57	157	100	140	83	147	90
J714	55	156	101	139	84	146	91
J72	30	54	24	42	12	50	20
J-72	30	91	61	90	60	92	62
J720	54	156	102	139	85	146	92
J722	30	83	53	65	35	72	42
J724	30	85	55	67	37	74	44
J726	30	85	55	67	37	75	45
J728	30	81	51	63	33	71	41
J730	30	91	61	73	43	80	50
J732	30	84	54	66	36	74	44
J734	30	86	56	68	38	76	46
J736	30	98	68	80	50	88	58
J738	30	102	72	84	54	91	61
J74	30	54	24	42	12	49	19
J-74	30	82	52	80	50	83	53

CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J740	30	69	39	51	21	58	28
J742	30	67	37	48	18	54	24
J744	30	61	31	50	20	56	26
J746	30	80	50	69	39	75	45
J748	30	88	58	76	46	82	52
J750	30	88	58	77	47	83	53
J752	30	87	57	76	46	82	52
J754	30	82	52	70	40	76	46
J756	30	99	69	87	57	93	63
J758	30	94	64	82	52	88	58
J76	30	58	28	46	16	54	24
J-76	41	104	63	102	61	104	63
J760	30	94	64	82	52	88	58
J768	30	78	48	76	46	79	49
J770	30	78	48	76	46	79	49
J772	30	80	50	78	48	82	52
J774	30	86	56	84	54	88	58
J776	30	70	40	68	38	70	40
J778	30	69	39	67	37	69	39
J78	30	54	24	42	12	50	20
J-78	42	105	63	103	61	105	63
J780	30	74	44	72	42	74	44
J782	30	75	45	74	44	76	46
J784	30	76	46	74	44	76	46
J786	30	75	45	73	43	75	45
J788	30	60	30	58	28	59	29
J790	30	56	26	55	25	56	26
J792	30	48	18	46	16	46	16
J794	30	58	28	56	26	58	28
J796	30	47	17	45	15	46	16
J798	30	38	8	37	7	38	8
J80	30	58	28	46	16	54	24
J-80	30	78	48	77	47	80	50
J800	30	50	20	49	19	50	20
J802	30	78	48	76	46	77	47
J804	30	72	42	70	40	72	42
J806	30	69	39	67	37	69	39
J808	30	72	42	70	40	72	42
J810	30	72	42	70	40	71	41
J812	30	72	42	70	40	72	42
J814	30	75	45	73	43	75	45
J816	30	64	34	62	32	65	35
J818	30	79	49	77	47	80	50
J82	30	54	24	42	12	50	20
J-82	30	78	48	76	46	79	49
J820	30	87	57	82	52	75	45
J822	30	90	60	84	54	78	48

**CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS**

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J824	30	84	54	78	48	71	41
J826	37	95	58	93	56	96	59
J828	30	64	34	46	16	54	24
J830	30	72	42	54	24	61	31
J832	30	76	46	58	28	65	35
J834	30	73	43	55	25	63	33
J836	30	63	33	45	15	52	22
J838	30	72	42	54	24	62	32
J84	30	56	26	44	14	52	22
J-84	30	78	48	76	46	79	49
J840	30	83	53	65	35	73	43
J842	30	81	51	63	33	71	41
J844	30	76	46	64	34	71	41
J846	30	59	29	59	29	59	29
J848	30	55	25	52	22	53	23
J850	30	98	68	80	50	78	48
J852	44	138	94	119	75	118	74
J854	30	84	54	79	49	84	54
J856	30	59	29	44	14	51	21
J858	30	63	33	48	18	55	25
J86	30	58	28	46	16	54	24
J-86	30	78	48	77	47	80	50
J860	30	61	31	47	17	54	24
J862	30	58	28	43	13	50	20
J864	30	61	31	46	16	53	23
J866	30	67	37	51	21	58	28
J868	30	63	33	47	17	54	24
J870	30	69	39	53	23	60	30
J872	30	64	34	48	18	55	25
J874	30	58	28	58	28	58	28
J876	53	153	100	136	83	143	90
J878	47	146	99	128	81	135	88
J88	30	61	31	48	18	57	27
J-88	30	79	49	77	47	80	50
J880	52	150	98	133	81	141	89
J882	30	57	27	57	27	57	27
J884	30	78	48	60	30	60	30
J886	30	72	42	55	25	55	25
J888	30	88	58	69	39	66	36
J890	30	78	48	59	29	56	26
J892	30	75	45	57	27	53	23
J894	30	79	49	62	32	62	32
J896	30	75	45	58	28	57	27
J90	30	61	31	48	18	57	27
J-90	30	77	47	75	45	78	48
J900	30	77	47	77	47	77	47
J902	30	47	17	45	15	47	17

CITY OF RIDGEFIELD WATER SYSTEM PLAN
HYDRAULIC MODELING RESULTS: PEAK HOUR DEMAND SCENARIOS

Node ID	Required Pressure (psi)	2019 PEAK HOUR DEMAND		2030 PEAK HOUR DEMAND (W/IMPROVEMENTS)		2040 PEAK HOUR DEMAND (W/IMPROVEMENTS)	
		Pressure (psi)	Surplus / (Deficit) (psi)	Pressure (psi)	Surplus/ (Deficit) (psi)	Pressure	Surplus / (Deficit) (psi)
J908	30	86	56	69	39	69	39
J910	30	97	67	79	49	77	47
J916	30	56	26	54	24	53	23
J918	30	#N/A	#N/A	76	46	79	49
J92	30	55	25	43	13	52	22
J-92	30	76	46	75	45	77	47
J920	30	#N/A	#N/A	#N/A	#N/A	56	26
J922	30	#N/A	#N/A	#N/A	#N/A	55	25
J924	30	#N/A	#N/A	#N/A	#N/A	55	25
J926	30	#N/A	#N/A	#N/A	#N/A	77	47
J928	30	#N/A	#N/A	#N/A	#N/A	52	22
J930	30	#N/A	#N/A	#N/A	#N/A	72	42
J932	30	#N/A	#N/A	#N/A	#N/A	79	49
J934	30	#N/A	#N/A	#N/A	#N/A	56	26
J936	30	#N/A	#N/A	#N/A	#N/A	54	24
J938	30	#N/A	#N/A	#N/A	#N/A	56	26
J94	30	56	26	44	14	53	23
J-94	30	75	45	73	43	75	45
J940	30	#N/A	#N/A	#N/A	#N/A	58	28
J942	30	#N/A	#N/A	#N/A	#N/A	52	22
J944	30	#N/A	#N/A	#N/A	#N/A	55	25
J946	30	#N/A	#N/A	#N/A	#N/A	60	30
J948	30	#N/A	#N/A	#N/A	#N/A	53	23
J950	30	#N/A	#N/A	#N/A	#N/A	60	30
J952	30	#N/A	#N/A	#N/A	#N/A	57	27
J954	30	#N/A	#N/A	#N/A	#N/A	57	27
J956	30	#N/A	#N/A	#N/A	#N/A	54	24
J958	30	#N/A	#N/A	#N/A	#N/A	54	24
J96	30	60	30	48	18	57	27
J-96	30	75	45	74	44	75	45
J960	30	#N/A	#N/A	57	27	57	27
J962	30	#N/A	#N/A	#N/A	#N/A	55	25
J964	30	#N/A	#N/A	52	22	52	22
J966	30	#N/A	#N/A	55	25	55	25
J968	30	#N/A	#N/A	#N/A	#N/A	54	24
J970	30	#N/A	#N/A	#N/A	#N/A	57	27
J972	30	#N/A	#N/A	#N/A	#N/A	49	19
J974	30	#N/A	#N/A	#N/A	#N/A	55	25
J98	30	59	29	47	17	55	25
J-98	30	81	51	79	49	81	51

APPENDIX G

WATER EXCERPTS FROM THE CITY OF RIDGEFIELD ENGINEERING STANDARDS FOR PUBLIC WORKS CONSTRUCTION (MAY 2017)

CHAPTER 4

WATER CONSTRUCTION PROCEDURES

CHAPTER 4 - WATER CONSTRUCTION PROCEDURES

4.00 General Requirements

A. Water Quality

The quality, taste and odor of water drawn from new construction water mains shall be the same as the water in the existing facility classed as acceptable for use by the City. Should the water not be acceptable for use because of taste, required steps as approved by the City shall be accomplished to attain water quality acceptable for use.

B. Operation of all waterlines valves and appurtenances shall be by City personnel only once new waterlines are connected to the City's existing system, regardless of whether or not the overall project has been accepted by the City.

4.01 Water Meters

A. Water meters shall be furnished and set by the City. The owner is required to apply and pay all meter and installation fees prior to the acceptance of the project. The City will install meters and lock off meter setters and turn on as requested by the owner after acceptance by the City. Water meters will be set only after box and setter are installed per the standard details.

D. All irrigation systems require the installation of certified backflow devices. Certification must be either City or State approved.

All irrigation systems will be set and turned on after acceptance of the water system by the City. The City will not accept a water system until all the requirements of these standards have been completed and all the fees have been paid.

E. Adjustments, repairs or replacement of the service line, meter box or setter shall be the responsibility of the property owner.

G. Water services are to be single runs from the main line to each meter. Splices or joints of any kind are not allowed on new services or service line repairs completed by the contractor. Multiple meters on a single service line will only be accepted when all meters serve a single property owner.

H. Materials and construction shall be in accordance with Section 7-15 of the WSDOT Standard Specifications and the Standard Details.

4.02 Cross Connection Control

Backflow devices shall be installed in accordance with the requirements of the "Accepted Procedure and Practice in Cross Connection Control" manual, the Uniform Plumbing Code and Engineering Standards.

4.03 Connections to Existing Pipelines

A. Connections may be made to existing pipes under pressure with a tapping machine by determining the size and type of pipe and installing tapping sleeve to fit complete with tapping gate valve. Where cut-ins requiring a shut-down of existing lines are

- permitted to be made, the work shall be conducted at such a time and in such a manner as to minimize the interruption of service. Cut-in time must be approved by the City. Necessary pipe, fittings and gate valves shall be assembled at the site ready for installation prior to the shutting-off of water in the existing main. Once the water has been shut off, the work shall be performed vigorously and shall not be halted until the line is restored to service. Operation of all water main line valves shall be by the City. The City shall witness all wet taps and cut-in connections and requires forty-eight (48) hours' notice and approval by the City.
- B. The Contractor shall have the responsibility of giving at least a forty-eight (48) hour notice to the City and affected customers of intention to disrupt service.
 - C. Shut-down of the system at the requested time is not guaranteed. If City personnel are not available at the requested time or if the Contractor does not have the necessary equipment and materials on site, the shut-down will be moved back to allow for re-notification.
 - D. Pipes to be abandoned shall be capped with mechanical couplings. Abandoned pipes left in place that are larger than 8-inches in diameter must be completely filled with grout.
 - E. When tapping water mains, use stainless steel conforming to 18-8 Type 304 stainless steel with a CF 8 cast stainless steel flanged end with ANSI 150 lb drilling. Bolts and hardware shall be Type 304 stainless steel.
 - F. Connections to existing mains larger than 8-inch diameter shall be via a wet tap unless otherwise approved by the City.
 - G. Connections to existing mains smaller than 8-inches in diameter shall be by cutting in a tee, unless otherwise approved by the City Engineer.
 - H. Size on size tapping tees are not allowed unless otherwise approved by the City Engineer.

4.04 Roadway and Railway Crossing

The Contractor shall use the method which has been designed on the plans and is acceptable to the City and the government or private agency having control of the road. Permits are required and shall be obtained prior to construction approval.

4.05 Trench Excavation

- A. Clearing and grubbing, where required, shall be performed within the easement or public right-of-way and as permitted by the property owner and/or governing agencies. Debris resulting from the clearing and grubbing shall be disposed of by the developer.

- B. The work necessary to excavate, bed, and backfill water pipelines shall conform to the requirements of Section 7-9 of the WSDOT Standard Specifications and the Standard Drawings.
- C. Trenching and shoring operations shall not proceed more than one-hundred (100) feet in advance of pipe laying without written approval of the City.
- D. Where a utility crosses under an existing asbestos cement water main or where a trench alters the bedding of an existing asbestos cement water main, the existing A.C. pipe shall be cut three (3) feet minimum from each side of the trench wall and replaced with a corresponding size ductile iron pipe Class 52. The ductile iron pipe shall be connected to A.C. pipe with transition couplings.

4.06 Pipe in Filled Areas

Special treatment may be required at the discretion of the City for pipe installed in fill areas. This treatment may consist of compacting the backfill in six (6) inch layers, careful choice of backfill materials, use of Mechanical Joint Ductile Iron Pipe in short lengths, or such other reasonable method or combinations as may be necessary or as required by the City.

4.07 Pipe Installation For Water Mains

- A. General
Pipe shall be laid per Section 7-08 of the Standard Specifications as modified and/or amended herein.
- B. Line and Grade
Waterlines shall be installed to the line and grade shown on the plans. Construction staking providing both line and grade information shall be provided at locations of all fittings and valves and at intermediate locations spaced not more than 60 feet apart. Pipelines shall not deviate from the straight line at any joint in excess of 2 inches horizontally and 1 inch vertically. The Contractor shall pothole and locate existing utilities far enough in advance of pipe laying operations such that horizontal and vertical changes in pipeline and grade can be achieved with joint deflections.
- C. Pipe and Fittings Materials
Use only Class 52 ductile iron pipe and fittings in accordance with Section 7-9 of the WSDOT Standard Specifications.
- D. Bolts
Bolts for buried flanged fittings shall be stainless steel. Bolts for mechanical joints shall be NSS Corten steel on ductile iron fittings only.
- E. Permissible Deflection of Joints
Wherever it is necessary to deflect pipe from a straight line either in a vertical or horizontal plane, or where long-radius curves are permitted, the amount of deflection allowed shall not exceed the values in the following table:

Maximum Deflection Permitted*
18-Foot Length Pipe

Diameter (Inches)	Mechanical Joint Maximum Deflection**		Push-on Joint Maximum Deflection	
	Angle (Degrees-Minutes)	Deflection (Inches)	Angle (Degrees)	Deflection (Inches)
4	8-18	31	5	18
6	7-07	27	5	18
8	5-21	20	5	18
10	5-21	20	5	18
12	5-21	20	5	18

* The maximum deflection shall be whichever is less, the table or that recommended by the pipe manufacturer.

** Safe deflection for 150 pounds pressure. For higher pressure, reduce tabulated deflection proportionally 10 percent for each 150 pounds added pressure.

F. Downtime Protection

When stopping work for the day, the contractor shall plug pipe ends to prevent rodents, other small animals, or debris from entering the pipe. Use an inflatable ball as a plug in addition to a tight-woven canvas, securely tied around outside of pipe end.

G. Detectable Tracer Wire

Water main and services shall be installed with a 12 gauge insulated copper tracer wire. Wire shall be terminated at valve boxes and meter boxes. Splices in tracer wire shall be made with a manufactured connection to ensure conductivity through the splice. Tracer wire connectors shall be Pro-Trace part number 96PTTWCBLUE.

H. Sanitary Sewer Crossings

Horizontal and Vertical Separation (Parallel)

A minimum horizontal separation of 10 feet between sanitary sewers and any existing potable water lines, and a minimum vertical separation of 18 inches between the bottom of the drinking water line and the crown of the sewer shall be maintained. The distance shall be measured edge to edge (i.e., from the outer diameter of the pipes.) as shown in Figure C1-2 in the Criteria for Sewage Works Design (rev. 10/2006).

Vertical Separation (Perpendicular)

Sewer lines crossing water lines at angles including perpendicular shall be laid below the water lines to provide a separation of at least 18 inches between the invert of the water line and the crown of the sewer.

In the event 18-inches of vertical separation cannot be achieved or the sewer line is required to be installed above the water line, the following is required.

Gravity Sewers Passing Under Water Lines

- Sewer pipe shall be encased in CDF with a minimum compressive strength of 300 psi or in a one quarter-inch thick continuous steel, ductile iron, or pressure rated PVC pipe with a dimension ratio (DR) of 18 or less, with all voids pressure-grouted with sand-cement grout or bentonite. Commercially available pipe skids and end seals are acceptable. When using steel or ductile iron casing, design consideration for corrosion protection should be considered. Encasement shall extend a minimum of 10-feet on each side of the crossing.
- One full length of sewer pipe shall be centered at the point of crossing so that the joints will be equidistant and as far as possible from the water line. The sewer pipe shall be the longest standard length available from the manufacturer.

Gravity Sewers Passing Over Water Lines

Water lines shall be protected by providing:

- A vertical separation of at least 18 inches between the invert of the sewer and the crown of the water line.
- Adequate structural support for the sewers to prevent excessive deflection of joints and settling on and breaking of the water lines.
- The length of sewer pipe shall be centered at the point of crossing so that the joints will be equidistant and as far as possible from the water line. The sewer pipe shall be the longest standard length available from the manufacturer.
- A water line encased in CDF with a minimum compressive strength of 300 psi or in a one quarter-inch thick continuous steel, ductile iron, or pressure rated PVC pipe with a dimension ratio (DR) of 18 or less, with all voids pressure-grouted with sand-cement grout or bentonite. Commercially available pipe skids and end seals are acceptable. When using steel or ductile iron casing, design consideration for corrosion protection should be considered. Encasement shall extend a minimum of 10-feet on each side of the crossing.

Pressure Sewers under Water Lines

- Pressure sewers shall be constructed only under water lines with pressure rated pipe encased in CDF with a minimum compressive strength of 300 psi or in a one quarter-inch thick continuous steel, ductile iron, or pressure rated PVC pipe with a dimension ratio (DR) of 18 or less, with all voids pressure-grouted with sand-cement grout or bentonite. Commercially available pipe

skirts and end seals are acceptable. When using steel or ductile iron casing, design consideration for corrosion protection should be considered.
Encasement shall extend a minimum of 10-feet on each side of the crossing.

I. Separation from Existing Water Systems

New waterline piping shall not be connected to existing systems until all pressure testing and disinfection has been completed. New pipes shall be installed such that there is a physical gap between the existing waterline and the new waterline. Visual inspection of the tie-in to the existing system under working pressure is required prior to backfilling.

4.08 Pipe Class / Protection / Cover

A. Watermain depth of cover:

- 3 feet minimum from final grade
- 6 feet maximum from final grade
- Regardless of the pipe material or size or the amount of cover from finished grade, existing or newly installed pipe shall not be subject to construction traffic, including excavators, trucks, pavers, etc., until the backfill has reached a minimum of 2-feet above the top of the pipe. Backfill material may be compacted in piles over the top of the pipe, but must not be removed during paving or any other construction activities. The City Engineer may require television inspection, removal and reinstallation or other measures as deemed necessary at the Contractor's expense should pipes be subject to construction traffic prior to providing the minimum 2-feet of cover.

C. Building setback requirements:

- 5 feet minimum from covered parking to watermain.
- 10 feet minimum from building (and retaining walls) to watermain.
- 20 feet minimum easement shall be provided between buildings.

D. All ductile iron pipe and adjacent fittings shall be encased in 8-mil polyethylene per AWWA C-105 where directed by the City Engineer.

4.09 Bedding and Backfill

Use crushed surfacing top course for bedding and backfill of all water main pipe installed under pavement, curbs, sidewalks, or usable shoulder. Bed and backfill pipe and appurtenances in accordance with Section 7-9 of the WSDOT Standard Specifications. Bedding shall be compacted to 90% of the maximum theoretical density as measured by the standard proctor method (AASHTO T-180) prior to placement of the next layer. Backfill material shall be compacted to 95% of maximum dry density as measured by the standard proctor method (AASHTO T-180). In non-roadway areas, native material may be used above the pipe zone (12-inches above pipe) as approved by the City Engineer.

4.10 Hydrostatic Tests

The contractor shall make pressure and leakage tests on all newly laid pipe. The test shall be conducted at a pressure not less than 225 psi for a duration of 60 minutes with no loss in pressure. Contractor shall be required to furnish all necessary equipment and material, make all taps in the pipe as required, provide all temporary thrust blocking as required, and conduct the tests. The City's Inspector shall witness the test; if the test does not pass inspection for any reason, additional trips required to witness the test shall be at the owner's expense.

A. Correction of Excessive Leakage

Should any test of pipe laid disclose leakage greater than that allowed, locate and repair the defective joints or pipe until the leakage of a subsequent test is within the specified allowance.

B. Testing Against Valves

Pressure testing against valves will not be allowed unless approved by the City Engineer.

C. Provide temporary 2-inch blow off assemblies for testing and disinfection of new watermains (where hydrants are not available). Place blow-off at high end of line, where possible.

4.11 Sterilization and Flushing of Water Mains

Pipeline intended to carry potable water shall be sterilized before connection to the existing water system. All waterlines must be subject to and pass a pressure test prior to starting sterilization procedures. Sterilizing procedures shall conform to AWWA C-601 as hereinafter modified or expanded, and Section 7-09.3(24) of the WSDOT Standard Specifications.

A. Method of Disinfection

All pipelines shall be sterilized using a continuous feed method. Placement of dry Calcium Hypochlorite or other chlorine bearing compounds in individual pipe lengths will not be allowed. The potable water pipeline shall be disinfected with a solution containing a minimum of 25 ppm chlorine to a maximum 50 ppm chlorine. The disinfecting solution must remain in the pipeline for a period of 24 hours or greater. After the 24 hours, all portions of the pipe must have a minimum of 10 ppm. If the chlorine residual is less than 24 hours, the line shall be flushed and the disinfection process repeated. After disinfection, the pipe shall be flushed until the chlorine residual is the same as that of the source of the flushing water. After flushing, the water shall remain in the pipeline for a 24 hour period prior to taking the samples.

B. Disposal of Sterilizing Water

Dispose of sterilizing water in an approved manner. Do not allow sterilizing water to flow into a waterway without adequate dechlorinization. Dechlorinization procedures

are to be submitted in writing and approved by the City Engineer prior to flushing system.

C. Collection of Samples

The Contractor shall hire an independent laboratory to collect and analyze water samples for the presence of bacteria. The City's Inspector shall determine the quantity and location of samples to be taken and witness the sampling completed by the laboratory. Results of all tests shall be given to the Inspector upon completion.

4.12 Valves for Water Mains

- A. Materials and construction shall be in accordance with Section 7-12 of the WSDOT Standard Specifications and the Standard Details.
- B. Valve marker posts shall be reinforced concrete posts, 4" x 4" on one end, 6" x 6" on the other end, forty-two (42) inches long. Valve marker post shall be painted white hi-gloss Rust-oleum with painted black dimension from marker to valve boxes.

4.13 Hydrants

- A. As per the Uniform Fire Code, fire hydrants shall be located to allow a 36-inch clear space surrounding the hydrant. For example, street lights, sign posts, protective posts, or retaining walls shall be no closer than 36 inches from the nearest portion of a hydrant. There shall also be no obstructions directly in line with any of the ports of the hydrant.
- B. Fire hydrants shall have Storz fittings.
- C. Materials and construction shall be in accordance with Section 7-14 of the WSDOT Standard Specifications and the Standard Details.
- D. Approved hydrants include the following:
 - Waterous Pacer WB67
 - Clow Medalion

4.14 Cross Connection Control and Backflow Assemblies

- A. Installation and Testing

Backflow prevention assemblies shall be installed at the water service connection on the customer side of the meter. Backflow assemblies 3" diameter and larger shall be installed above ground in a heated, protected location. After installation, all backflow prevention assemblies which are installed, must be tested upon installation by a State of Washington certified tester. The results of the testing shall be received by the City prior to issuance of "final occupancy".
- C. Fire Services and Domestic Services
 - 1. No part of the backflow prevention assembly shall be submerged in water or installed in a location subject to flooding. In a vault or chamber, adequate

drainage shall be provided; and test cocks shall be plugged. The plugs shall not be of dissimilar metals.

2. The backflow assembly shall be protected from freezing and other severe weather conditions.
3. All backflow assemblies shall have a minimum 12-inch clearance on the backside, 24-inch clearance on the test-cock side, and 12 inches below the assembly. Adequate clearance (6 inches minimum) must be maintained above gate-valve stem at full extension. Headroom of 6 foot, 0 inches is required in vaults without a full opening top. Access to the device and to any vault or chamber shall remain clear at all times.

D. Special for Fire Service Only

1. Fire Service backflow prevention assemblies shall be installed at the property line, or edge of the public water line easement. The fire service from the public main to the backflow assembly shall be privately owned and meet all City's Standard Drawings.
2. Only approved resilient seat indicating valves are allowed on fireline assemblies.
3. Only approved Double Detector Check Valve Assemblies are to be used for system containment on fire line services in the City. The meter on the bypass assembly shall read in cubic feet.
4. Fire Line Flow and Tamper Switches installed, as required by Uniform Building Code sec. 3803, must be connected to a monitored Fire Detection System approved by the Fire Marshal. The tamper switches are required on the outside stem and yoke gate valves in the vault, as well as any other indicating control valves on the fire protection system. Electrical inspection and permit is required.
5. The remote reader (if allowed) shall be rigidly mounted on an exterior building wall (near the domestic meter), enclosed in a metal box with a slot opening which allows reading the remote without opening the box, and at an elevation of 5 feet above the ground level.

The remote reader shall have the same number configuration as the metering device itself, and read in cubic feet. All wires to the remote reader shall be enclosed in a heavy plastic or rigid metal conduit. All wiring shall be in conformance with appropriate sections of the National Electric Code.

5.15 Water System Vault Installations

To ensure proper operation and accessibility of all vaults, the following requirements shall apply unless otherwise approved by the City Engineer.

- A. All vaults shall be sealed with Crystal Seal or approved equal on the outside of the vault.

- B. Vault penetrations shall be preformed or core drilled to produce a smooth hole. Penetrations shall be sealed with a watertight Link Seal as manufactured by Thunderline or approved equal. Where approved by the City Engineer, non-shrink grout may be used to seal penetrations. Apply water proof coating over grout. Backfill around vault per the manufacturer's specifications.
- C. Access to all vaults shall be through a double door, H-20 rated hatch. The doors shall open to 90 degrees and automatically lock with a stainless steel hold-open arm with an integral stainless steel compression spring. The unit shall lock with a stainless steel slam lock with removable key and have a covered, recessed locking hasp. Hinges and all hardware shall be stainless steel. The hatch shall be Halliday Series H2W or equal.
- D. Provide an aluminum ladder if the vault or chamber depth is 3 foot 0 inches or greater. Ladders shall include an aluminum ladder extension. At a minimum, ladders shall be braced at the top, bottom and one intermediate location. All non-aluminum accessories shall be stainless steel or hot-dipped galvanized.
- E. Adequate drainage for the vault or chamber shall be provided. Gravity drainage to piped storm systems is allowed provided a check valve is installed. If gravity drainage is not possible, vaults shall be equipped with a sump pump. Vault floors must be sloped towards vault drain or sump. Surface drainage shall be directed away from water system vaults and chambers. The drain from the access door shall be piped directly to the sump or the vault drain.
- F. Vault must be equipped with a moisture proof light fixture if adequate lighting is not available.
- G. Vault is to have no other use, except for use described by these standards.
- H. Vault shall be installed on a subgrade consisting of $\frac{3}{4}$ "-0 gravel base compacted to 95 percent of maximum density (AASHTO T-99).
- I. Piping shall be installed with a clearance of 1 to 3 feet above the vault floor and a minimum clearance of 9 inches from the edge of flanges to any wall.
- J. All miscellaneous bolts and fasteners shall be stainless steel unless otherwise approved or noted herein.
- K. Assembly is to be adequately supported from the floor, and suitably restrained from movement. Supports shall consist of steel supports or approved equal; no wood supports shall be used.
- L. All electrical wiring shall be inspected by the Washington State Electrical Inspector (Permit is required).
- M. The assembly shall be readily accessible with adequate room for maintenance.

4.16 Pressure Reducing Valve Vaults

PRV vaults are unique to each situation. Minimum requirements shall be as listed in Section 5.14 (Water System Vault Installations). The engineer shall detail the vault on the plans and submit for review. The City will review the vault for size and compliance with the general requirements listed under this section.

4.17 Appurtenances

A. Air and Vacuum Release Valves

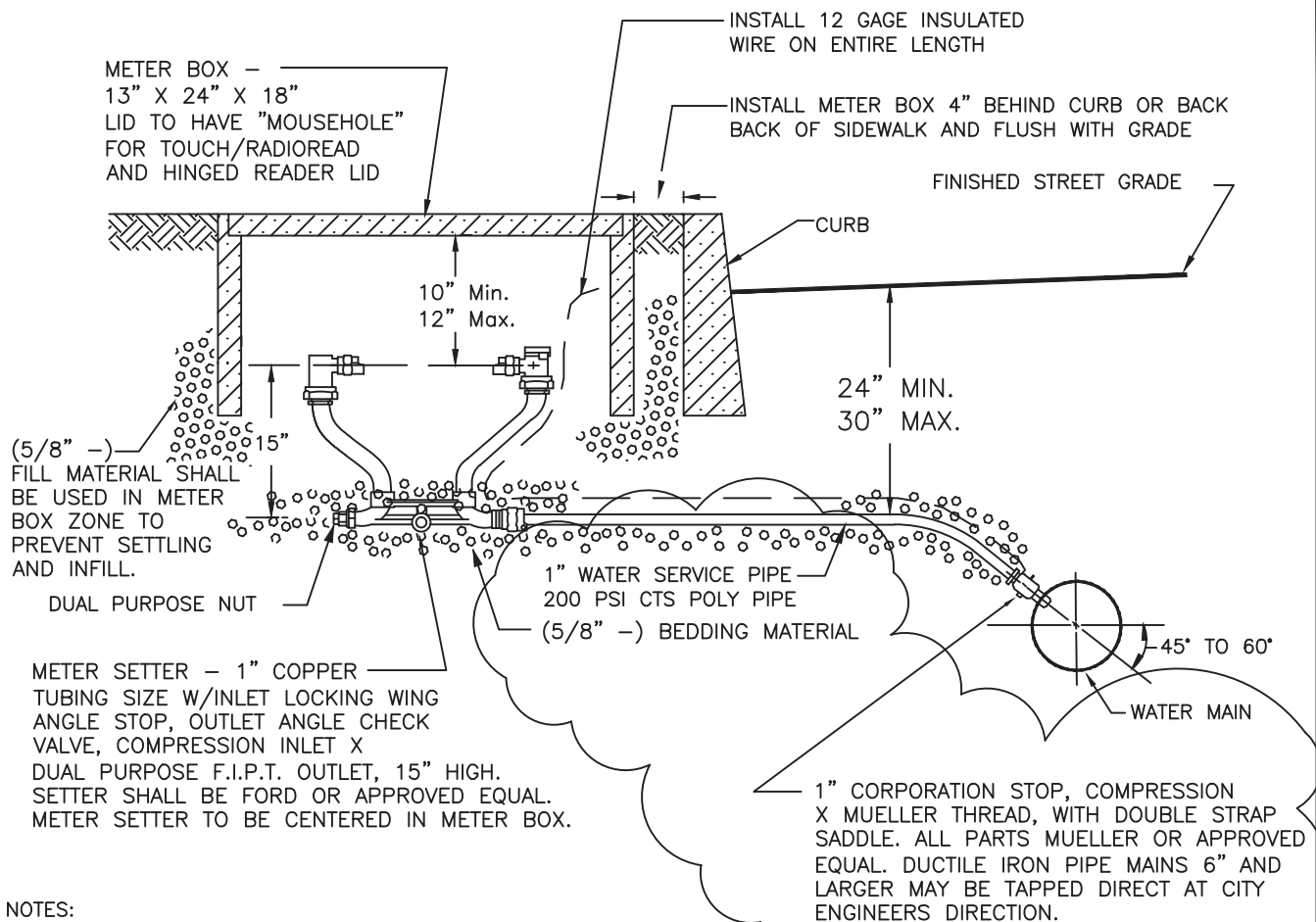
1. Air and vacuum release valves shall be APCO - Valve and Primer Corporation, "Heavy-Duty", combination air release valve, or equal.
2. Installation shall be as shown on the Standard Details.
3. Piping and fittings shall be copper or brass. Location of the air release valves as shown on the plans is approximate. The installation shall be set at the high point of the line. Water line must be constructed so the air release valve may be installed in a convenient location.

STANDARD DETAIL LIST

(Continued)

Water Details

Dwg.	Title
W-1.2	Standard Water Service – 1”
W-1.3	Standard Water Service – 1 ½” and 2”
W-1.4	Standard Water Service – 3” and Larger
W-1.5	Standard Thrust Block
W-1.6	Vertical Anchor Block
W-2.1	Standard Fire Hydrant Assembly
W-2.2	Standard Valve Box and Cover
W-2.4	Combination Air Release Valve
W-2.5	Standard Blow-off Assembly
W-2.6	Standard Temporary Blow-off Assembly
W-2.7	Standard Manual Air Release Valve
W-2.8	Pipe and Casing Detail
W-2.9	Fire Hydrant Guard Post
W-2.10	Water Sampling Station
W-3.1	Double Check Valve Assembly – 2” and Smaller
W-3.2	Blank
W-3.3	Double Check Valve Assembly – 2 ½” and Larger
W-3.4	Reduce Pressure Principle Backflow Assembly – 2 ½” and Larger
W-3.5	Reduce Pressure Principle Backflow Assembly – 2” and Smaller
W-3.6	Fire Protection Service, Backflow Prevention & Irrigation Deduct Meter Locations



NOTES:

1. METER BOX SHALL BE MANUFACTURED BY RAVEN PRODUCTS UNLESS OTHERWISE APPROVED
2. METER BOX IS NOT ALLOWED IN HARD SURFACE AREAS WITHOUT PRIOR APPROVAL. IF APPROVED THE METER BOX AND LID SHALL BE ARMORCAST H-20 RATED BOX AND LID WITH MASTIC INSTALLED BETWEEN THE METER BOX AND HARD SURFACE.
3. ALL METERS SHALL BE INSTALLED BY THE CITY OF RIDGEFIELD
4. PRIOR TO INSTALLATION OF METER A REQUEST FOR METER INSTALLATION MUST BE SUBMITTED, ALL SERVICE FEES PAID IN FULL AND THE WATER MAIN SHALL BE TESTED AND ACCEPTED BY THE CITY. ALLOW 1-2 WEEKS FOR METER INSTALLATION.
6. PRIOR TO FINAL OCCUPANCY OF BUILDING BACKFILL MUST BE PLACED AROUND METER BOX, THE BOX SET TO FINISHED GRADE AND SURROUNDING LANDSCAPING INSTALLED. CALL PUBLIC WORKS AT 887-8251 FOR FINAL INSPECTION PRIOR TO FINAL OCCUPANCY. ALLOW 48 HOURS FOR FINAL INSPECTION.
7. WATER SERVICES UP TO AND INCLUDING THE SETTER SHALL BE PRESSURE TESTED WITH THE MAIN.

N.T.S

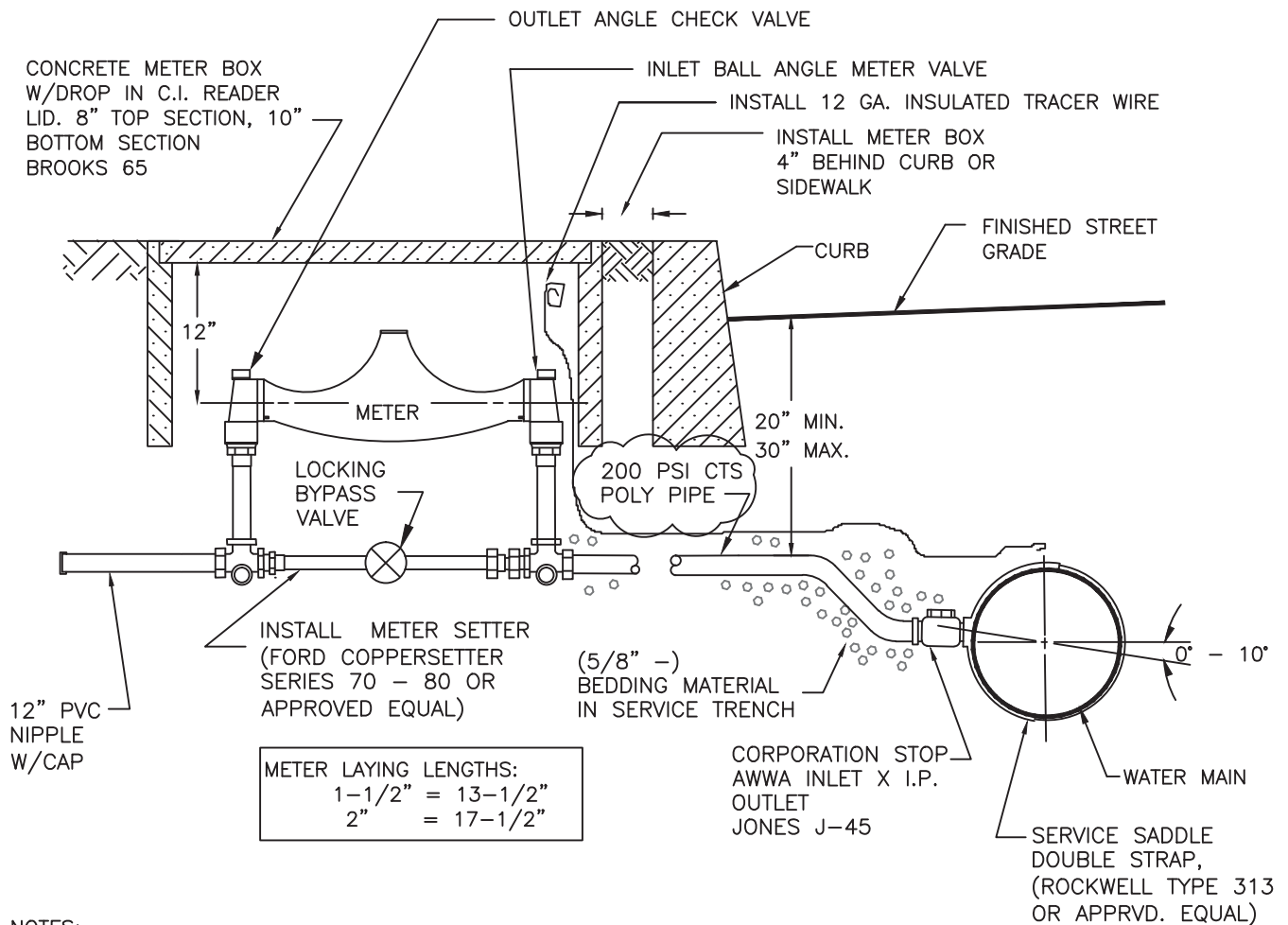
REV. 1/4/16 BGK

STANDARD WATER SERVICE - 1"

STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W - 1.2



NOTES:

1. ALL METERS SHALL BE INSTALLED BY THE CITY OF RIDGEFIELD.
2. PRIOR TO CITY INSTALLATION OF METERS, ALL SERVICE APPLICATIONS MUST BE COMPLETED AND APPROVED. SERVICE FEES PAID IN FULL AND AS-BUILTS SUBMITTED AND APPROVED.
3. CONTRACTOR SHALL CONTACT CITY PUBLIC WORKS OFFICE (360)887-8251 48 HOURS PRIOR TO INSTALLING ANY WATER SERVICE CONNECTIONS.
4. METERS WILL NOT BE SET BY THE CITY PRIOR TO DISINFECTION OF THE MAIN AND SERVICE, AND PRIOR TO A SUCCESSFUL BACTERIOLOGICAL TEST.
5. WATER SERVICES SHALL BE PRESSURE TESTED ALONG WITH THE MAIN.
6. DURING THE PRESSURE TEST, THE MAIN SHALL BE OPEN FOR INSPECTION OF ALL CORPORATION STOPS.
7. USE 1-7/8" BIT FOR ALL 2" SADDLE TAPS AND 1-3/8" BIT FOR 1-1/2" SADDLE TAPS.
8. METER BOX IS NOT ALLOWED IN HARD SURFACED AREAS WITHOUT PRIOR APPROVAL.

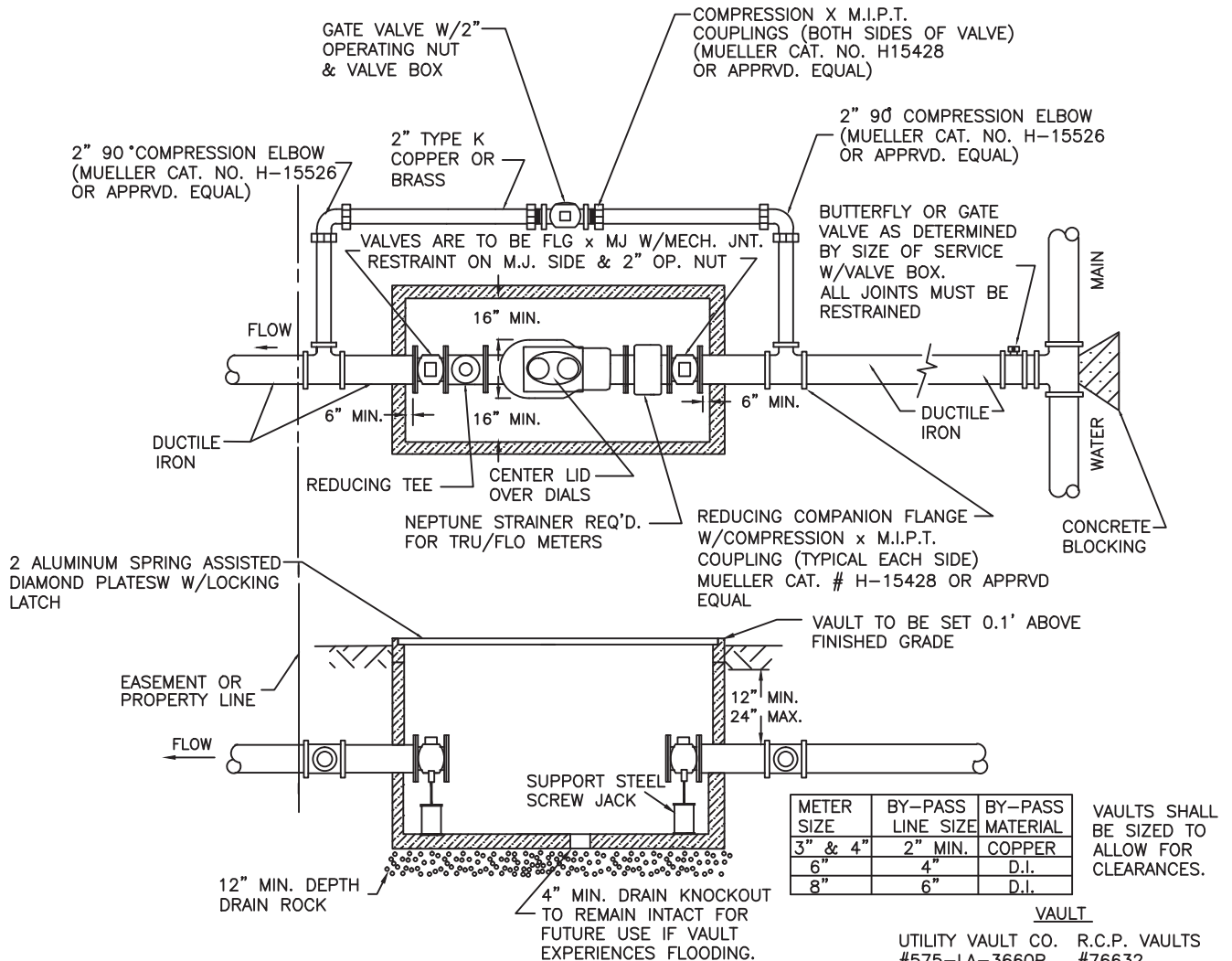
REV 4/7/17 BGK

STANDARD WATER SERVICE - 1 1/2" & 2"

STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W-1.3



NOTE:

- TEN PIPE DIAMETERS OF STRAIGHT PIPE REQ'D. IN & OUT OF METER. (IF USING 6" PIPE, NO BENDS ALLOWED WITHIN 5' OF THE METER IN EITHER DIRECTION. IE: 6" x 10 = 60")
- CONTRACTOR SHALL USE APPROPRIATE METHODS TO ENSURE COPPER PIPE, FITTINGS AND JOINTS WILL REMAIN LEAK-TIGHT.
- ALL METERS 3" AND LARGER SHALL BE INSTALLED BY THE CONTRACTOR.
- METER BOX IS NOT ALLOWED WITHOUT PRIOR APPROVAL.
- VAULT LID DRAINS TO BE PIPED TO CURB OR STORM SEWER.
- VAULT TO BE SEALED AND WATER TIGHT
- METER TYPE TO BE APPROVED BY PUBLIC WORKS PRIOR TO INSTALLATION

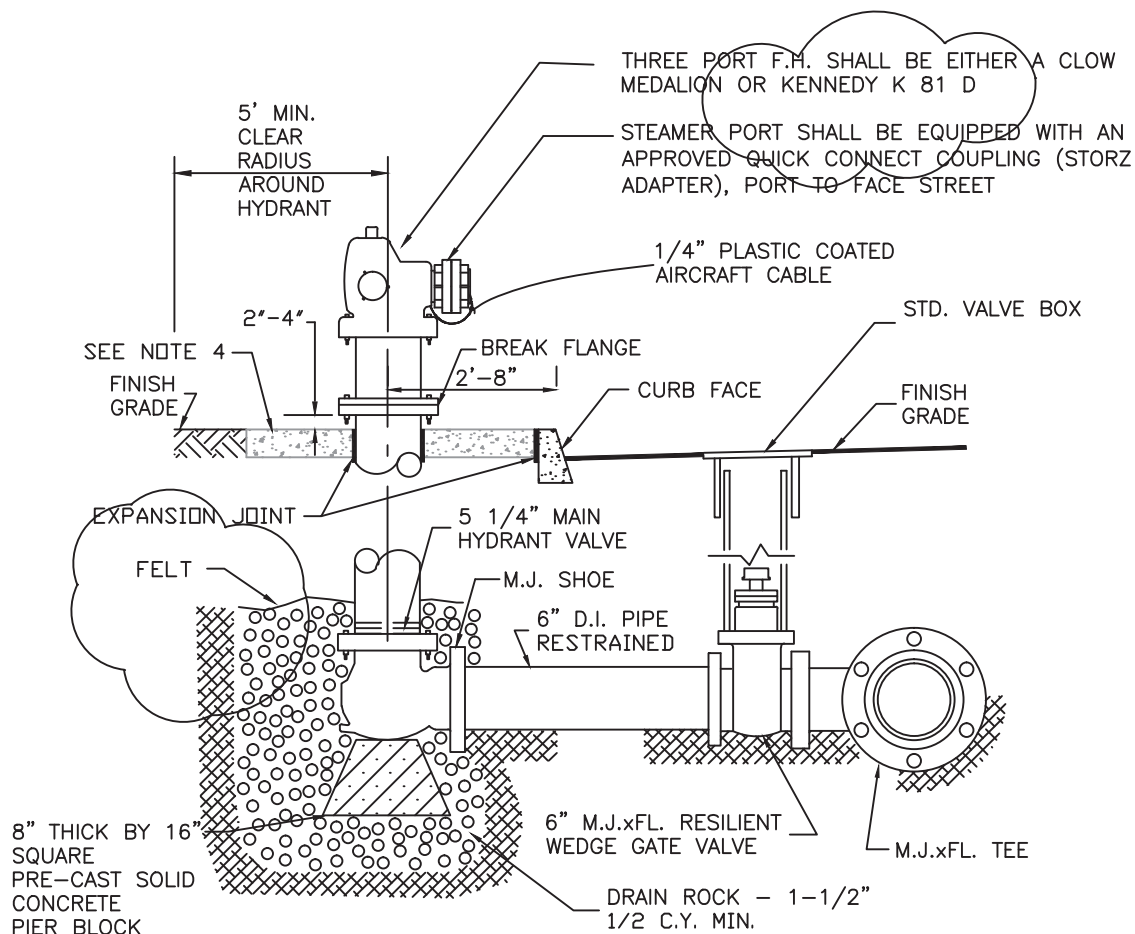
REV. 4/7/17 BGK

STANDARD WATER SERVICE - 3" AND LARGER

STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W - 1.4



NOTES:

1. FIRE HYDRANT INSTALLATIONS SHALL BE APPROVED BY THE CITY INSPECTOR PRIOR TO BACKFILLING.
2. FIRE HYDRANT LOCATIONS SHALL BE AS SHOWN ON THE PLANS. FIRE HYDRANTS SHALL NOT BE SET UNTIL LOCATION AND DEPTH ARE APPROVED BY THE CITY.
3. FIRE HYDRANT STANDARD BURY IS 4' UNLESS OTHERWISE NOTED ON THE PLANS.
4. A 4'x4'x4" CONCRETE PAD SHALL BE CENTERED AROUND THE FIRE HYDRANT.
5. CONCRETE PAD SHALL BE PLACED FLUSH W/BACK OF CURB OR SIDEWALK. EXPANSION JOINT MATERIAL SHALL BE PLACED BETWEEN THE CONCRETE PAD AND CURB/SIDEWALK.
6. ALL PIPING MUST BE RESTRAINED, WITHOUT EXCEPTION.
7. FIRE HYDRANTS SHALL BE FACTORY PAINTED WITH SAFETY YELLOW HIGH GLOSS EQUIPMENT ENAMEL. HYDRANT SHALL BE FRESHLY PAINTED PRIOR TO CITY ACCEPTANCE.
8. FIRE HYDRANT MAINS SHALL BE 8" MIN., A 6" MAIN CAN BE USED FOR A DEAD-END RUN OF LESS THAN 50' TO A HYDRANT SUBJECT TO ADEQUATE FIRE FLOW.
9. NO BENDS SHALL BE ALLOWED ON FIRE HYDRANT RUNS.

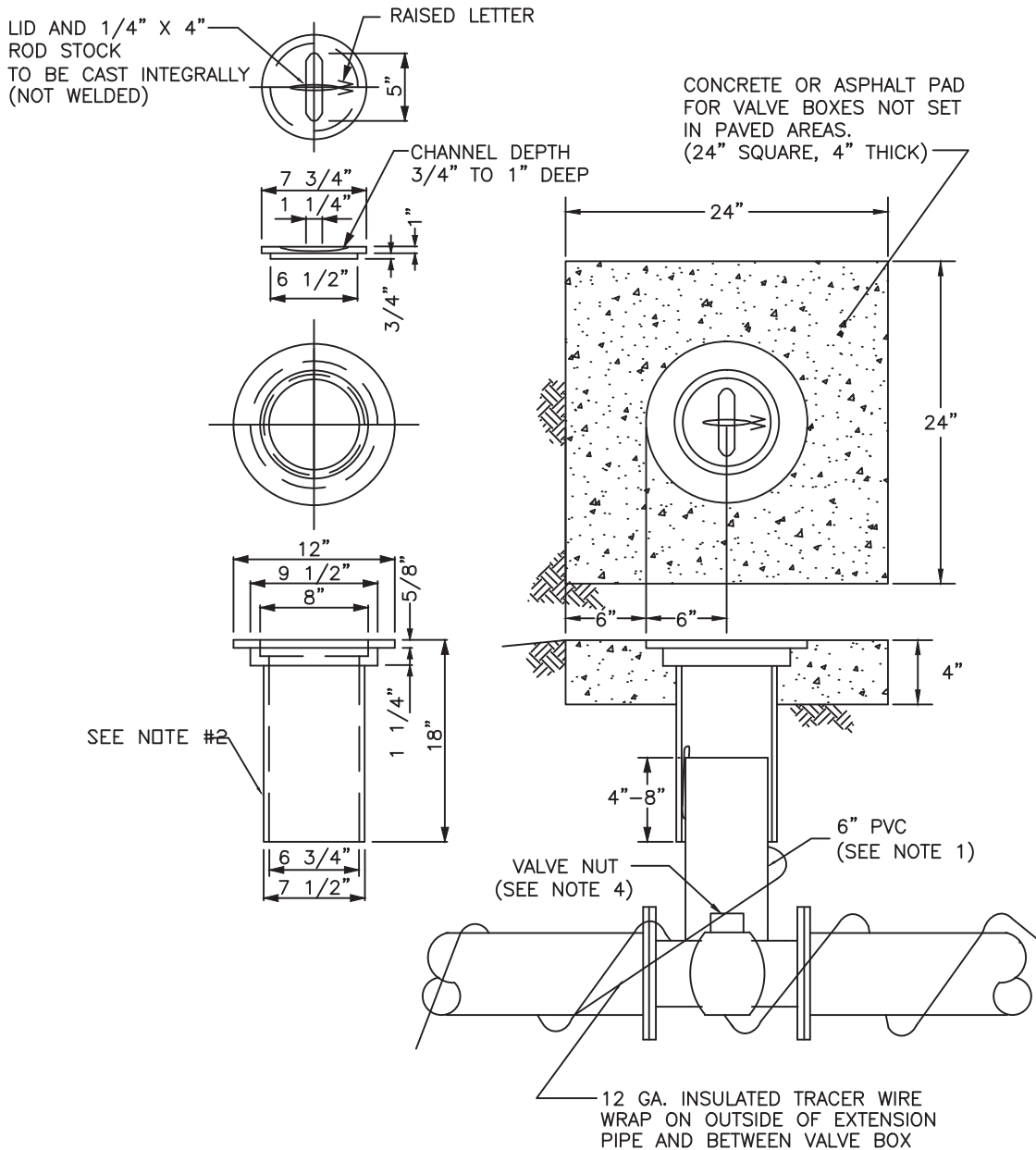
REV. 04/16/08 SCH

STANDARD FIRE HYDRANT ASSEMBLY

STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W - 2.1



NOTES:

1. EXTENSION SHALL BE 6" ASTM D 3034 SDR 35 PVC PIPE (ONE PIECE).
2. U.S FILTER/PACIFIC WATER WORKS NO. 910 OR EQUAL.
3. THERE SHALL BE 1/2" CLEARANCE UNDER THE PIN CAST INTO THE LID.
4. VALVE OPERATOR EXTENSION TERMINATING AT 24" BELOW FINISHED GRADE AND ROCK GUARD REQUIRED WHEN VALVE NUT IS DEEPER THAN 3 FEET.

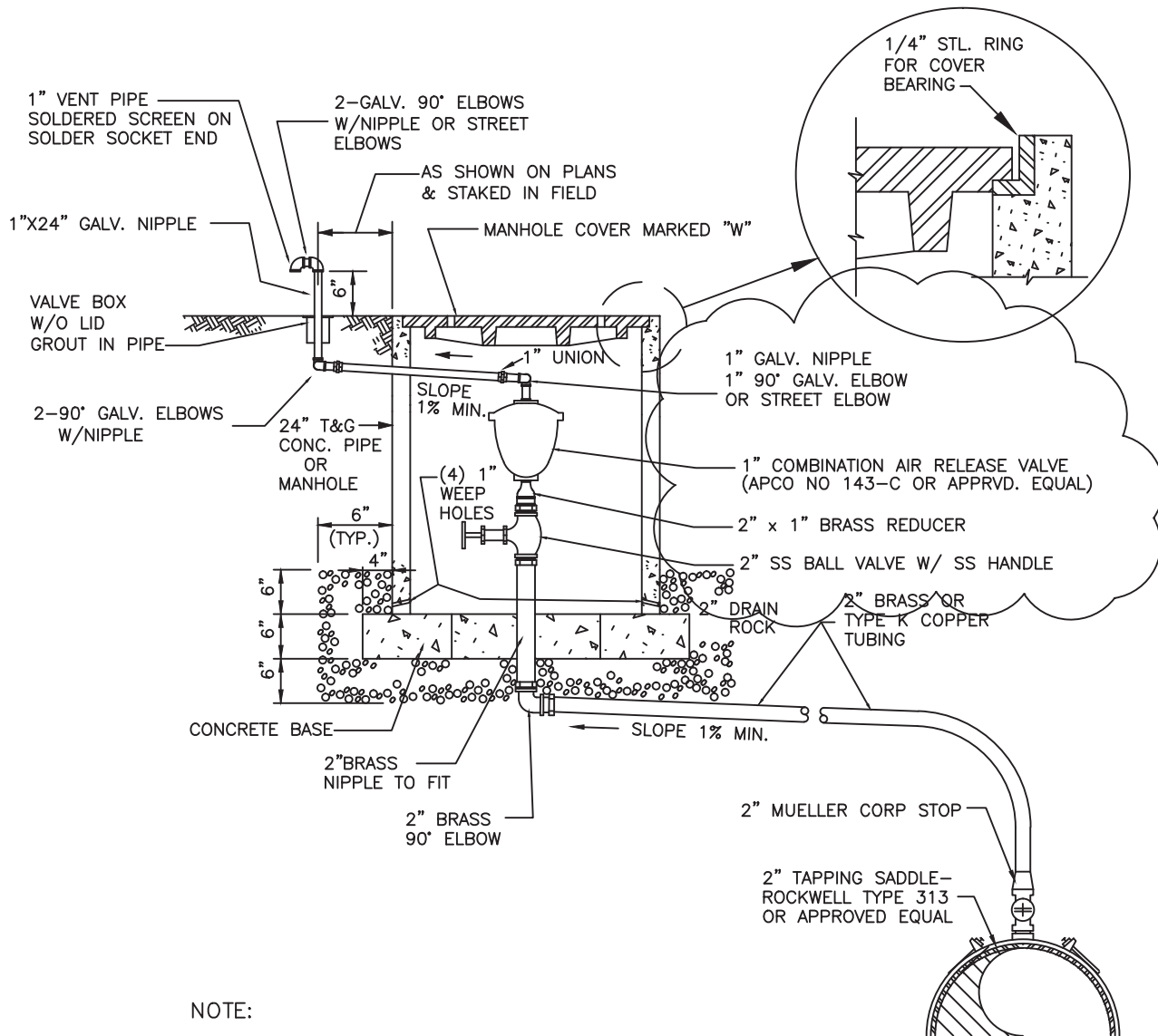
REV. 4/7/17 BCK

STANDARD VALVE BOX AND COVER

STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W-2.2



NOTE:

- 1) PLACE VENT AND AIR RELEASE UNIT ASSEMBLY OUTSIDE OF HARD SURFACE AREA IN R.O.W. OR 15' EASEMENT DEDICATED TO THE CITY OF RIDGEFIELD.
- 2) MUST BE USED FOR ALL AIR RELEASE LOCATIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER.

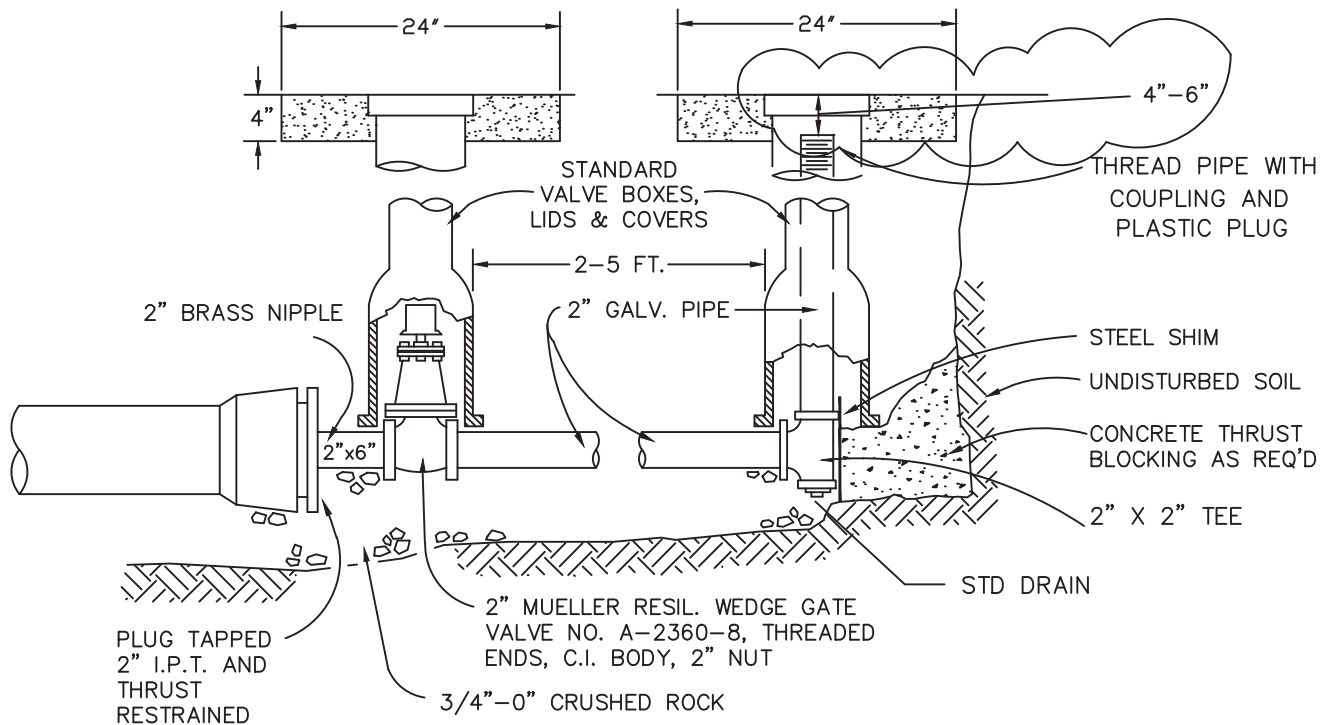
REV. 4/7/17 BGK

COMBINATION AIR RELEASE VALVE

STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W - 2.4



NOTES:

1. VALVE BOX TO BE CONCRETE ENCASED AS SHOWN, IF NOT IN PAVED AREA.
2. BLOW-OFF UNIT SHALL BE BACKFILLED WITH 3/4"-0" CRUSHED ROCK AND COMPACTED TO 95% OF MAX. DENSITY DETERMINED BY AASHTO T-180.
3. PLACE BLOW-OFF STANDPIPE 3 FT. INSIDE R.O.W. LINE AT END OF STREET (2 FT. FROM BARRICADE).

BLOW-OFF SIZES REQUIRED

MAIN SIZE	BLOW-OFF SIZE
<12"	2"
≥12"	4"

REV 4/7/17 BGK

STANDARD BLOWOFF ASSEMBLY

STANDARD
DETAILS

CITY OF RIDGEFIELD

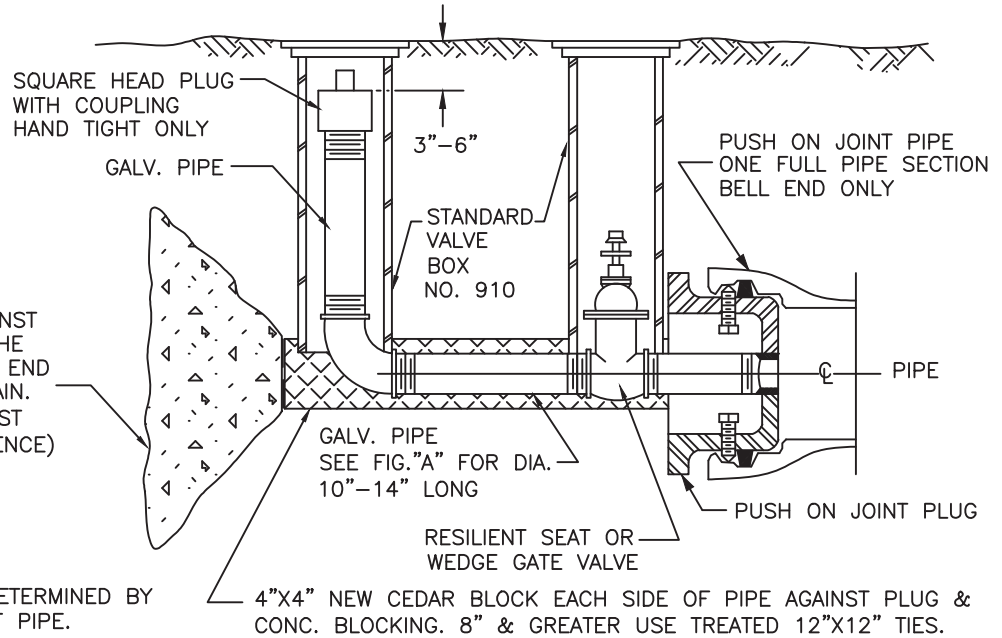
SHEET
W-2.5

FIGURE "A"

MAIN DIAMETER	BLOW-OFF DIAMETER
<12"	2" MINIMUM
≥12"	4" MINIMUM

POUR THRUST BLOCK AGAINST UNDISTURBED SOIL. USE THE BEARING AREA OF A DEAD END MATCHING THE SIZE OF MAIN. (USE THE STANDARD THRUST BLOCK DETAIL FOR REFERENCE)

NOTE:
SIZE OF BLOWOFF DETERMINED BY
SIZE AND LENGTH OF PIPE.



STANDARD TEMPORARY BLOWOFF ASSEMBLY

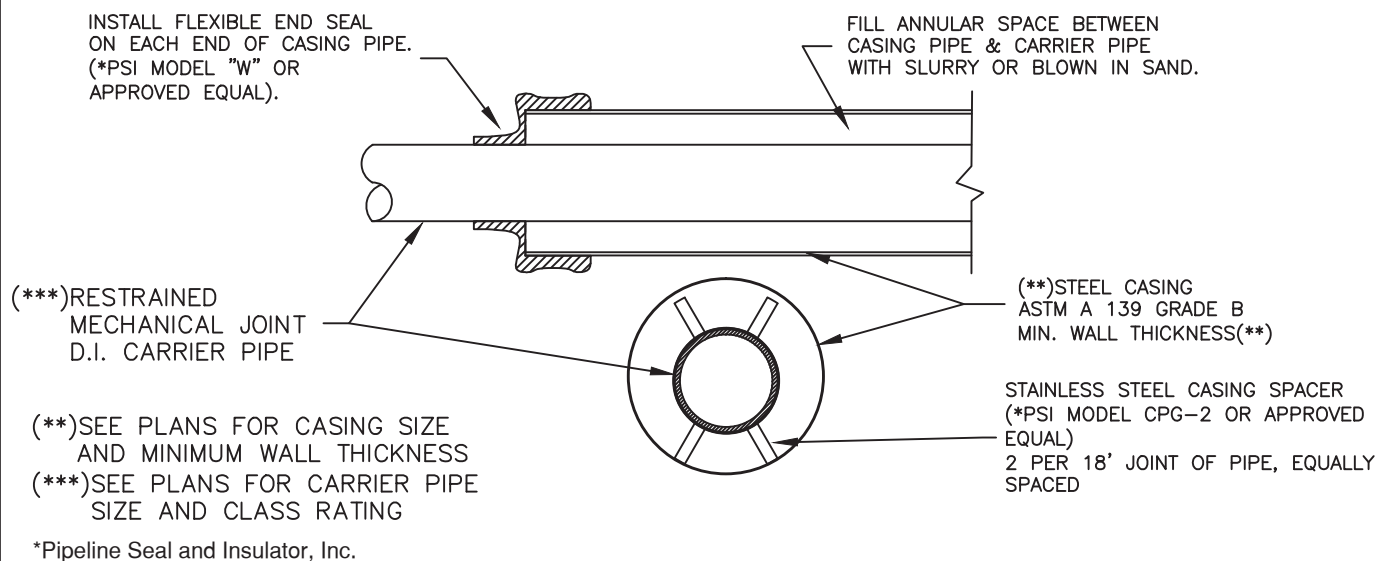
N.T.S.

STANDARD TEMPORARY BLOWOFF ASSEMBLY

STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W-2.6



CASING SIZING REQUIREMENTS

CARRIER PIPE	MINIMUM CASING REQUIREMENTS	WALL THICKNESS
4"	16" A36 STEEL	3/8"
6"	16" A36 STEEL	3/8"
8"	24" A36 STEEL	3/8"
10"	24" A36 STEEL	3/8"
12"	24" A36 STEEL	3/8"
16"	36" A36 STEEL	5/8"
24"	48" A36 STEEL	5/8"

NOTES

1. CASING TO BE EXTENDED 5' BEYOND ANY CURB, WALLS, STRUCTURES OR FOOTINGS
2. PUBLIC AND PRIVATE MAINS SHALL BE PLACED IN SEPARATE CASINGS.
3. WRITTEN PERMISSION FROM THE OWNER OF THE RAILROAD TRACKS IS REQUIRED PRIOR TO OBTAINING CITY OF RIDGEFIELD PERMITS TO PROCEED.
4. NO PRIVATE UTILITIES SHALL BE ALLOWED IN CITY OF RIDGEFIELD CASINGS.

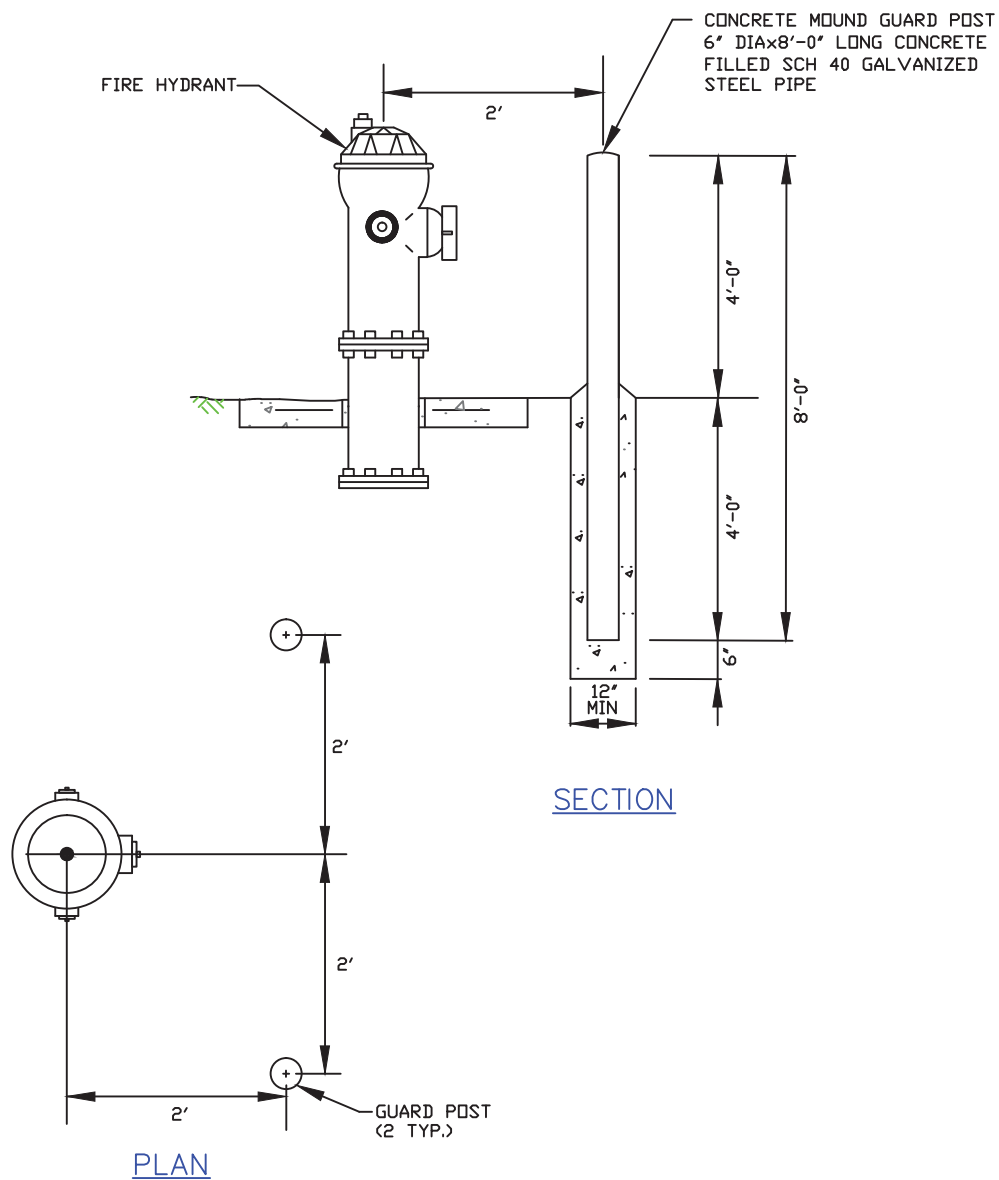
REV. 2/06/08 SCH

PIPE AND CASING DETAIL

STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W-2.8



*PAINT GUARD POST RUSTOLEUM SAFETY YELLOW
BASE No. 288-14, COLOR CODE
AX-6732, T-4432, OR EQUAL.

NOTE:

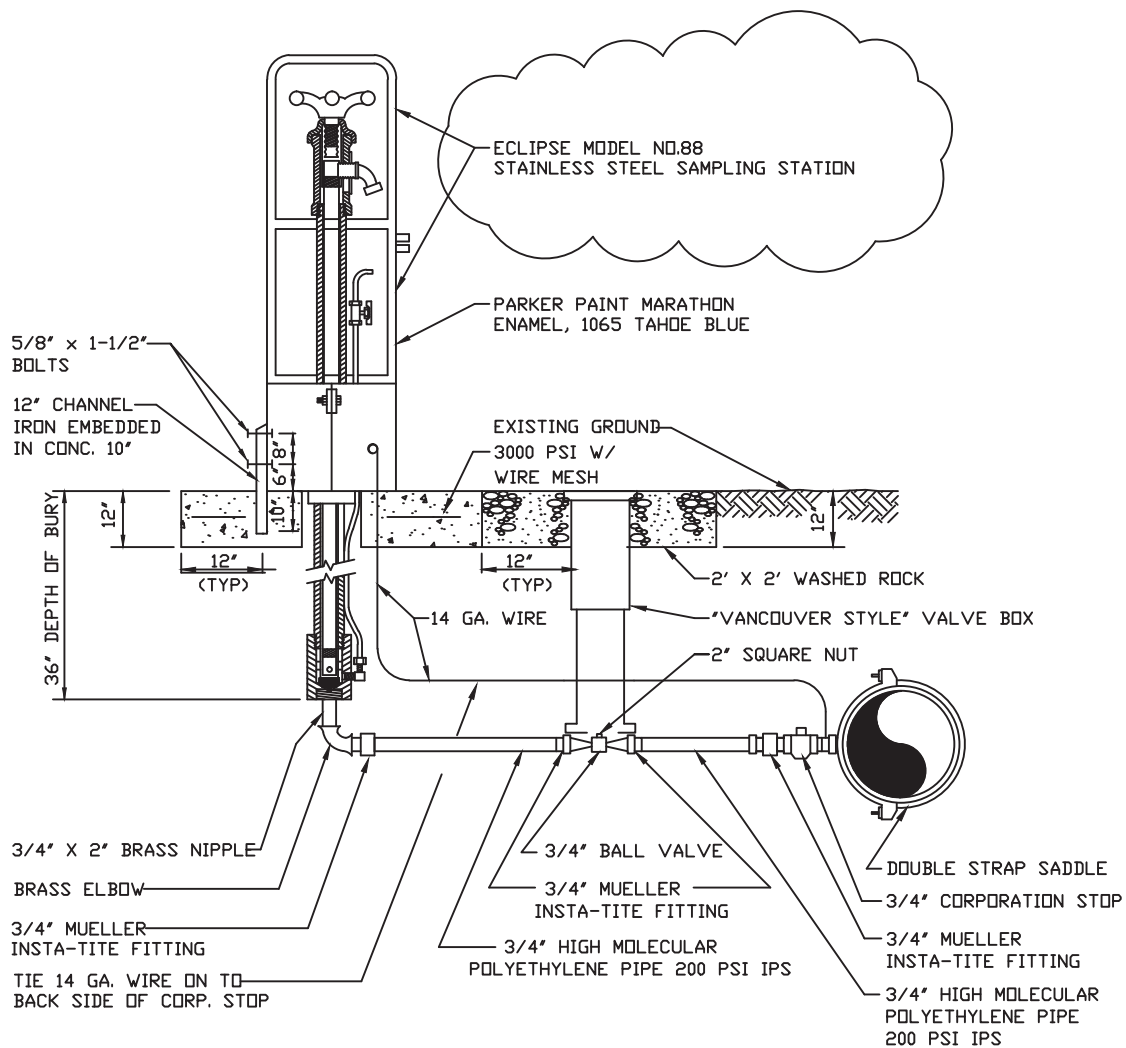
CONCRETE GUARD POATS SHALL BE INSTALLED
WHEN REQUIRED BY CITY ENGINEER

FIRE HYDRANT GUARD POST

STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W - 2.9

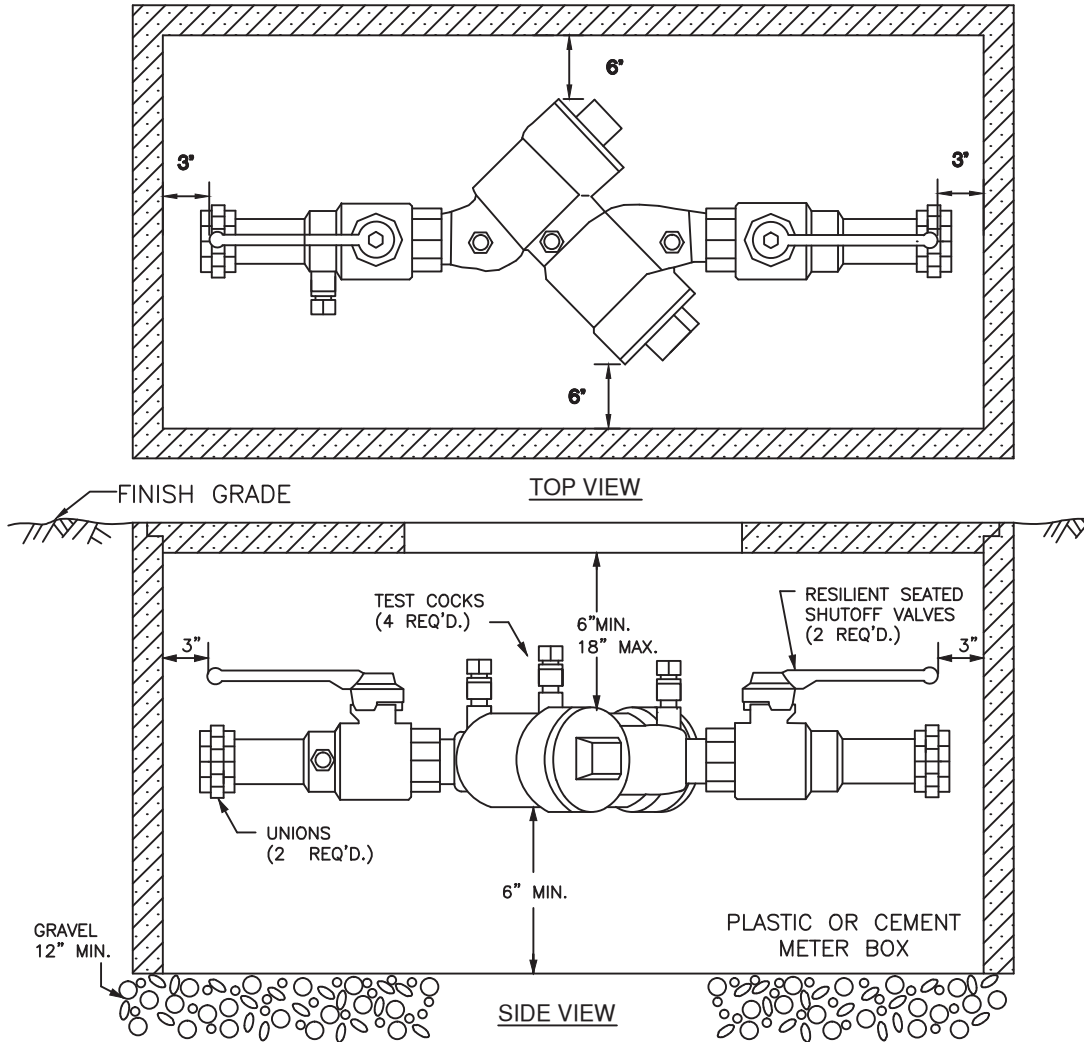


WATER SAMPLING STATION

STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W - 2.10



NOTES:

1. APPROVED DOUBLE CHECK VALVE ASSEMBLY (DCVA) TO LAY HORIZONTAL WITH GROUND.
(VERTICAL ALLOWED IF APPROVED BY WA. DEPT. OF HEALTH)
2. DCVA MAY BE INSTALLED ABOVE OR BELOW GROUND PROVIDED ALL CLEARANCES ARE MET.
3. DESIGN FOR BACK SIPHONAGE AND BACK PRESSURE.
4. TEST COCKS TO EITHER FACE OUTWARDS OR UPWARDS FROM ASSEMBLY.
5. THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACKFLOW PREVENTER.
6. DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
7. DCVA MUST BE ACCESSIBLE.
8. PROTECT DCVA FROM FREEZING.
9. DCVA SHALL BE APPROVED BY THE STATE OF WASHINGTON DEPARTMENT OF HEALTH.
10. A PLUMBING PERMIT IS REQUIRED-CONTACT THE CITY PERMITS COUNTER
11. DCVA MUST BE TESTED AFTER INSTALLATION, THEN ANNUALLY BY A WA. STATE CERTIFIED BACKFLOW TESTER. RESULTS SHALL BE SENT TO THE CITY PUBLIC WORKS OFFICE.

