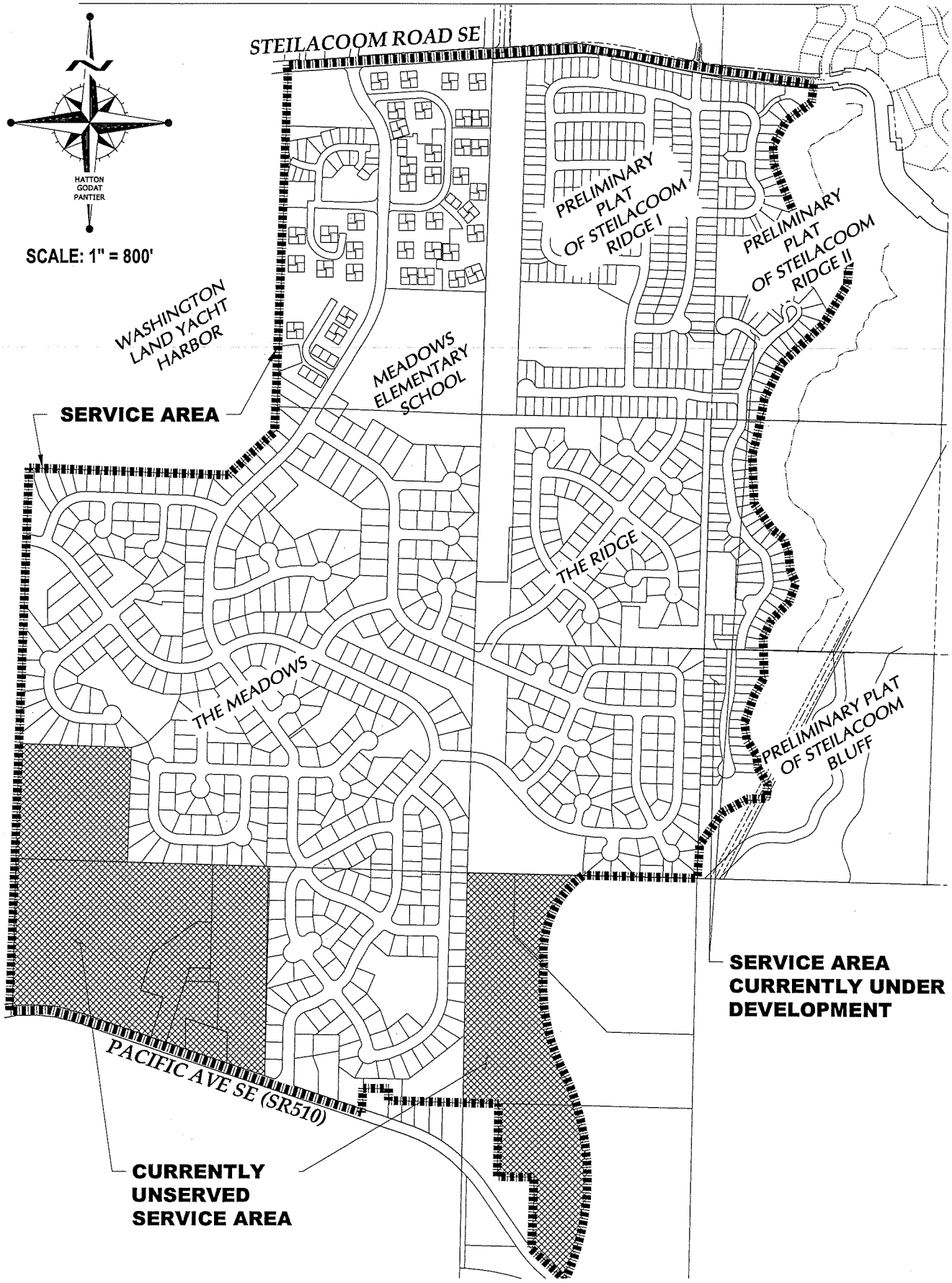
APPENDIX C – Sevice Area Maps

FIGURE 1 - MEADOWS WATER SYSTEM SERVICE



Washington State Department of Health

Local Government Consistency Determination Form

Water System Name: The Meadows Water System PWS ID: 87784Q

Planning/Engineering Document Title: Water System Plan Plan Date: June 7, 2017

Local Government with Jurisdiction Conducting Review: Thurston County

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

Local Government Consistency Statement	For use by water system: Identify the page(s) in submittal	For use by local government: Yes or Not Applicable
a) The water system service area is consistent with the adopted land use and zoning within the service area.	Page 9 & Apps B & C	Yes
b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology.	Page 13	See attached comment #2
c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances.	Not Appl.	Not Applicable
d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area.	Page 12	Not Applicable
e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans.	Page 8	See attached comment #1

