WEYERHAEUSER REAL ESTATE DEVELOPMENT COMPANY

SILVER LAKE PROPERTY WATER SOURCE ASSESSMENT

JANUARY 11, 2006

Prepared for:

Weyerhaeuser Real Estate Development Company
32820 Weyerhaeuser Way South
Federal Way, WA 98003

Prepared by:

Montgomery Water Group, Inc.
811 Kirkland Avenue, Suite 200
P.O. Box 2517
Kirkland, WA 98083-2517
(425) 827-3243
www.mwater.com

MONTGOMERY
WATER GROUP, INC.

Water Resources Engineering

TABLE OF CONTENTS

1.0 Introduction

Weyerhaeuser Real Estate Development Company (WREDCO) retained Montgomery Water Group (MWG) to prepare this assessment of water availability for property referred to as the Silver Lake parcel in Cowlitz County. The property is comprised of approximately 338 acres located approximately one mile northeast of Silver Lake and south of Highway 504 between Hansen Road and Sighty Road. A vicinity map showing the general location of the property is provided in Figure 1.

WREDCO intends to divide the property into approximately 48 large (5-10 acre) residential lots. This report presents an overview of the property's geology, groundwater potential and the approximate cost of constructing a water supply well for an individual residence.

2.0 Methodology

An analysis of water availability was performed by evaluating geologic characteristics of the property along with existing well records for wells in the vicinity of these properties. Information regarding existing wells and water use in the area was studied by examining well logs and water rights data for the area available from the Washington State Department of Ecology. The distribution of existing wells was analyzed and mapped using GIS software. Information listed on the well logs was evaluated to gain a better understanding of the potential groundwater availability for the subject property. The geology of the area was also mapped using GIS software and data available from the Washington State Department of Natural Resources. The following sections describe the data collected pertaining to geology and nearby water wells.

2.1 Well Log Data

Well log data from wells in the vicinity of the site were downloaded from the Washington State Department of Ecology (DOE) website (http://apps.ecy.wa.gov/welllog/). Data were downloaded for water and monitoring wells located in the following Sections, Townships & Ranges:

- Sections 25 and 36 from T10N, R01W
- Sections 30 and 31 from T10N, R01E

A total of 38 well logs were found in that area. Figure 2 shows the location of ten existing wells that are adjacent to the Silver Lake property. Those wells were found to be generally representative of wells found in the project area and can be used as a guide for wells drilled on the property. The well logs were located on Figure 2 based upon information contained in the well log, which generally locates the wells within a ¼ mile of their true location (i.e. within the nearest ¼ of ¼ of a Section). It should be noted that the location of wells described in the well logs and shown in the well log viewer at the Department of Ecology website are not always accurate because of errors made by well drillers when filling out the well logs.

The well logs for these representative wells were reviewed in detail to estimate the expected depth and yield of wells drilled in the area. Well logs for the representative wells are included in Appendix A.

2.2 Geology

The Silver Lake property is located north of Mount St. Helens in the Toutle River Basin. Deposits of sediments and rock formations resulting from volcanic activity around Mount St. Helens characterize the geology of the Toutle River Basin. Figure 2 includes digital mapping of geologic units in the vicinity of the project obtained from the Washington State Department of Natural Resources (DNR) at http://www.dnr.wa.gov/geology/dig100k.htm (Mount St. Helens quadrangle).

Three geologic units underlie the Silver Lake property: the Qvc(1sh), Mc(w) and OEva(g) units. The Qvc(1sh) unit underlies the town of Toutle and the low lying areas along Outlet Creek, northeast of Silver Lake. The unit consists of volcaniclastic deposits of soil and rock. The soil and rock found along much of the low lying areas of the Toutle River Basin consist of volcanic rocks and soils that have been deposited during mud flows and debris flows from Mount St. Helens following volcanic activity.

The Mc(w) unit underlies a large portion of the subject property that is elevated just south of the town of Toutle. The unit consists of sedimentary rock deposits, including sandstones and siltstones, which formed between the extents of volcanic rock flows and the low lying areas of the Toutle River Basin.

The OEva(g) unit underlies large areas of the western slope of Mount St. Helens, including the southeast corner of the subject property. The unit consists of an andesite flow. Andesite rock is formed, like basalt and other volcanic rock, by the cooling of magma as it flows from a volcano.