DOUBLE CHECK VALVE ASSEMBLY - 2" & SMALLER

STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W - 3.1

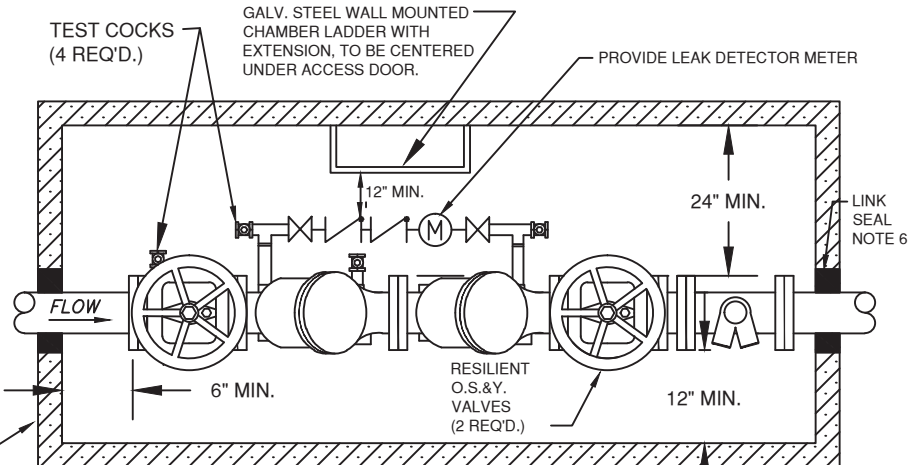
**UTILITY VAULT SIZING CHART
(OR APPROVED EQUAL)**

DEPTH OF PIPE UP TO	DCVA SIZE	FDC TEE INSIDE VAULT	FDC TEE OUTSIDE VAULT
4'	4"	675-WA W/2-332P	575-WA W/2
6'	4"	676-WA	577-WA
4'	6"	687-WA	675-WA W/2
6'	6"		676-WA
6'	8"	5106-WA	687-WA
6'	10"	5106-WA	5106-WA

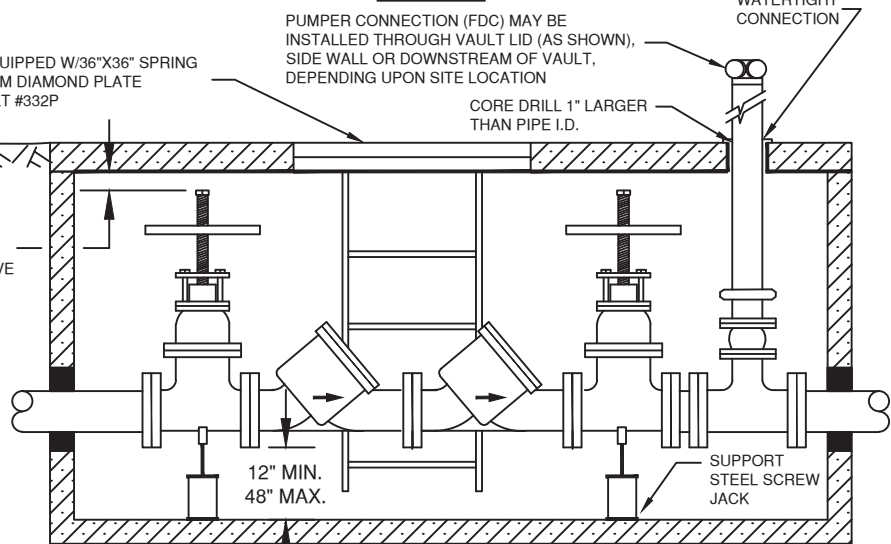
PRE-CAST CONC. VAULT
H-20 LOADING
W/LADDER

VAULT SHALL BE EQUIPPED W/36"X36" SPRING ASSISTED, ALUMINUM DIAMOND PLATE DOOR. UTILITY VAULT #332P

A CITY APPROVED ISOLATION VALVE IS REQ'D. BETWEEN THE SUPPLY MAIN AND THE VAULT



TOP VIEW



SIDE VIEW

NOTES:

1. THE DCVA MAY BE INSTALLED ABOVE OR BELOW GROUND PROVIDED ALL CLEARANCES ARE MET.
2. APPROVED DCVA TO LAY HORIZONTAL WITH THE GROUND. (VERTICAL IF APPROVED BY DEPT. OF HEALTH)
3. DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE.
4. THE WATER LINE SHALL BE DISINFECTED, FLUSHED AND PRESSURE TESTED PRIOR TO INSTALLING THE BACKFLOW ASSEMBLY. THE DCVA SHALL BE PROTECTED FROM FREEZING AND FLOODING.
5. ALL PIPE, VALVE AND FITTING JOINTS, FROM SUPPLY MAIN, SHALL BE FLANGED OR RESTRAINED.
6. PIPE ENTRANCE AND EXIT TO BE PROVIDED WITH LINK SEAL APPROVED EQUAL MECHANICAL SEAL.
7. ALL VAULTS SHALL BE PRE-APPROVED PRIOR TO INSTALLATION.
8. DCVA SHALL BE INSTALLED AT THE PROPERTY LINE OR EASEMENT LINE AND ON OWNER'S PROPERTY.
9. DCVA SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL STRUCTURES.
10. DCVA SHALL BE TESTED AFTER INSTALLATION AND PRIOR TO ACCEPTANCE AND ALSO YEARLY THEREAFTER BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST RESULTS SHALL BE SENT TO THE CITY PUBLIC WORKS OFFICE.

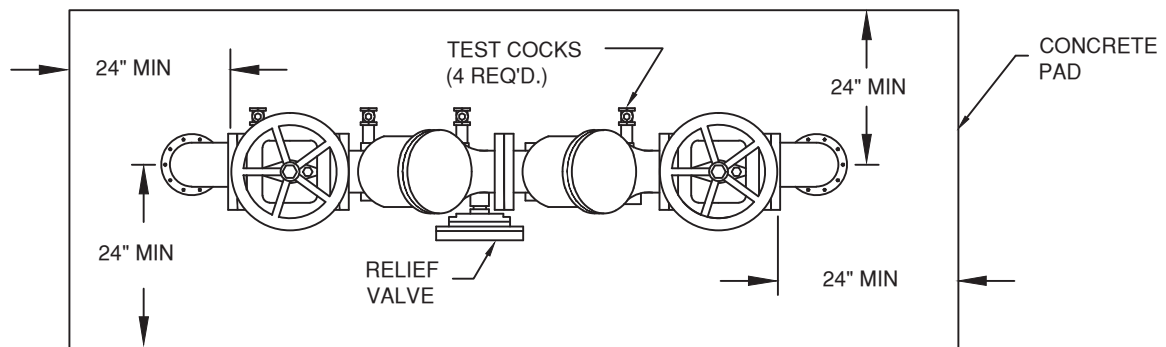
REV. 3/07/08 SCH

DOUBLE CHECK VALVE ASSEMBLY - 2 1/2" & LARGER

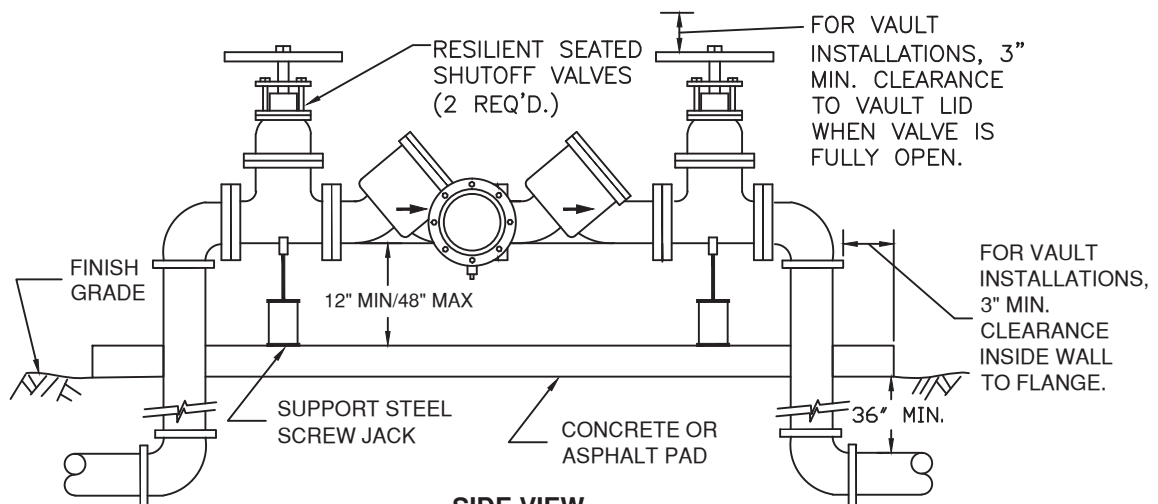
STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W - 3.3



TOP VIEW



SIDE VIEW

NOTE:

1. APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) TO LAY HORIZONTAL ONLY. (VERTICAL IF APPROVED BY DEPT. OF HEALTH)
2. DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE.
3. THE WATER LINE SHALL BE DISINFECTED, FLUSHED AND PRESSURE TESTED PRIOR TO INSTALLING THE RPBA. THE RPBA SHALL BE PROTECTED FROM FREEZING AND FLOODING.
4. ALL PIPE, VALVES AND FITTING JOINTS FROM SUPPLY MAIN, SHALL BE FLANGED AND RESTRAINED.
5. PIPE ENTRANCE AND EXIT PROVIDED WITH LINK SEAL, OR APPROVED EQUAL MECHANICAL SEAL.
6. ALL ENCLOSURES SHALL BE PRE-APPROVED PRIOR TO INSTALLATION.
7. RPBA SHALL BE INSTALLED AT PROPERTY LINE OR EASEMENT LINE AND ON OWNER'S PROPERTY.
8. ADEQUATE GRAVITY DRAINAGE SYSTEM REQUIRED WITH APPROVED AIR GAP.
9. MINIMUM 24" CLEARANCE ON ALL SIDES AROUND RPBA.
10. THE RPBA SHALL BE TESTED AFTER INSTALLATION AND PRIOR TO ACCEPTANCE, ALSO YEARLY THEREAFTER BY A CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST RESULTS SHALL BE SENT TO THE CITY PUBLIC WORKS OFFICE.
11. A CITY APPROVED VALVE IS REQUIRED BETWEEN THE SUPPLY MAIN AND THE R.P.B.A.
12. PROVIDE HEAT AND/OR INSULATION TO PREVENT FREEZING.
13. SUPPORT PIPE AND FITTINGS TO BE SCHEDULE 80 OR AS APPROVED BY CITY ENGINEER.

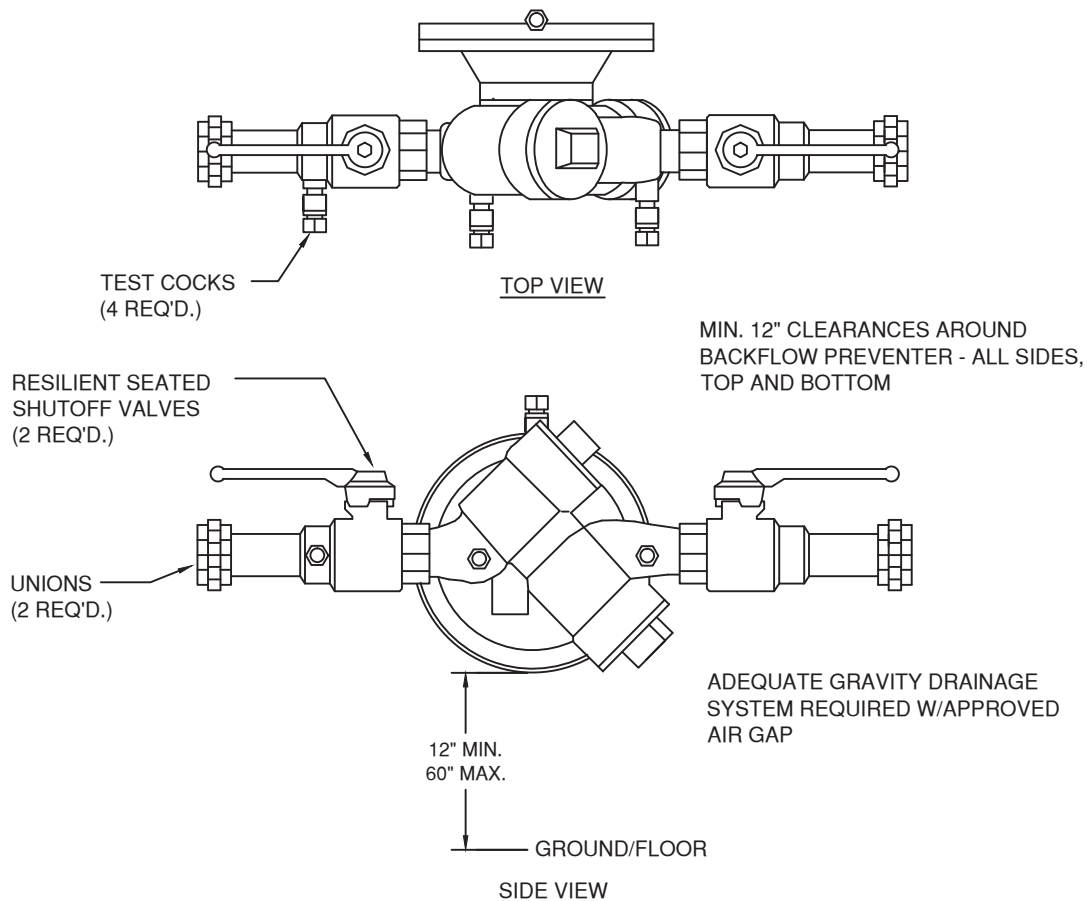
(ABOVE GROUND INSTALLATION ONLY)

REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY 2-1/2" & LARGER

STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W - 3.4



NOTES:

1. APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) TO LAY HORIZONTAL WITH GROUND. (VERTICAL ALLOWED IF APPROVED BY WA. DEPT. OF HEALTH)
2. DESIGN RPBA FOR BACK SIPHONAGE AND BACK PRESSURE.
3. THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACKFLOW PREVENTER.
4. DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
5. RPBA MUST BE ACCESSIBLE.
6. PROTECT RPBA FROM FREEZING.
7. A PLUMBING PERMIT IS REQUIRED-CONTACT THE APPROPRIATE JURISDICTION'S PERMITS COUNTER
8. RPBA MUST BE TESTED AFTER INSTALLATION, THEN ANNUALLY BY A WA. STATE CERTIFIED BACKFLOW TESTER. RESULTS SHALL BE SENT TO THE CITY PUBLIC WORKS OFFICE.
9. RPBA SHALL BE APPROVED BY THE STATE OF WASHINGTON. A LIST OF THE APPROVED DEVICES IS AVAILABLE FROM THE DEPARTMENT OF HEALTH.
10. A CITY APPROVED VAULT AND LID REQUIRED. PROVIDE HEAT AND/OR INSULATION TO PREVENT FREEZING,
11. SUPPORT PIPES AND FITTINGS TO BE SCHEDULE 80 PVC OR, AS APPROVED BY THE CITY ENGINEER.

(ABOVE GROUND INSTALLATION ONLY)

REV. 4/15/08 SCH

REDUCE PRESSURE PRINCIPLE BACKFLOW ASSEMBLY - 2" & SMALLER

STANDARD
DETAILS

CITY OF RIDGEFIELD

SHEET
W - 3.5

APPENDIX H

**WATER RIGHTS AND
WATER RIGHTS SELF-ASSESSMENT**



STATE OF WASHINGTON
DEPARTMENT OF WATER RESOURCES
DIVISION OF WATER MANAGEMENT

WATER RIGHT CLAIM

0011072025042

0011072026103

1. NAME Town of Ridgefield - Well #1 (City Park)
ADDRESS Ridgefield, Washington
ZIP CODE 96842

2. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: Ground Water
(SURFACE OR GROUND WATER)
W.R.I.A. 27 (LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS Dug Well - infiltration gallery combination
B. IF SURFACE WATER, THE SOURCE IS _____

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:
A. QUANTITY OF WATER CLAIMED 200 gpm PRESENTLY USED No metering system -
(CUBIC FEET PER SECOND OR GALLONS PER MINUTE) available,
B. ANNUAL QUANTITY CLAIMED 323 PRESENTLY USED quantities not known
(ACRE FEET PER YEAR)
C. IF FOR IRRIGATION, ACRES CLAIMED _____ PRESENTLY IRRIGATED _____
D. TIME(S) DURING EACH YEAR WHEN WATER IS USED: January 1 thru December 31

4. DATE OF FIRST PUTTING WATER TO USE: Prior to 1935 MONTH _____ YEAR _____

5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL: 770 FEET North AND
1255 FEET East FROM THE West 1/4 CORNER OF SECTION 19
BEING WITHIN NW 1/4 OF SECTION 19 T. 4 N. R. 1 (E.B.W.) W.M.
IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT _____ BLOCK _____ OF
Ridgefield City Park
(GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED: The water from Well #1 enters a reservoir
shared with 5 other wells belong to the Town of Ridgefield. From this common reservoir
the water is distributed throughout the service area of said Town.

7. PURPOSE(S) FOR WHICH WATER IS USED: Municipal

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED: Appropriation RCW 90 16 010

DO NOT USE THIS SPACE
THE FILING OF A STATEMENT OF CLAIM DOES NOT CONSTITUTE AN ADJUDICATION
OF ANY CLAIM TO THE RIGHT TO USE OF WATERS AS BETWEEN THE WATER USE
CLAIMANT AND THE STATE OR AS BETWEEN ONE OR MORE WATER USE CLAIMANTS
AND ANOTHER OR OTHERS. THIS ACKNOWLEDGEMENT CONSTITUTES RECEIPT FOR
THE FILING FEE.
DATE RETURNED _____ REGISTRY NUMBER _____

THIS HAS BEEN ASSIGNED
OCT 16 1972 REGISTRY NO

John Biggs

ASSISTANT DIRECTOR DIVISION OF WATER MANAGEMENT-DEPARTMENT OF WATER RESOURCES

I HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND
ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF
X Fred S. Holden
DATE October 4, 1972
IF CLAIM FILED BY DESIGNATED REPRESENTATIVE, PRINT OR TYPE
FULL NAME AND MAILING ADDRESS OF AGENT BELOW.

Fred S. Holden, Mayor
Town of Ridgefield
Ridgefield Town Hall
Ridgefield, Washington 98642

☐ ADDITIONAL INFORMATION RELATING TO WATER QUALITY
AND/OR WELL CONSTRUCTION IS AVAILABLE

A FEE OF \$2.00 MUST ACCOMPANY THIS WATER RIGHT CLAIM

RETURN ALL THREE COPIES WITH CARBONS INTACT ALONG WITH YOUR FEE TO:
DEPARTMENT OF WATER RESOURCES
DIVISION OF WATER MANAGEMENT
UNION AVE BUILDING OLYMPIA WASHINGTON 98501

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

☐ Surface Water

(Issued in accordance with the provisions of Chapter 88, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water

(Issued in accordance with the provisions of Chapter 88, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

CERTIFICATE NUMBER 0 2-20379 G	PERMIT NUMBER 0 2-20379 G	APPLICATION NUMBER 0 2-20379	PRIORITY DATE May 28, 1972
--	-------------------------------------	--	--------------------------------------

NAME TOWN OF RIDGEFIELD	CITY RIDGEFIELD	STATE WASHINGTON	ZIP CODE 98249
ADDRESS (STREET) P.O. Box 449			

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE a well	TRIBUTARY OF (IF SURFACE WATERS)	
MAXIMUM CUBIC FEET PER SECOND 200	MAXIMUM GALLONS PER MINUTE 200	MAXIMUM ACRE-FEET PER YEAR 161
QUANTITY, TYPE OF USE, PERIOD OF USE 200 gpm 161 acre-feet per year municipal supply continuously		

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION/WITHDRAWAL
north 32°44' west 2673 feet from the east quarter corner of Sec. 24 being within James Carty D.L.C. No. 43 comprising the

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) Block 24	SECTION 24	TOWNSHIP N. 6	RANGE, (E. OR W.), T. & R. 3 W.	P.A.A. 37	COUNTY CLATSOP
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
-----	-------	------------------------------------

LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

Area served by the Town of Ridgefield.

6 220379

CERTIFICATE

PROVISIONS

The access port, as required in your permit, shall be maintained at all times.

Nothing in this certificate shall be construed as exempting the certificate from compliance with any applicable Federal, state, or local statutes, ordinances, or regulations including those administered by local agencies under the Shoreline Management Act of 1971.

A suitable measuring device shall be installed and maintained in accordance with WAC 90A-44-020 through WAC 90A-44-040.

Issued as a primary right for 115 acre-feet per year and a supplemental right for 45 acre-feet per year, less any amount under claim to vested right.

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for excess of water as provided in RCW 90.16.120.

Given under my hand and the seal of this office at Olympia, Washington, this 19th of October 1978

JOHN A. BIGGS, Director
Department of Ecology

ENGINEERING DATA

OR *[Signature]*

by *[Signature]*
E. JAMES BULLOCK, Assistant Secretary

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

- ☐ Surface Water (Issued in accordance with the provisions of Chapter 127, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology)
- ☒ Ground Water (Issued in accordance with the provisions of Chapter 127, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology)

CERTIFICATE NUMBER Q 2-20380 D	PERMIT NUMBER Q 2-20380 P	APPLICATION NUMBER Q 2-20380	ISSUANCE DATE July 18, 1977
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NAME TOWN OF RIDGEFIELD	CITY Ridgefield	STATE Washington	ZIP CODE 98642
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P.O. Box 648

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE a well	TRIBUTARY OF (IF SURFACE WATERS)	
MAXIMUM CUBIC FEET PER SECOND 125	MAXIMUM GALLONS PER MINUTE 100	MAXIMUM ACRE-Feet PER YEAR 100
QUANTITY, TYPE OF USE, PERIOD OF USE 125 gpm; 100 acre-feet per year municipal supply continuously		

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION/WITHDRAWAL
north 34°09' west 2374 feet from the east quarter corner of Sec. 24 being within James Carty D.L. C. No. 48 comprising the

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) Maple	SECTION 24	TOWNSHIP N. 4	RANGE, E. OR W. W.M. 2 E.	N.E.1/4 27	COUNTY Grant
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
-----	-------	------------------------------------

LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

Area served by the Town of Ridgefield.

62-2380

CERTIFICATE

Nothing in this certificate shall be construed as ensuring the certificatee's compliance with any applicable federal, state, or local statutes, ordinances, or regulations including those administered by local agencies under the Shoreline Management Act of 1971.

known as a primary right, lose any amount under the claim of vested right.

A suitable answering device shall be installed and maintained in accordance with WAC 305-44-030 through WAC 305-44-040.

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for amount of water as provided in RCW 90.14.100.

Given under my hand and the seal of this office at Olympia, Washington, this 23rd day of October, 1974.

JOHN A. BIGGS, Director
Department of Ecology

ENGINEERING DATA

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THE UNIVERSITY OF CHICAGO

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

- ☐ Surface Water (issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- ☒ Ground Water (issued in accordance with the provisions of Chapter 262, Laws of Washington for 1943, and amendments thereto, and the rules and regulations of the Department of Ecology.)

CERTIFICATE NUMBER G 2-20381 C	PERMIT NUMBER G 2-20381 2	APPLICATION NUMBER G 2-20381	ISSUANCE DATE July 18, 1973
--	-------------------------------------	--	---------------------------------------

NAME OWN OF RIDGEFIELD	CITY RIDGEFIELD	STATE WASHINGTON	ZIP CODE 98282
ADDRESS (STREET) P.O. Box 643			

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE a well	TRIBUTARY OF IF SURFACE WATERS	
MAXIMUM CUBIC FEET PER SECOND 300	MAXIMUM GALLONS PER MINUTE 240	MAXIMUM ACRE-Feet PER YEAR 240
QUANTITY, TYPE OF USE, PERIOD OF USE 300 gpm, 240 acre-feet per year municipal supply continuously		

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION/WITHDRAWAL
north 57°40' east 1483 feet ± from the west quarter corner of Sec. 18 being within the A. Quigley D.L.C. No. 27 comprising the

LOCATED WITHIN SMALLEST LEGAL SUBDIVISION Sec. 18	SECTION 18	TOWNSHIP N. 4	RANGE, E. OR W. 1/4 N. 3 E.	W.L.L. 27	COUNTY Whatcom
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
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LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

Area served by the Town of Ridgefield.

62-20381

CERTIFICATE

PROVISIONS

The water right, as required in your permit, shall be maintained at all times.

Nothing in this certificate shall be construed as ensuring the certification from compliance with any applicable federal, state, or local statutes, ordinances, or regulations including those administered by local agencies under the Shoreline Management Act of 1971.

Issued as a primary right, less any amount under claim of vested right.

A suitable measuring device shall be installed and maintained in accordance with WAC 305-44-030 through WAC 305-44-040.

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use here described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for amount of water as provided in RCW 90.14.130.

Given under my hand and the seal of this office at Olympia, Washington, this 15th
of October 1974

JOHN A. BIGGS, Director
Department of Ecology

ENGINEERING DATA

BY *[Signature]*

by *[Signature]*
R. JERRY MILLER, Assistant Director

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

- ☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- ☒ Ground Water (Issued in accordance with the provisions of Chapter 253, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE August 13, 1986	APPLICATION NUMBER G 2-27103	PERMIT NUMBER G 2-27103 P	CERTIFICATE NUMBER G 2-27103 C
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NAME

City of Ridgefield

ADDRESS (STREET)

230 Pioneer Avenue

(CITY)

Ridgefield

(STATE)

Washington

(ZIP CODE)

98668

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown, but is limited to an amount actually beneficially used.

PUBLIC WATER TO BE APPROPRIATED

SOURCE

Well No. 7

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND

MAXIMUM GALLONS PER MINUTE

300

MAXIMUM ACRE-FEET PER YEAR

241

QUANTITY, TYPE OF USE, PERIOD OF USE

241 acre-feet per year

Municipal supply

As needed year round

(Supplemental)

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL

820 feet North and 620 feet West of the center of Section 19.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)

SE 1/4 NW 1/4

SECTION

19

TOWNSHIP N.

4

RANGE, (E. OR W.) W.M.

1E

W.R.I.A.

27

COUNTY

Clark

RECORDED PLATTED PROPERTY

LOT

BLOCK

OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Ridgefield.

2-27103

The access port shall be maintained at all times on the well (s).

The quantity appropriated by this document is considered to be a portion of the amount reserved by the adoption of Chapter 173-592, the Reservation of Future Public Water Supply for Clark County. The priority date of this permit is August 13, 1986.

"The annual quantity of 241 acre-feet per year authorized herein is totally supplemental to existing rights. No more than 369 acre-feet per year may be withdrawn under all existing recorded and vested water rights enjoyed by the City of Ridgefield."

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.160.

Given under my hand and the seal of this office at Olympia Washington, this 29 day
of June 19 88

Christine O. Gregoire, Director
Department of Ecology

ENGINEERING DATA

OK

by Clark Haberman, Regional Manager

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

- ☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- ☐ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE August 13, 1986	APPLICATION NUMBER G 2-27104	PERMIT NUMBER G 2-27104 P	CERTIFICATE NUMBER G 2-27104 C
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NAME
City of Ridgefield

ADDRESS (STREET) 230 Pioneer Avenue	(CITY) Ridgefield	(STATE) Washington	(ZIP CODE) 98668
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This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown, but is limited to an amount actually beneficially used.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
Well No. 8

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE 300	MAXIMUM ACRE-Feet PER YEAR 241
-------------------------------	-----------------------------------	-----------------------------------

QUANTITY, TYPE OF USE, PERIOD OF USE 241 acre-feet per year (supplemental)	Municipal supply	As needed year round
--	------------------	----------------------

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
605 feet North and 280 feet West of the center of Section 19.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SE 1/4 NW 1/4	SECTION 19	TOWNSHIP N. 4	RANGE (E. OR W.) W.M. 1E	W.R.I.A. 27	COUNTY Clark
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RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
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LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Ridgefield.

PROVISIONS

"The annual quantity of 241 acre-feet per year authorized herein is totally supplemental to existing rights. No more than 369 acre-feet per year may be withdrawn under all existing recorded and vested water rights enjoyed by the City of Ridgefield."

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at *Washington*, this *28th* day
of *February*, 19*90*.

Christine O. Gregoire, Director
Department of Ecology

ENGINEERING DATA

by

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

- ☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- ☒ Ground Water (Issued in accordance with the provisions of Chapter 203, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE August 13, 1986	APPLICATION NUMBER G 2-27105	PERMIT NUMBER G 2-27105 P	CERTIFICATE NUMBER G 2-27105 C
----------------------------------	---------------------------------	------------------------------	-----------------------------------

NAME

City of Ridgefield

ADDRESS (STREET)

230 Pioneer Avenue

(CITY)

Ridgefield

(STATE)

Washington

(ZIP CODE)

98668

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown, but is limited to an amount actually beneficially used.

PUBLIC WATER TO BE APPROPRIATED

SOURCE

Well No. 9

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND

MAXIMUM GALLONS PER MINUTE

300

MAXIMUM ACRE-FEET PER YEAR

241

QUANTITY, TYPE OF USE, PERIOD OF USE

241 acre-feet per year
(supplemental)

Municipal supply

As needed year round

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL

550 feet North and 140 feet West of the Center of Section 19.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)

SE 1/4 NW 1/4

SECTION

19

TOWNSHIP N.

4

RANGE, (E. OR W.) W.M.

1E

W.R.I.A.

27

COUNTY

Clark

RECORDED PLATTED PROPERTY

LOT

BLOCK

OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Ridgefield.

The access port shall be maintained at all times on the well (s).

The quantity appropriated by this document is considered to be a portion of the amount reserved by the adoption of Chapter 173-592, the Reservation of Future Public Water Supply for Clark County. The priority date of this permit is August 13, 1986.

"The annual quantity of 241 acre-feet per year authorized herein is totally supplemental to existing rights. No more than 639 acre-feet per year may be withdrawn under all existing recorded and vested water rights enjoyed by the City of Ridgefield."

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia Washington, this 29 day
of June, 1988

Christine O. Gregoire, Director
Department of Ecology

ENGINEERING DATA

OK Sam

by Clark Haberman, Regional Manager

FOR COUNTY USE ONLY

2449

2449

G. P. No. 1231-0-13-11 12173

CERTIFICATE RECORD No. 5 PAGE No. 2449-A

STATE OF WASHINGTON, COUNTY OF CLATSOP

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 203, Laws of Washington for 1949, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.

THIS IS TO CERTIFY That the TOWN OF RIDGEFIELD, WASHINGTON

has made proof to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the ground waters of a well

located within Abnoma Park, Town of Ridgefield (A. Guigley D.L.O.), Sec. 19, Twp. 4 N., Rge. 1 E., N. 1/4

for the purpose of municipal supply

under and subject to provisions contained in Ground Water Permit No. 3623 issued by the State Supervisor of Water Resources and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume 5 at page 2449-A; that the right hereby confirmed dates from July 19, 1955; that the quantity of ground water under the right hereby confirmed for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 150 gallons per minute; 160 acre-feet per year for municipal supply.

A description of the lands to which such ground water right is appurtenant, and the place where such water is put to beneficial use, in as follows:

Town of Ridgefield, Clatsop County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Water Resources affixed this

26th day of DECEMBER, 1955.

RECORDED IN
CLATSOP CO.

M. J. Walker
State Supervisor of Water Resources.



State of Washington
DRAFT
REPORT OF EXAMINATION
FOR WATER RIGHT APPLICATION

File NR G2-29174
WR Doc ID 2221314

PRIORITY DATE
January 3, 1995

WATER RIGHT NUMBER
G2-29174

MAILING ADDRESS
CITY OF RIDGEFIELD
230 PIONEER AVENUE
RIDGEFIELD WA 98642

SITE ADDRESS (IF DIFFERENT)

Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
400	GPM	483

Purpose

PURPOSE	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)		PERIOD OF USE (mm/dd)
	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	
Municipal, continuously	400		GPM	483		01/01 - 12/31

PUBLIC WATER SYSTEM INFORMATION

WATER SYSTEM ID	CONNECTIONS
72400V	

Source Location

COUNTY	WATERBODY	TRIBUTARY TO	WATER RESOURCE INVENTORY AREA
Clark	Groundwater		27

SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWP	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Well			04N	01E	21	NW SE		

Place of Use (See Attached Map)

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

The place of use (POU) of this water right is the service area described in the most recent City of Ridgefield Water System Plan approved by the Washington State Department of Health, so long as the water system is and remains in compliance with the criteria in RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the place of use of this water right.

Proposed Works

The existing well, referred to as the Junction Well, is currently not in use because of high levels of iron and manganese. This well will be redeveloped and will provide treatment for iron and manganese. The well be equipped with a 400-gallon per minute (gpm) pump and will supply the Junction Reservoir, an existing 100,000 gallon above ground storage tank. The Junction Booster Station consists of three 1,000 gpm end suction centrifugal pumps and one 10 gpm vertical multi-stage pump. The Junction Booster Station provides water to the water system High Zone from the Junction Reservoir.

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Begun	January 1, 2015	March 1, 2020

Measurement of Water Use

How often must water use be measured?	Monthly
How often must water use data be reported to Ecology?	Upon Request by Ecology
What volume should be reported?	Total Annual Volume
What rate should be reported?	Annual Peak Rate of Withdrawal (gpm or cfs)

Provisions**Measurements, Monitoring, Metering and Reporting**

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", WAC 173-173.

WAC 173-173 describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements.

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the project location, and to inspect at reasonable times, records of water use, wells, diversions, measuring devices and associated distribution systems for compliance with water law.

Mitigation Performance

By February 1, 2013, the City shall submit a monitoring and maintenance plan for the habitat enhancement project (EF-20) that will ensure performance standards are met for a period of at least 10 years.

Proof of Appropriation

The water right holder shall file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution system has been constructed and the quantity of water required by the project has been put to full beneficial use. The certificate will reflect the extent of the project perfected within the limitations of the permit. Elements of a proof

inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and satisfaction of provisions.

Findings of Facts

Upon reviewing the investigator's report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. Furthermore, I concur with the investigator that water is available from the source in question; that there will be no impairment of existing rights; that the purpose(s) of use are beneficial; and that there will be no detriment to the public interest.

Therefore, I ORDER approval of Application No. G2-29174 subject to existing rights and the provisions specified above.

Signed at Olympia, Washington, this day of 2012.

Michael J. Gallagher, Section Manager

Your Right To Appeal

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of the Order.

File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.

- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.
- You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Mailing Addresses	Street Addresses
Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903	Pollution Control Hearings Board 1111 Israel RD SW Ste 301 Tumwater, WA 98501
Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608	Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503

For additional information visit the Environmental Hearings Office Website: <http://www.eho.wa.gov>. To find laws and agency rules visit the Washington State Legislature Website: <http://www1.leg.wa.gov/CodeReviser>.

BACKGROUND

The subject application was submitted to Ecology by the City of Ridgefield and assigned a priority date of January 3, 1995. The application is for appropriation of groundwater to provide additional supply the Ridgefield Water System, a Class A system (Washington State Department of Health [DOH] identification number 72400V). The most recent water system plan was prepared in 2005 by Gray & Osborne, Inc.

Attributes of Application

Table 1 Application Summary

Name	City of Ridgefield
Priority Date	1/3/1995
Instantaneous Rate	400 gpm
Annual Quantity	483 af/yr
Purpose(s) of Use	Municipal
Period of Use	Continuous use
Place(s) of Use	Area served by Ridgefield

Table 2 Proposed Point of Withdrawal

Source Name	Parcel	WellTag	Twp	Rng	Sec	QQ Q	Latitude	Longitude
Junction Well			04N	01E	21	NW SE		

Legal Requirements for Approval of Appropriation of Water

RCWs 90.03 and 90.44 authorizes the appropriation of public water for beneficial use and describes the process for obtaining water rights. Laws governing the water right permitting process are addressed in RCW 90.03.250 through 90.03.340 and RCW 90.44.050. In accordance with RCW 90.03.290, Ecology must make determinations on these four criteria in order to approve an application for water rights:

- Water must be available for appropriation.
- There must be no impairment of existing rights.
- The water use must be a beneficial use.
- Approving the application must not be detrimental to the public interest.

This report serves as the written findings of fact concerning all things investigated regarding Water Right Application Number G2-29174.

Public Notice

The applicant published a public notice for this project proposal in *The Daily News* of Cowlitz County once a week for two consecutive weeks beginning on April 14 and ending April 21, 1994. No protests or letters of concern in response to this notice.

State Environmental Policy Act (SEPA)

A SEPA determination evaluates if a proposed withdrawal will cause significant adverse environmental impacts. A SEPA threshold determination is required for:

- 1) Surface water applications for more than 1 cubic feet per second (cfs). For agricultural irrigation, the threshold increases to 50 cfs, if the project isn't receiving public subsidies.
- 2) Groundwater applications requesting more than 2,250 gpm.
- 3) Projects with several water right applications where the combined withdrawals meet the conditions listed above.
- 4) Projects subject to SEPA for other reasons (e.g., the need to obtain other permits that are not exempt from SEPA).
- 5) Applications that are part of several exempt actions that collectively trigger SEPA under WAC 197-11-305.

This application does not meet any of these conditions and is categorically exempt from SEPA.

INVESTIGATION

This investigation included, but was not limited to, research or review of:

- Records of water rights and well logs in the vicinity
- Topographic and local area maps
- Groundwater modeling performed by Golder Associates, Inc.
- City of Ridgefield Mitigation Proposal, 2012

Project Description

The City of Ridgefield is located in southwestern Washington approximately two miles east of the Columbia River and 25 miles north of Portland, Oregon. Rolling hills and ravines surround the City. Lake River borders Ridgefield to the west and the existing city limits extend past I-5 to the east. Gee Creek is the primary surface water body through the City's service area. Elevations range from a maximum of approximately 300 feet above mean sea level (msl) on the east side of I-5 to a minimum of 0 feet msl at Lake River.

The Junction Well is located approximately two miles east of the city of Ridgefield business district along SR-501. The well lies at an elevation of approximately 285 ft MSL within the East Fork Lewis River Subbasin of WRIA 27 and within the surface water drainage basin of Allen Creek. The well is located on land owned by the Port of Ridgefield and leased to the City of Ridgefield.

Proposed Use and Basis of Water Demand

Groundwater is requested for municipal supply used continuously year round. Bringing the Junction Well on line will help meet Ridgefield's projected water demand over the next 20 years. In 2003, the City of Ridgefield supplied water to serve 1,022 equivalent residential units (ERUs) based on an annual

average consumption of 232 gallons per day (gpd) per ERU. By 2024 demand is projected to be 11,161 ERUs.

Hydrologic/Hydrogeologic Evaluation

General Area Hydrogeology

The regional geologic and hydrogeologic framework for Clark County was first developed by Mundorff (1964); additional regional hydrogeologic investigation and interpretation was performed by Swanson and others (1993). Detailed geologic mapping of the west-central portion of Clark County, including the Ridgefield, Saint Helens, and Battle Ground quadrangles, has been done by Everts (2004a, 2004b) and Howard (2002). Hydrostratigraphic cross sections of west-central Clark County were developed by Pacific Groundwater Group and presented in PGG (2003). Golder Associates (2007, 2008) developed detailed hydrostratigraphic cross sections and potentiometric surface maps of the Ridgefield area, focusing on the Junction Well vicinity, in support of the present application.

Ridgefield lies in the northern part of the Portland Basin, a northwest-southeast trending topographic and structural basin approximately 40 miles long and 20 miles wide. The basin is flanked by Eocene through Miocene volcanic and sedimentary bedrock. The deepest parts of the basin, near Vancouver, are filled by up to 1,800 ft of late Miocene and younger unconsolidated sediments primarily carried in from the east by the Columbia River.

The unconsolidated basin-fill sediments consist of layers of coarse-grained sand, gravel, and cobble deposits and layers of fine-grained silt and clay deposits. The coarse-grained deposits form the principal aquifers and the fine grained deposits act as aquitards or confining units which separate the aquifers from one another. Groundwater in the shallow, unconfined aquifers is typically recharged via infiltration of precipitation and discharges to smaller surface-water tributaries such as Gee Creek. Groundwater in the deeper, confined systems is recharged via downward leakage from overlying aquifers and typically discharges to the Columbia River or larger tributaries such as the East Fork Lewis River.

Understanding of the hydrogeology of the Portland Basin has been evolving over the past 40 years and terminology and stratigraphic relationships are sometimes inconsistent between workers. For the purposes of this report, the stratigraphic framework of the most recent site-specific study (Golder Associates 2007, 2008) is presented. Based on this work, the Ridgefield area is underlain, from the surface downward, by the following hydrostratigraphic units:

- *Pleistocene Alluvial Deposits* - Undifferentiated sediments associated with flood deposits of the Columbia River. Well logs indicate that the Pleistocene deposits are predominantly unconsolidated with thicknesses that generally range between 50 and 200 feet in the surrounding area, and are composed of sediments ranging from boulders to clay. At the Junction Well, the Pleistocene Alluvial Deposits are approximately 50 feet thick.
- *Upper Troutdale Aquifer* - This aquifer is approximately 100 feet thick at the Junction Well and is largely composed of sand and gravel. Zones of silt and clay and partially-cemented coarse sands and gravels noted in local well logs limit the transmissivity of this unit. The aquifer supplies many of the local domestic wells in the area, and typically has well yields less than 100 gpm.

- *Upper Confining Unit* - Composed of low-permeability sediments of silt and clay, this unit typically underlies the Upper Troutdale Aquifer. However, based on the available well logs, the Upper Confining Unit appears to be discontinuous or absent in the vicinity of the Junction Well.
- *Lower Troutdale Aquifer* - Composed predominately of sand with interlayers of medium sand and silt, and is approximately 50 feet thick at the Junction Well. The Lower Troutdale Aquifer is typically confined and overlain by the Upper Confining Unit; however, with the apparent absence of the Upper Confining Unit in the vicinity of the Junction Well, the Lower Troutdale Aquifer is directly overlain by the Upper Troutdale Aquifer.
- *Lower Confining Unit* - Composed predominantly of clay with some sand and gravel. In the vicinity of the Junction Well, this confining unit is approximately 50 to 70 feet thick. Well logs southeast and southwest of the Junction Well indicate that the Lower Confining Unit is relatively uniform in thickness and is present over a broad area including in the vicinity of Gee Creek and the Junction Well.
- *Sand and Gravel Aquifer (SGA)* - This unit is confined and is approximately 160 feet thick at the Junction Well. The top contact of the SGA is found at a depth of 300 feet below ground surface (bgs), or approximate elevation -67 feet msl. It is primarily composed of sand, sandy gravel, and silt. This unit also contains some cemented sand and gravel layers, and silt and clay interbeds. The SGA exists over a broad area of the Portland Basin. Relatively few wells tap the SGA and groundwater development within the SGA is primarily by public water-supply systems.
- *Pliocene and Miocene Undifferentiated Sediments* - Fine-grained sedimentary deposits primarily composed of fine- to medium-grained sand, silt and clay with small lenses of sand.
- *Miocene Basalt Bedrock* - Bedrock underlying the sedimentary deposits in this area is composed of basalt of the Columbia River Basalt Group.

Geologic mapping by Evarts (2004a), shows the SGA to have been incised by streams in the lower reaches of the study area near base-level elevations that discharge to the tidally influenced areas of the lower portions of the East Fork Lewis River, Lewis River, and Lake River systems. The SGA is mapped intermittently along some portions of the East Fork Lewis River floodplain, the lower reaches of Allen Canyon Creek upstream of Mud Lake, the lower reaches of McCormick Creek upstream of its confluence with the East Fork Lewis River, and along slopes east of Lancaster Lake near the Lake River system.

The Junction Well taps the Sand and Gravel Aquifer. The driller's log for this well indicates that it penetrates clays of the Pleistocene Alluvial Deposits to a depth of between 45 and 62 feet bgs, sands and gravels of the Upper Troutdale Aquifer to 171 feet bgs, sands of the Lower Troutdale Aquifer to between 225 and 230 feet bgs, clays of the Lower Confining Unit to a depth of between 285 and 300 feet bgs, and sands with some gravel of the SGA to 458 feet bgs. The well is gravel packed from 306 to 458 feet bgs and screened from approximately 326 to 342 feet bgs and from 438 to 443 feet bgs.

Impairment Considerations

Impacts to Area Groundwater Users

Ecology's Water Right Tracking System (WRTS) database was queried to identify senior groundwater rights in the vicinity of the Junction Well. Cross referencing these records with Ecology's Well Log Database and the well inventory presented in Golder (2008) indicates that the nearest senior certificated groundwater rights associated with wells tapping the SGA are G2-28630 and G2-28956. These are located about 1 mile northeast and 1.4 miles east of the Junction Well, respectively and are for deep production wells owned by CPU. The characteristics of the CPU water rights are summarized in Table 2.

Table 2. Senior Groundwater Rights in the Vicinity of the Junction Well

File #	Owner	Priority Date	Purpose	Qi (gpm)	Qa (acre-feet/year)	TRS
G2-28630	Clark Public Utilities	8/13/1986	Domestic, multiple	500	403	04N01E22
G2-28956	Clark Public Utilities	8/13/1986	Municipal	700	565	04N01E22

Other certificated water rights associated with SGA wells are G2-27103CWRIS, G2-27104CWRIS, and G2-27105CWRIS; these rights are for City of Ridgefield production wells which are located about 0.9 miles west of the Junction Well. In addition, there are 151 records of groundwater claims within about 1.5 miles of the Junction Well.

There are 229 well logs in Ecology's Well Log Database within about 1.5 miles of the Junction well. Most of these wells tap shallow aquifers above the Lower Confining Unit. The nearest well tapping the SGA appears to be the Ellertson Well (the owner shown on the well log is N. Fiorito Co. Inc.); this well is located about 0.5 miles east-northeast of the Junction Well.

Upward propagation of effects from pumping the SGA are limited by the overlying Lower Confining Unit and no interference to wells in aquifers above this unit (the Pleistocene Alluvial Deposits and the Upper Troutdale Aquifer) is expected.

Because of the high transmissivity of the SGA and the distance of other SGA wells to the Junction well, interference to other SGA wells from pumping are expected to be observable but insignificant. This conclusion is supported by the limited hydraulic response of the Ellertson Well (~0.5 feet) during the pumping test. Even under long-term pumping of the Junction Well (one year continuously at 400 gpm), Theis analyses indicate that interference to existing wells between 0.5 and 1 mile of the Junction Well would be less than 3.5 feet. The nearest well that is in use is located approximately 0.9 miles to the west of the Junction Well.

Impacts to Surface Waters and Instream Flows

Initial modeling indicated relatively minor effects to area streams. When the draft ROE was posted on the internet, a comment was received that called into question the accuracy of the modeling. Golder Associates reassessed the work and, using a different model (Deep Aquifer Yield Model, CH2MHILL, 2001), determined that the impact of the pumping would have an impact to the lower reaches of the East Fork Lewis River between a range of 40 and 160 gpm, with an overall average of 113 gpm or 0.25 cfs (Golder 2009). This is in line with the model results conducted for Clark Public Utility's nearby Pioneer wellfield.

Ecology adopted WAC 173-527, the instream flow rule for the Lewis River watershed in January 2009. The East Fork Lewis River subbasin is closed to new withdrawals of groundwater that would affect flow in the river, except under certain conditions listed in WAC 173-527-080. Instream flows established under WAC 173-527 constitute water rights whose priority date is the effective date of the regulation.

Mitigation proposal

While WAC 173-527 closed all streams in the WRIA to further consumptive appropriation, there are reserves of water set aside for domestic uses within some of the subbasins, including the East Fork Lewis River. There is a reservation allowing for a net streamflow depletion of 2.2 cfs on the East Fork Lewis River for municipal supply for Clark Public Utility, the City of Battleground, and the City of Ridgefield.

To access the reserves, the entities are to bring a mitigation plan to the table that includes water placed in trust equal to half the predicted streamflow depletion, and habitat mitigation based on calculations in the WRIA 27/28 Mitigation Guidance document. The 50% water requirement can be waived under certain conditions.

After several years of searching for suitable water rights to purchase without avail, the city began discussions with the WRIA Planning Unit for a waiver of the water replacement requirement and to allow 100% habitat related mitigation. The City formalized this proposal in their March 17, 2012 mitigation proposal which was submitted to the Lower Columbia Fish Recovery Board for discussion at the Planning Unit. The Planning Unit ultimately decides whether the mitigation plan is adequate and gives a recommendation to Ecology.

Highlights of the plan include:

- 100% habitat related mitigation
- 0.25 cfs will be debited from the 2.2 cfs reservation on the East Fork Lewis River
- Ridgefield will fully fund the Upper Daybreak Stream Habitat Enhancement Project (EF-20)

Details of the plan can be found in the Mitigation Proposal, Appendix A of this Report.

In a letter to Ecology dated June 14, 2012, the Planning Unit supported the City's mitigation plan and issuance of the water right permit. The Planning Unit also recommended that the City develop a monitoring and maintenance plan to ensure performance of the mitigation for a ten year lifespan. This has been included as a provision of this water right.

Public Interest Considerations

Approving G2-29174 is not detrimental to the public interest.

FINDINGS AND CONCLUSIONS

This application requests water for municipal supply. Based on my evaluation, I find that:

- The use of water for Municipal Supply is a beneficial use.
- Water is available in sufficient quantities to provide a reliable source for municipal supply, based on well and pump information. Water is legally available through the reservation established in WAC 173-527 and the mitigation plan proposed by the City.
- The issuance of this water right will not impair any senior water right holders.
- Approving this appropriation is not detrimental to the public interest.

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend that this request for a water right be approved in the amounts and in the limitations listed below and subject to the provisions listed above.

Purpose of Use and Authorized Quantities

The amount of water recommended is a maximum limit and the water user may only use that amount of water within the specified limit that is reasonable and beneficial:

- 400 gpm
- 485 ac-ft per year
- Municipal Supply

Point of Withdrawal:

- NW¼ SE¼, Section 21, Township 4 North, Range 1 E.W.M.

Place of Use:

- Area served by the City of Ridgefield.

Phil Crane

Date

If you need this publication in an alternate format, please call Water Resources Program at (360) 407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

References:

Evarts, R.C., 2004a, *Geologic Map of the Ridgefield Quadrangle, Clark and Cowlitz Counties, Washington*: U.S. Geological Survey Scientific Investigations Map 2844, scale 1:24,000

Evarts, R.C., 2004b, *Geologic Map of the Saint Helens Quadrangle, Columbia County, Oregon and Clark and Cowlitz Counties, Washington*: U.S. Geological Survey Scientific Investigations Map 2834, scale 1:24,000

Golder Associates, Inc., 2007, *Estimates of Streamflow Reduction in Gee Creek from Operating the Junction Well*: Technical Memorandum submitted to Washington State Department of Ecology, February 15, 2007

Golder Associates, Inc., 2008, *Junction Well Hydrogeologic Analysis*: Prepared for Gray & Osborne, February 5, 2008

Golder Associates, Inc., 2009, Technical Memorandum, *Re-evaluation of potential stream impacts from the City of Ridgefield Junction Well*, February 12, 2009

Gray & Osborne, Inc., 2005, *City of Ridgefield Water System Plan Update*, October 2005

Gray & Osborn, Inc., 2008, *Junction Well Impact Analysis and Mitigation Plan*: Memorandum to Washington State Department of Ecology, May 7, 2008.

Howard, K.A., 2002, *Geologic map of the Battle Ground 7.5-minute quadrangle, Clark County, Washington*: U.S. Geological Survey Miscellaneous Field Studies Map MF-2395, scale 1:24,000, with 18-p. pamphlet

Mundorff, M.J., 1964, *Geology and ground-water conditions of Clark County, Washington, with a description of a major alluvial aquifer along the Columbia River*: U.S. Geological Survey Water-Supply Paper 1600, 268 p., with geologic map at scale 1:48,000

Pacific Groundwater Group (PGG), 2003, *Groundwater/Surface-Water Relationships East Fork Lewis River Watershed*: Technical Memorandum 10 (Task 8a), WRIA 27/28 Watershed Plan, prepared for Lower Columbia Fish Recovery Board, December 2003

Swanson, R.D., McFarland, W.D., Gonthier, J.B., and others, 1993, *A description of hydrogeologic units in the Portland basin, Oregon and Washington*: U.S. Geological Survey Water-Resources Investigations Report 90-4196



WATER RESOURCES

Application for Change/Transfer of a Water Right

For Ecology Use
(Date Stamp)

You must include a \$50.00 minimum filing fee with this application for:

(Check all that apply.)

- ☒ Change purpose(s) of use
- ☐ Add purpose(s) of use
- ☒ Change/transfer place of use
- ☒ Change point(s) of diversion/withdrawal
- ☒ Add point(s) of diversion/withdrawal
- ☐ Other (i.e. consolidation, intertie, trust water)

Explain: _____

No filing fee is required for applications for:

- ☐ Drought
- ☒ Cost Reimbursement
- ☐ Water Conservancy Board

FOR OFFICIAL USE ONLY

DATE APPLICATION RECEIVED _____
CHECK NO. _____ FEE \$ _____
DATE ACCEPTED _____ BY _____
CHANGE NO. _____
COUNTY _____ WRIA _____
SPECIAL AREA _____

SEPA: ☐ EXEMPT ☐ NOT EXEMPT

ECY CODING: 001-002-WR10285-000011

APP NO. _____ PERMIT NO. _____
CERT NO. _____ CERT OF CHG NO. _____

☒ I have completed a pre-application consultation with Ecology.

1. Applicant Information

APPLICANT/BUSINESS NAME	PHONE NO.	FAX NO.
City of Ridgefield, c/o Bryan Kast, Public Works Director	360.857.5023	
ADDRESS		
PO Box 608		
CITY	STATE	ZIP CODE
Ridgefield	WA	98642
EMAIL ADDRESS (IF AVAILABLE)		
bryan.kast@ci.ridgefield.wa.us		

CONTACT (IF DIFFERENT FROM ABOVE)	PHONE NO.	FAX NO.
McCormick Water Strategies, LLC, c/o Jason McCormick	509.949.7297	
ADDRESS		
PO Box 473		
CITY	STATE	ZIP CODE
Zillah	WA	98953
EMAIL ADDRESS (IF AVAILABLE)		
jason@mccormickwater.com		

LEGAL LAND OWNER or PART OWNER OF PROPOSED PLACE OF USE	PHONE NO.	FAX NO.
Kennedy Family Trust	360-903-6643	
ADDRESS		
5500 NE 82nd Ave, Apt. 261		
CITY	STATE	ZIP CODE
Vancouver	WA	98662
EMAIL ADDRESS (IF AVAILABLE)		
kenn097@msn.com		

2. Water Right Information

WATER RIGHT OR CLAIM NUMBER G2-26625CWRIS/WR Doc ID. 2215552	RECORDED NAME(S) Arwana Farms
DO YOU OWN THE RIGHT TO BE CHANGED? ☐ YES ☒ NO	
IF NO, PROVIDE OWNER(S) NAME and ADDRESS: <u>Kennedy Water Holdings, LLC</u>	
HAS THE WATER BEEN USED AS AUTHORIZED IN THE LAST FIVE (5) YEARS? ☒ YES ☐ NO	

- Attach copies of any documentation that shows the historical use of water that has occurred since the right was established.
- If you have a water system plan or conservation plan, please include a copy with your application.

3. Point(s) of Diversion/Withdrawal:

A. Existing

SOURCE	NO.	¼	¼	SEC.	TWP.	RGE.	PARCEL #	WELL TAG #
Groundwater	1	SE	NE	32	4N.	1E.	216452-000	BAR-862
Groundwater	2	SW	NW	33	4N.	1E.	216690-000	BCR-525

B. Proposed (if different from 3.A.)

SOURCE	NO.	¼	¼	SEC.	TWP.	RGE.	PARCEL #	WELL TAG #
Up to 4 points of withdrawal.				33	4N.	1E.		
Up to 2 points of withdrawal.				32	4N.	1E.		

C. DO YOU OWN THE EXISTING AND PROPOSED POINT(S) OF DIVERSION/WITHDRAWAL?

EXISTING: ☐ YES ☒ NO PROPOSED: ☒ YES ☐ NO – IF NO, PROVIDE OWNER NAME(S): _____

- Include copies of all associated water well reports.
- If you know the distances from the nearest section corner to the above point(s) of diversion/withdrawal, please include that information in Item No. 6 (remarks) or as an attachment.

4. Purpose of Use:

A. Existing

PURPOSE OF USE	GPM or CFS	ACRE-FT/YR	PERIOD OF USE
Group Domestic Supply (3 homes)	140 GPM	1.5	year-round
Stockwater (including dairy use)	140 GPM	37.5	year-round
Irrigation of 40 acres	140 GPM	80.0	05/01-10/01

B. Proposed (if different from 4.A.)

PURPOSE OF USE	GPM or CFS	ACRE-FT/YR	PERIOD OF USE
Municipal Water Supply, City of Ridgefield	140 GPM	119	year-round

5. Place of Use:

A. Existing

LEGAL DESCRIPTION OF LANDS WHERE WATER IS PRESENTLY USED:

The S1/2NW1/4 Sec. 33, and that part of the S1/2NE1/4 Sec. 32, lying east of the County Road, all in T. 4N., R. 1E.W.M.

¼	¼	SEC.	TWP.	RGE.	COUNTY	PARCEL #	# OF ACRES
	NW NE	33 32	4N	1E	Clark	216690-000 and 216452-000	

DO YOU OWN ALL THE LANDS IN THE EXISTING PLACE OF USE? ☒ YES ☐ NO

IF NO, PROVIDE OWNER NAME(S): Kennedy Family Trust

B. Proposed (if different than 5.A.)

LEGAL DESCRIPTION OF LANDS WHERE NEW USE IS PROPOSED:

City of Ridgefield Municipal Water Service Area.

¼	¼	SEC.	TWP.	RGE.	COUNTY	PARCEL #	# OF ACRES
					Clark		

DO YOU OWN ALL THE LANDS IN THE PROPOSED PLACE OF USE? ☐ YES ☐ NO

IF NO, PROVIDE OWNER NAME(S):

- Attach a detailed map of your proposed change/transfer. The map should show existing and proposed point(s) of diversion/withdrawal, place of use and any other features involved with this application.
- If platted property, please include a certified copy of the plat map.

C. Are there any additional water rights or claims related to the same property as the one proposed for change/transfer?

☒ YES ☐ NO – IF YES, PROVIDE THE WATER RIGHT/CLAIM NUMBER(S): S2-*10195CWRIS, G2-109021CL and other permit-exempt uses

6. Remarks and Other Relevant Information:

It is likely that the Applicant will elect to process this application under Streamlined Coordinated Cost Reimbursement through a subsequent request.

IF FOR SEASONAL OR TEMPORARY, START DATE ____/____/____ END DATE ____/____/____

Certain applications may incur a Real Estate Excise Tax liability for the seller of the water rights. The Department of Revenue has requested notification of potential taxable water right related actions and therefore may be provided with a copy of this request. For further information, contact:

Department of Revenue
Real Estate Excise Tax
PO Box 47477
Olympia, WA 98504-7477

Phone (360) 570-3265

Place of Use:

Address

THE CITY OF OLYMPIA, WA, AND THE CITY OF THE COUNTY OF JEFFERSON, WA, ARE THE ONLY TWO CITIES IN THE STATE OF WASHINGTON THAT HAVE A REAL ESTATE EXCISE TAX.

NO.	NAME	ADDRESS	CITY	STATE	ZIP
1	OLYMPIA	1000 1 ST AVENUE	OLYMPIA	WA	98501
2	OLYMPIA	1000 1 ST AVENUE	OLYMPIA	WA	98501

NO.	NAME	ADDRESS	CITY	STATE	ZIP
1	OLYMPIA	1000 1 ST AVENUE	OLYMPIA	WA	98501
2	OLYMPIA	1000 1 ST AVENUE	OLYMPIA	WA	98501

Attach a detailed map of your proposed new development. The map should show existing and proposed lots, streets, and other features. It should also show the location of the proposed development in relation to the existing development.

NO.	NAME	ADDRESS	CITY	STATE	ZIP
1	OLYMPIA	1000 1 ST AVENUE	OLYMPIA	WA	98501
2	OLYMPIA	1000 1 ST AVENUE	OLYMPIA	WA	98501

NO.	NAME	ADDRESS	CITY	STATE	ZIP
1	OLYMPIA	1000 1 ST AVENUE	OLYMPIA	WA	98501
2	OLYMPIA	1000 1 ST AVENUE	OLYMPIA	WA	98501

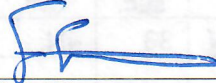
Certain applications may incur a Real Estate Excise Tax liability for the sale of the water right. The Department of Revenue has requested notification of potential taxable water right related actions and therefore may be provided with a copy of this request. For further information, contact:

7. Signatures:

I certify that the information above is true and accurate to the best of my knowledge. I understand that in order to process my application, I hereby grant staff from the Department of Ecology or the County Conservancy Board access to the above site(s) for inspection and monitoring purposes. If assisted in preparing this above application, I understand that all responsibility for the accuracy of the information rests with me.

Steve Stuart, City Manager

Applicant Printed Name – Title



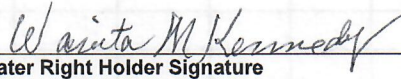
Applicant Signature

8-27-19

(Date: MM/DD/YYYY)

Kennedy Water Holdings, LLC

Water Right Holder Printed Name



Water Right Holder Signature

(Date: MM/DD/YYYY)

Kennedy Family Trust

Land Owner of Existing Place of Use Printed Name

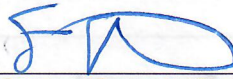


Land Owner of Existing Place of Use Signature

(Date: MM/DD/YYYY)

Steve Stuart, City Manager

Land Owner of Proposed Place of Use Printed Name



Land Owner of Proposed Place of Use Signature

8-27-19

(Date: MM/DD/YYYY)

*Submit your application to: DEPARTMENT OF ECOLOGY CASHIERING SECTION PO BOX 47611 OLYMPIA, WA 98504-7611	☐ Central Regional Office 1250 W. Alder Street Union Gap, WA 98903-0009 (509) 575-2490	☐ Eastern Regional Office 4601 N. Monroe Street Spokane, WA 99205-1265 (509) 329-3400
	☐ Northwest Regional Office 3190 – 160 th Avenue SE Bellevue, WA 98008-5452 (425) 649-7000	☒ Southwest Regional Office PO Box 47775 Olympia, WA 98504-7775 (360) 407-6300

7. Signatures:

I certify that the information above is true and accurate to the best of my knowledge. I understand that in order to process my application, I hereby grant staff from the Department of Ecology or the County Conservancy Board access to the above site(s) for inspection and monitoring purposes. If assisted in preparing this above application, I understand that all responsibility for the accuracy of the information rests with me.

Steve Stuart, City Manager

Applicant Printed Name – Title

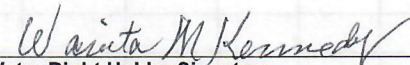

Applicant Signature

8-27-19

(Date: MM/DD/YYYY)

Kennedy Water Holdings, LLC

Water Right Holder Printed Name

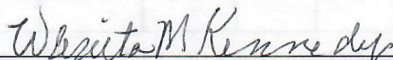

Water Right Holder Signature

8-23-2019

(Date: MM/DD/YYYY)

Kennedy Family Trust

Land Owner of Existing Place of Use Printed Name


Land Owner of Existing Place of Use Signature

8-23-2019

(Date: MM/DD/YYYY)

Steve Stuart, City Manager

Land Owner of Proposed Place of Use Printed Name


Land Owner of Proposed Place of Use Signature

8-27-19

(Date: MM/DD/YYYY)

*Submit your application to: DEPARTMENT OF ECOLOGY CASHIERING SECTION PO BOX 47611 OLYMPIA, WA 98504-7611	☐ Central Regional Office 1250 W. Alder Street Union Gap, WA 98903-0009 (509) 575-2490	☐ Eastern Regional Office 4601 N. Monroe Street Spokane, WA 99205-1265 (509) 329-3400
	☐ Northwest Regional Office 3190 – 160 th Avenue SE Bellevue, WA 98008-5452 (425) 649-7000	☒ Southwest Regional Office PO Box 47775 Olympia, WA 98504-7775 (360) 407-6300

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[illegible]

DO YOU OWN THE ABOVE POINT(S) OF DIVERSION/WITHDRAWAL? ☐ YES ☐ NO
 NO, PROVIDE OWNER NAME(S):

Steve Sharp, City Manager

[illegible][illegible]

DO YOU OWN ALL THE LANDS IN ABOVE PLACE OF USE? ☐ YES ☐ NO

NO, PROVIDE OWNER NAME(S):

Water Right Self-Assessment Form for Water System Plan

Mouse-over any link for more information. Click on any link for more detailed instructions.

Water Right Permit, Certificate, or Claim # *If water right is interruptible, identify limitation in yellow section below	WFI Source # If a source has multiple water rights, list each water right on separate line	Existing Water Rights Qi= Instantaneous Flow Rate Allowed (GPM or CFS) Qa= Annual Volume Allowed (Acre-Feet/Year) This includes wholesale water sold				Current Source Production – Most Recent Calendar Year Qi = Max Instantaneous Flow Rate Withdrawn (GPM or CFS) Qa = Annual Volume Withdrawn (Acre-Feet/Year) This includes wholesale water sold				10-Year Forecasted Source Production (determined from WSP) This includes wholesale water sold				20-Year Forecasted Source Production (determined from WSP) This includes wholesale water sold			
		Primary Qi Maximum Rate Allowed	Non-Additive Qi Maximum Rate Allowed	Primary Qa Maximum Volume Allowed	Non-Additive Qa Maximum Volume Allowed	Total Qi Maximum Instantaneous Flow Rate Withdrawn	Current Excess or (Deficiency) Qi	Total Qa Maximum Annual Volume Withdrawn	Current Excess or (Deficiency) Qa	Total Qi Maximum Instantaneous Flow Rate in 10 Years	10-Year Forecasted Excess or (Deficiency) Qi	Total Qa Maximum Annual Volume in 10 Years	10-Year Forecasted Excess or (Deficiency) Qa	Total Qi Maximum Instantaneous Flow Rate in 20 Years	20-Year Forecasted Excess or (Deficiency) Qi	Total Qa Maximum Annual Volume in 20 Years	20-Year Forecasted Excess or (Deficiency) Qa
18511	N/A: Well 1 (Decommissioned)	200	0	323	0	0	200	0	323	0	200	0	323	0	200	0	323
G2-20381 ⁽¹⁾	N/A: Well 2 (Decommissioned)	300	0	240	0	0	0	0	0	0	0	0	0	0	0	0	0
2449 ⁽²⁾	N/A: Well 3 (Inactive)	150	0	180	0	0	0	0	0	0	0	0	0	0	0	0	0
G2-20379	N/A: Well 5 (Inactive)	200	0	119	42	0	200	0	119	0	200	0	119	0	200	0	119
G2-20380	N/A: Well 6 (Inactive)	125	0	100	0	0	125	0	100	0	125	0	100	0	125	0	100
G2-27103	S11: Well 7 (Active)	300	0	0	241	240	60	285.5	-44.5	240	60	241	0	300	0	241	0
G2-27104	S08: Well 8 (Active)	300	0	0	241	300	0	220.9	20.1	300	0	241	0	300	0	241	0
G2-27105	S09: Well 9 (Active)	300	0	0	241	200	100	171.2	69.8	200	100	241	0	300	0	241	0
G2-20381 ⁽¹⁾	S16: Well 10 (Active)	300	300	0	240	165	135	132.7	107.3	165	135	240	0	200	100	240	0
2449 ⁽²⁾	S17: Well 11 (Active)	150	150	0	180	136	14	172.2	7.8	130	20	180	0	150	0	180	0
G2-29174	S12: Junction Well (Active)	400	0	483	0	380	20	387.8	95.2	307	93	483	0	400	0	483	0
TBD ⁽³⁾	N/A: Sources TBD (Future)	0	0	0	0	0	0	0	0	0	0	72	-72	950	-950		72
		2,275		1,445		1421	854	1,370.3	797.7	1342	933	1698	470	2600	-325	1626	614

Column Identifiers for Calculations:	A	B	C	=A-C	D	=B-D	E	= A-E	F	=B-F	G	=A-G	H	=B-H
--------------------------------------	---	---	---	------	---	------	---	-------	---	------	---	------	---	------

PENDING WATER RIGHT APPLICATIONS: Identify any water right applications that have been submitted to Ecology.						
Application Number	New or Change Application?	Date Submitted	Quantities Requested			
			Primary Qi	Non-Additive Qi	Primary Qa	Non-Additive Qa
G2-26625CWRISNVR	Change	8/27/19	140 gpm		119 acre-ft/yr	

INTERTIES: Systems receiving wholesale water complete this section. Wholesaling systems must include water sold through intertie in the current and forecasted source production columns above.															
Name of Wholesaling System Providing Water	Quantities Allowed In Contract		Expiration Date of Contract	Currently Purchased Current quantity purchased through intertie				10-Year Forecasted Purchase Forecasted quantity purchased through intertie				20-Year Forecasted Purchase Forecasted quantity purchased through intertie			
	Maximum Qi	Maximum Qa		Maximum Qi	Current Excess or (Deficiency) Qi	Maximum Qa	Current Excess or (Deficiency) Qa	Maximum Qi	Future Excess or (Deficiency) Qi	Maximum Qa	Future Excess or (Deficiency) Qa	Maximum Qi	Future Excess or (Deficiency) Qi	Maximum Qa	Future Excess or (Deficiency) Qa
	Instantaneous Flow Rate	Annual Volume		Instantaneous Flow Rate		Annual Volume		10-Year Forecast		10-Year Forecast		20-Year Forecast		20-Year Forecast	
Clark Public Utilities	1,000	1,613	12/31/2040	1,000	0	131.30	1,482	1,000	0	345	1,268	1,000	0	730.5	883
Clark Public Utilities ⁽⁵⁾	1,000	1,613	12/31/2040	N/A	N/A	N/A	N/A	1,000	0	345	1,268	1000	0	730.5	883
TOTALS =	1,000	1,613		1,000	0	131.30	1,482	2,000	0	690	2536	2,000	0	1,461	1765

Column Identifiers for Calculations:	A	B	C	=A-C	D	=B-D	E	=A-E	F	=B-F	G	=A-G	H	=B-H
--------------------------------------	---	---	---	------	---	------	---	------	---	------	---	------	---	------

<u>INTERRUPTIBLE WATER RIGHTS:</u> Identify limitations on any water rights listed above that are interruptible.		
Water Right #	Conditions of Interruption	Time Period of Interruption
NONE		

<u>ADDITIONAL COMMENTS:</u>	
(1)	A Showing of Compliance Form was filed with the Department of Ecology adding Well 10 as an additional point of withdrawal under water right G2-20381 (Well 2).
(2)	As part of the approval process for Well 11, a Showing of Compliance Form will be filed with the Department of Ecology adding Well 11 as an additional point of withdrawal under water right 2449 (Well 3).
(3)	TBD=To Be Determined. Forecasted production for this category includes water from planned future sources and/or wholesale water from Clark Public Utilities (CPU).
(4)	CPU interties are used to supply water to the City on an as-needed basis. The intertie agreement between the City and CPU allows for the supply of 1,000 gpm through the current interties and an additional 1,000 gpm following the construction of a future intertie and transmission main. Maximum annual quantities shown are based on the continuous supply of instantaneous quantities allowed per the agreement. Projected amounts purchased have been calculated using the conservative assumption that the City addresses all projected water rights deficiencies by obtaining water through the interties, but it should be noted that the City is pursuing additional source development projects and corresponding water rights. In general, the City intends to meet system demands with its own well sources (rather than with wholesale water) to the extent feasible.
(5)	The Intertie Agreement between the City of Ridgefield and CPU allows for an additional 1,000 gpm of water to be purchased provided the City construct a fourth interie that would be located on N Royal Road/NW 31 st Ave.

APPENDIX I

WATER USE EFFICIENCY DOCUMENTATION

APPENDIX J

WELLHEAD PROTECTION DOCUMENTS

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

RECEIVED

MAY 28 2004

WALLIS ENG.

IMPORTANT!

Please complete one form for each ground water source
(well, wellfield, spring) used in your water system.
Photocopy as necessary.

PART I: System Information

Well owner/manager: City of Ridgefield

Water system name: City of Ridgefield

County: Clark

Water system number: 72400 V

Source number: 507

Well depth: 208/193/195.3 (ft.) (From WFI form)

Well Field, Wells 7, 8, & 9

Source name: Abrams Park Wells 7, 8, 9

WA well identification tag number:

☒ X

well not tagged

Number of connections: 495

Population served: 1510

Township: T4N

Range: 1E

Section: SE 1/4, NW 1/4

1/4 1/4 Section: 19

Latitude/longitude (if available): 45° 48' / 122° 43'

How was lat./long. determined?

 global positioning device survey ☒ X USGS
 other: topographic map

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 6 / 6 / 86 month/day/year

last reconstruction: / / month/day/year

 information unavailable

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JUL 14 1994
Department of Health
Division of Drinking Water

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

☐ < 20 ft ☐ 20-50 ft ☐ 50-100 ft ☒ 100-200 ft ☐ > 200 ft

☐ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

☒ < 20 ft ☐ 20-50 ft ☐ 50-100 ft ☐ > 100 ft

☐ flowing well/spring (artesian)

How was water level determined?

☒ well log ☐ other: Monitoring

☐ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

☐ psi (pounds per square inch)

or

☐ feet above wellhead

N.A. 4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: ☐ YES ☐ NO

5) Wellhead elevation (height above mean sea level): ☐ (ft) 43.8', 45', 46.5'

How was elevation determined? ☐ topographic map ☒ Drilling/Well Log ☐ altimeter

☒ other: Hydrologist Report

☐ information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

☒ evidence of a confining layer in well log

☐ no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the ^{bottom} of the open interval? ☒ YES ☐ NO

☐ lowest confining layer

☐ information unavailable

Please see Appendix I enclosed

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 73mil (gallons) **OK**

How was this determined?

☒ meter

☐ estimated: ☐ pumping rate ()

☐ pump capacity ()

☐ other: _____

2) "Calculated Fixed Radius" estimate of ground water movement:
(see Instruction Packet)

6 month ground water travel time : 440 (ft) **OK**

1 year ground water travel time : 620 (ft)

5 year ground water travel time: 1,390 (ft)

10 year ground water travel time: 1,970 (ft)

Information available on length of screened/open interval?

☒ YES ☐ NO

Length of screened/open interval: 34.6 ave (ft) **OK** #7 (35.5, #8 31.5, #9 37)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? ☒ YES ☐ NO (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? ☐ YES ☒ NO (mark and identify on map).

Comments: _____

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions:
(Unless listed on assessment, MCLs are listed in assistance package.)

A. Nitrate: (Nitrate MCL = 10 mg/l)

Results greater than MCL

< 2 mg/liter nitrate

2-5 mg/liter nitrate

> 5 mg/liter nitrate

___ Nitrate sampling records unavailable

YES NO

☒ ☐

☐ ☒

☐ ☒

☐ ☒

☐ ☒

B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l.)

Results greater than MCL or SAL

VOCs detected at least once

VOCs never detected

___ VOC sampling records unavailable

YES NO

☐ ☒

☐ ☒

☒ ☐

☐ ☐

C. EDB/DBCP:

(EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l.)

EDB/DBCP detected below MCL at least once

EDB/DBCP detected above MCL at least once

EDB/DBCP never detected

☒ EDB/DBCP tests required but not yet completed

☐ EDB/DBCP tests not required

YES NO

☐ ☐

☐ ☐

☐ ☐

☐ ☐

D. Other SOC (Pesticides):

Other SOC detected

(pesticides and other synthetic organic chemicals)

___ Other SOC tests performed but none detected

☒ (list test methods in comments)

☐ Other SOC tests not performed

YES NO

☐ ☐

☐ ☐

If any SOC in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOC detected, list test methods here:

Hazardous Waste and Toxics Reduction (HAZWASTE)

Interaction Type Code	Interaction Type Name	Interaction Type Description
HWG	Hazardous Waste Generator	Facilities that generate any quantity of a dangerous waste. They may be classified as SQG, MQG, or LQG depending on hazardous waste generated for a given month.
HWOTHER	Haz Waste Management Activity	Facilities that are required to have an EPA/State ID number but who do not generate and/or manage hazardous waste (XQG generator status). This includes transporters, used oil recyclers, and dangerous waste fuel marketers and burners.
HWP	Hazardous Waste Planner	Under Chapter 173-307 WAC, facilities that report under Section 313 of the Emergency Planning/Community Right-To-Know Act (EPCRA), or that generate more than 2,640 pounds of hazardous waste per year, must prepare Pollution Prevention Plans.
HWTRNSFR	Haz Waste Transfer Facility	A site owned, leased or operated by a transporter of regulated hazardous waste shipments where any of the following occurs: 1) receives wastes from another transporter, 2) transfers wastes from one transport vehicle to another, 3) transfers waste from one container to another, and 4) stores waste within a vehicle or on property for 10 days or less. Examples include a parking lot, warehouse, truck terminal, barge or steamship loading/unloading facility, or railroad spur loading/unloading facility.
HWTSDF	Haz Treatment Storage Facility	Treats, stores, or disposes of hazardous waste.
LSC	Local Source Control	The site has received a technical assistance visit from a Local Source Control Specialist.
RSVP	Revised Site Visit Program	HWTR engages in a variety of field work, site visits, and contacts with sites. While most compliance related activity is recorded into the EPA's RCRAInfo system, the other types of activities are recorded into the Revised Site Visit Program (RSVP).
TIER2	Emergency/Haz Chem Rpt TIER2	Businesses that store 10,000 pounds or more of a hazardous chemical or 500 pounds or less, depending on the chemical, of an extremely hazardous chemical on site at any one time must report annually. Reports are sent to the State Emergency Response Commission (represented by Ecology) Local Emergency Planning Committees, and local fire departments for emergency planning. (product, not waste)
TRI	Toxics Release Inventory	Facilities in specific industries that manufacture, process or use more than the threshold amount of one or more of 600 listed toxic chemicals. Most threshold amounts are 10,000 or 25,000 pounds per year. Some chemicals have much lower thresholds.
UW	Urban Waters	The site has been inspected by an Ecology Urban Waters Inspector.

Toxics Cleanup (TOXICS)

Interaction Type Code	Interaction Type Name	Interaction Type Description
FCS	Federal (Superfund) Cleanup St	A federal cleanup site listed in CERCLIS where Ecology has been or is currently involved with the cleanup process or has knowledge of the site from another process.
FUDS	Formerly Used Defense Site	The Department of Defense (DoD) is responsible for cleaning up properties that were formerly owned, leased possessed, or operated by DoD. Such properties are known as Formerly Used Defense Sites (FUDS). The Army is the executive agent for the program and the U.S. Army Corps of Engineers is the organization that manages and executes the program. Information about the origin and extent of contamination, land transfer issues, past and present property ownership, and program policies must be evaluated before DoD considers a property eligible for Defense Environment Restoration Account (DERA) funding under the FUDS program.
INDPNDNT	Independent Cleanup	Any remedial action without department oversight or approval and not under an order or decree.
IRAP	Independent Remedial Action Program	Ecology staff reviewed IRAP reports and provide written determination indicating whether the cleanup meets Model Toxics Control Act (MTCA) standards.
LUST	LUST Facility	A leaking underground tank cleanup site being cleaned up with Ecology oversight or review.
SCI	Source Control Inspection	Source Control Inspection conducted by Ecology or other agency for TCP Cleanup Sites.
SCS	State Cleanup Site	A site is being cleaned up under state regulations. Regulations include Model Toxics Control Act or its predecessors.
SEDIMENT	Sediments	A sediment site is a location of interest at which sediment chemical and/or biological data has been obtained and evaluated for potential impacts to human health or the environment. Sediment sites may exist beneath or be associated with freshwater, marine and estuarine bodies of water. Sediment sites may or may not be linked to a known land-based facility.
UST	Underground Storage Tank	Any one or combination of tanks (including connecting underground pipes) that is used to contain regulated substances and has a tank volume of ten percent or more beneath the surface of the ground. This term does not include any of the exempt UST systems specified in WAC 173-360-110(2) or any piping connected thereto. See WAC 173-360
VOLCLNST	Voluntary Cleanup Sites	For a fee, Ecology staff will review an independent cleanup report(s) and provide a written decision about the adequacy of the cleanup actions taken and described in the report.

Water Quality (WATQUAL)

Interaction Type Code	Interaction Type Name	Interaction Type Description
INDSWGP	Industrial SW GP	General permit issued to industries to regulate the discharge of contaminated stormwater to state waters.
WQDAIRY	Dairy	Any farm licensed to produce milk under Chapter 15.36 RCW. This definition is further restricted to include only those facilities that are producing bovine milk (as opposed to goat milk), and excludes other dairy-related operations such as replacement heifer rearing farms. It should be noted that some dairies have more than one milking parlor and therefore have more than one license.

All Programs

Interaction Type Code	Interaction Type Name	Interaction Type Description
ENFORFNL	Enforcement Final	An Enforcement action (i.e., penalty, order, notice) was finalized and issued to the respective party, indicating the enforcement action was taken. The start and end date listed in the database are both the date the action was issued to the responsible party.
NONENFNL	Non-Enforcement Final	A Non-Enforcement action (i.e., permit, notice of construction, etc.) was finalized, issued to the respective party, indicating the non-enforcement action was taken.