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

Signature 01-31-18 Date

BRANDON McALLISTER, UTILITY ENGINEER, CITY OF LACEY

Printed Name, Title, & Jurisdiction

Shaping
our community
together

CITY OF LACEY

420 COLLEGE ST SE
LACEY, WA 98503

January 30, 2018

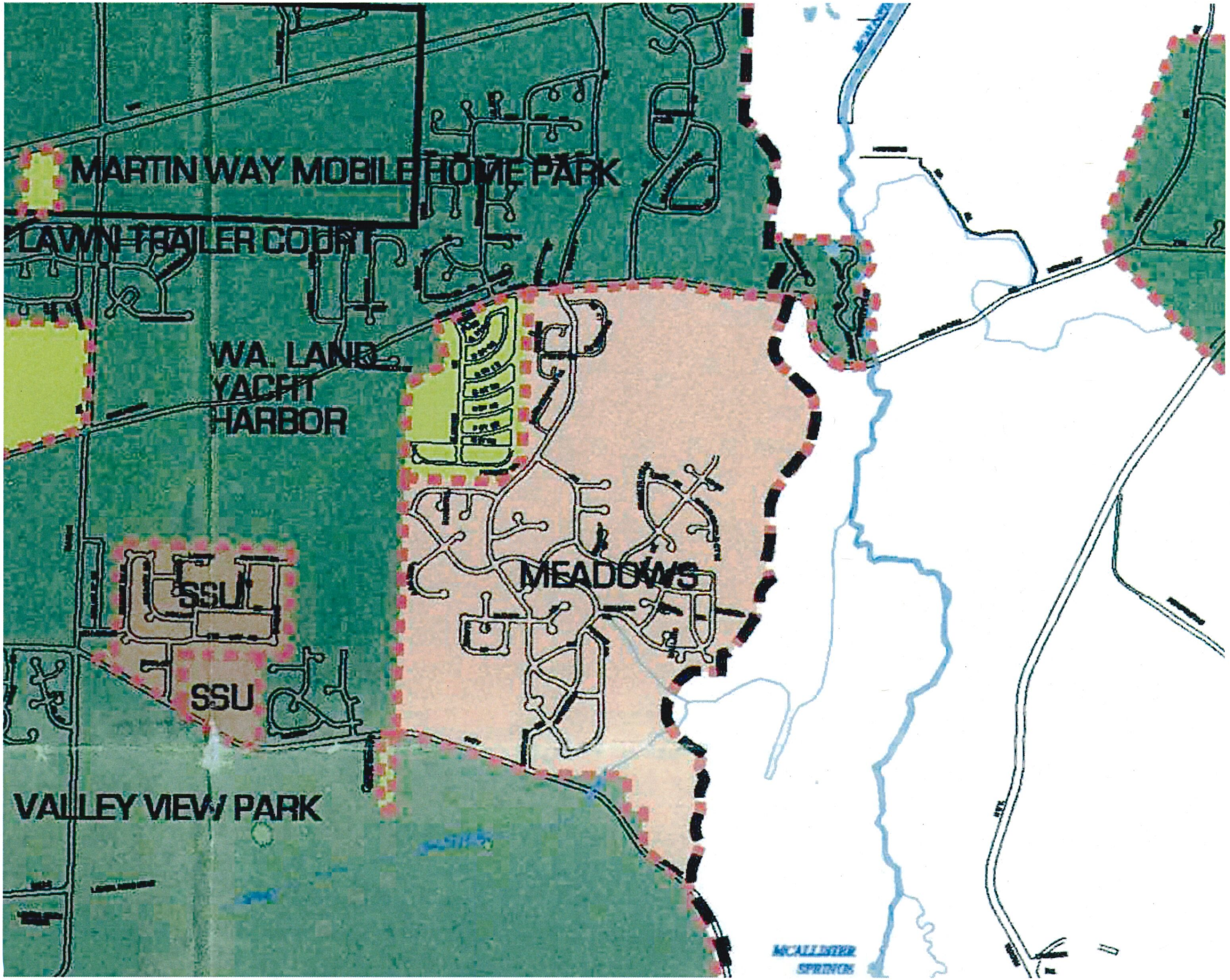
RE: THE MEADOWS WATER SYSTEM
WATER SYSTEM PLAN, LOCAL GOVERNMENT CONSISTENCY

CITY OF LACEY COMMENTS:

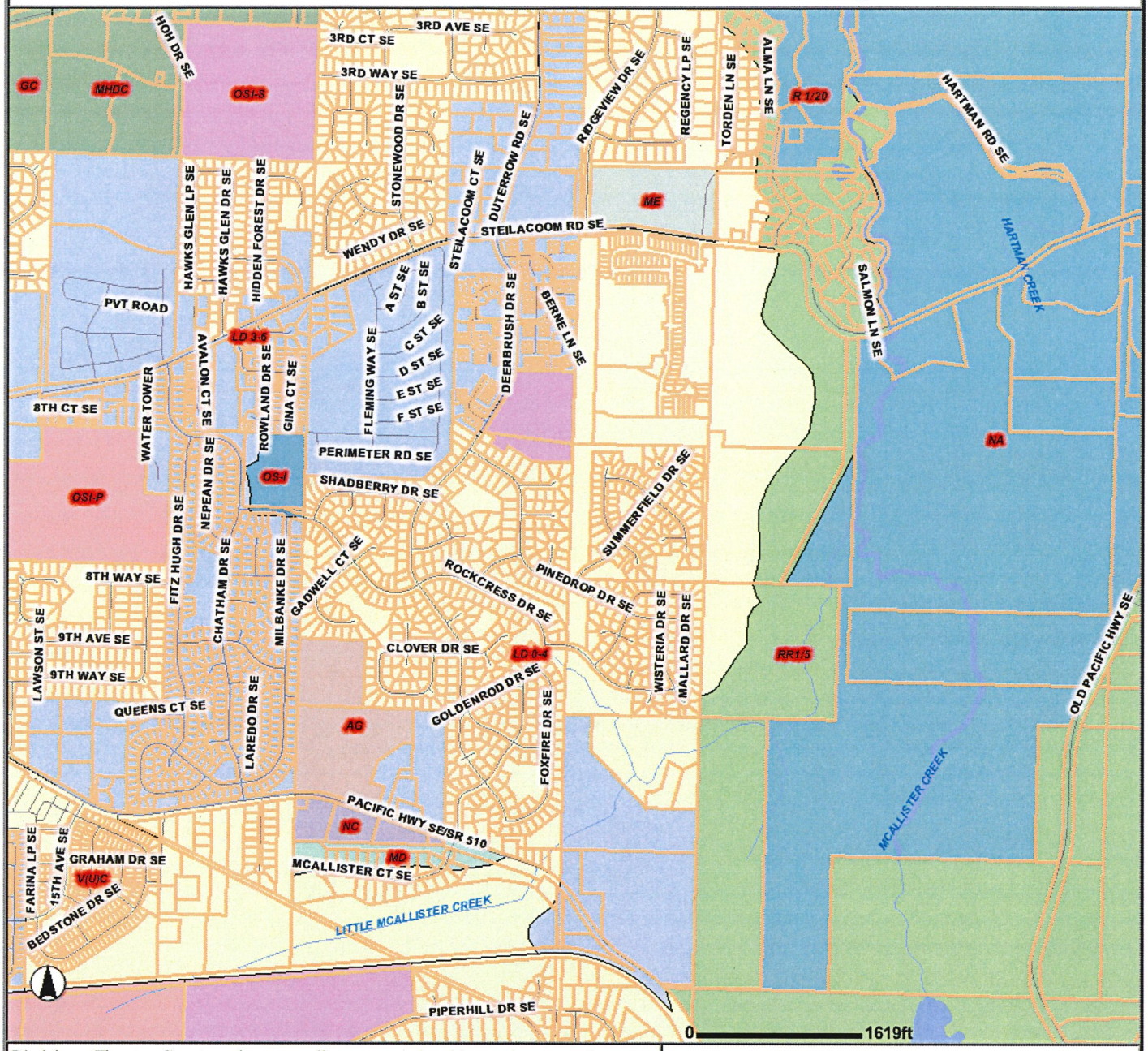
1. Page 9; section 1.4.2; paragraph 3 – This section of the plan identifies a small area of the Meadows Service Area as being contested with the City of Lacey and proposes to reconcile the contested area at some later date. The City would like to see this issue resolved at this time to prevent any future confusion. The North Thurston County CWSP Map (Aug, 1999) shows all but a small section of the contested area as City of Lacey service area, please revise figure 1.2 to be consistent with the North Thurston County CWSP map (attached).

2. Page 14; section 2.3.2; paragraph 2 – This section suggests that there are approximately 220 acres of developable land remaining within the Meadows service area which could yield as many as 1,729 new ERU's (409 lots plus 1,320 additional ERU's). It is not clear how that number of future connections is attainable given that the planned 409 lots will consume roughly half of the 220 acres available for development. Please revise the forecasted number of connections to more closely reflect the currently planned developments and likely densities for the unplanned areas; or explain in more detail how the proposed number of connections would likely be attained (rezoning, redevelopment, etc.).