It should be noted that the digital mapping of geologic units was based on a 1:100,000 scale USGS geological map prepared in 1987. The exact extent of each unit was not verified in the field and may not be precise.

3.0 Water Requirements for Residences

According to the Washington State Department of Health (DOH) *Water System Design Manual*, the average volume of water required to serve a single-family residence is approximately 400 gallons. During the summertime, demands may increase to 800 to 1000 gallons per day, depending on the extent of irrigation practiced. That average daily volume of water equates to a pumping rate of 5 gpm for 1 hour and 20 minutes per day to 5 gpm for about 3 hours per day. As proof of water supply availability needed to secure a building permit, Cowlitz County requires documentation that demonstrates the ability of a water source to provide at least 5 gpm for 2 hours to a single family residence.

The State of Washington requires most water users to obtain a water right permit or certificate before withdrawing groundwater. There is one exception to the ground water right requirement. The exception, know as the "Ground Water Permit Exemption" allows the use of groundwater for stock-watering, domestic uses, industrical purposes, and irrigation of less than half an acre if

"daily ground water use from a well or wells is 5,000 gallons per day or less". Based on a summertime demand of 800 to 1000 gallons per day per residence, this is enough to supply up to six houses. No water right will be needed if a single well serves less than six houses. A publication detailing the exemption is provided in Appendix B.

4.0 Description of Potential for Well Yields

The well logs for those wells that are shown in Figure 2 were reviewed in detail to determine the depth of the constructed well, the material that was encountered during well drilling, the depth to the static water level in the well, and the yield during testing of the well. The representative wells included one community well and 9 private wells. All of the wells are 6-inches in diameter.

A summary of the representative well logs is provided in Table 4-1. The well logs are included in Appendix A. The Well Log ID Number shown in the table is the Washington State Department of Ecology's identification number for each well.

Table 4-1
Summary of Representative Wells in Vicinity of the Silver Lake Property

Location	Well Log ID Number[1]	Diam.	Depth	Description Of Materials Encountered During Drilling	Water Level Below Ground Surface.	Well Yield
SECTION 25, T10N, R01W						
NE ¼, SE ¼ (Toutle Well #4)	12021	6 in.	137 feet	Sand And Silty Sand With Rock And Layers Of Clay	7.5 feet	60 gpm (Air Test)
SW ¼, SE ¼ (222 Hansen Rd.)	15638	6 in.	97 feet	Sand With Gravel And Silt, Shallow Clay Layer	3 feet	25 gpm (Air Test)
SE ¼, SE ¼ (406 Hansen Rd.)	250240	6 in.	78 feet	Sand With Gravel And Layer Of Clay At 78'	18 feet	20 gpm (Air Test)
SECTION 36, T10N, R01W						
SE ¼, SE ¼ (414 Hansen Rd.)	20169	6 in.	84 feet	Clay Above Sand With Soft Rock at 100'	24 feet	5.5 gpm (Air Test)
SECTION 30, T10N, R01E						
NW ¼, SE ¼ (318 Sightly Rd.)	21041	6 in.	75 feet	Sand With Gravel	12 feet	14 gpm (Air Test)
NW ¼, NE ¼ (5405 Spirit Lake Hwy.)	60588	6 in.	65 feet	Sand With Gravel And Rock (Pumice)	25 feet	20 gpm (Air Test)
NE ¼, SE ¼ (426 Sightly Rd.)	406932	6 in.	220 feet	Clay With Layer Of Gravel And Sand At 218'	56 feet	7 gpm (Air Test)
SECTION 31, T10N, R01E						
SW ¼, NE ¼ (763 Sightly Rd.)	15839	6 in.	285 feet	Clay To 15' Above Rock With Breaks At 255'	7 feet	15 gpm (Air Test)
NW ¼, SE ¼ (745 Sightly Rd.)	301037	6 in.	320 feet	Clay To 35' Above Medium To Hard Rock	53 feet	5 gpm (Air Test)
NE ¼, NE ¼ (616 Sightly Rd.)	384972	6 in.	305 feet	Clay To 54' Above Rock	54 feet	3.5 gpm (Air Test)

1) The well log ID number is used by the Department of Ecology to identify wells and is not typically shown on the driller's well log.