WELLHEAD PROTECTION - LIST OF POTENTIAL SOURCES OF CONTAMINATION (OCTOBER 2019)

Map ID	Dept of Ecology Facility ID	Facility Description	Facility Address	Dept of Ecology Program	Dept of Ecology Interaction Type Code	Dept of Ecology Interaction Type Description	Zone of Contribution (ZOC)
1	6786756	Mergenthaler Transfer Vacant Lot	E OF 6370 PIONEER ST	SPILLS	ENFORFNL	Enforcement Final	6 MONTH
2	46726523	Wastequip Washington	487 S 56 PL	HAZWASTE	TRI	Toxics Release Inventory	6 MONTH
3	46726523	Wastequip Washington	487 S 56 PL	HAZWASTE	HWG	Hazardous Waste Generator	6 MONTH
4	46726523	Wastequip Washington	487 S 56 PL	HAZWASTE	HWP	Hazardous Waste Planner	6 MONTH
5	46726523	Wastequip Washington	487 S 56 PL	HAZWASTE	HWOTHER	Haz Waste Management Activity	6 MONTH
6	46726523	Wastequip Washington	487 S 56 PL	TOXICS	SCS	State Cleanup Site	6 MONTH
7	46726523	Wastequip Washington	487 S 56 PL	WATQUAL	INDSWGP	Industrial SW GP	6 MONTH
8	10939	Church & Dwight Co Inc	10 S 56th Pl	WATQUAL	INDSWGP	Industrial SW GP	1 YEAR
9	10939	Church & Dwight Co Inc	10 S 56th Pl	HAZWASTE	TIER2	Emergency/Haz Chem Rpt TIER2	1 YEAR
10	72644744	ALIS CHEVRON UST 9751	1713 NW 269TH	TOXICS	LUST	LUST Facility	1 YEAR
11	72644744	ALIS CHEVRON UST 9751	1713 NW 269TH	TOXICS	UST	Underground Storage Tank	1 YEAR
12	91271327	CLARK COUNTY PUB WKS RIDGEFIELD SITE	26712 NW TIMM RD	TOXICS	UST	Underground Storage Tank	1 YEAR
13	4474	Holmstrom Grading Permit	8307 Pioneer St	WATQUAL	ENFORFNL	Enforcement Final	5 YEAR
14	5145	AIG Building Site	S 6th Way & S 56th Place	WATQUAL	INDSWGP	Industrial SW GP	5 YEAR
15	6730	Bovar Plastic	6111 S 6TH WAY	HAZWASTE	TIER2	Emergency/Haz Chem Rpt TIER2	5 YEAR
16	6730	Bovar Plastic	6111 S 6TH WAY	WATQUAL	INDSWGP	Industrial SW GP	5 YEAR
17	1495623	Pacific Powers Products 6th Way	6100 S 6TH WAY	HAZWASTE	HWG	Hazardous Waste Generator	5 YEAR
18	1495623	Pacific Powers Products 6th Way	6100 S 6TH WAY	HAZWASTE	HWOTHER	Haz Waste Management Activity	5 YEAR
19	5670943	Sun Country Homes Helmes Inc Wubben	3301 PIONEER ST	WATQUAL	ENFORFNL	Enforcement Final	5 YEAR

WELLHEAD PROTECTION - LIST OF POTENTIAL SOURCES OF CONTAMINATION (OCTOBER 2019)

Map ID	Dept of Ecology Facility ID	Facility Description	Facility Address	Dept of Ecology Program	Dept of Ecology Interaction Type Code	Dept of Ecology Interaction Type Description	Zone of Contribution (ZOC)
20	5670943	Sun Country Homes Helmes Inc Wubben	3301 PIONEER ST	WATQUAL	WQDAIRY	Dairy	5 YEAR
21	5727608	A & B Towing Service	6370 PIONEER ST SPILL SITE	SPILLS	ENFORFNL	Enforcement Final	5 YEAR
22	7134876	US FOODSERVICE INC RIDGEFIELD	89 S TIMM RD	HAZWASTE	TIER2	Emergency/Haz Chem Rpt TIER2	5 YEAR
23	7134876	US FOODSERVICE INC RIDGEFIELD	89 S TIMM RD	WATQUAL	INDSWGPP	Industrial SW GP	5 YEAR
24	7134876	US FOODSERVICE INC RIDGEFIELD	89 S TIMM RD	HAZWASTE	HWG	Hazardous Waste Generator	5 YEAR
25	16992216	RIDGEFIELD SCHOOL DISTRICT 122 UST 11081	304 PIONEER AVE	TOXICS	UST	Underground Storage Tank	5 YEAR
26	16992216	RIDGEFIELD SCHOOL DISTRICT 122 UST 11081	304 PIONEER AVE	TOXICS	SCS	State Cleanup Site	5 YEAR
27	35925538	NORTHWOOD PARK CEMETERY	16407 N UNION	TOXICS	LUST	LUST Facility	5 YEAR
28	35925538	NORTHWOOD PARK CEMETERY	16407 N UNION	TOXICS	UST	Underground Storage Tank	5 YEAR
29	47557399	D & L ENT	327 PIONEER	TOXICS	UST	Underground Storage Tank	5 YEAR
30	47557399	D & L ENT	327 PIONEER	TOXICS	LUST	LUST Facility	5 YEAR
31	81976659	Arco 6013	6300 PIONEER ST	TOXICS	UST	Underground Storage Tank	5 YEAR
32	81976659	Arco 6013	6300 PIONEER ST	HAZWASTE	TIER2	Emergency/Haz Chem Rpt TIER2	5 YEAR
33	81976659	Arco 6013	6300 PIONEER ST	HAZWASTE	HWG	Hazardous Waste Generator	5 YEAR
34	91123498	Kayo Oil 2708737	6307 PIONEER ST	HAZWASTE	TIER2	Emergency/Haz Chem Rpt TIER2	5 YEAR
35	91123498	Kayo Oil 2708737	6307 PIONEER ST	TOXICS	UST	Underground Storage Tank	5 YEAR
36	91123498	Kayo Oil 2708737	6307 PIONEER ST	HAZWASTE	HWG	Hazardous Waste Generator	5 YEAR
37	91123498	Kayo Oil 2708737	6307 PIONEER ST	HAZWASTE	HWOTHER	Haz Waste Management Activity	5 YEAR

WELLHEAD PROTECTION - LIST OF POTENTIAL SOURCES OF CONTAMINATION (OCTOBER 2019)

Map ID	Dept of Ecology Facility ID	Facility Description	Facility Address	Dept of Ecology Program	Dept of Ecology Interaction Type Code	Dept of Ecology Interaction Type Description	Zone of Contribution (ZOC)
38	91123498	Kayo Oil 2708737	6307 PIONEER ST	TOXICS	VOLCLNST	Voluntary Cleanup Sites	5 YEAR
39	91123498	Kayo Oil 2708737	6307 PIONEER ST	TOXICS	SCS	State Cleanup Site	5 YEAR
40	1019	Pacific Wood Treating Corp	111 W DIVISION ST	TOXICS	SCS	State Cleanup Site	10 YEAR
41	1019	Pacific Wood Treating Corp	111 W DIVISION ST	TOXICS	UST	Underground Storage Tank	10 YEAR
42	1019	Pacific Wood Treating Corp	111 W DIVISION ST	TOXICS	SEDIMENT	Sediments	10 YEAR
43	1019	Pacific Wood Treating Corp	111 W DIVISION ST	TOXICS	ENFORFNL	Enforcement Final	10 YEAR
44	3350	Ridgefield Rail Overpass Project 2	Mill ST to Division ST	WATQUAL	NONENFNL	Non Enforcement Final	10 YEAR
45	16488	Pacific Crest Building Supply	5901 S 11th St	HAZWASTE	HWG	Hazardous Waste Generator	10 YEAR
46	16488	Pacific Crest Building Supply	5901 S 11th St	HAZWASTE	HWP	Hazardous Waste Planner	10 YEAR
47	22484	KNAPP ESTATE PROPERTY	118 N MAIN ST	TOXICS	LUST	LUST Facility	10 YEAR
48	22484	KNAPP ESTATE PROPERTY	118 N MAIN ST	TOXICS	IRAP	Independent Remedial Actn Prg	10 YEAR
49	22484	KNAPP ESTATE PROPERTY	118 N MAIN ST	TOXICS	UST	Underground Storage Tank	10 YEAR
50	1105153	SCHAFFER PROPERTY	204-206 N MAIN AVE	TOXICS	SCS	State Cleanup Site	10 YEAR
51	3612707	Wertz & Weeks Properties	PIONEER ST & 3RD	TOXICS	SCS	State Cleanup Site	10 YEAR
52	8100630	PARK LAUNDRY SITE	122 N MAIN AVE	TOXICS	SCS	State Cleanup Site	10 YEAR
53	8100630	PARK LAUNDRY SITE	122 N MAIN AVE	TOXICS	ENFORFNL	Enforcement Final	10 YEAR
54	8100630	PARK LAUNDRY SITE	122 N MAIN AVE	HAZWASTE	HWG	Hazardous Waste Generator	10 YEAR
55	15123556	RIDGEFIELD CITY PUBLIC WORKS	W COOK ST	TOXICS	UST	Underground Storage Tank	10 YEAR
56	19614199	SYMONS FROZEN FOODS INC RIDGEFIELD	205 N MAIN ST	TOXICS	UST	Underground Storage Tank	10 YEAR
57	35259467	Richard Recht Drum Site	HILLHURST RD MP 1.0	HAZWASTE	HWG	Hazardous Waste Generator	10 YEAR

APPENDIX K

CRITICAL AQUIFER RECHARGE ORDINANCE

18.280.140 - Critical aquifer recharge areas.

- A. Designating Critical Aquifer Recharge Areas. Critical Aquifer Recharge Areas Designation. Critical aquifer recharge areas (CARAs) are those areas with a critical recharging effect on aquifers used for potable water as defined by WAC 365-190-030-2. CARAs have prevailing geologic conditions associated with infiltration rates that create a high potential for contaminants of groundwater resources or contribute significantly to the replenishment of groundwater. These areas are:
1. Wellhead Protection Areas. Wellhead protection areas are defined by the boundaries of the ten-year time of groundwater travel or boundaries established using alternate criteria approved by the Washington State Department of Health in those settings where groundwater travel is not a reasonable delineation criterion in accordance with WAC 246-290-135.
 2. Sole Source Aquifers. Sole source aquifers are areas that have been designated by the U.S. Environmental Protection Agency pursuant to the Federal Safe Water Drinking Act.
 3. Susceptible Groundwater Management Areas. Susceptible groundwater management areas are areas that have been designated as moderately or highly vulnerable or susceptible in an adopted groundwater management program pursuant to WAC 173-100.
 4. Special Protection Areas. Special protection areas are those areas defined by WAC 173-200-090.
 5. Moderately or Highly Vulnerable Aquifer Recharge Areas. Aquifer recharge areas that are moderately or highly vulnerable to degradation or depletion because of hydrogeologic characteristics are those areas meeting the criteria established by the state department of ecology.
- B. Rating Critical Aquifer Recharge Areas. Aquifer recharge areas shall be rated as having high, moderate, or low susceptibility based on soil permeability, geologic matrix, infiltration, and depth to water as determined by the criteria established by the state department of ecology.
- C. Mapping of Critical Aquifer Recharge Areas.
1. The approximate location and extent of critical aquifer recharge areas are shown on the adopted critical areas maps.
 2. These maps are to be used as a guide for the city, project applicants, and/or property owners and may be continuously updated as new critical areas are identified. They are a reference and do not provide a final critical area designation.

- D. Allowed Activities in Critical Aquifer Recharge Areas. The following activities are allowed in critical aquifer recharge areas pursuant to allowed activities and do not require submission of a critical area report:
1. Construction of structures and improvements, including additions, resulting in less than five percent or two thousand five hundred square feet (whichever is greater) total site impervious surface area that does not result in a change of use or increase the use of a hazardous substance.
 2. Development and improvement of parks, recreation facilities, open space, or conservation areas resulting in less than five percent total site impervious surface area that do not increase the use of a hazardous substance.
 3. Existing or replacement on-site domestic septic systems releasing less than fourteen thousand five hundred gallons of effluent per day and that are limited to a maximum density of one system per one acre.
- E. Additional Report Requirements—Critical Aquifer Recharge Areas. In addition to the general critical area report requirements of RDC 18.280.050, critical area reports for critical aquifer recharge areas must meet the requirements of this section. Critical area reports for two or more types of critical areas must meet the report requirements for each relevant type of critical area.
1. Preparation by a Qualified Professional. An aquifer recharge area critical area report shall be prepared by a qualified professional who is a hydrogeologist, geologist, or engineer, who is licensed in the state of Washington and has experience in preparing hydrogeologic assessments.
 2. Hydrogeologic Assessment. For all proposed activities to be located in a critical aquifer recharge area, a critical area report shall contain a level one hydrogeological assessment. A level two hydrogeologic assessment shall be required for any of the following proposed activities:
 - a. Activities that result in five percent or more impervious site area;
 - b. Activities that divert, alter, or reduce the flow of surface or ground waters, or otherwise reduce the recharging of the aquifer;
 - c. The use of hazardous substances, other than household chemicals used according to the directions specified on the packaging for domestic applications;
 - d. The use of injection wells, including on-site septic systems, except those domestic septic systems releasing less than fourteen thousand five hundred gallons of effluent per day and that are limited to a maximum density of one

system per one acre; or

- e. Any other activity determined by the [director] likely to have an adverse impact on ground water quality or quantity or on the recharge of the aquifer.
3. Level One Hydrogeologic Assessment. A level one hydrogeologic assessment shall include the following site- and proposal-related information at a minimum:
 - a. Available information regarding geologic and hydrogeologic characteristics of the site including the surface location of all critical aquifer recharge areas located on site or immediately adjacent to the site, and permeability of the unsaturated zone.
 - b. Ground water depth, flow direction, and gradient based on available information.
 - c. Currently available data on wells and springs within one thousand three hundred feet of the project area.
 - d. Location of other critical areas, including surface waters, within one thousand three hundred feet of the project area.
 - e. Available historic water quality data for the area to be affected by the proposed activity.
 - f. Best management practices proposed to be utilized.
4. Level Two Hydrogeologic Assessment. A level two hydrogeologic assessment shall include the following site- and proposal-related information at a minimum, in addition to the requirements for a level one hydrogeological assessment:
 - a. Historic water quality data for the area to be affected by the proposed activity compiled for at least the previous five-year period.
 - b. Ground water monitoring plan provisions.
 - c. Discussion of the effects of the proposed project on the ground water quality and quantity, including:
 - i. Predictive evaluation of ground water withdrawal effects on nearby wells and surface water features.
 - ii. Predictive evaluation of contaminant transport based on potential releases to ground water.
 - iii. A spill plan that identifies equipment and/or structures that could fail, resulting in an impact. Spill plans shall include provisions for regular inspection, repair, and replacement of structures and equipment that could fail.

F. Performance Standards—Critical Aquifer Recharge Areas. Activities may only be permitted in a critical aquifer recharge area if the applicant can show that the proposed activity will not cause contaminants to enter the aquifer and that the proposed activity will not adversely effect the recharging of the aquifer. The proposed activity must comply with the water source protection requirements and recommendations of the U.S. Environmental Protection Agency, Washington State Department of Health, and the Clark County Health District. The proposed activity must be designed and constructed in accordance with the city's adopted stormwater regulations.

1. Storage Tanks. All storage tanks proposed to be located in a critical aquifer recharge area must comply with local building code requirements and must conform to the following requirements:

- a. Underground Tanks. All new underground storage facilities proposed for use in the storage of hazardous substances or hazardous wastes shall be designed and constructed so as to:
 - i. Prevent releases due to corrosion or structural failure for the operational life of the tank;
 - ii. Be protected against corrosion, constructed of non-corrosive material, steel clad with a non-corrosive material, or designed to include a secondary containment system to prevent the release or threatened release of any stored substances; and
 - iii. Use material in the construction or lining of the tank that is compatible with the substance to be stored.
- b. Aboveground Tanks. All new aboveground storage facilities proposed for use in the storage of hazardous substances or hazardous wastes shall be designed and constructed so as to:
 - i. Not allow the release of a hazardous substance to the ground, ground waters, or surface waters; and,
 - ii. Have a primary containment area enclosing or underlying the tank or part thereof; and
 - iii. A secondary containment system either built into the tank structure or a dike system built outside the tank for all tanks.
- c. Vehicle Repair and Servicing.
 - i. Vehicle repair and servicing must be conducted over impermeable pads and within a covered structure capable of withstanding normally expected weather conditions. Chemicals used in the process of vehicle repair and

servicing must be stored in a manner that protects them from weather and provides containment should leaks occur.

- ii. No dry wells shall be allowed in critical aquifer recharge areas on sites used for vehicle repair and servicing. Dry wells existing on the site prior to facility establishment must be abandoned using techniques approved by the state department of ecology prior to commencement of the proposed activity.
- d. Residential Use of Pesticides and Nutrients. Application of household pesticides, herbicides, and fertilizers shall not exceed times and rates specified on the packaging.

G. Statutes, Regulations, and Guidance Pertaining to Ground Water Impacting Activities.

Activity	Statute—Regulation—Guidance
Above ground storage tanks	Chapter 173-303-640 WAC
Animal feedlots	Chapter 173-216 WAC, Chapter 173-220 WAC
Automobile washers	Chapter 173-216 WAC, Best Management Practices for Vehicle and Equipment Discharges (Washington Department of Ecology WQ-R-95-56)
Below ground storage tanks	Chapter 173-360 WAC
Chemical treatment storage and disposal facilities	Chapter 173-303-182 WAC
Hazardous waste generator (boat repair shops, biological research facility, dry cleaners, furniture stripping, motor vehicle service garages, photographic processing, printing and publishing shops, etc.)	Chapter 173-303 WAC

Injection wells	Federal 40 CFR Parts 144 and 146, Chapter 173-218 WAC
Junk yards and salvage yards	Chapter 173-304 WAC, Best Management Practices to Prevent Stormwater Pollution at Vehicles Recycler Facilities (Washington State Department of Ecology 94-146)
Oil and gas drilling	Chapter 332-12-450 WAC, Chapter 173-218 WAC
On-site sewage systems (large scale)	Chapter 173-240 WAC
On-site sewage systems (< 14,500 gal/day)	Chapter 246-272 WAC, Local Health Ordinances
Pesticide storage and use	Chapter 15.54 RCW, Chapter 17.21 RCW
Sawmills	Chapter 173-303 WAC, Chapter 173-304 WAC, Best Management Practices to Prevent Stormwater Pollution at Log Yards (Washington State Department of Ecology, 95-53)
Solid waste handling and recycling facilities	Chapter 173-304 WAC
Surface mining	Chapter 332-18-015 WAC
Wastewater application to land surface	Chapter 173-216 WAC, Chapter 173-200 WAC, Washington State Department of Ecology Land Application Guidelines, Best Management Practices for Irrigated Agriculture

- H. Prohibited Uses in Critical Aquifer Recharge Areas. The following activities and uses are prohibited in critical aquifer recharge areas:
1. Landfills. Landfills, including hazardous or dangerous waste, municipal solid waste, special waste, woodwaste, and inert and demolition waste landfills;
 2. Underground Injection Wells. Class I, III, and IV wells and subclasses 5F01, 5D03, 5F04, 5W09, 5W10, 5W11, 5W31, 5×13, 5×14, 5×15, 5W20, 5×28, and 5N24 of Class V wells;
 3. Mining.
 - a. Metals and hard rock mining.
 - b. Sand and gravel mining, prohibited from critical aquifer recharge areas determined to be highly susceptible or vulnerable.
 - c. Wood Treatment Facilities. Wood treatment facilities that allow any portion of the treatment process to occur over permeable surfaces (both natural and manmade).
 - d. Storage, Processing, or Disposal of Radioactive Substances. Facilities that store, process, or dispose of radioactive substances.
 4. Other Prohibited Uses or Activities.
 - a. Activities that would significantly reduce the recharge to aquifers currently or potentially used as a potable water source.
 - b. Activities that would significantly reduce the recharge to aquifers that are a source of significant baseflow to a regulated stream.
 - c. Activities that are not connected to an available sanitary sewer system, prohibited from critical aquifer recharge areas associated with sole source aquifers.

(Ord. No. 1132, § 2(Exh. A), 7-11-2013)

APPENDIX L

**CRESA HAZARDOUS MATERIALS
EMERGENCY RESPONSE PLAN**

Emergency Support Function 10 - Hazardous Materials

Clark County Hazardous Materials Emergency Response Plan

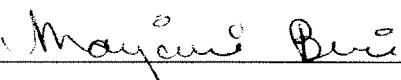
Clark County, Washington

April 2012

Clark County Local Emergency Planning Committee
710 W 13th St.
Vancouver, WA 98660-2810
(360) 737-1911 | fax (360) 694-1954 |
cresa.emergency.management@clark.wa.gov

Clark County Hazardous Materials Emergency Response Plan

Clark County Review and Approval of the Hazardous Materials Emergency Response Plan:


Chair, Local Emergency Planning Committee

4/5/12
Date


Chair, Clark County Fire Chief's Association

04/05/2012
Date

Washington State Patrol has reviewed and approved this plan. Per agency policy, the district commander is not authorized to sign plans on behalf of the agency.

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ESF – 10 HAZARDOUS MATERIALS

HAZARDOUS MATERIALS EMERGENCY RESPONSE PLAN

CLARK COUNTY, WASHINGTON

Joint Primary

Fire Agencies
Washington State Patrol

Support

American Red Cross
Clark County Amateur Radio (ARES/RACES)
Clark County Fire Marshal
Clark County Local Emergency Planning Committee
Clark County Public Health
Clark Regional Emergency Services Agency
Clean-Up Contractors
C-TRAN
Emergency Medical Services
Fixed Facilities
Georgia Pacific Mill Emergency Response Team
Law Enforcement
Medical Program Director
Medical Resource Hospital
Public Works Departments
Region 4 Hazardous Materials Response Team
Southwest Clean Air Agency
Transportation Companies
United States Coast Guard
United States Environmental Protection Agency
Washington Department of Labor and Industries
Washington Poison Control Center
Washington State Department of Ecology
Washington State Department of Natural Resources
Washington State Emergency Management Division
Washington State Department of Health

I. Purpose

This plan describes the procedures and responsibilities for responding to emergency threats to life, property, and the environment caused by an unintended release of hazardous materials within the geographic area of Clark County, Washington. It provides guidance for hazardous materials incident notification and response. It also describes emergency planning and notification procedures required by Superfund Amendments and Reauthorization Act (SARA) Title III and the Emergency Planning & Community Right to Know Act of 1986, (EPCRA).

The objective of this plan is to facilitate -

- A.** Identification of vulnerable areas, sites, and facilities
- B.** Appropriate response by responders
- C.** Coordination of responders and acquisition of resources
- D.** Timely warning and notification of affected populations
- E.** Notification of agencies and jurisdictions for response and recovery

II. Scope

A. Relationship to Other Plans:

- 1.** This Hazardous Materials Emergency Response Plan (HMERP) is the annex 'Emergency Support Function #10 Hazardous Materials (ESF-10)' of the Comprehensive Emergency Management Plans (CEMP) for Clark County and its cities.
- 2.** This plan is consistent with Washington State CEMP and Federal plans.
- 3.** This plan is based on the ESF format and does not stand alone. Some components will be covered by other ESFs and other elements of the CEMP.
- 4.** This plan will also coordinate with the following plans:
 - a.** Washington State CEMP, Washington State Emergency Management Division (EMD), Washington State Department of Ecology.
 - b.** Washington State CEMP, Emergency Support Function (ESF) -10 Hazardous Materials Annex
 - c.** National Oil and Hazardous Substances Pollution Contingency Plan or more commonly known as the National Contingency Plan (NCP), Federal Agencies

- d. Regional Contingency Plan (RCP), EPA, Region X
- e. The Northwest Area Contingency Plan (NWACP), US Coast Guard
- f. Geographic Response Plans (GRPs), US Coast Guard

B. How to Use This Plan:

1. Activation of this plan should begin if -
 - a. Casualties or injuries occur due to a hazardous materials incident
 - b. Evacuation is necessary due to a hazardous materials incident especially outside a facility boundary
 - c. A facility or transporter requests assistance with a hazardous materials response beyond capability of their own resources
 - d. A facility or transporter is required to make warning, notification, or reports under the Emergency Planning and Community Right to Know Act (EPCRA) or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
 - e. A hazardous materials release or a potential release may involve multiple jurisdictions or agencies
2. This plan is intended to -
 - a. Outline the responsibilities and procedures for responding to emergency threats to life, property, and the environment caused by a release of hazardous materials within the geographic area of Clark County, Washington
 - b. Define roles and responsibilities of facilities, jurisdictions, and agencies
 - c. Provide guidance to stakeholders
 - d. Coordinate local response and stakeholder plans with this plan
 - e. Be used for response, consistent to this plan, by all stakeholders
 - f. Define agency, jurisdiction, and facility roles and responsibilities
 - g. Coordinate training and exercises, policies and procedures, protocols, checklists, and guidelines to be consistent with this plan

III. Policies and Legal Authorities

A. Legal Authority and Responsibility for Responding

1. This plan is developed, promulgated, and maintained according to the following federal, state, and local statutes and regulations as Emergency Support Function #10 - Oil and Hazardous Materials Response within the CEMPs of Clark County and its cities.

2. Each of the departments, agencies, jurisdictions, and organizations assigned responsibilities in the plan will be responsible for their own legal responsibilities, obligations, and reporting requirements
- B. Federal Statutes and Regulations:**
1. Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA or Superfund)
 2. Superfund Amendments and Reauthorization Act (SARA) Title III, Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA)
 3. Clean Air Act (CAA) of 1990 Amendments, Section 112(r)
 4. Clean Water Act (CWA) of 1972
 5. Occupational Safety and Health Administration (OSHA) Regulations, 29CFR1910
- C. State Statutes and Regulations:**
1. Revised Code of Washington (RCW):
 - a. Emergency Management, Chapter 38.52 RCW
 - b. Hazardous Substance Information Act, Chapter 70.102 RCW
 - c. Incident Command Agencies, RCW 70.136.030
 - d. Washington Industrial Safety and Health Act (WISHA), Chapter 49.17 RCW
 - e. Chapters 90.56 Oil and hazardous spill prevention and response 173, and 317 for spill and water quality laws.
 2. Washington Administrative Code (WAC):
 - a. Local Emergency Management/Services Organizations, Plans and Programs, Chapter 118-30 WAC
 - b. Hazardous Chemical Emergency Response Planning and Community Right-To-Know Reporting, Chapter 118-40 WAC
 - c. General Occupational Health Standards, Chapter 296-62 WAC
 - d. Emergency Response, Chapter 296-824 WAC
 - e. Washington State Department of Ecology, Title 173
- D. Washington State Department of Ecology, Office of Marine Safety, Title 317. Local Statutes and Regulations**
1. Title 2, Chapter 2.48A Emergency Management, Clark County Code, October 3, 2005.
 2. Title 2, Section 2.32.060 Hazardous Materials Command Agency, City of Vancouver Municipal Code

E. Agreements

1. Clark Regional Emergency Services Agency Interlocal Cooperation Agreement
2. Region IV Homeland Security Mutual Aid Agreement – Omnibus Agreement
3. Georgia Pacific Mill Emergency Response Team (MERT), Agreements for Mutual Aid
 - a. City of Camas Fire Department, dated 8/21/98
 - b. City of Washougal Fire Department, dated 1/19/96
 - c. Clark County Fire Protection District #1, dated 9/20/95
 - d. Clark County Fire Protection District #9, dated 1/12/98
(Note: Fire districts 1 and 9 merged to become East County Fire & Rescue in 2006)
 - e. Permit Number SW-147, State of Washington, Department of Natural Resources (DNR), 11/4/97
 - f. Integrated Contingency Plan/ Emergency Response Plan, approved by Washington Department of Transportation (WS DOT), WISHA, OSHA, Environmental Protection Agency (EPA) and Washington State Department of Ecology

F. Limitations

1. It is neither implied nor inferred that this plan guarantees a perfect emergency response. Extreme weather conditions can cause a response delay; response can be delayed by location, storage, and/or distribution of the appropriate response equipment; initial response may be affected by limitations to alert and warning systems of the community; or the incident may overwhelm staff and equipment. No plan can shield individuals from all events. While every reasonable effort will be made to respond to emergencies or disasters, resources or systems may be overwhelmed. Some events provide little or no warning to implement operational procedures and all emergency plans are dependent upon tactical execution which may be imperfect. This plan can only be fulfilled if the situation, information exchange, extent of actual capabilities, and resources are available at the time of the incident.
2. Responders will endeavor to coordinate plans with, and respond according to, this plan
3. Each agency, facility, and jurisdiction will respond to the limits of its capabilities at the time of an incident

IV. Situation and Assumptions

- A.** A variety of hazardous materials are manufactured, used, stored, and transported in and through Clark County on a daily basis. These materials are a part of our economy but present a threat to life, property, and the environment if not properly controlled.
- B.** For the 2010 Tier 2 reporting year, 156 individual facilities in Clark County reported chemical inventories, as defined by EPCRA.
- C.** Fifty of these facilities reported inventories of 'extremely hazardous substances'. These are chemicals that have a higher toxicity and that have additional planning requirements.
- D.** Five facilities in Clark County are required to submit Risk Management Plans (RMP), in accordance with the Clean Air Act, Section 112(r). These facilities have chemicals that are deemed more likely to have impacts outside of the facility. This includes potential airborne toxics such as chlorine and anhydrous ammonia and explosive substances such as hydrogen and propane.
- E.** Eight additional RMP facilities in counties that border Clark County have chemicals that if released in an extreme, worst-case scenario would impact Clark County (e.g., airborne chemicals could reach Clark County)
- F.** There are highways, main arterials roads, rail lines, pipelines, and flight paths across Clark County on which hazardous materials are transported.
- G.** According to a 2005 study, 2.72% of all commercial vehicles carry hazardous materials through the major transportation corridors in Clark County (e.g., I-5, I-205, SR-14, Mill Plain, Fourth Plain)
- H.** There are 14 miles of interstate liquid fuel pipeline (Olympic Pipeline) in Clark County
- I.** There are 56 miles of interstate natural gas pipeline (Williams Pipeline) in Clark County.
- J.** An accidental release of hazardous materials can occur suddenly, without warning, allow little or no time to respond, and may overwhelm the facility, transporter, or local jurisdiction's ability to respond adequately.
- K.** The entity having legal responsibility for the hazardous material at the time of release is referred to as the 'responsible party'.

V. Concept of Operations

- A. Only when local jurisdiction, facility, and agency resources are exhausted will state, regional, and federal assistance be requested.
- B. Responding agencies and jurisdictions on-scene will use the National Incident Management System (NIMS) Incident Command System (ICS).
- C. ICS is required for the management of personnel and resources from the initial response to an accidental chemical release through to termination of the incident (see RCW 70.136.030). At a minimum, documentation of the incident using ICS forms is encouraged starting with an ICS 201 – Incident Briefing form.

D. Emergency Warning

1. Emergency Warning Methods

- a. Localized Alarms: A fixed facility may utilize a combination of one or more of the following:
 - (1) Siren or other audible alarm
 - (2) Flashing lights
 - (3) Reader Boards
 - (4) Localized radio broadcast
- b. Emergency Alert System (EAS)
 - (1) The Emergency Alert System warning is a text and audio electronic message relayed through the Portland-Vancouver television and radio media.
 - (2) The information is received only if the intended audience is listening to radio or watching television.
 - (3) Broadcasts must be less than two minutes
 - (4) Must not be used unless other warning methods would be ineffective
 - (5) Must specify the geographical area affected.
 - (6) Must specify the expected duration of the incident
 - (7) Must specify protective actions to be taken by the public
- c. Emergency Community Notification System (ECNS)
 - (1) The ECNS warning is an automated telephone messaging system that can issue a recorded voice message to a defined area.
 - (2) It can only reach landline telephones that are capable of receiving the automated message or cellular or voice over

internet phone (VoIP) that a registered on the system through the CRESA website. See:

<http://cresa911.org/be-informed/>

- (3) The system will not reach 100% of households in the notification area
- (4) Must not be used unless other warning methods would be ineffective
- (5) Must specify protective actions to be taken by the public

d. Media Release

- (1) An urgent media release may be issued via fax, e-mail, web-posting (flashnews.net), or other practical means to relay information quickly to the media about an incident.
- (2) A media release may contain any amount of detail about the incident that is approved by command.
- (3) If used as a warning, must specify protective actions to be taken by the public.

e. Door-to-Door Notification

- (1) Designated individual(s) may go door-to-door in an affected area to warn the community. As this method is staff intensive, it may not be an option during an emergency.
- (2) The safety of the individual(s) conducting the notifications is of prime importance. An alternate notification method should be used if personnel cannot be adequately protected during the door-to-door notifications

f. Non-Automated telephone contact

Designated individual(s) may make individual phone calls to known phone numbers in the immediate area. As this method is staff intensive, it may not be an option during an emergency. Not all phone numbers in an area may be known.

2. Roles and Responsibilities for Emergency Warning

a. The Responsible Party will

- (1) Activate their emergency response plan
- (2) Where pre-existing lists or “phone trees” are part of a facility emergency plan, every effort should be made to utilize prior agreements to generate the expected warning to the public.
- (3) At a minimum notify 911 for the LEPC point of contact even if the situation is not perceived as a life threatening or dangerous incident.

- b. Incident Commander (responsible public safety official)**
 - (1) As soon as possible after confirming the threat necessitates a public warning, the Incident Commander shall initiate a request to notify the public of the emergency.
 - (2) The Incident Commander shall make a determination of which warning method would be most appropriate and effective. This can be done in consultation with the CRESA Duty Officer.
 - (3) If requesting the use of the EAS or ECNS the Incident Commander or delegate shall provide the details necessary to write the warning statement.
- c. CRESA**
 - (1) CRESA shall maintain and test the EAS and ECNS warning capability to ensure reliability in an emergency.
 - (2) Upon request by the Incident Commander, CRESA shall assist in drafting and issuing the emergency warning

E. Emergency Response

- 1. Initial Notification of Response Agencies**
 - a. Release is recognized:**
 - (1) As determined by facility and reported by facility emergency coordinator in accordance with facility emergency response plans.
 - (2) As determined by transporter and reported according to transportation emergency response plans, EPCRA, and/or DOT regulations
 - (3) If reported by responder or public then according to CRESA Dispatch Directive: 13.092 Hazardous Materials Incident
 - (4) If the quantity released is greater than the CERCLA Reportable Quantity (RQ)
 - (5) If the quantity released is greater than the RQ listed under Section 304 of SARA Title III or CERCLA.
 - (6) If material has or may impact Washington waters of the state
 - b. Appropriate methods of determining off-site migration of a released substance include but are not limited to -**
 - (1) On-site environmental monitoring station (wind speed and direction, air temperature, etc.)
 - (2) Computer software such as computer aided management of emergency operations (CAMEO) that can model toxic atmospheric plumes

- (3) Automated air monitoring equipment mounted at strategic locations on site.
 - (4) Hand held air monitoring equipment
 - (5) Reports of off site complaints of chemical odors or adverse health-related symptoms
 - (6) If the responsible party determines a released substance has or may migrate off site, they must immediately call 911 for emergency notification
- c. Notifications are required to be made as follows:
- (1) Notify 9-1-1 immediately for all non-permitted releases of hazardous materials that meet one or more of the following criteria:
 - (a) Release is uncontrolled and has the potential to migrate off site or -
 - (b) Release occurs while in transit off site
 - (c) Release creates a significant safety or health risk, on or off site
 - (d) Release is beyond the scope of on site resources, responders' certified training, or the facility emergency response plan
 - (2) *NOTE:* Additional and updated information about reporting requirements, required forms, and complete references are available at the Department of Ecology internet site:
General information about spill reporting can be found at:

<http://www.ecy.wa.gov/programs/spills/other/reportaspill.htm>

 Information about pre- and post-incident reporting requirements can be found at:

<http://www.ecy.wa.gov/epcra/reportingreq.html>
 - (3) Department of Ecology Southwest Regional Office must be notified immediately if dangerous waste or hazardous substances are spilled or discharged and threatens human health or the environment regardless of quantity.
 - (4) National Response Center (NRC) must be notified within 15 minutes if release reaches CERCLA reportable quantity (RQ)
 - (5) NRC, and any impacted State Emergency Response Commission (SERC), Tribal Emergency Response Commission (TERC), and , and LEPC/ Community Emergency

Coordinator must be notified within 15 minutes if release reaches RQ under Section 304 of SARA Title III or CERCLA. The LEPC Community Emergency Coordinator notification can be done by contacting 911. CRESA 911/dispatch will notify appropriate response agencies and the CRESA duty officer.

- (6) The Washington State Department of Ecology and the National Response Center (NRC) must be notified immediately if any oil or hazardous substances (regardless of quantity) are discharged to waters of the state including lakes, rivers, ponds, streams, underground water, storm water systems, sewers and all other surface water and watercourses.
- (7) Follow-up report must be sent to the LEPC within 14 days if RQ under Section 313 of SARA Title III
- (8) A guide to release notifications for Clark County is available in *Appendix B – Chemical Release Notification Guide – Clark County*.

2. Direction and Control

a. Emergency Coordinator Identification

- (1) The Community Emergency Coordinator is the CRESA Director or Designee. The Community Emergency Coordinator representative, the CRESA Duty Officer, can be contacted through 911 dispatch
- (2) Facility Emergency Coordinators are listed in *Appendix A – Facility Emergency Coordinators in Clark County* and kept on file at CRESA. This information is included in annual chemical inventory (tier 2) reports. They will contact the Community Emergency Coordinator through 911 dispatch

b. Name of on-scene authority

To ensure effective coordination of the various emergency response units at the scene, it is the responsibility of the following official on-scene to act as Incident Commander (IC) for their jurisdiction:

- (1) On state and Interstate roadways, Washington State Patrol.
- (2) On navigable waterways, up to Bonneville Dam, the senior US Coast Guard officer or representative
- (3) On state waters, the Department of Ecology On-Scene Coordinator
- (4) On inland waterways (past Bonneville Dam), the EPA
- (5) In areas other than roadways and waterways, the Senior Fire Official of the jurisdiction

c. Designation of Incident Command agency

- (1) In Clark County, the Incident Command agency for hazardous materials incidents within each jurisdiction is listed in the table below
- (2) Letters of Incident Command designation are on file with the Office of the State Fire Marshal. The designations on file are as follows:

Clark County Jurisdiction	Designated Incident Command Agency	Date of Designation
Fire District No. 2	Woodland Fire Department	1/27/1988
Fire District No. 3	Clark County Fire District No. 3	11/31/1987
Fire District No. 5	Vancouver Fire Department	6/29/2005
Fire District No. 6	Clark County Fire District No. 6	8/6/1987
Fire District No. 10	Clark County Fire District No. 10	8/3/1988
Fire District No. 13	Washington State Patrol	2/18/1999
East County Fire and Rescue	Washington State Patrol	7/18/2006
Clark County Fire & Rescue	Clark County Fire & Rescue	11/26/2008
City of Battle Ground	Clark County Fire & Rescue	11/26/2008
City of Camas	Camas Fire Department	10/26/1987
City of La Center	Clark County Fire & Rescue	12/22/2010
City of Ridgefield	Clark County Fire & Rescue	12/22/2010
City of Vancouver	Vancouver Fire Department	8/11/1987
City of Washougal	Washougal Fire Department	12/19/2000
Town of Yacolt	Washington State Patrol	2/24/1999
Port of Camas-Washougal	Within city limits, Washougal Fire Department; outside city limits, Clark County Fire Marshal	12/17/1987
Port of Ridgefield	Washington State Patrol	2/1/1988

Port of Vancouver	Vancouver Fire Department	12/19/2000
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d. State Incident Command Agencies

- (1) The governor is legally responsible for directing and controlling all state activities to protect the lives and property of citizens from the effects of disasters
- (2) The Director of the Washington State Military Department is responsible for coordinating operational support and resources from state agencies and the federal government in accordance with RCW 38.52.030(3). The State EOC Alert & Warning Center (AWC) carries out this responsibility day-to-day. In response to a more significant incident, the State EOC assumes this responsibility.
- (3) The Department of Ecology is the pre-designated lead state agency for oil and hazardous substance incidents on marine and fresh waters, and for inland spills where the Washington State Patrol or local On-Scene Coordinator (OSC) has curtailed emergency response operations. In these instances, Ecology provides the state OSC to continue management of response and clean-up actions.
- (4) Washington State Patrol is the Incident Command agency where designated and for all state and interstate highways in the State of Washington

e. Emergency Operations Center (EOC)

- (1) The Clark Regional Emergency Operations Center (CREOC) may be activated in response to an emergency incident that overwhelms the ability of agencies to respond. CREOC is located at 710 W 13th Street, Vancouver WA 98660. Alternate EOC facilities are also available in the event that the primary site is unusable.
- (2) CRESA is the manager of the CREOC and maintains detailed plans and procedures for its operation.
- (3) The CREOC can provide resource and information support and coordination.
- (4) The CREOC will be activated by the appropriate Incident Commander, executive head, or director as specified in the CREOC Plan
- (5) Depending on the scope of the incident, area or city EOCs may also be activated to coordinate local incident response.

3. Communications

- a. Public safety communication in Clark County is mostly via 800 MHZ radio system. This system also includes patches to VHF communication channels.
- b. During an incident frequency assignments are made according to:
 - (1) Regional Interoperability VHF Frequency Plan
 - (2) CRESA Written Directive 11.114: Emergency and Disaster Dispatch Procedures.
 - (3) Other CRESA Written Directive

4. Evacuation

- a. If resources and other incidents conditions support it, the incident commander may choose to evacuate the impacted or potentially impacted area. Evacuation is commonly done as a precaution if there is a threat that the impacted area will expand.
- b. Due to weather conditions, plume, and other variables, evacuation and alternative traffic routes cannot be specifically determined in advance, but are determined by the Incident Commander on scene at the time of the incident.
- c. Evacuation procedures and responsibilities are outlined in CEMP ESF 24. Mass transit, school, and private bus resources are available to support evacuation. These resources can be requested through dispatch or the EOC.
- d. Evacuation routes should normally be upwind or cross-wind from the impacted area.
- e. See *Appendix C – Hazardous Materials Sites and Transportation Routes* for a depiction of the primary transportation routes in Clark County (primary and secondary arterials) and the location of chemical facilities, including Tier 2 reporters, facilities with Extremely Hazardous Substances, and facilities that are subject to the Risk Management Plan requirements of the Federal Clean Air (112r)

5. Shelter-in-Place

- a. Shelter-in-place is a protective action that involves bringing persons immediately indoors and securing the building within the impacted area. In some cases, as determined by the incident, it may be necessary to seal doors, windows, and vents and to also evacuate to interior rooms or upper or lower level rooms.

- b.** Shelter-in-place is recommended in situations where there would be a greater risk from evacuation or where there aren't sufficient resources to support a safe and timely evacuation.
- c.** Shelter-in-place may also be recommended for hospitals, nursing homes, and similar facilities where evacuation would be resource intensive, evacuation would put persons at greater risk, and where health and safety can be reasonably assured within the facility.
- d.** The general procedure for sheltering-in-place is as follows. These procedures may be adjusted depending on the specific needs of the incident:
 - ☐ Go inside a building and remain until you are notified by television, radio, or other means that the danger has passed. Use the downwind side of the building, up/downstairs.
 - ☐ Close all doors and windows.
 - ☐ Shut off all ventilation, heating and cooling systems.
 - ☐ Use wet towels over mouth and nose as instructed.
 - ☐ Do not use fireplaces or woodstoves. Put out any burning fires and close the damper.
 - ☐ Listen to your local radio or television stations for further instructions.

6. Containment and Cleanup

- a.** Incident site entry will be limited to trained personnel with appropriate personal protective equipment.
- b.** Decontamination procedures will be followed to limit area of contamination.
- c.** Responsible Party will reduce the risk to public health and the environment; meet OSHA, Ecology, and EPA determined procedures, guidelines, and legal responsibilities.
- d.** Hazardous materials will be identified, contained, recovered, and properly treated or removed for proper disposal at approved and permitted sites.
- e.** Transportation, facility, local, state, and federal requirements, regulations and procedures will be followed.
- f.** Documentation will be maintained by responding agencies, jurisdiction, and parties.
- g.** Containment and clean-up should include planning for restoration and mitigation of damages to the environment.
- h.** Planning for public health protection during this phase should be included in the recovery plan.

7. Decontamination

- a. Decontamination of casualties and first responder equipment will be under facility emergency operations officer and fire agency direction
- b. The set up and operation of decontamination stations will be according to facility and/or responding agency procedures
- c. Patients will be decontaminated, to the safest extent possible, before transport to a medical facility (according to *Pre-hospital Care Protocols - Hazardous Materials Incident*)
- d. The health officer may declare a health emergency (under Chapter 70.05 RCW) in order to quarantine an area and force decontamination of victims who refuse necessary decontamination. This will only be considered to protect the public from certain danger
- e. The Georgia Pacific Mill Emergency Response Team and the Region 4 Hazardous Materials Response Team have portable decontamination facilities that can be transported to incident scene

8. Resources

- a. Response resources may be available by contacting 911, WSP, Coast Guard, or fire departments. All agencies can be contacted through 911.
- b. The Washington State Department of Ecology maintains three resource lists of spill response and recovery resources:
 - (1) Hazmat Spill Contractor list
 - (2) Lower and Middle Columbia Response Consortium. This provides a listing of equipment caches and agency resources that may support spill response on the Columbia River.
 - (3) Western Response Resources List (WRRL). This is a database of public and private sector spill response resources.

All three resource lists are available online. See *Section VIII. References*.

- c. State and local agencies who are members of the Washington State Purchasing Cooperative are authorized to use the Washington State General Administration contractor for hazardous waste handling and disposal services. This contract can be accessed by contacting the Department of Ecology Spills Program or by visiting the General Administration website:

<http://www.ga.wa.gov/Purchase/contracts.htm>

- d. If first response and immediate mutual aid resources have been exhausted, the IC may request additional resources through the Clark Regional Emergency Operations Center (EOC). The EOC also serves as the ordering point for state and federal assistance and resources.
- e. Below is a list of the technical hazmat resources available in Clark County. Additional resources are available from nearby jurisdictions through mutual aid, including the city of Portland Hazmat Team, city of Gresham Hazmat Team, and the Tualatin Valley Fire and Rescue Hazmat Team.

Unit Name	Home Agency	Non-Emergency Contact
Region 4 Hazardous Materials Response Team	Vancouver Fire Department	Steve Eldred (360) 487-7206
Mill Emergency Response Team (MERT)	Georgia Pacific Paper Mill Camas, WA	Kevin Goodell (360) 834-8473, x3202

- f. The Vancouver Fire Department is host to the Region 4 Hazmat Team and provides the primary, technical hazmat incident response to all jurisdictions in Homeland Security Region 4, which includes Clark, Cowlitz, Skamania, and Wahkiakum counties.
 - g. The Region 4 Hazmat Team is incorporated into Vancouver Fire's Special Operations Division which includes the Region 4 Technical Rescue Team and the Marine Program. Together, these resources provide an integrated response to technical incidents that require specialized tactics, personnel, and equipment. Other fire/EMS agencies in Region 4 have personnel who are trained in technical response and these agencies are well coordinated with the Vancouver Fire Special Operations Division. However, Vancouver Fire provides core staff and equipment and has the primary responsibility for providing special operations services to the region.
 - h. The MERT is an industrial fire brigade (authorized per WAC 296-811) for the Georgia Pacific Paper Mill and also serves as a mutual aid resource to the fire agencies in East Clark County (Camas Fire, Washougal Fire, and East County Fire and Rescue). It has a mutual aid agreement with those agencies.
9. Site Monitoring
- a. Monitoring the the location of the release is primarily the responsibility of the owner of the material or responsible party that caused the hazardous materials release

- b. Response agencies have limited means for monitoring a hazardous material emergency
- c. While the fire department hazmat team has the responsibility for this function, they will only do so to their level of capability
- d. If the fire service's ability is exceeded, Ecology or the Superfund Technical Assessment and Response Team (EPA START) contractor may be requested to monitor emissions at the release site
- e. Some facilities may have a monitoring capabilities and instrument-trained personnel to monitor their site and should be utilized to the greatest extent possible
- f. Several agencies have an interest in the level of contamination at a site. These include:
 - (1) Washington State Department of Health - Accommodations and Residential Care Services; Environmental Health, Safety, and Toxicology; Drinking Water and Radiation Protection.
 - (2) Clark County Public Health certifies re-occupancy of a residence following cleanup
 - (3) Clark County Public Health Site Hazardous Assessment Program conducts initial investigations of potentially contaminated sites for priority ranking and possible listing with the Department of Ecology's Hazardous Waste Site Cleanup Program
 - (4) Washington State Department of Labor and Industries for Worker Safety and Business Occupancy
 - (5) Washington State Department of Health (DOH) and for Accommodations and Washington State Department of Social and Health Services (DSHS) for Residential Care
 - (6) Washington State Department of Ecology

F. Documentation and Investigative Follow Up

1. Reporting Procedures

- a. The NRC, SERC, and LEPC must be notified when there is a release of an Reportable Quantity (RQ) of a hazardous substance or Extremely Hazardous Substance (EHS) into the environment according to CERCLA Section 103(a) and EPCRA Section 304
- b. The purpose of the notification is to alert government officials that an emergency response may be needed to protect human health and the environment
- c. Reporting a release does not free the responsible party from liability for cleanup costs

2. Mechanics of Notification

- a.** In order to meet the requirements under EPCRA Section 304 the owner or operator of a facility must IMMEDIATELY report releases of hazardous substances and extremely hazardous substances (EHSs) to:

(1) State Emergency Response Commission (SERC) and appropriate state agencies through the Washington State Emergency Operations Center – Alert and Warning Center at 800-258-5990

(2) LEPC via CRESA's 911/dispatch center: 911

(3) National Response Center: 800-424-8802

See also *Appendix A – Chemical Release Notification Guide – Clark County*.

- b.** The notice to the SERC and LEPC must include:

(1) The chemical name or identity of any substance involved in the release

(2) An estimate of the quantity released into the environment

(3) The time and duration of the release

(4) The medium or media into which the release occurred

(5) Any known or anticipated acute or chronic health risks associated with the emergency and, where appropriate, advice regarding medical attention necessary for exposed individuals.

(6) Proper precautions to take as a result of the release, including evacuation (unless the community emergency coordinator confirms such information is already available pursuant to the emergency plan)

(7) The names and telephone numbers of the person or persons to be contacted for further information

- c.** As soon as practicable or within 30 days after a release which requires notice under EPCRA Section 304, the owner or operator of the facility is required to submit a written follow-up notice to the affected LEPCs, TERCs, and SERCs

- d.** This report must contain all information required in the initial notice plus:

(1) Updated and additional information with respect to release

(2) Actions taken to respond to and contain the known or anticipated acute or chronic health risks associated with the release

(3) Where appropriate, advice regarding medical attention necessary for exposed individuals

(4) EPA strongly recommends that the cause of the release be reported in the follow-up notice

3. List of required reports

- a. EPCRA Section 302/303 – EHS Notification/Facility Emergency Coordinator
- b. EPCRA Section 304 – Emergency Release Notifications
- c. EPCRA Section 311 – MSDS Submittals
- d. EPCRA Section 312 – Tier Two – Emergency and Hazardous Chemical Inventory

(1) Electronic reporting is available to industry at

<http://www.ecy.wa.gov/epcra>

Must be submitted in hard copy format to the LEPC and local fire department.

e. Forms

Tier Two – Emergency and Hazardous Chemical Inventory forms are available at www.ecy.wa.gov/epcra

(2) Transportation Hazardous Materials Incident Report, form F 5800.1 (rev 01-2004) (OMB No 2107-0039Forms)

See: <http://www.phmsa.dot.gov/hazmat/incident-report>

Complete form online at:

<https://hazmatonline.phmsa.dot.gov/incident/>

f. In addition to notification of RQ release, follow up report which includes:

- (1) Any updated and additional information with respect to actions taken to respond to and contain the release
- (2) Known or anticipated acute or chronic health risks associated with the release
- (3) Where appropriate, advice regarding medical attention necessary for exposed individuals

4. Reasons for requiring the reports

- a. To alert government officials that an emergency response may be necessary to protect public human health and the environment

- b. Document impacts and potential impacts to public health and welfare and the environment
 - c. During all phases of response, the lead agency shall complete and maintain documentation to:
 - (1) Establish the basis for cost recovery
 - (2) In general, documentation shall be sufficient to:
 - (a) Provide the source and circumstances of the release
 - (b) Identity of responsible parties
 - (c) Record response action taken
 - (d) Provide accurate accounting of federal, state or private party costs
 - (e) Document impacts and potential impacts to the public health and welfare and the environment
 - (f) Record when the NRC received notification of a release of a reportable quantity 40CFR300.160
6. After Action Review
- a. Organizations involved in a significant hazardous materials incident response or exercises should conduct an post incident analysis or after action review to identify lessons learned and to develop improvement plans.
 - b. For significant hazardous incidents, particularly those involving multi-agency or multi-jurisdiction response, the LEPC should be involved in the after action review.
7. Investigations
- a. All responders will assist with the collection of information for identification of the responsible party.
 - b. When a responsible party is known they will be informed, when practical, of the incident and be provided with information for follow-up reporting.
 - c. Clark County Fire Marshal investigates the origin and cause of fires; is the lead agency in arson investigation involving hazardous materials
 - d. Clark County Public Health
 - (1) Provides information about proper destruction or decontamination of structures, vehicles and property associated with confirmed chemical contamination
 - (2) Clark County Public Health Site Hazardous Assessment Program conducts initial investigations of potentially

contaminated sites for priority ranking and possible listing with the Department of Ecology's Hazardous Waste Site Cleanup Program

- (3) Investigates complaints involving improper waste disposal practices or hazardous waste spills resulting in potential contamination or exposure
 - e. Southwest Washington Clean Air Agency investigates incidents that may involve the violation of federal, state, and local outdoor air quality standards and regulations.
 - f. WSP investigates criminal acts on state highways and roads
 - g. Clark County Sheriff's Office (CCSO)
 - (1) Investigate criminal acts on county highways and roads
 - (2) Investigate criminal acts in unincorporated Clark County
 - h. Other Law Enforcement Agencies investigate criminal acts within incorporated boundaries
- 8. Provision for cost recovery**
- a. Responsible party, transportation company, or facility will make their own arrangements for cost recovery
 - b. The responsible party pays for costs of responding agencies and jurisdictions
 - c. Responding agencies and jurisdictions will separately document costs associated with the specific incident response
 - d. The Model Toxics Control Act may provide funding.
 - e. CERCLA requires reporting of releases of hazardous substances, establishes the liability of persons responsible for releases of hazardous substances, and establishes an EPA trust fund
 - f. If no Responsible Party can be determined, EPA may provide funding through the Local Government Reimbursement Program (800-431-9209) for up to \$25,000 in extraordinary local expenses for qualifying incidents.
 - g. Form EPA Form 9310-1, Application Package for Reimbursement to Local Governments, will be used to apply for reimbursement; Instructions and guidelines are included.

VI. Responsibilities

- A. All Response Agencies, Jurisdictions, Fixed Facilities, Transportation Companies and Responsible Parties**
 - 1. Develop plans consistent with this HMERP.
 - 2. Provide the primary resources for hazardous materials response.
 - 3. Provide representative to the Incident Command post and EOC when requested by the Incident Commander.
 - 4. As directed by the Incident Commander, will coordinate public information, support and representation at the authorized Joint Information Center.
- B. Responsible Party**
 - 1. Ensure timely warning and notification of hazardous releases to all jurisdictions that may be affected.
 - 2. Assure effective abatement of the release or threatened release of hazardous materials.
 - 3. Be liable and cover the costs of clean up and response of jurisdictions and agencies.
 - 4. Respond according to Emergency Response Plan, OSHA Process Safety Management Standard, Risk Management Plan and/or Mutual Aid Agreement.
- C. Fixed Facilities**
 - 1. Provide information for planning purposes to the Clark County Local Emergency Planning Committee (LEPC).
 - 2. Provide for worker safety and shutdown of operations as needed during a hazardous materials incident.
 - 3. Provide timely public warning and notifications of hazardous releases from facility.
 - 4. Alert surrounding area and vulnerable persons.
 - 5. Notify and coordinate activities with the LEPC in the event of a release of hazardous materials.
 - 6. Notify the regulating authorities of the release, as appropriate.
 - 7. Maintain and coordinate plans to comply with current regulations.
 - 8. Develop and provide a Risk Management Plan and/or Facility Emergency Response Plans, which will determine policies and procedures for reporting releases.

9. Those facilities subject to CAA 112(r) are requested to submit Response Management Plan (RMP) and/or Emergency Response Plan (ERP) to the LEPC for planning purposes.

D. Transportation Companies

1. Respond to hazardous materials incidents caused by their operations
2. Respond to hazardous materials incidents on their property
3. Provide for worker safety and shutdown of operations as needed during hazardous materials incident
4. Provide timely public warning and notifications of hazardous releases.
5. Alert surrounding area and vulnerable populations.
6. Notify the LEPC and other regulating authorities of a release of hazardous materials
7. Maintain and coordinate emergency response plans to comply with current regulations

E. Local Government and Business

1. Executive Heads

- a. Provide for continuity of government during and after a hazardous materials incident.
- b. Adopt and enact emergency ordinances and policies; support appropriate emergency expenditures.
- c. Keep the public informed during and after a hazardous materials incident.
- d. Release emergency information, in coordination with Incident Command, EOC, and public information officers

2. Law Enforcement

- a. Act as lead agency for evacuation and site security
- b. Participate in the Incident Command System.
- c. Provide crowd and traffic control
- d. Investigate crimes related to a hazardous materials incident.
- e. Assist with warning and emergency information dissemination.
- f. Assist with warning the public about evacuation routes and locations or notify public to shelter-in-place
- g. Provide a representative to the Incident Command Post and EOC as requested

3. Local Fire Agencies

- a. Limit, isolate and deny entry to sites of hazardous materials incidents within Clark County
- b. Investigate and report hazardous materials accidents
- c. Where designated, in accordance with RCW 70.136.030, act as the Incident Command agency. (Section VII-B-3-b of this plan)
- d. Coordinate activities with other jurisdictions, facilities, and responders
- e. Request technical support from hazardous materials response teams when necessary

4. Emergency Medical Services

- a. Emergency Medical Services (EMS):
 - (1) Provide triage, pre-hospital treatment, and EMS transportation
 - (2) Advise Incident Commander concerning transport and mass casualty potential
 - (3) Assist with decontamination and transfer of patients to hospital facilities
 - (4) Follow Clark County Emergency Medical Services *Pre-hospital Care Protocols*
- b. Medical Resource Hospital (MRH) at Oregon Health and Science University will coordinate distribution of patients to local hospitals and medical facilities when the impacted jurisdiction's hospitals are overwhelmed.

5. Region 4 Hazardous Materials Response Team

- a. Provide hazardous materials resources and information at the request of the Incident Command (IC)
- b. Provide specialized fire control tactics for bulk flammable liquids, gases, and solids
- c. Monitor air for flammable and toxic gases
- d. Monitor for radiological releases
- e. Sample and screen unknown substances for CBRNE (chemical, biological, radiological, nuclear, explosive) hazards
- f. Control emergency leaks and releases of hazardous solids, liquids and gases
- g. Provide medical decontamination and Advanced Life Support (ALS) care for contaminated victims

- [illegible]

3. Coordinate public emergency alert and warning
4. Coordinate planning, mitigation, response and recovery phases of emergency planning
5. CRESA Director
 - a. Coordinate services for the protection of the citizens' property and employees from hazards and risks resulting from unintended release of hazardous substances
 - b. Advise and assist officials with coordination, direction and control of emergency operations
 - c. Coordinate the development of an emergency declaration, if necessary
 - d. Coordinate and prepare requests for emergency resources to State EOC or federal agencies
 - e. Coordinate public information and approve all press releases from CRESA
 - f. Advise officials about emergency fiscal and administrative procedures and requirements
 - g. Authorize activation of the CREOC and appoint the CREOC Manager
6. CRESA 911/dispatch
 - a. Dispatch fire, police, and Emergency Medical Services (EMS) services
 - b. Complete notifications and requests at the direction of Incident Commander
 - c. Notify duty officer according to guidelines
 - d. Contact and notify jurisdictions and agencies according to Incident Commander, community emergency coordinator, and duty officer requests
 - e. Maintain recordings and documentation of incidents
 - f. Activate 911 back-up center as requested by IC or specified authority.
7. CRESA Duty Officer
 - a. Coordinate resources at the request of the Incident Commander
 - b. Coordinate resource support to response agencies
 - c. Establish liaison with affected organizations and jurisdictions as needed

- d. Coordinate and staff the Incident Command Post and CREOC when activated
- e. Support emergency warning and coordinate use of EAS and ECNS.
- g. Activate Emergency Alert System (EAS) and Emergency Community Notification System (ECNS) at request of IC
- f. Coordinate with communities affected for status reports and needs assessments
- g. Notify the Department of Ecology of releases and coordinate with Ecology on any cleanup, disposal and recovery issues
- h. Support Incident Commander with available response and recovery resources

G. Medical Program Director

- 1. Develop and approve Clark County Pre-hospital Patient Care Protocols
- 2. Direct pre-hospital patient care according to EMS Trauma Care guidelines

H. Southwest Clean Air Agency

- 1. Enforce federal, state and local outdoor air quality standards and regulations in Clark County under the Federal Clean Air Act. Automobiles, chemical paper and pulp mills, and aluminum reduction facilities are not regulated the SWCAA.
- 2. Address air quality concerns in coordination with Clark County Public Health.

I. Clark County Public Health

- 1. Become involved if there are human exposures or potential human exposures to hazardous materials releases
- 2. If needed, respond to complaints involving spills to determine the extent of the problem and assess proper cleanup protocol as it relates to potential human health impacts.
- 3. Conduct long-term disease surveillance of exposed populations.
- 4. Coordinate with Incident Commander concerning transfer of command when changing from initial response to recovery
- 5. Provide for coordination of proper hygiene and sanitation procedures at mass care facilities
- 6. Monitor small public (Group B) water systems to ensure the safety of drinking water supplies
- 7. Provide coordination of information with state and federal public health agencies

8. Advise about personnel protection, public health effects, and environmental impacts regarding unknown products
 9. Health Officer or designee would declare public health emergencies to protect the general public and issue public health advisories
 10. Public health public information officer would contact local media and coordinate with IC and emergency responders
 11. Through epidemiologic investigations, identify source of exposure to hazardous materials
 12. Enforce laws and regulations that protect health and ensure safety
 13. Provide information to the public regarding potential and confirmed contaminants in soil, water, air and food supply
 14. Agency coordination is also ongoing through Boards and Committees such as the Local Emergency Planning Committee (LEPC)
- J. Clark County LEPC**
1. Coordinate maintenance of this plan
 2. Maintain records of annual Tier 2 reporters and other emergency documents required by law. These records are stored by CRESA for a period of five years
 3. Provide information public information as required by EPCRA
 4. Provide resource information as needed
 5. Disseminate information concerning hazardous materials in the community.
 6. Plan for hazardous materials incidents and exercise the plan.
 7. Information regarding the annual exercise and other exercises will be added to the LEPC workplan at the annual meeting (usually January) and the date of the exercise will be set at a later meeting of the LEPC and announced to the general membership of LEPC.
- K. C-TRAN**
1. Reroute buses as necessary during an emergency
 2. Provide mass transit resources at the request of first response agencies
- L. Washington State**
1. The Washington State Emergency Management Division (EMD)
 - a. Manage, update and coordinate state CEMP
 - b. Maintain State EOC Alert and Warning Center for coordination of state resources
 - c. Coordinate communications with local, state and federal agencies

2. The Washington State Department of Ecology (Ecology)
 - a. Provide 24-hour emergency response to reported spill incidents
 - b. Represent state laws and interests in oil and hazardous substances incidents by acting as the State On-Scene Coordinator (SOSC) in the Unified Command System
 - c. Coordinate response efforts with other local, state and federal agencies
 - d. Determine the release source, cause and responsible party
 - e. Coordinate incident cleanup (in some cases in conjunction with EPA) if the Responsible Party is unavailable, unresponsive, or unidentified
 - f. Provide response advice and resource listings to responsible parties and responding agencies
 - g. Coordinate Natural Resource Damage Assessment (NRDA) activities for the state
 - h. Set cleanup standards for the incident in accordance with federal and state law, and ensure that source control, containment, cleanup and disposal are accomplished
 - i. Participate in a Joint Information Center (JIC)
 - j. Serve as advisor for emergency responder equipment and training
 - k. Serve as advisor for on-scene release response and environmental clean-up
 - l. Coordinate development, implementation, and maintenance of a Community Right- to Know Program according to EPCRA subsection 301(a)
3. Washington State Patrol (WSP)
 - a. Conduct safety inspections on vehicles transporting hazardous materials/waste and enforce state and federal transportation regulations, Chapter 46.48 RCW
 - b. Provide technical assistance to shippers and carriers
 - c. Investigate accidents involving hazardous materials within its jurisdiction
 - d. Assist with identification of responsible party
 - e. Act as the Incident Command agency on state and interstate roadways during hazardous materials events and in other jurisdiction where designated as the Incident Commander.

- f.** Act as Incident Commander, where designated, for those fire departments that recognize the WSP as IC agency for hazardous materials incidents .
 - g.** Act as lead agency for evacuation and site security. Assist with warning the public about evacuation routes and locations or notify public to shelter in place (SIP)
 - h.** Provide crowd and traffic control when appropriate and as requested by IC
 - i.** Assist with warning and emergency information dissemination
 - j.** Provide a representative to the Incident Command Post and EOC as requested
 - k.** Provide training through the Office of the State Fire Marshal, Hazardous Materials Unit
 - l.** Conduct ongoing hazardous materials recognition and operations training for WSP personnel and local fire, law enforcement and EMS responders
- 4.** Washington State Department of Natural Resources (DNR)
 - a.** Protect water resources on DNR lands
 - b.** Provide access, information and assistance to reduce and control the effects of hazardous materials on DNR lands
- 5.** Washington Poison Control Center
 - a.** Provide statewide, 24 hour telephone information to the public and health care providers regarding poisonings and suspected poisonings
 - b.** Provide information regarding environmental and toxicological concerns
- 6.** Washington State Department of Health

Provide technical assistance and support regarding sample collection, laboratory analysis, hazard identification and assessment of public health impacts of chemical or radiological incidents

Coordinate information flow, resources with federal agencies, and support of local health agency partners
- 7.** Washington State Department of Labor and Industries
 - a.** Enforce WISHA requirements and protections. Worker Right-To-Know Act 49.70 Hazard Communication Standard (HCS) Chapter 296-62 WAC, part C
 - b.** Conducts inspections of facilities where hazardous materials are generated, used, stored, disposed of or destroyed (WA CEMP)

8. Washington State Department of Transportation will:

M. Federal Agencies

1. United States Coast Guard

- a.** Participate in the Incident Command for releases of hazardous materials or petroleum products occurring on navigable waterways
- b.** Provide a representative to the Incident Command Post and EOC as requested
- c.** Act under ESF 10 of the National Response Framework
Provide funding for response contractors when the responsible party is unavailable, unresponsive, or un-identified.

2. United State Environmental Protection Agency

- a.** Participate in the Incident Command for releases of hazardous materials or petroleum products occurring in EPA jurisdiction.
- b.** Review annual SARA 313 reports
- c.** Act under ESF-10 of the National Response Framework
- d.** Provide funding for response contractors when the responsible party is unavailable, unresponsive, or unidentified.

N. Clean-Up Contractors

- 1.** Meet worker personal protection and safety requirements of OSHA and other applicable laws
- 2.** Follow appropriate Emergency Response Plan, OSHA 29 CFR 1910, Process Safety Management Standard, Risk Management Plan, and/or Mutual Aid Agreement
- 3.** Meet recognized standards, such as National Fire Protection Association (NFPA) training levels

O. Community Crisis Assistance Organizations

1. The American Red Cross, Southwest Washington Chapter

- a.** Provide temporary housing and feeding facilities for displaced persons
- b.** Provide information and financial assistance for essential immediate needs to evacuees
- c.** Provide feeding stations for first responders to hazardous materials incidents of extended duration
- d.** Coordinate human services and volunteer organizations (see CEMP ESF 7)
- e.** Assist with evacuations of affected persons

2. Clark County Amateur Radio (ARES/RACES)
 - a. Provide volunteer amateur radio communications
 - b. Maintain river flow computer and data
 - c. Provide a representative to the Incident Command Post and EOC as requested

VII. TRAINING

Hazardous materials response training requirements are governed by WAC 296-824-30005, which meets or exceeds the Occupational Safety and Health Administration (OSHA) standards in 29 CFR 1910.120. In addition, the National Fire Protection Association (NFPA) established a standard (NFPA 472) of professional competence for responders to hazardous materials incidents.

All hazardous materials incident emergency responders and workers at hazardous materials facilities, transport companies, waste treatment facilities, storage facilities and disposal facilities will be provided training which meets federal and state standards. Such training will be commensurate with their employers or organization's plan and policies.

The minimum level of responder training in accordance with WAC 296-824-30005 is:

Awareness Level	Awareness level responders are those personnel who, in the course of their normal duties, could encounter an emergency involving hazardous materials/ weapons of mass destruction (WMD) and be expected to recognize the presence of the hazardous materials/WMD, protect themselves, call for assistance and secure the scene. Awareness Level First Responders competencies: • Understand what hazardous substances are and their associated risks. • Recognize the presence of hazardous substances in an emergency. • Can identify the hazardous substances, when possible. • Understand the potential consequences of hazardous substances in an emergency. • Understand the role of a first responder at the awareness level as described in:
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	○ The employer's emergency response plan, including site security and control. ○ The United States Department of Transportation's Emergency Response Guidebook. • Can use the Emergency Response Guidebook. • Recognize the need for additional resources and the need to notify the incident's communication center accordingly.
Operations Level	Operations level responders are personnel who respond to hazardous materials/WMD incidents for the purpose of implementing or supporting actions to protect people, property and the environment from the effects of a release. They are trained to respond in a defensive fashion, which may include attempts to confine, contain or otherwise control the release without coming into contact with the material/product. First responders at the operations level must receive at least eight hours of training and demonstrate awareness level competencies as well as the competency to: • Know basic hazard and risk assessment techniques. • Select and use personal protective equipment (PPE) appropriate for first responder operations level. • Understand basic hazardous materials terms. • Perform basic control, containment, and/or confinement operations within the capabilities of the resources and PPE available. • Implement decontamination procedures to their level training. • Understand relevant standard operating and termination procedures.
Technician Level	Technician level responders are personnel who respond to a hazardous materials/WMD incident using a risk-based response process to analyze the situation involving hazardous materials/WMD, select applicable decontamination procedures and control the release using specialized protective clothing and control equipment.

	First responders at the technician level must receive at least 24-hours of training and demonstrate operations level competencies as well as the competency to: • Implement an employer's emergency response plan. • Function within their assigned role in the incident command system. • Understand hazard and risk assessment techniques. • Understand basic chemical and toxicological terminology and behavior. • Use field survey instruments and equipment to classify, identify, and verify materials at the incident. • Select and use personal protective equipment (PPE) appropriate for hazardous materials technicians. • Perform advance control, containment, and/or confinement operations within the capabilities of the resources and PPE available. • Implement decontamination procedures to their level of training. • Understand termination procedures.
Specialist Level	Specialist level responders are personnel who respond with and provide support to hazardous materials technicians. Their duties parallel those of hazardous materials technicians but require a more specific knowledge of the various substances they may be called upon to contain. Hazardous materials specialists also act as site liaisons with federal, state, tribal and local government authorities with regard to site activities. First responders at the specialist level must receive at least 24-hours of training and demonstrate technician level competencies as well as the competency to: • Implement the local emergency response plan. • Know of the state emergency response plan. • Develop a site safety and control plan. • Understand chemical, radiological and toxicological terminology and behavior.

	• Understand in-depth hazard and risk techniques. • Use advanced survey instruments and equipment to classify, identify and verify materials at the incident. • Select and use proper specialized chemical PPE given to hazardous materials specialists. • Perform specialized control, containment and/or confinement operations within the capabilities of the resources and PPE available. • Determine decontamination procedures.
Incident Commander	The Incident Commander (IC) is the person responsible for all incident activities, including development of strategies and tactics and ordering and release of resources. Incident commanders, who assume control of a hazardous materials incident from the responders first on the scene, must receive at least 24-hours of training and demonstrate operations level competencies as well as the competency to: • Know of the state emergency response plan and the Federal Regional Response Team. • Implement the local emergency response plan. • Implement the employer's emergency response plan. • Have knowledge of the incident command system (ICS) and understand how they relate to it. • Implement the employer's ICS. • Understand the hazards and risks associated with employees working in chemical protective clothing. • Understand the importance of decontamination procedures.

In Clark County, each organization with a responsibility for responding to hazmat incidents normally will complete the training for their own organization. As such, there is no cooperative, county-wide schedule that is maintained. Fire agencies will typically complete awareness and operations training internally, in the course of their firefighter training programs. The Washington State Patrol Fire Training

Academy also offers regular awareness and operations courses as well as on-scene incident command courses. For more information see:

<http://www.wsp.wa.gov/fire/ftatrain.htm>

Vancouver Fire provides basic hazmat response training and training in decontamination procedures upon request to Region 4 agencies. In accordance with its role in coordinating integrated special operations services, Vancouver Fire also supports and coordinates technical rescue and marine response training to Region 4 agencies.

Each year, in the spring, Washington State Patrol and the SERC conduct an Annual Hazmat Workshop at the HAMMER Training Facility in Richland, Washington. This training is offered over a weekend to allow for participation by volunteer responders. Hazmat Operations and On Scene Incident Command courses as well as courses on specialized subjects are offered at this workshop.

Other hazardous materials training courses are offered over the course of the year. See the LEPC and Northwest Regional Training Center websites or join the LEPC email distribution list to keep informed of these training opportunities.

VIII. Testing and Plan Maintenance

A. Testing the Plan

1. Testing refers to the exercise of all or part of the Hazardous Materials Emergency Response Plan to improve the efficiency of all working elements
2. All or part of the agencies involved may be active participants in the drill (testing) process
3. After the drill, a critique by the participants shall be held to identify any elements of the plan that need to be reviewed, revised, changed, or updated
4. This process shall support sound operational concepts and identify resources needed to carry out necessary functions in hazardous materials emergencies
5. Agencies, organizations, and facilities may be informed of the testing and will be invited to participate or observe
6. LEPC Annual Exercise
 - a. The Clark County LEPC is responsible for coordinating one annual exercise of the Hazardous Materials Emergency Response Plan. The annual exercise and other exercise will be added to the LEPC workplan at the annual meeting and that the date will be set at a later meeting of the LEPC and announced to the general membership

- b. This exercise may be a tabletop, functional, or full-scale exercise
- c. Response drills may be in conjunction with other emergency response agencies and plans
- d. Drills, responses, and exercises will be evaluated and changes made to the HMERP as lessons are learned and necessary

B. Plan Maintenance

1. Plan ReviewsThe HMERP shall be reviewed at least annually by the Clark County LEPC, according to its Charter and Bylaws and as required by WAC 118-40-180(5).
2. If no changes are required, the LEPC will report to the SERC in writing of when the review occurred and the findings of the review.
3. Plan Revisions and Changes
 - a. All revisions to the Clark County Hazardous Materials Emergency Response Plan will be reviewed and approved by the LEPC. according to LEPC Charter and Bylaws
 - b. The LEPC is responsible for the distribution of all approved revisions to distribution list, and the accurate maintenance of the directories of those plan holders
 - c. The coordinator of the LEPC is the Emergency Management Program of CRESA
 - d. Revision to the plan shall be distributed to all agencies, organizations, and facilities that hold a current copy of the original plan within 60 days of each revision
 - e. Three copies of the revised plan will be forwarded to the State Emergency Response Commission in compliance with WAC 118-40-180 for plan review and comment.
 - f. Requests may be made for further information regarding hazardous materials inventories or information regarding the hazard of a particular chemical or reporting facility by contacting the coordinator for information of the LEPC at CRESA .
 - g. The annual review shall assure that appropriate changes are made to the telephone roster, legal requirements, and resources.
 - h. The HMERP shall also be revised, if appropriate, following drills, exercises or significant hazardous materials incident debriefs by the LEPC.

IX. References

- A.** Clark County Local Emergency Planning Committee Website
<http://cresa911.org/emergency/lepc.php>
- B.** Washington State Department of Ecology – How to Report a Spill
<http://www.ecy.wa.gov/programs/spills/other/reportaspill.htm>
- C.** Reporting Requirements – Emergency Planning and Community Right to Know Act (EPCRA)
<http://www.ecy.wa.gov/epcra/reportingreq.html>
- D.** NFPA 742, Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents (2008)
<http://www.nfpa.org/>
- E.** Hazardous Materials – Emergency Preparedness and Planning – Municipal Research and Services Center of Washington
<http://www.mrsc.org/Subjects/PubSafe/emergency/em-hazmat.aspx>
- F.** USDOT Emergency Response Guidebook
<http://phmsa.dot.gov/hazmat/library/erg>
- G.** Washington State Department of Ecology – Hazmat Spill Contractor List
<http://www.ecy.wa.gov/programs/spills/response/3-11%20Treatment%20Ctrs.Hazmat%20Contractor.pdf>
- H.** Columbia Snake Rivers Spill Response Initiative
http://www.ecy.wa.gov/programs/spills/csr_sri/main.html
- I.** Columbia and Middle Columbia Response Consortium Resource Listing
<ftp://www.ecy.wa.gov/spills/CSRSRI/Lower%20and%20Middle%20Consortium%20Cache%20Maps.pdf>
- J.** Western Response Resource List
<http://www.wrri.us/fmi/iwp/cgi?-db=WRRL&-loadframes>
- K.** Washington State Patrol – Fire Training Academy
<http://www.wsp.wa.gov/fire/ftatrain.htm>

X. Acronyms

ARES – Amateur Radio Emergency Service

CAA – Clean Air Act

CAMEO – Computer Aided Management of Emergency Operations

CCSO – Clark County Sheriff's Office

CEMP – Comprehensive Emergency Management Plan

CERCLA – Comprehensive Environmental Response, Compensation and Liability Act

CFR- Code of Federal Regulation

CRESA – Clark Regional Emergency Services Agency

CREOC – Clark Regional Emergency Operations Center

CRWD – Clark Regional Wastewater District

CWA – Clean Water Act

DNR – Department of Natural Resources

EMD – Emergency Management Division (Washington State)

EAS – Emergency Alert System

ECNS – Emergency Community Notification System

EMS – Emergency Medical Services

EOC – Emergency Operations Center

EPA – Environmental Protection Agency

EPCRA – Emergency Planning and Community Right to Know Act

ERP – Emergency Response Plan

ESF – Emergency Support Function

GRP – Geographic Response Plan

HAZWOPER - Hazardous Waster Operations and Emergency Response

HMERP – Hazardous Materials Emergency Response Plan

IC – Incident Commander

UPDATED 4/4/2012

CLARK COUNTY LEPC

ICS – Incident Command System

JIC – Joint Information Center

LEPC – Local Emergency Planning Committee

MERT – Mill Emergency Response Team (Georgia Pacific – Camas Mill)

NCP – National Contingency Plan

NFPA – National Fire Protection Association

NIMS – National Incident Management System

NRC – National Response Center

NRDA – Natural Resource Damage Assessment

NWACP – Northwest Area Contingency Plan

OSC – On-Scene Coordinator

OSHA – Occupational Safety and Health Administration

RACES – Radio Amateur Civil Emergency Service

RCP – Regional Contingency Plan

RCW – Revised Code of Washington

RMP – Risk Management Plan

RQ – Reportable Quantity

SARA - Superfund Amendments and Reauthorization Act

SERC – State Emergency Response Commission

SOSC – State On-Scene Coordinator

SWCAA – Southwest Clean Air Agency

TERC – Tribal Emergency Response Commission

USCG – United States Coast Guard

USDOT – United States Department of Transportation

VFD – Vancouver Fire Department

VHF – Very High Frequency

WAC – Washington Administrative Code

WISHA – Washington Industrial Safety and Health Act

WSDOT – Washington State Department of Transportation

WSP – Washington State Patrol

Appendix A – Facility Emergency Coordinators

This information is excerpted from 2010 Tier 2 Chemical Inventory Reports provided to the Washington State Department of Ecology. Some information was updated by plan commenters. It doesn't include alternate contacts and other information that is included in the Tier 2 Reports.

Alternate contacts and updated lists for Facility Emergency Coordinators are available from CRESA or the Washington State Department of Ecology.