Brandon McAllister
Utility Engineer
Phone: (360) 413-4386
Email: bmcallis@ci.lacey.wa.us


MARTIN WAY MOBILE HOME PARK
LAWN TRAILER COURT
WA. LAND
YACHT
HARBOR
SSU
SSU
MEADOWS
VALLEY VIEW PARK
McALLISTER
SPRINGS

Meadows WSP - Zoning



Thurston GeoData Center

929 Lakeridge Drive SW, Suite 216, 2nd Floor
Olympia, WA 98502-6031

LEGEND

- Major Roads
- Roads
- Streams
- Contours
- Wetlands
- Wetland Buffers
- Flood Zones
- Water Bodies
- Zoning
- Cities
- Parcels

STEILACOOM ROAD SE

ALPINE MEADOWS

MEADOWS ELEM. SCHOOL

PRELIMINARY PLAT OF STEILACOOM RIDGE

PRELIMINARY PLAT OF NISQUALLY RIDGE

THE MEADOWS

THE RIDGE

PRELIMINARY PLAT OF STEILACOOM BLUFF

PACIFIC AVE SE (SR510)

HATTON GODAT PANTIER

SCALE = 1" = 600'

MEADOWS WATER SYSTEM PLAT MAP

HGP #07-010B (07-010Bexhibits.dwg)

APPENDIX D – Sanitary Survey Information

RECEIVED MAY 2 9 2014

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
SOUTHWEST DRINKING WATER REGIONAL OPERATIONS
P.O. Box 47823 Olympia, Washington 98504-7823
TDD Relay 1-800-833-6388

May 27, 2014	Meadows LLC ID #87784Q	
	County:	Thurston
Stephen Harrington H & R Waterworks Inc. Post Office Box 676 East Olympia, Washington 98540	System Type:	Community
	Operating Permit Color:	Green
	Surveyor:	Arlene Hyatt
	Inspection Date:	May 16, 2014

Thank you for making Jim Campbell available to meet with me to conduct a survey of this water system. Sanitary surveys are the Office of Drinking Water's (ODW) way to inspect public water systems through a field visit. ODW is also able to offer technical assistance to help utilities improve their system operations and ensure that public health is protected.

The system is well managed, operated, and maintained. Excellent records are kept and were available for review during the survey. The operator is knowledgeable and was able to clearly describe routine operations and maintenance for this system. Keep up the good work!

This report documents the findings of this survey. Deficiencies that need your attention are summarized below. As you correct the items, send me documentation that demonstrates the items have been completed as directed. Include the system name, ID number, and the date the deficiencies were corrected. You can send them to me by e-mail at arlene.hyatt@doh.wa.gov or by mail at PO Box 47823, Olympia, Washington 98504-7823.

If you are not able to correct these deficiencies within the timelines below, you must submit an Action Plan by the date assigned describing how and when the work will be completed. We will contact you to discuss your plan to ensure work is completed as agreed.

SIGNIFICANT DEFICIENCIES* - THE ITEMS BELOW HAVE BEEN ADDRESSED AS INDICATED

1. The SO1 well vent screen was missing and the junction box on the wellhead had unsealed ports. The operator installed a screened vent and sealed the junction box after the inspection and photos have been received. Thank you for the timely response!
2. The SO4 junction box on the wellhead had unsealed ports during the inspection. The operator sealed the ports after the inspection and photos have been received. Thanks again for the timely response!

SIGNIFICANT FINDINGS - COMPLETE THE ITEMS BELOW BY JULY 21, 2014**

3. The water level gauges installed on the reservoirs are no longer operational and the tank penetrations do not appear to be sealed. Please seal the water level gauge tank penetrations to prevent entry of insects and vermin.
4. Please send photographs of the intact screens installed on the overflows for both the upper and lower reservoirs. Consider installing a downward facing, screened elbow on the upper reservoir overflow so

that the screens can be visually inspected from the ground (currently, staff must hang over the edge of the tank to visually inspect these screens that are inset on the side of the tank).

5. Install a pressure gauge and pressure relief valve (PRV) at the Foxfire Booster Pump Station (BPS).

OBSERVATIONS

6. The SO3, SO4, SO5, and SO6 wells have been sampled as blended sources. However, the wells do not blend prior to distribution. SO5 pumps directly to the Pinedrop Reservoir but the other three wells are plumbed to distribution and pump either to distribution or to the reservoir depending on demand. In order to take blended source samples for these wells, the system must reconfigure them so they all pump to the Pinedrop Reservoir then a blended source sample could be taken at the reservoir outlet prior to distribution. Otherwise, these sources must be sampled separately.
7. Repair the leaking valve in the Foxfire Booster Pump Station.

SYSTEM INFORMATION

The water system was installed in 1979 to serve a small subdivision. As additional subdivisions were developed, the water system grew to serve the additional homes. The water system is currently approved to serve 1, 913 Equivalent Residential Units (ERUs) or 1,894 service connections. The current connections include one elementary school, 804 residences, and four irrigation services. The residential population is estimated at 2,070 individuals and the school population is 600 individuals during the school year. The system is well managed, maintained, and operated. The system consists of six wells that fill two reservoirs and three booster stations that maintain system pressures and transfer water between reservoirs.

SECTION 1: SOURCE

The system has six drilled wells. All wells are housed within locking enclosures. The well houses are all clean and dry and well maintained. The well enclosures for SO3, SO4, SO5, and SO6 show signs of damage by vandals, but the rock holes have all been sealed. SO3 is now inside a fenced enclosure and SO5 is scheduled to be fenced this summer. The SO1 well vent was unscreened and the junction box on the wellhead had unsealed holes. The junction box on SO4 also had unsealed holes. These were corrected after the inspection and photos were sent to this office.

The SO3, SO4, SO5, and SO6 wells have been sampled as blended sources. However, the wells do not blend prior to distribution. SO5 pumps directly to the Pinedrop Reservoir but the other three wells are plumbed to distribution and pump either to distribution or to the reservoir depending on demand. In order to take blended source samples for these wells, the system must reconfigure them so they all pump to the Pinedrop Reservoir then a blended source sample could be taken at the reservoir outlet prior to distribution. Otherwise, these sources must be sampled separately.

SO1 and SO2 have been outfitted with new, locking well enclosures. These structures are well constructed and maintained and are located within the Foxfire Booster Station fenced enclosure.

SO1 was drilled in 1979 to a total depth of 797 feet with casing installed to 768 feet. The well log indicates that screens were installed from 781 feet to 796 feet, but it is unclear how the screen was installed 13 feet deeper than the last of the casing. Since we cannot determine which measurement is correct 768 feet will be used as the first open interval. The well was outfitted with an 18-foot bentonite surface seal. It should be noted that the operator believes that this well is not as deep as indicated on the well log.

SO2 was drilled in 1981 to a total depth of 103 feet with screen installed from 93 feet. A bentonite surface seal was installed to 18 feet.

SO3 was drilled in 1984 to a total depth of 320 feet with screen installed from 309 feet to the bottom. An 18-foot bentonite surface seal was installed.

SO4 was drilled in 1983 to a total depth of 293 feet with screens installed from 276 feet to the bottom. An 18-foot bentonite surface seal was installed.

SO5 was drilled in 1986 to a depth of 336 feet with screen from 327 feet to the bottom. A 22-foot bentonite surface seal was installed.

SO6 was drilled in 1989 to a depth of 324 feet with screens installed from 309 feet to the bottom. An 18-foot bentonite surface seal was installed.