Facility Name	Address	City	State	Zip	Coordinator
ADALIS CORP	417 NW 136TH ST	VANCOUVER	WA	98685	Name: PAT NOVAC Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :3605760423 EMERGENCY PHONE Phone :3605764229
AIRGAS NOR PAC INC CO2 RAIL YARD	1315 W 11TH ST	VANCOUVER	WA	98660	Name: RON PETERS Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :5039783104 EMERGENCY 24 PHONE Phone :8667343438
ALBINA ASPHALT TERMINALS 1 AND 2	1112 W 7TH ST AND 1300 W EIGHT ST	VANCOUVER	WA	98660	Name: KEN RYDMAN Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :3608168550 EMERGENCY PHONE Phone :3608168550
ALPHA TEC SYSTEMS INC	12019 NE 99TH ST STE 1780	VANCOUVER	WA	98682	

AMERICAN TOWER LIVINGSTON WAK032 LVMTWAQ1580	8 MI N OF CAMAS	CAMAS	WA	98607	Name: ALARM CENTER Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :8008303365 EMERGENCY 24 PHONE Phone :
ANDERSEN DAIRY INC	305 E MAIN ST	BATTLEGROUND	WA	98604	Name: BRIAN HENDEERLING Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :3607726931 EMERGENCY PHONE Phone :3606977171
ATT BATTLEGROUND WA5250 VANCWAR0010	279TH AND 82ND	BATTLEGROUND	WA	98604	Name: GREGORY VALLELUNGA Contact Type: EMERGENCY CONTACT Email: lrragsdale@att.com EMERGENCY PHONE Phone :4255806673 EMERGENCY 24 PHONE Phone :
ATT VANCOUVER	6701 E 18TH ST	VANCOUVER	WA	98662	Name: LYNN RAGSDALE Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :
ATT VANCOUVER II	NW CORNER OF 122ND & BURLINGTON	VANCOUVER	WA	98664	Name: GREGORY VALLELUNGA Contact Type: EMERGENCY CONTACT Email: lr3251@att.com EMERGENCY PHONE Phone :4255806673 EMERGENCY 24 PHONE Phone :
BNSF RAILWAY VANCOUVER	1515 W 39TH ST	VANCOUVER	WA	98660	Name: JAMES L NELSON Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :8008325452 EMERGENCY PHONE Phone :3604186355

BODYCOTE	4605 NW PACIFIC RIM BLVD	CAMAS	WA	98607	Name: KELLY KEGG Contact Type: EMERGENCY CONTACT Email: KELLY.KEGG@BODYCOTE.COM EMERGENCY PHONE Phone :3608331120 EMERGENCY 24 PHONE Phone :
BPA ROSS COMPLEX	5411 NE HWY 99	VANCOUVER	WA	98663	Name: LEE COSTANZO Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :5036939372 EMERGENCY PHONE Phone :3604182443
BURLINGTON ENVIRONMENTAL INC WASHOUGAL	625 S 32ND ST	WASHOUGAL	WA	98671	Name: Pat Hymas Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3608358594 EMERGENCY 24 PHONE Phone :3607723769
C TRAN CLARK COUNTY PUBLIC TRANSIT	2425 NE 65TH AVE	VANCOUVER	WA	98661	Name: FRED BICKNELL Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3609067360 EMERGENCY 24 PHONE Phone :3609067351
CALVERT CO INC VANCOUVER	218 V ST	VANCOUVER	WA	98661	Name: DOUGLAS CALVERT Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3606930971 EMERGENCY 24 PHONE Phone :3602540910
CALVERT CO INC WASHOUGAL	3559 TRUMAN	WASHOUGAL	WA	98671	Name: RANDALL CALVERT Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3606930971 EMERGENCY 24 PHONE Phone :3605765867

CARBONIC SYSTEMS INC VANCOUVER	710 W 8TH ST	VANCOUVER	WA	98660	Name: Greg Evanson Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3609068467 EMERGENCY 24 PHONE Phone :3606004555
CC SYSTEMS VANCOUVER	521 NE 136TH AVE	VANCOUVER	WA	98684	Name: CHARTER COMMUNICATIONS Contact Type: OWNER/OPERATOR Email: OWNER PHONE Phone :3033231385
CENTURYTEL YACOLT CO	209 W CUSHMAN	YACOLT	WA	98675	Name: STACEY DOUGLAS Contact Type: EMERGENCY CONTACT Email: Stacey.I.Douglas@CenturyLink.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :4078896590
CITY OF CAMAS CHLORINATION PLANT	NE 312TH AVE AND NE IRELAND RD	CAMAS	WA	98607	Name: ERIC LEVISON Contact Type: EMERGENCY CONTACT Email: elevison@ci.camass.wa.us EMERGENCY PHONE Phone :3608171560 EMERGENCY 24 PHONE Phone :
CITY OF CAMAS MUNICIPAL POOL	120 NE 17TH AVE	CAMAS	WA	98607	Name: ERIC LEVISON Contact Type: EMERGENCY CONTACT Email: elevison@ci.camass.wa.us EMERGENCY PHONE Phone :3608171560 EMERGENCY 24 PHONE Phone
CITY OF CAMAS SEWAGE TREATMENT PLANT	1129 SE POLK ST	CAMAS	WA	98607	Name: ERIC LEVISON Contact Type: EMERGENCY CONTACT Email: elevison@ci.camass.wa.us EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3608171560

CITY OF CAMAS WATER FILTRATION PLANT	SE EVERETT AND LEONARD RD	CAMAS	WA	98607	Name: ERIC LEVISON Contact Type: EMERGENCY CONTACT Email: elevison@ci.camass.wa.us EMERGENCY PHONE Phone :3608171563 EMERGENCY 24 PHONE Phone :
CITY OF CAMAS WELL 11 AND 12	SE 6TH AVE AND POLK ST N SIDE OF RR TRACKS	CAMAS	WA	98607	Name: ERIC LEVISON Contact Type: EMERGENCY CONTACT Email: elevison@ci.camass.wa.us EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3608171560
CITY OF CAMAS WELL 13	1248 E FIRST AVE	CAMAS	WA	98607	Name: ERIC LEVISON Contact Type: EMERGENCY CONTACT Email: elevison@ci.camass.wa.us EMERGENCY PHONE Phone :3608171560 EMERGENCY 24 PHONE Phone :
CITY OF CAMAS WELL 14	2565 SE 6TH AVE	CAMAS	WA		Name: ERIC LEVISON Contact Type: EMERGENCY CONTACT Email: elevison@ci.camass.wa.us EMERGENCY PHONE Phone :3608171560 EMERGENCY 24 PHONE Phone :
CITY OF CAMAS WELL 3	SE 6TH AVE AND POLK ST N SIDE OF RR TRACKS	CAMAS	WA	98670	Name: ERIC LEVISON Contact Type: EMERGENCY CONTACT Email: elevison@ci.camass.wa.us EMERGENCY PHONE Phone :3608171560 EMERGENCY 24 PHONE Phone :
CITY OF CAMAS WELL 5	2400 BLOCK SE 8TH AVE	CAMAS	WA	98607	Name: ERIC LEVISON Contact Type: EMERGENCY CONTACT Email: elevison@ci.camass.wa.us EMERGENCY PHONE Phone :3608171560 EMERGENCY 24 PHONE Phone :

CITY OF CAMAS WELL 9	3740 NW 38TH AVE	CAMAS	WA	98607	Name: ERIC LEVISON Contact Type: EMERGENCY CONTACT Email: elevison@ci.camass.wa.us EMERGENCY PHONE Phone :3608171560 EMERGENCY 24 PHONE Phone :
CITY OF VANCOUVER BROOKSIDE	2323 GENERAL ANDERSON	VANCOUVER	WA	98660	Name: TIM BRACE Contact Type: EMERGENCY CONTACT Email: TIM.BRACE@CI.VANCOUVER.WA.US EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3606968177
CITY OF VANCOUVER ELLSWORTH	9810 SE 16TH ST	VANCOUVER	WA	98660	Name: TIM BRACE Contact Type: EMERGENCY CONTACT Email: TIM.BRACE@CI.VANCOUVER.WA.US EMERGENCY PHONE Phone :3606968177 EMERGENCY 24 PHONE Phone :
CITY OF VANCOUVER ESTHER SHORT PARK	800 ESTHER ST	VANCOUVER	WA	98661	Name: JAMES FIELDS Contact Type: EMERGENCY CONTACT Email: JAMES.FIELDS@CI.VANCOUVER.WA.US EMERGENCY PHONE Phone :3604877073 EMERGENCY 24 PHONE Phone :
CITY OF VANCOUVER FIRE STATION 81	7110 NE 63RD ST	VANCOUVER	WA	98661	Name: BARBARA BASNETT Contact Type: EMERGENCY CONTACT Email: Barbara.basnett@ci.vancouver.wa.us EMERGENCY 24 PHONE Phone : 360-253-0283 EMERGENCY PHONE Phone :360-518-0000
CITY OF VANCOUVER FIRE STATION 82	900 W EVERGREEN	VANCOUVER	WA	98603	Name: BARBARA BASNETT Contact Type: EMERGENCY CONTACT Email: Barbara.basnett@ci.vancouver.wa.us EMERGENCY 24 PHONE Phone : 360-253-0283 EMERGENCY PHONE Phone :360-518-0000

CITY OF VANCOUVER FIRE STATION 85	3216 NE 112 AVE	VANCOUVER	WA	98682	Name: BARBARA BASNETT Contact Type: EMERGENCY CONTACT Email: Barbara.basnett@ci.vancouver.wa.us EMERGENCY 24 PHONE Phone : 360-253-0283 EMERGENCY PHONE Phone :360-518-0000
CITY OF VANCOUVER FIRE STATION 88	6701 NE 147TH AVE	VANCOUVER	WA	98682	Name: BARBARA BASNETT Contact Type: EMERGENCY CONTACT Email: Barbara.basnett@ci.vancouver.wa.us EMERGENCY 24 PHONE Phone : 360-253-0283 EMERGENCY PHONE Phone :360-518-0000
CITY OF VANCOUVER FIRE STATION 89	17408 NE 15TH ST	VANCOUVER	WA	98603	Name: BARBARA BASNETT Contact Type: EMERGENCY CONTACT Email: Barbara.basnett@ci.vancouver.wa.us EMERGENCY 24 PHONE Phone : 360-253-0283 EMERGENCY PHONE Phone :360-518-0000
CITY OF VANCOUVER FIRSTENBURG	700 NE 136TH AVE	VANCOUVER	WA	98684	Name: JAMES FIELDS Contact Type: EMERGENCY CONTACT Email: JAMES.FIELDS@CI.VANCOUVER.WA.US EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3604877073
CITY OF VANCOUVER KLINELINE POND	1112 NE 117TH ST	VANCOUVER	WA	98665	Name: JAMES FIELDS Contact Type: EMERGENCY CONTACT Email: JAMES.FIELDS@CI.VANCOUVER.WA.US EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3604877073
CITY OF VANCOUVER MARSHALL CENTER	1009 E MCLOUGHLIN BLVD	VANCOUVER	WA	98660	Name: RON HOFFMAN Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :3609319136 EMERGENCY PHONE Phone :3604877075

CITY OF VANCOUVER OPS CTR	4711 NE 4TH PLAIN BLVD	VANCOUVER	WA	98661	Name: TERRY MCCLURE Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :
CITY OF VANCOUVER POLICE DEPT	605 E EVERGREEN BLVD	VANCOUVER	WA	98661	Name: TERRY MCCLURE Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone : EMERGENCY 24 PHONE Phone :
CITY OF VANCOUVER PUMP 4	4415 E 5TH ST	VANCOUVER	WA	98660	Name: TIM BRACE Contact Type: EMERGENCY CONTACT Email: TIM.BRACE@CITYOFVANCOUVER.US EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3606968177
CITY OF VANCOUVER PUMP STATION 1	2103 E RESERVE ST	VANCOUVER	WA	98668	Name: TIM BRACE Contact Type: EMERGENCY CONTACT Email: TIM.BRACE@CI.VANCOUVER.WA.US EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3606968177
CITY OF VANCOUVER PUMP STATION 14	6803 NE 78TH ST	VANCOUVER	WA	98660	Name: TIM BRACE Contact Type: EMERGENCY CONTACT Email: TIM.BRACE@CI.VANCOUVER.WA.US EMERGENCY PHONE Phone :3606968177 EMERGENCY 24 PHONE Phone
CITY OF VANCOUVER PUMP STATION 15	2722 NE 84TH AVE	VANCOUVER	WA	98660	Name: TIM BRACE Contact Type: EMERGENCY CONTACT Email: TIM.BRACE@CI.VANCOUVER.WA.US EMERGENCY PHONE Phone :3606968142 EMERGENCY 24 PHONE Phone :

CITY OF VANCOUVER PUMP STATION 3	4201 WASHINGTON ST	VANCOUVER	WA	98660	Name: TIM BRACE Contact Type: EMERGENCY CONTACT Email: TIM.BRACE@CITYOFVANCOUVER.US EMERGENCY PHONE Phone :3606968177 EMERGENCY 24 PHONE Phone :
CITY OF VANCOUVER PUMP STATION 9	14704 NE 39TH ST	VANCOUVER	WA	98660	Name: richard hoffman Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3607358894 EMERGENCY 24 PHONE Phone :3605713569
CITY OF WASHOUGAL LOWER WELL FIELD	411 3RD ST	WASHOUGAL	WA	98671	Name: CITY WASHOUGAL Contact Type: OWNER/OPERATOR Email: OWNER PHONE Phone :3608358501
CITY OF WASHOUGAL WELL 1	2801 I ST	WASHOUGAL	WA	98671	Name: CITY OF WASHOUGAL Contact Type: OWNER/OPERATOR Email: OWNER PHONE Phone :3608358501
COLUMBIA MACHINE INC	107 GRAND BLVD	VANCOUVER	WA	98668	Name: BRIAN MCBRIDE Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :3605185855 EMERGENCY PHONE Phone :3606941501
COLUMBIA RESOURCE COMPANY – WASTE CONNECTIONS	9411 NE 94TH AVE	VANCOUVER	WA	98662	Name: CHRIS THOMAS Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :_3607371727 EMERGENCY PHONE Phone : 3609037354

COLUMBIA RESOURCE COMPANY - WEST VAN MATERIALS RECOVERY CT	6601 NW OLD LOWER RIVER RD	VANCOUVER	WA	98660	Name: CHRIS THOMAS Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :_3607371727 EMERGENCY PHONE Phone : 3609037354
COLUMBIA RIVER SAND AND GRAVEL	3101 NW GATEWAY AVE	VANCOUVER	WA	98660	Name: Bryan Wigginton Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :
COLUMBIA STORAGE INC C ST	361 C ST	WASHOUGAL	WA	98671	Name: RON ANDREWS Contact Type: EMERGENCY CONTACT Email: RANDREWS@IMAG EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3608358516
COMCAST COMMUNICATIONS VANCOUVER 40TH	6916 NE 40TH ST	VANCOUVER	WA	98661	Name: DARRELL LINGK Contact Type: EMERGENCY CONTACT Email: Darrell_Lingk@cable.comcast.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :7202673352
COMMERCIAL VEHICLE GROUP VANCOUVER	6211 NE CAMPUS DR	VANCOUVER	WA	98661	Name: ANGIE RICHARDS Contact Type: EMERGENCY CONTACT Email: ANGELA.RICHARDS@CVGRP.COM EMERGENCY PHONE Phone :3609051233 EMERGENCY 24 PHONE Phone :
COMPOSITES ONE LLC VANCOUVER 2	12301 NE 56TH ST BLDG A	VANCOUVER	WA	98682	Name: N DEHMLow Contact Type: EMERGENCY CONTACT Email: Nancy.DEHMLow@COMPOSITESONE.COM EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :8484370200

COSTCO WHOLESALE 772	6720 NE 84TH ST	VANCOUVER	WA	98665	Name: DALE ANDERSON Contact Type: EMERGENCY CONTACT Email: REGULATORY@3ECOMPANY.COM EMERGENCY PHONE Phone :4253138100 EMERGENCY 24 PHONE Phone :
EMERALD SERVICES INC VANCOUVER	1300 W 12TH ST	VANCOUVER	WA	98660	Name: SHEILA SMITH Contact Type: EMERGENCY CONTACT Email: sheilas@emeraldncw.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :2068323204
ERSHIGS INC RIDGEFIELD	5985 S 6TH WAY	RIDGEFIELD	WA	98642	Name: PHILLIP VOLZ Contact Type: EMERGENCY CONTACT Email: pvolz@attbar.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3608873580
ESTHER SHORT PARK	800 ESTHER ST	VANCOUVER	WA	98669	Name: JAMES FIELDS Contact Type: EMERGENCY CONTACT Email: JAMES.FIELDS@CI.VANCOUVER.WA.US EMERGENCY PHONE Phone :3604877073 EMERGENCY 24 PHONE Phone :
EXTERIOR WOOD INC	2685 INDEX ST	WASHOUGAL	WA	98671	Name: ROBERT BABB Contact Type: EMERGENCY CONTACT Email: RBABB@EXTERIORWOOD.COM EMERGENCY PHONE Phone :3608382250 EMERGENCY 24 PHONE Phone :
FABRICATED PRODUCTS INC	3201 LOWER RIVER RD	VANCOUVER	WA	98660	Name: MIKE BLASKO Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3606955949 EMERGENCY 24 PHONE Phone :3609079495

FIBERWEB NORTH AMERICA	3720 GRANT ST	WASHOUGAL	WA	98671	Name: ARNOLD L AFFONSO Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3608359501 EMERGENCY 24 PHONE Phone :
FIRESTONE PACIFIC FOODS	4211 NW FRUIT VALLEY RD	VANCOUVER	WA	98666	Name: ZACKARY SCHMITZ Contact Type: EMERGENCY CONTACT Email: ZACK@FIRESTONEPACIFICFOODS.COM EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3606959484
FIRSTENBURG COMMUNITY CENTER	700 NE 136TH AVE	VANCOUVER	WA	98684	Name: CITY OF VANCOUVER Contact Type: OWNER/OPERATOR Email: OWNER PHONE Phone :3604877073
FRITO LAY INC VANCOUVER	4808 NW FRUIT VALLEY RD	VANCOUVER	WA	98660	Name: KATY PARADEE Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3607373032 EMERGENCY 24 PHONE Phone :
FRONTIER COMMUNICATIONS CAMAS CO	330 NE 5TH ST	CAMAS	WA	98607	Name: KAREN COLE Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :5035313477 EMERGENCY 24 PHONE Phone :8005906605
FRONTIER COMMUNICATIONS WASHOUGAL	118 20TH ST	WASHOUGAL	WA	98671	Name: COMPLIANCE SERV CTR Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :8005906605 EMERGENCY PHONE Phone :8005906605

GENERAL CHEMICAL LLC VANCOUVER	2611 W 26TH ST EXTENSION	VANCOUVER	WA	98660	Name: RANDY KATZENMYER Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :3602560911 EMERGENCY PHONE Phone :3606932537
GEORGIA PACIFIC CONSUMER PRODUCTS LLC	401 NE ADAMS ST	CAMAS	WA	98607	Name: KEGIN GOODELL Contact Type: EMERGENCY CONTACT Email: kevin.goodell@gapac.com EMERGENCY PHONE Phone : 3608348414 EMERGENCY 24 PHONE Phone :3608348414
GLACIER NORTHWEST INC E VANCOUVER CONCRETE PLANT	18606 SE FIRST ST	VANCOUVER	WA	98607	Name: Bryan Wigginton Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :
GLACIER NORTHWEST INC VANCOUVER BUILDING MATERIALS	7215 NE 18TH ST	VANCOUVER	WA	98661	Name: GLACIER NORTHWEST INC Contact Type: OWNER/OPERATOR Email: OWNER PHONE Phone :5033352600
GLACIER NORTHWEST INC VANCOUVER CONCRETE PLANT	18516 SE FIRST ST	VANCOUVER	WA	98683	Name: Bryan Wigginton Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone : EMERGENCY 24 PHONE Phone :
GLACIER NORTHWEST INC W VANCOUVER BATCH PLANT	2327 W MILL PLAIN BLVD	VANCOUVER	WA	98660	Name: Bryan Wigginton Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :

GREEN WILLOW TRUCKING INC DBA ANDERSEN PLASTIC	15 N GRACE AVE	BATTLEGROU ND	WA	98604	Name: JACK DUNN Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :3609016424 EMERGENCY PHONE Phone :3606877171
HERAEUS SHIN ETSU AMERICA INC	4600 NW PACIFIC RIM BLVD	CAMAS	WA	98607	Name: LARRY BAER Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3608344004 EMERGENCY 24 PHONE Phone :
HEWLETT PACKARD CO CAMAS	18110 SE 34TH ST	VANCOUVER	WA	98683	Name: HEWLETT PACKARD COMPANY Contact Type: OWNER/OPERATOR Email: OWNER PHONE Phone :8004746836
INDUSTRIAL PRETREATMENT LAGOON VANCOUVER	2600 LOWER RIVER RD	VANCOUVER	WA	98660	Name: MATT BELTRAN Contact Type: EMERGENCY CONTACT Email: MATT.BELTRAN@VEOLIAWATERNA.COM EMERGENCY PHONE Phone :3607593201 EMERGENCY 24 PHONE Phone :
KEMIRA CHEMICALS INC	1150 S 35TH ST	WASHOUGAL	WA	98671	Name: BRAD STEPHENS Contact Type: EMERGENCY CONTACT Email: brad.stephens@kemira.com EMERGENCY PHONE Phone :3608358725 EMERGENCY 24 PHONE Phone :
KEYERA ENERGY INC	1308 W MCLOUGHLIN BLVD	VANCOUVER	WA	98660	Name: DENNIS PROCTOR Contact Type: EMERGENCY CONTACT Email: dennis_proctor@keyera.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3606942844

KINDER MORGAN VANCOUVER	2701 NW HARBORSIDE DR	VANCOUVER	WA	98660	Name: CHRISTOPHER ALEXANDER Contact Type: EMERGENCY CONTACT Email: ALEXANDERC@KINDERMORGAN.COM EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3606938599
KYOCERA INDUSTRIAL CERAMICS CORP	5713 E 4TH PLAIN BLVD	VANCOUVER	WA	98661	Name: KYOCERA INTERNATIONAL INC Contact Type: OWNER/OPERATOR Email: OWNER PHONE Phone :8585762660
LAFARGE CORP VANCOUVER	1217 W 8TH ST	VANCOUVER	WA	98660	Name: LES BECHTHOLDT Contact Type: EMERGENCY CONTACT Email: LES.BECHTHOLDT@LAFARGE- NA.COM EMERGENCY PHONE Phone :3606959208 EMERGENCY 24 PHONE Phone :
LAKESIDE INDUSTRIES VANCOUVER 2	8705 NE 117TH AVE	VANCOUVER	WA	98662	Name: JOHN BAUMGARDNER Contact Type: EMERGENCY CONTACT Email: JOHNB@LAKESIDEIND.COM EMERGENCY PHONE Phone :3608925410 EMERGENCY 24 PHONE Phone :
LASER MATERIALS CORP	12706 NE 95TH ST 102	VANCOUVER	WA	98682	Name: PAUL COLLINGS Contact Type: EMERGENCY CONTACT Email: PAUL@LASERMATERIALS.COM EMERGENCY PHONE Phone :3602544180 EMERGENCY 24 PHONE Phone :
LEGACY PROPANE BATTLE GROUND	620 SE EATON BLVD	BATTLE GROUND	WA	98604	Name: JEFFREY B TURNER Contact Type: EMERGENCY CONTACT Email: bturner@libertypropane.net EMERGENCY PHONE Phone :9134615740 EMERGENCY 24 PHONE Phone :

LINDE INC PLANT 239	4715 NE 78TH ST	VANCOUVER	WA	98665	Name: REX SCHULTZ Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3606958944
LINEAR TECHNOLOGY CORP	4200 NW PACIFIC RIM BLVD	CAMAS	WA	98607	Name: CARLA MINOR Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3608341900 EMERGENCY 24 PHONE Phone :3608341900
LOWES OF E VANCOUVER WA STORE 1632	11413 NE 76TH ST	VANCOUVER	WA	98662	Name: ROBERT GASS Contact Type: EMERGENCY CONTACT Email: Robert.A.Gass@Lowes.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :7047586033
LOWES OF LACAMAS LAKE WA STORE 2954	18801 SE MILL PLAIN BLVD	VANCOUVER	WA	98683	Name: ROBERT GASS Contact Type: EMERGENCY CONTACT Email: Robert.A.Gass@Lowes.com EMERGENCY PHONE Phone :7047586033 EMERGENCY 24 PHONE Phone :
MARINE PARK WATER RECLAMATION FACILITY VANCOUVER	4650 SE COLUMBIA WAY	VANCOUVER	WA	98660	Name: MELISSA SANDVOLD Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :3607500485 EMERGENCY PHONE Phone :3607593208
MCI ELKHWA	29400 ELKHORN MT RD	BRUSH PRAIRIE	WA	98606	Name: LAT 45 44 23 LONG 122 22 17 Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone : EMERGENCY 24 PHONE Phone :

MCI WCIGWA POESWA	604 E HOAG ST	YACOLT	WA	98675	Name: TODD HARRIS Contact Type: EMERGENCY CONTACT Email: TODD.HARRIS@VERIZONBUSINESS.COM EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :9727295671
MUTUAL MATERIALS CO NORTH VANCOUVER BRANCH	10019 NE 72 ND AVE	VANCOUVER	WA	98662	Name: Bob Athey Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :5036557167 EMERGENCY PHONE Phone :5036557167
NALCO CO	5210 NW FRUIT VALLEY RD	VANCOUVER	WA	98660	Name: BRETT MISENER Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3607506524
NEIL JONES FOOD CO DBA NW PACKING CO 16TH ST	1701 W 16TH ST	VANCOUVER	WA	98660	Name: RON WHERRY Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3606964356
NLIGHT PHOTONICS CORP	5408 NE 88TH ST BLDG E	VANCOUVER	WA	98665	Name: SCOTT GODFREY Contact Type: EMERGENCY CONTACT Email: scott.godfrey@nlight.net EMERGENCY PHONE Phone :3607135164 EMERGENCY 24 PHONE Phone :
NORWESCO INC	3860 S GRANT ST	WASHOUGAL	WA	98671	Name: DALLAS DENNIS JR Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :3608345848 EMERGENCY PHONE Phone :3608353021

NUSTAR ENERGY LP FRUIT VALLEY RD	5420 FRUIT VALLEY RD	VANCOUVER	WA	98660	Name: MICHAEL J POIRIER Contact Type: EMERGENCY CONTACT Email: mike.poirier@nustarenergy.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :9165093259
NUSTAR ENERGY LP HARBORSIDE DR	2565 NW HARBORSIDE DR	VANCOUVER	WA	98660	Name: MICHAEL J POIRIER Contact Type: EMERGENCY CONTACT Email: mike.poirier@nustarenergy.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :9167985914
NW PIPELINE WASHOUGAL COMPRESSOR STATION	1309 NE BROWN RD	WASHOUGAL	WA	98671	Name: RUTY MABREY Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3606873156 EMERGENCY 24 PHONE Phone :3606064524
OREGON IRON WORKS	3515 SE COLUMBIA WAY BLDG 48	VANCOUVER	WA		Name: Lora Webb Contact Type: EMERGENCY CONTACT Email: lwebb@oregoniron.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3606931472
PEACEHEALTH SOUTHWEST MEDICAL CENTER	400 NE MOTHER JOSEPH PL	VANCOUVER	WA	98664	
PENDLETON WOOLEN MILLS INC	2 PENDLETON WAY	WASHOUGAL	WA	98671	Name: JACK HIGGINS X 204 Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3608352131 EMERGENCY 24 PHONE Phone :3606874978

PETERMANN NORTHWEST BATTLE GROUND	14444 NE 199TH ST	BATTLEGROU ND	WA	98604	Name: JOHN BORCHERS Contact Type: EMERGENCY CONTACT Email: jborchers@petermannbus.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :5135041005
PLAINS MARKETING WASHOUGAL TERMINAL	701 S 28TH ST	WASHOUGAL	WA	98671	Name: SCOTT ADKINS Contact Type: EMERGENCY CONTACT Email: SADKINS@PMCLP.COM EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :8009909923
PORT OF RIDGEFIELD LAKE RIVER SITE	111 W DIVISION ST	RIDGEFIELD	WA	98642	Name: LAURIE OLIN Contact Type: EMERGENCY CONTACT Email: LOLIN@PORTRIDGEFIELD.ORG EMERGENCY PHONE Phone :3608873873 EMERGENCY 24 PHONE Phone :
PORT OF VANCOUVER	3103 NW LOWER RIVER RD	VANCOUVER	WA	98600	Name: CURTIS SHUCK Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :3605185376 EMERGENCY PHONE Phone :3606933611
PRAXAIR INC VANCOUVER	1314 W 11TH ST	VANCOUVER	WA	98666	Name: Cleve Guessford Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3603712900 EMERGENCY 24 PHONE Phone :3603051918
PRO TECH INDUSTRIES INC VANCOUVER	14113 NE 3RD CT	VANCOUVER	WA	98666	Name: TEVIS LASPA Contact Type: EMERGENCY CONTACT Email: TLASPA@PROTECH.NET EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3605736641

QWEST CORP W00022	15 NE 2ND AVE	BATTLEGROU ND	WA	98604	Name: THOMAS PITTS Contact Type: EMERGENCY CONTACT Email: Thomas.Pitts@qwest.com EMERGENCY PHONE Phone :2063467532 EMERGENCY 24 PHONE Phone :
QWEST CORP W00279	4335 PIONEER AVE	RIDGEFIELD	WA	98642	Name: THOMAS PITTS Contact Type: EMERGENCY CONTACT Email: Thomas.Pitts@qwest.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :2063467532
QWEST CORP W00359	11418 4TH PLAIN BLVD	VANCOUVER	WA	98662	Name: WORK ENVIRONMENT CENTER Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :8002017033 EMERGENCY PHONE Phone :8002017033
QWEST CORP W00395	214 E 24TH ST	VANCOUVER	WA	98663	Name: THOMAS PITTS Contact Type: EMERGENCY CONTACT Email: Thomas.Pitts@qwest.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :2063467532
QWEST CORP W00650	2411 NE 119TH ST	VANCOUVER	WA	98686	Name: THOMAS PITTS Contact Type: EMERGENCY CONTACT Email: Thomas.Pitts@qwest.com EMERGENCY PHONE Phone :2063467532 EMERGENCY 24 PHONE Phone :
QWEST CORP W00906	11508 4TH PLAIN BLVD	VANCOUVER	WA	98662	Name: THOMAS PITTS Contact Type: EMERGENCY CONTACT Email: Thomas.Pitts@qwest.com EMERGENCY PHONE Phone :2063467532 EMERGENCY 24 PHONE Phone :

RIVER ROAD GENERATING PLANT	5201 NW LOWER RIVER RD	VANCOUVER	WA	98660	Name: TERRY TOLAND Contact Type: EMERGENCY CONTACT Email: ttoland@clarkpud.com EMERGENCY PHONE Phone :3609923060 EMERGENCY 24 PHONE Phone :
SAINT GOBAIN CRYSTALS	750 S 32ND ST	WASHOUGAL	WA	98671	Name: CHARLES BABB Contact Type: EMERGENCY CONTACT Email: CHARLES.T.BABB@SAINT-GOBAIN.COM EMERGENCY PHONE Phone :6032891135 EMERGENCY 24 PHONE Phone :
SEH AMERICA INC	4111 NE 112TH ST	VANCOUVER	WA	98682	Name: KEITH WOUNG Contact Type: EMERGENCY CONTACT Email: keith_woung@sehamerica.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3608858430
SHARP ELECTRONICS CORP CAMAS	5700 NW PACIFIC RIM BLVD	CAMAS	WA	98607	Name: JAY SALDIVAR Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3608348734 EMERGENCY 24 PHONE Phone :3608348624
SIEMENS WATER TECHNOLOGIES BRUSH PRAIRIE	15403 NE CAPELS RD	BRUSH PRAIRIE	WA	98606	
SIEMENS WATER TECHNOLOGIES VANCOUVER	5717 NE 121ST AVE	VANCOUVER	WA	98682	Name: JASON LEE Contact Type: EMERGENCY CONTACT Email: JASON.D.LEE@SIEMENS.COM EMERGENCY PHONE Phone :3609448380 EMERGENCY 24 PHONE Phone :

SOLARWORLD INDUSTRIES AMERICA LP	12016 NE 95TH ST	VANCOUVER	WA	98682	Name: SERGIO VASQUEZ Contact Type: EMERGENCY CONTACT Email: SERGIO.VASQUEZ@SOLARWORLDUSA.COM EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :8053886570
SPECIALTY MINERALS INC CAMAS	220 NW 6TH AVE	CAMAS	WA	98607	Name: JEFF SCOTT Contact Type: EMERGENCY CONTACT Email: JEFF.SCOTT@MINERALSTECH.COM EMERGENCY PHONE Phone :3608344651 EMERGENCY 24 PHONE Phone :
SUBURBAN PROPANE VANCOUVER	727 S 35TH ST	WASHOUGAL	WA	98671	Name: DAVID SWINGLEY Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3604253760
SUNBELT RENTALS PC 377	7103 NE 88TH ST	VANCOUVER	WA	98665	Name: Michael Crouch Contact Type: EMERGENCY CONTACT Email: michael.crouch@sunbeltrentals.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :8035785912
TARR ACQUISITION LLC VANCOUVER	7208 NE ST JOHNS RD	VANCOUVER	WA	98665	Name: PATRICIA RODABAUGH Contact Type: EMERGENCY CONTACT Email: prodabaugh@tarrllc.com EMERGENCY PHONE Phone :5032885294 EMERGENCY 24 PHONE Phone :
TARR ACQUISITION LLC WASHOUGAL	361 C ST	WASHOUGAL	WA	98671	Name: PATRICIA RODABAUGH Contact Type: EMERGENCY CONTACT Email: prodabaugh@tarrllc.com EMERGENCY PHONE Phone :5032885294 EMERGENCY 24 PHONE Phone :

TESORO REFINING & MARKETING CO VANCOUVER TERM	2211 ST FRANCIS LN	VANCOUVER	WA	98660	Name: MIKE ALLEYN Contact Type: EMERGENCY CONTACT Email: MALLEYN@TSOCORP.COM EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3606962390
TETRA PAK MATERIALS	1616 W 31ST ST	VANCOUVER	WA	98660	Name: CARLOS VARGAS Contact Type: EMERGENCY CONTACT Email: CARLOS.VARGAS@TETRAPAK.COM EMERGENCY PHONE Phone :3606901216 EMERGENCY 24 PHONE Phone :
THE COLUMBIAN PUBLISHING CO	701 W 8TH ST	VANCOUVER	WA	98660	Name: DAVID HAAS Contact Type: EMERGENCY CONTACT Email: carol.starbuck@columbian.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3607354434
THE HOME DEPOT STORE 4718	8601 NE ANDRESEN RD	VANCOUVER	WA	98665	Name: MICHELLE O'BRIEN Contact Type: EMERGENCY CONTACT Email: Michelle_O'Brien@homedepot.com EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :7704338211
THE HOME DEPOT STORE 4738	330 SE 192ND AVE	VANCOUVER	WA	98683	Name: JAN L. MARNICKI Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :
THOMPSON METAL FAB INC	3000 SE HIDDEN WAY	VANCOUVER	WA	98661	Name: SALLY SERVIS Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3606960811

TIDEWATER INDUSTRIAL CENTER	6305 NW OLD LOWER RIVER RD	VANCOUVER	WA	98660	Name: William H. Collins Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :
TRUEGUARD LLC	725 S 32ND ST	WASHOUGAL	WA	98671	Name: STEVE KROMMENACKER Contact Type: EMERGENCY CONTACT Email: S.KROMMENACKER@ALLWEATHERWOOD.COM EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3608358547
UNITED NATURAL FOODS INC	7909 S UNION RIDGE PARKWAY	RIDGEFIELD	WA	98642	Name: United Natural Foods Inc. Contact Type: OWNER/OPERATOR Email: OWNER PHONE Phone :3608871125
UNITED WAREHOUSE INC VANCOUVER	603 SE ASSEMBLY AVE STE 210	VANCOUVER	WA	98661	Name: JIM TEDDY X 202 Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :2066824535 EMERGENCY 24 PHONE Phone :4253926632
UPS VANCOUVER	6609 NE ST JOHNS RD	VANCOUVER	WA	98663	Name: PAUL VANDEHEY Contact Type: EMERGENCY CONTACT Email: PDX1PAV@UPS.COM EMERGENCY 24 PHONE Phone :4255579477 EMERGENCY PHONE Phone :5039787678
VANCOUVER AERO MAINTENANCE INC	101 E RESERVE ST	VANCOUVER	WA	98668	Name: FREDERICK WILLY WILLIAMSON Contact Type: EMERGENCY CONTACT Email: WILLY.WILLIAMSON@CITYOFVANCOUVER.US EMERGENCY PHONE Phone :3604878619

					EMERGENCY 24 PHONE Phone :
VANCOUVER WAREHOUSE AND DISTRIBUTION CENTER	1101 W 11TH ST	VANCOUVER	WA	98666	Name: AAPER ALCOHOL AND CHEMICAL CO. Contact Type: OWNER/OPERATOR Email: OWNER PHONE Phone :5022327600
VARICAST INC	1200 W 13TH ST	VANCOUVER	WA	98660	Name: DAN SWARTZ Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :5032834102 EMERGENCY 24 PHONE Phone :
VEOLIA WATER NA WESTSIDE	2323 W MILL PLAIN BLVD	VANCOUVER	WA	98660	Name: MATT BELTRAN Contact Type: EMERGENCY CONTACT Email: MATT.BELTRAN@VEOLIAWATERNA.COM EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3607593201
VERIZON WIRELESS SIFTON	11418 NE FOURTH PLAIN RD	VANCOUVER	WA	98662	Name: VERIZON WIRELESS / RICHARD A. CRAIG Contact Type: OWNER/OPERATOR Email: OWNER PHONE Phone :9085597260
WA DFW SKAMANIA STEELHEAD HATCHERY	391 STEELHEAD RD	WASHOUGAL	WA	98671	Name: JOHN ALLEN Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone :3602925811 EMERGENCY PHONE Phone :3608373131

WA DFW WASHOUGAL HATCHERY	15632 WASHOUGAL RIVER RD	WASHOUGAL	WA	98671	Name: AARON ROBERTS Contact Type: EMERGENCY CONTACT Email: EMERGENCY PHONE Phone :3602254390 EMERGENCY 24 PHONE Phone :3607950124
WA DOC LARCH CORRECTIONS CTR	15314 NE DOLE VALLEY RD	YACOLT	WA	98675	Name: JIM CAMPBELL Contact Type: EMERGENCY CONTACT Email: jscampbell@doc1.wa.gov EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3602606300
WAFER RECLAIM SERVICES LLC	12001 B NE 60TH WAY	VANCOUVER	WA	98682	Name: KENNETH IVEY Contact Type: EMERGENCY CONTACT Email: KEN@WRSMATERIALS.COM EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3602540221
WAFERTECH LLC	5509 NW PARKER ST	CAMAS	WA	98607	Name: DOUG MOODY Contact Type: EMERGENCY CONTACT Email: dmoody@wafertech.com EMERGENCY PHONE Phone :3608173308 EMERGENCY 24 PHONE Phone : 3608173222
WELLONS WATER TECHNOLOGY LLC	2700 W FIRESTONE LANE	VANCOUVER	WA	98660	Name: WELLONS INC Contact Type: OWNER/OPERATOR Email: OWNER PHONE Phone :3606951270
WS DOT FARGHER LAKE	36520 NE LEWISVILLE HWY	LA CENTER	WA	98642	Name: CARLEN VOLK Contact Type: EMERGENCY CONTACT Email: VOLKC@wsdot.wa.gov EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3607057861

WS DOT VANCOUVER	4200 MAIN ST	VANCOUVER	WA	98663	Name: NORM PAYTON Contact Type: EMERGENCY CONTACT Email: EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :
WS DOT VANCOUVER ACES	11018 NE 51ST CIRCLE	VANCOUVER	WA		Name: WSDOT Contact Type: OWNER/OPERATOR Email: OWNER PHONE Phone :3607057850
WSU VANCOUVER SALMON CREEK	14204 NE SALMON CREEK AVE	VANCOUVER	WA	98686	Name: JAMES MARTING Contact Type: EMERGENCY CONTACT Email: JMMARTIN@VANCOUVER.WSE.EDU EMERGENCY 24 PHONE Phone : EMERGENCY PHONE Phone :3605469591

Appendix B – Chemical Release Notification Guide – Clark County

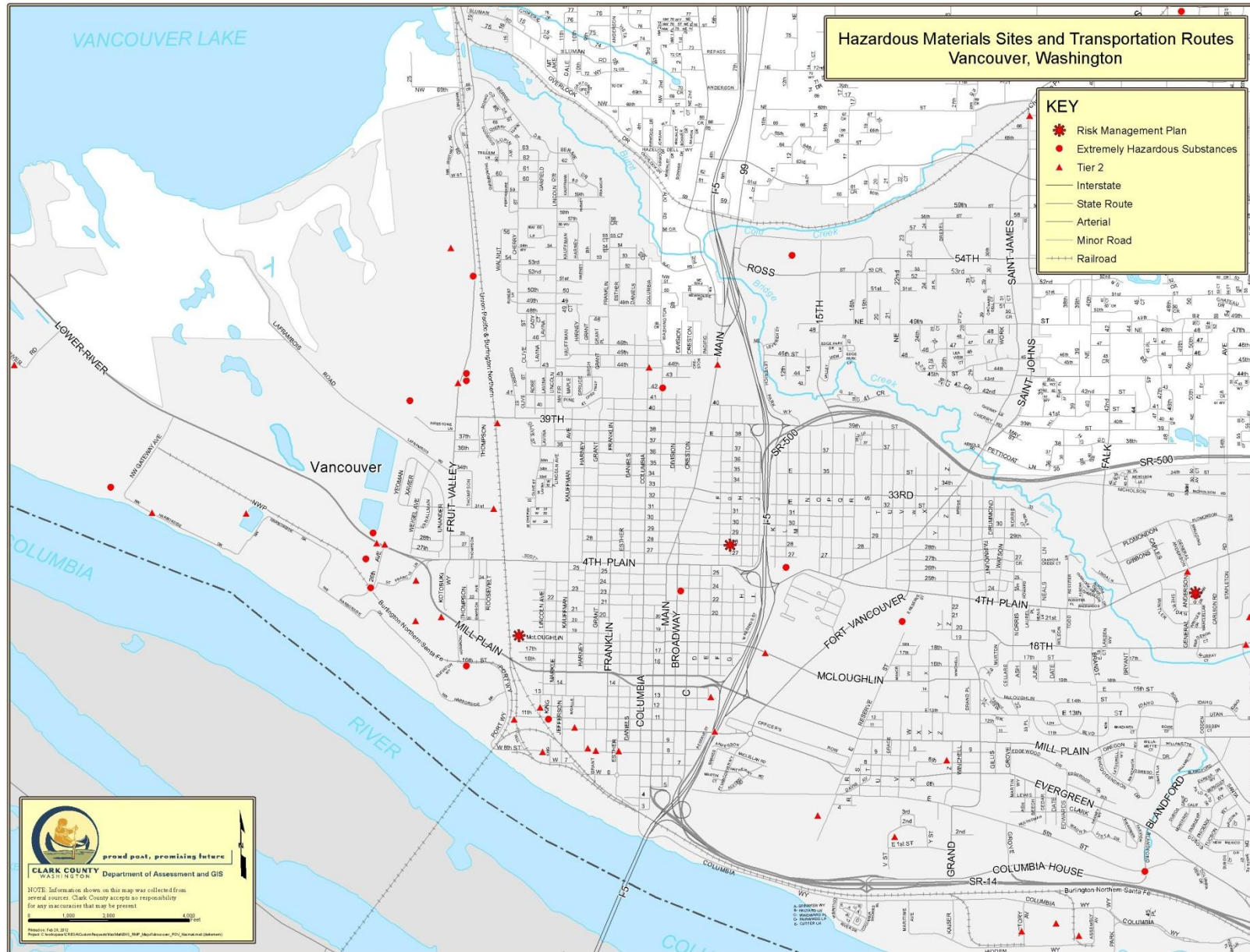
Required Notifications

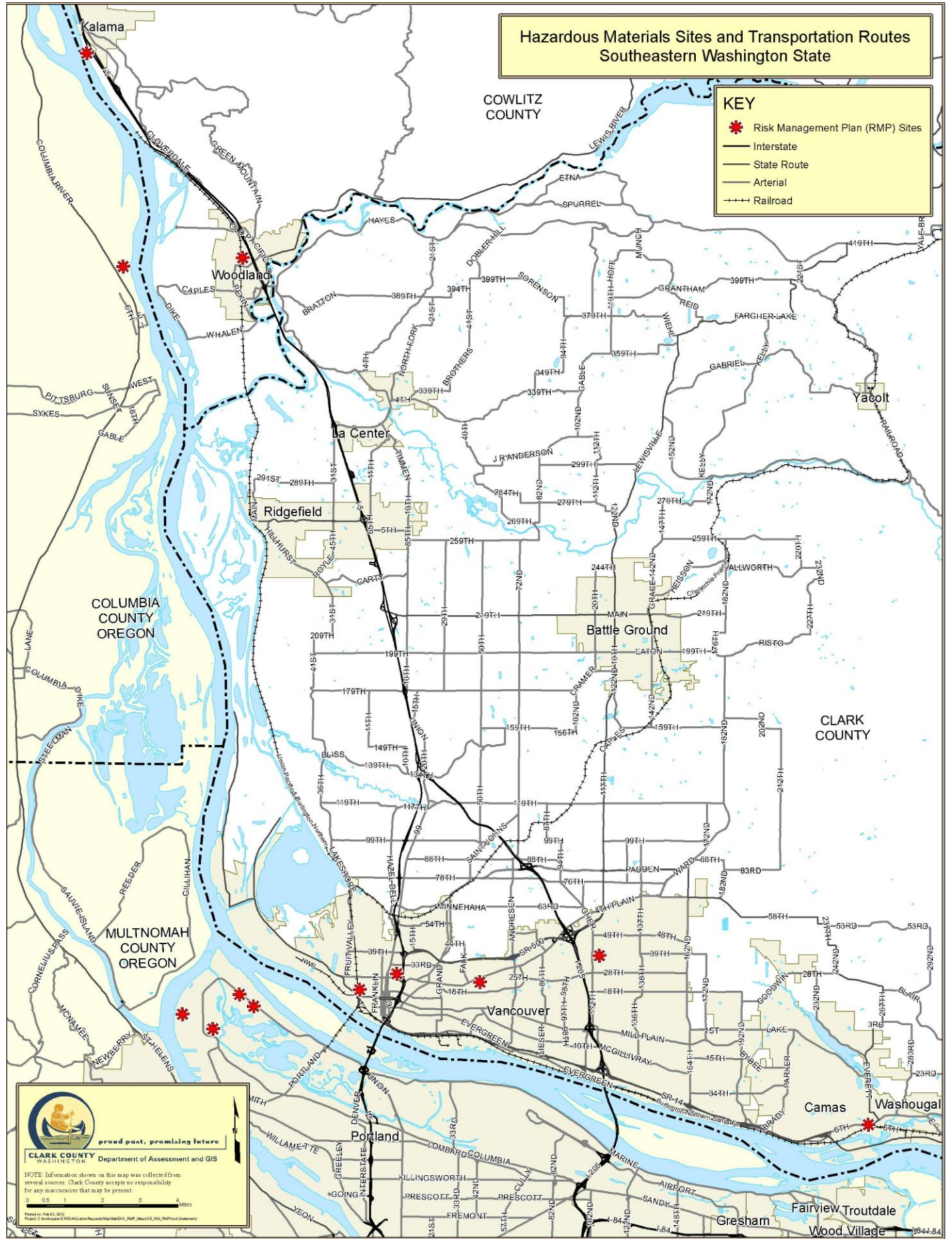
Required to be notified	Requirement	Contact	24-hour emergency response hotline
911	For any incidents that impacts or threatens public health, safety, environment, or property.	911	911
LEPC and/or Tribal Emergency Response Commission Community Emergency Coordinator	Within 15 minutes for all releases at or above the CERCLA reportable quantity	CRESA Emergency Management Program	911
National Response Center		Emergency 24 hour center	800-424-8802
State Emergency Response Commission (SERC)		Washington State Emergency Operations Center, Alert and Warning Center (AWC). AWC is the point-of-contact for SERC notifications.	800-258-5990

Supplementary and Incident-Specific Notifications

Additional Notification Requirements – by spill location		
IF spill is on or to:	Contact:	Phone
Surface water, coastal navigable waters (Columbia R. to Bonneville Dam)	The United States Coast Guard	503-240-9325
Surface water, inland waters (waters of the state)	Washington State Department of Ecology – Southwest Regional Office	800-258-5990 or 360-407-6300
Surface water	Clark County Public Health	360-397-8153
On state roadways	Washington State Patrol (in compliance with RCW 70.136.030)	360-992-4000
On state roadways	Department of Transportation (Washington, SW Region)	360-696-6162
Air -for spills or emissions involving release of a significant amount of air pollutants, possible clean air act violations, odor complaints, and illegal burns	Southwest Clean Air Agency (SWCAA) of Washington	360-574-3058 or 1-800-633-0709 For after hours contact call 911
Surface water or sewer system inside incorporated boundary	Appropriate water or wastewater agency (public works agency or Clark Regional Wastewater District)	County Public Works (360) 397-2446 Vancouver Public Works 696-8177 CRWD 993-8823 Clark Public Utilities 992-8000

Additional Notification Requirements – by spill location		
IF spill is on or to:	Contact:	Phone
Department of Natural Resources lands	Department of Natural Resources (SW Region)	800-527-3305
If incident involves radioactive material	Washington State Department of Health – Office of Radiation Protection	(206) NUCLEAR (206-582-5327)





UPDATED 4/4/2012

CLARK COUNTY LEPC

APPENDIX M

WATER SHORTAGE RESPONSE PLAN

WATER SHORTAGE RESPONSE PLAN

WAC 246-290-100 (4) (f) (iii) requires that Water System Plans include a water shortage response plan “as a component of the reliability and emergency response requirements under WAC 246-290-420.” WAC 246-290-420 sets standards for water system operating pressure and reliability, and how to establish appropriate “levels of service,” but contains no specific requirements or guidance for a Water Shortage Response Plan. DOH has published a document titled “Guidance Document, Water Shortage Response Plans for Small Public Drinking Water Systems,” (DOH Publication No. 331-316) dated October 2008, which is a workbook format designed for small water systems to use in conjunction with the DOH Publication “Emergency Response Planning Guide for Public Drinking Water Systems (DOH Publication No. 331-211). The publication “Guidance Document, Water Shortage Response Plans for Small Public Drinking Water Systems” (hereinafter Water Shortage Response Plan Guidance) lists seven major headings for a water shortage response plan:

1. Events that Cause Water Shortages
2. Evaluate Supply and Demand
3. Defining Stages and Criteria of a Water Shortage
4. Alternate Water Sources
5. Effective Communication
6. Demand Reduction Alternatives
7. Water Shortage Response Actions

Events that Cause Water Shortages

Events that may cause water shortages are any of the events discussed in the preceding sections, including water line breaks, power outage, flooding, drought, fire, earthquake, snowstorm, contamination, vandalism, terrorism, and bioterrorism. Also, failure of various items of water treatment, pumping, control and alarm equipment, as well as loss of operations personnel can lead to water supply shortages.

Evaluate Supply and Demand

Water supply and demand have been evaluated in Chapters 2 and 3 of the Water System Plan (Plan). Projects to address source deficiencies are discussed in Chapter 8 of the Plan.

Defining Stages and Criteria of a Water Shortage

The severity of water shortages varies widely depending on the type of event. Defining stages of severity can significantly aid in determining appropriate response actions. For example, anticipating events that may affect your system, and estimating how severe the effects would be, makes it easier to respond and communicate with others. It also helps water system personnel keep their response balanced and effective. Following are the stages of severity for the City of Ridgefield water system:

CITY OF RIDGEFIELD WATER SHORTAGE RESPONSE PLAN (JANUARY 2020)

Stage I – Advisory Actions:

The water system manager knows there is potential for a water shortage based on a planned well shutdown, service of a storage reservoir, or water transmission main repair. It is not certain that there will be a water shortage, but an advisory may be issued as a precaution to prevent a shortage, or as a prudent response to drought conditions.

A water conservation advisory is issued in local papers, local radio and posted at City Hall and the Post Office requesting that residents conserve water to avoid a potential water shortage. Clark Public Utilities (CPU) is notified that intertie water may be required to supplement water derived from City owned sources.

Stage II – Voluntary Actions:

The water system anticipates conditions likely will result in significant drawdown of storage reserves if demand is not reduced. This may occur if any of the situations described in Stage 1 turn out to take longer to resolve than anticipated, if unanticipated conditions cause loss of well source(s), if a reservoir is taken out of service for an extended period, if a major water main break depletes storage reserves, or any other circumstances where the water system management is concerned about maintaining a sufficient reserve in storage to get through any unanticipated additional system problem.

A notice is posted in local papers, local radio and on the City Hall reader board and the Post Office, requesting that customers take voluntary conservation measures, including odd/even yard watering days and postponing non-essential water uses such as car washing until full water source capacity can be restored. Provision of supplementary intertie water is coordinated with CPU.

Stage III – Mandatory Actions:

The water system experiences significant supply reduction, a reservoir out of service for an extended period, or a significant water main break resulting in significant depletion of standby reserve storage.

A notice is posted in local papers, local radio and on the City Hall reader board and the Post Office, instating mandatory water use restrictions. Odd/even watering days, a ban on washing walkways, a ban on car washing except at systems that recycle wash water, and negotiated restrictions on water use by non-residential customers will be enforced through citations and civil penalties. Provision of supplementary intertie water is coordinated with CPU.

Stage IV – Emergency Actions:

A combination of water source loss, and/or water main breaks, and/or system demand has reduced standby storage to near zero and it is apparent that the system will run out of water if additional source is not found.

CITY OF RIDGEFIELD WATER SHORTAGE RESPONSE PLAN (JANUARY 2020)

All non-essential water uses are banned and enforced by citation and civil penalties. County emergency services (CRESA) is contacted and arrangements are made for trucking water from a nearby approved potable water source if intertie water is unavailable or not available in sufficient quantity. If the cause for the shortage is not distribution system leakage, then intertie water and/or trucked water can be pumped directly into one of the City's reservoirs. If the problem is unresolved distribution system leakage, then water trucks may need to be stationed at strategic locations so that residents can fill containers with water for essential water uses.

Alternative Water Sources

The City of Ridgefield has five permanent groundwater sources (not including Well 11, which as of January 2020 is under construction). Each of these facilities has the provision to connect to standby generation facilities and each well source is disinfected with a dedicated sodium hypochlorite injection pump. Four of the well sources are collocated in Abrams Park in close geographic proximity to each other. However, the Junction Well, which came online in 2017, adds geographical diversity to source infrastructure.

The City can also purchase water from CPU through a 6-inch intertie located on the east side of the distribution system near the intersection of S. 5th St. and S. 10th St.

In the event that the City of Ridgefield loses enough of their well source capacity such that reservoir reserve capacity continues to decline, the City will purchase intertie water from CPU. If intertie water is unavailable, emergency sources of supply including trucked water may be required.

Emergency Water Supplies

Under the City's emergency management plans, citizens are urged to keep a 72-hour supply of food and water in the event of an emergency. The City will endeavor to supply potable water to support emergency operations within its capabilities.

Transport of Potable Water during Emergencies

If the City obtains potable water by transporting from another source, DOH has issued guidelines for water system utilities that deliver potable water to the public during emergencies. This guidance is found at the following website and is summarized below:

<https://fortress.wa.gov/doh/eh/dw/publications/publications.cfm?action=pubdetail&PubId=54>

General

- DOH recommends that someone with water treatment expertise be responsible for the operation and management of trucked potable water.

CITY OF RIDGEFIELD WATER SHORTAGE RESPONSE PLAN (JANUARY 2020)

- The City should contact the regional office of the DOH Division of Drinking Water or the local health department to discuss current requirements and approve the proposed operation.

Truck Container

- The truck container must be contaminant-free and capable of being maintained so that water contamination is prevented.
- If a truck container has been previously used only for potable water and has been protected from possible contamination, it may be used without disinfection and testing for bacteria.
- Truck containers that cannot pass the initial testing criteria after disinfection (i.e., absence of coliforms) shall not be used.
- Trucks previously used for substances other than potable water will be evaluated on an individual basis. Consult with DOH before using trucks that may have previously carried toxic or other non-potable liquids.
- All truck containers must be filled or emptied through an air gap or approved double-check valve assembly, in accordance with WAC 246-290-490.

Initial Truck Disinfection

- The tank and all hoses, pumps, and other equipment used in handling water should be disinfected by filling with water containing at least 50-60 parts per million (ppm) of chlorine and then held in the tank for at least 24 hours.
- One gallon of liquid bleach is required in every 1,000 gallons of water to produce 50-60 ppm. Bleach should be 5.25-6 percent hypochlorite with no additives. Bleach should be added in proportion to the water as the tank is being filled, e.g. add approximately one-half gallon of bleach with each 500 gallons of water.
- The chlorine solution must be flushed from the tank after 24 hours.
- Once the tank is emptied, refill it with the water to be transported, and test for coliform bacteria. If coliforms are present, repeat the process. If the tank cannot be disinfected to eliminate coliforms, it must not be used.
- Water to be transported by tank trucks should contain a free chlorine residual of about one part per million (1 ppm or 1 mg/L) at the beginning of the haul.

CITY OF RIDGEFIELD WATER SHORTAGE RESPONSE PLAN (JANUARY 2020)

Source of Water

- The source for emergency trucked water must come from an approved public water supply, unless otherwise approved by DOH.
- Every precaution should be taken to ensure that the water remains potable once it is collected and transported.

Receiving Tank

- The water system's receiving tanks must be inspected to assure that water quality issues will not occur during filling and later distribution to consumers.
- Receiving tanks must be cleaned and disinfected using the same procedures identified for the truck containers (see "Initial Truck Disinfection" guidelines).
- The receiving tanks must be kept secure and protected from contamination throughout the emergency response.
- The customer's receiving tank must be filled through an air gap or an approved double-check valve assembly in accordance with WAC 246-290-490.

Documentation and Record-Keeping

- The receiving water system is responsible for documenting and keeping proper records of the emergency trucked water operation.
- Records should be retained for at least six months for review upon request by health agencies, haulers, or the supplying water system.

Interties:

The City of Ridgefield has interties with the neighboring CPU regional water system at three locations. Two of these interties supply water to isolated areas of the City's water distribution system while the third provides connection to the entire water system through a 6-inch connection located near the intersection of S. 5th St. and S. 10th St. Assuming that CPU's system is not compromised, this intertie will provide the primary means of supplying water to the City during a water shortage event.

Neighboring Water Systems:

The CPU water system is the only neighboring water system large enough to provide emergency water supply for the City of Ridgefield. Water would be provided through the 6-inch intertie located near the intersection of S. 5th St. and S. 10th St.

CITY OF RIDGEFIELD WATER SHORTAGE RESPONSE PLAN (JANUARY 2020)

The CPU water system has 35 active non-emergency sources listed with a reported capacity of 35,237 gpm. If for some reason the intertie were inoperable during a water shortage, water trucks could be filled from the CPU distribution system.

Effective Communication

The water system personnel emergency call-up list is the cornerstone of an emergency response plan because it provides decision-making personnel with access to resources necessary to cope with the emergency.

Emergency Phone List

The Public Works Department maintains emergency phone number lists (See Table 6-3) for use by City personnel. The list includes Public Works employee's phone numbers and the numbers for emergency services, laboratory services, chemical suppliers, parts supplies, contractors and regulatory agencies. The emergency phone numbers are updated frequently as phone numbers change.

Media Contact

In the event that public notification is required during a water system emergency, the City Public Works Director acts as the primary spokesperson for the City.

Regulatory Agency Contact

Liaison with the Washington State Department of Health (DOH) is the responsibility of the Public Works Director.

Coordination with Regional Incident Responders

Coordination with regional incident responders is provided through the Clark Regional Emergency Services Agency (CRESA).

APPENDIX N

CROSS-CONNECTION CONTROL DOCUMENTATION

Chapter 13.55 - BACKFLOW CROSS-CONNECTION REGULATIONS

13.55.010 - Purpose—Installation of backflow prevention devices.

The purpose of this chapter is to provide specified and detailed rules in order to protect the public potable water supply of the City of Ridgefield from the possibility of contamination or pollution by isolating within the customers' system such contaminants or pollutants which could backflow into the public water system.

(Ord. No. 1148, §§ 1—3, 1-23-2014)

13.55.020 - Installation of backflow devices.

Backflow prevention devices shall be installed at the service connection or within any premises where required under Washington Administrative Code ("WAC") Chapter 246-290, as adopted or hereafter amended, or where, in the judgment of the director, the nature and extent of activities on the premises, or the materials used in connection with the activities, or materials stored on the premises could contaminate or pollute the potable water supply, even though such cross-connection does not exist at the time the backflow prevention device is required to be installed, This shall include but not be limited to the following situations:

- A. Premises having any one or more cross-connections or potential cross connections as that term is used in the Washington Administrative Code Chapter 246-290 and all applicable plumbing codes;
- B. Premises having an auxiliary water supply, unless the quality of the auxiliary supply is in compliance with WAC 246-290 and is acceptable to the director;
- C. Premises having internal cross-connections that are not correctable, or intricate plumbing arrangements which make it impracticable to ascertain whether or not cross-connections exist;
- D. Premises where entry is restricted so that inspections for cross-connections cannot be made with sufficient frequency or at sufficiently short notice to assure that cross-connections do not exist;
- E. Premises having a repeated history of cross-connections being established or reestablished;
- F. Premises on which any substance is handled under pressure so as to permit entry into the public water system, or where cross-connection could reasonably be expected to occur. This shall include the handling of process waters and cooling

waters;

- G. Premises where materials of a toxic or hazardous nature are handled such that if back siphonage should occur, a serious health hazard may result;
- H. Installation of an approved backflow prevention assembly is deemed to be necessary in the judgment of the CCS to accomplish the purpose of these regulations;
- I. In the event an in-premises assembly has not been tested or repaired as required by WAC 246-290-490, or as amended, and this section;
- J. If it is determined that additions or rearrangements have been made to the plumbing system without obtaining proper permits as required by the city code enforcement division;
- K. When a cross-connection survey report form is required by the city to be filled out and the city has not received it;
- L. All high health hazard premises, which are defined in Table 9 of WAC 246-290-490, as amended, are required to have premises isolation by installing a reduced pressure principle assembly in accordance with this section;
- M. When a garden hose attachment is connected to the premises' plumbing, including but not limited to fertilizer applicators, pesticide applicators and radiator flush kits; and
- N. Where reclaimed or reused water systems are installed.

(Ord. No. 1148, §§ 1—3, 1-23-2014)

13.55.030 - Backflow prevention policy.

No water service connection to any customer's premises shall be installed or maintained by the department unless the public water supply is protected as required by this title. Service of water to any customer's premises shall be discontinued by the director if a backflow prevention assembly required by this title is not installed, tested and maintained, or if it is found that a backflow prevention assembly has been removed, by-passed, or if an unprotected cross-connection exists on the premises. Service will not be restored until such conditions are corrected.

(Ord. No. 1148, §§ 1—3, 1-23-2014)

13.55.040 - Inspection of backflow devices.

Backflow prevention devices installed under this chapter shall be inspected and tested annually, or more often where successive inspections indicate repeated failure. The devices shall be repaired,

overhauled, or replaced whenever they are found to be defective. Inspections, tests and repairs shall be made under the department's supervision, and meet standards acceptable to the state of Washington as approved by the director.

If the department has not received the results of the test within thirty days of the anniversary date for annual testing or within ten days of the date of installation or relocation, or upon the director discovery that the assembly was installed without testing, the director may order the test and add the cost of the test, plus a backflow assembly test fee as established by the Ridgefield Master Fee Schedule, onto the customer's water bill.

If the results of the test ordered by the director or the customer indicate that repairs are necessary, the repairs must be made and a new test taken and results of the test forwarded to the director within ten days of the first test.

Failure to comply with this section may result in termination of water service in accordance with RMC 13.55.050. In the event that service is terminated for failure to comply with this section, and the customer requests the water to be turned on in order to perform the test, the city shall charge a service call fee to temporarily turn on the service in order to test the backflow assembly.

(Ord. No. 1148, §§ 1—3, 1-23-2014)

13.55.050 - Penalties.

In addition to any other penalties set forth in this title or that may be provided by law, any customer who fails to install or provide for the testing of a backflow prevention assembly or who violates any provisions contained herein, or who fails to comply with an order thereunder, shall suffer immediate termination of public water service and be subject to a service call fee for both turning the water off and turning back on.

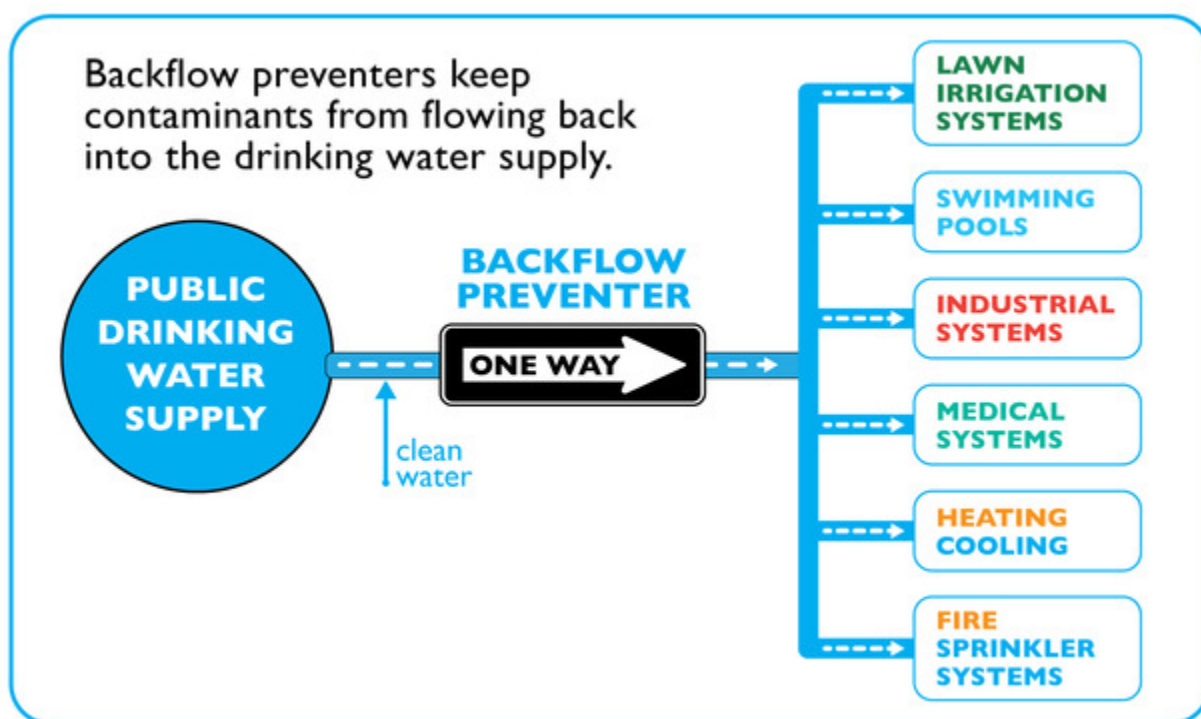
(Ord. No. 1148, §§ 1—3, 1-23-2014)

Backflow and Cross Connection - City of Ridgefield

Backflow

Backflow means the reversal of water flow from its normal or intended direction of flow. Whenever a water utility connects a customer to the utility's distribution system, the intention is for the water to flow from the distribution system to the customer.

However, the flow of water could be reversed from the customer back into the distribution system. If cross-connections exist within the customer's plumbing system when backflow occurs, then it is possible to contaminate the public water supply. There are two types of backflow — backpressure backflow and backsiphonage.



Backpressure backflow

Backpressure backflow occurs when the pressure of the nonpotable system exceeds the positive pressure in the water distribution lines; that is, the water pressure within an establishment's plumbing system exceeds that of the water distribution system. For example, there is a potable water connection to a hot water boiler system that is not protected by an approved backflow preventer. If pressure in the boiler system increases to a point that it exceeds the pressure in the water distribution system, a backflow from the boiler to the public water system may occur.

A downstream pressure that is greater than the potable water supply pressure causes

backpressure backflow. Backpressure can result from an increase in downstream pressure, a reduction in the potable water supply pressure or a combination of both. Boiler pumps, pressure pumps or temperature increases in boilers can create increases in downstream pressure. Reductions in potable water supply pressure occur whenever the amount of water being used exceeds the amount of water being supplied, such as during water line flushing, fire fighting or breaks in water mains.

Backsiphonage

Backsiphonage occurs when there is a partial vacuum (negative pressure) in a water supply system, which draws the water from a contaminated source into a potable water supply. The water pressure within the distribution system falls below that of the plumbing system it is supplying. The effect is similar to siphoning or drinking water through a straw. For example, during a large fire, a pump is connected to a hydrant. High flows pumped out of the distribution system can result in significantly reduced water pressure around the withdrawal point. A partial vacuum has been created in the system, causing suction of contaminated water into the potable water system. During such conditions, it is possible for water to be withdrawn from nonpotable sources located near the fire — for example, air-conditioning systems, water tanks, boilers, fertilizer tanks and washing machines — into buildings located near a fire. The same conditions can be caused by a water main break.

Garden hoses, toilets or similar devices create most household cross-connections. Under certain conditions, the flow in household water lines can reverse and siphon contaminants into the water supply. A toilet installed incorrectly without a “plumbing-code approved” toilet ballcock (air gap) will allow contaminated water to backflow to other water outlets in your house, including the kitchen sink.

Backflow preventer

A backflow preventer is a method or mechanical device to prevent backflow and provides a physical barrier to backflow.

Required Yearly Testing of Backflow Prevention Devices

The City of Ridgefield’s Cross Connection Control Program requires any customer who has a backflow prevention device to test their backflow assemblies:

- After initial installation
- After any repair, replacement or relocation
- Annually by a certified backflow assembly tester

As a courtesy, our public works department sends reminder letters when it’s time to have your backflow assembly tested. In addition, a copy of the [City Approved and Certified Backflow Testers](#) for the current year is included. Please note, this list is provided as a convenience only and is not intended to endorse or recommend a particular service. View [Ridgefield’s Approved Backflow Test Report Form](#). The City will only accept tests submitted on this form.

Cross-Connection

A cross-connection is any temporary or permanent connection between a public water system or consumer's potable (i.e., drinking) water system and any source or system containing non-potable water or other substances.

Examples of Common Cross Connections

- Hot tubs
- Auxiliary water systems (wells)
- Hoses submerged in polluted or contaminated water
- Water (from a well or pond) pumped into an irrigation system directly connected to the water supply system
- An underground lawn sprinkler system directly connected to the water supply system
- A fountain or swimming pool directly connected to the water supply system for filling

CITY AND STATE REQUIREMENTS PROTECT OUR COMMUNITY'S WATER SUPPLY

Washington State Law ([WAC 246-290-490](#)) City of Ridgefield Ordinance ([RMC 13.55.010](#))

Irrigation Systems

If you have or are planning on installing an irrigation system, you must first comply with state and local laws. These laws require that all irrigation systems have approved backflow protection. A plumbing permit is also required when installing an irrigation system. Without proper backflow protection, your irrigation system could endanger the health of your family, neighbors, and others in the community who are using the public water supply system.

Frequently Asked Questions

Why is backflow prevention important?

Backflow into a public water system can pollute or contaminate the potable water in that system (i.e., backflow into a public water system can make the water in that system unusable or unsafe to drink). Water suppliers and consumers have a responsibility to provide water that is usable and safe to drink under all foreseeable circumstances.

I received a letter saying I need to install a backflow preventer. How do I do that?

The City of Ridgefield Public Works Department recommends contacting a licensed plumber.

I am a renter. Why did I receive a letter about the backflow preventer?

If you are renting a home or commercial space, your landlord or property management company would be responsible. In some cases, there may be an agreement between the landlord and tenant where the tenant is responsible.

I received a letter to test my backflow preventer at a home/property I sold previously. How do I update my information?

1. Notify the Cross-Connection Program Coordinator (360.857.5010)
2. Contact City Hall to ensure your utility billing account is updated (360.857.3557)

Why do backflow preventers have to be tested each year?

Backflow prevention assemblies have internal seals, springs, and moving parts that are susceptible to wear and failure. Yearly testing ensures they are functioning properly and protecting the public water system per [\(WAC 246-290-490\)](#) and [\(RMC 13.55.010\)](#).

Is there a general compliance schedule and process?

Generally, about 45 days prior to the test due date, the Public Works Department sends letters to all customers who are required to test their backflow assembly devices.

Do backflow testers work for the City of Ridgefield?

No. Backflow testers are independent private contractors. The City of Ridgefield does not install or test backflow assemblies. The State of Washington requires backflow tests to be performed by Certified Backflow Testers. View a list of [City Approved and Certified Backflow Testers](#). This list is updated in the Spring of each year and requires testers to provide current year certifications. In addition, the approved tester's must obtain a city business license if they are performing services within the Ridgefield city limits. Tests performed and submitted by someone not on the city's approved and certified backflow tester list will be rejected and considered invalid.

How do I know if I need to install a backflow preventer?

Residential customers are only required to install a backflow preventer if there is a potential cross-connection hazard. It is the customer's responsibility to notify us if an irrigation system or pool is installed. Backflow requirements vary for commercial/industrial customers based on the business's water use. Ridgefield's staff reviews newly established commercial/industrial water accounts to assess the degree of backflow hazard and notifies businesses about backflow requirements.

I don't use my irrigation system. Do I still have to test and maintain my backflow preventer?

As long as the irrigation system is connected to your plumbing system, the potential for backflow exists, and you must comply with all backflow requirements, including having it tested each year.

To eliminate these backflow requirements, the irrigation system must be physically disconnected and removed from your plumbing system. Contact a certified backflow tester to schedule the removal and notification to the Cross-Connection Control Coordinator (360) 857-5010. Public Works will schedule an inspection to confirm the backflow assembly has been removed and capped off.

Questions? Please contact Lisa Blake, Cross-Connection Program Coordinator (360) 857-5010.



Backflow Preventer Inspection and Field Test Report

Public Works Division
301 N 3rd, Ave.
Ridgefield, WA 98642

Lisa Blake
Cross Connection Control
Coordinator

Phone: 360.857.5010
Fax: 360.887.2507
Email: lisa.blake@ci.ridgefield.wa.us

PWS ID		Water System Name		File #	
Facility Name				☐ Non-Residential ☐ Residential	
Service Address			City		Zip
Contact Person			Phone		Email
Hazard Type (if known)			☐ DCVA ☐ RPBA ☐ RPDA ☐ DCDA ☐ PVBA ☐ AG ☐ Other		
Preventer Physical Location					
☐ New ☐ Existing ☐ Replacement: Old Ser. #				Confined Space Yes ☐ No ☐	
Assembly Make		Model		Serial #	
USC-Approved Yes ☐ No ☐		Proper Install Yes ☐ No ☐		Proper Orientation Yes ☐ No ☐	
Initial Test	DCVA		RPBA		PVBA/SVBA
	<u>Check Valve 1</u> Leaked ☐ ____ psid		<u>Relief Valve</u> Opened ____ psid/ Not Open ☐		<u>Air Inlet Valve</u> Opened at ____ psid
	<u>Check Valve 2</u> Leaked ☐ ____ psid		<u>Check Valve 2</u> Closed Tight ☐ Leaked ☐		Did Not Open ☐
			<u>Check Valve 1</u> ____ psid		Opened Fully Yes ☐ No ☐
		<u>Approved Air Gap</u> Yes ☐ No ☐		<u>Check Valve</u> ____ psid	
				Leaked ☐	
Cleaning, Repairs, & Parts	Cleaned ☐ Repaired ☐		Cleaned ☐ Repaired ☐		Cleaned ☐ Repaired ☐
	☐ Disc	☐ O-Ring(s)	☐ Disc	☐ O-Ring(s)	☐ Air Inlet Disc
	☐ Spring	☐ Module	☐ Spring	☐ Module	☐ Air Inlet Spring
	☐ Guide	☐ Rubber Kit	☐ Diaphragm	☐ Rubber Kit/Guide	☐ Check Disc
	☐ Seat	☐	☐ Seat	☐	☐ Check Spring
☐ Float	☐ Diaphragm	☐ Rubber Kit			
Final Test	<u>Check Valve 1</u> Leaked ☐ ____ psid		<u>Relief Valve</u> Opened at ____ psid		<u>Air Inlet Valve</u> Opened at ____ psid
	<u>Check Valve 2</u> Leaked ☐ ____ psid		<u>Check Valve 2</u> Closed Tight ☐		Opened Fully Yes ☐ No ☐
			<u>Check Valve 1</u> ____ psid		<u>Check Valve</u> ____ psid
Air Gap Inspection Pass ☐ Fail ☐			Supply Pipe Diameter "		Air Gap Separation "
Line Pressure psi		Detector Meter		Gals ☐ CuFt ☐	
Service Restored Yes ☐ No ☐					
Remarks*					
Test Kit Make & Model			Serial #		Ver./Cal Date**
By this signature, I certify:	1. I personally inspected and field-tested the backflow assembly using field test procedures meeting WAC 246-290-490 and test equipment meeting WAC 246-292-034; or I personally inspected the air gap or AVB.				
	2. The information in this report is true, complete, and accurate.				
BAT Signature (initial test)			Cert. #		Date/Time
BAT Name (print)			BAT Phone #		
Repaired By			Date/Time		
BAT Signature (after repair)			Cert. #		Date/Time
BAT Name (print)			BAT Phone #		
BAT Company Name			Address		

*Note unapproved backflow preventer, missing/defective components, repairs made, or conditions that may adversely affect assembly.