Source ID #	Name:	Description:	Ecology Tag #	Listed on WFI Yes No
SO1	Well #1	797 feet	AKB320	☒ ☐
SO2	Well #2	103 feet	AKB321	☒ ☐
SO3	Well #3	307 feet	AKB322	☒ ☐
SO4	Well #4	293 feet	AKB323	☒ ☐
SO5	Well #5	336 feet	AKB324	☒ ☐
SO6	Well #6	310 feet	AKB325	☒ ☐

WELLHEAD	Source ID #SO1		Source ID #SO2		Source ID #SO3		Source ID #SO4		Source ID #SO5		Source ID #SO6	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
System has well log	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
*Well cap sealed	☐	☒	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
*Openings sealed	☐	☒	☒	☐	☒	☐	☐	☒	☒	☐	☒	☐
*Vent screened	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Terminates 6" above grade	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
*Protected from flooding	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Source meter	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Pressure gauge	☐	☒	☒	☐	☐	☒	☐	☒	☐	☒	☐	☒
**Raw water sample tap	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Check valve	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
**Protected from unauthorized access	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Structure in good condition	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
*Sanitary control area has no unmitigated contaminants	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
**Protected from physical damage	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Frequency of routine site visit	Weekly		Weekly		Weekly		Weekly		Weekly		Weekly	
Frequency of source meter reading	Weekly		Weekly		Weekly		Weekly		Weekly		Weekly	

WELL PUMP EQUIPMENT	Source ID #SO1		Source ID #SO2		Source ID #SO3		Source ID #SO4		Source ID #SO5		Source ID #SO6	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
*Functional and reliable pump and pump controls	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
*Pump control valve or vacuum relief valve with a protected air gap at discharge	N/A		N/A		N/A		N/A		N/A		N/A	
Generator available	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Generator has automatic startup	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒
Generator fuel source	Diesel		Diesel		Diesel		Diesel		Diesel		Diesel	

The system has portable diesel powered generators available.

EMERGENCY SOURCES

The system maintains an emergency intertie with the City of Lacey.

ID #	Name:	Description:	Ecology Tag #	Listed on WFI Yes	Listed on WFI No*	Disconnected Yes	Disconnected No*	Inspected Yes	Inspected No*
SO7	Lacy/43500Y	Intertie	N/A	☐	☐	☐	☐	☐	☐

SECTION 2: DISINFECTION

Disinfection is not installed on this system.

SECTION 3: OTHER TREATMENTS

No other treatments are installed on this system.

SECTION 4: DISTRIBUTION SYSTEM

Distribution system consists of approximately 7.2 miles of distribution mains from 4 inches to 8 inches in diameter. The system provides fire flow of 750 gallons per minute (gpm) for over 60 minutes and has fire hydrants installed on the mains. The dead-end lines have blow-offs. Pressure of about 50 pounds per square inch (psi) is maintained throughout the system. The system consists of three pressure zones. Pressure Zone #1 or the Foxfire pressure zone includes the majority of the service area and consists of all wells, reservoirs, and booster station #1. Pressure Zone #2, the Widgeon Court pressure zone, serves just over 50 homes south of the Pinedrop Reservoir. Water is pumped to this zone from that reservoir via BPS #2. Pressure Zone #3, the Ridge pressure zone, serves the 97 lots in the Ridge subdivision from the Pinedrop reservoir via BPS #3. Most of the development is occurring in this zone and future improvements include an additional BPS and reservoir in this area.

Distribution system leakage (DSL) went from 13 percent in 2010 to -0.3 percent in 2012. The 2010 Water Use Efficiency (WUE) report indicates there was a failed source meter that was replaced in 2010, which accounted for the missing water. However, the 2012 report does not indicate why the DSL is a negative number. After discussing this with the operator, the system may be over-estimating the volume of water used during the twice yearly flushing. The operators read the source meters before and after flushing, but since customer use is occurring at the same time, they are likely counting water twice. The system should consider changing their method for estimating water volume used during system flushing procedures.

FEATURES	Yes	No
Service area and facility map	☒	☐
Minimum pressure requirements met	☒	☐
Service meters (reading frequency **Monthly**)	☒	☐
Leak detection program	☒	☐
Water system leakage (%)	-0.3%	
Adequate valving for flushing and pipe repair	☒	☐
Blow-offs on dead ends	☒	☐
Routine flushing (frequency **Twice Per Year**)	☒	☐
Routine valve exercise (frequency **Twice Per Year**)	☒	☐

CROSS CONNECTION CONTROL (Community Systems)	Yes	No
System has enabling authority	☒	☐
Ongoing hazard inspections	☒	☐
High hazards identified	☐	☒
High hazards protected	☐	☐
Annual testing	☒	☐
System has installation standards	☒	☐
CCS on staff or under contract	☒	☐
Cross connections observed have been eliminated	N/A	

SECTION 5: FINISHED WATER STORAGE

The system has two concrete reservoirs with a total capacity of approximately 291,000 gallons. Reservoir #1, Pinedrop Reservoir, (75 feet tall floating 175,000-gallon standpipe, "upper reservoir") is located with Wells #3 through #6, uphill in the northern part of the system by the elementary school. Reservoir #2 (116,000 gallons, also called "lower reservoir") is located with Wells #1 and #2 and the Foxfire BPS, at the southern end of the system. This reservoir is fed by Wells #1 and #2. The upper reservoir is filled by Wells #3 through #6 and by the lower reservoir via the Foxfire BPS.

Both reservoirs were cleaned and inspected by divers in 2013. The reports were available for review during the inspection and indicated that the tanks are locked and properly sealed. The water level gauges installed on the tanks are not operational, but the system has pressure gauges at the tank discharges that are used to determine tank water levels. The water level gauge tank penetrations should be sealed to prevent entry of insects and vermin.

RESERVOIR	RESERVOIR NAME	DESCRIPTION	YEAR BUILT	TOTAL VOLUME (GAL)
1	Upper/Pinedrop Reservoir	Concrete Standpipe		175,000
2	Lower/Foxfire Reservoir	Concrete tank		116,000

TOP OF RESERVOIR	Res #1		Res #2	
	Yes	No	Yes	No
Hatch: Locked	☒	☐	☒	☐
*Hatch: Watertight seal or gasket	☒	☐	☒	☐
Hatch: Over-lapping cover	☒	☐	☒	☐
*Screened air vent	☒	☐	☒	☐
*Openings sealed/protected	☒	☐	☒	☐

FEATURES	Res #1		Res #2	
	Yes	No	Yes	No
Separate inlet/outlet	☐	☒	☐	☒
Protected drain outlet	☒	☐	☒	☐
*Protected overflow outlet	Unknown		Unknown	
*Overflow line discharges into a sanitary sewer with an air gap	N/A		N/A	
Operational water level gauge	☒	☐	☒	☐
Bypass piping or isolation possibility	☐	☒	☒	☐
**Protected from unauthorized entry	☒	☐	☒	☐
Low level alarms	☒	☐	☐	☒
Sample tap at outlet	☒	☐	☒	☐

MAINTENANCE	Res #1		Res #2	
	Yes	No	Yes	No
Frequency of structural and coating inspection	5 Years		5 Years	
Frequency of cleaning	5 Years		5 Years	
Frequency of appurtenance inspection	Biannual		Biannual	
Frequency of routine site visit	Weekly		Weekly	
**Structure in good condition	☒	☐	☒	☐
Clear of excessive vegetation	☒	☐	☐	☒

The upper reservoir has significant graffiti on the bottom ten feet of the tank. The system has installed a locking fence around this reservoir and plans to remove the graffiti this summer. The lower reservoir is located in the woods and has a heavy moss growth. The trees have been cleared from immediately around the tank and the moss will be removed this summer.