**The date of the most recent field test kit verification of accuracy or calibration whichever is most recent.

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
11th Street Industrial Holdings LLC	012651-000	5504 S 11th St	Right side of bldg, back near fire riser	12/18/19	DDAMAQS	AMES	COLT 300GV	8	DCDA	
11th Street Industrial Holdings LLC	012651-000	5504 S 11th St		12/18/19	DCAM22D	AMES	2000BM3	0.75	DC	
11th Street Industrial Holdings LLC	012651-000	5504 S 11th St	SW corner near street	11/08/19	DCWAAMU	WATTS	LF007M1QT	2	DC	
54 Union Ridge LLC	012150-000	7000 S 10th	Fire riser room NE corner of building	06/13/19	DDAMAQS	AMES	COLT 300GV	8	DCDA	
54 Union Ridge LLC	012150-000	7000 S 10th	Fire Riser Room NE Corner of Bldg	06/13/19	DCAM22D	AMES	2000BM3	0.75	DC	
Abe, Nobuyoshi & Ikuyo	006980-000	1629 Falcon Dr	in box across walk from meter	08/02/19	DCFE88D	FEBCO	850U	0.75	DC	
Abitbol, David	011078-000	4617 N Noble Loop	East side of next to driveway	05/12/20	DCWIAQJ	WILKINS	350	1	DC	
Abitbol, David	011596-000	750 N 47th Ave	SW CORNER IN FRONT OF METER	09/17/19	DCWIAQJ	WILKINS	350	1	DC	
Adams, Amie & Daniel	007093-000	2305 N 5Th Way	Front yard by water meter	03/20/20	DCFE88D	FEBCO	850U	0.75	DC	
Adams, Anthony & Shannon	012097-000	2302 N 5Th Way	East side of house	04/14/20	DCFE88E	FEBCO	850U	1	DC	
Adams, Barrett	012545-000	358 N Green Gables Loop	Right of driveway next to meter	05/07/20	DCWIAQJ	WILKINS	350	1	DC	
Adams, Dan	009461-000	2203 S Sauk Way	in box across walk from meter	07/09/19	DCWIAFT	WILKINS	350	0.75	DC	
Adams, John	008172-000	1734 S 15Th Ct	6' east of meter	03/19/20	DCWI96E	WILKINS	950XL	1	DC	
Adams, Nicole	012387-000	4026 S Kennedy Dr	Behind garage left side of house	05/12/20	DCWIAQJ	WILKINS	350	1	DC	
Adams, Randy	008207-000	1760 S 18Th Cir	right of drive by meter	03/20/20	DCFE88D	FEBCO	850U	0.75	DC	
Adauto, David & Angela	009822-000	266 N Green Gables Loop	by meter	08/02/19	DCWIAQJ	WILKINS	350	1	DC	
Adkins, Marissa	012304-000	309 N 40th Ave	309 N 40th Ave	10/17/19	DCWIAQJ	WILKINS	350	1	DC	
Aguilar, Carly	010562-000	783 N 49Th Ave	By Meter	03/27/20	DCFE85E	FEBCO	850	1	DC	
Ahlstrom, John	010525-000	4346 N 7Th Way	Irrigation - by meter	05/06/20	DCFE85E	FEBCO	850	1	DC	
Aichele, Rob & Tana	008140-000	1275 S 15Th Way	In box across walk from meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
Akimenko, Liliya & Vladimir	007829-000	2305 S 17th Way	2305 S 17th Way	03/14/12	DCWI96E	WILKINS	950XL	1	DC	
Akimenko, Liliya & Vladimir	007829-000	2305 S 17th Way	30' south of meter	06/06/19	DCFE88E	FEBCO	850U	1	DC	
Akimenko, Maksim	007827-000	2303 S 17Th Way	East side of house	06/06/19	DCFE85E	FEBCO	850	1	DC	
Alexander, Chrys	010544-000	4727 N 6Th St	Under front window	03/27/20	DCFE85E	FEBCO	850	1	DC	
Ali's Chevron Station	010690-000	5801 Pioneer St	IN STORE ROOM BY CARBONATER/ICE MACHINE	06/07/19	RPWA90E	WATTS	909HWQT	1	RP	Carbonator
Allegri, Jason	007336-000	709 N 16Th Ct	10' past water meter	05/25/19	DCFE85D	FEBCO	850	0.75	DC	
Allen, Heath	011532-000	2103 N 5Th Way	Right of driveway next to meter	10/27/19	DCFE88D	FEBCO	850U	0.75	DC	
Allen, John and Judy	011221-000	1866 S Pintail Ct	In box by meter	03/27/20	DCFE85E	FEBCO	850	1	DC	
Allen, Thomas Elizabeth & Robert	012592-000	808 N 9th Way	west side of house	05/25/19	DCWI98E	WILKINS	950XLU	1	DC	
Allen, Timothy & Kellie	009808-000	250 N Green Gables Loop	by meter	07/18/19	DCWIAQJ	WILKINS	350	1	DC	
Alley, Katelyn Keillor & Bailey	012674-000	3701 S Star View Loop	Right side of house	10/22/19	DCWIAQJ	WILKINS	350	1	DC	
Alliance Industrial Group	010669-000	5823 S 6Th Way	Fire riser room	09/19/19	DDAMAQP	AMES	COLT 300BF	6	DCDA	
Alliance Industrial Group	010669-000	5823 S 6Th Way	Fire Riser Room	09/19/19	DCAM22D	AMES	2000BM3	0.75	DC	
Allied Fittings	010711-000	766 S 74Th Pl	on left side of south driveway in meter box	08/07/19	DCAM22D	AMES	2000BM3	0.75	DC	Irrigation
Allied Fittings	010711-000	766 S 74Th Pl	on left side of south driveway in meter box	08/07/19	COLT200	COLT	200	6	DC	Irrigation
Allison, Tatetum	012474-000	3305 N Pioneer Canyon Dr	by meter	07/28/19	DCWIAQJ	WILKINS	350	1	DC	
Alt, Julles	007511-000	825 Raven Dr	box east side of house	05/09/19	DCWA02E	WATTS	007M1PCQT	1	DC	
Alvarez, Franco	010587-000	744 N 48Th Ave	By meter	03/27/20	DCFE85E	FEBCO	850	1	DC	
Ancheta, Justin & Muranda	007025-000	2005 Falcon Dr	10? past water meter	05/18/19	DCFE88D	FEBCO	850U	0.75	DC	
Anderson, Andreas	012589-000	1408 S 21st Pl	12" box by the water meter	07/05/19	DCFE88E	FEBCO	850U	1	DC	
Anderson, Erik	009432-000	2512 S Nisqually Ave	by meter	08/02/19	DCFE85E	FEBCO	850	1	DC	
Anderson, Ezekiel & Kathleen	008200-000	1755 S 17Th Cir	left side driveway behind meter	03/31/20	DCWIAQJ	WILKINS	350	1	DC	
Anderson, Lesley	011312-000	1515 S Dusky Dr	at water meter	03/18/20	DCFE88E	FEBCO	850U	1	DC	
Anderson, Paul	009509-000	2202 S Sauk Way	in box across walk from meter	07/13/19	DCWIAFT	WILKINS	350	0.75	DC	
Anderson, Sylvia & David	010586-000	747 N 48Th Ave	By meter	09/11/19	DCFE85E	FEBCO	850	1	DC	
Anderton, Sarah	009917-000	3708 N Pioneer Canyon Dr	by meter	04/23/20	DCWIAQJ	WILKINS	350	1	DC	
Andison, Chrissy	009501-000	2316 S Sauk Way	BY METER	08/08/19	DCFE85E	FEBCO	850	1	DC	
Andrews, Holly & Chad	008057-000	1207 S Great Blue Rd	at meter	03/26/20	DCWIAQJ	WILKINS	350	1	DC	Irrigation
Antonov, Andrey and Nelli	007883-000	2302 S 17th Way	East side of house	05/25/19	DCWI97E	WILKINS	950XLT	1	DC	
Apol, Kyle & Stephanie	008281-000	1611 S Dusky Dr	in box across walk from meter	03/18/20	DCWIAQL	WILKINS	350XL	0.75	DC	
Arambul, John	007865-000	1604 S 24th Pl	10' East of Water meter	04/30/20	DCFE85E	FEBCO	850	1	DC	
Archer, Jane & Stan	010514-000	4313 N Ridgefield Woods Dr	In Box Right Front Corner of House	05/05/20	DCWIAQJ	WILKINS	350	1	DC	
Ardizzone, Jerry	011642-001	1803 S 24th Pl	Across sidewalk from water meter	05/28/19	DCFE88E	FEBCO	850U	1	DC	
Ardizzone, Pam	006798-000	1417 S 8th Way	By water meter	09/05/19	DCWI97E	WILKINS	950XLT	1	DC	
Armstrong, Michael	006240-000	330 N Main Ave	330 N Main Ave	06/04/13	DCWA72D	WATTS	007M2QQT	0.75	DC	
Arntson, Kyle	011099-000	1991 S 14th Ct	In Box by meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
Atchison, Michael	009343-000	917 N Heron Dr	Under gate next to garage	05/12/20	DCFE88D	FEBCO	850U	0.75	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Atkins, Jennifer	012082-000	116 N 38Th Pl	IN BOX AT THE NW CORNER OF HOUSE	07/28/19	DCFE88E	FEBCO	850U	1	DC	
Au, Kavita	011774-000	2163 S 31St Ct	north side of drive (west property line)	04/30/20	DCWI96E	WILKINS	950XL	1	DC	
Audrey Frazier	011207-000	923 N 13TH PL	in box by meter	05/05/20	DCWIAQJ	WILKINS	350	1	DC	
Augusten, Alexander	012711-000	1924 S Osprey Dr	50 ft east of water meter in bark - n. side of driveway	07/29/19	DCFE88E	FEBCO	850U	1	DC	
Autry, Kyle	011510-000	929 N Noble Loop	NE SIDE OF DRIVEWAY BY CABLE BOX	04/24/20	DCWIAQJ	WILKINS	350	1	DC	
Avery, Kerri	010549-000	4829 N 6th St	By meter	09/11/19	DCFE85E	FEBCO	850	1	DC	
Avery, Lisa	011505-000	1111 N Heron Dr	On Left side of driveway 10' behind meter	04/21/20	DCWIAQJ	WILKINS	350	1	DC	
Awawdeh, Antisar	011791-000	901 N Heron Dr	east of house	11/22/19	DCFE88E	FEBCO	850U	1	DC	
Babbitt, Rebecca	011792-000	252 N Green Gables Loop	right side of house	09/14/19	DCWIAQJ	WILKINS	350	1	DC	
Babcock, S. Jon & Bj	005797-000	1720 Pioneer St	left side driveway	09/03/19	DCAPASD	APOLLO/CONBRACO	DC4A	1	DC	
Badden, Gerri & Les	008065-000	1303 S Great Blue Rd	in box at meter	03/26/20	DCWIAQJ	WILKINS	350	1	DC	
Bae, Jung & Myung	007902-000	2002 S 16th Dr	10" north of water meter	04/24/20	DCFE88E	FEBCO	850U	1	DC	
Bahnsen, Steven & Debra	009339-000	921 N Heron Dr	in box at meter	07/18/19	DCWIAQJ	WILKINS	350	1	DC	
Baker, Raymond	012174-000	1196 S Fieldcrest	North Side of house, left side of bark bed	09/11/19	DCWIAQJ	WILKINS	350	1	DC	
Balan, Gennady & Larisa	007778-000	1605 N Heron Dr	6' past water meter	08/22/19	DCFE88D	FEBCO	850U	0.75	DC	
Ballantine, Heather	009115-000	2308 S 16Th Cir	at water meter	05/30/19	DCFE88E	FEBCO	850U	1	DC	
Balske, Michael & Jennifer	012013-000	1695 S Harrier Rd	In box across from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Bancroft, Caleb	010635-000	758 N Squire Dr	Front Yard by Water Meter	08/14/19	DCWIAQJ	WILKINS	350	1	DC	
Bancroft, Lindsey & Seth	009454-000	2304 S Nisqually Ave	by meter	05/04/20	DCFE85E	FEBCO	850	1	DC	
Banke, Joshua & Karyn	010071-000	3991 N 1st Way	IN BOX WEST SIDE HOUSE BEHIND FENCE UNDER WINDOW	06/28/19	DCFE88E	FEBCO	850U	1	DC	
Barbaza, Paul & Jocelyn	009804-000	3555 N 1st St	right side of lectrical box	06/05/19	DCWIAQJ	WILKINS	350	1	DC	
Barbouletos, Josie	008259-000	1724 S Taverner Dr	in box at meter	03/23/20	DCFE88E	FEBCO	850U	1	DC	
Bardon, Lawrence & Rhonda	010515-000	4309 N Ridgefield Woods Dr	By utilities	05/05/20	DCFE85E	FEBCO	850	1	DC	
Barnard, Robert & Linda	012106-000	1651 S 47th Pl	on right of house in backyard by ALC unit	05/12/20	DCWIAQJ	WILKINS	350	1	DC	
Barnes, Jack & Lores	010612-000	4577 N Noble Loop	BY METER	03/27/20	DCFE85E	FEBCO	850	1	DC	
Barnett, Eric	009297-000	1208 N 9Th Way	at meter	08/02/19	DCWIAQJ	WILKINS	350	1	DC	
Barnette, Barry & Dianna	011486-000	1723 S Taverner Dr	at water meter	03/20/20	DCFE85E	FEBCO	850	1	DC	
Baron, Kyle and Heather	011158-000	2774 Swainson Ct	West of front entry	07/15/19	DCWIAQJ	WILKINS	350	1	DC	
Barrar, Jeffery & Jessica	008135-000	1734 S Lake River Ter	Right of way next to meter	09/22/19	DCFE85E	FEBCO	850	1	DC	
Barrett, Marvin & Victoria	012656-000	915 N 10th Pl	915 N 10th Pl	10/17/16	DCFE88D	FEBCO	850U	0.75	DC	
Bartholomew, David	011236-000	1845 S 14th Ct	In Box by meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
Bartlett, Maryjane	005391-000	810 S Sunset Ln	@ watermeter	10/03/19	DCWI96E	WILKINS	950XL	1	DC	
Bate, Ed	012648-000	3706 S Star View Loop	In parking strip at meter	11/05/19	DCWIAQJ	WILKINS	350	1	DC	
Bates, Dan	011418-000	823 Raven Dr	South side of house	10/17/19	DCWI96E	WILKINS	950XL	1	DC	
Baxter, Karen	012415-000	4018 S Kennedy Dr		05/04/19	DCWIAQJ	WILKINS	350	1	DC	
Beamon, Walter & Bonniejean	007226-000	626 N 18Th Pl	8' east of watermeter	04/28/20	DCWI96E	WILKINS	950XL	1	DC	
Beattie, Dennis	006841-000	1521 S 5Th Cir	6' south of water meter	05/14/20	DCWI97E	WILKINS	950XLT	1	DC	
Beggs, Michael & Barbara	009805-000	3553 N 1st St	17' south of meter	08/14/19	DCWIAQJ	WILKINS	350	1	DC	
Beireis, Eugene & Shannon	011492-000	1861 S Taverner Drive	IN BOX ACROSS WAY FROM METER	08/06/19	DCFE85E	FEBCO	850	1	DC	
Bell, Brian & Pamela	007043-000	2002 N 5Th Way	SW corner under evergreen bush	07/14/19	DCFE88D	FEBCO	850U	0.75	DC	
Bell, Jared	010078-000	133 N 39th Ct	IN BOX BY GAS METER SOUTH SIDE OF GARAGE	05/29/19	DCFE88E	FEBCO	850U	1	DC	
Bell, Kathryn	012340-000	367 N Green Gables Loop	by meter	03/29/19	DCWIAQJ	WILKINS	350	1	DC	
Benedict, Kristina	009315-000	1224 N 8th Way	in box at meter	04/24/20	DCWIAFT	WILKINS	350	0.75	DC	
Bennett, Jeff & Deanna	011033-000	1551 S 14Th Cir	at meter	03/26/20	DCFE88E	FEBCO	850U	1	DC	
Bennett, Jesse	010171-001	3611 S Star View Loop	Right side of house	09/08/19	DCWIAQJ	WILKINS	350	1	DC	
Bennett, Terry	008169-000	1910 S 15Th Ct	behind meter	05/20/19	DCFE85E	FEBCO	850	1	DC	
Bennett, Valerie	011139-000	1845 S 15Th Ct	front lawn from water meter	03/19/20	DCFE85E	FEBCO	850	1	DC	
Bernaldo, Rene & Yuliya	012772-000	1732 S 47th Pl	At left front corner of prop by meter.	09/03/19	DCWIAQJ	WILKINS	350	1	DC	
Bernard, Patricia	008008-000	1401 S Dusky Dr	10' from meter in box	04/04/19	DCFE85E	FEBCO	850	1	DC	
Bernardi, Jenifer	012268-000	3644 S Willow Dr		05/14/19	DCWIAQJ	WILKINS	350	1	DC	
Bernier, Tori & Maurice	012260-000	2685 S Cornett Dr	In path by side door to garage	04/30/20	DCFE88D	FEBCO	850U	0.75	DC	
Best, Robin & Bob	012206-000	2280 S 29Th Ct	left side of house 12" box	07/11/19	DCWI96E	WILKINS	950XL	1	DC	
Beu, Joshua & Kara	008127-000	1364 S 15th Way	in box at meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
Bieker, James & Tamie	009484-000	2201 S Cispus Way	in box at SE corner of house	05/02/19	DCWIAFT	WILKINS	350	0.75	DC	
Bighouse, Donna & David	009480-000	2204 S White Salmon Dr	In box across walk from meter	08/28/19	DCFE85E	FEBCO	850	1	DC	
Bilek, Jonathan & Laura	010624-000	912 N Noble Loop	In box across walk from meter	08/14/19	DCWIAQJ	WILKINS	350	1	DC	
Bishop, Joseph	012083-000	3732 S Kennedy Dr		01/18/19	DCWIAQJ	WILKINS	350	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
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ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Bishoprick, Stan	011942-000	222 S 5th Ave	at Main 10 ft from curb	08/01/19	DCFE88E	FEBCO	850U	1	DC	
Bishop-Smith, Glenn & Kathryn	005397-000	797 S Sunset Ln	797 S Sunset Lane	07/24/13	DCWI96E	WILKINS	950XL	1	DC	
Blackburn, James	009377-000	901 N 7Th Cir	at meter	05/05/20	DCFE88E	FEBCO	850U	1	DC	
Blagikh, Igor & Ekaterina	009471-000	2316 S White Salmon Dr	10' past water meter	08/08/19	DCFE85E	FEBCO	850	1	DC	
Blake, Lisa & Bradford	008156-000	1732 S 14Th Ct	In box across walk from meter 6' from sidewalk	03/18/20	DCFE85E	FEBCO	850	1	DC	
Blanchard, Christopher & Kelly	009024-000	2025 S Osprey Dr	Front yard by water meter	08/24/19	DCFE88E	FEBCO	850U	1	DC	
Bly, Robert & Diane	012510-000	4511 N 9th St	BY METER	05/01/20	DCFE85E	FEBCO	850	1	DC	
Bockstader, Jeff	009089-000	1916 S 15Th Cir	South side of house	05/18/19	DCWI96E	WILKINS	950XL	1	DC	
Boddy, Micah	007207-000	1912 Falcon Dr	Right side of driveway	09/11/19	DCFE88D	FEBCO	850U	0.75	DC	
Boethin, Jim	009204-000	807 N 9th Way	in flower bed out front	05/05/20	DCWI98E	WILKINS	950XLU	1	DC	
Bogdanov, Aleksandr & Irina	007204-000	1914 Falcon Dr	in box by drive across walk from meter	11/05/19	DCFE88D	FEBCO	850U	0.75	DC	
Bok, David	012722-000	1225 N 8th Way	By water meter	07/22/19	DCFE85D	FEBCO	850	0.75	DC	
Bondegard, Kelly & Jason	011987-000	802 N Heron Dr	Left side of house	06/22/19	DCFE88E	FEBCO	850U	1	DC	
Bone, David & Tracy	006831-000	684 S 15Th Ct	Across sidewalk from water meter	06/27/19	DCWI95E	WILKINS	950	1	DC	
Bosch, Mark	011830-000	4726 S 18th Dr	on left side of DWY by mter	10/10/19	DCWIAQJ	WILKINS	350	1	DC	
Botteen, Ray & Donna	012647-000	1819 S 50th Place	behind water meter in front of house	11/01/19	DCWIAQJ	WILKINS	350	1	DC	
Bowman, Scott	010632-000	872 N Squire Dr	By meter	05/05/20	DCFE85E	FEBCO	850	1	DC	
Bowser, Kathryn	012261-000	3920 S Kennedy	off front right corner of garage	04/19/19	DCWIAQJ	WILKINS	350	1	DC	
Bowyer, Mary	008088-000	1552 S 14Th Cir	at water meter	03/27/20	DCFE88E	FEBCO	850U	1	DC	
Boyer, Scott & Leah	012072-000	4231 S 11th Way		12/19/18	DCWIAQJ	WILKINS	350	1	DC	
Bracelin, Glenda & Brad	008638-000	3315 S 2nd Way	3315 S 2nd Way	11/01/16	DCWIAQJ	WILKINS	350	1	DC	
Braham, Danielle	011708-000	821 Raven Dr	north side of house	03/25/20	DCWI97E	WILKINS	950XLT	1	DC	
Branch, Tyler & Kaitlyn	009908-000	3513 N Pioneer Canyon Dr	left front corner of grass	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Brand, Kyle Shewmaker & Amanda	007509-000	909 Raven Dr	left side of house behind a/c	05/16/20	DCWIAQM	WILKINS	350XL	1	DC	
Bray, Erin	012752-000	3623 S Star View Loop	Behind garage	10/11/19	DCWIAQJ	WILKINS	350	1	DC	
Breault, Jean	008018-000	1505 S Dusky Dr	left front corner of property by meter	03/18/20	DCFE88D	FEBCO	850U	0.75	DC	
Bredstrand, Jacob	012689-000	3527 S Willow Dr.	Behind garage	11/16/19	DCWIAQJ	WILKINS	350	1	DC	
Breece, Kristina & William	009394-000	2207 S White Salmon Dr	in box across walk from meter by driveway	06/09/19	DCWIAFT	WILKINS	350	0.75	DC	
Breitengross, Allen	010077-000	131 N 39Th Ct	IN BOX NORTHSIDE HOUSE BEHIND GARAGE	04/24/20	DCFE88E	FEBCO	850U	1	DC	
Brice, Donald	011044-000	1118 N Heron Dr	in box at meter	05/05/20	DCWIAQJ	WILKINS	350	1	DC	
Bricker, Michelle & Robert	007835-000	1801 S 24Th Pl	west of water meter	04/24/20	DCWI98D	WILKINS	950XLT	0.75	DC	
Brinkman, Tyler & Heather	009396-000	2311 S White Salmon Dr	by meter	05/04/20	DCFE85E	FEBCO	850	1	DC	
Britton, Dale	012563-001	3607 S Star View Loop	Left side of house	09/15/19	DCWIAQJ	WILKINS	350	1	DC	
Brookes, Bill & Mary	009384-000	803 N Heron Dr	right of drive near meter	07/29/19	DCFE88E	FEBCO	850U	1	DC	
Brooks, Rebecca	012716-000	4932 S 18th Dr.	Left front corner of property	12/06/19	DCWIAQJ	WILKINS	350	1	DC	
Brown, Benjamin & Melissa	008580-000	3146 S 3rd Way	by heat pump	10/22/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Brown, Cheryl	012665-000	4960 S 18th Dr	On left side of driveway 10' behind meter	08/30/19	DCWIAQJ	WILKINS	350	1	DC	
Brown, Michael	006436-000	402 N 3rd Ave	402 N 3rd Ave	/ /	DCAPAOK	APOLLO/CONBRACO	40-105-A2	1	DC	
Brown, Samantha Pitts and Jessy	011446-000	1846 S Dusky Dr	Right corner of house.	10/10/19	DCFE85E	FEBCO	850	1	DC	
Brown, Shannon & Zachary	008076-000	1413 S Taverner Dr	Right side of home near meter	03/20/20	DCFE85E	FEBCO	850	1	DC	
Brown, Terry	012608-000	1123 N 8th Way	by meter	11/04/19	DCFE88D	FEBCO	850U	0.75	DC	
Brown, Veronica	012482-000	3654 S Kennedy Dr	Back left corner of house	07/08/19	DCWIAQJ	WILKINS	350	1	DC	
Brown, Vicki	009241-000	808 N Heron Dr	By meter	06/18/19	DCFE88E	FEBCO	850U	1	DC	
Brozman, Carol	010629-000	895 N Squire Dr	SE front of house left side of driveway by box	03/27/20	DCWIAQM	WILKINS	350XL	1	DC	
Bruhn, Nathan	012584-000	3618 S Willow Dr	Left side of house	07/27/19	DCWIAQJ	WILKINS	350	1	DC	
Bruning, Phyllis	009441-000	2406 S Nisqually Ave	In box at NE corner of hosue	04/23/20	DCWI99D	WILKINS	950XLU	0.75	DC	
Bryan, Adam & Heather	012233-000	4715 S 19th St	at left front corner of house	07/06/19	DCWIAQJ	WILKINS	350	1	DC	
Bryant, Jonathan & Kirthie	008020-000	1507 S Dusky Dr	NE corner of house	03/18/20	DCWI96E	WILKINS	950XL	1	DC	
Bryant, Susan	010507-000	4405 N Ridgefield Woods Dr	In box at the NW corner of house	05/02/19	DCWIAQJ	WILKINS	350	1	DC	
BT Northwest Properties	012151-000	7200 S 10th	Rigth of driveway off 10th street	03/08/19	DCWAAMU	WATTS	LF007M1QT	2	DC	
BT Northwest Properties	012151-000	7200 S 10th	Point Fuse	03/08/19	DCWAAMU	WATTS	LF007M1QT	2	DC	
BT Northwest Properties	012151-000	7200 S 10th	Point to Fuse	03/08/19	DCWAAMU	WATTS	LF007M1QT	2	DC	
BT Northwest Properties	012151-000	7200 S 10th		03/08/19	DCWAAMU	WATTS	LF007M1QT	2	DC	Irrigation
BT Northwest Properties	012151-000	7200 S 10th	Fire riser room NW corner of bldg.	06/13/19	DDAMAQS	AMES	COLT 300GV	8	DCDA	
BT Northwest Properties	012151-000	7200 S 10th	Fire riser room NW corner of bldg (bypass on 8" fire riser)	06/13/19	DCAM22D	AMES	2000BM3	0.75	DC	
Budke, Alice Hall & John	007338-000	701 N 16Th Ct	in box by meter	05/05/20	DCFE88D	FEBCO	850U	0.75	DC	
Buecker, Robert	010103-000	109 N 38Th Pl	IN BOX ACROSS WALK FROM METER	05/29/19	DCFE88E	FEBCO	850U	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
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ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Buffum, Rebecca	012673-000	1617 S Phoebe Dr	Right of driveway next to meter	06/15/19	DCFE85E	FEBCO	850	1	DC	
Bukant, Jay and Karri	011265-000	1833 S Dusky Dr.	At right front corner of property	06/04/19	DCFE85E	FEBCO	850	1	DC	
Bukieda, Michele	005025-000	308 N 23Rd Pl	nw corner of house	06/21/19	DCWIAQJ	WILKINS	350	1	DC	
Buksa, Patricia & Garry	011805-000	4831 S 18th Dr	at left front corner of prop by meter	05/16/20	DCWIAQJ	WILKINS	350	1	DC	
Bunin, Valeriy	010554-000	4921 N 6Th St	Back left corner	04/30/19	DCFE85E	FEBCO	850	1	DC	
Burkholder, Gary	012193-000	3818 S Kennedy Dr	behind garage	03/08/19	DCWIAQJ	WILKINS	350	1	DC	
Burkle, Clyde	007887-000	2206 S 17Th Way	sw corner of house	04/30/20	DCFE85E	FEBCO	850	1	DC	
Burks, Marianne	012788-000	3615 S Star View Loop	Behind garage	10/11/19	DCWIAQJ	WILKINS	350	1	DC	
Burns, David & Marsha	006913-000	786 S 14Th Pl	In box across walk from meter	06/11/19	DCWI97E	WILKINS	950XLT	1	DC	
Burt, Patricia Eidem and Stanley	011267-000	749 N Squire Dr	SW CORNER OF LOT BY METER	03/27/20	DCWIAQJ	WILKINS	350	1	DC	
Bush, Jerrold & Virginia	009387-000	709 N Heron Dr	@ water meter	04/23/20	DCFE88E	FEBCO	850U	1	DC	
Bushnell, Jamie	011789-000	4720 N 6Th St	In box across walk from meter	05/12/20	DCFE85E	FEBCO	850	1	DC	
Butler, Christina	012653-000	4928 S 19th Street	Right side of property, 10' in line with meter	11/08/19	DCWIAQJ	WILKINS	350	1	DC	
Buzzard, Randy & Alisha	009408-000	2316 S Wind River Way	by meter	05/04/20	DCFE85E	FEBCO	850	1	DC	
Bynon, Daniel & Patricia	005427-000	1211 S Oak Rd	10' south of water meter	06/22/15	DCWI95E	WILKINS	950	1	DC	
Bynon, Daniel & Patricia	005427-000	1211 S Oak Rd	30' SOUTH OF METER	06/01/19	DCFE85D	FEBCO	850	0.75	DC	
Byrd, Mary	009269-000	1200 N Heron Dr	By Meter	09/24/19	DCFE88E	FEBCO	850U	1	DC	
Call, Micheal	011629-000	2401 S 17Th Way	by water meter	07/30/19	DCFE88E	FEBCO	850U	1	DC	
Callaham, Mark	011768-000	4845 S 18th Dr	at right front corner of prop by meter	08/20/19	DCWIAQJ	WILKINS	350	1	DC	
Callies, Jill & Minh-Kiet	009121-000	2315 S 16Th Cir	at water meter	09/28/19	DCFE88E	FEBCO	850U	1	DC	
Campbell, Carrie	006982-000	1633 Falcon Dr	Front yard by water meter	07/14/19	DCFE88D	FEBCO	850U	0.75	DC	
Campbell, Ryan Jones & Ryann	009487-000	2207 S Cispus Way	In box across walk from meter	04/24/20	DCWIAFT	WILKINS	350	0.75	DC	
Campbell, Shaun	011125-000	1414 S Taverner Dr	in box from across walk from meter	03/20/20	DCFE85E	FEBCO	850	1	DC	
Canterbury Trails Hoa	010603-000	IRR On NW 31	In planter strip approx 25 ft north of N 9th St & Royle Rd	04/27/20	DCWIAQJ	WILKINS	350	1	DC	
Cantrell, Clinton	012109-000	4248 S 11th Way	SW left side of house in front	05/14/20	DCWIAQJ	WILKINS	350	1	DC	
Caperton, Thomas	011723-000	603 N 22Nd Ct	6' west of water meter	05/16/20	DCFE88D	FEBCO	850U	0.75	DC	
Capper, John & Bonnie	009350-000	908 N 7Th Cir	By meter	08/01/38	DCFE88E	FEBCO	850U	1	DC	
Carbone, Corby	012672-000	936 S 50th Ct	By meter	11/25/19	DCWIAQJ	WILKINS	350	1	DC	Residential
Caren Lyles	011831-000	1203 S 44th Ave	By meter	05/25/19	DCFE85E	FEBCO	850	1	DC	
Carlson, Andrea	009838-000	364 N Green Gables Loop	in box at SW corner of house	05/06/20	DCWIAQJ	WILKINS	350	1	DC	
Carlson, Dana & Scott	009953-001	1368 S 15Th Way	in box across walk from meter	09/24/19	DCFE85E	FEBCO	850	1	DC	
Carlton, Joyanna & Lyle	008511-000	3161 S Cedar Ridge Dr	in box north side of house	05/29/19	DCFE88D	FEBCO	850U	0.75	DC	
Carpenter, Brent & Amber	010506-000	4409 N Ridgefield Woods Dr	W side of home	07/29/19	DCFE85E	FEBCO	850	1	DC	
Carpenter, Rhonda Nichols & Jerry	010608-000	4541 N Noble Loop	By Meter	09/06/19	DCFE85E	FEBCO	850	1	DC	
Carr, Thomas & Linda	012129-000	3730 S Willow Dr	by the SW corner of house	08/08/19	DCWIAQJ	WILKINS	350	1	DC	
Carrer, Peggy & David Humphrey	008145-000	1733 S 14Th Ct	box across walk from meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
Carson, Donna & Robert Wronski	007064-000	2023 N 5th Way	in box at meter	08/24/19	DCFE88E	FEBCO	850U	1	DC	
Carter, Josh & Rachel	012450-000	4140 S Kennedy Dr	Right side of house	07/08/19	DCWIAQJ	WILKINS	350	1	DC	
Carter, Tim	009048-000	2215 S 13Th Cir	At water meter	05/16/19	DCFE88E	FEBCO	850U	1	DC	
Cascade West Development	005014-069	5687 S 6th Way	in riser room, behind breakroom	07/08/19	DCAM2SJ	AMES	2000SS	3	DC	
Cascade West Development	005014-069	5687 S 6th Way	next to water meter - IRRIGATION	08/09/19	DCWIAQJ	WILKINS	350	1	DC	Irrigation
Cascade West Development	009340-000	919 N Heron Dr	in box by meter	06/18/19	DCWIAQJ	WILKINS	350	1	DC	
Casmier, Janet	009968-000	300 N 39Th Ct	12 ft from meter in grass	08/22/19	DCWIAQJ	WILKINS	350	1	DC	
Casper, Denise & John	009093-000	1816 S 15Th Cir	in box at meter	04/29/20	DCFE88E	FEBCO	850U	1	DC	
Cassel, Ralph	007873-000	1701 S 24Th Pl	12" box by the water meter	05/05/20	DCWIAQJ	WILKINS	350	1	DC	
CASSINI VIEW HOA	84211	1599 24TH PL	1599 24th Pl-Cassini View (south of 16th Cir-NOT END OF CULDESAC)	04/23/10	DCWI97E	WILKINS	950XLT	1	DC	Irrigation
Cassini View HOA	007895-000	1603 S 16Th Dr	16th & Titan - Cassini View Bio Swale	05/28/19	DCWI96E	WILKINS	950XL	1	DC	Irrigation
Cassini View HOA	007895-001	Irrigation at S 19th Way	Irrigation at S 19th Way and Hillhurst - Cassini View entrance	04/27/20	DCWI96E	WILKINS	950XL	1	DC	Irrigation
Cast, Devin & Alicia	007787-000	900 N 15Th Ct	in box 4' from meter to next drive	08/01/19	DCFE88D	FEBCO	850U	0.75	DC	
Castillaja, Jose	009095-000	1812 S 15Th Cir	By meter	03/21/20	DCFE85E	FEBCO	850	1	DC	
Cathey, Trisha	009287-000	725 N 12Th Ct	in box north side of house behind garage	05/07/20	DCWIAQJ	WILKINS	350	1	DC	
Catt, Darren & Chris	006781-000	2651 S Cornett Dr	2651 S Cornett Dr	01/18/13	DCAPAOL	APOLLO/CONBRACO	40-105-A2T	1	DC	
Cefalo, Jeanette	012775-000	1650 S Harrier Rd		01/10/20	DCFE85E	FEBCO	850	1	DC	
Cericola, Christopher	012460-000	3719 S Kennedy Dr	Behind garage	07/08/19	DCWIAQJ	WILKINS	350	1	DC	
Chand, Ravinesh & Zema	012678-000	1611 S Phoebe Dr	6' west of water meter	05/18/19	DCWI98D	WILKINS	950XLT	0.75	DC	
Chang, Kuo	010633-000	859 N Squire Dr	By meter	09/11/19	DCFE85E	FEBCO	850	1	DC	
Chapman, Michael	012328-000	832 N 13Th Pl	4' East of Meter	08/24/19	DCWIAQJ	WILKINS	350	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Chard, Moniqua	011456-000	2204 N 5Th Way	in box across from meter	05/06/20	DCFE88D	FEBCO	850U	0.75	DC	
CHARLES KELLOGG	005435-000	1845 S Lake River Ter	west side of house	07/19/19	DCWIANA	WILKINS	350	1.5	DC	
CHARLES KELLOGG	005435-000	1845 S Lake River Ter	Pool Room (informed that RP was required for pool 12/17/10)	07/19/19	RPWAAXH	WATTS	919QT	0.75	RP	
Chatfield, Bach & Megan	010579-000	867 N 48Th Ave	By meter	03/27/20	DCFE85E	FEBCO	850	1	DC	
Cheyne, Tami	009333-000	1201 N Heron Dr	At the Meter	09/13/19	DCWIAQJ	WILKINS	350	1	DC	
Chi, David & Sohpie	012413-000	922 N Heron Dr	Front Yard by Meter	03/20/20	DCWIAQJ	WILKINS	350	1	DC	
Chidester, Camille	009264-000	1114 N Heron Dr	at meter	05/09/20	DCWIAQJ	WILKINS	350	1	DC	
Chin, Fred & Mary	012098-000	1756 S Harrier Rd	6' past water meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Chipman, Julia	012266-000	1566 S Nighthawk Cir	10' Past Water Meter	05/05/20	DCWIAQJ	WILKINS	350	1	DC	
Choltco, Eric & Barbara	006850-000	1480 S 6Th Way	6' north of water meter	04/16/20	DCFE88E	FEBCO	850U	1	DC	
Christie, Stephen	009455-000	2300 S Nisqually Ave	Next to house	06/12/19	DCFE85E	FEBCO	850	1	DC	
Christy, Adam & Abby	010518-000	4231 N Ridgefield Woods Dr	IN BOX AT THE NE CORNER OF HOUSE	05/30/19	DCWIAQJ	WILKINS	350	1	DC	
Chrystal Treasure	011978-000	3805 S Willow Dr	In box 15' so of NE corner of house	09/28/19	DCWIAQJ	WILKINS	350	1	DC	
Chuklanova, Olga	009505-000	2210 S Sauk Way	in box by heat pump behind fence - north side of house	07/24/19	DCWIAFT	WILKINS	350	0.75	DC	
Church Dwight Inc	010686-000	10 S 56Th Pl	inside repair garage, fire sprinklers	02/19/19	DCAM2SK	AMES	2000SS	4	DC	
Church Dwight Inc	010686-000	10 S 56Th Pl	right hand side front of building	02/19/19	DCWA00H	WATTS	007M1QT	2	DC	
Church Dwight Inc	010686-000	10 S 56Th Pl	in fire room	02/19/19	DCAM2SM	AMES	2000SS	8	DC	
Cimina, Gary & Nancy	006868-000	1210 S 6Th Way	By meter	05/09/20	DCWI97E	WILKINS	950XLT	1	DC	
Cimino, Patty & Ron	010557-000	771 N 49Th Ave	By Meter	11/18/19	DCFE85E	FEBCO	850	1	DC	
Cisneros, Daniel	008442-000	2938 S Cedar Ridge Dr	west side of house behind fence	12/04/18	DCWI98E	WILKINS	950XLU	1	DC	
City Of Ridgefield	005032-000	101 S Main Ave	at water meter North side of park	05/21/19	DCWA7ME	WATTS	007M1QT	1	DC	Irrigation
City Of Ridgefield	005815-000	109 W (Cook St) Division	WWTP STP Pump Powerhouse-equipment bldg by water tank	03/31/20	RPWA00H	WATTS	009M2PCQT	2	RP	Waste Water Plant
CITY OF RIDGEFIELD	005815-000	109 W (COOK ST) DIVISION	Above Sludge Vault @ Hot Box	03/31/20	RPWA00E	WATTS	009M2QT	1	RP	Waste Water Plant
CITY OF RIDGEFIELD	005815-000	109 W (COOK ST) DIVISION	at entrance to WWTP 8' south of meter	03/31/20	RPWA0BH	WATTS	009M2QT	2	RP	Waste Water Plant
City Of Ridgefield	006405-000	119 N 3rd Ave	At water meter, Box in NW corner of skatepark	05/21/19	DCWIAQN	WILKINS	950XLTU	0.75	DC	Irrigation
City Of Ridgefield	009272-000	1308 N Heron Dr	Hayden Park at meter box on Heron Dr	05/21/19	DCWI95G	WILKINS	950	1.5	DC	Irrigation
CITY OF RIDGEFIELD	91970	1511B S 24TH CT	1511 S 24th Ct	06/27/13	RPWI98F	WILKINS	975XLBMS	1.25	RP	
CITY OF RIDGEFIELD	110451	1955 S SEVIER RD	1955 S Sevier Rd	06/27/13	RPWI97E	WILKINS	975	1	RP	
City Of Ridgefield	009427-000	2129 S Wind River Cir	Methow/Wind River Way Irrigation (next to meter-common area)	05/21/19	DCWI98E	WILKINS	950XLU	1	DC	Irrigation
CITY OF RIDGEFIELD	91380	2217 S 13TH CIR	2217 S 13th Cir	06/27/13	RPWI98F	WILKINS	975XLBMS	1.25	RP	
CITY OF RIDGEFIELD	010889-000	225 S 56TH PL	Center inside wall - Chlorine Injection Site	05/21/19	RPWIBPZ	WILKINS	975XL2	1	RP	
CITY OF RIDGEFIELD	45700	230 PIONEER ST	1202 S Great Blue Rd	06/27/13	RPWA05G	WATTS	009M2PCQT	1.5	RP	
CITY OF RIDGEFIELD	006404-000	230 PIONEER ST	10' east of water meter - Sargent St Community Garden	05/21/19	DCFE88E	FEBCO	850U	1	DC	Irrigation
City Of Ridgefield	007097-000	2311 N 5th Way	At water meter Bellwood Hts 5th Way Parkk at meter NW corner of pa	05/21/19	DCFE88E	FEBCO	850U	1	DC	Irrigation
City Of Ridgefield	009457-000	2322 S Cispus Way	Cispus Way/Nisqually Park (west corner of park next to sidewalk)	05/21/19	DCWI97G	WILKINS	950XLT	1.5	DC	Irrigation
City Of Ridgefield	012158-001	3101 S Hillhurst Rd	Under pop machine in concessions	12/27/19	RPAPBJV	APOLLO/CONBRACO	RPLF4A	0.5	RP	
City Of Ridgefield	012158-001	3101 S Hillhurst Rd	West end of ball field turn around	12/09/19	DCWAAMU	WATTS	LF007M1QT	2	DC	
City Of Ridgefield	012158-001	3101 S Hillhurst Rd	Fire Sprinkler - Riser Room	12/09/19	DDAMAGA	AMES	COLT 300BF	4	DCDA	
City Of Ridgefield	012158-001	3101 S Hillhurst Rd	Fire sprinkler on 4" fire main by pass	12/09/19	DCAM22D	AMES	2000BM3	0.75	DC	
City Of Ridgefield	006420-000	315 N 3rd Ave	Davis Park Irrigation(in box 6 ft west of meter on east side)	05/21/19	DCWI97G	WILKINS	950XLT	1.5	DC	Irrigation
City Of Ridgefield	005806-000	400 N Abrams Park	Abrams Park Soccer Field - 50' south of SW corner of field	05/21/19	DCWA00H	WATTS	007M1QT	2	DC	Irrigation
CITY OF RIDGEFIELD	005806-000	400 N Abrams Park Rd	Abrams Park Chlorine Injection east end of park	05/21/19	RPWA93H	WATTS	909PCM1QT	2	RP	Chemical Plant
CITY OF RIDGEFIELD	100000	440 N HERON DR	440 Heron Drive	08/15/13	WIL375	WILKINS	375	1.5	RP	
City Of Ridgefield	007183-000	618 Lark Dr	Lark Park by water meter	05/21/19	DCFE88E	FEBCO	850U	1	DC	Irrigation
City Of Ridgefield	008428-000	Cedar Ridge Park On Cedar Ridg	Cedar Ridge Park - 6' north of water meter	05/21/19	DCWI95E	WILKINS	950	1	DC	Irrigation
City Of Ridgefield	005488-000	Cemetery Water Spigots	Cemetery Spigots- at meter along road-mid side of cemetery	05/24/18	DCWA02E	WATTS	007M1PCQT	1	DC	Irrigation
CITY OF RIDGEFIELD	22040	GEE CREEK LIFT STATION	Gee Creek Meadows/T7 Lift Station	06/26/13	RPWI98F	WILKINS	975XLBMS	1.25	RP	
City Of Ridgefield	009787-004	Green Gables Tract C - Irrig M	Pioneer Canyon Tract M Irrig Meter #1	05/21/19	DCWI97E	WILKINS	950XLT	1	DC	Irrigation
City Of Ridgefield	009787-003	Green Gables Tract D Irrig Met	Pioneer Canyon Tract D Irrig Meter #3 - closest to 3702 N 3rd Cir	08/02/19	DCFE88E	FEBCO	850U	1	DC	Irrigation
City Of Ridgefield	009787-000	Green Gables Tract Q - Irrig M	Pioneer Canyon Tract A Irrig Meter #5	05/21/19	DCWI97E	WILKINS	950XLT	1	DC	Irrigation
CITY OF RIDGEFIELD	005436-001	I-5 & SR-501 INTERCHANGE NW IRRIG	I-5 & SR501 Interchange NE Irrigation	05/21/19	DCFE85F	FEBCO	850	1.25	DC	Irrigation
CITY OF RIDGEFIELD	005436-005	I-5 & SR-501 INTERCHANGE NW IRRIG	I-5 & SR501 Interchange NW Irrigation	05/21/19	DCFE85F	FEBCO	850	1.25	DC	Irrigation
City Of Ridgefield	009787-006	IRR Roundabout @ 45th and 3rd	By meter in round about	07/17/19	DCFE85E	FEBCO	850	1	DC	
City Of Ridgefield	009787-002	Pioneer Canyon Tract D - Irrig M	Pioneer Canyon Tract D Irrig Meter #2 - near 3703 N Pioneer Canyon	05/21/19	DCWI97E	WILKINS	950XLT	1	DC	Irrigation
City Of Ridgefield, Cedar Creek	010935-000	IRR 3395 N 10th St	At meter	07/03/18	DCFE88E	FEBCO	850U	1	DC	
Claar, Jerry	009286-000	724 N 12Th Ct	right side of driveway	10/03/19	DCWIAQJ	WILKINS	350	1	DC	
Clark County Fire District 12	005777-000	911 N 65th Ave	at fire riser line - bypass - fire engine station	06/28/19	DCAM22D	AMES	2000BM3	0.75	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Clark County Fire District 12	005777-000	911 N 65th Ave	fire riser line - fire engine station	06/28/19	DDAMAEJ	AMES	COLT 300ABF	2.5	DCDA	
Clark County Fire District 12	005777-000	911 N 65th Ave	front drive entrance next to water meter	06/28/19	DCWA7ME	WATTS	007M1QT	1	DC	
Clark County Fire District 12	005777-000	911 N 65th Ave	by front drive entrance - irrigation box next to water meter	06/28/19	DCWA00H	WATTS	007M1QT	2	DC	
Clark County Fire District 12	005777-000	911 N 65th Ave	next to front drive entrance	06/28/19	DCFE85G	FEBCO	850	1.5	DC	
Clark Regional Wastewater District	010115-006	7909 S Union Ridge Parkway	Irrigation, lift station by meter SWC of 10 & Union Ridge	01/14/20	DCFE85E	FEBCO	850	1	DC	
Clark, Alisa	008279-000	1609 S Dusky Dr	at meter SE corner of lot	03/18/20	DCFE88E	FEBCO	850U	1	DC	
Clark, Bruce	012503-000	1305 S 7th Cir	at water meter	05/09/20	DCWI96E	WILKINS	950XL	1	DC	
Clark, John & Megan	011928-000	4265 S 11th Way	NE front corner of property by driveway 20 ft in front of meter	10/11/19	DCWIAQJ	WILKINS	350	1	DC	
Clark, Joseph & Josephine	012369-000	1814 N 8th Way	west side of house - backyard	09/14/19	DCFE88E	FEBCO	850U	1	DC	
Clark, Ryan	005858-000	1320 N 1st Ave	right side of driveway behind meter	05/06/20	DCFE88E	FEBCO	850U	1	DC	
Clark, Zach & Julie	012421-000	3641 S Kennedy Dr	Left side of house	06/14/19	DCWIAQJ	WILKINS	350	1	DC	
Clasey, Sarah	009391-000	2123 S White Salmon Dr	in box across walk from meter	06/21/19	DCWIAFT	WILKINS	350	0.75	DC	
Class, Karey	009062-000	2024 S Osprey Dr	at water meter	09/28/19	DCFE88E	FEBCO	850U	1	DC	
Classic Home Design & Build	012257-000	4007 S Hay Field Cir	(right) north side of house	12/18/19	DCWIAQJ	WILKINS	350	1	DC	
Clover Hill HOA	011543-004	IRR Tract B	IRR Tract B end of Tract B on S 16th Way	05/23/19	DCFE85E	FEBCO	850	1	DC	
Cloverhill North HOA	011543-005	IRR Tract C on Farm View Loop	Farm View Loop by Meter	05/06/19	DCFE85E	FEBCO	850	1	DC	
Clyburn, Bill & Vicki	012378-000	1452 S Nighthawk	At meter	03/23/20	DCWIAQJ	WILKINS	350	1	DC	
Clyburn, Julie	012768-000	4736 S 17th Dr	On right side of driveway behind meter	05/16/20	DCWIAQJ	WILKINS	350	1	DC	
Coco, Vince	006406-000	206 N Main Ave	under soda machine	06/28/19	RPWA01C	WATTS	009PCQT	0.5	RP	Carbonator
Coco, Vince & Elena	007978-000	1612 S Dusky Dr	6' East of water meter	03/18/20	DCFE88E	FEBCO	850U	1	DC	
Coffey, Chuck & Cindy	012297-000	4709 S 19th St	by meter	08/22/19	DCWIAQJ	WILKINS	350	1	DC	
Coffey, Chuck & Cindy	012297-000	4709 S 19th St	at left front corner of prop by meter	02/25/19	DCWIAQJ	WILKINS	350	1	DC	
Coine, Bobbi	010527-000	4350 N 7Th Way	In box at meter	09/11/19	DCWIAQJ	WILKINS	350	1	DC	
Cole, Matthew & Kelliana	010369-001	1762 S 18th Cir	left of drive by meter	05/20/19	DCFE88D	FEBCO	850U	0.75	DC	
Colegrove, Dustin	009098-000	1516 S 24Th Ct	at water meter	05/18/19	DCFE88E	FEBCO	850U	1	DC	
Colegrove, John	011038-001	1030 S 6Th Way	12" BOX BY RH SIDE OF HOME BY HVAC	07/19/19	DCFE85E	FEBCO	850	1	DC	
Coleman, David L. & Joanna S.	010584-000	751 N 48th Ave	By meter	09/05/19	DCFE85E	FEBCO	850	1	DC	
Coleman, John	012442-000	710 S 19th Pl	In box at meter	07/13/19	DCWIAQJ	WILKINS	350	1	DC	
Coleman, Josh & Amber	007250-000	1716 Falcon Dr	across from meter	03/20/20	DCFE88D	FEBCO	850U	0.75	DC	
Columbia Hills HOA	009483-000	2201 S Cispus Way	On Seiver road 100' west of Seiver and Cispus next to water meter	06/12/19	DCFE85E	FEBCO	850	1	DC	Irrigation
Commons At Union Ridge	010699-000	600 S 74th Pl Unit 103	SE corner of building	08/23/19	DCFE86H	FEBCO	850U	2	DC	
Commons At Union Ridge	010699-000	600 S 74th Pl Unit 103	SE corner of building	08/23/19	DCFE85H	FEBCO	850	2	DC	
Commons At Union Ridge	010699-000	600 S 74th Pl Unit 103	fire sprinkler riser room	08/23/19	DCWA00H	WATTS	007M1QT	2	DC	
Commons At Union Ridge	010699-000	600 S 74th Pl Unit 103	Fire sprinkler Riser Room	08/23/19	DCAM2SL	AMES	2000SS	6	DC	
Conrad, Steve & Beth	009037-000	1504 S 21St Pl	Front of house by meter, in box	05/05/20	DCFE88E	FEBCO	850U	1	DC	
Cook, Mark	007990-000	1506 S Dusky Dr	Across sidewalk from water meter - left of driveway	03/18/20	DCFE88D	FEBCO	850U	0.75	DC	
Cook, Tom & Stephanie	008291-000	3118 S 1st St	West side of house	04/28/20	DCWI94D	WILKINS	950XLD	0.75	DC	
Cooley, Rick	010573-000	4844 N 8th St	By meter	05/01/20	DCFE85E	FEBCO	850	1	DC	
Cooley, Scott & Katie	008230-000	1860 S Dusky Dr	In box by meter	03/19/20	DCFE85E	FEBCO	850	1	DC	
Cooper, Ralph & Evelyn	011981-000	1749 S Harrier Rd	In box across walk from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Corder, Matthew & Karenza	008426-000	3156 S Cedar Ridge Dr	NW corner of house	04/19/19	DCWI94D	WILKINS	950XLD	0.75	DC	
Corwin Beverage	010678-000	219 S Timm Rd	east side at center drive	07/19/19	DCWA72M	WATTS	774X	8	DC	
Corwin Beverage	010678-000	219 S Timm Rd	east side at center drive	07/19/19	DCWA00H	WATTS	007M1QT	2	DC	
Corwin Beverage	010678-000	219 S Timm Rd	east side of building near water meter	07/19/19	DCWI97G	WILKINS	950XLT	1.5	DC	Irrigation
Coulter, Sara	012198-000	606 N 22Nd Ct	By the water meter	06/30/19	DCFE88D	FEBCO	850U	0.75	DC	
Cox, Dan & Gayle Hannahs	009134-000	901 N 8th Pl	by meter	08/11/19	DCFE88E	FEBCO	850U	1	DC	
Coyle, Dale G. & Dale-Christine	010091-000	3886 N 1st Way	4' ACROSS WALK FROM WATER METER	04/29/20	DCWIAQJ	WILKINS	350	1	DC	
Craft, Barbara	011953-000	410 Simons St	south side of meter	05/06/20	DCWI97E	WILKINS	950XLT	1	DC	
Craft, Carolyn	011493-000	1210 N 9Th Way	by meter	05/10/19	DCFE85E	FEBCO	850	1	DC	
Craig A & Cindy M Smith	WELL	1025 S 25th Pl	Not in city limits - Well	09/28/17	DCWIAQJ	WILKINS	350	1	DC	
Craig, Travis & Jamie	010076-000	132 N 39Th Ct	LEFT SIDE OF HOUSE	04/08/19	DCWIAQJ	WILKINS	350	1	DC	
Crain, Bethany	010222-001	2311 N 4th Way	by meter	08/13/19	DCFE85E	FEBCO	850	1	DC	
Craton, Steve	011149-000	4619 N Squire Dr	By utilities	09/06/19	DCFE85E	FEBCO	850	1	DC	
Crawford, Leonard & Lorrie	009381-000	707 N 9Th Pl	Behind house by fence	11/05/19	DCWI96E	WILKINS	950XL	1	DC	
Crenshaw, Wayne & Brooke	009857-000	417 N Helens View Dr	in box across walk from meter	09/05/19	DCWIAQL	WILKINS	350XL	0.75	DC	
Croon, Ray	011598-000	614 Lark Dr	In box across walk from meter	09/28/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Crow, Pam	012726-000	4946 S 18th Dr	Right of driveway near sidewalk	12/06/19	DCWIAQJ	WILKINS	350	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Cruz, Anna Marie	012511-000	3623 S Willow Dr	Righth side of house	08/09/19	DCWIAQJ	WILKINS	350	1	DC	
Cruz, Benjamin and Lindsay	011175-000	1653 S 15th Way	right side of house by electric meter	03/19/20	DCWI96E	WILKINS	950XL	1	DC	
Cruz, Frederick	012817-000	3717 S Star View Loop	West side of garage behind house	11/30/19	DCWIAQJ	WILKINS	350	1	DC	
Culp, Beth & John	008152-000	1990 S 14Th Ct	in box at meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
Cultice, Paul & Jennifer	008222-000	1883 S Pintail Ct	NEXT TO DRIVE SOUTH SIDE	03/26/20	DCFE85E	FEBCO	850	1	DC	
Cunningham, Kim	012639-000	1311 S 6th Way	NE corner of house	08/22/19	DCWI97E	WILKINS	950XLT	1	DC	
Curran, Mason & Alyssa	008021-001	1913 S 15Th Cir	By meter	05/13/20	DCFE88E	FEBCO	850U	1	DC	
Curry, Chris	010614-000	4592 N Noble Loop	SW front of house, flowerbed past sidewalk	09/06/19	DCWIAQJ	WILKINS	350	1	DC	
Custom Cabinets 2 Day	010676-000	5901 S 11Th St	At curb by water meter	04/29/20	DCWA00H	WATTS	007M1QT	2	DC	
Custom Cabinets 2 Day	010676-000	5901 S 11Th St	At curb by water meter	04/29/20	DCWI96G	WILKINS	950XL	1.5	DC	
Custom Cabinets 2 Day	010676-000	5901 S 11Th St	Riser Room	04/29/20	DCWI94D	WILKINS	950XLD	0.75	DC	
Custom Cabinets 2 Day	010676-000	5901 S 11Th St	fire sprinkler riser room	04/29/20	DDWIAQJ	WILKINS	350ADA	8	DCDA	
Custom Cabinets 2 Day	010676-000	5901 S 11Th St	above products room inside warehouse mid west wall	04/29/20	DCWA00H	WATTS	007M1QT	2	DC	
Cutberth, Bonnie & Ray	012372-000	1280 S 15Th Way	Across walk from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Dahlen, Jennifer & Eric	009928-000	3802 N Pioneer Canyon Dr	in box east side of house behind fence	09/19/19	DCWIAFT	WILKINS	350	0.75	DC	
Dahmen, Jeff W.	008236-000	1716 S Dusky Dr	at water meter	03/19/20	DCFE88E	FEBCO	850U	1	DC	
Daley, Dennis & Ileen	010626-000	4612 N 9Th St	BY METER	03/27/20	DCFE85E	FEBCO	850	1	DC	
Daly, Dominic	007807-000	1610 N 8th Way	6' past water meter	04/29/20	DCFE88D	FEBCO	850U	0.75	DC	
Daniel, Jaime & Wayne	008087-000	1554 S 14Th Cir	1554 S 14th Cir	03/26/20	DCWIAQJ	WILKINS	350	1	DC	
Darnell, Samantha	012289-000	1709 S Dusky Dr	front by water meter	03/24/19	DCWI96E	WILKINS	950XL	1	DC	
Daugherty, Bob	009438-000	2414 S Nisqually Ave	in box across walk from meter	08/08/19	DCWIAFT	WILKINS	350	0.75	DC	
Daugherty, Susan & Mike	006926-000	631 S 14Th Pl	631 S 14th Pl	04/24/20	DCFE88E	FEBCO	850U	1	DC	
Davidson, Jeremy Bice & Lea	012134-000	2939 S Cedar Ridge Dr	2939 S Cedar Ridge Dr	08/28/12	DCWI98E	WILKINS	950XLU	1	DC	
Davies, Sheena & James	006991-000	1713 Falcon Dr	10' past water meter	08/02/19	DCFE88D	FEBCO	850U	0.75	DC	
Davis, Sharon	010569-000	4851 N 8th St	By meter	08/14/19	DCFE85E	FEBCO	850	1	DC	
Davis, Stephen & Cheryl	011961-000	1720 S 47th Pl	Across sidewalk from water meter	08/22/19	DCWIAQJ	WILKINS	350	1	DC	
Day, Sandra	006872-000	1114 S 6th Way	at meter	05/07/20	DCWI98E	WILKINS	950XLU	1	DC	
De Laveaga, Jamie	009296-000	1126 N 9Th Way	Next to WM, SE corner of driveway	06/27/19	DCWIAQJ	WILKINS	350	1	DC	
Deamor Associates Inc.	010674-000	6210 S 11Th St	in mid east wall fireline	05/04/20	COLT200	COLT	200	6	DC	
Deamor Associates Inc.	010674-000	6210 S 11Th St	box at SE corner of building - domestic line	05/04/20	DCWA00H	WATTS	007M1QT	2	DC	
Deamor Associates Inc.	010674-000	6210 S 11Th St	box at SE corner of building - irrigation	05/04/20	DCWA00H	WATTS	007M1QT	2	DC	
Deane, Kristin	011421-000	1718 S Nighthawk Road	IN BOX BEHIND FENCE AT NE CORNER OF BACKYARD	03/26/20	DCFE85E	FEBCO	850	1	DC	
DeBoard, William	012391-000	4848 S 19th St	located edge of street beside water meter	04/29/20	DCWIAQJ	WILKINS	350	1	DC	
Debord, Dan	008090-000	1550 S 14Th Cir	at meter	03/27/20	DCWIAQJ	WILKINS	350	1	DC	
Dehning, Kim	012757-000	4912 S 19th St	Righth side of driveway	11/08/19	DCWIAQJ	WILKINS	350	1	DC	
Deibert, James & Jacqueline	009105-000	1510 S 24Th Ct	at water meter	05/05/20	DCFE88E	FEBCO	850U	1	DC	
Delaney, Sarah	007030-000	2025 Falcon Dr	in box across walk from meter	05/11/19	DCFE88D	FEBCO	850U	0.75	DC	
Delyea, Ashley	012766-000	506 N 22nd Ct	East side of house behind gate	12/21/19	DCFE88D	FEBCO	850U	0.75	DC	
Delzer, Susan	006911-002	1834 S Dusky Dr	12" BOX BY THE METER	03/19/20	DCFE85E	FEBCO	850	1	DC	
Demars, Dustin & Stephanie	009146-000	908 N 10Th Way	@ water meter	03/20/20	DCWI97E	WILKINS	950XLT	1	DC	
Denham, Kyle & Tamara	009837-000	362 N Green Gables Loop	in box behind fence west side	05/07/20	DCWIAQJ	WILKINS	350	1	DC	
Denney, Tiffany	012530-000	1502 S Nighthawk Cir	10' north of water meter	08/08/19	DCWIAQJ	WILKINS	350	1	DC	
Denton, Cindy	012455-000	4731 S 19th	At right front corner of property 5' behind meter.	06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Detchman, Jon & Lisa	011818-000	302 N 8th Ave	302 N 8th Ave	12/02/11	RAINDCQ	RAINBIRD	DCQTL00	0.75	DCVA	
Devincenzi, Dean	008507-000	3159 S Cedar Ridge Dr	west side of house	04/24/20	DCWI94D	WILKINS	950XLD	0.75	DC	
Devincenzi, Ronald	011783-000	4824 S 18th Dr	on left side of dwy by meter	04/24/20	DCWIAQJ	WILKINS	350	1	DC	
Dewey, Jason & Nicole	009311-000	1122 N 8th Way	at watermeter	03/25/20	DCFE88E	FEBCO	850U	1	DC	
Dewitz, John	005567-000	914 Pioneer St	914 Pioneer St	10/05/15	DCFE85E	FEBCO	850	1	DC	
Dewitz, Peter & Nicole	006741-000	2730 S Cornett Dr	SW corner of property at meter	11/25/19	DCWI96E	WILKINS	950XL	1	DC	
Dexter, Kristen Courtway & Gordon	010072-000	128 N 39Th Ct	In box across walk from meter	04/08/19	DCFE88E	FEBCO	850U	1	DC	
Dial, Rae Russell & Robert	010067-000	143 N 40th Ave	left side of house by gas meter	06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Didyk, Ivan	007317-000	1603 N 8th Way	Left side of driveway in bushes	08/19/19	DCFE88D	FEBCO	850U	0.75	DC	
Dietz, Mark	009261-000	1028 N Heron Dr	at meter	06/18/19	DCWIAQJ	WILKINS	350	1	DC	
Diprima, Peggy & Francis	009046-000	1406 S 21St Pl	at water meter	05/05/20	DCFE88E	FEBCO	850U	1	DC	
Dipzinski, Lindsay	008215-000	1875 S Taverner Dr	In Box across walk from meter	03/20/20	DCFE85E	FEBCO	850	1	DC	
Discovery Ridge LLC	012617-000	101 S 47th Ave	SW corner of bldg between walk-in refrigerator by loading	11/12/19	RPWAAJD	WATTS	957	2.5	RP	
Discovery Ridge LLC	012617-000	101 S 47th Ave	Riser room bldg "2"	11/22/19	D2BBSV	BACKFLOW DIRECT	DERINGER 30	4	DCDA-II	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
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ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Discovery Ridge LLC	012617-000	101 S 47th Ave	Riser room bldg "2"	11/22/19	D2BABSV	BACKFLOW DIRECT	DERINGER 30	4	DCDA-II	
Discovery Ridge LLC	012617-000	101 S 47th Ave	10' right of doors in meat dept behind water station	11/12/19	RPWAAQV	WATTS	LF009QT	0.5	RP	
Discovery Ridge LLC	012617-000	101 S 47th Ave	3' left of doors in meat dept by sink - ice making machine	11/12/19	RPWAAQV	WATTS	LF009QT	0.5	RP	
Discovery Ridge LLC	012617-000	101 S 47th Ave	At north end of bldg, janitors closet thru left bathroom	11/12/19	RPWAAQV	WATTS	LF009QT	0.5	RP	
Discovery Ridge LLC	012617-000	101 S 47th Ave	Right front corner of bakery by large mixers	11/12/19	RPWAAQV	WATTS	LF009QT	0.5	RP	
Discovery Ridge LLC	012617-000	101 S 47th Ave	At north end of store under soda machine - outside deli/restroom	11/25/19	RPWAAQV	WATTS	LF009QT	0.5	RP	
Discovery Ridge LLC	012617-000	101 S 47th Ave	Riser room bldg "3"	11/22/19	D2BABSV	BACKFLOW DIRECT	DERINGER 30	4	DCDA-II	
Discovery Ridge LLC	012617-000	101 S 47th Ave	Riser room bldg "3"	11/22/19	D2BABSV	BACKFLOW DIRECT	DERINGER 30	4	DCDA-II	
Dodd, Barbara & Kathryn & Debbie	008050-000	1204 S Great Blue Rd	IN BOX 8' FROM WALK ACROSS FROM METER	05/05/20	DCFE85E	FEBCO	850	1	DC	
Dodd, Nicholas	009782-000	3309 N Pioneer Canyon Dr	by meter	09/15/19	DCWIAQJ	WILKINS	350	1	DC	
Dodds, Michael & Karen	007042-000	2012 N 5th Way	in box west side of house by heat pump	05/12/20	DCAPASD	APOLLO/CONBRACO	DC4A	1	DC	
Dolezal, Billina	008301-000	3112 S 1st St	E side of house behind fence	08/24/19	DCWI98D	WILKINS	950XLT	0.75	DC	
Doll Jr., Henry W.	008144-000	1365 S 15Th Way	in box behind fence SE corner of backyard	03/25/20	DCFE85E	FEBCO	850	1	DC	
Dollar Tree Inc. #Dc7	010702-000	8400 S Union Ridge Parkway	NW corner just off of 264th	11/25/19	DDWAAGK	WATTS	774DCDA	10	DCDA	
Dollar Tree Inc. #Dc7	010702-000	8400 S Union Ridge Parkway	NW corner just off of 264th	11/25/19	DDWA07J	WATTS	007	3	DC	
Dollar Tree Inc. #Dc7	010702-000	8400 S Union Ridge Parkway	NW corner just off of 264th	11/25/19	DCWA00D	WATTS	007SSQT	0.75	DC	
Dominici, Kelly	011782-000	3818 N Pioneer Canyon Dr	across sidewalk from meter	09/11/19	DCWIAQJ	WILKINS	350	1	DC	
Donavan, Paul & Bonnie	011049-000	837 N 11th Pl	Front yard by meter	09/11/19	DCFE88E	FEBCO	850U	1	DC	
Dornbusch, Anthony	012004-000	1147 S Fieldcrest Dr	By meter	07/19/19	DCFE85E	FEBCO	850	1	DC	
Doty, Ashley	011355-000	251 N Green Gables Loop	by meter	07/15/19	DCWIAQJ	WILKINS	350	1	DC	
Dougherty, Jeff & Jennifer	005279-001	621 Shobert St	double doors left side of guest house	06/20/19	RPWI98G	WILKINS	975XLBMS	1.5	RP	
Dougherty, Jeff & Jennifer	005279-001	621 Shobert St	at meter #91080327	04/30/20	RPWA00E	WATTS	009M2QT	1	RP	
Dougherty, Jeff & Jennifer	005279-001	621 Shobert St	30' south of house	04/30/20	RPWA00E	WATTS	009M2QT	1	RP	
Dougherty, Jeff & Jennifer	005382-000	640 Shobert Ln	box in lawn - NE corner of house	04/30/20	RPWIAZA	WILKINS	375	1	RP	
Dove Property Management	011329-000	902 N 15th Ct	10 feet east of meter	07/15/19	DCWI98D	WILKINS	950XLT	0.75	DC	
DR HORTON	203370	312 N 34TH CT	177 N 34th Pl	/ /	DCWI97E	WILKINS	950XLT	1	DC	
Draper, Quinn & Amy	007553-000	2052 N 9Th Way	10' past water meter	05/06/20	DCFE88D	FEBCO	850U	0.75	DC	
Driscoll, Nancy & James	007982-000	1514 S Dusky Dr	Front yard on south side of lot	03/18/20	DCFE88D	FEBCO	850U	0.75	DC	
Driscoll, Nancy & James	006910-002	1858 S Dusky Dr	IN BOX 20' FROM METER	03/24/19	DCFE85E	FEBCO	850	1	DC	
Duclos, Chris & Jamie	012667-000	4326 N Ridgefield Woods Dr	Front yard by water meter	09/11/19	DCWIAQJ	WILKINS	350	1	DC	
Dumas, Larry & Linda	010595-000	529 N 47th Ave	By meter	03/27/20	DCFE85E	FEBCO	850	1	DC	
Duncan, Dana	011706-000	1605 S Phoebe Dr	at water meter	11/15/19	DCFE88E	FEBCO	850U	1	DC	
Duncan, Gloria	012359-000	4756 S 19th St	On right side of driveway 8' behind meter	03/23/19	DCWIAQJ	WILKINS	350	1	DC	
Duncan, Tim & Windy	010541-000	4723 N 6Th St	By meter	05/01/20	DCFE85E	FEBCO	850	1	DC	
Dunn, Conne	007841-000	1805 S 24th Pl	in box west side of house by gas meter	08/22/19	DCFE88E	FEBCO	850U	1	DC	
Dupell, Tim	011652-000	701 S 19th Pl	Front yard by meter	08/08/19	DCWA7ME	WATTS	007M1QT	1	DC	
Ebenhahn, Aro	012164-000	3739 S Willow Dr	In box 15' so. of NE corner of house	06/07/19	DCWIAQJ	WILKINS	350	1	DC	
Eda & John Anderson	011799-000	1701 S Nighthawk	In box across from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Edwards, Scott & Melissa	009029-000	2129 S Osprey Dr	@ watermeter	08/26/19	DCFE88E	FEBCO	850U	1	DC	
Eigsti, Joseph	011980-000	824 Raven Dr	SW corner of house	10/31/19	DCWA7ME	WATTS	007M1QT	1	DC	
Eisner, Eva & Roland	009122-000	2317 S 16Th Cir	at water meter	05/11/19	DCFE88E	FEBCO	850U	1	DC	
El Rancho Viejo	006451-000	122 N 3RD AVE	located next to CO2 cylinders - El Rancho Viejo	07/18/19	RPWAAQV	WATTS	LF009QT	0.5	RP	Carbonator
Eldridge, John & Cynthia	007863-000	1702 S 24Th Pl	20' east of water meter	06/06/19	DCFE85E	FEBCO	850	1	DC	
Eleazer, Edward	010563-000	786 N 49Th Ave	AT METER	09/11/19	DCWIAQJ	WILKINS	350	1	DC	
Elliott, Jeremy & Brooke	009659-001	885 N Squire Dr	Behind utilities	09/11/19	DCFE85E	FEBCO	850	1	DC	
Ellis, Matthew & Cara	009433-000	2508 S Nisqually Ave	by meter	05/11/19	DCFE85E	FEBCO	850	1	DC	
Emken, Michael	007816-000	2201 S 17Th Way	West side of house under deck	04/23/20	DCWA03D	WATTS	007M3QT	0.75	DC	
Engle, Sharon & Wayne	009795-000	3408 N Pioneer Canyon Dr	SE corner of house	04/30/20	DCWIAQJ	WILKINS	350	1	DC	
Enneberg, Thomas & Shawn	007565-000	1816 N 9Th Way	NE corner of house	05/05/20	DCFE88E	FEBCO	850U	1	DC	
Ennis, Woody & Jean	009382-000	807 N Heron Dr	By water meter	04/28/20	DCWI97E	WILKINS	950XLT	1	DC	
Enquist, Desmond & Emily	005862-000	1405 N 1st Ave	So side of drive at sidewalk	08/02/19	DCFE88E	FEBCO	850U	1	DC	
Ershigs Inc./Attbar Division	010670-000	5985 S 6th Way	by meter next to office south side of building	08/02/19	DCWA03G	WATTS	007M2PCQT	1.5	DC	
Ershigs Inc./Attbar Division	010670-000	5985 S 6th Way	by meter next to office	08/02/19	RPWA92G	WATTS	009M1QT	1.5	RP	
Ershigs Inc./Attbar Division	010670-000	5985 S 6th Way	in QC office SW corner of building	08/02/19	DCHEACF	HERSEY	2	6	DC	
Erwin, Kristine	011728-000	3551 N 1st St	in box behind fence east side - 10 ft north of SE corner of house	06/18/19	DCWIAQJ	WILKINS	350	1	DC	
Escriva, Benjamin & Meranda	012194-000	2311 N Heron Dr	NW corner of house	08/02/19	DCFE88E	FEBCO	850U	1	DC	
Espinoza, Phyllis	006931-000	1280 S 7th Cir	3? past water meter	04/24/20	DCFE85E	FEBCO	850	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Esser, Keli	012139-000	1027 N Heron Drive	IN BOX BY METER	06/22/19	DCWIAQJ	WILKINS	350	1	DC	
Estate of John Dingethal	007181-000	616 Lark Dr		07/31/19	DCFE88D	FEBCO	850U	0.75	DC	
Estes, Mike & Shara	005719-000	19 S Gee Creek Loop	6' SOUTH OF FRONT DOOR	07/14/19	DCAPASD	APOLLO/CONBRACO	DC4A	1	DC	
Evans, Christine	012169-000	3714 S Willow Dr	In box 10' North of SW corner of house	10/15/19	DCWIAQJ	WILKINS	350	1	DC	
Evans, Douglas & Kristi	012595-000	4160 S 11th Circle	By meter	10/11/19	DCFE85E	FEBCO	850	1	DC	
Evans, Jeffrey	008261-000	1720 S Taverner Dr	water meter	04/16/20	DCWIAQJ	WILKINS	350	1	DC	
Evans, Jodi Fisher & Gary	012630-000	4156 S Kennedy Dr	in box 15' North of SW corner of house	07/08/19	DCWIAQJ	WILKINS	350	1	DC	
Evans, Patti	012400-000	1589 S Nighthawk Cir	10' past water meter	05/05/20	DCFE85E	FEBCO	850	1	DC	
Evenson, Alison and Eric	011248-000	1509 S Dusky Dr	In box across walk from meter	08/25/19	DCWIAQJ	WILKINS	350	1	DC	
Evergreen Homes	011835-004	2403 S Royal Court	On lef side of driveway 10' behind meter	12/13/19	DCFE85E	FEBCO	850	1	DC	
Evergreen Homes	011835-000	Royal Terrace	Entrance by east left of mail boxes	06/07/19	DCFE88D	FEBCO	850U	0.75	DC	Irrigation
Evergreen Homes	011834-000	Royal View	At right front corner of house	06/07/19	DCFE88D	FEBCO	850U	0.75	DC	Irrigation
Ewald, Christopher & Jena	007776-000	1509 N Heron Dr	6' west of water meter	05/05/20	DCFE88D	FEBCO	850U	0.75	DC	
Eyford, Tom	006934-000	1220 S 7Th Cir	Right side of drive way.	03/10/20	DCWIAQJ	WILKINS	350	1	DC	
Fagan, Sheryle	009520-000	2515 S 19Th Ct	12" Box south side of home	08/21/19	DCWAAMT	WATTS	LF007M1QT	1	DC	
Falk Arthur & Doherty-Falk Kathle	008792-000	312 S 34Th Pl	South side of house	05/28/19	DCFE85E	FEBCO	850	1	DC	
Farrell, Tyler	012541-000	3631 S Willow Dr	Back left corner of house	08/09/19	DCWIAQJ	WILKINS	350	1	DC	
Fata, Jacqueline	011602-000	623 N 17Th Ct	near meter	09/12/19	DCFE88D	FEBCO	850U	0.75	DC	
Favela, Katie & Miguel	012723-000	904 N 9th Way	SW corner of property	05/05/20	DCFE85E	FEBCO	850	1	DC	
FDM Development	012676-000	11 S 47th Ave Ste 101	In mech room	04/01/20	RPWAAQV	WATTS	LF009QT	0.5	RP	Dental Clinics
FDM Development	012676-000	11 S 47th Ave Ste 101		04/01/20	RPWAAQQ	WATTS	LF009M2QT	1	RP	
Fed, Volodymyr	008285-000	25 S 32Nd Pl	in box south side of house	05/05/20	DCWI99D	WILKINS	950XLU	0.75	DC	
Felicino, Kyle Radeline & Angel	012212-000	1739 S 47th Pl	At left front corner of property by meter.	08/20/19	DCWIAQJ	WILKINS	350	1	DC	
Ferber, Dan	009275-000	1306 N 8th Way	by meter	05/05/20	DCFE85E	FEBCO	850	1	DC	
Ferguson, Gary & Trudy	009827-000	351 N Green Gables Loop	across sidewalk from meter	06/18/19	DCWIAQJ	WILKINS	350	1	DC	
Ferryman, Brian	006767-000	2510 S 22Nd Cir	at house by front walk	04/23/20	DCWI97E	WILKINS	950XLT	1	DC	
Fish, Trent	012244-000	1834 Falcon Dr	across sidewalk from meter	08/22/19	DCFE88D	FEBCO	850U	0.75	DC	
Fisher, Alan & Marlene	008124-000	1370 S 15th Way	In box across walk from meter	03/19/20	DCFE85E	FEBCO	850	1	DC	
Fisher, Brad	006970-000	1607 Falcon Dr	NE Corner of House	03/23/16	DCFE85D	FEBCO	850	0.75	DC	
Fisher, Jesse	006777-001	3064 S 23Rd Way	SE corner by meter	10/10/19	DCWI96E	WILKINS	950XL	1	DC	
Fisk, Glenn & Patricia	006773-000	2545 S 22Nd Cir	At water meter	04/24/20	DCFE88E	FEBCO	850U	1	DC	
Fitzgibbon, Richard Fitzgibbon-Angu	012182-000	3122 S 2nd St	west side of house	07/29/19	DCWI98D	WILKINS	950XLT	0.75	DC	
Fladager, Perry & Sandy	009125-000	801 N 7Th Pl	at water meter	03/20/20	DCWI97E	WILKINS	950XLT	1	DC	
Flaig, Andrew & Anna	012803-000	2700 S Red Tail Loop		01/29/19	AVAR58C	ARROWHEAD BRASS	58	0.5	AVB	
Flannigan, Denice	011873-000	1909 N 8th Way	Left side of home behind gate	04/25/20	DCWI96E	WILKINS	950XL	1	DC	
Fleager, Bret & Brooke	007882-000	2304 S 17Th Way	in box across walk from meter	06/14/19	DCFE88E	FEBCO	850U	1	DC	
Fleming, Darrin	010100-000	107 N 38Th Pl	front yard by meter	02/20/19	DCFE88E	FEBCO	850U	1	DC	
Flintoff, Logan	012017-000	3997 N 1st Way	In box at the SW corner of house	11/18/19	DCFE88E	FEBCO	850U	1	DC	
Florence, Nancy & Michael Poe	006905-000	661 S 15th Ct	left of drive	04/16/20	DCWIAQJ	WILKINS	350	1	DC	
Flowserve	011634-000	7075 S 5th St	Inside warehouse SW corner	02/19/19	DDWAAGX	WATTS	757DCDABF	3	DCDA	
Flowserve	011634-000	7075 S 5th St		02/19/19	DCFE85E	FEBCO	850	1	DC	
Flowserve	011634-000	7075 S 5th St		02/14/19	DCFE85E	FEBCO	850	1	DC	
Flynn, Elizabeth	006794-000	1325 S 8th Way	across sidewalk from water meter	07/09/19	DCWI96E	WILKINS	950XL	1	DC	
Fogoros, Michael & Tiffany	007088-000	2203 N 5Th Way	Right of driveway next to meter	08/11/19	DCFE88D	FEBCO	850U	0.75	DC	
Ford, Karen	010099-000	105 N 38Th Pl	RIGHT FRONT PROPERTY CORNER BY METER	05/29/19	DCWIAQJ	WILKINS	350	1	DC	
Ford, Lyle	005745-000	28 S Gee Creek Loop	28 S Gee Creek Loop	07/20/16	DCWI95E	WILKINS	950	1	DC	
Ford, Mark	011579-000	354 N Green Gables Loop	across sidewalk from meter	06/18/19	DCWIAQJ	WILKINS	350	1	DC	
Fornaciari, Scott	012575-000	3104 S 1st St	by heat pump	09/11/19	DCWI98D	WILKINS	950XLT	0.75	DC	
Fort Vancouver Regional Library	012010-001	228 Simons St	in box at meter	07/18/19	DCWI97E	WILKINS	950XLT	1	DC	Bank
Fosdick, Heidi Henderson & David	007777-000	1511 N Heron Dr	left of driveway	05/05/20	DCFE85E	FEBCO	850	1	DC	
Foulke, Chuck	010066-000	145 N 40th Ave	Right side of house	06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Fox, David	008260-000	1722 S Taverner Dr	Off meter	04/27/19	DCFE85E	FEBCO	850	1	DC	
Fox, Michelle	012661-000	4735 S 17th Drive	behind water meter L of driveway	11/01/19	DCWIAQJ	WILKINS	350	1	DC	
Foxes LLC	011887-000	2620 S 21St Ct	in box on north side of house behind fence under window	08/08/19	DCWIAQJ	WILKINS	350	1	DC	
Franco, Christine	010060-000	207 N 40th Ave	by meter behind sidewalk	08/27/19	DCWIAQJ	WILKINS	350	1	DC	
Franklin, Nick	011722-000	809 N 9Th Way	irrigation box by meter	10/08/19	DCWI96E	WILKINS	950XL	1	DC	
Franz, Tracy	010106-000	112 N 38Th Pl	IN BOX BY GARAGE ACCES DOOR SOUTHISDE HOUSE	04/01/20	DCFE88E	FEBCO	850U	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Freedland, J Gary	009085-000	1911 S 15Th Cir	at watermeter	08/01/19	DCFE85E	FEBCO	850	1	DC	
Fried, Christine	010082-000	137 N 39Th Ct	In box at the NE corner of house	04/01/20	DCFE85E	FEBCO	850	1	DC	
Friend, Benjamin	010529-000	4353 N 7Th Way	BY METER	06/10/19	DCFE85E	FEBCO	850	1	DC	
Friend, Paul	012370-000	1710 Falcon Dr	across from meter	07/14/19	DCFE88D	FEBCO	850U	0.75	DC	
Frommlet, Michael	012227-000	1553 S 14Th Cir	NE corner of house	03/26/20	DCWIAQJ	WILKINS	350	1	DC	
Fronsoe, Chris	008000-000	1402 S Dusky Dr	Front yard by water meter	03/18/20	DCFE88E	FEBCO	850U	1	DC	
Frye, Michelle	011231-000	700 S 14Th Pl	700 S 14th Pl	05/08/19	DCWI97E	WILKINS	950XLT	1	DC	
Fukuchi, Heather	011116-000	1310 S 6Th Way	SW CORNER OF YARD	05/05/20	DCFE85D	FEBCO	850	0.75	DC	
Fuller, Leslie	012796-000	4873 S 18th Dr	Right of property in grass	10/11/19	DCWIAQJ	WILKINS	350	1	DC	
Fulwiler, Jeanine	010105-000	111 N 38Th Pl	12" BOX BY HVAC UNIT RH SIDE OF THE HOME	07/29/19	DCWIAQJ	WILKINS	350	1	DC	
Furnia, Zachary	012178-000	329 N 33Rd Ct	box across walk from meter	08/30/19	DCWI98E	WILKINS	950XLU	1	DC	
Furno, Margaret & Steve	011742-000	1715 S Dusky Dr	at water meter	04/16/20	DCFE88E	FEBCO	850U	1	DC	
Gallegos, James Stone & Terri	008255-000	1717 S Dusky Dr	at water meter	03/19/20	DCFE88E	FEBCO	850U	1	DC	
Galyon, Chris	011264-000	871 N Squire Dr	SE corner by City Meter	06/20/19	DCWIAQJ	WILKINS	350	1	DC	
Gama, James & Debbie	009182-000	906 N 9Th Way	N side of house inside gate	05/05/20	DCWI96E	WILKINS	950XL	1	DC	
Gamboa, Mike	009816-000	256 N Green Gables Loop	left side of house	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Gandara, AJ	012335-000	4100 S Kennedy Dr	Behind garage left side of house	05/12/20	DCWIAQJ	WILKINS	350	1	DC	
Garnaas, Carolyn	009858-001	421 N Helens View Dr	in box across walk from meter	11/26/19	DCWI98E	WILKINS	950XLU	1	DC	
Garnet, Laura	009414-000	2208 S Wind River Way	in box across walk from meter	05/23/19	DCWIAQJ	WILKINS	350	1	DC	
Garrison, Amy	012347-000	4719 N 6Th St	By meter	11/18/19	DCFE85E	FEBCO	850	1	DC	
Garrison, Chris And Karen	010617-000	4639 N. Noble Loop	by meter	09/06/19	DCFE85E	FEBCO	850	1	DC	
Garvin, Trina	010532-000	4462 N 7th Way	By Meter	05/06/20	DCFE85E	FEBCO	850	1	DC	
Gasca, Holly	012205-000	4335 S 12th Cir	sw side of house in bark bed	03/21/19	DCWIAQJ	WILKINS	350	1	DC	
Gates, Lorin	007894-000	2202 S 17Th Way	in box at meter	08/29/19	DCFE85E	FEBCO	850	1	DC	
Gay, Jeffery	011838-000	4126 S 11th Circle	l side of driveway	08/24/19	DCFE85E	FEBCO	850	1	DC	
Gb Ridgefield Llc	010683-000	600 S 56Th Pl	in box at meter west side by hydrant & vault	04/14/20	DCWA00H	WATTS	007M1QT	2	DC	Industrial
Gb Ridgefield Llc	010683-000	600 S 56Th Pl	in boiler room upstairs next to water heater thru shipping	04/14/20	RPWA01C	WATTS	009PCQT	0.5	RP	Industrial
Gb Ridgefield Llc	010683-000	600 S 56Th Pl	vault west side by meter	04/14/20	DCWA72M	WATTS	774X	8	DC	Industrial
Gb Ridgefield Llc	010683-000	600 S 56Th Pl	in wash bay east end of bldg on wall with safety shower	04/14/20	RPWA9MD	WATTS	009M2QT	0.75	RP	Industrial
Gb Ridgefield Llc	010683-000	600 S 56Th Pl	box at meter west side by hydrant and vault	04/14/20	DCWA00H	WATTS	007M1QT	2	DC	Industrial
GEE CREEK MEADOWS HO	22030	GEE CREEK MEADOWS IRRIGATION METER	1651 Pioneer St irrigation	/ /	DCFE81E	FEBCO	805YR	1	DC	Irrigation
Geehan, Tiffany	012056-000	4148 S 11th Cir	Behind garage east side of house	12/19/18	DCWIAQJ	WILKINS	350	1	DC	
Gehrmann, Grant & Joni	009453-000	2308 S Nisqually Ave	by meter	05/04/20	DCFE85E	FEBCO	850	1	DC	
Generation Homes NW	011895-001	1236 S 50th Pl	By meter	05/09/19	DCWIAQJ	WILKINS	350	1	DC	
Genereaux, Jamie Wagner & Candice	009259-000	1026 N Heron Dr	at water meter	08/08/19	DCFE88E	FEBCO	850U	1	DC	
Germer, Anthony & Amanda	009499-000	2318 S Sauk Way	in box across walk from meter	07/16/19	DCWIAFT	WILKINS	350	0.75	DC	
Geurds, Catherine Shannon & Jioann	011883-000	4822 N 6Th St	By meter	05/01/20	DCFE85E	FEBCO	850	1	DC	
Gibson, Nelson	010108-000	114 N 38Th Pl	IN BOX UNDER WINDOW SOUTH SIDE OF HOUSE 8' EAST OF STEPS	04/08/19	DCFE88E	FEBCO	850U	1	DC	
Gilberti, Scott & Casey	009246-000	900 N Heron Dr	at water meter	06/27/19	DCWI97E	WILKINS	950XLT	1	DC	
Gilbride, Daleana & Patrick	011905-000	1822 S 47th Pl	Right side of house 5' behind gate	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Gill, Jeffrey	008136-000	1730 S Lake River Ter	IN BOX ACROSS WALK FROM METER	03/18/20	DCFE85E	FEBCO	850	1	DC	
Gillen, Amanda	009819-000	260 N Green Gables Loop	left side of house	07/25/19	DCWIAQJ	WILKINS	350	1	DC	
Gilles, Judith	011474-000	1012 N Heron Dr	IN BOX BY METER	03/20/20	DCFE85E	FEBCO	850	1	DC	
Githens, Ronda	006916-000	748 S 14Th Pl	right side of property next to driveway	05/02/19	DCWI95E	WILKINS	950	1	DC	
Givans, Patrick	012660-000	4920 S 19th St.	Left side of property in line with meter	11/08/19	DCWIAQJ	WILKINS	350	1	DC	
Glassett, Lucas & Sarah	008911-000	3404 S 1st Cir	in box behind fence 10' south of NE corner of house	05/29/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Glaus, Kevin	008123-000	1570 S 15Th Way	RPL	03/19/20	DCFE88D	FEBCO	850U	0.75	DC	
Godbolt, Micah	012053-000	1201 S Fieldcrest Dr	SE Corner nexdt to sidewalk	08/01/19	DCWIAQJ	WILKINS	350	1	DC	
Goffic, Amanda & Jacob	010572-000	4847 N 8th St	Across sidewalk from meter	08/14/19	DCFE85E	FEBCO	850	1	DC	
Goheen, Lindsay	009462-000	2205 S Sauk Way	by meter	07/18/19	DCFE85E	FEBCO	850	1	DC	
Goin, Michael & Patricia	006883-000	1215 S 6th Way	15' past water meter	06/27/19	DCFE85E	FEBCO	850	1	DC	
Goldin, Chelsea and Casey	011301-000	902 N 7Th Cir	SE corner of lot in lawn box	07/22/19	DCWI96E	WILKINS	950XL	1	DC	
Goldsberry, Mark	010064-000	149 N 40th Ave	Right side of house by garage, side door	06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Gonzales, Josh and Jamie	011447-000	1638 N Falcon Dr	10' behind meter	08/20/19	DCFE88D	FEBCO	850U	0.75	DC	
Gonzalez, Azaleen	010639-000	4641 N Squire Dr	West side of driveway next to meter.	09/06/19	DCWIAQJ	WILKINS	350	1	DC	
Gonzalez, Cedric & Melani	012243-000	1011 N Heron Dr	In box at NW corner of house	06/06/19	DCWIAQJ	WILKINS	350	1	DC	
Goode, Beverly Miles & Randy	011837-000	3201 N Abernathy Circle		/ /	AVRAAAA	RAIN BIRD	APAS075	0.75	AVB	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Goode, Randy	012197-000	4538 N Noble Loop	NW side of house by HVAC unit	05/16/20	DCWIAQJ	WILKINS	350	1	DC	
Goode, Randy	005802-002	4544 N Noble Loop	BY METER	08/14/19	DCFE85E	FEBCO	850	1	DC	
Goodman, Pamela	011022-000	2736 S Red Tail Loop	backyard side of house	08/14/19	DCWA7ME	WATTS	007M1QT	1	DC	
Goodpaster, Troy and Emily	012774-000	1205 N Heron Dr	west side of building	08/09/19	DCFE85E	FEBCO	850	1	DC	
Goodrich, Lisa Dennis & Michael	011964-000	1727 S 47th Pl	Right of driveway @ sidewalk	07/19/19	DCWIAQJ	WILKINS	350	1	DC	
Goodwin, Carrie & Kevin	009789-000	3317 N Pioneer Canyon Dr	nw corner of house	05/07/20	DCWIAQJ	WILKINS	350	1	DC	
Gordan Truck Centers	010659-000	487 S 56TH PL	irrigation box by meter at SE corner of front office	04/14/20	DCFE80G	FEBCO	805	1.5	DC	
Gordan Truck Centers	010659-001	487 S 56TH PL	fire riser room west wall of shop	04/14/20	DCFE8DK	FEBCO	805YD	4	DC	
Gordon, Walter & Theresa	006987-000	1705 N Falcon Dr	Across from meter	07/13/19	DCFE88D	FEBCO	850U	0.75	DC	
Gover, Keith	008221-000	1867 S Pintail Ct	In box by meter	07/13/19	DCFE85E	FEBCO	850	1	DC	
Graess, Amy	011988-000	1115 S 44th Ave	NW side of house 10' so of meter in bark bed by fence	07/11/19	DCWIAQJ	WILKINS	350	1	DC	
Graham, Jerry & Janet	009841-000	366 N Green Gables Loop	in box at SW corner of house	06/06/19	DCWIAQJ	WILKINS	350	1	DC	
Grant, Amanda & Jeremy	009310-000	1125 N 9Th Way	in box at meter	03/20/20	DCWIAQJ	WILKINS	350	1	DC	
Green Gables Hoa	009803-002	3811 N Pioneer Canyon Dr	Green Gables, Tract E Irrigation	12/20/19	DCWI95E	WILKINS	950	1	DC	Irrigation
Green Gables Hoa	009803-000	Green Gables Tract L- Irrig Me	Pioneer Canyon Tract L Irrig meter #4 (35th near Pioneer)	07/15/19	DCFE85E	FEBCO	850	1	DC	Irrigation
Green Gables Hoa	009803-001	Ne Corner (Irrigation) 35Th Ave	NE CORNER OF 35TH AVE IRRIGATION	07/15/19	DCFE88E	FEBCO	850U	1	DC	Irrigation
Green, Daniel	007005-000	1827 Falcon Dr	6' south of water meter	05/30/19	DCFE88D	FEBCO	850U	0.75	DC	
Green, Jerry	011449-000	518 N Helens View Dr	Side of House up From Water Meter	03/25/20	DCFE85E	FEBCO	850	1	DC	
Green, Tara & John	012229-000	3715 S Willow Dr	In box 25' North of SW corner of House	08/21/19	DCWIAQJ	WILKINS	350	1	DC	
Greer, Billy & Janae	008201-000	1721 S Taverner Dr	Back right property corner	03/20/20	DCFE88D	FEBCO	850U	0.75	DC	
Gregory, Brandon	012294-000	3700 S Willow Dr	left side of house	04/24/20	DCWIAQJ	WILKINS	350	1	DC	
Grenz, Aaron	012117-000	4747 S 18th Dr	at left front corcer of prop by meter	10/17/19	DCWIAQJ	WILKINS	350	1	DC	
Griffith, Tyler and Heather	012779-000	4722 S 17th Dr	On right side of driveway behind meter	10/25/19	DCWIAQJ	WILKINS	350	1	DC	
Grotte, Tamisha	012367-000	3834 S Kennedy Dr	Front left corner of house	04/05/19	DCWIAQJ	WILKINS	350	1	DC	
Grube, Jeffrey	012299-000	4034 S Kennedy Dr	Behind garage right side of house	05/12/20	DCWIAQJ	WILKINS	350	1	DC	
Gruhn, Brennan	012107-000	1203 N Heron Dr	in box at meter	07/22/19	DCWIAQJ	WILKINS	350	1	DC	
Guardado, Priscilla	010637-000	4581 N Squire Dr	By meter	05/01/20	DCFE85E	FEBCO	850	1	DC	
Guild, Ken & Cheryl	010551-000	4828 N 6Th St	Back yard between house and shed	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Guinett, Michael	009797-000	3416 N Pioneer Canyon Dr	BY METER	03/27/20	DCFE85E	FEBCO	850	1	DC	
Guitron, Roberto	008883-000	3405 S 1st Cir	in box west side of house by heat pump	07/18/19	DCWI98E	WILKINS	950XLU	1	DC	
Gutierrez, Enrique	011975-000	3814 S Willow Dr	12' North of SE Corner of House by Meter	09/03/19	DCWIAQJ	WILKINS	350	1	DC	
Haapala, Jessica	008902-000	779 N 49Th Ave	Front yard y meter	09/11/19	DCWIAQJ	WILKINS	350	1	DC	
Hadar, Philip	012491-000	4204 S 11th Way	NE Right side of house next to driveway and power box	04/15/19	DCWIAQJ	WILKINS	350	1	DC	
Hadley, Diane & Scott	006978-000	1625 Falcon Dr	8' west of water meter	05/16/19	DCFE88D	FEBCO	850U	0.75	DC	
Hagerty, Anne & Matt	009023-000	2023 S Osprey Dr	by water meter	09/19/19	DCFE88E	FEBCO	850U	1	DC	
Hair, Jason & Theresa	012641-000	1258 S Fieldcrest Dr	Left side of front porch in bark bed	10/29/19	DCWIAQJ	WILKINS	350	1	DC	
Hair, Jim	012686-000	4161 S 11th Cir		11/08/19	DCWIAQJ	WILKINS	350	1	DC	
Hall, Kelly & Charles Strehlow	008182-000	1527 S Taverner Dr	Back yard on S side of house	03/25/20	DCWI96E	WILKINS	950XL	1	DC	
Haman, Andrew & Nichole	009825-000	350 N Green Gables Loop	by meter	10/20/19	DCWIAQJ	WILKINS	350	1	DC	
Hambright, Noelle and Ryan	011387-000	1840 S 15th Ct	behind meter	03/19/20	DCFE85E	FEBCO	850	1	DC	
Hambright, Ryan	012761-000	1706 N Falcon Dr	1706 N Falcon Dr	08/24/19	DCFE88D	FEBCO	850U	0.75	DC	
Hamel, Jennifer	012288-000	1734 S 14Th Ct	IN BOX ACROSS WALK	03/18/20	DCFE85E	FEBCO	850	1	DC	
Hamtak, Kimberly and Kyle	011310-000	722 N 16Th Ct	Across sidewalk from water meter	11/13/19	DCFE88D	FEBCO	850U	0.75	DC	
Handeland, Karina	012397-000	4826 S 19th St	Front right of driveway next to water meter	04/29/20	DCWIAQJ	WILKINS	350	1	DC	
Hannan, Matt & Cindy	009850-000	404 N Helens View Dr	box across walk from meter	04/28/20	DCWIAFT	WILKINS	350	0.75	DC	
Hansen, Peter	006665-000	3071 S Cornett Dr	Righthand side of garge through gate by the A/C unit	04/07/20	DCWI95E	WILKINS	950	1	DC	
Hansen, Roger	007066-000	2043 N 5Th Way	2043 N 5th Way	07/18/19	DCFE88D	FEBCO	850U	0.75	DC	
Hansen, Wayne & Vickie	007459-000	2314 N Heron Dr	right side of drive by electrical box	07/14/19	DCFE85E	FEBCO	850	1	DC	
Haq, Zafar	008245-000	1710 S Dusky Dr	NW corner of house	08/22/19	DCWI98E	WILKINS	950XLU	1	DC	
Hardy, Galen	005417-000	897 S Hillhurst Rd	north side of house	08/01/19	DCFE88E	FEBCO	850U	1	DC	
Harker, Cheryl	010615-000	4581 N Noble Loop	NE Corner between sidewalk & street by meter	09/06/19	DCWI97E	WILKINS	950XLT	1	DC	
Harmon, James & Donna	008227-000	1811 S Dusky Dr	In box at meter	03/19/20	DCWI98D	WILKINS	950XLT	0.75	DC	
Harmon, Scott & Stephanie	008029-000	1524 S Taverner Dr	at water meter	03/20/20	DCFE85E	FEBCO	850	1	DC	
Harrah, Michelle	011575-000	863 N 48Th Ave	By Meter	03/27/20	DCFE85E	FEBCO	850	1	DC	
Harrington, Carey	011103-000	1628 N 8th Way	10' past water meter	07/18/19	DCFE85D	FEBCO	850	0.75	DC	
Harrington, Daniel	006983-000	1635 Falcon Dr	Across sidewalk from water meter	08/24/19	DCFE88D	FEBCO	850U	0.75	DC	
Harris, Laura & Brian	011946-000	1653 S Harrier Rd	In box across walk from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Harris, Richard & Elizabeth	009069-000	1926 S Osprey Dr	10' past water meter	09/05/19	DCFE88E	FEBCO	850U	1	DC	
Harrison, Ashlee	012605-000	1246 S 44th Ave.	By meter	10/11/19	DCFE85E	FEBCO	850	1	DC	
Harrison, Harley	012704-000	1268 S 44th Ave	North side of house in bark bed	12/02/19	DCWIAQJ	WILKINS	350	1	DC	
Hart, Andrew & Tafoya	011880-000	3148 S 3rd Way	in box east side of house by heat pump	06/18/19	DCFE88D	FEBCO	850U	0.75	DC	
Hart, Glenn & Carol	011060-000	1573 S 15Th Way	On left side of driveway by green elec box	08/27/19	DCFE88D	FEBCO	850U	0.75	DC	
Hartman, Chad	012034-000	1257 S Fieldcrest Dr	In the parking strip by meter.	07/19/19	DCWIAQJ	WILKINS	350	1	DC	
Hartman, Robert and Jean	012408-000	1840 S 14Th Ct	IN BOX BY THE SW CORNER OF HOUSE	05/07/20	DCFE85E	FEBCO	850	1	DC	
Hass, Stephen	012393-000	1220 N 1st Ave	right hand side of propety out front	11/16/19	DCWI96E	WILKINS	950XL	1	DC	
Hastings, Hee-Ja	010566-000	4856 N 8th St	Along driveway 15' from left front corner	05/01/20	DCFE85E	FEBCO	850	1	DC	
Hastings, Thomas	010649-000	887 N 47Th Ave	IN BOX AT THE NE CORNER OF HOUSE	08/10/19	DCWIAQJ	WILKINS	350	1	DC	
Hatcher, Doug & Patti	007723-000	1906 N Heron Dr	East side of house	05/11/19	DCFE88E	FEBCO	850U	1	DC	
Hathaway, Rodney & Franna	006673-000	2496 S 31St Ct	under window, front of house	09/12/19	DCAPAOJ	APOLLO/CONBRACO	40-105-A2T	1	DC	
Hauge, Perla	011814-000	963 N Noble Loop	20' past water meter	09/12/19	DCFE85E	FEBCO	850	1	DC	
Haven Homes Nw Llc	009529-000	2611 S 18Th Ct	12" box RH side of home	03/20/20	DCFE85E	FEBCO	850	1	DC	
Hawks Landing HOA	009582-000	IRRIGATION By Lot 1 off Hillhurst	Irrigation By Lot 1 Off Hillhurst	01/29/19	DCWIANB	WILKINS	350	2	DC	Irrigation
Hawks Landing HOA	009582-001	Irrigation Near Lot 14	By meter	01/29/19	DCWIAQJ	WILKINS	350	1	DC	Irrigation
Hayes, Stacy & Michael	007154-000	605 N 22Nd Ct	in box across walk from meter by drive	04/29/20	DCFE88D	FEBCO	850U	0.75	DC	
Hayes, Stephen & Janet	011924-000	1850 S 47th Pl	Left of drive at meter	07/13/19	DCWIAQJ	WILKINS	350	1	DC	
Haymaker, Tom	006745-000	2170 S 26Th Ave	2170 S 26th Ave	03/20/19	DCAPAOJ	APOLLO/CONBRACO	40-105-A2	1	DC	
Heath, Chris & Kalin	009295-000	1124 N 9Th Way	At water meter	04/30/20	DCWIAQJ	WILKINS	350	1	DC	
Hebner, Kathleen	010526-000	4345 N 7Th Way	IN BOX BY DRIVE ACROSS WALK FROM METER	08/20/19	DCWIAQJ	WILKINS	350	1	DC	
Heffley, Lisa & James	008150-000	1993 S 14Th Ct	In box by drive 12' from meter	08/22/19	DCFE85E	FEBCO	850	1	DC	
Heffner, Terry	006678-000	2418 S 31St Ct	box behind sidewalk - SW corner of property	07/15/19	DCWI97E	WILKINS	950XLT	1	DC	
Helmes, Chris	009905-000	3501 N Pioneer Canyon Dr	by meter	08/17/19	DCWIAFT	WILKINS	350	0.75	DC	
Henderson, Carin	012446-000	3649 S Kennedy Dr	Left side of house	07/08/19	DCWIAQJ	WILKINS	350	1	DC	
Henderson, Hilary & Adamm	011841-000	4301 N Ridgefield Woods Dr	By Meter	05/06/20	DCFE85E	FEBCO	850	1	DC	
Henning, Bethany & Sean	007846-000	1806 S 24th Pl	Across sidewalk from meter	09/11/19	DCFE88E	FEBCO	850U	1	DC	
Henrichs, Nicolas & Aubrey	009474-000	2312 S White Salmon Dr	in box behind fence south side by house	05/12/20	DCWIAFT	WILKINS	350	0.75	DC	
Henry, David	012598-000	1903 N 5th Way	right side of garage by side door	01/04/19	DCFE85E	FEBCO	850	1	DC	
Herchick, Robert	011606-000	2306 N 4th Way	10' N of meter.	08/17/19	DCFE88E	FEBCO	850U	1	DC	
Heriford, Jim	007952-000	2110 S 19Th Way	in box across walk from meter	05/07/20	DCWI99D	WILKINS	950XLU	0.75	DC	
Hernandez, Ashley & Amparo	008505-000	3157 S Cedar Ridge Dr	east side of garage	05/06/20	DCWI94D	WILKINS	950XLD	0.75	DC	
Heron Ridge HOA	011119-000	Heron Ridge Irrigation	Heron Ridge Irrigation - next to lift station	07/17/19	DCFE88E	FEBCO	850U	1	DC	
Herrmann, Dianne	011237-000	612 N 22Nd Ct	612 N 22nd Ct	05/21/19	DCFE88D	FEBCO	850U	0.75	DC	
Herzog, James & Norette	007313-000	1602 Falcon Dr	Front Yard by Meter	06/18/19	DCFE88D	FEBCO	850U	0.75	DC	
Heying, Kim	012764-000	1309 S Fieldcrest Dr.	East side of house in bark bed	11/18/19	DCWIAQJ	WILKINS	350	1	DC	
Hicks, Aaron	005844-000	1120 N 1st Ave	in box at meter	04/24/20	DCFE88E	FEBCO	850U	1	DC	
Hicks, Marilyn	012201-000	1845 S Harrier Rd	In box across from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Higgins, Ross & Danielle	011929-000	4733 S 18th Dr	on right side of DWY 10' behind meter	11/22/19	DCWIAQJ	WILKINS	350	1	DC	
HILARY LAWRENCE	009281-000	1219 N 8TH WAY	In box by meter	06/01/19	DCWIAQJ	WILKINS	350	1	DC	
Hill, Jenna & Joseph	009103-000	1512 S 24th Ct	at water meter	07/23/19	DCFE88E	FEBCO	850U	1	DC	
Hillhurst Highlands HOA	011990-000	24304 NW Hillhurst Rd	At entrance to housing development 29th & Hillhurst	08/08/19	DCFE85G	FEBCO	850	1.5	DC	Irrigation
Hillhurst HOA	006843-000	1601 S 5th Cir	Hillhurst PUD - North Entrance	05/22/19	DCWI95H	WILKINS	950	2	DC	Irrigation
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	#2 Cottage fireline in closet	10/24/19	DCAPAOJ	APOLLO/CONBRACO	40-105-A2	1	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	#12 Cottage fireline in closet	10/24/19	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	#11 Cottage fireline in closet	10/24/19	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	#5 cottage fireline in closet	10/24/19	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	#6 cottage fireline in closet	10/24/19	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	#4 cottage fireline in closet	10/24/19	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	#1 cottage fireline in closet	10/24/19	DCAM2SE	AMES	2000SS	1	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	irrigation - by fire hydrant	10/24/19	DCFE80G	FEBCO	805	1.5	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	#8 cottage fireline in closet	10/25/19	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	#3 cottage fireline in closet	10/25/19	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	#9 cottage fireline in closet	10/25/19	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	#10 cottage fireline	10/24/19	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	#7 cottage fireline in closet	10/24/19	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	888 Hillhurst Rd - In riser room	10/24/19	DCAM22D	AMES	2000BM3	0.75	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
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ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	888 HILLHURST - IN RISER ROOM	10/24/19	DDAMAGA	AMES	COLT 300BF	4	DCDA	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	kitchen mop sink area	10/24/19	RPAPBJV	APOLLO/CONBRACO	RPLF4A	0.5	RP	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	24" Bpx RH SIDE OF THE FRONT STOOP	10/24/19	DCWIAQJ	WILKINS	350	1	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	DINNING ROOM WEST WALL	10/24/19	DCWAAMY	WATTS	LF007QT	0.5	DC	
Hillhurst Road Re Llc	005473-000	888 S Hillhurst Rd	DINNING ROOM WEST WALL	10/24/19	DCWAAMY	WATTS	LF007QT	0.5	DC	
Himes, Jack	011337-000	255 N Green Gables Loop	left side of house behind gate	05/21/19	DCWIAQJ	WILKINS	350	1	DC	
Himes, Jack	011427-000	608 Lark Dr	in box across walk from house	05/06/20	DCFE88D	FEBCO	850U	0.75	DC	
Himes, Jack	007522-000	809 Raven Dr	In box by the NW corner of house	05/06/20	DCWI97E	WILKINS	950XLT	1	DC	
Himmelberger, Burk & Meagan	009424-000	2123 S Wind River Cir	By meter	05/04/20	DCFE85E	FEBCO	850	1	DC	
Hoffman, Michael & Debra	008224-000	1836 S Taverner Dr	IN BOX ACROSS WALK FROM METER	03/20/20	DCFE85E	FEBCO	850	1	DC	
Hoffman, Warren	010037-000	529 N 40th Ave	By meter	10/08/19	DCWIAFT	WILKINS	350	0.75	DC	
Holcomb, Linda & David	006927-000	1354 S 7Th Cir	In front by meter	05/05/20	DCWI97E	WILKINS	950XLT	1	DC	
Holder, James	011480-000	2308 N 5Th Way	in box in strip by meter	06/18/19	DCFE88E	FEBCO	850U	1	DC	
Holien, Jon	011904-000	4326 S 11th Way	By meter	08/24/19	DCFE85E	FEBCO	850	1	DC	
Holland, John & Maryjane	009193-000	905 N 9Th Way	NW corner of house	05/16/19	DCWI96E	WILKINS	950XL	1	DC	
Hollister, Chad & Kellie	006796-000	1359 S 8th Way	In box at the meter	06/01/19	DCWI98E	WILKINS	950XLU	1	DC	
Hollister, Corrina	011756-000	4720 S 19th St	at left front corner of house 6' back	09/12/19	DCWIAQJ	WILKINS	350	1	DC	
Holt, Pamela	011678-001	3826 S Kennedy Dr	Left side of house	03/08/19	DCWIAQJ	WILKINS	350	1	DC	
Hopkins, Craig & Rachel	011238-000	2201 N 5th Way	Front left property corner	08/24/19	DCWAAMT	WATTS	LF007M1QT	1	DC	
Horel, Kathy	012115-000	4842 S 18th Dr	on right side of DWY by meter	07/19/19	DCWIAQJ	WILKINS	350	1	DC	
Horn, Katy Belokonny & Adam	011958-000	630 S 19Th Pl	Bu water meter	04/29/20	DCWI96E	WILKINS	950XL	1	DC	
Horns Corner Properties Inc	010115-000	387 N 45th Ave	Pioneer Canyon Pump Station (east side of property line)	03/31/20	RPWAAQS	WATTS	LF009M2QT	1.5	RP	
Horton, Larry	010553-000	4837 N 6Th St	By meter	09/11/19	DCFE85E	FEBCO	850	1	DC	
Hoskinson, Jeremy	011614-001	310 N 3rd Ave	west of front entry	08/08/19	DCWI96E	WILKINS	950XL	1	DC	
House, Kelly	008166-000	1843 S 15Th Ct	behind meter	03/19/20	DCFE85E	FEBCO	850	1	DC	
How, Susan & George Takada	007216-000	1810 N Falcon Dr	6' past water meter	08/22/19	DCFE88D	FEBCO	850U	0.75	DC	
Howerter, Larry & Marylou	009389-000	2121 S White Salmon Dr	in box by SW corner of house behind fence	08/01/19	DCWIAFT	WILKINS	350	0.75	DC	
HP Washington One LLC	011866-000	1507 N Falcon Dr	On left side of driveway by sidewalk	08/27/19	DCFE88D	FEBCO	850U	0.75	DC	
HP Washington One LLC	011866-001	1889 S Harrier Rd	In box across way from meter	09/17/19	DCFE85E	FEBCO	850	1	DC	
HPA Borrower 2016-2 ML LLC	008108-000	1654 S 15th Way	at water meter	05/14/19	DCFE88E	FEBCO	850U	1	DC	
HPA Borrower 2018-1MS LLC	009014-006	1925 S Osprey Dr	On Right sdie of driveway by meter	07/16/19	DCFE88E	FEBCO	850U	1	DC	
HPA Borrower 2018-1MS LLC	009014-004	204 N 38Th Pl	right side of property in parking strip	07/02/19	DCWIAQJ	WILKINS	350	1	DC	
HPA Borrower 2018-1MS LLC	009014-002	2312 N 4th Way	in box by NW corner of home	08/20/19	DCFE88E	FEBCO	850U	1	DC	
HPA Borrower 2018-1MS LLC	012776-000	3033 S Cedar Ridge Dr	in box by vent - middle of house - west side	09/17/19	DCWI99D	WILKINS	950XLU	0.75	DC	
HPA Borrower 2018-1MS LLC	009014-003	3403 S 1st Cir	box by water meter	09/17/19	DCFE85E	FEBCO	850	1	DC	
Hsing, Mihee	012116-000	3707 S Willow Dr	Right side of house	05/12/20	DCWIAQJ	WILKINS	350	1	DC	
Huber, Jannette	012110-000	4348 S 11th Way	NE right side of driveway next to powerbox	05/12/20	DCWIAQJ	WILKINS	350	1	DC	
Hudson, John	006276-000	502 Maple St	At water meter	04/12/18	DCWA78E	WATTS	775QT	1	DC	
Huffman, Julie	009157-000	907 N 10Th Way	by meter	08/22/19	DCFE85E	FEBCO	850	1	DC	
Hughes, Mary & Monty	010581-000	759 N 48Th Ave	irrigation by meter	05/01/20	DCFE85E	FEBCO	850	1	DC	
Hummel, Paul	010302-001	1771 S 50th Place	On right side of driveway by meter.	09/16/19	DCWIAQJ	WILKINS	350	1	DC	
Hundley, Dustin	012582-000	412 Simons St	SE corner of meter	09/12/19	DCWI97E	WILKINS	950XLT	1	DC	
Hundt, Rebecca	008034-000	1420 S Taverner Dr	in box at meter	03/20/20	DCFE85E	FEBCO	850	1	DC	
Hunt, Deborah	010063-000	151 N 40th Ave	In box behind heatpump behind garage	04/08/19	DCFE88E	FEBCO	850U	1	DC	
Hunt, John & Betsy	006876-000	1057 S 6Th Way	8? past water meter	05/07/20	DCFE88E	FEBCO	850U	1	DC	
Hunt, Tracy	011135-000	1850 S Pintail Ct	IN BOX BY METER	03/26/20	DCFE85E	FEBCO	850	1	DC	
Hunter, Edward	010089-000	3887 N 1st Way	12' box RH back corner of the home back yard	09/25/19	DCWIAQJ	WILKINS	350	1	DC	
Hunter, Garan & Melinda	010628-000	4584 N 9Th St	by meter	03/25/20	DCFE85E	FEBCO	850	1	DC	
Hunter, Willie	009020-000	2019 S Osprey Dr	at water meter	03/21/19	DCFE88E	FEBCO	850U	1	DC	
Hunzeker, Brian	005857-003	3512 S Kennedy Dr	Behind garage	12/17/19	DCWIAQJ	WILKINS	350	1	DC	
Hurst, Christine & Dewayne	008219-000	1884 S Pintail Ct	at left front corner of prop behind meter	04/21/20	DCFE85E	FEBCO	850	1	DC	
Huston, Elizabeth Joscelyn & Ronald	012560-000	1459 S Nighthawk Cir	At meter	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Hutton, Brett & Elizabeth	005028-000	306 N 23Rd Pl	in box at meter	05/09/19	DCWIAQJ	WILKINS	350	1	DC	
Hyatt, Robert	005381-000	519 S Hillhurst Rd	Out front by water meter	09/03/19	DCFE88E	FEBCO	850U	1	DC	
Hyland, Robert & Meredith	009034-000	1508 S 21St Pl	at water meter	05/18/19	DCFE88E	FEBCO	850U	1	DC	
ICD Performance Coatings	010709-000	7350 Union Ridge Parkway	in warehouse dispersion room	09/19/19	RPWAAQQ	WATTS	LF009M2QT	1	RP	Industrial
ICD Performance Coatings	010709-000	7350 Union Ridge Parkway	Irrigation box near loading dock,East side of building	09/19/19	DCWIBDQ	WILKINS	950XLT2	1.5	DC	Irrigation - Low