SECTION 6: PRESSURE TANKS

Site	Location	# and size of Hydropneumatic Tanks	# and size of Bladder Tanks
1	Widgeon Court BPS	0	12 at 44 gallons each
2	The Ridge BPS	0	11 at 44 gallons each
3	Foxfire BPS	0	6 that vary

BLADDER	Site: 1		Site: 2		Site: 3	
	Yes	No	Yes	No	Yes	No
Isolation valve	☒	☐	☒	☐	☒	☐
Pressure relief valve	☒	☐	☒	☐	☐	☒
Pressure gauge	☒	☐	☒	☐	☐	☒
In good condition	☒	☐	☒	☐	☒	☐

BUILDINGS/ENCLOSURE	Site: 1		Site: 2		Site: 3	
	Yes	No	Yes	No	Yes	No
Facility secure	☒	☐	☒	☐	☒	☐
Structure in good condition	☒	☐	☒	☐	☒	☐

The Foxfire pressure tanks and BPS lacks a pressure relief valve and a pressure gauge. Also, the building is damp and musty due to a leaking gate valve.

SECTION 7: BOOSTER PUMPS AND FACILITIES

There are three booster pump stations serving this system.

BPS #1, Foxfire BPS, maintains pressure in the Foxfire Pressure Zone and boosts water to the Pinedrop Reservoir. BPS #1 consists of three 5-horsepower (HP) pumps and one 7 ½-HP pump.

BPS #2, Widgeon Court BPS, provides pressure to the 52 lots on Widgeon Court, Pinedrop Drive, and Fern Leaf Court. This station consists of two 1 ½-HP pumps that pull water from the Pinedrop Reservoir to serve these lots.

BPS #3, The Ridge BPS, provides pressure to the 97 lots in the Ridge subdivision. It consists of two 5-HP and one 1 ½-HP pumps that draw water from the Pinedrop Reservoir to serve these lots.

Facility	Name	Description	Total Capacity (gpm)
1	BPS #1 (Foxfire)	Three at 5-HP and one at 7 ½-HP	
2	BPS #2 (Widgeon Court)	Two at 1 ½-HP	
3	BPS #3 (The Ridge)	Two at 5-HP and 1 ½-HP	

BOOSTER PUMPS	Facility 1		Facility 2		Facility 3	
	Yes	No	Yes	No	Yes	No
Number of pumps	2		3		4	
Frequency of routine site visit	Weekly		Weekly		Weekly	
Isolation valves	☒	☐	☒	☐	☒	☐
Pressure gauge(s)	☒	☐	☒	☐	☐	☒
Pressure relief valve	☒	☐	☒	☐	☐	☒
Pump failure alarm	☐	☒	☐	☒	☐	☒
*Functional pump and pump controls	☒	☐	☒	☐	☒	☐
Protected from flooding	☒	☐	☒	☐	☒	☐

BOOSTER PUMPS	Facility 1		Facility 2		Facility 3	
	Yes	No	Yes	No	Yes	No
Redundant pumps	☒	☐	☒	☐	☒	☐
Equipment in good condition	☒	☐	☒	☐	☒	☐
Generator available	☒	☐	☒	☐	☒	☐
Generator has automatic startup	☐	☒	☐	☒	☐	☒
Generator fuel source	Diesel		Diesel		Diesel	

BUILDINGS/ENCLOSURE	Facility 1		Facility 2		Facility 3	
	Yes	No	Yes	No	Yes	No
Facility secure	☒	☐	☒	☐	☒	☐
Structure in good condition	☒	☐	☒	☐	☒	☐

SECTION 8: WATER QUALITY MONITORING AND REPORTING

The system is taking blended source samples for SO1 and SO2 after the reservoir; this is an appropriate blended source sample location. Also Blending SO3, SO4, SO5, and SO6 at a tap in the Widgeon Court BPS. This is not a proper blended source location because sources SO3, SO4, and SO6 pump both to distribution and to the reservoir. Either reconfigure these sources so they all pump to the reservoir first or begin sampling these sources individually. All other monitoring is current and satisfactory.

Refer to the Water Quality Monitoring Schedule for your monitoring requirements and status. If you have any questions on source monitoring, please contact Sophia Petro at (360) 236-3046.

CHEMICAL	
Sample Point	**Description**
1	SO3 through SO6 in Widgeon Court BPS
2	SO1 and SO2 in Foxfire BPS post reservoir

CHEMICAL	Sample Point 1		Sample Point 2	
	Yes	No	Yes	No
Monitoring adequate	☒	☐	☒	☐
ODW WQ data reviewed	☒	☐	☒	☐
Sample collection sites correct	☐	☒	☒	☐
System has prior: ☐ Nitrate results above 5 mg/L ☐ Nitrite results above 0.5 mg/L ☐ Primary MCL ☐ Secondary MCL exceedance(s) ☐ Organic detections ☐ Other _____				

COLIFORM	Yes	No
Monitoring adequate	☒	☐
Monitoring plan adequate	☒	☐

COLIFORM	Yes	No
Monitoring plan followed	☒	☐
# of violations since last survey	0	

LEAD & COPPER	Yes	No
Monitoring adequate	☒	☐
Results below action level	☒	☐

SECTION 9: SYSTEM MANAGEMENT AND OPERATIONS

The water system plan was approved in 2008. The next plan is due by July 01, 2014. The system is currently working on their plan update and intends to submit it by the due date. The system is approved and plans are underway to expand service to new development within the service area. Routine operations and maintenance are appropriate for this system and all operational records are stored electronically and available to each operator.

PROJECT/PLANNING	Yes	No
System approved	☒	☐
Current WSP/SWSMP	☒	☐
Year WSP/SWSMP approved	2008	
Emergency response plan	☒	☐

REPORTING	Yes	No	N/A
WFI reviewed and updated with purveyor	☒	☐	---
Consumer confidence report (Community only)	☒	☐	☐
Online Capacity Assessment Survey completed (Community only <1000 connection)	☒	☐	☐
Water use efficiency report (Municipal Water Suppliers)	☒	☐	☐
Cross connection control annual report (> 1000 conn)	☐	☐	☒

Thank you for completing the online capacity assessment. We hope you found the feedback useful. We encourage you and your governing board to go online and update your answers as things change with your managerial or financial capacity. If you have any questions about the assessment, please contact Loralei Walker at (360) 236-3097 or email at Loralei.walker@doh.wa.gov.

OPERATOR CERTIFICATION

This system is required to have **one** certified operator. The operators conduct routine operation and maintenance and visit the system weekly. Source meter, reservoir levels, and maintenance records are all available electronically.

If you have any questions or this information is inaccurate, please contact Operator Certification at (800) 525-2536.

Name of Operator	Certification Number	Certifications	Mandatory Operator
Stephen Harrington	007904	WDM3, CCS	☒
Robert Gietz	011586	WDM1	☐

Name of Operator	Certification Number	Certifications	Mandatory Operator
Daniel Lovell	010852	WDM2, CCS	☐
Richard Sanchez	011012	WDM1	☐
Jim Campbell	010679	WDM2, CCS	☐

WDS-Water Distribution Specialist; WDM-Water Distribution Manager; WTPO-Water Treatment Plant Operator, BTO-Basic Treatment Operator; CCS-Cross Connection Specialist; BAT-Backflow Assembly Tester

OPERATIONS	Yes	No
Operational records maintained	☒	☐
Complaints followed up	☒	☐
Complaints documented	☒	☐
# of complaints recorded at ODW (since last survey)	0	
Operation and maintenance program	☒	☐
Previous survey deficiencies/findings corrected	☐	☐

Previous survey deficiencies:

1. The overflow pipe for the Upper Reservoir needs to either have a screen or flapper valve installed to protect the pipe from infestation by vermin. **Please install this protection no later than February 28, 2007, and submit a photo to ODW as documentation no later than March 10, 2007.**

This item could not be verified during the survey due to the location and configuration of the overflow. Please send photos of the screen as noted under Significant Findings on page #1 of this report.

CLOSING

Your system has no total coliform MCL violation, no more than one total coliform monitoring violation since the last survey, and no significant deficiencies were identified during the survey. Your system qualifies for the reduced frequency of Sanitary Surveys under WAC 246-290-416 (1).

Your next survey is due in **5 years**.

Regulations establishing a schedule of fees, including fees for sanitary surveys, were adopted April 30, 2012 (WAC 246-290-990). The amount due is $1,122. An itemized worksheet is enclosed with the invoice.

If you have any questions, please contact me at (360) 236-3019 or by e-mail at arlene.hyatt@doh.wa.gov.

Sincerely,

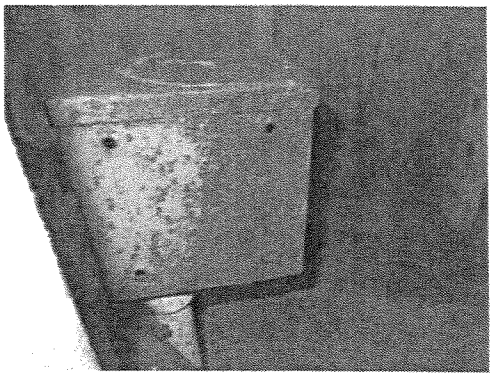
Arlene Hyatt

Arlene Hyatt
Office of Drinking Water, Regional Sanitarian

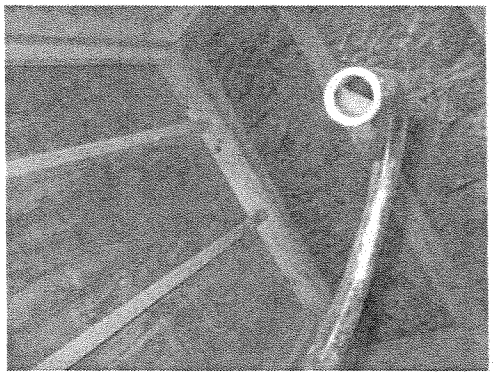
Enclosures

cc: Thurston County Public Health
Denise Miles, ODW
Teresa Walker, ODW

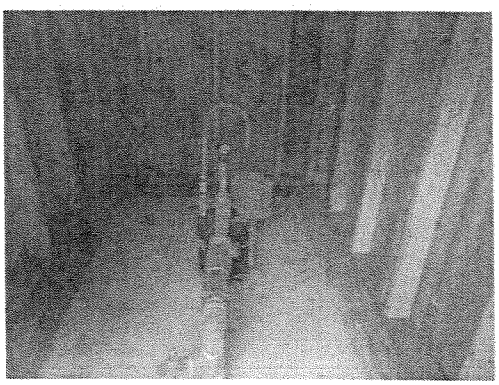
SO1, Well #1



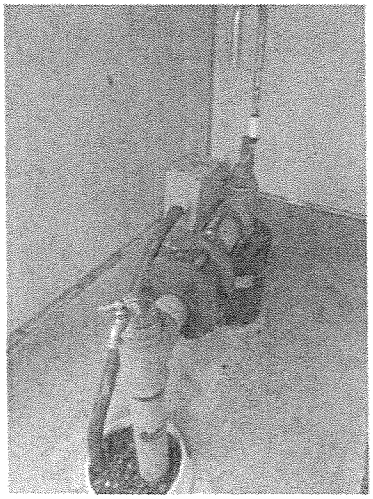
SO1 Junction Box



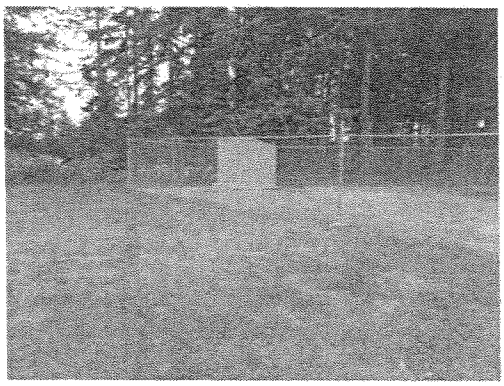
SO1 Vent



SO2, Well #2

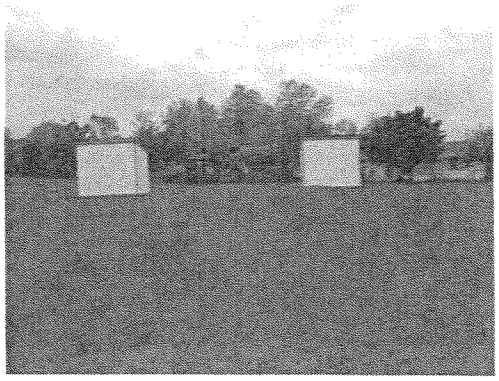


SO3, Well #3

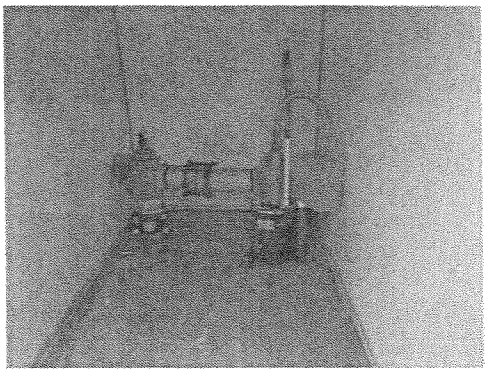


Well #3 Enclosure

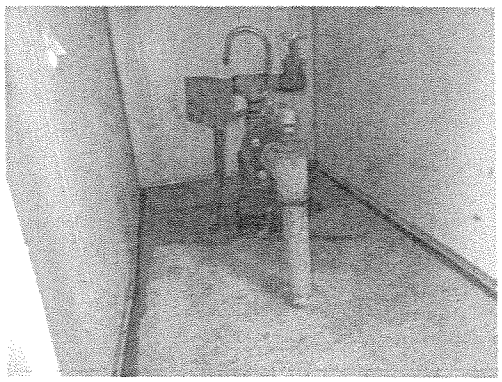
SO4, Well #4



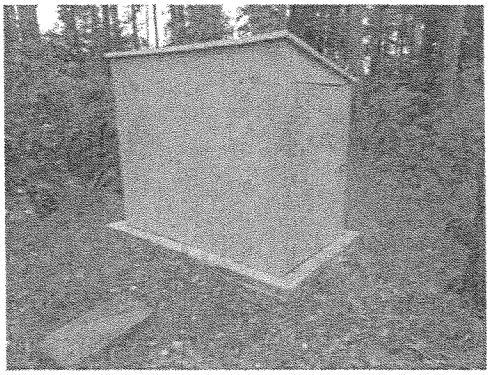
Well #4 and #6 Enclosures



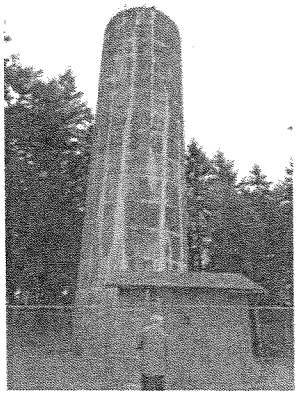
SO6, Well #6



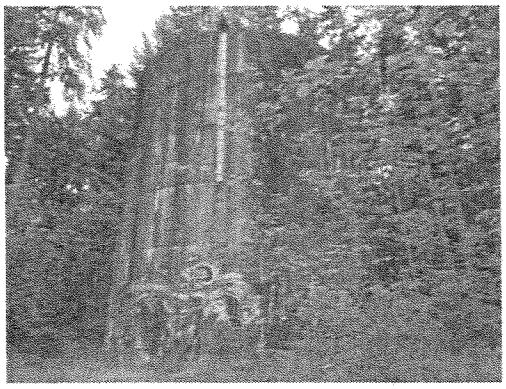
SO5, Well #5



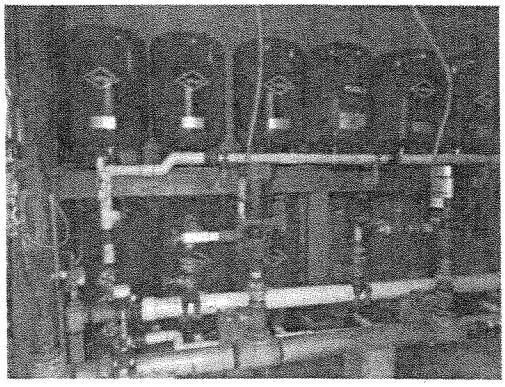
Well #5 Enclosure



Upper Reservoir

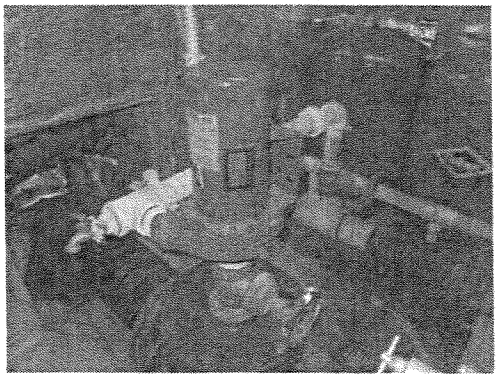


Lower Reservoir

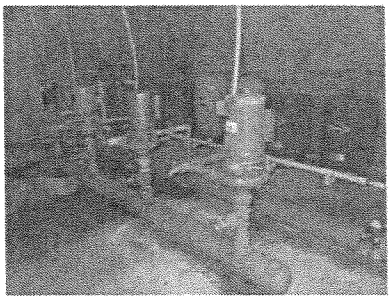


Widgeon Court BPS

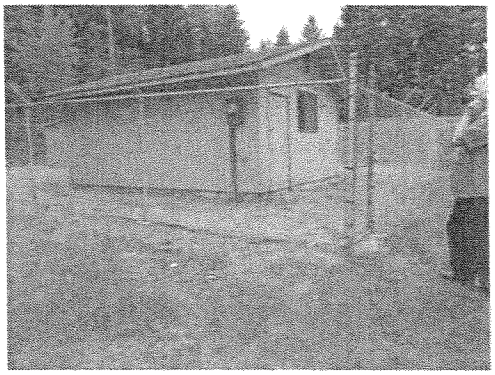
The Ridge BPS



Jockey Pump in Ridge BPS



Foxfire BPS



Foxfire BPS Enclosure

SANITARY SURVEY FEE WORKSHEET

Department of Health
Office of Drinking Water
Sanitary Survey Time Tracking

System Name Meadows LLC — PWS ID # 87784Q
County Thurston County
Surveyor Arlene Hyatt — Date: 05/16/14

System over 10,000 Connections? NO

	Quantity				Cost
Department of Health Paid Costs	**Hours/Miles**				
Survey program RO Coordination	1	$	102	$	102.00
Survey Program Administrative Support	1	$	102	$	102.00
Travel expenses (Mileage)	29		(# Miles) x ($.337/Mile)	$	9.76
Technical Assistance	0.5	$	102	$	51.00
Travel Time <10,000	1		102	$	102.00
Total Department of Health Costs to Perform All Surveys				$	366.76
Water System Paid Costs	**Hours**				
Scheduling, research, prep	6	$	102	$	612.00
Survey Field Work	2.5	$	102	$	255.00
Survey documentation – preparation of survey report to the purveyor	2.5	$	102	$	255.00
Additional Water System Paid Costs for systems serving 10,000 or more connections					
	Hours				
	0	$	-	$	-

NOTES:

Total Cost of Survey	$	1,488.76
Costs Covered by DOH	$	366.76
Invoice amount due (Less than 10,000 Connections)	**$**	**1,122.00**

APPENDIX E – Water Quality Results and Information

Washington State Department of Health
Environmental Public Health
Office of Drinking Water

Water Quality Monitoring Schedule

System: MEADOWS LLC
Contact: Stephen L Harrington
SMA ID: 123

PWS ID: 87784 Q
Group: A - Comm
SMA Name: H&R Waterworks Inc.