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ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
ICD Performance Coatings	010709-000	7350 Union Ridge Parkway	area against wall near door walk through - in warehouse in poly	09/19/19	RPAPBIY	APOLLO/CONBRACO	RP40	1.5	RP	Industrial
ICD Performance Coatings	010709-000	7350 Union Ridge Parkway	Fire riser room near loading dock	09/19/19	DCWIADF	WILKINS	350A	4	DC	
Ichimura, Brent and Heather	011373-000	203 N 40th Ave	right side of house behind fence	07/22/19	DCWIAQJ	WILKINS	350	1	DC	
IDDV Properties LLC	012277-000	3912 S Kennedy Dr	Off front right corner of garage	04/24/20	DCWIAQJ	WILKINS	350	1	DC	
Inman, William	010050-000	501 N 40th Ave	right of driveway	09/12/19	DCWIAQJ	WILKINS	350	1	DC	
Irwin, Aaron	010093-000	3884 N 1st Way	across walk from meter	05/29/19	DCFE88E	FEBCO	850U	1	DC	
Iverson, Heather	007267-000	620 N 17Th Ct	On left side of driveway by light pole	06/18/19	DCFE88D	FEBCO	850U	0.75	DC	
Jackson, Mike & Jennifer	006815-000	730 S 19Th Pl	at meter	06/04/19	DCWIAFT	WILKINS	350	0.75	DC	
Jacob, Patrice	008143-000	1361 S 15Th Way	IN BOX AT METER	03/18/20	DCFE85E	FEBCO	850	1	DC	
Jacobson, Nancy	006788-000	2791 S Cornett Dr	2791 S Cornett Dr	07/17/12	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
James, Angela	009154-000	912 N 10Th Pl	box by front porch	05/05/20	DCFE85E	FEBCO	850	1	DC	
JANE & AARON STINSON	008015-000	1407 S DUSKY DR	at meter left side of house	08/02/19	DCWIAQJ	WILKINS	350	1	DC	
Jang, Taeyoung & Sunjoo	010081-000	136 N 39Th Ct	behind gate	06/13/19	DCFE88E	FEBCO	850U	1	DC	
Janke, Steve & Jacque	011485-000	1145 N 1st Ave	NORTH SIDE OF HOUSE	03/19/20	DCWIAFT	WILKINS	350	0.75	DC	
Jenkins, Richard and Shelly	011755-000	1446 S 8th Way	Corner of property by water meter	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Jensen, Andrew	008134-000	1736 S Lake River Ter	IN BOX ACROSS WALK FROM METER	03/18/20	DCFE85E	FEBCO	850	1	DC	
Jensen, Brian	011625-000	1701 N Falcon Dr	at NW corner of house	05/05/20	DCFE88D	FEBCO	850U	0.75	DC	
Jensen, Mark A	007772-000	1512 N Heron Dr	Across walk from water meter	07/24/19	DCFE88D	FEBCO	850U	0.75	DC	
Jensen, Steven	007529-000	706 Lark Dr	in box behind garage north side of house	03/25/20	DCFE88E	FEBCO	850U	1	DC	
Jequinto, Joannie	012087-000	1744 S 47th Pl	On left side of driveway by green electric box	09/21/19	DCWIAQJ	WILKINS	350	1	DC	
Jeschke, Scott	009349-000	906 N 7Th Cir	FRONT RIGHT PROPERTY CORNER	04/16/20	DCFE88E	FEBCO	850U	1	DC	
JHCB Properties LLC	011784-006	2313 S Cispus Way	By meter	07/31/19	DCFE85E	FEBCO	850	1	DC	
JHCB Properties LLC	011591-000	2314 S Cispus Way	BY METER	07/31/19	DCFE85E	FEBCO	850	1	DC	
JHCB Properties LLC	011719-000	2315 S Cispus Way	By meter	07/31/19	DCFE85E	FEBCO	850	1	DC	
JHCB Properties LLC	012518-000	2316 S Cispus Way	BY METER	07/31/19	DCFE85E	FEBCO	850	1	DC	
JHCB Properties LLC	011162-000	2316 S Nisqually Ave	BY METER	07/31/19	DCFE85E	FEBCO	850	1	DC	
JHCB Properties LLC	012321-000	2317 S Cispus Way	By meter	07/31/19	DCFE85E	FEBCO	850	1	DC	
JHCB Properties LLC	011130-000	2318 S Cispus Way	BY METER	07/31/19	DCFE85E	FEBCO	850	1	DC	
JHCB Properties LLC	007915-002	2319 S Cispus Way	BY METER	07/31/19	DCFE85E	FEBCO	850	1	DC	
JHCB Properties LLC	012745-000	2320 S Nisqually Ave	BY METER	07/31/19	DCFE85E	FEBCO	850	1	DC	
JHCB Properties LLC	012278-000	2321 S Cispus Way	BY METER	07/31/19	DCFE85E	FEBCO	850	1	DC	
JHCB Properties LLC	009497-000	2323 S Cispus Way	BY METER	07/31/19	DCFE85E	FEBCO	850	1	DC	
JHCB Properties LLC	011785-000	2324 S Nisqually Ave	BY METER	07/31/19	DCFE85E	FEBCO	850	1	DC	
JHCB Properties LLC	012792-000	2325 S Cispus Way	BY METER	07/31/19	DCFE85E	FEBCO	850	1	DC	
JHCB Properties LLC	012699-000	2328 S Nisqually Ave	BY METER	09/05/18	DCFE85E	FEBCO	850	1	DC	
JIG WA LLC	011567-000	2 S 56Th Pl	at water meter	08/23/19	DCWA00H	WATTS	007M1QT	2	DC	
JIG WA LLC	011567-000	2 S 56Th Pl	at water meter	08/23/19	DCWA72G	WATTS	007M2QT	1.5	DC	
JIG WA LLC	011567-000	2 S 56Th Pl	fire vault	08/23/19	DCWA78K	WATTS	774	4	DC	
JIG WA LLC	011567-000	2 S 56Th Pl	Mechanical Room abv mop sink (Mt. View Dental)	08/27/19	RPWA00E	WATTS	009M2QT	1	RP	Dental Clinics
JIG WA LLC	011567-000	2 S 56Th Pl	mechanical room	08/27/19	RPWA00E	WATTS	009M2QT	1	RP	
Johal, Aaron Deep	009491-001	1712 S Dusky Dr	Across walk from water meter	04/10/19	DCWI96E	WILKINS	950XL	1	DC	
Johnson Building Investment LLC	012626-000	759 S 74th Pl	6' left of entrance, 6' from sidewalk	07/30/18	DCWI98E	WILKINS	950XLU	1	DC	
Johnson Building Investment LLC	012626-000	759 S 74th Pl	Fire Suppression	07/30/18	DDWIAAGQ	WILKINS	350ADA	8	DCDA	
Johnson Building Investment LLC	012626-000	759 S 74th Pl	Detector assembly on fire suppression	07/30/18	DCWI94D	WILKINS	950XLD	0.75	DC	
Johnson Building Investment LLC	012626-000	759 S 74th Pl	northeast corner of property	07/30/18	DCWA72G	WATTS	007M2QT	1.5	DC	
Johnson, Heidi	005521-000	952 Cemetery Rd	West of property line 60'n of hydrant	08/24/19	DCWI96E	WILKINS	950XL	1	DC	
Johnson, Jenny	012248-000	1634 S 17Th Cir	In front by fountain (north side of fountain)	03/25/20	DCWI98E	WILKINS	950XLU	1	DC	
Johnson, Linda & Robert	008061-000	1301 S Great Blue Rd	Backyard 25' SE of SW Corner of House	03/25/20	DCWIAQJ	WILKINS	350	1	DC	
Johnson, Melissa	010596-000	525 N 47th Ave	Front yard by water meter	08/14/19	DCFE85E	FEBCO	850	1	DC	
Johnson, Paula & Kent	006684-000	2240 S 31St Ct	right front corner of house	08/08/19	DCAPAOK	APOLLO/CONBRACO	40-105-A2	1	DC	
Johnson, Tanna	011091-000	3111 S 1st St	Left side of house bu garage door near back yard	11/30/19	DCFE88D	FEBCO	850U	0.75	DC	
Johnson, Veronica Hernandez and Kei	008573-000	3142 S 3rd Way	backyard by side garage door	10/17/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Johnston Sr, Jimmy	006667-000	2465 S 31St Ct	Under tree by meter at street	06/20/19	DCFE88E	FEBCO	850U	1	DC	
Johnston, Dorcy & Stephanie	009177-000	902 N 9Th Way	by meter	03/26/20	DCFE88E	FEBCO	850U	1	DC	
Johnston, Robert & Katrina	010056-000	301 N 40th Ave	by water meter	04/18/19	DCWIAQJ	WILKINS	350	1	DC	
Jones, Catherine	012238-000	1751 S 47th Pl	Right side of drive behind sidewalk	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Jones, Denise	012619-000	3705 S Star View Loop	Left side of house	10/22/19	DCWIAQJ	WILKINS	350	1	DC	

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ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Jones, Dennis	010107-000	113 N 38Th Pl	Side Yard Behind S. Fence	04/08/19	DCFE88E	FEBCO	850U	1	DC	
Jones, Jason & Kristy	007918-000	1615 S Phoebe Dr	10' west of water meter	06/10/19	DCFE88E	FEBCO	850U	1	DC	
Jones, Richard	007819-000	2203 S 17Th Way	6' south of water meter	04/23/20	DCFE88E	FEBCO	850U	1	DC	
Jones, Steven D & Karen	009798-000	331 N 35Th Ave	left of driveway behind meter	04/08/19	DCWIAQL	WILKINS	350XL	0.75	DC	
Jorgenson, Dennis	008139-000	1273 S 15Th Way	In box across walk from meter	05/02/19	DCFE85E	FEBCO	850	1	DC	
Joslin, Tim & Terri	012334-000	3927 S Willow Dr	Behind garage	04/08/20	DCWIAQJ	WILKINS	350	1	DC	
Judge, Irene	008203-000	1819 S Taverner Dr	Right side of property by sidewalk	07/09/19	DCFE88D	FEBCO	850U	0.75	DC	
Kafiat, Beckley	010620-000	4710 N Noble Loop	by meter	05/01/20	DCFE85E	FEBCO	850	1	DC	
Kane, Christina	008356-000	3117 S 1st St	west side of house	05/05/20	DCFE88D	FEBCO	850U	0.75	DC	
KAREN & SCOTT LEARY	009265-000	1116 N HERON DR	In box by meter	09/22/19	DCWIAFT	WILKINS	350	0.75	DC	
Karns, John	006951-000	1277 S 7th Cir	north side of house	05/12/20	DCFE88E	FEBCO	850U	1	DC	
Karpenko, Dmitriy & Victoria	009468-000	2315 S Sauk Way	2315 S Saulk Way	08/21/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Karsten, Grayson	010648-000	898 N 47Th Ave	By Meter	09/06/19	DCFE85E	FEBCO	850	1	DC	
Kasonry, Brendan	011855-000	608 N Helens View Dr	left side behind sidewalk	11/26/19	DCWIAQJ	WILKINS	350	1	DC	
Kaufman, Ken	006022-000	902 N Main Ave	South of front entry	08/02/19	DCFE8YD	FEBCO	805Y	0.75	DC	
Kaufmann, Randall & Debra	009190-000	909 N 9Th Way	Water meter in front of telephone box	06/13/19	DCFE88E	FEBCO	850U	1	DC	
Kaur, Kamal	008096-000	1559 S 14Th Cir	on left side of house by gas meter	08/01/19	DCWIAQJ	WILKINS	350	1	DC	
Keahey, Rick	009308-000	1211 N 9Th Way	IN BOX AT METER	06/25/19	DCFE85E	FEBCO	850	1	DC	
Kee, Jon & Sandra	011793-000	1823 S Harrier Rd	In box across from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Keller, Mark and Christine	007498-000	2412 N 9Th Cir	W side of house inside gate	06/15/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Kelley, Derek	009415-000	2206 S Wind River Way	in box across walk from meter	05/20/19	DCWIAQJ	WILKINS	350	1	DC	
Kelley, Eva & Adam	012216-000	3748 S Kennedy Dr	behind garage	05/12/20	DCWIAQJ	WILKINS	350	1	DC	
Kellogg, Allison and Jason	011760-000	1506 N 8th Way	6' north of water meter	05/05/20	DCWIAQJ	WILKINS	350	1	DC	
Kelly Grencer	011137-000	1115 N HERON DR	In box at meter	07/09/19	DCWIAQJ	WILKINS	350	1	DC	
Kelly, Shelly	010630-000	888 N Squire Dr	By Meter	04/14/20	DCFE85E	FEBCO	850	1	DC	
Kelsey, Coleen & Steve S.	010065-000	147 N 40th Ave	Left side of house	08/14/19	DCWIAQJ	WILKINS	350	1	DC	
Kemink, Alisha	012485-000	1714 N Falcon Dr	By Meter	10/22/19	DCFE88D	FEBCO	850U	0.75	DC	
Kenley, Heidi	009844-000	368 N Green Gables Loop	in box behind fence west side of home	05/29/19	DCWIAQJ	WILKINS	350	1	DC	
Kennedy, Bob	008069-000	1307 S Great Blue Rd	behind meter	08/01/19	DCFE88E	FEBCO	850U	1	DC	Irrigation
Kennedy, Les & Tina	010634-000	751 N Squire Dr	BY METER	04/01/20	DCFE85E	FEBCO	850	1	DC	
Kenney, Anne	012054-000	2205 N 5Th Way	6' south of water meter	05/06/20	DCFE88D	FEBCO	850U	0.75	DC	
Kennison, Andrew & Leah	012147-000	4253 S 11th Way	by meter	03/04/19	DCFE85E	FEBCO	850	1	DC	
Kennison, Lisa and James	012315-000	1178 S Fieldcrest Dr	By meter	06/13/19	DCFE85E	FEBCO	850	1	DC	
Kesler, Brandon	011325-000	894 N Squire Dr	Front yard by water meter	07/14/19	DCWIAQJ	WILKINS	350	1	DC	
Ketels, John	010513-000	4317 N Ridgefield Woods Dr	By meter	05/06/20	DCFE85E	FEBCO	850	1	DC	
Kiemele, Karen	012138-000	1636 S 47th Pl	Center of left side of house	01/15/19	DCWIAQJ	WILKINS	350	1	DC	
Kim, Ahnra Anna	009813-000	254 N Green Gables Loop	by meter in grass	08/11/19	DCWIAQJ	WILKINS	350	1	DC	
Kim, Sophia	012365-000	534 N Helens View Dr	left side of house	07/14/19	DCWIAQJ	WILKINS	350	1	DC	
Kim, Tae	012360-000	3636 S Willow Dr	Left side of house	05/28/19	DCWIAQJ	WILKINS	350	1	DC	
King, Donald & Sandra	012568-000	3889 N 1st Way	IN BOX EASTSIDE BY HEAT PUMP	06/17/19	DCFE88E	FEBCO	850U	1	DC	
King, Tyler & Karina	011076-001	3639 S Willow Dr		05/12/20	DCWIAQJ	WILKINS	350	1	DC	
Kissling, Deborah	012461-000	3145 S 3rd Way	in box 8' south of heat pump pad west side of home	11/05/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Kjorvestad, Sonja	012352-000	600 N Helens View Dr	left side of house behind gate	04/10/19	DCWIAQJ	WILKINS	350	1	DC	
Klaus, Katie	011535-000	2410 Nisqually Ave	in box across walk from meter	07/29/19	DCWIAFT	WILKINS	350	0.75	DC	
Klavano, Nathan	011514-000	1921 S Osprey Dr	Front Yard by water meter	03/27/20	DCFE88E	FEBCO	850U	1	DC	
Kleiser-Smith, Michael Smith & Laur	010520-000	4223 N Ridgefield Woods Dr	In box at meter	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Kleiva, Josh	012535-000	2402 Nisqually Ave	N side of house inside gate	04/27/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Klug, Stephanie	010645-000	874 N 47Th Ave	Front of house on west side between curb and sidewalk	03/27/20	DCWIAQM	WILKINS	350XL	1	DC	
Knapp, Levi	012644-000	3709 S Star View Loop	West side of house	10/28/19	DCWIAQJ	WILKINS	350	1	DC	
Knowlton, Danette & Kyle	009376-000	903 N 7Th Cir	right side of driveway	05/05/20	DCFE88E	FEBCO	850U	1	DC	
Kochis, Mitch & Kelley	012551-000	141 N 40th Ave	right side of house by gas meter	06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Kohn, Paul	011983-000	1169 S Fieldcrest Dr	So. side of house by sidewalk in bark bed	08/02/19	DCWIAQJ	WILKINS	350	1	DC	
Koistinen, Jess	012747-000	3113 S 1st St	In box westside of house by heat pump	11/13/19	DCWI94D	WILKINS	950XLD	0.75	DC	
Koldsbaek, Carsten	010555-000	662 N 49th Ave	2' EAST OF TRANSFORMER	03/27/20	DCWIAQJ	WILKINS	350	1	DC	
Kolle, George and Suzanne	011196-001	4856 S 19th St	At left front corner of property by meter.	04/29/20	DCWIAQJ	WILKINS	350	1	DC	
Koon, Thomas	006891-000	611 S 14Th Pl	4' south of water meter	08/08/19	DCFE88E	FEBCO	850U	1	DC	
Kosin, Wesley L. and Laurie M.	011467-000	744 N 47th Ave	NW CORNER OF DRIVEWAY NEXT TO POWER BOX	05/01/20	DCWIAQJ	WILKINS	350	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Kraayeveld, Abby & Jeff	010535-000	618 N 44th Ave	By utilities	06/13/19	DCFE85E	FEBCO	850	1	DC	
Krasowski, Jessica	011984-000	4556 N Noble Loop	sw front left corner by meter	04/01/20	DCWIAQJ	WILKINS	350	1	DC	
Krause, Jessie	012534-000	1168 S 44th Ave	SE of front yard by sidewalk and electric box	08/12/19	DCWIAQJ	WILKINS	350	1	DC	
Kruse, Russell & Jodeana	007949-000	1811 S 22Nd Pl	at meter	08/02/19	DCWI98D	WILKINS	950XLT	0.75	DC	
Kryger, Laura & Dwayne	006299-000	700 N Main Ave	700 N Main Ave	07/24/13	RPWA00D	WATTS	009M3QT	0.75	RP	Pool
Kt Kanso Llc3	010715-000	6300 N 1st Cir	water service line behind pop syrup	05/28/19	RPWA05G	WATTS	009M2PCQT	1.5	RP	Carbonator
Kt Kanso Llc3	010715-000	6300 N 1st Cir	in rear of store on pop machine	05/28/19	RPWA00D	WATTS	009M3QT	0.75	RP	Carbonator
Kuhn, Kayte	012061-000	4806 S 18th Dr	at right front corner of prop by meter	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Kuni, Doris Oliver & Michelle	011816-000	4803 S 18th Dr		09/15/19	DCWIAQJ	WILKINS	350	1	DC	
La Palm, John	010641-000	756 N 47Th Ave	By meter	03/05/19	DCFE85E	FEBCO	850	1	DC	
Lacasse, Tami & Carl	010074-000	130 N 39Th Ct	RIGHT SIDE OF HOUSE, BACK BY ?	08/06/19	DCWIAQJ	WILKINS	350	1	DC	
Lackey, George	011287-000	4540 N 9th St	ne side of driveway right of utility box	05/01/20	DCWIAQJ	WILKINS	350	1	DC	
Lafata, Jennifer	009083-000	1922 S Osprey Dr	At water meter	09/19/19	DCFE88E	FEBCO	850U	1	DC	
Lafollett, Bryan	012744-000	3504 S Kennedy Dr	Behind garage	12/13/19	DCWIAQJ	WILKINS	350	1	DC	
Lahmers, Deborah & Dennis	006909-000	701 S 15Th Ct	Across walk from water meter	04/29/20	DCFE85E	FEBCO	850	1	DC	
Lalonde, Kevin & Heather	010086-000	139 N 39Th Ct	Left side of house half way	06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Lambert, Celicia	010642-000	753 N 47Th Ave	By meter	05/01/20	DCFE85E	FEBCO	850	1	DC	
Lamew, Jim	006285-000	306 Maple St	NW corner of back deck	06/14/19	DCFE88E	FEBCO	850U	1	DC	
Lang, Anne	012021-000	3829 S Willow Dr	in box at the NW corner of house	09/11/19	DCWIAQJ	WILKINS	350	1	DC	
Langwell, Ladonna	009460-000	2201 S Sauk Way	in box behind fence	07/29/19	DCWIAFT	WILKINS	350	0.75	DC	
Lanham, Garrett & Lauren	010552-000	4833 N 6Th St	@ water meter	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Lansdon, Matt & Marion	011908-000	1215 S Fieldcrest Dr	By meter	08/18/19	DCFE85E	FEBCO	850	1	DC	
Lara-Lujano, Jose	012177-000	775 N 49Th Ave	By meter	05/01/20	DCFE85E	FEBCO	850	1	DC	
Larios, Luis	007122-000	502 N 22Nd Ct	Front Yard by Meter	09/11/19	DCFE88D	FEBCO	850U	0.75	DC	
Larry Farkash	011696-000	1895 S TAVERNER DR	IN BOX ACROSS WALK FROM METER	03/20/20	DCFE85E	FEBCO	850	1	DC	
Larsen, Pamela	011845-000	1810 S Harrier Rd	In box across walk from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Larson, Brent & Christy	006969-000	1601 Falcon Dr	Side of garage behind gate	08/22/19	DCFE88D	FEBCO	850U	0.75	DC	
Larson, Jason & Angela	008217-000	1788 S Nighthawk Rd	IN BOX ACROSS WALK FROM METER SW CORNER	03/26/20	DCFE85E	FEBCO	850	1	DC	
Larson, Shawna	012113-000	4304 S 11th Way	NE right side of driveway 10' N of meter	02/12/19	DCWIAQJ	WILKINS	350	1	DC	
Laspa, Tevis & Gwen	005979-000	932 N Main Ave	pool room	07/18/19	RPWA00E	WATTS	009M2QT	1	RP	Pool
Laurinat, Robert W	009054-000	2132 S 13Th Cir	6' north of water meter	04/23/20	DCWI98E	WILKINS	950XLU	1	DC	
Leary, Bill & Melanie	011541-000	1822 S Dusky Dr	Right front of lawn	04/16/20	DCFE85E	FEBCO	850	1	DC	
Lee, Hoon & Pearl	009477-000	2206 S White Salmon Dr	by meter	07/16/19	DCFE85E	FEBCO	850	1	DC	
Lee, Jason & Nichol	011787-000	352 N Green Gables Loop	across sidewalk from meter	08/11/19	DCWIAQJ	WILKINS	350	1	DC	
Lee, Kristopher & Kevin	008952-000	3310 S 2nd Way	3310 S 2nd Way	08/09/16	DCFE88D	FEBCO	850U	0.75	DC	
Lee, Min	012388-000	3633 S Kennedy Dr	Left side of house	06/14/19	DCWIAQJ	WILKINS	350	1	DC	
Legare, Arthur & Mary	009476-000	2208 S White Salmon Dr	In box across walk from meter	07/16/19	DCFE85E	FEBCO	850	1	DC	
Lehner, Wendy	011827-000	2210 S Wind River Way	in box across walk from meter	07/13/19	DCWIAQL	WILKINS	350XL	0.75	DC	
Lennar NW Inc	009776-103	1615 S 47th Pl	5' past the heat pump on right side of house.	11/01/19	DCWIAQJ	WILKINS	350	1	DC	
Lennar NW Inc	009776-104	1627 S 47th Pl	Left side of house 10' past gas meter	11/04/19	DCWIAQJ	WILKINS	350	1	DC	
Lennar NW Inc	009776-208	3714 S Star View Loop	East side of house	11/30/19	DCWIAQJ	WILKINS	350	1	DC	
Lennar NW Inc	009776-074	4124 S Kennedy Dr	in box 15' North of SE corner of house	07/08/19	DCWIAQJ	WILKINS	350	1	DC	
Lennar NW Inc	009776-073	4132 S Kennedy Dr	in box 15' North of SW corner of house	07/08/19	DCWIAQJ	WILKINS	350	1	DC	
Lennar NW Inc	009776-179	4711 S 17th Dr	Left of driveway next to telcom box.	11/20/19	DCWIAQJ	WILKINS	350	1	DC	
Lennar NW Inc	009776-193	4723 S 17th Drive	At right front corner of property behind meter	11/14/19	DCWIAQJ	WILKINS	350	1	DC	
Lennar NW Inc	009776-141	4904 S 18th Dr	Front left corner of house	12/20/19	DCWIAQJ	WILKINS	350	1	DC	
Lennar NW Inc	009776-138	4918 S 18th Dr	Right of driveway near sidewalk	12/20/19	DCWIAQJ	WILKINS	350	1	DC	
Lennar NW Inc	009776-188	4923 S 18th Drive	Right side of front yard	10/11/19	DCWIAQJ	WILKINS	350	1	DC	
Lenzi, John and Amie	011376-000	2120 S Wind River Cir	in box at SW corner of house behind fence	08/02/19	DCWIAFT	WILKINS	350	0.75	DC	
Leong, Stephen & Mary	008168-000	1911 S 15Th Ct	behind meter	03/19/20	DCFE85E	FEBCO	850	1	DC	
Leonti, Patrick & Norma	008198-000	1637 S 17Th Cir	at water meter	09/24/19	DCFE88E	FEBCO	850U	1	DC	
Leung, David	009649-001	991 N Gibert Ct.	IN BOX AT THE SE CORNER OF HOUSE	05/05/20	DCWIAQJ	WILKINS	350	1	DC	
Lewis, Ellie & Leighton	006920-000	650 S 14Th Pl	sw corner of house	04/28/20	DCWI96E	WILKINS	950XL	1	DC	
Lewis, Gloria	010521-000	4219 N Ridgefield Woods Dr	by meter	05/06/20	DCFE85E	FEBCO	850	1	DC	
Lewis, Shannon & Jonna	007980-000	1610 S Dusky Dr	right front corner of property across from meter	03/18/20	DCWI98E	WILKINS	950XLU	1	DC	
Lewis, Sharon & Tom	012330-000	1534 S Nighthawk Cir	10' north of water meter	05/16/20	DCWIAQJ	WILKINS	350	1	DC	
Lewton, Richard & Prudence	008892-000	3407 S 1st Cir	By meter right of transformer	09/24/19	DCFE88D	FEBCO	850U	0.75	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
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ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Libby, David	011058-000	1626 N Heron Dr	West side of driveway up from water meter	07/22/19	DCFE88D	FEBCO	850U	0.75	DC	
Lillibridge, Brian	012687-000	1112 S 50th Ct.	By meter	11/25/19	DCWIAQJ	WILKINS	350	1	DC	
Linder, Walt	012467-000	4148 S Kennedy Dr	in box 15' North of SE corner of house	07/08/19	DCWIAQJ	WILKINS	350	1	DC	
Lindholme, Julie & Brian	008158-000	1731 15Th Ct	at water meter	03/19/20	DCFE85E	FEBCO	850	1	DC	
Lindsay, Justin & Jennifer	010147-001	1013 N Heron Dr	right side of house	10/03/19	DCFE85E	FEBCO	850	1	DC	
Lindsley, David	008271-000	1620 S Taverner Dr	At water meter	03/26/20	DCWI98D	WILKINS	950XLT	0.75	DC	
Lochlann, Pam	011558-000	304 S 32Nd Pl	North side of house	09/04/19	DCWI94D	WILKINS	950XLD	0.75	DC	
Lofgren, Scott	008160-000	1733 S 15Th Ct	1733 S 15th Ct	03/25/20	DCFE85E	FEBCO	850	1	DC	
Loftin, Robert	009422-000	2118 S Wind River Cir	in box behind garage by heatpump behind fence	09/22/19	DCWIAFT	WILKINS	350	0.75	DC	
Long, John & Kirsten	008153-000	1844 S 14Th Ct	in box across walk from meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
Long, Steven & Danielle	010528-000	4354 N 7Th Way	By meter	05/06/20	DCFE85E	FEBCO	850	1	DC	
Lopez, Alicia & Hector	012026-000	3723 S Willow Dr	In box 10' north of SE corner of house	10/09/19	DCWIAQJ	WILKINS	350	1	DC	
Lopez, Victoria & Victor	011881-001	673 S 15th Ct	6' west of water meter	05/30/19	DCFE88E	FEBCO	850U	1	DC	
Loring, Michael	012540-000	4974 S 18th Dr	Right side of driveway 10' behind meter	08/30/19	DCWIAQJ	WILKINS	350	1	DC	
Lucero, Lewis	007654-000	711 N 18Th Pl	NE corner of house	11/25/19	DCWI94D	WILKINS	950XLD	0.75	DC	
Lucescu, Eric & Maria	012088-000	1611 S 8th Way	In box 10' north of SW Corner of house	06/15/19	DCFE85E	FEBCO	850	1	DC	
Lucs, Trevor Craft & Claire	011853-000	1356 S 8th Way	Under front window	06/11/19	DCWI97E	WILKINS	950XLT	1	DC	
Lugar, Dennis & Lisa	010546-000	4825 N 6Th St	Front left property corner	06/30/19	DCFE85E	FEBCO	850	1	DC	
Luna, Samaranthe & John	012202-000	3115 S 1st St	in box east side of house by heat pump	06/28/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Lundquist, Matthew	008024-000	1526 S Taverner Dr	In box at meter	03/20/20	DCFE85E	FEBCO	850	1	DC	
Luque, Tracy & Chris	010112-000	118 N 38Th Pl	IN BOX 8' EAST OF GARAGE ACCESS DOOR SOUTHSIDE OF HOUSE.	04/01/20	DCFE88E	FEBCO	850U	1	DC	
Luque, Wolfgang	012504-000	3511 S Willow	Left side of house	08/17/19	DCWIAQJ	WILKINS	350	1	DC	
Lyman, Robert & Grace Lawson	007859-000	1706 S 24Th Pl	In box across walk from meter	05/18/19	DCFE85E	FEBCO	850	1	DC	
Macallister, Don	009918-000	3712 N Pioneer Canyon Dr	by meter	05/18/19	DCWIAQJ	WILKINS	350	1	DC	
Macdonald, David	006840-000	1515 S 5Th Cir	Across walk from meter	06/22/19	DCFE88E	FEBCO	850U	1	DC	
Machacek, Julie	012165-000	4403 N Ridgefield Woods Dr	by meter	05/11/19	DCFE85E	FEBCO	850	1	DC	
Macklin, Ken	011998-000	3817 N 5Th Way	back left corner of house along fence	10/10/19	DCWIAQJ	WILKINS	350	1	DC	
Macomber, Nick	011653-000	3801 N 5Th Way	in box across walk from meter	08/27/19	DCWIAFT	WILKINS	350	0.75	DC	
Madden, James & Susan	012708-000	919 S 50th Ct	Left of driveway	12/20/19	DCWIAQJ	WILKINS	350	1	DC	
Maddox, William & Ingrid	012207-000	1516 S Dusky Dr	8' east of corner of garage	06/07/19	DCWI98E	WILKINS	950XLU	1	DC	
Madrid, Pete & Lorraine	010092-000	3885 N 1st Way	12" box LH side of the home by the HVAC unit	04/01/20	DCWIAQJ	WILKINS	350	1	DC	
Maeda, Desiree	012339-000	4732 S 19th St	on right side of driveway 6' behind meter	04/29/20	DCWIAQJ	WILKINS	350	1	DC	
Mai, Jennatra Eanapun & Surkay	011861-000	1451 S 6Th Way	by water meter	06/28/19	DCFE88E	FEBCO	850U	1	DC	
Maio, Wayne & Sheila	010094-000	3883 N 1st Way	In box behind garage	04/01/20	DCFE88E	FEBCO	850U	1	DC	
Malenchan, Alyena	012411-000	3708 S Kennedy	Behind garage	06/07/19	DCWIAQJ	WILKINS	350	1	DC	
Malinen, Ann	010069-000	3993 N 1st Way	In box west side of garage	09/25/19	DCFE88E	FEBCO	850U	1	DC	
Malmrose, Gerald E.	009231-000	804 N Heron Dr	@ watermeter	08/08/19	DCFE85E	FEBCO	850	1	DC	
Malone, Alan & Elaine	009790-000	3403 N Pioneer Canyon Dr	10' past water meter	04/23/20	DCWIAQJ	WILKINS	350	1	DC	
Manning, Joe	010616-001	1695 S Nighthawk Road	10' SOUTH OF WATER METER	10/22/19	DCFE85E	FEBCO	850	1	DC	
Manning, Mary B	007225-000	624 N 18Th Pl	in box across walk from meter by driveway	08/24/19	DCFE88D	FEBCO	850U	0.75	DC	
Mansur, Joanna	011798-002	1139 S 44th Ave		04/21/19	DCFE85E	FEBCO	850	1	DC	
Mantey, David	012561-000	3625 S Kennedy Dr	Back of garage	08/09/19	DCWIAQJ	WILKINS	350	1	DC	
Marcou, David	011483-000	1819 Falcon Dr	by water meter	03/20/20	DCFE85E	FEBCO	850	1	DC	
Marks, Steve & Linda	009337-000	1009 N Heron Dr	Right corner of home	08/07/19	DCFE85E	FEBCO	850	1	DC	
Marks, Wayne	009280-000	1221 N 8th Way	IN BOX 8' FROM METER	05/20/19	DCWIAQJ	WILKINS	350	1	DC	
Marsh, Cynthia	011806-000	4774 S 18th Dr	on left side of DWY by meter	08/22/19	DCWIAQJ	WILKINS	350	1	DC	
Marshack, Kenneth	006826-000	1800 S 8th Way	by meter	06/27/19	DCWI98E	WILKINS	950XLU	1	DC	
Marshall, Laura	011907-000	1301 S Fieldcrest Dr	By meter	07/11/19	DCFE85E	FEBCO	850	1	DC	
Martell, Patricia	012142-000	3756 S Kennedy Dr	behind garage	02/03/19	DCWIAQJ	WILKINS	350	1	DC	
Martin, Holland	012705-000	1010 S 50th Ct	By meter	12/11/19	DCWIAQJ	WILKINS	350	1	DC	
Martin, Matt	012533-000	759 N 47Th Ave	BY METER	08/19/19	DCFE85E	FEBCO	850	1	DC	
Maruhn, Vicki	006660-000	3025 S Cornett Dr	At water meter	06/01/19	RPWA00E	WATTS	009M2QT	1	RP	Unapproved Auxiliary Water
Mashburn, Janet	007035-000	2045 Falcon Dr	West side of house	07/14/19	DCFE88D	FEBCO	850U	0.75	DC	
Mason Supply Company	010697-000	7707 S Union Ridge Parkway	NW Corner by driveway	07/02/19	DCAM20G	AMES	2000B	1.5	DC	
Mason Supply Company	010697-000	7707 S Union Ridge Parkway	Nw corner by driveway	07/02/18	DDWA00H	WATTS	007DCDA	2	DCDA	
Mason Supply Company	010697-000	7707 S Union Ridge Parkway	Fire Line	07/02/19	DCWAACM	WATTS	757A	6	DC	
Mason, Mike	006731-000	2291 S 29th Ct	2291 S 29th Ct	/ /	DCWA02E	WATTS	007M1PCQT	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Matalana, Ed & Lynne	010606-000	4526 N Noble Loop	East side of home	10/28/19	DCFE85E	FEBCO	850	1	DC	
Matthews, Jayson	009435-000	2504 S Nisqually Ave	in lawn box north side of driveway	05/04/20	DCFE85E	FEBCO	850	1	DC	
Maul, John	006242-000	414 N Main Ave	box at NW corner of house	06/01/19	DCWI97E	WILKINS	950XLT	1	DC	
Mauseeth, Keith & Patricia	006851-000	1450 S 6Th Way	in box across walk from meter	05/05/20	DCFE88E	FEBCO	850U	1	DC	
May, Vincent & Cristy	009842-001	4010 S Kennedy Dr	left side of house	04/10/20	DCWIAQJ	WILKINS	350	1	DC	
Maygren, Breanne	010061-001	2021 S Osprey Dr	Off Meter	07/13/19	DCFE88E	FEBCO	850U	1	DC	
McCafferty, Candace	011110-000	1327 S 7Th Cir	Front of house by meter in box	03/27/20	DCFE88E	FEBCO	850U	1	DC	
Mccamish, Teresa	008218-000	1766 S Nighthawk Rd	In box across walk from meter	03/26/20	DCFE85E	FEBCO	850	1	DC	
Mccardel, Jeff	009198-000	903 N 9Th Way	At right front corner of prop behind meter	08/08/19	DCFE88E	FEBCO	850U	1	DC	
Mccarstle, Natalie	009056-000	2112 S 13Th Cir	By garage	08/24/19	DCWI96D	WILKINS	950XL	0.75	DC	
Mcclellan, Gary	010640-000	752 N 47Th Ave	BY METER	05/01/20	DCFE85E	FEBCO	850	1	DC	
McClellan, Shane	012694-000	4357 N 7Th Way	BY METER	10/20/19	DCFE85E	FEBCO	850	1	DC	
Mcclung, Kathy	007534-000	712 Lark Dr	south side of house	07/25/19	DCFE88E	FEBCO	850U	1	DC	
McConnell, Michael	012295-000	1839 S 47th Pl	left front corner of property by meter	10/29/19	DCWIAQJ	WILKINS	350	1	DC	
Mccourt, Karleen	008286-000	27 S 32Nd Pl	in box on north side of house by heat pump	07/09/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Mccoy, Kim	007373-000	1715 N Heron Dr	East side of house behind gate (new gate)	03/25/20	DCFE88E	FEBCO	850U	1	DC	
Mccoy, William	009091-000	1910 S 15Th Cir	Front of house by WM	08/24/19	DCFE88E	FEBCO	850U	1	DC	
Mccully, Stacey	012537-000	3628 S Willow Dr	Right side of house	08/24/19	DCWIAQJ	WILKINS	350	1	DC	
Mcdonald, Patrick	008147-000	1837 S 14Th Ct	LPL	03/18/20	DCFE85E	FEBCO	850	1	DC	
Mcdonnell, Jennifer	006938-000	1180 S 7Th Cir	SE corner of property at meter	09/19/19	DCWI97E	WILKINS	950XLT	1	DC	
McGrory, Nancy	011429-000	1848 S Taverner Drive	10? east of water meter	08/01/19	DCFE85E	FEBCO	850	1	DC	
Mcguffin, Patrick & Alexandra	010519-000	4227 N Ridgefield Woods Dr	By meter	09/19/19	DCFE85E	FEBCO	850	1	DC	
Mchenry, Sallie	009821-000	264 N Green Gables Loop	in box at SE corner of house	03/27/20	DCWIAQJ	WILKINS	350	1	DC	
Mcirvin, Joyce	005729-000	23 S Gee Creek Loop	in box at meter	09/24/19	DCWI97E	WILKINS	950XLT	1	DC	
Mckay, Dave	008403-000	3131 S 2nd St	in box middle of house west side under window	09/19/19	DCWI99D	WILKINS	950XLU	0.75	DC	
McKee, Richard & Kathy	012136-000	1226 S Fieldcrest Dr	Left side of house in bark bed	11/25/19	DCWIAQJ	WILKINS	350	1	DC	
Mckee, Ruth	007324-000	1615 N 8th Way	6' east of water meter	07/22/19	DCFE88D	FEBCO	850U	0.75	DC	
Mckenna, Craig	007557-000	2010 N 9Th Way	SW Corner of House	08/01/19	DCWA7ME	WATTS	007M1QT	1	DC	
Mckenzie, Diana & Ralph	006996-000	1803 Falcon Dr	6? south of water meter	08/01/19	DCFE88D	FEBCO	850U	0.75	DC	
Mckernan, Brian	009063-000	2022 S Osprey Dr	Front yard by water meter	03/27/20	DCFE88E	FEBCO	850U	1	DC	
Mckethan, Dennis & Ginger	008110-000	1652 S 15Th Way	front by meter	03/19/20	DCFE85E	FEBCO	850	1	DC	
McLaren, Gabby	010647-000	886 N 47Th Ave	By meter	06/10/19	DCFE85E	FEBCO	850	1	DC	
McLaughlin, Angela	011303-000	4564 N 9Th St	SE corner by front yard in bark bed	06/10/19	DCWIAQJ	WILKINS	350	1	DC	
Mclaughlin, Kevin & Amanda	007040-001	638 N 12th Court	IN BOX UNDER FRONT PORCH BY THE SW CORNER	10/13/19	DCWIAQJ	WILKINS	350	1	DC	
Mclaughlin, Steve & Kathleen	008128-000	1362 S 15Th Way	In box across the walk from meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
McLeod, Russ	011874-000	1191 S Fieldcrest Dr	By meter	06/18/19	DCFE85E	FEBCO	850	1	DC	
McMahon, Michael	012062-000	2315 S White Salmon Dr	in box across walk from meter	06/19/19	DCWIAFT	WILKINS	350	0.75	DC	
Mcmillan, May Deiter and Timothy	012293-000	1715 S 47th Pl	at left front corner of prop by meter	01/01/19	DCWIAQJ	WILKINS	350	1	DC	
Mcnett, Justin & Jackie	010590-000	732 N 47Th Ave	By meter	09/06/19	DCFE80E	FEBCO	805	1	DC	
Mc Reynolds, Rachel	008133-000	1272 S 15Th Way	On right side of front yard 6' behind meter	03/19/20	DCFE85E	FEBCO	850	1	DC	
Means, Karl & Vineta	009395-000	2209 S White Salmon Dr	Left side of Driveway behind Meter	05/12/20	DCFE85E	FEBCO	850	1	DC	
Mendenhall, Craig	012727-000	1637 Falcon Dr	next to driveway left side	09/23/19	DCWI94D	WILKINS	950XLD	0.75	DC	
Merriman, Jake & Anne	006948-000	1217 S 7Th Cir	At left front corner of house to right.	05/28/19	DCFE88E	FEBCO	850U	1	DC	
Meyer, Leonard & Jean	009794-000	3411 N Pioneer Canyon Dr	in box across walk from meter	04/23/20	DCWIAFT	WILKINS	350	0.75	DC	
MICHAEL & TERI WEISMAN	009485-000	2203 S CISPUS WAY	in box north side of house behind fence by heat pump	05/12/20	DCWI99D	WILKINS	950XLU	0.75	DC	
Mikhno, Aleksandr	012152-000	1701 S 8th way		06/15/19	DCWIAQJ	WILKINS	350	1	DC	
Mikkelson, Cassandra & Joel Crile &	011906-000	303 Maple St	NE corner of house	06/14/19	DCWI97E	WILKINS	950XLT	1	DC	
Millar, Diane & Curtis	011705-000	2380 S 31St Ct	Left of front door next to house under rhododendron	05/04/19	DCAPAOK	APOLLO/CONBRACO	40-105-A2	1	DC	
Miller, Brian & Tamra	008053-000	1203 S Great Blue Rd	By meter	03/26/20	DCFE85E	FEBCO	850	1	DC	
Miller, Jon & Linda Goode	012662-000	3710 S Star View Loop	right side of house	11/06/19	DCWIAQJ	WILKINS	350	1	DC	
Miller, Kenneth & Marsha	009090-000	1912 S 15Th Cir	sw corner of garage by driveway	09/19/19	DCFE88E	FEBCO	850U	1	DC	
Miller, Lynn Claire	008164-000	1841 S 15Th Ct	At NE corner of house	03/19/20	DCFE85E	FEBCO	850	1	DC	
Miller, Scott	012483-000	4135 S 11th Cir	By meter	04/28/20	DCFE85E	FEBCO	850	1	DC	
Miller, Sheila	012456-000	4812 S 19th St	at left front corner of property	04/02/19	DCWIAQJ	WILKINS	350	1	DC	
Minor, Kristy & Steven	010534-000	622 N 44th Ct	in box across walk from meter	05/06/20	DCWIAQJ	WILKINS	350	1	DC	
Mitchell, Todd	009450-000	2312 S Nisqually Ave	by meter	06/12/19	DCFE85E	FEBCO	850	1	DC	
MN Ventures LLC, Michael Schnidrig	011945-000	121 N Main Ave	under 3 compartment sink in bar	05/08/19	RPWAAQV	WATTS	LF009QT	0.5	RP	Carbonator