Region: SOUTHWEST
County: THURSTON

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

	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016	Sep 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017
Coliform Monitoring Population	2570	2570	2570	2570	2130	2130	2570	2570	2570	2570	2570	2570
Number of Routine Samples Required	3	3	3	3	2	2	3	3	3	3	3	3

- 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.
- Collect no less than 5 routine samples in the month following one or more unsatisfactory samples, in accordance with your system's Coliform Monitoring Plan.
- For systems that chlorinate, record chlorine residual (measured when the coliform sample is collected) on the coliform lab slip.

Chemical Monitoring Requirements

Distribution Monitoring

Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Lead and Copper	10	Jan 2014 - Dec 2016	standard - 3 year	09/23/2013	***Sep 2016***
Asbestos	0	Jan 2011 - Dec 2019	waiver - 9 year		

Notes on Distribution System Chemical Monitoring

For *Lead and Copper*:
- Collect samples from indoor faucets after the water has sat unused in the pipes for at least 6 hours, but no more than 12 hours.
- Flush sample faucets with cold water the evening prior to collecting the sample.
- If your sampling frequency is annual or once 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.
Asbestos:

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 or 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.
- If "R&C" is listed in a monitoring requirement's frequency, the requirements are based on detections which are reliably and consistently below the health standard.

Source S01 *WELL #1 AKB320*		*Well*	*Use - Permanent*	*Susceptility - Moderate*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2016 - Dec 2016	standard - 1 year	09/23/2015	***Sep 2016***
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Arsenic	1	Jan 2014 - Dec 2016	standard - 3 year	09/22/2010	***Nov 2016***
Manganese	1	Jan 2014 - Dec 2016	standard - 3 year	09/22/2010	***Jun 2016***
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	05/18/2012	May 2018
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/16/2013	Apr 2022
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	06/07/2004	
Soil Fumigants	1	Jan 2014 - Dec 2016	standard - 3 year		***Apr 2016***
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	05/04/2015	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	05/04/2015	

Source S02 *WELL #2 AKB321*		*Well*	*Use - Permanent*	*Susceptility - High*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2016 - Dec 2016	standard - 1 year	09/23/2015	***Sep 2016***
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Arsenic	1	Jan 2014 - Dec 2016	standard - 3 year	09/22/2010	***May 2015***
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	05/18/2012	May 2018
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/16/2013	Apr 2022
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	06/07/2004	
Soil Fumigants	1	Jan 2014 - Dec 2022	waiver - 9 year	04/20/2010	Apr 2019
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	05/04/2015	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	05/04/2015	