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Moffat, Steve & Sue	005384-000	627 S Hillhurst Rd	south side of home	04/30/20	DCWI98E	WILKINS	950XLU	1	DC	
Molitor, Robert	012739-000	1865 S 50th Place	Right side of house just behind gate	12/13/19	DCWIAQJ	WILKINS	350	1	DC	
Mollet, Casey and Jason	007536-001	2772 Swainson Ct	West of front entry	11/01/19	DCFE88E	FEBCO	850U	1	DC	
Montgomery, William David	010625-000	4644 N 9Th St	BY METER	06/10/19	DCFE85E	FEBCO	850	1	DC	
Moon, Tae	010531-000	4358 N 7Th Way	IN BOX AT THE SW CORNER OF HOUSE	05/16/19	DCWIAQJ	WILKINS	350	1	DC	
Moore, Frank & Marilyn	009326-000	1207 N Heron Dr	@ water meter	05/23/19	DCFE88E	FEBCO	850U	1	DC	
Moore, Krista & Stephen	005031-000	302 N 23Rd Pl	in box next to drive 20' from NW corner of house	09/12/19	DCWIAQJ	WILKINS	350	1	DC	
Moran, Patrick	008131-000	1276 S 15Th Way	Front yard by water meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
More, Jared	009879-000	521 N Helens View Dr	Front yard by water meter	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Morgan, William & Kairen	012041-000	3911 S Willow Dr	in box behind fence 12' South of NW corner of house	09/28/19	DCWIAQJ	WILKINS	350	1	DC	
Moro-Baxter, Carl and Stephanie	011331-000	899 N 47Th Ave	SW CORNER LEFT SIDE OF DRIVEWAY BY OPWER BOX	07/30/19	DCWIAQJ	WILKINS	350	1	DC	
Morr, Jim	011860-000	4721 S 18th Dr	at left front corner of prop by meter	09/11/19	DCWIAQJ	WILKINS	350	1	DC	
Morris, David & Meredith	010522-000	4215 N Ridgefield Woods Dr	IN BOX BY THE WALK SE CORNER OF GARAGE	03/25/20	DCWIAQJ	WILKINS	350	1	DC	
Morris, Jason & Emily	012465-000	127 N 39th Ct	IN BOX BY HEAT PUMP NORTHSIDE OF HOUSE	04/08/19	DCFE88E	FEBCO	850U	1	DC	
Morris, Jim	005399-000	1025 S Sunset Ln	box by deck west side of house	08/08/19	DCWA7ME	WATTS	007M1QT	1	DC	
Morris, Larry	006864-000	1250 S 6th Way	by water meter	06/11/19	DCFE88E	FEBCO	850U	1	DC	
Morrison, Karyn & Chris	010104-000	110 N 38Th Pl	In box at the SW corner of house	07/29/19	DCFE88E	FEBCO	850U	1	DC	
Mueller, Matthias	007444-000	2411 N Heron Dr	East side of house behind gate	05/05/20	DCWI95E	WILKINS	950	1	DC	
Mueller, Phyllis	011569-000	1447 S 8th Way		/ /	WIL375	WILKINS	375	1.5	RP	
Mueller, Randy	007596-000	1919 N 9th Way	1919 N 9th Way	05/14/09	DCFE88E	FEBCO	850U	1	DC	
Muhonen, Aaron	012285-000	1867 S Harrier Rd	In Box across walk from meter	09/04/19	DCFE85E	FEBCO	850	1	DC	
Muir, Erika	012133-000	1650 S 15Th Way	At water meter	03/19/20	DCFE85E	FEBCO	850	1	DC	
Mullane, Patrick	011408-000	535 N Allen Creek Dr	12 ft from meter in grass	09/11/19	DCWIAQJ	WILKINS	350	1	DC	
Mullens, Carolyn & David	009025-000	2127 S Osprey Dr	At water meter	08/24/19	DCFE88E	FEBCO	850U	1	DC	
Murray, Andrea	008223-000	1711 S Nighthawk Rd	In box across walk from meter	03/26/20	DCFE85E	FEBCO	850	1	DC	
Myers, Ray & Robin	012059-000	3821 S Willow Dr	in box behind garage	11/25/19	DCWIAQJ	WILKINS	350	1	DC	
Myers, William	009470-000	2318 S White Salmon Dr	in box across walk from meter	08/21/19	DCWIAFT	WILKINS	350	0.75	DC	
Myrtle's Teahouse & Herbery	006422-000	321 N 3rd Ave	Left side of driveway	05/08/19	DCWI97E	WILKINS	950XLT	1	DC	
Nastri, Mitch & Rebecca	010601-000	4537 N 9th St	By meter	09/11/19	DCFE85E	FEBCO	850	1	DC	
Natale, Ralph	012395-000	1018 S 50th Ct	By meter	07/17/19	DCFE85E	FEBCO	850	1	DC	
Nawn, William & Carla	009511-000	1918 S Sevier Rd	NE corner of house under deck	09/05/19	DCWIAQJ	WILKINS	350	1	DC	
NAZARENE CHURCH	005241-000	747 PIONEER ST	Mechanical room - west end of basement	09/11/19	DCAM20K	AMES	2000CIV	4	DC	Church
NAZARENE CHURCH-IRRIGATION	005240-000	747 PIONEER ST	irrigation	09/11/19	DCFE88E	FEBCO	850U	1	DC	Irrigation
Neal, Merry & Roy	011620-000	505 N 40th Ave	sideyard of home	11/01/19	DCWIAQJ	WILKINS	350	1	DC	
Nehring, Karen Wells & David	007927-000	1623 S Phoebe Dr		07/09/19	DCWI97E	WILKINS	950XLT	1	DC	
Nehring, Micheala	012707-000	2012 S 19th Way	east side of house under deck	08/02/19	DCFE88E	FEBCO	850U	1	DC	
Neiberger, Kristine & Jason	009111-000	2310 S 16Th Cir	@ WATER METER	10/17/19	DCFE88E	FEBCO	850U	1	DC	
Nelsen, Edna & Dennis	006907-000	683 S 15Th Ct	South side of house	03/26/20	DCFE88D	FEBCO	850U	0.75	DC	
Nelson, Merick & Whitney	012185-000	1808 S 8th Way	In box 10' north of sw corner of house	07/13/19	DCWIAQJ	WILKINS	350	1	DC	
Neubert, Jeff & Melissa	006514-000	401 N 4Th Ave	in pool room	07/25/19	RPFE86C	FEBCO	860	0.5	RP	Pool
Neubert, Jeff & Melissa	006514-000	401 N 4Th Ave	next to meter	07/25/19	DCFE88E	FEBCO	850U	1	DC	
New Tradition Homes	009388-086	1291 S 44th Ave	By meter	08/21/19	DCFE85E	FEBCO	850	1	DC	
Newbold, Amanda & Dan	012046-000	3903 S Willow Dr	in box behind garage	10/17/19	DCWIAQJ	WILKINS	350	1	DC	
Newell, Debbie	007956-000	2108 S 19Th Way	By meter	09/24/19	DCFE85E	FEBCO	850	1	DC	
Nguyen, Linda	011613-000	4518 N Noble Loop	LEFT SIDE OF HOUSE IN FRONT OF AC UNIT	05/16/20	DCWIAQJ	WILKINS	350	1	DC	
Nguyen, Long & Christina	012051-000	4209 S 11th Way	by meter	09/25/19	DCFE85E	FEBCO	850	1	DC	
Nichols, Nancy	012600-000	4724 S 16th Dr	At meter, front left corner of property	08/06/19	DCWIAQJ	WILKINS	350	1	DC	
Nichols, Wesley	010540-000	4724 N 6th St	by meter	06/17/19	DCFE85E	FEBCO	850	1	DC	
Nindel-Edwards, James & Jeanne	011920-000	1717 S Harrier Rd	In box across walk from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Niten, Jeff & Rachel	009374-000	907 N 7Th Cir	At the water meter	06/13/19	DCFE88E	FEBCO	850U	1	DC	
Njoun, Ammar & Kathleen	010537-000	582 N 44th Ave	Side of driveway	10/08/19	DCFE85E	FEBCO	850	1	DC	
Nolan, Erin	006929-000	1324 S 7Th Cir	10 ft east of water meter	05/30/19	DCFE88E	FEBCO	850U	1	DC	
Noonan, Cynthia	011453-000	1604 S 47th Pl	On right side of house by AC unit	01/15/19	DCWIAQJ	WILKINS	350	1	DC	
Norby, Stacey & Matthew	009060-000	2128 S Osprey Dr	at water meter	08/24/19	DCFE88E	FEBCO	850U	1	DC	
Noriega, Gary & Mary	012623-000	3713 S Star View Loop	East side of house	10/28/19	DCWIAQJ	WILKINS	350	1	DC	
Norman, Lana & Brad	009393-000	2205 S White Salmon Dr	by meter	07/16/19	DCFE85E	FEBCO	850	1	DC	
Norquist, Skeet & Kimberly	009820-000	262 N Green Gables Loop	left of driveway	08/14/19	DCWIAQJ	WILKINS	350	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Norris, Michelle & Eric	005961-000	110 N Depot St	NE corner of property	05/12/20	DCWI97E	WILKINS	950XL	1	DC	
North Pacific Union Conference Asso	005776-000	5709 N 20Th St	basement - furnace room on fireline	10/30/19	DCAMAAP	AMES	COLT 200	4	DC	Offices
North Pacific Union Conference Asso	005776-000	5709 N 20Th St	in basement by furnace unit	10/30/19	RPWA00J	WATTS	009	3	RP	Offices
North Pacific Union Conference Asso	005776-000	5709 N 20Th St	by meter inside fence	10/30/19	DCWA03G	WATTS	007M2PCQT	1.5	DC	Offices
Norton, Jeff	007746-000	1632 N Heron Dr	10' past water meter	07/18/19	DCFE88D	FEBCO	850U	0.75	DC	
Norton, Lori & Jay	008179-000	1651 S 15Th Way	right side of house by gas meter	03/19/20	DCWI96E	WILKINS	950XL	1	DC	
Norton, Terry	011871-000	1688 S Harrier Rd	In box across from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Novak, Carrie	011943-000	4226 S 11th Way	by utilities	11/01/19	DCFE85E	FEBCO	850	1	DC	
Novak, Mark	011214-000	1274 S 15Th Way	In box across walk from meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
Nutter, David & Cynthia	010523-000	4342 N 7Th Way	In box by drive across walkway from meter	03/19/20	DCWIAQM	WILKINS	350XL	1	DC	
Nutter, Mike and Rheanna	011285-001	715 S 15Th Ct	SE corner of house	07/13/19	DCWI96E	WILKINS	950XL	1	DC	
NWSS SRC Ridgefield Storage LLC	011461-000	6300 S 11th St	Timm Rd/11th St	04/21/11	DCFE85G	FEBCO	850	1.5	DC	Irrigation
Oelke, Jason	012486-000	3638 S Kennedy Dr.	Behind garage	08/03/19	DCWIAQJ	WILKINS	350	1	DC	
Ohama, Lori and Joseph	011354-000	1821 S Dusky Dr	IN BOX ACROSS WALK FROM METER	03/19/20	DCFE85E	FEBCO	850	1	DC	
Oliver, Frank	007751-000	1624 N Heron Dr	Front by water meter	08/24/19	DCFE88D	FEBCO	850U	0.75	DC	
Olmstead, Julie & Jon	009800-000	327 N 35Th Ave	by meter	09/12/19	DCWIAQJ	WILKINS	350	1	DC	
Oltmann, Benjamin & Laura	009398-000	2313 S White Salmon Dr	in box next to pump	06/18/19	DCWIAFT	WILKINS	350	0.75	DC	
Osborne, Amber	010111-000	117 N 38Th Pl	12" box LH side of the garage	07/29/19	DCWIAQJ	WILKINS	350	1	DC	
Osprey Pointe Inc	009107-000	1511A S 24th Ct	next to Cassini View Lift Station	06/10/19	DCFE88E	FEBCO	850U	1	DC	Irrigation
Osprey Pointe Inc	009008-000	Irrig Mtr Near Lot 1 In Plante	Osprey Pointe Irrigation Meter (entrance)	06/10/19	DCFE85E	FEBCO	850	1	DC	Irrigation
Osprey Pointe Inc.	009059-000	1327 S 21st Pl	across from lot 18 Osprey Pt (1406 S 21st Pl)	06/10/19	DCFE88E	FEBCO	850U	1	DC	Irrigation
Otoupal, Anna	012239-000	4836 S 19th St	at left front corner of property near electrical box	04/08/19	DCWIAQJ	WILKINS	350	1	DC	
Owen, Darlene & Berry	007820-000	2205 S 17th Way	6' south of water meter	04/23/20	DCFE88E	FEBCO	850U	1	DC	
Pacific Bells LLC	012643-000	50 S 48th Pl	North of meter in exit of drive through	11/22/19	DCWAAMW	WATTS	LF007M2QT	1.5	DC	
Pacific Bells LLC	012643-000	50 S 48th Pl	East of meter	11/25/19	DCWIANB	WILKINS	350	2	DC	
Pacific Bells LLC	012643-000	50 S 48th Pl	Between soda mixer & fryer	12/09/19	RPWAAQU	WATTS	LF009M3QT	0.75	RP	
Pacific Bells LLC	012643-000	50 S 48th Pl		12/09/19	RPWAAQV	WATTS	LF009QT	0.5	RP	
Pacific Power Group	010680-000	6100-6200 S 6Th Way	fire sprinkler riser room	08/16/19	RPWA00J	WATTS	009	3	RP	Fireline - Class 1
Pacific Power Group	010680-000	6100-6200 S 6Th Way	outside of fire sprinkler building by 2" meter	03/04/19	DCFE86H	FEBCO	850U	2	DC	
Pacific Power Group	010680-000	6100-6200 S 6Th Way	by machine cabinets	03/04/19	RPWAAQQ	WATTS	LF009M2QT	1	RP	
Pacific Power Group	010680-000	6100-6200 S 6Th Way	in bolier room	03/04/19	RPWA00D	WATTS	009M3QT	0.75	RP	
Pacific Power Group	010680-000	6100-6200 S 6Th Way	in riser/mech room off dom rpba	03/04/19	RPWA00H	WATTS	009M2PCQT	2	RP	Industrial
Pacific Power Group	010680-000	6100-6200 S 6Th Way	in riser/mech room (fire system)	03/04/19	DCAMDCM	AMES	DC	8	DC	Industrial
Pacific Power Group	010680-000	6100-6200 S 6Th Way	Upstairs water heater room	03/04/19	DCWAAMX	WATTS	LF007M3QT	0.75	DC	Industrial
Palm, John	008070-000	1309 S Great Blue Rd	near water meter	03/26/20	DCAPARW	APOLLO/CONBRACO	DC40	0.75	DC	
Panek, John	011786-000	1671 S Nighthawk Rd	In box across from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Pankow, Corrie	011222-000	1279 S 15Th Way	across walk from meter	03/18/20	DCWIAQJ	WILKINS	350	1	DC	
Park, Hannah	009718-001	4836 N 6th St	Discovery Ridge Lot 41 - At Meter	09/11/19	DCWIAQJ	WILKINS	350	1	DC	
Parnell, Windy	012539-000	3604 S Willow Dr	Left side of house	08/24/19	DCWIAQJ	WILKINS	350	1	DC	
Parr Lumber Company	010677-000	1111 S Timm Rd	vault by meter	05/02/19	DCWA00H	WATTS	007M1QT	2	DC	
Parr Lumber Company	010677-001	1111 S Timm Rd	irrigation box by meter	02/11/19	DCWA72G	WATTS	007M2QT	1.5	DC	Irrigation
Parr Lumber Company	010677-001	1111 S Timm Rd	Vault by meter	05/02/19	DCWA72L	WATTS	774X	6	DC	
Parrish, Scott	012655-000	3519 S Willow Dr.	Behind garage	11/06/19	DCWIAQJ	WILKINS	350	1	DC	
Pastucha, Gayle & Mark	012300-000	1124 S 44th	North side of house	05/14/20	DCWIAQJ	WILKINS	350	1	DC	
Patel, Rita & Jitendra	009099-000	1514 S 24Th Ct	At water meter	10/19/19	DCFE88E	FEBCO	850U	1	DC	
Paterson, Teri & Randy	008121-000	1572 S 15Th Way	across sidewalk from meter	03/19/20	DCFE85E	FEBCO	850	1	DC	
Paveglio, Nick	007875-000	2306 S 17Th Way	by SE corner of garage	05/05/20	DCWI98E	WILKINS	950XLU	1	DC	
Pavliuk, VasyI Nykforets & Olesia	009504-000	2312 S Sauk Way	by meter	05/14/19	DCFE85E	FEBCO	850	1	DC	
Pearson, Briana	012536-000	813 Pioneer St	at watermeter	11/25/19	DCFE88E	FEBCO	850U	1	DC	
Peck, Meghan	008209-000	1763 S 18Th Cir	right of driveway by meter	04/24/20	DCWIAQJ	WILKINS	350	1	DC	
Peebles, Tyler	009431-000	2545 S Demaris Pl	Fire Sprinkler Line in basement mechanical wall hatch. Near water	07/08/19	DCAM20E	AMES	2000B	1	DC	
Peebles, Tyler	009431-000	2545 S Demaris Pl	Irrigation line in basement mechanical wall hatch. Near water heat	07/08/19	DCWAAMT	WATTS	LF007M1QT	1	DC	
Peeler, Ben & Heather	011482-000	2131 S Osprey Dr	Front yard by water meter	03/27/20	DCFE88E	FEBCO	850U	1	DC	
Perkins, Joel	011626-000	1628 N Heron Dr	10' north of water meter	05/05/20	DCFE88D	FEBCO	850U	0.75	DC	
Perkins, Samuel & Ramona	008043-000	1306 S Great Blue Rd	In Box at the SW corner of house	03/25/20	DCFE85E	FEBCO	850	1	DC	
Perry, Brandon	012642-000	3627 S Star View Loop	Left side of house	10/22/19	DCWIAQJ	WILKINS	350	1	DC	
Peru, Angela	010593-000	627 N 47th Ave	SOUTH SIDE OF HOUSE, PAST FENCE	05/12/20	DCWIAQJ	WILKINS	350	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Pete, Diana	012499-000	4737 S 16th Dr	At meter, front right corner of propery	08/06/19	DCWIAQJ	WILKINS	350	1	DC	
Petersen, Jake	011027-000	4349 N 7Th Way	SE side of house by AC unit	07/19/19	DCWIAQJ	WILKINS	350	1	DC	
Petersen, Leaa	009831-000	356 N Green Gables Loop	left side of driveway	04/29/20	DCWIAQJ	WILKINS	350	1	DC	
Peterson, Briana	011064-000	875 N 47Th Ave	By meter	09/06/19	DCFE85E	FEBCO	850	1	DC	
Peterson, Dale	008040-000	1412 S Taverner Dr	in box middle of south side of house	05/12/20	DCFE85E	FEBCO	850	1	DC	
Petrick, Michelle Alanen & Jerry	011843-000	1125 S Fieldcrest Dr	South side of house behind fence	04/07/20	DCWIAQJ	WILKINS	350	1	DC	
Petrie, Shawn & Christal	010646-000	871 N 47Th Ave	NW corner front of house between street and sidewalk	09/06/19	DCWIAQJ	WILKINS	350	1	DC	
Peurano, Hilary	012130-000	955 Cemetery Rd	24" box at meter	09/21/19	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Pfeiffer, Chris & Terra	010627-000	4592 N 9Th St	Front yard between street and sidewalk	09/06/19	DCWIAQJ	WILKINS	350	1	DC	
Phelps, Josh & April	009305-000	1215 N 9Th Way	by meter	06/13/19	DCFE85E	FEBCO	850	1	DC	
Phillips, James & Nancy	012267-000	1468 S Harrier Cir	@ water meter	04/23/20	DCWIAQJ	WILKINS	350	1	DC	
Phillips, Kari	011208-000	1616 N Heron Dr	Across sidewalk from water meter	07/22/19	DCFE88D	FEBCO	850U	0.75	DC	
Pick, Stephen	011714-000	3131 S Coopers Dr	SE side of yard behind gate	09/03/19	DCAPASD	APOLLO/CONBRACO	DC4A	1	DC	
Pierce, Jamie	008238-001	2322 S Royal Court	At left front corner of property by meter	12/13/19	DCFE88D	FEBCO	850U	0.75	DC	
Pieren, Linda	009041-000	1410 S 21St Pl	At water meter	06/10/19	DCFE88E	FEBCO	850U	1	DC	
Pimentel, Ronald & Sarah	007591-001	1621 S Taverner Dr	@ water meter	06/13/19	DCFE88E	FEBCO	850U	1	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	by community bldy in VLT - Pioneer Apartments	03/08/19	DCWAAEV	WATTS	757	8	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser Room Building "A"	08/13/19	DCAMAGA	AMES	200B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser Room Building "B"	08/13/19	DCAMAGA	AMES	200B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser room building "C"	08/13/19	DCAM20G	AMES	2000B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser room building "D"	08/13/19	DCAM20G	AMES	2000B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser room building "E"	08/13/19	DCAM20G	AMES	2000B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser room building "F"	08/13/19	DCAM20G	AMES	2000B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser room building "G"	08/13/19	DCAM20G	AMES	2000B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser room building "J"	10/29/19	DCAM20G	AMES	2000B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser room building "H"	10/29/19	DCAM20G	AMES	2000B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser room building "T"	10/28/19	DCAM20G	AMES	2000B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser room building "R"	10/28/19	DCAM20G	AMES	2000B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser room building "Q"	10/28/19	DCAM20G	AMES	2000B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser room building "P"	10/28/19	DCAM20G	AMES	2000B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser room building "M"	10/28/19	DCAM20G	AMES	2000B	1.5	DC	
Pioneer 45 LLC	012120-000	4125 S Settler Dr	Riser room building "N"	10/28/19	DCAM20G	AMES	2000B	1.5	DC	
Pioneer Canyon Hoa	010538-000	Pioneer Canyon Irrig On N 1st	In sidewalk South side of N 1st wy at N 44th pl	06/07/19	DCFE85H	FEBCO	850	2	DC	Irrigation
Pioneer Street Llc	006387-000	104 Pioneer St	basement - fireline (no chemicals)	06/25/19	DCAM2DK	AMES	2000-DCA	4	DC	Fireline - Class 1
Pitman, Bill	012659-000	862 N 47th Ave	by meter	05/06/20	DCFE85E	FEBCO	850	1	DC	
Pitts, Ricardo & Trudy	012710-000	1503 S Nighthawk Circle	10' South of water meter	12/02/19	DCFE85E	FEBCO	850	1	DC	
Platt, Travis	009507-000	2206 S Sauk Way	in box across walk from meter	05/04/20	DCWIAFT	WILKINS	350	0.75	DC	
Plunkett, Lori & David	010623-000	934 N Noble Loop	By meter	05/01/20	DCFE85E	FEBCO	850	1	DC	
Podhora, Rebecca	012102-000	3722 S Willow Dr	in box at the SE corner of house	10/27/19	DCWIAQJ	WILKINS	350	1	DC	
Poki, Shalamar	011193-000	1508 N 8th Way	Across sidewalk from water meter	08/08/19	DCFE88D	FEBCO	850U	0.75	DC	
Pond, Scott and Jennifer	011761-000	4708 S 19th St	Right front corner of prop by meter.	09/06/19	DCWIAQJ	WILKINS	350	1	DC	
Popov, Valer	012298-000	3647 S Willow Dr	left side of house	05/12/20	DCWIAQJ	WILKINS	350	1	DC	
PORT OF ENTRY	005774-000	29317 INTERSTATE 5	29317 Interstate 5 - Port of Entry Weigh Scales NB	04/02/09	DCWA70L	WATTS	709QT-FDA	6	DC	Irrigation
Port Of Ridgefield	005814-000	111 Division St	east side of restrooms	07/01/19	DCWI96E	WILKINS	950XL	1	DC	
Port Of Ridgefield	005814-000	111 Division St	N end of building #1	07/01/19	DCAM20K	AMES	2000CIV	4	DC	
Port Of Ridgefield	005814-000	111 Division St	Tent Remediation Area	07/15/11	RPWA00D	WATTS	009M3QT	0.75	RP	
Port Of Ridgefield	005814-000	111 Division St	SW corner of equipment area - isolates remediation area	07/15/11	RDWA90K	WATTS	909	4	RP	
Port Of Ridgefield	005814-000	111 Division St	Boiler Room Bldg 7	07/15/11	DCWA00H	WATTS	007M1QT	2	DC	
Port Of Ridgefield	010655-000	377 S 56th Pl	in box SE corner of property by entrance	07/01/19	DCWI97E	WILKINS	950XLT	1	DC	
Port Of Ridgefield	010655-000	377 S 56th Pl	in fire sprinkler riser room	07/01/19	DCAM2SK	AMES	2000SS	4	DC	
Port Of Ridgefield	011294-000	5525 S 11th St	36" BOX WEST SIDE OF BED	07/01/19	DCFE85G	FEBCO	850	1.5	DC	
Port Of Ridgefield	011294-000	5525 S 11th St	36" box west side of bed, from side walk	07/01/19	DCWAAMU	WATTS	LF007M1QT	2	DC	
Port Of Ridgefield	006238-000	Mill St	5 W Mill St	03/06/14	RPWA00E	WATTS	009M2QT	1	RP	Marina
Port Of Ridgefield	006238-000	Mill St	30' from boat ramp outside of fence	07/02/19	RPWAAQQ	WATTS	LF009M2QT	1	RP	Marina
Port Of Ridgefield	006238-000	Mill St	right side of second ramp at top of boat dock	07/02/19	RPWA09H	WATTS	009M1QT	2	RP	Marina
Porter, Brooke	009084-000	1920 S Osprey Dr	By meter	06/25/19	DCFE88E	FEBCO	850U	1	DC	
Porter, Steven & Jennifer	010583-000	752 N 48th Ave	across from sidewalk from meter	06/07/19	DCWIAQJ	WILKINS	350	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Post, Barbara	012556-000	402 N Main Ave	by meter	08/01/19	DCWI94D	WILKINS	950XLD	0.75	DC	
Post, Brady	011746-000	2105 N 5th Way	across sidewalk from water meter	05/06/20	DCFE88D	FEBCO	850U	0.75	DC	
Potter, Darcy	010096-000	3881 N 1st Way	IN BOX EASTSIDE BY HEAT PUMP	05/29/19	DCFE88E	FEBCO	850U	1	DC	
Potter, Dianna	006789-000	2835 S Cornett Dr	At water meter	04/28/20	DCFE88E	FEBCO	850U	1	DC	
Potter, Nick & Kira	008208-000	1761 S 18Th Cir	behind meter	03/20/20	DCFE85E	FEBCO	850	1	DC	
Poulton, Ariel	007197-000	2024 Falcon Dr	Across sidewalk from water meter	09/03/19	DCFE88D	FEBCO	850U	0.75	DC	Residential
Powell, Renae & David	007203-000	1920 Falcon Dr	Front yard across sidewalk from water meter	08/01/19	DCFE88D	FEBCO	850U	0.75	DC	
Pozzi, Christine & Chase	007019-000	1921 Falcon Dr	6' south of water meter	05/06/20	DCFE88D	FEBCO	850U	0.75	DC	
Prather, Kevin	011163-000	1609 S Phoebe Dr	in box at SE corner of house by gas meter	11/01/19	DCFE85E	FEBCO	850	1	DC	
Pratt, Troy	006432-000	308 Division St	308 Division St	04/25/11	DCFE85E	FEBCO	850	1	DC	
Price, Joe & Adrienne	007450-000	2410 N Heron Dr	North side of house	08/02/19	DCWI97E	WILKINS	950XLT	1	DC	
Price, Mary & Greg	006823-000	531 S 19Th Pl	North side of garage	05/25/19	DCFE85E	FEBCO	850	1	DC	
Price, Misty	012613-000	4593 N Noble Loop	By meter	09/06/19	DCFE85E	FEBCO	850	1	DC	
Priest, Dave & Connie	007334-000	721 N 16Th Ct	by water meter	06/25/19	DCFE88D	FEBCO	850U	0.75	DC	
Prigmore, Nathaniel	012693-000	3888 N 1st Way	By side door to garage	09/25/19	DCWIAQJ	WILKINS	350	1	DC	
Prince, Jack and Darla	012292-000	2205 S Cispus Way	behind fence west side of house	04/25/20	DCWI99D	WILKINS	950XLU	0.75	DC	
Pritchett, Shanna	010564-000	790 N 49Th Ave	By meter	10/13/19	DCFE85E	FEBCO	850	1	DC	
Proctor, Jed	011332-000	4407 N Ridgefield Woods Dr	NE CORNER RIGHT SIDE OF DRIVEWAY BY POWER BOX	08/14/19	DCWIAQJ	WILKINS	350	1	DC	
Proetel, Tim	012338-000	4859 S 18th Dr	On left side by driveway	05/16/19	DCWIAQJ	WILKINS	350	1	DC	
PROMENS PLASTICS	010672-000	6111 S 6TH WAY	vault by fire riser east side	05/02/19	DCFE82D	FEBCO	805YB	0.75	DC	
PROMENS PLASTICS	010672-000	6111 S 6TH WAY	SE Corner of Irr Box	05/02/19	DCWA00H	WATTS	007M1QT	2	DC	
PROMENS PLASTICS	010671-000	6111 S 6TH WAY	SE Corner of building by riser	05/02/19	RPWA91G	WATTS	009M2QT	1.5	RP	
PROMENS PLASTICS	010672-000	6111 S 6TH WAY	SE Corner of building by riser	06/06/19	RPWA00H	WATTS	009M2PCQT	2	RP	
PROMENS PLASTICS	010671-000	6111 S 6TH WAY	vault by fire riser - east side	05/02/19	DCFE80M	FEBCO	805YD	8	DC	
Pullin Trust, David	009818-000	258 N Green Gables Loop	right side of house	07/19/19	DCWIAQJ	WILKINS	350	1	DC	
Putnam, Carman	008391-000	3123 S 2nd St	NE corner of garage	10/03/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Quann, James	012414-000	2306 N 5Th Way		07/20/19	DCFE88E	FEBCO	850U	1	DC	
R8 Llc	010706-000	601 S 74Th Pl	Sprinkler riser room - side of building	05/28/19	COLT200	COLT	200	6	DC	
R8 Llc	010706-000	601 S 74Th Pl	SW corner of building - right of door	05/12/20	DCWA72G	WATTS	007M2QT	1.5	DC	
R8, LLC	010706-000	601 S 74TH PL	SW corner of building	05/12/20	DCFE85G	FEBCO	850	1.5	DC	
Racine, Philip & Lorna Earl	008550-000	3143 S 3rd Way	in box west side of house - 8' south of heat pump pad	03/25/20	DCWI99D	WILKINS	950XLU	0.75	DC	
Raddas, Ashley & Alex	012638-000	1034 S 50th Ct	By meter	11/05/19	DCFE85E	FEBCO	850	1	DC	
Ragan, Alex	011948-000	1915 S 15th Cir	By water meter	05/13/20	DCFE88E	FEBCO	850U	1	DC	
Raia, Katie	008101-000	1663 S 14Th Cir	front by water meter	03/26/20	DCFE85E	FEBCO	850	1	DC	
Rains, Lonny	012363-000	4744 S 19th St	at left front corner of property 6' behind meter	05/05/20	DCWIAQJ	WILKINS	350	1	DC	
Rapp, Steve & Sinead	007118-000	2300 N 5Th Way	in box across walk from meter	06/28/19	DCFE88D	FEBCO	850U	0.75	DC	
Rappaport, Marc	009372-000	909 N 7Th Cir	past water meter	10/03/19	DCFE88E	FEBCO	850U	1	DC	
Rauch, Douglas & Yolanda	012377-000	1080 S 44th Ave	North side of house in bark bed by fence	06/26/19	DCWIAQJ	WILKINS	350	1	DC	
Ray, Debbie & Milton	009416-000	2126 S Wind River Cir	in box north side of house by heat pump pad	04/24/20	DCWIAFT	WILKINS	350	0.75	DC	
RC Three LLC	012769-000	IRR 6625 Pioneer St		03/26/20	DCFE85G	FEBCO	850	1.5	DC	
Read, Erin & Robert	009270-000	1204 N Heron Dr	in box at SW corner of house	04/25/20	DCWIAQJ	WILKINS	350	1	DC	
Recker, Rich & Angela Simas	008197-000	1635 S 17Th Cir	across sidewalk from meter	03/25/20	DCFE85E	FEBCO	850	1	DC	
Redshaw, Jonathan & Susan	009420-000	2122 S Wind River Cir	in box at meter	05/05/19	DCWIAQJ	WILKINS	350	1	DC	
Reed, Eileen	012371-000	4710 S 16th Dr	At right front corner of property by meter	06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Reed, Jamie Erdman & Randall	011794-000	2158 S 13th Cir	Side of House by Water Meter	06/14/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Reed, Michael & Lucinda	012583-000	4937 S 18th Drive	Next to meter	09/27/19	DCWIAQJ	WILKINS	350	1	DC	
Reed, Sheri	011764-000	1710 S Nighthawk Rd	In box across from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Reef, Victoria & Darrik	008094-000	1557 S 14Th Cir	NW Corner of House	05/11/19	DCWI96E	WILKINS	950XL	1	DC	
Reeves, Scott & Julie	007273-000	621 N 17Th Ct	Across sidewalk from water meter	08/24/19	DCFE88D	FEBCO	850U	0.75	DC	
Reichstein, Timothy	012099-000	3724 S Kennedy Dr		01/18/19	DCWIAQJ	WILKINS	350	1	DC	
Reiman, Douglas & Diana	007462-000	810 Raven Dr	810 Raven Dr	04/08/20	DCWI96E	WILKINS	950XL	1	DC	
Reinherz, Wan Yee	011097-000	206 N 39Th Ct	206 N 39th Ct	04/04/19	DCWIAQJ	WILKINS	350	1	DC	
Reitmeir, Darla	012232-000	1216 N 8th Way	in box at meter	04/10/19	DCWIAQJ	WILKINS	350	1	DC	
Rekucki, Justin	012057-000	3919 S Willow Dr	in box behind garage	10/23/19	DCWIAQJ	WILKINS	350	1	DC	
Renshaw, Mike	012262-000	3740 S Kennedy Dr	behind garage	05/12/20	DCWIAQJ	WILKINS	350	1	DC	
Rentillo, Michael	008229-000	1859 S Dusky Dr	In box 20' from meter next to drive.	03/19/20	DCFE85E	FEBCO	850	1	DC	
Rhoads, Bryan	009922-000	3716 N Pioneer Canyon Dr	left of drive by electrical box	04/30/19	DCWIAQJ	WILKINS	350	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Rhoads, Thomas	011019-000	1308 S 8th Way	Across sidewalk from meter	07/13/19	DCWI96E	WILKINS	950XL	1	DC	
Rich, Hydie and Christopher	012353-000	1301 N Heron Dr	SW corner next to back porch	08/09/19	DCWI97E	WILKINS	950XLT	1	DC	
Richard, Donald & Terry	009466-000	2313 S Sauk Way	at left front corner of front yard in grass	03/31/20	DCFE85E	FEBCO	850	1	DC	
Richert, Mark & Cynthia	009271-000	1304 N Heron Dr	in box by SE corner of house next to drive	07/20/19	DCWIAQJ	WILKINS	350	1	DC	
Riches, Trisha & Dennis	008035-000	1418 S Taverner Dr	at water meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Ridgecrest JV LLC	011704-000	IRR near 5499 S 11th Way	At water meter	06/14/18	DCWAAMT	WATTS	LF007M1QT	1	DC	
Ridgefield School District	005439-000	2630 S Hillhurst Rd	Water tower/Pump house	07/24/19	RPFE8YJ	FEBCO	825YD	3	RP	
Ridgefield School District	005439-000	2630 S Hillhurst Rd	Main water line	07/24/19	RDWABAB	WATTS	957RPDA-GV	2.5	RPDA	
Ridgefield School District	005439-000	2630 S Hillhurst Rd	Janitor Closet	12/09/19	RPWAAQT	WATTS	LF009M2QT	2	RP	
Ridgefield School District	005439-000	2630 S Hillhurst Rd	Kitchen Under Counter	07/24/19	RPWAAQV	WATTS	LF009QT	0.5	RP	
Ridgefield School District	005439-000	2630 S Hillhurst Rd	Kitchen under Counter	07/24/19	RPWAAQV	WATTS	LF009QT	0.5	RP	
Ridgefield School District	005439-000	2630 S Hillhurst Rd	Fire riser room for new addition	07/24/19	DDAMAGA	AMES	COLT 300BF	4	DCDA	
Ridgefield School District	005439-000	2630 S Hillhurst Rd	Bypass on 4" fire main	07/24/19	DCAM22D	AMES	2000BM3	0.75	DC	
Ridgefield School District	005439-000	2630 S Hillhurst Rd	Water tower - Fill line RPBA	06/01/19	RPWAAQS	WATTS	LF009M2QT	1.5	RP	
Ridgefield School District	005439-000	2630 S Hillhurst Rd	Ice Machine	08/14/19	RPWAAQU	WATTS	LF009M3QT	0.75	RP	
Ridgefield School District	005439-000	2630 S Hillhurst Rd	Boiler room at NW corner of building	05/28/19	RPWAAJE	WATTS	957	3	RP	
Ridgefield School District	005439-000	2630 S Hillhurst Rd	Boiler room at NW corner of building	05/28/19	RPWAAQU	WATTS	LF009M3QT	0.75	RP	
Ridgefield School District	005439-003	3215 S Hillhurst Rd	Riser Room East of Mechanical Room OUtside	07/24/19	DCWAAET	WATTS	757	3	DC	
Ridgefield School District	005439-003	3215 S Hillhurst Rd	#421 Kitchen	07/24/19	RPWAAQU	WATTS	LF009M3QT	0.75	RP	
Ridgefield School District	005439-003	3215 S Hillhurst Rd	Riser Room East of Mechanical Room Outside	07/24/19	DCWAACJ	WATTS	757A	3	DC	
Ridgefield School District	005439-003	3215 S Hillhurst Rd	#618 Custodial Room	07/24/19	RPWAAQU	WATTS	LF009M3QT	0.75	RP	
Ridgefield School District	005439-003	3215 S Hillhurst Rd	#429 Mechanical Room NPCW 005	07/30/19	RPWAAQQ	WATTS	LF009M2QT	1	RP	
Ridgefield School District	005439-003	3215 S Hillhurst Rd	#429 Mechanical Room NPCW 007	07/24/19	RPWAAQQ	WATTS	LF009M2QT	1	RP	
Ridgefield School District	005439-003	3215 S Hillhurst Rd	S Parking lot in bed North of mobile classroom	07/25/19	DCWAAMW	WATTS	LF007M2QT	1.5	DC	
Ridgefield School District	005439-003	3215 S Hillhurst Rd	S Parking lot in driveway to trash enclosure	07/25/19	DCWAAMX	WATTS	LF007M3QT	0.75	DC	
Ridgefield School District	005439-003	3215 S Hillhurst Rd	Sprinkler riser room S side of building	07/25/19	DCAPBEI	APOLLO/CONBRACO	DCLF4A	4	DC	
Ridgefield School District	005439-003	3215 S Hillhurst Rd	Bypass on 4" DCDA at pump station	12/09/19	DCWI94D	WILKINS	950XLD	0.75	DC	
Ridgefield School District	006534-000	330 N 5th Ave	Union Ridge - in kitchen right side of dishwasher	07/24/19	RPWAAQU	WATTS	LF009M3QT	0.75	RP	
Ridgefield School District	006534-000	330 N 5th Ave	Union Ridge - in kitchen on right side of combo o	07/24/19	RPWAAQU	WATTS	LF009M3QT	0.75	RP	
Ridgefield School District	006534-000	330 N 5th Ave	Bypass on 4" fireline in new addition	07/24/19	DCWI94D	WILKINS	950XLD	0.75	DC	
Ridgefield School District	006534-000	330 N 5th Ave	Between portables and existing school	07/24/19	DCWAAMT	WATTS	LF007M1QT	1	DC	
Ridgefield School District	006534-000	330 N 5th Ave	On fire spr. riser in new addition	07/24/19	DDWIAGO	WILKINS	350ADA	4	DCDA	
Ridgefield School District	006534-000	330 N 5th Ave	METER BOX S. END OF PORTABLES	07/24/19	DCWAAMT	WATTS	LF007M1QT	1	DC	
Ridgefield School District	006534-000	330 N 5th Ave	E. Side of playground - In Irr box (330 N 5th - elementary school)	07/24/19	DCWA00H	WATTS	007M1QT	2	DC	Irrigation
RIDGEFIELD SCHOOL DISTRICT	006550-000	510 PIONEER ST	Middle School - inside utility room NW corner of	12/27/19	RPFE8YJ	FEBCO	825YD	3	RP	
RIDGEFIELD SCHOOL DISTRICT	006550-000	510 PIONEER ST	510 Pioneer St - Middle School - east side of playground by gate	06/21/12	DCFE8YH	FEBCO	805Y	2	DC	
Ridgefield School District	005439-004	Irr 3215 S Hillhurst Rd	Large irrigation box at Pump station	12/09/19	DCWIADF	WILKINS	350A	4	DC	
Ridgefield Weber LLC	012529-000	IRR 3807 Pioneer Heron Woods	By meter #87178279 along fence on propery line	10/08/19	DCFE85E	FEBCO	850	1	DC	Irrigation
Riggins, Allison	008138-000	1842 S Lake River Ter	10' past water meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
Riley, Kimberly & Martin	007360-000	1711 N Heron Dr	OFF METER ACROS SIDEWALK	03/26/16	DCFE88D	FEBCO	850U	0.75	DC	
Rimer, David & Toni	012214-000	1592 S Harrier Cir	8' North of water meter	05/04/20	DCFE85E	FEBCO	850	1	DC	
Rinne, Catherine	010075-000	129 N 39th Ct	IN BOX UNDER SINDOW SOUTH SIDE OF HOUSE	04/08/19	DCFE88E	FEBCO	850U	1	DC	
Rippee, Erin & Jeff	007724-000	1828 N Heron Dr	SW Corner of house behind fence	07/06/19	DCFE88E	FEBCO	850U	1	DC	
Riverman, Susan & James	012069-000	1523 S Harrier Cir	20' South, Past water meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Rivers, Robert	009359-000	912 N 7Th Cir	In box at the NW corner	04/24/20	DCFE85E	FEBCO	850	1	DC	
Rizzotti, Shawna	009465-000	2311 S Sauk Way	Backyard on west side of house	06/18/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Robbins, Jeanne M & Ralph Huddelson	008046-000	1302 S Great Blue Rd	in box at meter	03/26/20	DCWIAQM	WILKINS	350XL	1	DC	
Robert & Amy Klaus	011956-000	3802 S Willow Dr	In box 6' south of NW corner of house	08/14/19	DCWIAQJ	WILKINS	350	1	DC	
Roberts, Don & Mardell	012218-000	4331 S 11th Way	Left side of house next to border wall	05/16/20	DCWIAQJ	WILKINS	350	1	DC	
Roberts, Taz	010574-000	4841 N 8th St	By meter	05/01/20	DCFE85E	FEBCO	850	1	DC	
Roberts, Winnie & Frank	007766-000	1612 N Heron Dr	By meter	04/05/20	DCFE88D	FEBCO	850U	0.75	DC	
Robinson, Brooke	010585-000	748 N 48Th Ave	By meter	06/09/19	DCFE85E	FEBCO	850	1	DC	
Rodman, Tom	008083-000	1556 S 14Th Cir	SE Corner of property by WM	03/26/20	DCFE88D	FEBCO	850U	0.75	DC	
Roe, David	011233-000	901 N 15Th Ct	at water meter	04/28/20	DCFE88D	FEBCO	850U	0.75	DC	
Roeder, Channy	007998-000	1404 S Dusky Dr	right of driveway 10' behind meter	03/18/20	DCWIAQJ	WILKINS	350	1	DC	
Rogers, Yulia	011674-000	353 N Green Gables Loop	at meter	10/19/19	DCWIAQJ	WILKINS	350	1	DC	
Rolufs, Henry	009206-000	805 N 9Th Way	By meter	09/12/19	DCWI97E	WILKINS	950XLT	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
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ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Romo, Dan	012709-000	3607 S Willow Dr	Behind garage	11/16/19	DCWIAQJ	WILKINS	350	1	DC	
RON & DEBRA CODEMO	008214-000	1847 S TAVERNER DR	IN BOX ACROSS WALK FROM METER	04/18/19	DCFE85E	FEBCO	850	1	DC	
Ronald, Barbara	008047-000	1208 S Great Blue Rd	in box at meter	09/19/19	DCFE85E	FEBCO	850	1	DC	
Rooney, Randy & Carrie	006977-000	1619 Falcon Dr	Across sidewalk from water meter	08/24/19	DCFE88D	FEBCO	850U	0.75	DC	
Rose, Penny & Lawrence	009361-000	911 N 7Th Cir	@ water meter	08/01/19	DCFE88D	FEBCO	850U	0.75	DC	
Ross, Angela	006800-000	1437 S 8th Way	In Box across street from meter	04/30/20	DCWIAQJ	WILKINS	350	1	DC	
Ross, Christine	009906-000	3505 Pioneer Canyon Dr	by meter	10/03/19	DCWIAQJ	WILKINS	350	1	DC	
Ross, Elliot	011916-000	1229 S Fieldcrest Dr	North side of house by sidewalk	05/25/19	DCWIAQJ	WILKINS	350	1	DC	
Ross, Jennifer	010594-000	623 N 47th Ave	By meter	05/01/20	DCFE85E	FEBCO	850	1	DC	
Ross, Michelle	012263-000	4728 N 6th St	IN BOX MIDDLE OF THE HOUSE - WEST SIDE	08/02/19	DCWIAQJ	WILKINS	350	1	DC	
Ross, Norman & Anne	006857-000	1350 S 6Th Way	near meter	06/27/19	DCFE88E	FEBCO	850U	1	DC	
Ross, Scott	007909-000	1610 S Phoebe Dr	By meter	05/29/19	DCFE88E	FEBCO	850U	1	DC	
Rossborough, Ray	009412-000	2312 S Wind River Way	in box across walk from meter	07/13/19	DCWIAQL	WILKINS	350XL	0.75	DC	
Roth, Debra	012590-000	1212 S 50th Place	By meter	10/03/19	DCFE85E	FEBCO	850	1	DC	
Rourk, James & Darcy	010101-000	106 N 38th Pl	in backyard	04/01/20	DCWIAQJ	WILKINS	350	1	DC	
Rovira, Steve and Betsy	010636-000	754 N Squire Dr	R CORNER OF BACKYARD	09/11/19	DCFE85E	FEBCO	850	1	DC	
Rowe, Devon	011451-000	782 N 49Th Ave	N SIDE OF HOUSE BY HEAT PUMP	05/16/19	DCWIAQJ	WILKINS	350	1	DC	
Ruddy, Candace & Bryan	009061-000	2126 S Osprey Dr	at water meter	08/24/19	DCFE88E	FEBCO	850U	1	DC	
Ruiz, Midge & David	006832-000	674 S 15Th Ct	left of front lawn	04/16/20	DCWI97E	WILKINS	950XLT	1	DC	
Rupp, Mindi & Jason	006838-000	532 S 15Th Ct	20' past water mater	09/05/19	DCFE88E	FEBCO	850U	1	DC	
Russel, Judith & Stuart	005282-000	600 Shobert Ln	At front entry in grass	09/19/19	DCFE88E	FEBCO	850U	1	DC	
Russell, Todd & Theresa	010622-000	972 N Parson Pl	R CORNER OF HOME	07/14/19	DCFE85E	FEBCO	850	1	DC	
Ruth, William and Cherryl	011424-000	1300 N Heron Dr	IN BOX IN FRONT OF METER	07/29/19	DCWIAQJ	WILKINS	350	1	DC	
Rutkowski, Michael	009222-000	800 N Heron Dr	In box by water meter	05/14/20	DCFE88E	FEBCO	850U	1	DC	
Rux, Regina and Donald	011442-000	2417 N 9th Cir	backyard by door	08/13/19	DCFE88E	FEBCO	850U	1	DC	
Ryan Homes LLC	010110-000	115 N 38Th Pl	Side of house up from water meter	04/08/19	DCWIAQJ	WILKINS	350	1	DC	
Ryan, Cynthia & Dan	008079-000	1415 S Taverner Dr	at water meter	03/20/20	DCFE88E	FEBCO	850U	1	DC	
Rysavy, Frank & Amber	012585-000	3614 S Star View Loop	Behind garage	08/24/19	DCWIAQJ	WILKINS	350	1	DC	
Sabo, Mary	007547-000	2056 N 9Th Way	2056 N 9th Way	06/20/19	DCFE88E	FEBCO	850U	1	DC	
Saenz, Moses	011823-000	4817 S 18th Dr	on right side of DWY by meter	10/23/19	DCWIAQJ	WILKINS	350	1	DC	
Sager, Rodger & Samantha	009475-000	2210 S White Salmon Dr	In box across walk from meter	07/16/19	DCFE85E	FEBCO	850	1	DC	
Sahay, Deepak	008953-000	3206 S 2nd Way	SE Corner of house	05/05/20	DCFE88D	FEBCO	850U	0.75	DC	
Sahlstrom, Gary and Karen	012000-000	1870 S Harrier Rd	IN box across walk from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Saidov, Eldar	007061-000	2003 N 5Th Way	water meter	05/06/20	DCFE88D	FEBCO	850U	0.75	DC	
Sakamoto, Wayne	008192-000	1636 S 17Th Cir	in box under front window	03/25/20	DCWIAQJ	WILKINS	350	1	DC	
Sallee, Cliff & Amanda	010524-000	4341 N 7Th Way	By meter	03/25/20	DCFE85E	FEBCO	850	1	DC	
Sanders, Meta	009185-000	908 N 9Th Way	At water meter	09/27/19	DCFE88E	FEBCO	850U	1	DC	
Sanford, David	007214-001	1269 S 44th Ave	SE side of front yard	05/25/19	DCWIAQJ	WILKINS	350	1	DC	
Santillan, Farah	012093-000	1608 Falcon Dr	Front yard across the sidewalk from water meter	10/10/19	DCFE88D	FEBCO	850U	0.75	DC	
Santos Pinacho, Rogelio Ivan	008337-000	3105 S 1st St	west side of house	04/30/19	DCWI94D	WILKINS	950XLD	0.75	DC	
Sauers, Jay	012492-000	1165 N 1st Ave	at water meter	03/19/20	DCFE85E	FEBCO	850	1	DC	
Saunders, Tia and Andrew	011409-000	757 N Squire Dr	Southeast of driveway by water meter.	11/10/19	DCWIAQJ	WILKINS	350	1	DC	
Sawyer, Debra	008149-000	1843 S 14Th Ct	IN BOX ACROSS WALK FROM METER	03/18/20	DCFE85E	FEBCO	850	1	DC	
Sawyer, Jeff & Erica	006847-000	1510 S 5Th Cir	in box at SW corner of house	03/27/20	DCWIAQJ	WILKINS	350	1	DC	
Sawyer, Judy	011056-000	3813 N 5Th Way	in box across walk from meter	03/27/20	DCWIAFT	WILKINS	350	0.75	DC	
Say, Lesa & Sok	007351-000	714 N 16th Ct	12' east of water meter	07/29/19	DCFE88D	FEBCO	850U	0.75	DC	
Saylor, Sheryl	010043-000	513 N 40th Ave	in parking strip right hand side of property	04/23/20	DCWIAQJ	WILKINS	350	1	DC	
Schafer, James & Adrienne	010618-000	4618 N Noble Loop	L side of driveway	03/27/20	DCFE85E	FEBCO	850	1	DC	
Schaller, Regan	011654-001	1709 S Nighthawk Rd	In box across from meter	06/18/19	DCFE85E	FEBCO	850	1	DC	
Schisle, Richard	011419-000	959 N Noble Loop	SE SIDE OF FRONT YARD	03/27/20	DCWIAQJ	WILKINS	350	1	DC	
Schisler, Melvin and Carol	011298-000	4852 N 8th St	At water meter	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Schlatter, James	011627-000	1823 N 8th Way	Across sidewalk from water meter	08/24/19	DCWI94D	WILKINS	950XLD	0.75	DC	
Schlatter, James	012399-000	2019 N 8th Way	Back yard SE corner of house	09/03/19	DCWI94D	WILKINS	950XLD	0.75	DC	
Schleichert, Derek & Torie	012620-000	731 N 47th Ave	bY METER	09/06/19	DCFE88E	FEBCO	850U	1	DC	
Schlemeier, Kimberly & Mike	007671-000	1917 N 8th Way	West end of house	06/13/19	DCFE88E	FEBCO	850U	1	DC	
Schlosser, Jonathan	008398-000	3125 S 2nd St	Left side of home	09/15/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Schmaling, Karen	009796-000	3412 N Pioneer Canyon Dr	by heat pump east side	06/13/19	DCWIAQJ	WILKINS	350	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
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ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Schmeling, James	011070-000	1877 S Pintail Ct	in box by drive 10' east of NE corner of garage	03/26/20	DCFE85E	FEBCO	850	1	DC	
Schmidt, Ashley	012259-000	1709 Falcon Dr	In front lawn	08/24/19	DCFE88D	FEBCO	850U	0.75	DC	
Schmitt, Mark	009386-000	801 N Heron Dr	at meter	03/20/20	DCWI97E	WILKINS	950XLT	1	DC	
Schneider, Dave	006621-000	119 N 9Th Ave		/ /	DCWI96E	WILKINS	950XL	1	DC	
Schneider, Kelly	009334-000	1117 N Heron Dr	by meter	05/05/20	DCWIAQJ	WILKINS	350	1	DC	
Schneider, Mark	008073-000	1411 S Taverner Dr	1411 S Taverner Dr	07/25/19	DCWI96E	WILKINS	950XL	1	DC	
Schroeder, Crystal	007018-000	1913 Falcon Dr	west side of house behind fence	06/18/19	DCFE88D	FEBCO	850U	0.75	DC	
Schroeder, John and Cindi	011414-000	640 N 12Th Ct	LEFT SIDE OF GARAGE	09/28/19	DCWIAQJ	WILKINS	350	1	DC	
Schuetze, Justin & Shannon	007151-000	607 N 22Nd Ct	By Meter	11/22/19	DCWI96E	WILKINS	950XL	1	DC	
Schwartz, Richard	009120-000	2311 S 16Th Cir	at water meter	06/04/19	DCFE88E	FEBCO	850U	1	DC	
Schwenneker, Christopher & Erica	011915-000	2101 N 5th Way	in box across walk meter	06/18/19	DCFE88D	FEBCO	850U	0.75	DC	
Scott, Cheryl & Kenneth	008462-000	2935 S Cedar Ridge Dr	west side of home	06/01/19	DCWI96E	WILKINS	950XL	1	DC	
Scribner, Kevin	011377-000	1835 S Taverner Dr	IN BOX ACROSS WALK FROM METER	03/20/20	DCFE85E	FEBCO	850	1	DC	
Scruggs, Ben McKee & George	012044-000	4104 S 11th Cir	right side of driveway in barkbed	09/06/19	DCWIAQJ	WILKINS	350	1	DC	
Sease, Ken & Rae	007563-000	1826 N 9Th Way	WEST SIDE OF HOUSE	06/01/19	DCFE88E	FEBCO	850U	1	DC	
Seifried, Brett	011960-000	622 N 17Th Ct	By water meter	05/06/20	DCFE88D	FEBCO	850U	0.75	DC	
Semlick, Tim & Michelle	010512-000	4321 N Ridgefield Woods Dr	in box at the NW corner of house	05/06/20	DCWIAQJ	WILKINS	350	1	DC	
Senz, Theresa & Neil	011499-000	904 N 7Th Cir	IEFT FRONT PROPERTY CORNER	03/21/20	DCFE85E	FEBCO	850	1	DC	
Seo, Bo Moon	009839-000	365 N Green Gables Loop	in box at NE corner of house	05/11/19	DCWIAQJ	WILKINS	350	1	DC	
Setterberg, Susan	009463-000	2207 S Sauk Way	by meter	03/10/20	DCFE85E	FEBCO	850	1	DC	
Seven Wells HOA	012310-001	Irrigation 15th St Tract C	At meter	06/07/18	DCFE85E	FEBCO	850	1	DC	Irrigation
Seven Wells HOA	012310-000	Irrigation 15th St Tract E	At meter	06/07/18	DCFE85G	FEBCO	850	1.5	DC	
Seward, Sam	010582-000	755 N 48Th Ave	discovery ridge lot 13 - across sidewalk from meter	05/07/20	DCWIAQJ	WILKINS	350	1	DC	
Sexton, Trevor	012042-000	253 N Green Gables Loop	left of meter	08/14/19	DCWIAQJ	WILKINS	350	1	DC	
Sharp, Mike & Donna	012614-000	927 S 50th Ct	By meter	10/15/19	DCFE85E	FEBCO	850	1	DC	
Shaw, Kimberly	010638-000	4593 N Squire Dr	NW front of house	09/06/19	DCWIAQJ	WILKINS	350	1	DC	
Shelton, Seth	008098-000	1661 S 14Th Cir	right front corner of house	03/26/20	DCWIAQJ	WILKINS	350	1	DC	
Sheppard, James & Denise	006945-000	1185 S 7th Cir	In back, sw corner of house in flower bed	06/01/19	DCWI98E	WILKINS	950XLU	1	DC	
Shields, Antonio	009171-000	802 N 9Th Way	Frong yard by meter	09/11/19	DCFE88E	FEBCO	850U	1	DC	
Shields, Brian	012701-000	1209 N 9th Way	in box at NE corner of house by gas meter	07/22/19	DCWIAQJ	WILKINS	350	1	DC	
Shih, Hanna	008055-000	1205 S Great Blue Rd	in box at meter	03/26/20	DCWIAQJ	WILKINS	350	1	DC	
Shobert, Claudia	005145-000	415 S Shobert St	West side of house	05/06/20	DCAPAOK	APOLLO/CONBRACO	40-105-A2	1	DC	
Shoemaker, Kelli & Mike	009188-000	910 N 10Th Pl	910 N 10th Pl	07/22/19	DCWI96E	WILKINS	950XL	1	DC	
Shook, Linda	011622-000	731 N 12th Ct	In box near meter	07/22/19	DCFE85E	FEBCO	850	1	DC	
Shoup, Jessica	012195-000	3706 S Willow Dr	right side of house	01/14/19	DCWIAQJ	WILKINS	350	1	DC	
Sibert, Tammy	009488-000	2209 S Cispus Way	in box behind fence south of home	07/27/19	DCFE88D	FEBCO	850U	0.75	DC	
Siegmund, Carey	005608-000	117 Northridge Dr	In box by meter	07/20/19	DCWI97E	WILKINS	950XLT	1	DC	
Sievers, Gordon and Alice	011269-000	910 N 7Th Cir	Front of yard	08/24/19	DCWI96E	WILKINS	950XL	1	DC	
Signoretti, Barry	012804-000	3036 S Cornett Dr	At water meter	05/12/20	DCAPAOOL	APOLLO/CONBRACO	40-105-A2T	1	DC	
Simmons, Ashley	012258-000	3731 S Willow Dr.	in box 10' North of SW corner of house	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Simmons, Keenan	009481-000	2202 S White Salmon Dr	by meter	07/13/19	DCFE85E	FEBCO	850	1	DC	
Simmons, Rachelle & Kyle	009848-000	405 N Helens View Dr	right side of drive in grass	03/27/20	DCWIAQJ	WILKINS	350	1	DC	
Simpkins, Dylan & Lena	007294-000	1620 Falcon Dr	at meter across sidewalk	07/13/19	DCFE88D	FEBCO	850U	0.75	DC	
Singh, Manjit	007844-000	1807 S 24Th Pl	Right side of front yard in bark dust 10' behind meter	08/19/19	DCWI98D	WILKINS	950XLT	0.75	DC	
Sinner, Kim Schultenover and David	011292-000	1308 N 8th Way	Front Yard in Flower Bed	06/18/19	DCWIAQJ	WILKINS	350	1	DC	
Sivero, Michele	010084-000	138 N 39Th Ct	Right of device	06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Sjothun, Christopher	012564-000	1009 S 50th Ct.	By meter	09/24/19	DCFE85E	FEBCO	850	1	DC	
Skeels, Andrew & Margarita	008949-001	604 N Helens View Dr	in box across walk from meter	09/19/19	DCWIAFT	WILKINS	350	0.75	DC	
Skinner, Chris & Cindy	008042-000	1308 S Great Blue Rd	Right side of driveway by meter in grass	03/26/20	DCFE88D	FEBCO	850U	0.75	DC	
Skolrud, Aimee	011839-000	1210 S Fieldcrest Dr	By meter	05/05/20	DCFE85E	FEBCO	850	1	DC	
Slorey, Jeff & Kim	008233-000	1718 S Dusky Dr	SW corner of house	03/19/20	DCWI96E	WILKINS	950XL	1	DC	
Slymen, Donald & Alison	009142-000	900 N 10th Way	by water meter	04/24/20	DCFE88E	FEBCO	850U	1	DC	
Smallwood, Christina	011779-000	4821 N 6Th St	by meter	05/01/20	DCFE85E	FEBCO	850	1	DC	
Smiles Family Dental Center	3-20101000	109 S 65th Ave	utility closet in dental office	05/29/19	RPWA0QC	WATTS	009QT	0.5	RP	Dentist
Smiles Family Dental Center	3-20101000	109 S 65th Ave	utility closet - dental office	05/29/19	RPWA01C	WATTS	009PCQT	0.5	RP	Dentist
Smiles Family Dental Center	3-20101000	109 S 65th Ave	utility closet - dental office	05/29/19	RPWA00E	WATTS	009M2QT	1	RP	Dentist
Smith, Alan and Laura	011732-000	1702 S Nighthawk Rd	In box across from meter	03/26/20	DCFE85E	FEBCO	850	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Smith, Allen	012685-000	3619 S Star View Loop	Right side of house	10/11/19	DCWIAQJ	WILKINS	350	1	DC	
Smith, Chad & Deborah	011947-000	1804 S 24Th Pl	NW corner of house	09/19/19	DCWI97E	WILKINS	950XLT	1	DC	
Smith, Clare	011610-000	1851 S Pintail Court	At water meter	03/26/20	DCFE85E	FEBCO	850	1	DC	
Smith, Elowyn &Shaun	010556-000	668 N 49th Ave	Front yard by water meter	07/14/19	DCFE85E	FEBCO	850	1	DC	
Smith, Erin	012798-000	4809 S 19th	On left side of driveway behind meter.	10/25/19	DCWIAQJ	WILKINS	350	1	DC	
Smith, Heidi	010619-000	4640 N Noble Loop	NW front corner of house next to driveway	05/06/20	DCWIAQJ	WILKINS	350	1	DC	
Smith, Jaimie	012422-000	4860 S 18th Dr	Left front property by meter.	06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Smith, Jan Brennan and Alison	011283-000	1740 Pioneer St	East side of house	09/03/19	DCWI96E	WILKINS	950XL	1	DC	
Smith, Jo Ann	012159-000	1103 S Fieldcrest Dr	By meter	06/18/19	DCFE85E	FEBCO	850	1	DC	
Smith, Joshua	008995-001	4709 S 18th Dr	On left side of driveway by side walk.	08/31/19	DCWIAQJ	WILKINS	350	1	DC	
Smith, Kenneth & Kara	006846-000	1520 S 5Th Cir	At rear entry to garage	08/22/19	DCWAAMT	WATTS	LF007M1QT	1	DC	
Smith, Kimberly and Adam	011306-000	3108 S 1st St	West side of house	09/19/19	DCWI94D	WILKINS	950XLD	0.75	DC	
Smith, Rachel	011647-000	1636 N Falcon Dr	Right front corner of property by grass	08/22/19	DCFE88D	FEBCO	850U	0.75	DC	
Smith, Thomas	009263-000	1110 N Heron Dr	At meter	07/22/19	DCWIAQJ	WILKINS	350	1	DC	
Smith, Vanessa	009036-000	1506 S 21St Pl	under front window	09/19/19	DCFE88E	FEBCO	850U	1	DC	
Smithline, Chuck	009256-000	1020 N Heron Dr	by water meter	04/28/20	DCFE88E	FEBCO	850U	1	DC	
Smithline, Kevin	009199-000	901 N 9Th Way	next to mailboxes on street, left of driveway	08/08/19	DCFE88E	FEBCO	850U	1	DC	
Snelgrooes, Lisa	012076-001	1836 S 47th Pl	On left side of drive way by meter	10/10/19	DCWIAQJ	WILKINS	350	1	DC	Residential
Snelson, Christopher & Andrea	010536-000	614 N 44th Ave	BOX AT THE SW CORNER OF HOUSE	03/27/20	DCWIAQJ	WILKINS	350	1	DC	
Snoderly, Nicole & Justin	010558-000	774 N 49Th Ave	By meter	09/11/19	DCFE85E	FEBCO	850	1	DC	
Soden, Donald Carolyn & TerriSue	012507-000	1405 S Dusky Dr	right front property corner by meter	08/24/19	DCFE88D	FEBCO	850U	0.75	DC	
Solberg, Gunard	011892-000	794 N 49Th Ave	Front yard	09/25/19	DCWIAQJ	WILKINS	350	1	DC	
Soles, Lemelle	012145-000	1271 S Fieldcrest Dr	by nieghbors meter; R. corner of prop	03/04/19	DCFE85E	FEBCO	850	1	DC	
Sorensen, Daniel	010621-000	980 N Parson Pl	NW SIDE OF HOUSE BY BACK PORCH AND VALVE BOX	06/06/19	DCWIAQJ	WILKINS	350	1	DC	
Sorensen, Eric	010102-000	108 N 38Th Pl	By meter	04/01/20	DCWIAQJ	WILKINS	350	1	DC	
Sosa, Richard Dobozy & Marykay	009846-000	369 N Green Gables Loop	left side of house behind gate	03/26/20	DCWIAQJ	WILKINS	350	1	DC	
Spading, Abbey & David	008844-000	3519 S 2nd Way	W side of house	06/29/19	DCFE88D	FEBCO	850U	0.75	DC	
Spalitta, Lena	009490-000	2311 S Cispus Way	2311 S Cispus Way	06/15/19	DCWI96E	WILKINS	950XL	1	DC	
Sparland, John	012001-000	1830 S Harrier Rd	In box across walk from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Spaulding, Tania	009927-000	3805 N Pioneer Canyon Dr	in box at the NE corner of front yard by walk	03/27/20	DCWIAFT	WILKINS	350	0.75	DC	
Spears, Dorothea	009508-000	2204 S Sauk Way	in box	03/26/20	DCWIAFT	WILKINS	350	0.75	DC	
Specia, Balbins	012245-000	3655 S Willow Dr	Rt side of house	04/23/20	DCWIAQJ	WILKINS	350	1	DC	
Speer, Sabrina	011993-000	3813 S Willow Dr	West side of house in backyard	08/21/19	DCWIAQJ	WILKINS	350	1	DC	
Speidel, April	010602-000	4552 N 9Th St	IN BOX AT THE SW CORNER OF HOME	06/27/19	DCWIAQJ	WILKINS	350	1	DC	
Sporre, Bill	006715-000	2948 S Cornett Dr	6' past water meter	04/24/20	DCFE88E	FEBCO	850U	1	DC	
Spreadborough, Judy	010509-000	4325 N Ridgefield Woods Dr	NE CORNER OF GARAGE	03/25/20	DCFE85E	FEBCO	850	1	DC	
Spurlock, Ken	012567-000	4951 S 18th Dr	Right of driveway in grass	09/27/19	DCWIAQJ	WILKINS	350	1	DC	
St. Cyr, Celeste & Richard	007973-000	2008 S 19Th Way	12" box by water meter	09/20/19	DCWI96E	WILKINS	950XL	1	DC	
Staben, Roger	007854-000	1802 S 24Th Pl	right hand side of property - near electric transformer	05/05/20	DCFE88E	FEBCO	850U	1	DC	
Stadler, Myron	012333-000	1290 S 44th Ave	By meter	01/23/19	DCFE85E	FEBCO	850	1	DC	
Staker, Bret	005198-000	421 Shobert St	By meter	09/19/19	DCWI96E	WILKINS	950XL	1	DC	
Stalcup, Jeffrey	006717-000	2128 S 29Th Ct	at water meter	07/18/19	DCFE88E	FEBCO	850U	1	DC	
Standley, David & Kathie	009243-000	810 N Heron Dr	Left side of home	04/25/20	DCWI98D	WILKINS	950XLT	0.75	DC	
Starin, Evan & Anna	008187-000	1623 S Taverner Dr	southside of house	03/25/20	DCWI98E	WILKINS	950XLU	1	DC	
Starns, Carl & Mary	010604-000	951 N Noble Loop	By utilities	03/27/20	DCFE85E	FEBCO	850	1	DC	
Staten, Trevor	011952-000	1815 S 47th Pl	Left of driveway at meter	07/11/19	DCWIAQJ	WILKINS	350	1	DC	
Stay, Hellen	006758-000	2045 S 26Th Ave	SE corner of lot by meter	05/04/20	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Stein, Craig	006812-000	1711 S 8th Way	across from meter by power box	07/13/19	DCFE88E	FEBCO	850U	1	DC	
Steinmann, Cody	009040-000	1500 S 21St Pl	At water meter	08/02/19	DCFE88E	FEBCO	850U	1	DC	
Stenbak, Kim	008011-000	1403 S Dusky Dr	left of driveway	03/18/20	DCFE85E	FEBCO	850	1	DC	
Stenehjem, Dean & Sue	006744-000	2660 S Cornett Dr	in box at meter	05/04/20	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Stenersen, Lester & Liz	008758-002	1025 S 50th Ct	By meter	06/27/19	DCFE85E	FEBCO	850	1	DC	
Stenstrom, Robert & Judy	012606-000	4909 S 18th Drive	Left of driveway	10/11/19	DCWIAQJ	WILKINS	350	1	DC	
Stepaniuk, Kevin	008049-000	1206 S Great Blue Rd	in box by meter	03/26/20	DCWIAQJ	WILKINS	350	1	DC	
Stepaniuk, Sharon & Hugh	006962-000	1326 S 8th Way	North (Right) Side of House by A/C Unit	05/05/20	DCWI97E	WILKINS	950XLT	1	DC	
Stern, Barbara	008022-000	1511 S Dusky Dr	at meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
Stevens, Christopher	012323-000	1470 S Nighthawk Cir	10' north of water meter	03/23/20	DCWIAQJ	WILKINS	350	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Stevens, Meghan	011820-000	4710 S 18th Dr	At right front corner of prop behind meter	11/08/19	DCWIAQJ	WILKINS	350	1	DC	
Stewart, Bill & Karen	012419-000	1781 S Harrier Rd	10' South of water meter	07/25/19	DCWIAQJ	WILKINS	350	1	DC	
Stewart, Jeff	010485-001	3615 S Willow Dr	Behind garage	11/06/19	DCWIAQJ	WILKINS	350	1	DC	
Stewart, Kenneth & Janine	007340-000	700 N 16Th Ct	at water meter	03/20/20	DCFE88D	FEBCO	850U	0.75	DC	
Stewart, Robert	008080-000	1662 S 14Th Cir	In box at meter	03/26/20	DCFE85E	FEBCO	850	1	DC	
Stewart, Scott	007322-000	1609 N 8th Way	in box across walk from meter	10/03/19	DCFE88D	FEBCO	850U	0.75	DC	
Stiever, John	008059-000	1209 S Great Blue Rd	behind meter	03/26/20	DCWI97E	WILKINS	950XLT	1	DC	
Stills, Mitch & Elise	010533-000	4466 N 7Th Way	IN BOX BY GARAGE ACROSS DOOR WEST SIDE HOUSE	08/14/19	DCWIAQJ	WILKINS	350	1	DC	
Stine, Jonathan	006835-000	658 S 15th Ct	Left of driveway	04/16/20	DCFE88E	FEBCO	850U	1	DC	
Stone, James & Cassandra	005648-000	1204 Old Pioneer Way	against front of house by A/C	06/07/19	DCFE85E	FEBCO	850	1	DC	
Stoneburner, Lorie	012488-000	2514 S 19th Ct	West side of house	01/17/19	DCWA7ME	WATTS	007M1QT	1	DC	
Stose, Sharon & Don	006761-000	2085 S 26Th Ave	south of front entry	09/12/19	DCFE88E	FEBCO	850U	1	DC	
Stoughton, Monte & Kathy	012558-000	4918 S 12th Cir	By meter	07/31/19	DCWIAQJ	WILKINS	350	1	DC	
Stout, Jon	007799-000	1617 N Heron Dr	Front Yard by Meter	05/21/19	DCFE88D	FEBCO	850U	0.75	DC	
Strain, Even & Anna	008266-000	1624 S Taverner Dr	10' east of NW corner of house	08/17/19	DCWI95E	WILKINS	950	1	DC	
Strait, Kellie	010098-000	103 N 38Th Pl	In box northside by heat pump	05/29/19	DCFE88E	FEBCO	850U	1	DC	
Streif, Rick	009409-000	2314 S Wind River Way	in box across walk from meter	03/26/20	DCWIAFT	WILKINS	350	0.75	DC	
Stull, Kristin & Ken	012720-000	4934 S 12th Cir	Front right corner of house	12/20/19	DCWIAQJ	WILKINS	350	1	DC	
Stutfield, Jane	011940-000	2317 S White Salmon Dr	in box across walk from meter	07/13/19	DCWIAQL	WILKINS	350XL	0.75	DC	
Sucheck, Jodie	012161-000	526 N Helens View Dr	in box across walk from meter	08/14/19	DCWIAFT	WILKINS	350	0.75	DC	
Sudmeier, Danyel	007335-000	715 N 16Th Ct	Front of lot by water meter	03/20/20	DCFE88D	FEBCO	850U	0.75	DC	
Sullins, Kristen	007577-000	817 N 18Th Pl	south side of house	06/22/19	DCFE88E	FEBCO	850U	1	DC	
Sullivan, Joseph & Tina	012675-000	3914 S Hay Field Cir	At right front corner of house	05/02/20	DCFE85E	FEBCO	850	1	DC	
Sullivan, Linda	011071-000	3805 N 5Th Way	right side of driveway	04/24/20	DCWIAQJ	WILKINS	350	1	DC	
Sullivan, Sean And Shannon	008151-000	1992 S 14Th Ct	In box at meter	03/18/20	DCWIAQJ	WILKINS	350	1	DC	
Summerplace Homes Inc	008137-000	1846 S Lake River Ter	Front yard by meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
Summerplace Homes Inc	007988-111	1850 S Harrier Rd	10' past water meter	12/16/19	DCFE85E	FEBCO	850	1	DC	
Summerplace Homes Inc	007988-103	1890 S Harrier Rd	10' North of water meter	06/27/59	DCWIAQJ	WILKINS	350	1	DC	
Summerplace Homes, Inc	007988-073	1759 S NIGHTHAWK RD	Front yard across sidewalk from water meter	05/29/19	DCFE85E	FEBCO	850	1	DC	
Summers, Whitney & Jacob	007898-000	2004 S 16Th Dr	12" box at water meter	07/19/19	DCWI96E	WILKINS	950XL	1	DC	
Sun Country Homes	010070-000	3999 N 1st Way	right of driveway	08/18/19	DCWIAQJ	WILKINS	350	1	DC	
Suomi, Donna & Creighton	011882-002	1589 S Harrier Cir	10' past water meter	02/28/19	DCFE85E	FEBCO	850	1	DC	
Suter, Cara	012027-000	3828 S Willow Dr	in box by the NW corner of house	08/14/19	DCWIAQJ	WILKINS	350	1	DC	
Sutton, Georgia	012778-000	4723 S 19th	at left front corner of prop by meter	04/29/20	DCWIAQJ	WILKINS	350	1	DC	
Sutton, Ryan & Alix	010600-000	4523 N 9Th St	front of house n/w corner between street and sidewalk	09/11/19	DCWIAQJ	WILKINS	350	1	DC	
Suzanne Kelly	011490-001	521 S 19th PL	At water meter	04/11/19	DCFE85E	FEBCO	850	1	DC	
Swanson, Michael & Debbie	008228-000	1845 S Dusky Dr	IN BOX BY DRIVE 10' FROM METER	03/19/20	DCFE85E	FEBCO	850	1	DC	
Swenson, Todd	009314-000	1220 N 8th Way	HERON RIDGE LOT 36 - AT METER	05/05/20	DCWIAQJ	WILKINS	350	1	DC	
Swerhone, Cynthia and Derrick	011388-000	3407 N Pioneer Canyon Dr	NW corner of house	05/06/20	DCWIAQJ	WILKINS	350	1	DC	
Tabish, Scott & Jennifer	009039-000	1502 S 21St Pl	At water meter	08/29/19	DCFE88E	FEBCO	850U	1	DC	
Tamez, Tiffany & Alfredo	007026-000	2015 Falcon Dr	Left property line by sidewalk	09/11/19	DCFE88D	FEBCO	850U	0.75	DC	
Tan, Melissa Jane & Marinela	012471-000	3646 S Kennedy Dr	Right side of house	07/08/19	DCWIAQJ	WILKINS	350	1	DC	
Tanninen, Brian & Patricia	012031-000	1707 N Heron Dr	east side of house	07/28/19	DCFE88D	FEBCO	850U	0.75	DC	
Tanninen, Brian & Patricia	007232-000	634 N 18th Pl	north side of house	06/30/19	DCFE88D	FEBCO	850U	0.75	DC	
Taverner Ridge Homeowners Associati	008071-000	1313 S Great Blue Rd	50' west of Taverner Dr - near park irrigation meter	06/22/19	DCWI97G	WILKINS	950XLT	1.5	DC	Irrigation
Taverner Ridge Homeowners Associati	008051-000	Great Blue Rd/Lake River Ter	se corner of S. Great Blue and S. Lake River Terr.	06/22/19	DCAPASD	APOLLO/CONBRACO	DC4A	1	DC	Irrigation
Taverner Ridge Homeowners Associati	011521-000	IRR SW Corner Taverner Dr & Nighthawk Rd	SW Corner of Taverner Dr & Nighthawk Rd.	/ /	DCWIAQJ	WILKINS	350	1	DC	Irrigation
Taverner Ridge Homeowners Association	008071-001	16Th/Duskyplayground	in front of playground track E park 1 - 16th Way/Dusky Dr Playgro	06/22/19	DCWI97G	WILKINS	950XLT	1.5	DC	Irrigation
Taverner Ridge Homeowners Association	011909-001	IRR NW Corner Hillhurst & Nighthawk	NW Corner Hillhurst & Nighthawk	07/17/19	DCWIBDO	WILKINS	950XLT2	1	DC	
Taverner Ridge Homeowners Association	011909-000	IRR TR Meadowlark Dr	Park four ACROSS THE STREET FROM 2208 MEADOWLARK DR.	08/08/19	DCWIAQJ	WILKINS	350	1	DC	Irrigation
Taylor, Michael & Shana	009117-000	2309 S 16Th Cir	in box at meter	06/13/19	DCFE88E	FEBCO	850U	1	DC	
Taylor-Hatch, Andrea & Jeff	007297-000	1614 Falcon Dr	Front yard by water meter	06/18/19	DCFE88D	FEBCO	850U	0.75	DC	
Teal Crest LLC	012410-000	IRR West End S Sevier Rd	Left of water meter (west end of sevier road)	10/11/19	DCFE85E	FEBCO	850	1	DC	Irrigation
Templeton, Kip	010024-001	621 N Allen Creek Dr	left side yard next to house	04/30/20	DCWIAQJ	WILKINS	350	1	DC	
Templon, LaDonna Robey & John	011962-000	2301 S 17th Way	SE corner of house in box	05/05/20	DCFE88E	FEBCO	850U	1	DC	
Teriaki Thai	010695-000	109 S 65th Ave	Under soda machine Teriaki Zone	07/19/19	RP4A	APOLLO/CONBRACO	RP4A	0.5	RP	Carbonator
TEVIS & GWEN LASPA	005979-000	932 N MAIN AVE	Crawl space under house	07/18/19	RPCO4BC	CONBRACO	40203A2S	0.5	RP	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
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ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
TEVIS & GWEN LASPA	005979-000	932 N MAIN AVE	behind panel - NW corner inside garage	07/18/19	DCAM20G	AMES	2000B	1.5	DC	
TEVIS & GWEN LASPA	005979-000	932 N MAIN AVE	box next to driveway	07/18/19	DCFE88E	FEBCO	850U	1	DC	
The Vancouver Clinic Inc. P.S	012327-000	5515 Pioneer St	48" box by domestic vault on east side	03/03/20	DCWAAMU	WATTS	LF007M1QT	2	DC	
The Vancouver Clinic Inc. P.S	012327-000	5515 Pioneer St	Vault fire supression, east side of building	03/03/20	DDWAASQ	WATTS	757DCDABF	6	DCDA	
The Vancouver Clinic Inc. P.S	012327-000	5515 Pioneer St	Vault east side of building -	03/03/20	DCWAACI	WATTS	757A	2.5	DC	
Theisen, Steve & Stacey	012576-000	3608 S Star View Loop	Back side of garage	09/08/19	DCWIAQJ	WILKINS	350	1	DC	
Thoeny, Stephanie Ann	008771-000	3548 S 4th Way	At the heat pump	05/25/19	DCFE88D	FEBCO	850U	0.75	DC	
Thomas, Brandon	011644-000	2301 N 5Th Way	in box across walk from meter	09/25/19	DCFE88D	FEBCO	850U	0.75	DC	
Thomas, Kristi & Clarence	009469-000	2317 S Sauk Way	in box across walk from meter	10/03/19	DCWIAFT	WILKINS	350	0.75	DC	
Thomas, Paul & Evelyn	006879-000	1147 S 6Th Way	right side of house	06/01/19	DCFE85E	FEBCO	850	1	DC	
Thompson, Cami	012341-000	508 N Allen Creek Dr	508 N Allen Creek Dr	09/27/19	DCWIAQJ	WILKINS	350	1	DC	
Thompson, Logan	010560-000	778 N 49Th Ave	By meter	06/10/19	DCFE85E	FEBCO	850	1	DC	
Thompson, Randal	007164-000	505 N 22Nd Ct	505 N 22nd Ct	09/09/16	DCFE88D	FEBCO	850U	0.75	DC	
Thompson, Tim	005024-000	310 N 23Rd Pl	SW corner of garage	08/01/19	DCFE85E	FEBCO	850	1	DC	
Thoms, Ashley	011925-000	1242 S Fieldcrest Dr	By meter	08/22/19	DCFE85E	FEBCO	850	1	DC	
Thomson, Alesya	012073-000	625 N 17Th Ct	625 N 17th Ct	08/10/09	DCFE85D	FEBCO	850	0.75	DC	
Tibbits, Kathryn	007793-000	1611 N Heron Dr	Front Yard by Meter	05/05/20	DCFE88D	FEBCO	850U	0.75	DC	
Timperley, Grant	009012-000	1923 S Osprey Dr	At water meter	08/01/19	DCFE88E	FEBCO	850U	1	DC	
Tipton, Brandon	012271-000	2004 Falcon Dr	west side about 5' from drive at sidewalk	08/19/19	DCFE88D	FEBCO	850U	0.75	DC	
Tjaden, Edward	010080-000	135 N 39th Ct	In box at the SE corner	07/22/19	DCFE88E	FEBCO	850U	1	DC	
Tomillo, Thomas and Alyssa	010372-001	984 N Parson Pl	FRONT PORCH NORTH SIDE	11/03/19	DCWIAQJ	WILKINS	350	1	DC	
Tomlinson, Neil & Patricia	009312-001	729 N 12th Ct	In box by meter	09/17/19	DCWIAQJ	WILKINS	350	1	DC	
Tompkins, Brent	011970-000	3747 S Willow Dr	In box 15' So of NW corner of house	08/29/19	DCWIAQJ	WILKINS	350	1	DC	
Towler, Matthew and Dana	011417-000	1601 S 8th Way	NE corner of house	06/04/19	DCWI98E	WILKINS	950XLU	1	DC	
Town, Markel	012132-000	1620 S 47th Pl	On left side of house 10' past front corner	01/15/19	DCWIAQJ	WILKINS	350	1	DC	
Townsend, Irene	008067-000	1305 S Great Blue Rd	in box by gas meter west side house behind fence	03/25/20	DCWIAQJ	WILKINS	350	1	DC	
Trainor, Mark	007933-000	1625 S Phoebe Dr	North side of house	05/12/20	DCFE88E	FEBCO	850U	1	DC	
Trapani, Dawn	010053-000	305 N 40th Ave	by water meter	05/18/19	DCWIAQJ	WILKINS	350	1	DC	
Trappe, Christine	011878-000	1705 S Nighthawk Rd	In box across from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Tri Mountain Plaza	010694-000	109 S 65TH AVE	Subway - attached to soda machine	06/20/19	RPWA01C	WATTS	009PCQT	0.5	RP	Carbonator
Trifu, Valentin & Nina	012550-000	4745 S 19th St		06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Trimbo, Robby	010570-000	4848 N 8th St	By meter	05/01/20	DCWA7ME	WATTS	007M1QT	1	DC	
Tri-Mountain Business Park	010694-001	109 S #B 65Th Ave	Behind rise room - Irrigation	02/11/19	DCWI97E	WILKINS	950XLT	1	DC	
Tri-Mountain Business Park	010694-001	109 S #B 65Th Ave	NE Corner of Building B	02/11/19	DCWA00G	WATTS	007M1QT	1.5	DC	
Tri-Mountain Business Park	010694-001	109 S #B 65Th Ave	Papa Petes - at carbonated beverage dispenser	06/20/19	RPWA9QG	WATTS	009QT	1.5	RP	Carbonator
Tri-Mountain Business Park	010694-001	109 S #B 65Th Ave	NW Corner of building	02/11/19	DCWA72G	WATTS	007M2QT	1.5	DC	
Tri-Mountain Business Park	010694-001	109 S #B 65Th Ave	vault NE corner of Building B	07/02/19	DCWA78K	WATTS	774	4	DC	
Tri-Mountain Business Park	010694-001	109 S #B 65Th Ave	under counter at corner - #108	07/20/19	DCWAAMY	WATTS	LF007QT	0.5	DC	
Tri-Mountain Rv Park	010695-000	109 S #C 65Th Ave	Vault at water meter RV Park, #c	02/11/19	DDWA00I	WATTS	007DCDA	2.5	DCDA	
Tri-Mountain Rv Park	010695-000	109 S #C 65Th Ave	vault at water meter #C - RV Park - IRRIGATION	01/22/20	DCWI97H	WILKINS	950XLT	2	DC	
Tu, Al	011413-000	1310 S Great Blue Rd	In box across walk from meter by driveway	03/26/20	DCWIAQJ	WILKINS	350	1	DC	
Tullis, Katrina	011903-000	1243 S Fieldcrest Dr	By meter	07/19/19	DCFE85E	FEBCO	850	1	DC	
Turley, Paul	011645-000	2204 S 17th Way	Se corner of house	09/26/19	DCWI96E	WILKINS	950XL	1	DC	
Turner, Debbi & Steve	008232-000	1810 S Dusky Dr	SW corner of property at water meter	03/19/20	DCWI96E	WILKINS	950XL	1	DC	
Turner, Debra	009251-000	918 N Heron Dr	at water meter	03/21/19	DCFE88D	FEBCO	850U	0.75	DC	
Turner, Kevin & Deanna	009094-000	1814 S 15Th Cir	across sidewalk from meter	05/18/19	DCFE88E	FEBCO	850U	1	DC	
Turner, Theresa David-Turner & Scot	008126-000	1366 S 15Th Way	ACROSS WALK BY METER	03/19/20	DCFE85E	FEBCO	850	1	DC	
Tyner, Rick & Michelle Michaels-Tyn	006884-000	1251 S 6Th Way	by water meter	04/08/20	DCWI97E	WILKINS	950XLT	1	DC	
Uhacz, Grant & Jill	010588-000	743 N 48Th Ave	Discovery Ridge Lot 10, across sidewalk from meter	10/22/19	DCWIAQJ	WILKINS	350	1	DC	
Ulestad, Brandon	012531-000	3516 S Willow Dr	Side of house	07/27/19	DCWIAQJ	WILKINS	350	1	DC	
Ullom, Jessica & David	008575-000	3144 S 3rd Way	by NE corner of house	10/17/19	DCWI99D	WILKINS	950XLU	0.75	DC	
UNION RIDGE HOA	010696-001	610 S 74TH PL	Union Ridge Parkway Irrigation in Dollar Tree landscape buffer	08/28/19	DCWI97G	WILKINS	950XLT	1.5	DC	Irrigation
Union Ridge HOA	010696-000	Union Ridge Parkway Landscape	Union Ridge Pkwy landscape buffer - S 10th & Quail Hill Road	11/04/19	DCWI97G	WILKINS	950XLT	1.5	DC	Irrigation
United Methodist Church	005441-000	1410 S Hillhurst Rd	in vault in NW corner of property	07/15/19	COLT200	COLT	200	6	DC	Church
United Natural Foods Inc	010698-000	7909 S Union Ridge Parkway	next to street at North side driveway	12/11/19	DCWA00H	WATTS	007M1QT	2	DC	
United Natural Foods Inc	010698-000	7909 S Union Ridge Parkway	Irrigation System	12/11/19	DCWA00H	WATTS	007M1QT	2	DC	Irrigation
United Natural Foods Inc	010698-000	7909 S Union Ridge Parkway	Fire Suppression in vault north end of parking lot	12/11/19	DCWIADH	WILKINS	350A	8	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
United Natural Foods Inc	010698-000	7909 S Union Ridge Parkway	In Mech Room, fire pump room, at SE Corner of warehouse	06/20/19	RPWAAAYA	WATTS	LF919QT	2	RP	
United Natural Foods Inc	010698-000	7909 S Union Ridge Parkway	In Mech Room at SE Corner of Warehouse	06/20/19	RPWAAAYA	WATTS	LF919QT	2	RP	
United Natural Foods Inc	010698-000	7909 S Union Ridge Parkway	On N wall by scrubber dump	08/02/19	RPWAAJE	WATTS	957	3	RP	
Uplinger, Jerome	009064-000	2020 S Osprey Dr	at water meter	04/23/20	DCFE88E	FEBCO	850U	1	DC	
Valishvili, Alexey & Tanya	009958-001	1561 S Nighthawk Circle	20' South of water meter	11/01/19	DCFE85E	FEBCO	850	1	DC	
Van Arnam, Kent & Allison	005102-001	2286 S 31St Ct	in box at NE corner of lot at meter	05/04/20	DCAPAOK	APOLLO/CONBRACO	40-105-A2	1	DC	
Van Brunt, Ryan	011595-000	2500 S Nisqually Ave	by meter	05/04/20	DCFE85E	FEBCO	850	1	DC	
Van Maren, Mikail	012602-000	4936 S 19th Street	Left side of driveway 10' behind meter	10/10/19	DCWIAQJ	WILKINS	350	1	DC	
Vanluven, Elon R	007985-000	1510 S Dusky Dr	LEFT SIDE OF HOME BEHIND GATE	03/23/20	DCWI96E	WILKINS	950XL	1	DC	
Vasquez, Jamie & Leo	007167-000	500 Lark Dr	500 Lark Dr	/ /	DCFE88D	FEBCO	850U	0.75	DC	
Vaylova, Valentina	012636-000	3805 N 3rd Cir	in box across walk from meter	10/27/19	DCWIAFT	WILKINS	350	0.75	DC	
Veeder Jr, Candice Veeder & Dean	008130-000	1278 S 15th Way	In box across walk from meter	03/18/20	DCFE85E	FEBCO	850	1	DC	
Vera, Jennifer	010611-000	4553 N Noble Loop	NW front of house by street and tree	03/27/20	DCWIAQJ	WILKINS	350	1	DC	
Vigg, Steven	009834-000	360 N Green Gables Loop	west house	10/03/19	DCWIAQJ	WILKINS	350	1	DC	
Vigil, Christina	012425-000	3928 S Kennedy Dr	back left corner of garage	04/26/19	DCWIAQJ	WILKINS	350	1	DC	
Villavicencio, Noel	007965-000	2010 S 19Th Way	Across sidewalk from water meter	05/23/19	DCFE88E	FEBCO	850U	1	DC	
Vincent, Ben & Dana	008103-000	1656 S 15Th Way	adjacent to garage	03/25/20	DCWIAQJ	WILKINS	350	1	DC	
Virtue, Kenneth & Kathleen	008216-000	1881 S Taverner Dr	In box across walk from meter	03/20/20	DCFE85E	FEBCO	850	1	DC	
Vizcaino, Alexis	012225-000	2200 S White Salmon Dr	in box behind garage by heat pump	09/26/19	DCWIAFT	WILKINS	350	0.75	DC	
Voltz, Ralph	012577-000	4935 S 12th Circle	By meter	10/03/19	DCWIAQJ	WILKINS	350	1	DC	
WA DEPT OF TRANSPORT	005766-000	I-5 REST AREA	Gee Creek Rest Area Southbound, PUMP HOUSE	04/23/19	RPWA00H	WATTS	009M2PCQT	2	RP	
WA DEPT OF TRANSPORT	005766-000	I-5 REST AREA	Gee Creek rest Area Southbound, RV FILL	04/23/19	RPWA00D	WATTS	009M3QT	0.75	RP	
WA DEPT OF TRANSPORT	005766-000	I-5 REST AREA	Gee Creek Rest Area - Southbound, RV DUMP	04/23/19	RPWA00D	WATTS	009M3QT	0.75	RP	
WA DEPT OF TRANSPORT	005766-000	I-5 REST AREA	City of Ridgefield, PUMP HOUSE	04/23/19	RPWA0BH	WATTS	009M2QT	2	RP	
WA DEPT OF TRANSPORT	005766-000	I-5 REST AREA	300' North of Bathrooms	11/07/19	RPWAAQR	WATTS	LF009M2QT	1.25	RP	
WA DEPT OF TRANSPORT	005766-000	I-5 REST AREA	300' N of Bathrooms	11/07/19	DCWAAMV	WATTS	LF007M2QT	1.25	DC	
Wade, Tracey	008226-000	1822 S Taverner Dr	at meter across from walk	03/20/20	DCWI97E	WILKINS	950XLT	1	DC	
Wade, Tyler	006871-001	1150 S 6Th Way	10' north of water meter	04/24/20	DCFE88E	FEBCO	850U	1	DC	
Waggener, Marian	008032-000	1522 S Taverner Dr	at water meter	03/20/20	DCFE85E	FEBCO	850	1	DC	
Wagoner, Scott & Kathleen	012071-000	1601 S Harrier Rd	10' South Past of water meter	01/18/19	DCFE85E	FEBCO	850	1	DC	
Walker, Kyle	007287-000	1634 N Falcon Dr	10' past water meter	07/22/19	DCFE88D	FEBCO	850U	0.75	DC	
Walker, Renae & David	008173-000	1732 S 15Th Ct	at water meter	03/19/20	DCFE85E	FEBCO	850	1	DC	
Walker, Tim and Krista	012407-000	4840 N 8th St	Front yard by meter	09/13/19	DCWIAQJ	WILKINS	350	1	DC	
Walkins, Julie	009801-000	323 N 35Th Ave	by meter	09/19/19	DCWIAQJ	WILKINS	350	1	DC	
Walkinshaw, Don	012390-000	1630 Falcon Dr	10' past water meter	05/05/20	DCFE88D	FEBCO	850U	0.75	DC	
Wallace, Mary	007096-000	2309 N 5Th Way	by water meter	05/06/20	DCFE88D	FEBCO	850U	0.75	DC	
Waltz, Arthur	006784-000	2695 S Cornett Dr	At meter	04/29/20	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Ward, Robert & Heidi	011951-000	800 S 19th Pl	In box by meter	05/05/20	DCFE85E	FEBCO	850	1	DC	
Warden, Heather & Chad	009506-000	2208 S Sauk Way	in box across walk from meter	05/04/20	DCWIAFT	WILKINS	350	0.75	DC	
Warnock, Olivia	012048-000	4309 S 11th Way	by meter	01/15/19	DCFE85E	FEBCO	850	1	DC	
Waters, Kathy & Michael	007993-000	1504 S Dusky Dr	in box south side of house under window	03/25/20	DCFE85E	FEBCO	850	1	DC	
Watlington, Kayla	011833-000	1788 S Harrier Rd	In box across from meter	03/23/20	DCFE85E	FEBCO	850	1	DC	
Watson, Randy	007165-000	503 N 22Nd Ct	in box across walk from meter	05/06/20	DCFE88D	FEBCO	850U	0.75	DC	
Webb, David	011471-000	511 S 19th Place	at water meter	08/08/19	DCAPASD	APOLLO/CONBRACO	DC4A	1	DC	
Webb, Edward & Sandra	012418-000	4725 S 16th Dr	On left side of driveway behind meter	06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Webb, Marsha Short-Webb and Paul	012469-000	306 Division St	4' north of meter	06/06/19	DCFE85E	FEBCO	850	1	DC	
Webb, Samuel & Jessica	009755-001	1604 N 8th Way	6' north of water meter	05/21/19	DCFE88D	FEBCO	850U	0.75	DC	
Webb, Zakery & Suzanne	012698-000	3724 S Star View Loop	Against west side of house at NW corner	11/21/19	DCWIAQJ	WILKINS	350	1	DC	
Weber, David	006787-000	2751 S Cornett Dr	At meter	05/25/19	DCFE88D	FEBCO	850U	0.75	DC	
Weinell, Dina & W. Tom	009894-000	602 N Helens View Dr	Across walk from meter	08/20/19	DCWIAQJ	WILKINS	350	1	DC	
Welch, Bob & Lozano Olga	005480-000	360 S 15Th Ct	in box next to garage south side 15 feet from garage	08/24/19	DCWI96E	WILKINS	950XL	1	DC	
Wells, David	011469-000	1842 S Pintail Court	IN BOX AT METER	03/26/20	DCFE85E	FEBCO	850	1	DC	
Wells, Winston & Holly	012807-000	4757 S 19th St	At right front corner of property behind meter	06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Welsch, Katie & Matt	009809-001	4944 S 19th Street	Right of driveway behind meter	11/14/19	DCWIAQJ	WILKINS	350	1	DC	
Werner, Clesson	008383-000	3120 S 2nd St	in box east side of house behind garage	09/12/19	DCWA7ME	WATTS	007M1QT	1	DC	
Wertz, Darren	005085-000	227 Pioneer St	SW corner of Pioneer/S 3rd Ave by meter	12/08/17	DCWA03D	WATTS	007M3QT	0.75	DC	Irrigation
Wertz, Darren & Juanita	009140-000	907 N 8th Pl	@ watermeter	10/17/19	DCWI96E	WILKINS	950XL	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Westbrook, Gail & T Murray	006957-000	1353 S 7Th Cir	10' south of water meter	03/27/20	DCFE88E	FEBCO	850U	1	DC	
Westlund, Cadie Dye & Andrew	012572-000	349 N Green Gables Loop	right front corner of house	09/24/19	DCWIAQJ	WILKINS	350	1	DC	
Weyant, Jana	011632-001	2314 S White Salmon Dr	by meter	10/17/19	DCFE85E	FEBCO	850	1	DC	
Weyrauch, Jeff & Kristina	006824-000	631 S 19Th Pl	At meter	06/11/19	DCWIAQJ	WILKINS	350	1	DC	
Wheeler, Kristi and David	011148-000	2125 S White Salmon Dr	in box across walk from meter	04/30/20	DCWI98D	WILKINS	950XLT	0.75	DC	
Wheeler, Nick & Melina	010097-000	101 N 38Th Pl	In box by drive	07/29/19	DCFE88E	FEBCO	850U	1	DC	
Wheelon, Mike	011734-000	710 N 16Th Ct	by water meter	08/24/19	DCFE88D	FEBCO	850U	0.75	DC	
White, Adam	007113-000	2304 N 5Th Way	in box in back of garage (need gate key)	07/29/19	DCFE88E	FEBCO	850U	1	DC	
Whiting, David & Susan	011969-000	4750 S 18th Dr	at right front corner of property by meter	09/15/19	DCWIAQJ	WILKINS	350	1	DC	
Whitte, Brent	012523-000	4878 S 18th	On right side of house 5' behind gate	06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Wichman, Ron Liebelt & Marci	012084-000	1163 S 44th Ave	north side of driveway by power box	09/11/19	DCWIAQJ	WILKINS	350	1	DC	
Wilbanks, Dirk	011517-000	1400 S 6Th Way	SW corner of house	06/11/19	DCFE88E	FEBCO	850U	1	DC	
Wilcox-Olson, Josh & TJ	011663-000	1606 N Heron Dr	6' east of water meter	07/11/19	DCFE88D	FEBCO	850U	0.75	DC	
Wilhelm, Kelly & Jeff	012649-000	1841 S 50th Place	Next to water meter front L of property	11/01/19	DCWIAQJ	WILKINS	350	1	DC	
Wilken, Mary	010079-000	134 N 39Th Ct	Right side of house	06/28/19	DCWIAQJ	WILKINS	350	1	DC	
Wilkerson, Sara	012683-000	1835 Falcon Dr	north side of house	09/19/19	DCFE88D	FEBCO	850U	0.75	DC	
Williams, Donald & Maria	008379-000	3130 S 2nd St	East side of house by head pump	03/25/20	DCFE88D	FEBCO	850U	0.75	DC	
Willmore, Jason	012296-000	3810 S Kennedy Dr	behind garage	02/22/19	DCWIAQJ	WILKINS	350	1	DC	
Wilson, John & Jahna	011484-000	1905 Falcon Dr	across sidewalk from meter	09/03/19	DCFE88D	FEBCO	850U	0.75	DC	
Wilson, Kim	006713-001	3704 N Pioneer Canyon Dr	by meter	11/05/19	DCWIAQJ	WILKINS	350	1	DC	
Wilson, Lauriei & Blake	011803-000	728 N 12Th Ct	Front Yard by Meter	07/28/19	DCFEBAD	FEBCO	LF850	1	DC	
Wilson, Maury & Linda	008248-000	1711 S Dusky Dr	at water meter	03/19/20	DCFE88E	FEBCO	850U	1	DC	
Wilson, Samantha	011930-000	1851 S 47th Pl	Right of driveway at meter	03/21/20	DCWIAQJ	WILKINS	350	1	DC	
Wilson, Timothy & Carrie	012759-000	903 N 15th Ct	By meter	05/14/20	DCFE88D	FEBCO	850U	0.75	DC	
Wilton, Stephanie	009464-000	2209 S Sauk Way	by meter	10/09/19	DCFE85E	FEBCO	850	1	DC	
WINDY HILL WINERY	000000	1346 S 38TH CT		/ /	RPAPBJV	APOLLO/CONBRACO	RPLF4A	0.5	RP	
Winn, Amanda & Mark	006973-000	1613 Falcon Dr	1613 Falcon Dr	07/06/09	DCFE88D	FEBCO	850U	0.75	DC	
Winter, Paul Diane Julieanne & Se	012269-000	3738 S Willow	in box 30' north of se corner of house	10/09/19	DCWIAQJ	WILKINS	350	1	DC	
Wirkkala, Shay & Cody	007032-000	2033 Falcon Dr	in box across walk from meter	07/14/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Wise, James & Quinn	012588-000	1002 S 50th Ct	By meter	10/03/19	DCFE85E	FEBCO	850	1	DC	
Wise, Rima	012443-000	630 S 14Th Pl	by water meter	09/25/19	DCFE88E	FEBCO	850U	1	DC	
Wiseman, Patti	011523-000	1600 S 24Th Pl	By Meter	05/09/20	DCFE88E	FEBCO	850U	1	DC	
WISHING WELLS ESTATE	006651-000	WISHING WELLS IRRIGATION	Wishing Wells irrigation - at water meter in bark bed	07/11/19	DCWI97E	WILKINS	950XLT	1	DC	Irrigation
Wolf, Richard	012713-000	3917 S Hay Field Circle	Right of Driveway in line with meter	04/29/20	DCFE88E	FEBCO	850U	1	DC	
Wolf, Terry	009088-000	1918 S 15Th Cir	At water meter	04/28/20	DCFE88E	FEBCO	850U	1	DC	
Wondemu, Liben	009406-000	2318 S Wind River Way	in box across walk from meter	05/28/19	DCWIAFT	WILKINS	350	0.75	DC	
Woock, Tim	009282-000	730 N 12Th Ct	In box at the SW corner of house	09/11/19	DCWIAFT	WILKINS	350	0.75	DC	
Wood, Jane	011999-000	1285 S Fieldcrest Dr	North side of driveway in the bark bed	07/19/19	DCWIAQJ	WILKINS	350	1	DC	
Woodbury, Mariah	011059-000	996 N Parson Pl	By meter	07/28/19	DCFE85E	FEBCO	850	1	DC	
Woodruff, Harold & Tara	007131-000	604 N 22Nd Ct	6' east of water meter	05/02/20	DCFE88D	FEBCO	850U	0.75	DC	
Woods, Mark	010044-000	509 N 40th Ave	Left side of drive in green box	03/26/20	DCWIAQJ	WILKINS	350	1	DC	
Woodside, Melani	006830-000	702 S 15Th Ct	By water meter	06/27/19	DCFE85D	FEBCO	850	0.75	DC	
Woolley, Steve & Michele	011035-000	1732 S Lake River Ter	in box across walk	03/18/20	DCFE85E	FEBCO	850	1	DC	
Workman, Michael & Stephanie	012724-000	3718 S Star View Loop	East side of house	11/30/19	DCWIAQJ	WILKINS	350	1	DC	
Wright, Anthony David & Barbara A W	006652-000	2901 S Cornett Dr	2901 S Cornett Dr	08/23/16	DCAPAOJ	APOLLO/CONBRACO	40-105-02	1	DC	
Wright, Mary	012398-000	4305 N Ridgefield Woods Dr	In box by the NE corner of house	05/06/20	DCWIAQJ	WILKINS	350	1	DC	
Wright, Nathan	011977-000	4763 S 18th Dr	at right front corner of prop 8' behind meter	09/06/19	DCWIAQJ	WILKINS	350	1	DC	
Wright, Stephanie & Scott	007332-000	1621 N 8th Way	1621 N 8th Way	/ /	DCFE88D	FEBCO	850U	0.75	DC	
Wriston, James & Whitney	011857-000	2046 Falcon Dr	in box by drive across walk from meter	07/09/19	DCFE88D	FEBCO	850U	0.75	DC	
Wyatt, Christopher	009218-000	710 N Heron Dr	east side yard next to heat pump	03/19/20	DCFE85E	FEBCO	850	1	DC	
Yager, Dan & Jennifer	009303-000	1212 N 9Th Way	in box at meter	06/14/19	DCWIAQJ	WILKINS	350	1	DC	
Yankovich, Michael & Lauren	012549-000	3603 S Star View Loop	Northside of house	08/17/19	DCWIAQJ	WILKINS	350	1	DC	
Young, Christopher	009250-001	1704 S 24Th Pl	across walk from meter box	08/01/19	DCFE88E	FEBCO	850U	1	DC	
Young, Maryjane & Robert	008141-000	1277 S 15Th Way	IN BOX AT THE NW CORNER OF HOUSE	03/23/20	DCFE85E	FEBCO	850	1	DC	
Young, Paul	008258-000	1820 S Taverner Dr	1820 S Taverner Dr	03/20/20	DCFE88E	FEBCO	850U	1	DC	
Yunker, Patricia	008161-000	1735 S 15Th Ct	1735 S 15th Ct	03/19/20	DCFE85E	FEBCO	850	1	DC	
Zacharda, Allan	008157-000	1730 S 14th Ct	in box across walk from meter	03/18/20	DCFE85E	FEBCO	850	1	DC	