Source S03	*WELL #3 AKB322*	*Well*	*Use - Permanent*	*Susceptility - Moderate*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2016 - Dec 2016	standard - 1 year	09/23/2015	***Sep 2016***
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Arsenic	1	Jan 2014 - Dec 2016	standard - 3 year	09/22/2010	***Nov 2016***
Iron	1	Jan 2014 - Dec 2016	standard - 3 year	09/22/2010	***Nov 2016***
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	05/18/2012	May 2018
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/16/2013	Apr 2022
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	06/07/2004	
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	04/17/1991	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	04/30/2015	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	04/30/2015	

Source S04	*WELL #4 AKB323*	*Well*	*Use - Permanent*	*Susceptility - Moderate*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2016 - Dec 2016	standard - 1 year	09/23/2015	***Sep 2016***
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	05/18/2012	May 2018
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/16/2013	Apr 2022
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	06/07/2004	
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	04/17/1991	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	04/30/2015	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	04/30/2015	

Source S05	*WELL #5 AKB324*	*Well*	*Use - Permanent*	*Susceptility - Moderate*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2016 - Dec 2016	standard - 1 year	09/23/2015	***Sep 2016***
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	05/18/2012	May 2018
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/16/2013	Apr 2022
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	06/07/2004	

Source S05 WELL #5 AKB324		Well	Use - Permanent	Susceptility - Moderate	
Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	04/17/1991	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	04/30/2015	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	04/30/2015	

Source S06 WELL #6 AKB325		Well	Use - Permanent	Susceptility - Moderate	
Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2016 - Dec 2016	standard - 1 year	09/23/2015	***Sep 2016***
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		Sep 2019
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	05/18/2012	May 2018
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/16/2013	Apr 2022
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	06/07/2004	
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	04/17/1991	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	04/30/2015	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	04/30/2015	

Other Information

Other Reporting Schedules	Due Date
Submit Consumer Confidence Report (CCR) to customers and ODW (Community systems only):	07/01/2016
Submit CCR certification form to ODW (Community systems only):	10/01/2016
Submit Water Use Efficiency report online to ODW (Community and other municipal water systems only):	07/01/2016
Send notices of lead and copper sample results to the customers sampled:	10 days after you receive the laboratory results
Submit Certification of customer notification of lead and copper results to ODW:	60 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:	Sophia Petro: (360) 236-3046 or sophia.petro@doh.wa.gov
For questions regarding coliform bacteria and microbial issues:	Sandy Brentlinger: (360) 236-3044 or sandy.brentlinger@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.

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
SOUTHWEST DRINKING WATER REGIONAL OPERATIONS
PO Box 47823, Olympia, Washington 98504-7823
TDD Relay 1-800-833-6388

February 2, 2018

Kim Gubbe
Meadows LLC
1230 Ruddell Road Southeast
Lacey, Washington 98503

Subject: Meadows LLC Water System, ID #87784Q, Thurston County; Rescinding Corrosion Control Treatment Requirement and Future Lead/Copper Monitoring

Dear Kim Gubbe:

The lead and copper monitoring conducted by the Meadows LLC Water System in May and September 2017 demonstrated that the water is not corrosive. Since the results of these sample sets are below the lead and copper action levels, your water system is considered optimized for corrosion control. You are **no longer required to pursue corrosion control treatment.**

Your next monitoring requirements for lead and copper are:

Collect ten samples between June 1 and September 30, 2018.

Collect ten samples between June 1 and September 30, 2019.

If the 90th percentile for both lead and copper does not exceed an action level during both of the two annual sample rounds, the monitoring requirement then changes to ten samples collected between June 1 and September 30 every three years. If there is an exceedance, the treatment requirement for corrosion control will again become effective. In that case, we will provide additional direction.

The action level for lead is 0.015 mg/L and for copper is 1.3 mg/L.

If you have questions, please contact me at (360) 236-3046 or by e-mail at sophia.petro@doh.wa.gov.

Sincerely,

Sophia Petro
Office of Drinking Water, Source Water Quality Program Manager

cc: Thurston County Public Health Department
Gael Kantz, ODW
Kay Rottell, ODW
Dave Sternberg, ODW

TABLE 1 TO § 141.202 - VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A TIER 1 PUBLIC NOTICE

(1) Violation of the MCL for total coliforms when fecal coliform or E. coli are present in the water distribution system (as specified in § 141.63(b)), or when the water system fails to test for fecal coliforms or E. coli when any repeat sample tests positive for coliform (as specified in § 141.21(e)); Violation of the MCL for E. coli (as specified in § 141.63(c));

(2) Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite, as defined in § 141.62 , or when the water system fails to take a confirmation sample within 24 hours of the system's receipt of the first sample showing an exceedance of the nitrate or nitrite MCL, as specified in § 141.23(f)(2) ;

(3) Exceedance of the nitrate MCL by non-community water systems, where permitted to exceed the MCL by the primacy agency under § 141.11(d) , as required under § 141.209 ;

(4) Violation of the MRDL for chlorine dioxide, as defined in § 141.65(a) , when one or more samples taken in the distribution system the day following an exceedance of the MRDL at the entrance of the distribution system exceed the MRDL, or when the water system does not take the required samples in the distribution system, as specified in § 141.133(c)(2)(i) ;

(5) Violation of the turbidity MCL under § 141.13(b) , where the primacy agency determines after consultation that a Tier 1 notice is required or where consultation does not take place within 24 hours after the system learns of the violation;

(6) Violation of the Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR) or Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit (as identified in appendix A), where the primacy agency determines after consultation that a Tier 1 notice is required or where consultation does not take place within 24 hours after the system learns of the violation;

(7) Occurrence of a waterborne disease outbreak, as defined in § 141.2 , or other waterborne emergency (such as a failure or significant interruption in key water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination);

(8) Detection of E. coli, enterococci, or coliphage in source water samples as specified in § 141.402(a) and § 141.402(b) ;

(9) Other violations or situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, as determined by the primacy agency either in its regulations or on a case-by-case basis.

TABLE 1 TO § 141.203 - VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A TIER 2 PUBLIC NOTICE

(1) All violations of the MCL, MRDL, and treatment technique requirements, except where a Tier 1 notice is required under § 141.202(a) or where the primacy agency determines that a Tier 1 notice is required;

(2) Violations of the monitoring and testing procedure requirements, where the primacy agency determines that a Tier 2 rather than a Tier 3 public notice is required, taking into account potential health impacts and persistence of the violation; and

(3) Failure to comply with the terms and conditions of any variance or exemption in place.

(4) Failure to take corrective action or failure to maintain at least 4-log treatment of viruses (using inactivation, removal, or a State-approved combination of 4-log virus inactivation and removal) before or at the first customer under § 141.403(a) .

TABLE 1 TO § 141.204 - VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A TIER 3 PUBLIC NOTICE

(1) Monitoring violations under 40 CFR part 141 , except where a Tier 1 notice is required under § 141.202(a) or where the primacy agency determines that a Tier 2 notice is required;

(2) Failure to comply with a testing procedure established in 40 CFR part 141 , except where a Tier 1 notice is required under § 141.202(a)) or where the primacy agency determines that a Tier 2 notice is required;

(3) Operation under a variance granted under Section 1415 or an exemption granted under Section 1416 of the Safe Drinking Water Act;

(4) Availability of unregulated contaminant monitoring results, as required under § 141.207 ;

(5) Exceedance of the fluoride secondary maximum contaminant level (SMCL), as required under § 141.208 ; and

(6) Reporting and Recordkeeping violations under subpart Y of 40 CFR part 141.