CITY OF RIDGEFIELD WATER SYSTEM PLAN
CROSS-CONNECTION CONTROL DEVICE INVENTORY

ACCOUNT HOLDER	ACCOUNT	ADDRESS	LOCATION	LAST TEST	DEVICE	MFG	MOEDL	DEVICE	TYPE	HAZARD
Zachary Townley	011997-000	925 N 13th Pl	In box near meter	06/25/19	DCWIAQJ	WILKINS	350	1	DC	
Zadeh, Mark & Vicki	008957-000	3204 S 2nd Way	Side of house up from water meter	03/25/20	DCFE88D	FEBCO	850U	0.75	DC	
Zadeh, Mark & Victoria	007424-000	2303 N Heron Dr	east side of house	03/25/20	DCWI96E	WILKINS	950XL	1	DC	
Zalozh, Andrey & Emma	010007-000	531 N Allen Creek Dr	in box across walk from meter	03/27/20	DCWIAQL	WILKINS	350XL	0.75	DC	
Zanas, Timothy & Lynda	007169-000	602 Lark Dr	in box across walk from meter by driveway	08/24/19	DCFE88D	FEBCO	850U	0.75	DC	
Zaradic, Sharyn	010613-000	4578 N Noble Loop	By meter	09/06/19	DCFE85E	FEBCO	850	1	DC	
Zeeman, Shane	012404-000	3716 S Kennedy Dr.	Behind garage	06/04/19	DCWIAQJ	WILKINS	350	1	DC	
Zeman, Mildred	007194-000	2032 Falcon Dr	in box east side of house by garage across door	08/24/19	DCWI99D	WILKINS	950XLU	0.75	DC	
Zerbach, Morgan & Alex	011527-000	210 N 39Th Ct	right side of property in parking strip	05/29/19	DCWIAQJ	WILKINS	350	1	DC	
Zimmer, Tom & Theresa	009068-000	1928 S Osprey Dr	Front yard by water meter	03/27/20	DCFE88E	FEBCO	850U	1	DC	
Zimmerman, Heather	011025-000	3155 S Cedar Ridge Dr	west side of house	03/22/19	DCWI94D	WILKINS	950XLD	0.75	DC	
Zinda, Dusty & Ashlee	009899-001	1607 S Phoebe Dr	right front parking strip by meter	08/22/19	DCFE88E	FEBCO	850U	1	DC	
Zinda, Dusty & Ashlee	009899-001	1607 S Phoebe Dr	RIGHT FRONT PARKING STRIP BY METER	04/01/15	DCFE85D	FEBCO	850	0.75	DC	
Zook, Christine	011744-001	4747 S 17th Dr	Right side of propery in lie with water meter	12/23/19	DCWIAQJ	WILKINS	350	1	DC	

APPENDIX O

PUBLIC BOIL WATER NOTIFICATION

DRINKING WATER WARNING

The _____ Water System, ID _____, located in _____ County is contaminated with fecal coliform/ *E. coli* bacteria.

Fecal coliform/ *E. coli* bacteria were detected/confirmed in the water supply on _____. These bacteria can make you sick and are a particular concern for people with weakened immune systems.

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a rolling boil for one minute. Let it cool before using. Boiled or purchased bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and food preparation until *further notice*. Boiling kills bacteria and other organisms in the water.

Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems. The symptoms above are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care provider.

What happened? What is the suspected or known source of contamination?

The following is being done to correct the problem:

We have consulted with the Washington State Department of Health about this incident. We will notify you when you no longer need to boil the water. We anticipate resolving the problem by _____.

For more information, please contact _____ at () ____ - ____ or at _____.
(owner or operator) (phone number) (address)

Please share this notice with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distribution copies by hand or mail.

This notice is sent to you by _____ Water System on ____/____/____

10/17/08



PUBLIC NOTICE CERTIFICATION

E. coli-MCL Violation

Within 10 days after notifying your customers about an *E. coli*-MCL violation, you must complete this form and send it to our regional office along with a copy of each type of notice you distributed to your customers (hand-delivered notices, news releases, newspaper articles, and so on).

By completing this form, you certify that:

- You met all of the public notification requirements.
- You will meet future requirements for notifying new billing units of the violation or situation.

If the boil water advisory remains in effect more than three months, you must re-notify your water users and send another completed copy of this *Public Notice Certification* to us.

Complete the following items, sign the form and mail it to the nearest regional office, addresses below:

Water System: _____ ID # _____ County: _____		
Violation Date: ____ / ____ / ____ Violation Type _____		
This public water system certifies that it gave this public notice to water users, following state and federal requirements for delivery, content, and deadlines.		☐ Yes ☐ No
Distribution was completed Yes ☐ No ☐ on ____ / ____ / ____.		
Check all that apply:		
☐ Hand delivery,		
☐ News release (TV, radio, newspaper)		
☐ Posting at _____ (by DOH approval only),		
☐ Other _____ (by DOH approval only).		
Were the water users notified within 24 hours? Yes ☐ No ☐		
_____ Signature of owner or operator	_____ Position	_____ Date

If you need this publication in an alternative format, call 800.525.0127 (TDD/TTY call 711). This and other publications are available at www.doh.wa.gov/drinkingwater.

Northwest Regional Office:
20425 72nd Ave S Suite 310
Kent WA 98032
(253) 395-6775
Fax: (253) 395-6760
Email: dw.nwro@doh.wa.gov

Southwest Regional Office:
PO Box 47823
Olympia WA 98504-7823
(360) 236-3030
Fax (360) 664-8058
Email: swro.coli@doh.wa.gov

Eastern Regional Office:
16201 E Indiana Ave Suite 1500
Spokane Valley WA 99216
(509) 329-2100
Fax: (509) 329-2104
Email: mark.steward@doh.wa.gov

Your logo or
company name here.

News Release

For Immediate Release: <DATE>

Contact: Water purveyor/system contact name and telephone number

<Water System> announces boil water advisory for all customers in <area>

CITY NAME — The <SYSTEM NAME> is advising all water customers to boil their drinking water after recent samples showed the presence of <fecal coliform, E. coli, total coliform>. The Washington State Department of Health (DOH) has been notified and <SYSTEM NAME> is working closely with the Office of Drinking Water to find the source of contamination and fix the problem, which may include disinfecting the system. The boil water advisory will remain in effect until further notice.

<System spokesperson quote> (e.g. “We are doing all we can to eliminate the bacteria from the water system. Safe and reliable drinking water is critical to good health and responding to this kind of emergency is our highest priority,” said system spokesperson.)

<NUMBER or NO> illnesses related to the community’s drinking water have been reported. To correct the problem <WHAT IS BEING DONE> (e.g. Chlorine was applied to the entire system on DATE.)

The boil water advisory includes several precautionary steps that customers should take. These include using purchased treated bottled water or boiled water for any water that might be consumed: drinking, brushing teeth, dishwashing, preparing food and making ice. Water should come to a rolling boil for one minute, then allowed to cool before using.

The advisory will remain in effect until <SYSTEM NAME> and DOH are confident there is no longer a threat of illness to their customers. Once satisfactory results are reported, customers will be notified that the advisory has been lifted.

If you have any questions, please call us at <TELEPHONE NUMBER>.

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06-22-11

APPENDIX P

SEPA CHECKLIST

APPENDIX Q

CAPITAL PROJECT COST ESTIMATES

City of Ridgefield
Preliminary Project Cost Estimate
Water Storage Improvement ST-1
East Side Elevated Reservoir (2.5 MG)

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>		<u>UNIT PRICE</u>	<u>AMOUNT</u>
1.	Mobilization and Demobilization	1	LS	\$1,644,000	\$1,644,000
2.	Temporary Erosion and Sediment Control	1	LS	\$8,000	\$8,000
3.	Trench Excavation Safety System	1	SF	\$7,000	\$7,000
4.	2.5 MG Elevated Reservoir	1	LS	\$7,800,000	\$7,800,000
5.	Sitework	1	LS	\$150,000	\$150,000
6.	Site Restoration	1	LS	\$15,000	\$15,000
Subtotal (Rounded).....					\$ 9,624,000
Tax rate (8.7%) (Rounded).....					837,000
Subtotal:.....					\$ 10,461,000
Contingency (30%) (Rounded).....					\$ 3,138,000
Total Estimated Construction Cost:.....					\$ 13,599,000
Engineering and Administrative Costs (25%) (Rounded):.....					\$ 3,400,000
Total Estimated Project Cost (Rounded):.....					\$ 17,000,000

City of Ridgefield
Preliminary Project Cost Estimate
Water Storage Improvement ST-2
High School Reservoir Recoat

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>		<u>UNIT PRICE</u>	<u>AMOUNT</u>
1.	Minor Change	1	LS	\$25,000	\$25,000
2.	Mobilization and Demobilization	1	LS	\$62,000	\$62,000
3.	Temporary Erosion and Sediment Control	1	LS	\$2,000	\$2,000
4.	Trench S	10	SF	\$1,200	\$12,000
5.	Puddle Weld Repair	10	EA	\$500	\$5,000
6.	Seal Welding	1	LS	\$40,000	\$40,000
7.	Flat Bar Seal Weld	30	LF	\$40	\$1,200
8.	Removal of Mill-Scale	2,000	SF	\$4	\$8,000
9.	Reservoir Exterior Preparation and Recoating	1	LS	\$210,000	\$210,000
10.	Reservoir Interior Preparation and Recoating	1	LS	\$260,000	\$260,000
11.	Reservoir Containment	1	LS	\$70,000	\$70,000
12.	Surface Restoration	1	LS	\$10,000	\$10,000
Subtotal (Rounded).....					\$ 705,200
Tax rate (8.7%) (Rounded).....					61,352
Subtotal:.....					\$ 766,600
Contingency (30%) (Rounded).....					\$ 229,980
Total Estimated Construction Cost:.....					\$ 996,600
Engineering and Administrative Costs (25%) (Rounded):.....					\$ 249,200
Total Estimated Project Cost (Rounded):.....					\$ 1,246,000

City of Ridgefield
Preliminary Project Cost Estimate
Water Storage Improvement ST-3
Second East Side Reservoir (2.0 MG)

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>		<u>UNIT PRICE</u>	<u>AMOUNT</u>
1.	Mobilization and Demobilization	1	LS	\$634,000	\$634,000
2.	Temporary Erosion and Sediment Control	1	LS	\$8,000	\$8,000
3.	Trench Excavation Safety System	1	SF	\$7,000	\$7,000
4.	2.0 MG Reservoir	1	LS	\$3,000,000	\$3,000,000
5.	Sitework	1	LS	\$50,000	\$50,000
6.	Site Restoration	1	LS	\$15,000	\$15,000
Subtotal (Rounded).....					\$ 3,714,000
Tax rate (8.7%) (Rounded).....					323,000
Subtotal:.....					\$ 4,037,000
Contingency (30%) (Rounded).....					\$ 1,211,000
Total Estimated Construction Cost:.....					\$ 5,248,000
Engineering and Administrative Costs (25%) (Rounded):.....					\$ 1,312,000
Total Estimated Project Cost (Rounded):.....					\$ 6,560,000

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-1
N 3rd Ave and Maple St – Division St to N 4th Ave Extension

Project No.
Pipe Size

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 17,000	\$ 17,000
2	Locating Existing Utilities	1	LS	\$ 5,000	\$ 5,000
3	Traffic Control	1	LS	\$ 8,000	\$ 8,000
4	Erosion/Water Pollution Control	1	LS	\$ 4,000	\$ 4,000
5	Trench Excavation Safety System	480	LF	\$ 5	\$ 2,400
6	Sawcutting	960	LF	\$ 5	\$ 4,800
7	8-inch D.I. Water Pipe, Including Fittings	480	LF	\$ 160	\$ 76,800
8	8-inch Gate Valves	1	EA	\$ 2,500	\$ 2,500
9	Additional Ductile Iron Fittings	100	LB	\$ 4	\$ 400
10	Fire Hydrant Assembly	1	EA	\$ 10,000	\$ 10,000
11	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
12	Bank Run Gravel for Trench Backfill	211	TN	\$ 35	\$ 7,385
13	Foundation Gravel	26	TN	\$ 35	\$ 910
14	Crushed Surfacing Top Course	117	TN	\$ 40	\$ 4,680
15	HMA Cl. 1/2" PG 58-22	130	TN	\$ 200	\$ 26,000
16	Cold Mix Asphalt	10	TN	\$ 170	\$ 1,700
Subtotal (Rounded).....					\$ 183,600
Tax rate (8.7%) (Rounded).....					<u>16,000</u>
Subtotal (Rounded).....					\$ 199,600
Contingency (30%) (Rounded).....					<u>\$ 59,900</u>

Total Estimated Construction Cost:	\$ 259,500
Engineering and Administrative Costs (25%) (Rounded):.....	<u>\$ 64,900</u>
Total Estimated Project Cost (Rounded):	<u>\$ 325,000</u>

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-2
S Royle Rd – NW Hillhurst Rd to S Royle Ct

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 50,000	\$ 50,000
2	Locating Existing Utilities	1	LS	\$ 13,000	\$ 13,000
3	Traffic Control	1	LS	\$ 23,000	\$ 23,000
4	Erosion/Water Pollution Control	1	LS	\$ 12,000	\$ 12,000
5	Trench Excavation Safety System	1,410	LF	\$ 5	\$ 7,050
6	Sawcutting	2,820	LF	\$ 5	\$ 14,100
7	12-inch D.I. Water Pipe, Including Fittings	1,410	LF	\$ 200	\$ 282,000
8	12-inch Gate Valves	3	EA	\$ 5,000	\$ 15,000
9	Additional Ductile Iron Fittings	300	LB	\$ 4	\$ 1,200
10	Fire Hydrant Assembly	3	EA	\$ 10,000	\$ 30,000
11	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
12	Bank Run Gravel for Trench Backfill	724	TN	\$ 35	\$ 25,340
13	Foundation Gravel	90	TN	\$ 35	\$ 3,150
14	Crushed Surfacing Top Course	190	TN	\$ 40	\$ 7,600
15	HMA Cl. 1/2" PG 58-22	211	TN	\$ 200	\$ 42,200
16	Cold Mix Asphalt	36	TN	\$ 170	\$ 6,120
Subtotal (Rounded).....					\$ 543,800
Tax rate (8.7%) (Rounded).....					<u>47,300</u>
Subtotal (Rounded).....					\$ 591,100
Contingency (30%) (Rounded).....					<u>\$ 177,300</u>

Total Estimated Construction Cost:	\$	768,400
Engineering and Administrative Costs (25%) (Rounded):.....	\$	192,100
Total Estimated Project Cost (Rounded):	\$	961,000

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-3
Mill St – N 1st Ave to N Krause Ave

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 31,000	\$ 31,000
2	Locating Existing Utilities	1	LS	\$ 8,000	\$ 8,000
3	Traffic Control	1	LS	\$ 28,000	\$ 28,000
4	Erosion/Water Pollution Control	1	LS	\$ 7,000	\$ 7,000
5	Trench Excavation Safety System	560	LF	\$ 5	\$ 2,800
6	Sawcutting	1,120	LF	\$ 5	\$ 5,600
7	8-inch D.I. Water Pipe, Including Fittings	560	LF	\$ 160	\$ 89,600
8	8-inch Gate Valves	2	EA	\$ 2,500	\$ 5,000
9	Additional Ductile Iron Fittings	100	LB	\$ 4	\$ 400
10	Fire Hydrant Assembly	1	EA	\$ 10,000	\$ 10,000
11	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
12	Bank Run Gravel for Trench Backfill	246	TN	\$ 35	\$ 8,610
13	Foundation Gravel	31	TN	\$ 35	\$ 1,085
14	Crushed Surfacing Top Course	164	TN	\$ 40	\$ 6,560
15	HMA Cl. 1/2" PG 58-22	183	TN	\$ 200	\$ 36,600
16	Jack and Bore, 24" steel casing and 8" DI pipe	80	LF	\$ 950	\$ 76,000
17	Restoration of Non-Paved Sections	1	LS	\$ 3,000	\$ 3,000
18	Cold Mix Asphalt	12	TN	\$ 170	\$ 2,040
Subtotal (Rounded).....					\$ 333,295
Tax rate (0%) (Rounded).....					<u>28,997</u>

Subtotal (Rounded).....	\$	362,300
Contingency (10000%) (Rounded).....	\$	108,690
Total Estimated Construction Cost:.....	\$	471,000
Engineering and Administrative Costs (25%) (Rounded):.....	\$	117,800
Total Estimated Project Cost (Rounded):.....	\$	589,000

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-4
N 65th Ave – N 1st Cir to NW 279th St

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 55,000	\$ 55,000
2	Locating Existing Utilities	1	LS	\$ 14,000	\$ 14,000
3	Traffic Control	1	LS	\$ 26,000	\$ 26,000
4	Erosion/Water Pollution Control	1	LS	\$ 13,000	\$ 13,000
5	Trench Excavation Safety System	1,560	LF	\$ 5	\$ 7,800
6	Sawcutting	3,120	LF	\$ 5	\$ 15,600
7	12-inch D.I. Water Pipe, Including Fittings	1,560	LF	\$ 200	\$ 312,000
8	12-inch Gate Valves	4	EA	\$ 5,000	\$ 20,000
9	Additional Ductile Iron Fittings	400	LB	\$ 4	\$ 1,600
10	Fire Hydrant Assembly	3	EA	\$ 10,000	\$ 30,000
11	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
12	Bank Run Gravel for Trench Backfill	801	TN	\$ 35	\$ 28,028
13	Foundation Gravel	100	TN	\$ 35	\$ 3,504
14	Crushed Surfacing Top Course	210	TN	\$ 40	\$ 8,389
15	HMA Cl. 1/2" PG 58-22	233	TN	\$ 200	\$ 46,607
16	Cold Mix Asphalt	40	TN	\$ 170	\$ 6,739
Subtotal (Rounded).....					\$ 600,267
Tax rate (8.7%) (Rounded).....					52,223
Subtotal (Rounded).....					\$ 652,500
Contingency (30%) (Rounded).....					\$ 195,750

Total Estimated Construction Cost:	\$	848,300
Engineering and Administrative Costs (25%) (Rounded):.....	\$	212,100
Total Estimated Project Cost (Rounded):	\$	1,061,000

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-5
S Dolan Rd to S 10th St Loop

Project No.
Pipe Size

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 94,000	\$ 94,000
2	Locating Existing Utilities	1	LS	\$ 23,000	\$ 23,000
3	Traffic Control	1	LS	\$ 44,000	\$ 44,000
4	Erosion/Water Pollution Control	1	LS	\$ 22,000	\$ 22,000
5	Trench Excavation Safety System	2,590	LF	\$ 5	\$ 12,950
6	Sawcutting	3,180	LF	\$ 5	\$ 15,900
7	12-inch D.I. Water Pipe, Including Fittings	2,590	LF	\$ 200	\$ 518,000
8	12-inch Gate Valves	6	EA	\$ 5,000	\$ 30,000
9	Additional Ductile Iron Fittings	600	LB	\$ 4	\$ 2,400
10	Fire Hydrant Assembly	5	EA	\$ 10,000	\$ 50,000
11	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
12	Bank Run Gravel for Trench Backfill	1,330	TN	\$ 35	\$ 46,550
13	Foundation Gravel	166	TN	\$ 35	\$ 5,810
14	Crushed Surfacing Top Course	760	TN	\$ 40	\$ 30,400
15	HMA Cl. 1/2" PG 58-22	518	TN	\$ 200	\$ 103,600
16	Cold Mix Asphalt	40	TN	\$ 170	\$ 6,800
17	Surface Resporation	1	LS	\$ 10,000	\$ 10,000
Subtotal (Rounded).....					\$ 1,027,410
Tax rate (25%) (Rounded).....					<u>89,385</u>
Subtotal (Rounded).....					\$ 1,116,800

Contingency (10%) (Rounded).....	\$ 335,040
Total Estimated Construction Cost:.....	\$ 1,451,800
Engineering and Administrative Costs (25%) (Rounded):.....	\$ 363,000
Total Estimated Project Cost (Rounded):.....	\$ 1,815,000

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-6
N Royle Rd – NW 10th St to NW 289th St

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 104,000	\$ 104,000
2	Locating Existing Utilities	1	LS	\$ 26,000	\$ 26,000
3	Traffic Control	1	LS	\$ 49,000	\$ 49,000
4	Erosion/Water Pollution Control	1	LS	\$ 24,000	\$ 24,000
5	Trench Excavation Safety System	2,660	LF	\$ 5	\$ 13,300
6	Sawcutting	5,320	LF	\$ 5	\$ 26,600
7	12-inch D.I. Water Pipe, Including Fittings	2,660	LF	\$ 200	\$ 532,000
8	12-inch Gate Valves	6	EA	\$ 5,000	\$ 30,000
9	Additional Ductile Iron Fittings	600	LB	\$ 4	\$ 2,400
10	Fire Hydrant Assembly	5	EA	\$ 10,000	\$ 50,000
11	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
12	Bank Run Gravel for Trench Backfill	1,365	TN	\$ 35	\$ 47,775
13	Foundation Gravel	171	TN	\$ 35	\$ 5,985
14	Crushed Surfacing Top Course	780	TN	\$ 40	\$ 31,200
15	HMA Cl. 1/2" PG 58-22	867	TN	\$ 200	\$ 173,400
16	Cold Mix Asphalt	68	TN	\$ 170	\$ 11,560
Subtotal (Rounded).....					\$ 1,139,220
Tax rate (8.7%) (Rounded).....					<u>99,112</u>
Subtotal (Rounded).....					\$ 1,238,300
Contingency (30%) (Rounded).....					<u>\$ 371,490</u>

Total Estimated Construction Cost:	\$	1,609,800
Engineering and Administrative Costs (25%) (Rounded):.....	\$	402,500
Total Estimated Project Cost (Rounded):	\$	2,013,000

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-7
S Royle Rd – S 10th Way to Pioneer St

Project No.
Pipe Size

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 93,000	\$ 93,000
2	Locating Existing Utilities	1	LS	\$ 23,000	\$ 23,000
3	Traffic Control	1	LS	\$ 43,000	\$ 43,000
4	Erosion/Water Pollution Control	1	LS	\$ 21,000	\$ 21,000
5	Trench Excavation Safety System	2,400	LF	\$ 5	\$ 12,000
6	Sawcutting	4,800	LF	\$ 5	\$ 24,000
7	12-inch D.I. Water Pipe, Including Fittings	2,400	LF	\$ 200	\$ 480,000
8	12-inch Gate Valves	5	EA	\$ 5,000	\$ 25,000
9	Additional Ductile Iron Fittings	500	LB	\$ 4	\$ 2,000
10	Fire Hydrant Assembly	4	EA	\$ 10,000	\$ 40,000
11	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
12	Bank Run Gravel for Trench Backfill	1,232	TN	\$ 35	\$ 43,120
13	Foundation Gravel	154	TN	\$ 35	\$ 5,390
14	Crushed Surfacing Top Course	704	TN	\$ 40	\$ 28,160
15	HMA Cl. 1/2" PG 58-22	782	TN	\$ 200	\$ 156,400
16	Cold Mix Asphalt	61	TN	\$ 170	\$ 10,370
Subtotal (Rounded).....					\$ 1,018,440
Tax rate (8.7%) (Rounded).....					<u>88,604</u>
Subtotal (Rounded).....					\$ 1,107,000
Contingency (30%) (Rounded).....					<u>\$ 332,100</u>

Total Estimated Construction Cost:	\$ 1,439,100
Engineering and Administrative Costs (25%) (Rounded):.....	<u>\$ 359,800</u>
Total Estimated Project Cost (Rounded):	<u>\$ 1,799,000</u>

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-8
Future Streets – NW Hillhurst Rd to NW Carty Rd Loop

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 244,000	\$ 244,000
2	Locating Existing Utilities	1	LS	\$ 60,000	\$ 60,000
3	Traffic Control	1	LS	\$ 114,000	\$ 114,000
4	Erosion/Water Pollution Control	1	LS	\$ 56,000	\$ 56,000
5	Trench Excavation Safety System	7,140	LF	\$ 5	\$ 35,700
6	16-inch D.I. Water Pipe, Including Fittings	7,140	LF	\$ 250	\$ 1,785,000
7	16-inch Butterfly Valves	8	EA	\$ 10,000	\$ 80,000
8	Additional Ductile Iron Fittings	2,900	LB	\$ 4	\$ 11,600
9	Fire Hydrant Assembly	12	EA	\$ 10,000	\$ 120,000
10	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
11	Bank Run Gravel for Trench Backfill	4,189	TN	\$ 35	\$ 146,615
12	Foundation Gravel	524	TN	\$ 35	\$ 18,340
Subtotal (Rounded).....					\$ 2,683,255
Tax rate (8.7%) (Rounded).....					<u>233,443</u>
Subtotal (Rounded).....					\$ 2,916,700
Contingency (30%) (Rounded).....					<u>\$ 875,010</u>
Total Estimated Construction Cost:.....					\$ 3,791,700
Engineering and Administrative Costs (25%) (Rounded):.....					<u>\$ 947,900</u>
Total Estimated Project Cost (Rounded):.....					<u>\$ 4,740,000</u>

NOTE: Road section assumed to be part of another project

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-9
NW Carty Rd – NW Hillhurst Rd to I-5

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 289,000	\$ 289,000
2	Locating Existing Utilities	1	LS	\$ 71,000	\$ 71,000
3	Traffic Control	1	LS	\$ 134,000	\$ 134,000
4	Erosion/Water Pollution Control	1	LS	\$ 66,000	\$ 66,000
5	Trench Excavation Safety System	8,530	LF	\$ 5	\$ 42,650
6	Sawcutting	17,060	LF	\$ 5	\$ 85,300
7	12-inch D.I. Water Pipe, Including Fittings	8,530	LF	\$ 200	\$ 1,706,000
8	12-inch Gate Valves	18	EA	\$ 5,000	\$ 90,000
9	Additional Ductile Iron Fittings	1,800	LB	\$ 4	\$ 7,200
10	Fire Hydrant Assembly	15	EA	\$ 10,000	\$ 150,000
11	Connection to Existing Water Main	3	EA	\$ 6,000	\$ 18,000
12	Bank Run Gravel for Trench Backfill	4,379	TN	\$ 35	\$ 153,265
13	Foundation Gravel	547	TN	\$ 35	\$ 19,145
14	Crushed Surfacing Top Course	1,147	TN	\$ 40	\$ 45,880
15	HMA Cl. 1/2" PG 58-22	1,274	TN	\$ 200	\$ 254,800
16	Cold Mix Asphalt	217	TN	\$ 170	\$ 36,890
Subtotal (Rounded).....					\$ 3,169,130
Tax rate (8.7%) (Rounded).....					275,714
Subtotal (Rounded).....					\$ 3,444,800
Contingency (30%) (Rounded).....					\$ 1,033,440

Total Estimated Construction Cost:	\$	4,478,200
Engineering and Administrative Costs (25%) (Rounded):.....	\$	1,119,600
Total Estimated Project Cost (Rounded):	\$	5,598,000

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-10
Future Street – S 11th St to NW Carty Road

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 163,000	\$ 163,000
2	Locating Existing Utilities	1	LS	\$ 40,000	\$ 40,000
3	Traffic Control	1	LS	\$ 76,000	\$ 76,000
4	Erosion/Water Pollution Control	1	LS	\$ 37,000	\$ 37,000
5	Trench Excavation Safety System	5,750	LF	\$ 5	\$ 28,750
6	12-inch D.I. Water Pipe, Including Fittings	5,750	LF	\$ 200	\$ 1,150,000
7	12-inch Gate Valves	12	EA	\$ 5,000	\$ 60,000
8	Additional Ductile Iron Fittings	1,200	LB	\$ 4	\$ 4,800
9	Fire Hydrant Assembly	10	EA	\$ 10,000	\$ 100,000
10	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
11	Bank Run Gravel for Trench Backfill	2,952	TN	\$ 35	\$ 103,320
12	Foundation Gravel	369	TN	\$ 35	\$ 12,915
Subtotal (Rounded).....					\$ 1,787,785
Tax rate (8.7%) (Rounded).....					<u>155,537</u>
Subtotal (Rounded).....					\$ 1,943,300
Contingency (30%) (Rounded).....					<u>\$ 582,990</u>
Total Estimated Construction Cost:.....					\$ 2,526,300
Engineering and Administrative Costs (25%) (Rounded):.....					<u>\$ 631,600</u>
Total Estimated Project Cost (Rounded):.....					<u>\$ 3,158,000</u>

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-11A
N 10th St – N 48th Ave Extension to N 65th Ave

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 155,000	\$ 155,000
2	Locating Existing Utilities	1	LS	\$ 38,000	\$ 38,000
3	Traffic Control	1	LS	\$ 72,000	\$ 72,000
4	Erosion/Water Pollution Control	1	LS	\$ 35,000	\$ 35,000
5	Trench Excavation Safety System	4,000	LF	\$ 5	\$ 20,000
6	Sawcutting	8,000	LF	\$ 5	\$ 40,000
7	12-inch D.I. Water Pipe, Including Fittings	4,000	LF	\$ 200	\$ 800,000
8	12-inch Gate Valves	8	EA	\$ 5,000	\$ 40,000
9	Additional Ductile Iron Fittings	800	LB	\$ 4	\$ 3,200
10	Fire Hydrant Assembly	7	EA	\$ 10,000	\$ 70,000
11	Connection to Existing Water Main	3	EA	\$ 6,000	\$ 18,000
12	Bank Run Gravel for Trench Backfill	2,053	TN	\$ 35	\$ 71,855
13	Foundation Gravel	257	TN	\$ 35	\$ 8,995
14	Crushed Surfacing Top Course	1,173	TN	\$ 40	\$ 46,920
15	HMA Cl. 1/2" PG 58-22	1,304	TN	\$ 200	\$ 260,800
16	Cold Mix Asphalt	102	TN	\$ 170	\$ 17,340
Subtotal.....					\$ 1,697,110
Tax rate (8.7%).....					147,649
Subtotal:.....					\$ 1,844,800
Contingency (30%).....					\$ 553,440

Total Estimated Construction Cost:	\$	2,398,200
Engineering and Administrative Costs (25%):.....	\$	599,600
Total Estimated Project Cost:	\$	2,998,000

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-11B
Trenchless Crossing of I-5

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 44,000	\$ 44,000
2	Locating Existing Utilities	1	LS	\$ 11,000	\$ 11,000
3	Traffic Control	1	LS	\$ 21,000	\$ 21,000
4	Erosion/Water Pollution Control	1	LS	\$ 10,000	\$ 10,000
5	12-inch D.I. Water Pipe, Including Fittings	300	LF	\$ 200	\$ 60,000
6	12-inch Gate Valves	2	EA	\$ 5,000	\$ 10,000
7	Additional Ductile Iron Fittings	100	LB	\$ 4	\$ 400
8	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
9	Jack and Bore, 24" steel casing and 12" DI pipe	300	LF	\$ 1,000	\$ 300,000
10	Restoration	1	LS	\$ 10,000	\$ 10,000
Subtotal (Rounded).....					\$ 478,400
Tax rate (8.7%) (Rounded).....					41,621
Subtotal (Rounded).....					\$ 520,000
Contingency (30%) (Rounded).....					\$ 156,000
Total Estimated Construction Cost:.....					\$ 676,000
Engineering and Administrative Costs (25%) (Rounded):.....					\$ 169,000
Total Estimated Project Cost (Rounded):.....					\$ 845,000

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-12
Future Street – N 10th St to N 20th St

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 76,000	\$ 76,000
2	Locating Existing Utilities	1	LS	\$ 19,000	\$ 19,000
3	Traffic Control	1	LS	\$ 36,000	\$ 36,000
4	Erosion/Water Pollution Control	1	LS	\$ 18,000	\$ 18,000
5	Trench Excavation Safety System	2,620	LF	\$ 5	\$ 13,100
6	12-inch D.I. Water Pipe, Including Fittings	2,620	LF	\$ 200	\$ 524,000
7	12-inch Gate Valves	6	EA	\$ 5,000	\$ 30,000
8	Additional Ductile Iron Fittings	600	LB	\$ 4	\$ 2,400
9	Fire Hydrant Assembly	5	EA	\$ 10,000	\$ 50,000
10	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
11	Bank Run Gravel for Trench Backfill	1,345	TN	\$ 35	\$ 47,075
12	Foundation Gravel	168	TN	\$ 35	\$ 5,880
Subtotal (Rounded).....					\$ 833,455
Tax rate (8.7%) (Rounded).....					<u>72,511</u>
Subtotal (Rounded).....					\$ 906,000
Contingency (30%) (Rounded).....					<u>\$ 271,800</u>
Total Estimated Construction Cost:.....					\$ 1,177,800
Engineering and Administrative Costs (25%) (Rounded):.....					<u>\$ 294,500</u>
Total Estimated Project Cost (Rounded):.....					<u>\$ 1,473,000</u>

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-13
NW 51st Ave – City Limits to UGA Limits

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 28,000	\$ 28,000
2	Locating Existing Utilities	1	LS	\$ 7,000	\$ 7,000
3	Traffic Control	1	LS	\$ 13,000	\$ 13,000
4	Erosion/Water Pollution Control	1	LS	\$ 7,000	\$ 7,000
5	Trench Excavation Safety System	670	LF	\$ 5	\$ 3,350
6	Sawcutting	1,340	LF	\$ 5	\$ 6,700
7	12-inch D.I. Water Pipe, Including Fittings	670	LF	\$ 200	\$ 134,000
8	12-inch Gate Valves	2	EA	\$ 5,000	\$ 10,000
9	Additional Ductile Iron Fittings	200	LB	\$ 4	\$ 800
10	Fire Hydrant Assembly	2	EA	\$ 10,000	\$ 20,000
11	Connection to Existing Water Main	1	EA	\$ 6,000	\$ 6,000
12	Bank Run Gravel for Trench Backfill	344	TN	\$ 35	\$ 12,040
13	Foundation Gravel	43	TN	\$ 35	\$ 1,505
14	Crushed Surfacing Top Course	197	TN	\$ 40	\$ 7,880
15	HMA Cl. 1/2" PG 58-22	218	TN	\$ 200	\$ 43,600
16	Cold Mix Asphalt	17	TN	\$ 170	\$ 2,890
Subtotal (Rounded).....					\$ 303,765
Tax rate (8.7%) (Rounded).....					<u>26,428</u>
Subtotal (Rounded).....					\$ 330,200
Contingency (30%) (Rounded).....					<u>\$ 99,060</u>

Total Estimated Construction Cost:	\$	429,300
Engineering and Administrative Costs (25%) (Rounded):.....	\$	107,300
Total Estimated Project Cost (Rounded):	\$	537,000

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-14A
Gee Creek Plateau Subarea - Pioneer St to S 15th St

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 152,000	\$ 152,000
2	Locating Existing Utilities	1	LS	\$ 37,000	\$ 37,000
3	Traffic Control	1	LS	\$ 71,000	\$ 71,000
4	Erosion/Water Pollution Control	1	LS	\$ 35,000	\$ 35,000
5	Trench Excavation Safety System	4,500	LF	\$ 5	\$ 22,500
6	Sawcutting	9,000	LF	\$ 5	\$ 45,000
7	12-inch D.I. Water Pipe, Including Fittings	4,500	LF	\$ 200	\$ 900,000
8	12-inch Gate Valves	9	EA	\$ 5,000	\$ 45,000
9	Additional Ductile Iron Fittings	900	LB	\$ 4	\$ 3,600
10	Fire Hydrant Assembly	8	EA	\$ 10,000	\$ 80,000
11	Connection to Existing Water Main	1	EA	\$ 6,000	\$ 6,000
12	Bank Run Gravel for Trench Backfill	2,310	TN	\$ 35	\$ 80,850
13	Foundation Gravel	289	TN	\$ 35	\$ 10,115
14	Crushed Surfacing Top Course	605	TN	\$ 40	\$ 24,200
15	HMA Cl. 1/2" PG 58-22	672	TN	\$ 200	\$ 134,400
16	Cold Mix Asphalt	114	TN	\$ 170	\$ 19,380
Subtotal (Rounded).....					\$ 1,666,045
Tax rate (8.7%) (Rounded).....					<u>144,946</u>
Subtotal (Rounded).....					\$ 1,811,000
Contingency (30%) (Rounded).....					<u>\$ 543,300</u>

Total Estimated Construction Cost:	\$	2,354,300
Engineering and Administrative Costs (25%) (Rounded):.....	\$	588,600
Total Estimated Project Cost (Rounded):	\$	2,943,000

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-14
Gee Creek Plateau Subarea - Pioneer St to S 15th St

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 140,000	\$ 140,000
2	Locating Existing Utilities	1	LS	\$ 34,000	\$ 34,000
3	Traffic Control	1	LS	\$ 65,000	\$ 65,000
4	Erosion/Water Pollution Control	1	LS	\$ 32,000	\$ 32,000
5	Trench Excavation Safety System	4,140	LF	\$ 5	\$ 20,700
6	Sawcutting	8,280	LF	\$ 5	\$ 41,400
7	12-inch D.I. Water Pipe, Including Fittings	4,140	LF	\$ 200	\$ 828,000
8	12-inch Gate Valves	9	EA	\$ 5,000	\$ 45,000
9	Additional Ductile Iron Fittings	900	LB	\$ 4	\$ 3,600
10	Fire Hydrant Assembly	7	EA	\$ 10,000	\$ 70,000
11	Connection to Existing Water Main	1	EA	\$ 6,000	\$ 6,000
12	Bank Run Gravel for Trench Backfill	2,125	TN	\$ 35	\$ 74,375
13	Foundation Gravel	266	TN	\$ 35	\$ 9,310
14	Crushed Surfacing Top Course	557	TN	\$ 40	\$ 22,280
15	HMA Cl. 1/2" PG 58-22	618	TN	\$ 200	\$ 123,600
16	Cold Mix Asphalt	105	TN	\$ 170	\$ 17,850
Subtotal (Rounded).....					\$ 1,533,115
Tax rate (8.7%) (Rounded).....					<u>133,381</u>
Subtotal (Rounded).....					\$ 1,666,500
Contingency (30%) (Rounded).....					<u>\$ 499,950</u>

Total Estimated Construction Cost:.....	\$	2,166,500
Engineering and Administrative Costs (25%) (Rounded):.....	\$	541,600
Total Estimated Project Cost (Rounded):.....	\$	2,709,000

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-15
Future Street - S 5th St to NW 279th St

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 112,000	\$ 112,000
2	Locating Existing Utilities	1	LS	\$ 28,000	\$ 28,000
3	Traffic Control	1	LS	\$ 52,000	\$ 52,000
4	Erosion/Water Pollution Control	1	LS	\$ 26,000	\$ 26,000
5	Trench Excavation Safety System	3,940	LF	\$ 5	\$ 19,700
6	12-inch D.I. Water Pipe, Including Fittings	3,940	LF	\$ 200	\$ 788,000
7	12-inch Gate Valves	8	EA	\$ 5,000	\$ 40,000
8	Additional Ductile Iron Fittings	800	LB	\$ 4	\$ 3,200
9	Fire Hydrant Assembly	7	EA	\$ 10,000	\$ 70,000
10	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
11	Bank Run Gravel for Trench Backfill	2,023	TN	\$ 35	\$ 70,805
12	Foundation Gravel	253	TN	\$ 35	\$ 8,855
Subtotal (Rounded).....					\$ 1,230,560
Tax rate (8.7%) (Rounded).....					<u>107,059</u>
Subtotal (Rounded).....					\$ 1,337,600
Contingency (30%) (Rounded).....					<u>\$ 401,280</u>
Total Estimated Construction Cost:.....					\$ 1,738,900
Engineering and Administrative Costs (25%) (Rounded):.....					<u>\$ 434,700</u>
Total Estimated Project Cost (Rounded):.....					<u>\$ 2,174,000</u>

City of Ridgefield
Preliminary Project Cost Estimate
Distribution System Improvement D-16
Sargent Street - S Maine Ave to S 3rd St

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 24,000	\$ 24,000
2	Locating Existing Utilities	1	LS	\$ 800	\$ 800
3	Traffic Control	1	LS	\$ 12,000	\$ 12,000
4	Erosion/Water Pollution Control	1	LS	\$ 6,000	\$ 6,000
5	Trench Excavation Safety System	600	LF	\$ 5	\$ 3,000
6	Sawcutting	1,200	LF	\$ 5	\$ 6,000
7	8-inch D.I. Water Pipe, Including Fittings	600	LF	\$ 160	\$ 96,000
8	8-inch Gate Valves	2	EA	\$ 2,500	\$ 5,000
9	Additional Ductile Iron Fittings	100	LB	\$ 4	\$ 400
10	Fire Hydrant Assembly	1	EA	\$ 10,000	\$ 10,000
11	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
12	Bank Run Gravel for Trench Backfill	264	TN	\$ 35	\$ 9,240
13	Foundation Gravel	33	TN	\$ 35	\$ 1,155
14	Crushed Surfacing Top Course	264	TN	\$ 40	\$ 10,560
15	HMA Cl. 1/2" PG 58-22	293	TN	\$ 200	\$ 58,600
16	Cold Mix Asphalt	13	TN	\$ 170	\$ 2,210
Subtotal (Rounded).....					\$ 256,965
Tax rate (8.7%) (Rounded).....					22,356
Subtotal (Rounded).....					\$ 279,300
Contingency (30%) (Rounded).....					\$ 83,790

Total Estimated Construction Cost:.....	\$	363,100
Engineering and Administrative Costs (25%) (Rounded):.....	\$	90,800
Total Estimated Project Cost (Rounded):.....	\$	454,000

City of Ridgefield
Preliminary Project Cost Estimate
Source Improvement SO-2
North Royle Road Transmission Main and Intertie

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization and Demobilization (10%)	1	LS	\$ 185,000	\$ 185,000
2	Locating Existing Utilities	1	LS	\$ 45,000	\$ 45,000
3	Traffic Control	1	LS	\$ 112,000	\$ 112,000
4	Erosion/Water Pollution Control	1	LS	\$ 42,000	\$ 42,000
5	Trench Excavation Safety System	6,300	LF	\$ 5	\$ 31,500
6	Sawcutting	12,600	LF	\$ 5	\$ 63,000
7	12-inch D.I. Water Pipe, Including Fittings	6,300	LF	\$ 200	\$ 1,260,000
8	12-inch Gate Valves	2	EA	\$ 5,000	\$ 10,000
9	Additional Ductile Iron Fittings	2,600	LB	\$ 4	\$ 10,400
10	Fire Hydrant Assembly	11	EA	\$ 10,000	\$ 110,000
11	Connection to Existing Water Main	2	EA	\$ 6,000	\$ 12,000
12	Bank Run Gravel for Trench Backfill	3,696	TN	\$ 35	\$ 129,360
13	Foundation Gravel	462	TN	\$ 35	\$ 16,170
14	Crushed Surfacing Top Course	2,053	TN	\$ 40	\$ 82,133
15	HMA Cl. 1/2" PG 58-22	2,053	TN	\$ 200	\$ 410,667
16	Cold Mix Asphalt	183	TN	\$ 170	\$ 31,102
17	Precast Vault and Master Meter	1	LS	\$ 28,000	\$ 28,000
Subtotal.....					\$ 2,026,430
Tax rate (8.7%).....					<u>176,299</u>
Subtotal:.....					\$ 2,202,700

Contingency (30%).....	\$	660,810
Total Estimated Construction Cost:.....	\$	2,863,500
Engineering and Administrative Costs (25%).....	\$	715,900
Total Estimated Project Cost:.....	\$	3,580,000

NOTE: Road section assumed to be part of another project

City of Ridgefield
Preliminary Project Cost Estimate
Source Improvement SO-5
Well 7 Replacement

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization, Cleanup, and Demobilization	1	LS	\$ 36,000	\$ 36,000
2	Minor Changes	1	LS	\$ 30,000	\$ 30,000
3	Trench Excavation Safety Provisions	1	LS	\$ 2,000	\$ 2,000
4	Temporary Erosion and Sediment Control	1	LS	\$ 2,000	\$ 2,000
5	Drill and Install Casing 8" Casing	1	LS	\$ 250,000	\$ 250,000
6	Well Pump & Column Pipe	1	EA	\$ 80,000	\$ 80,000
7	Piping & Appurtenances	1	LS	\$ 75,000	\$ 75,000
8	Restoration	1	LS	\$ 10,000	\$ 10,000
Subtotal (Rounded).....					\$ 485,000
Tax rate (8.7%) (Rounded).....					<u>42,000</u>
Subtotal (Rounded).....					\$ 527,000
Contingency (30%) (Rounded).....					<u>\$ 158,000</u>
Total Estimated Construction Cost:.....					\$ 685,000
Engineering and Administrative Costs (25%) (Rounded):.....					<u>\$ 171,250</u>
Total Estimated Project Cost (Rounded):.....					<u>\$ 856,000</u>

APPENDIX R

CORRESPONDENCE AND APPROVALS

June 13, 2023

Mr. Tony Cooper, P.E.
City Engineer,
City of La Center – Public Works Division
210 East 4th Street
La Center, Washington 98629

SUBJECT: WATER SYSTEM PLAN
CITY OF RIDGEFIELD, CLARK COUNTY, WASHINGTON
G&O #19234.00

Dear Mr. Cooper:

On behalf of the City of Ridgefield, I would like to notify you that the *Ridgefield 2024 Draft Water System Plan* is available for review. In accordance with WAC 246-290-100(7), the City is making this Plan available to all adjacent water purveyors so that they can assess consistency with ongoing and adopted planning efforts and provide any comments. Please find a USB drive containing an electronic copy of the Plan enclosed.

We anticipate that the Department of Health will complete its review of the Plan in 90 days, at which point the Plan will be finalized. We would appreciate receiving any comments you might have within that time period, if possible.

Please refer comments and questions about the Plan to the undersigned at (206) 284-0860.

Sincerely,

GRAY & OSBORNE, INC.

A handwritten signature in black ink, appearing to read 'KF', with a stylized flourish at the end.

Keenan Ferar, PE

KF/sr
Encl.

June 13, 2023

Mr. John Roth
Water Quality and Production Manager
Clark Public Utilities
P.O. Box 8900
Vancouver, Washington 98668

SUBJECT: WATER SYSTEM PLAN
CITY OF RIDGEFIELD, CLARK COUNTY, WASHINGTON
G&O #19234.00

Dear Mr. Roth:

On behalf of the City of Ridgefield, I would like to notify you that the *Ridgefield 2024 Draft Water System Plan* is available for review. In accordance with WAC 246-290-100(7), the City is making this Plan available to all adjacent water purveyors so that they can assess consistency with ongoing and adopted planning efforts and provide any comments. Please find a USB drive containing an electronic copy of the Plan enclosed.

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Sincerely,

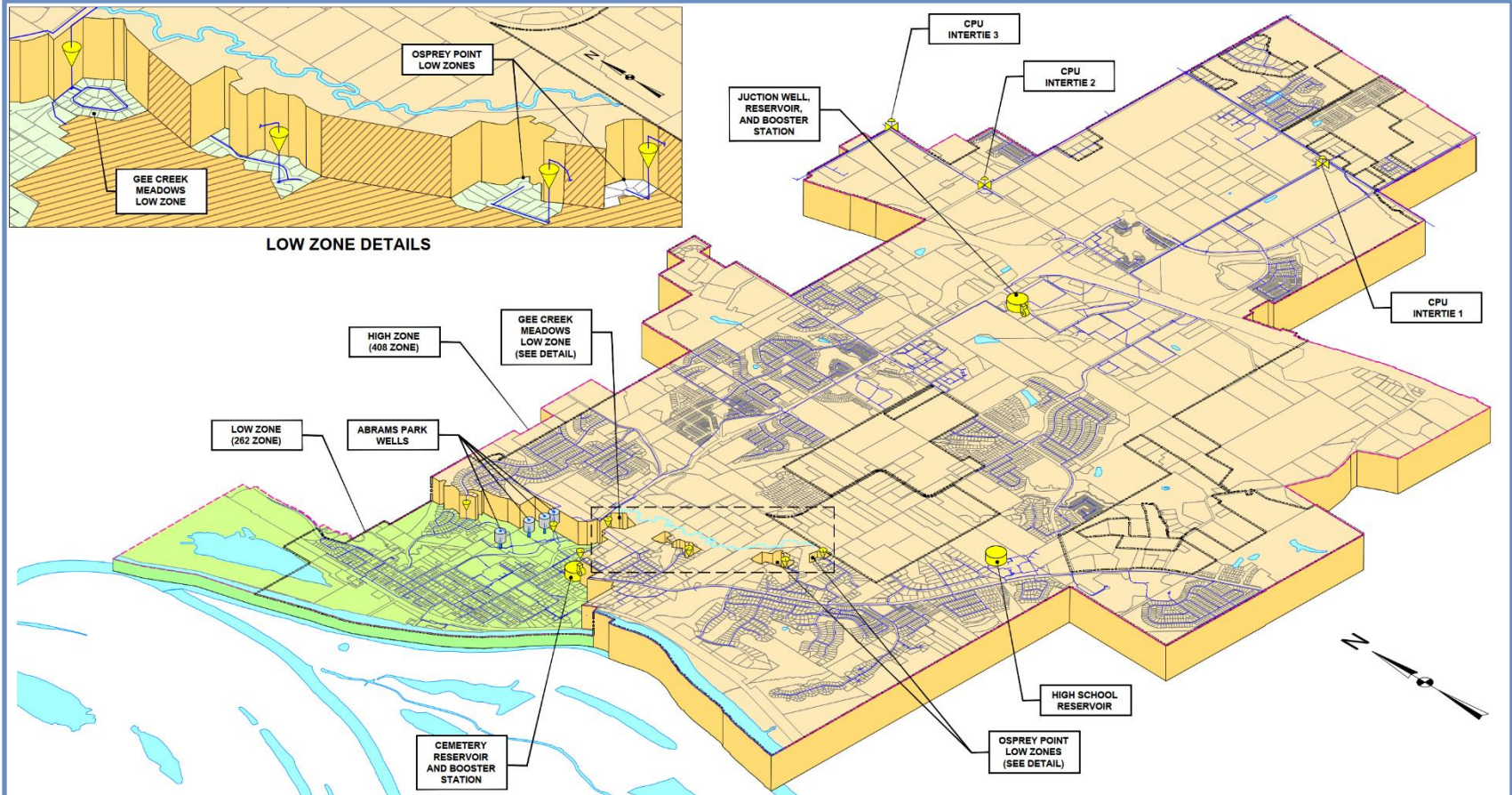
GRAY & OSBORNE, INC.

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Keenan Ferar, PE

KF/sr
Encl.

Water System Plan Update



Water System Plan



- Required to be Updated Every 10 Years
- Projects Anticipated Water Demands
- Evaluates Water System's Ability To Meet:
 - Current and Anticipated Water Demands and
 - Future Regulations
- Identifies Capital Improvement Projects to Correct Current and Anticipated Deficiencies
- Develops Financial Plan to Fund Necessary Improvements and O&M.
- Recommends Updated System Development Charge Schedule

Existing Water System Facilities



- Sources

- Wells 7, 8, 9, 10, 11, & Junction
- Clark Public Utility Interties 1, 2, & 3

- Reservoirs

- High School (616,000 gal)
- Cemetery (400,000 gal)
- Junction (1,000,000 gal)

- Booster Stations

- Cemetery Booster Station (transfers water from low to high zone)
- Junction Booster Station (transfers water from Junction Reservoir to high zone)

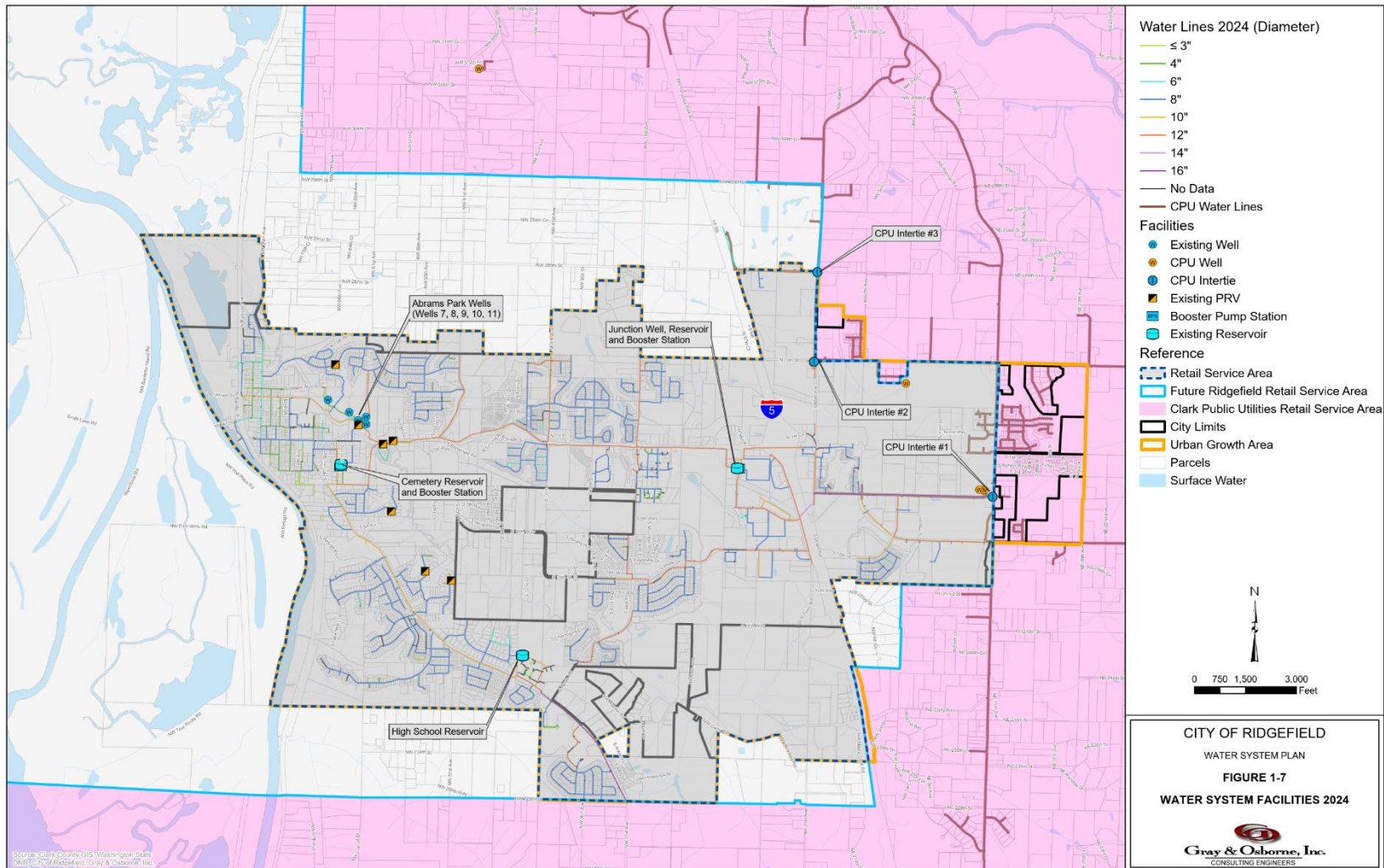
- Distribution System

- 51 miles of 4 to 12 inch pipes

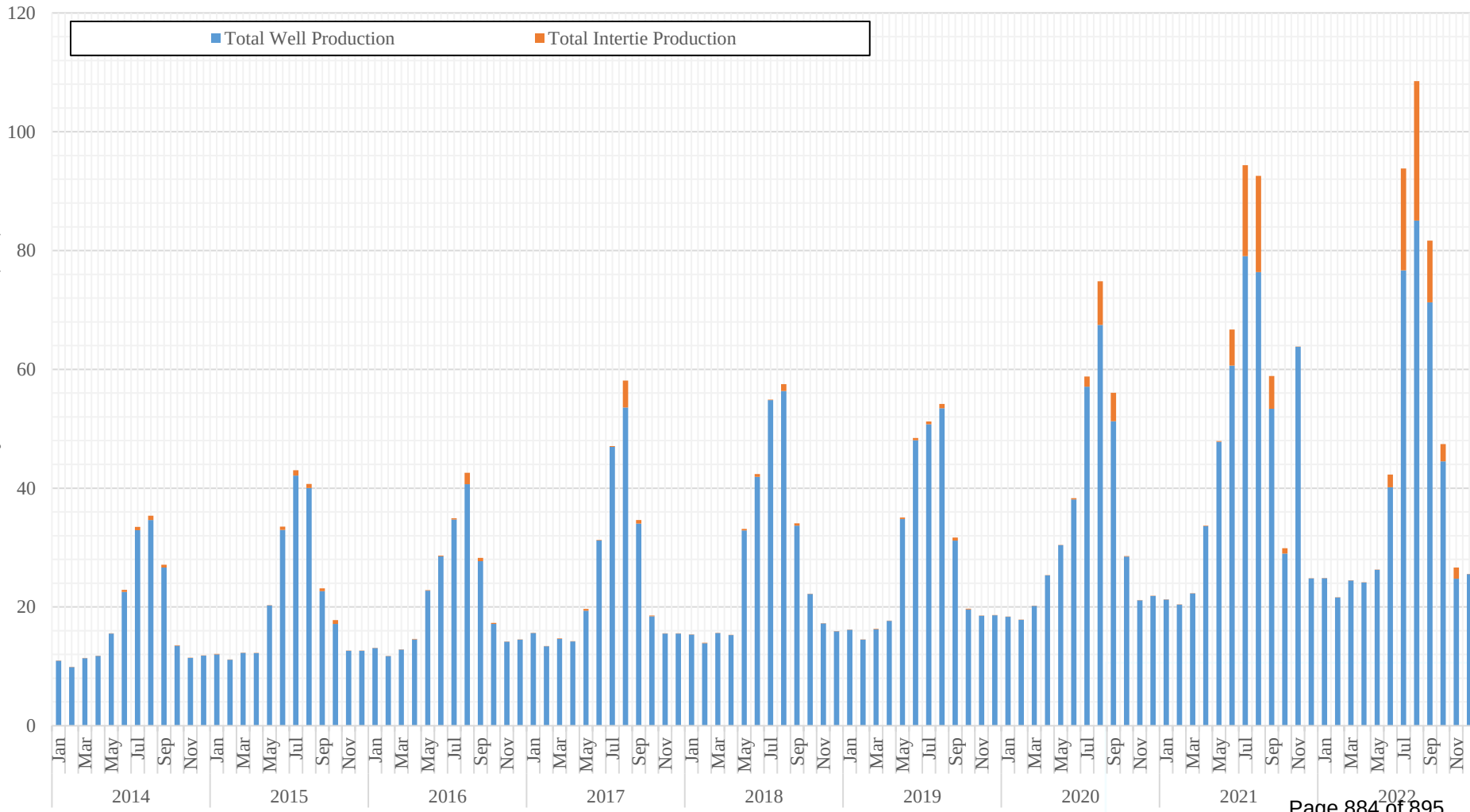
- Pressure Redacting Valves (PRV)

- 12 PRV stations

Water Service Area



Water Production History



Water Demand Projections



Year	Population	Jobs	ERUs	Average Day Demand (gpd)	Maximum Day Demand (gpd)
2024	16,947	3,311	7,248	1,447,600	3,375,300
2035	22,246	7,152	11,014	2,199,700	5,129,000
2045	27,064	10,645	14,437	2,883,300	6,722,900

System Analysis – System Capacity



Water System Component	With Existing Infrastructure		With Upcoming Storage and Source Improvements	
	ERU Limit	Projected Deficit Year	ERU Limit	Projected Deficit Year
Instantaneous Water Rights	9,987	2033	No Change	No Change
Annual Water Rights	13,410	Beyond 2045	No Change	No Change
Source Capacity	7,591	2026	10,671	2034
Standby Storage	8,027	2027	14,437	Beyond 2045
Equalizing Storage	8,027	2027	14,437	Beyond 2045

Water Use Efficiency



- Goals
 - Reduce Water Consumption by 1% per Year Over the Next 10 Years
 - Maintain Distribution System Leakage below 10% by 2026
 - Projected to Result in 345 Million Gallons in Water Savings Over Next 10 Years
- Implemented Water Use Efficiency Measures (Six Required)
 - Tiered Conservative Rate Structure
 - Public Educational Material (City Hall, Website, Utility Bills)
 - Notify Consumers of Unusually High Water Use

Water Use Efficiency



- Other Water Use Efficiency Considerations
 - Evaluation of reclaimed water;
 - Increase public education materials/outreach for water conservation;
 - Amend landscape standards to identify low water usage landscaping techniques;
 - Provide for methods to separate water for landscaping from water used for other household or business needs.
 - Public communication and messaging during water shortages
 - Develop/adopt a Water Shortage Plan.

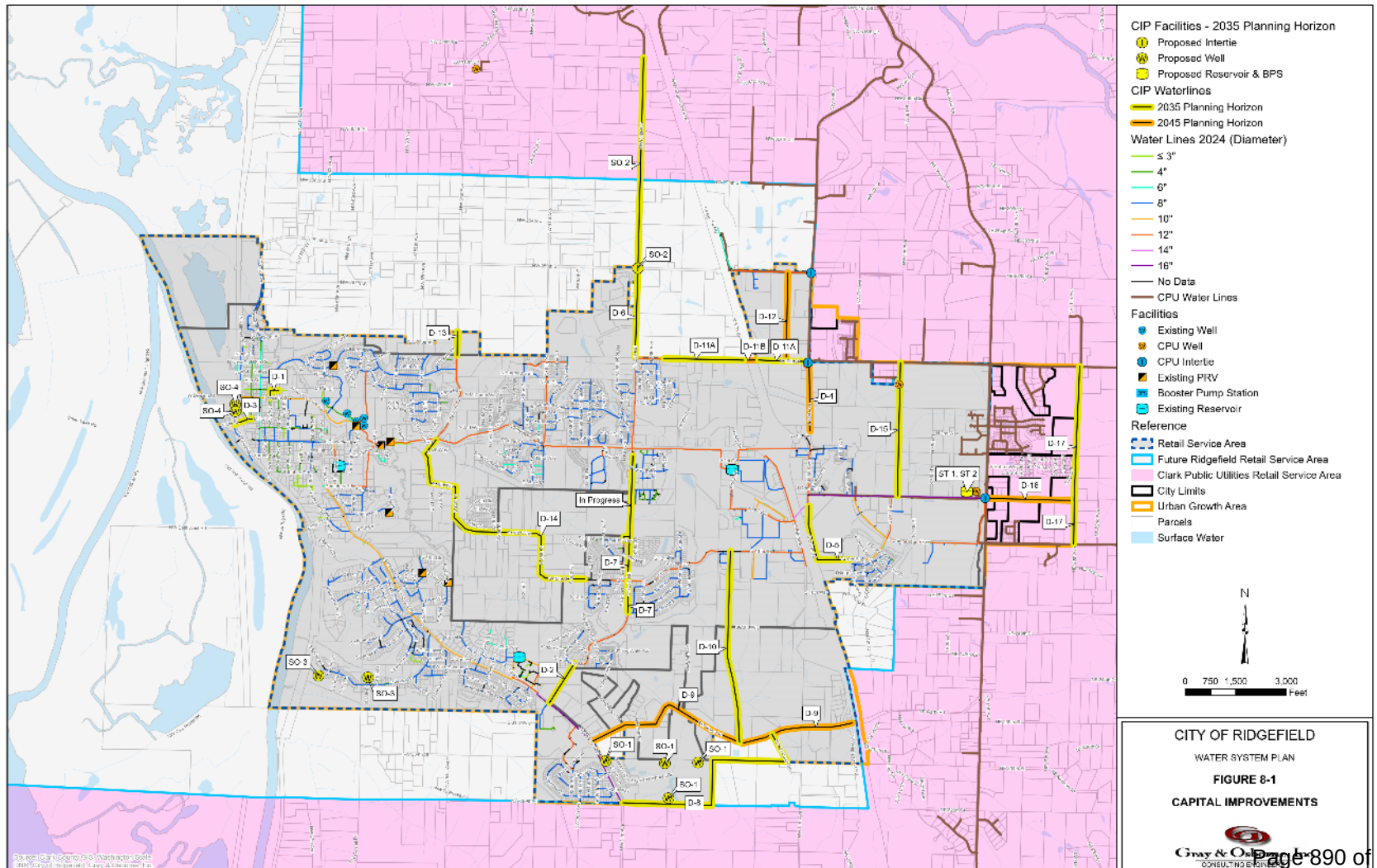
Capital Improvement Program



- **Six-Year Priority Investment Plan**
 - New Sources
 - Storage Infrastructure
 - Other Infrastructure to Provide Adequate Capacity
- **Major Capital Projects Include:**
 - Kennedy Wells
 - Eastside Elevated Reservoir
 - N Royle/NW 31st Ave Corridor & Intertie (City, CPU, Cowlitz Tribe, County partnership)
 - South Royle Rd (City, CRWWD partnership)
 - Loop Pipes to Address Fire Flow Deficiencies and Provide Redundancy
 - Replace Aging Pipe in Downtown Area

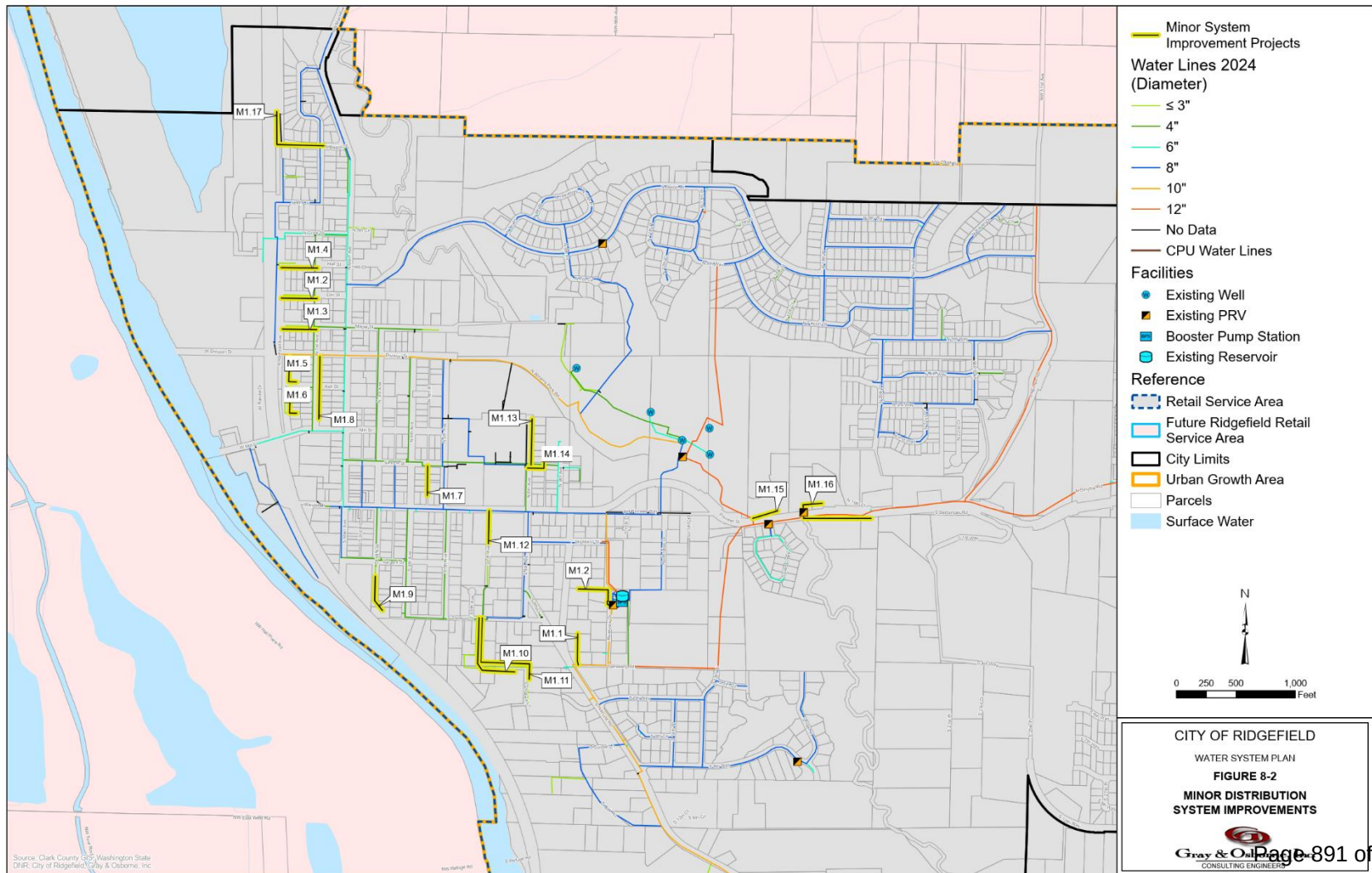


Capital Improvement Map





Downtown Pipe Replacement Map



Financial Program



- Complete \$27.5 million of projects in the 6-year horizon
- Complete \$6.5 million of projects in the 6 to 10-year horizon
- Fund projects through the following:
 - Capital reserves
 - System development charges
 - Rate revenue
 - Public financing sources including low interest loans and grants as available

Outreach & Engagement



- Outreach

- Water Summit # 1 - May 2023
- Water Summit # 2 – November 2023
 - Summits include City, CPU, La Center, Battle Ground, Cowlitz Indian Tribe
- Council Presentation – Feb 2024
- Public Comment on Ridgefield Roundtable –Fall 2024
- Public Hearing for WSP. WUE Goals – October 2024
- Council Review & Adoption – October 2024



Action Requested and Next Steps

- Submit Draft Plan to the Washington State Department of Health (DOH) for Final Review (Completed)
- Council adoption of Plan
- Submit Final Plan to DOH.

Council is requested to hold a public hearing on these items and then take action.

A suggested motion is:

"I move to approve Resolution Number 656 to adopt the Water System Plan 2024 Update and Water Use Efficiency Goals as presented."

Questions?



GET IN TOUCH WITH US

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