The wells listed show the contrast between those wells that are located in the low lying areas near Outlet Creek and those that are located near or adjacent to the rocky elevated areas. Wells located near the creek have constructed depths ranging from 65 feet to 137 feet. The depth to groundwater in these wells ranged from 3 feet to 25 feet below ground level. The wells are located within the Qvc(1sh) geologic unit and the material found consisted primarily of clays and sands, with some gravel. Air tests were done on each of these wells by the well driller, and the resulting well yields ranged from 5.5 gpm to 60 gpm.

The remaining wells listed in Table 4-1 are located along Sightly Road and have constructed depths ranging from 220 feet to 320 feet. The depth to groundwater in these wells ranged 7 feet to 56 feet below ground level. The wells are located in or near the areas delineated for the Mc(w) and OEva(g) geologic units, and the material found consisted primarily of layers of rock below a layer of clay. Air tests were done on each of these wells by the well driller, and the resulting well yields ranged from 3.5 gpm to 15 gpm. One pump test was performed for the house at 616 Sightly Road; the results were a yield of 10 gpm and a drawdown of 241 feet after about one hour. No information on recovery of the water level was indicated on the well log.

Additional well logs for wells that are located nearby and drilled into rock were also reviewed. The other wells reviewed were generally 200-400 feet deep and had low yields. One well located at 755 Sightly Road was drilled to 404 feet and had a yield not adequate for a domestic well. Well logs for other nearby wells are available from our firm upon request or can be obtained directly from the Department of Ecology at the web site referenced in Section 2.1.

The well logs reviewed indicate that groundwater should be available within the Silver Lake property for single-family residences. Well log data indicates the lots in the southwest corner of the property near Hansen Road would likely require shallow wells (50-150 feet deep). These wells should yield between 5 and 50 gpm. However, the majority of the lots will be located on the hilltop above sedimentary and andesitic rock formations. Review of well logs for adjacent wells indicates that the following challenges may be encountered when drilling wells to supply lots on or near the hills within the development:

- These lots will probably require deeper wells (300-500 feet) drilled into layers of rock
- The yield from these wells may be small. Some of the well logs reviewed as part of this analysis showed yields during initial testing of less than 5 gpm.
- Significant draw down of the water levels in these wells may limit the wells' ability to sustain a level water supply desired by the homeowner. Draw down may also impact other nearby wells.

As noted previously, as part of the building permit Cowlitz County requires that a homeowner demonstrate the availability of 5 gpm of water supply for at least 2 hours. Homeowners that encounter wells with low yields and significant draw down should consider the following:

- The owner may need to install a larger water storage/pressure tank to ensure their peak demands can be met. If well yields are less than 5 gpm for 2 hours, the homeowner may be able to combine additional storage capacity with the well capacity to meet supply requirements. The owner may need to demonstrate that the water supply system can maintain up to 600 gallons of storage (5 gpm X 2 hours X 60 min/hr = 600 gallons).

- Water conservation and water use reduction measures should be implemented, especially at those households with low yielding wells. Water conservation information and recommendations for consumers published by the Washington State DOH have been included in Appendix E.

- Only experienced drillers with knowledge of this area should be used. Using a driller that has experience and knowledge of the area will increase the likelihood of developing a well with adequate supply.

Actual well depths and yields will depend on the location and elevation of the well. The exact depth of well required cannot be predicted with certainty because geologic conditions can vary substantially in this terrain. The depths and yields predicted should only be used as a guideline.

5.0 Well Requirements and Estimated Cost

The costs of developing a well on the subject properties were estimated by calling drilling companies and requesting estimates for the cost of a well that could serve a single-family residence. Table 5-1 lists two drilling companies that provided estimates and have experience drilling in the project vicinity. There are other companies in the area, in addition to those listed in Table 5-1, that are qualified to do the work.

Table 5-1
Well Drilling Companies

Company	Phone
Dale McGhee and Sons Well Drilling, Inc. 3032 Allen Street Road, Kelso, WA 98626	360-423-8493
Don Pittner Jr. Well Drilling P.O. Box 21, Battle Ground, WA 98604	360-686-3776

Copies of the estimates provided by these two drilling companies are enclosed in Appendix C. Estimates were provided for 150-foot and 300-foot deep wells. Separate estimates were provided for drilling and pump installation. Drilling costs include drilling, drilling fees, well casing, and liner. The estimated costs for the pump and installation include materials and installation for a pump, pressure tank, fittings, valves, an insulated cover, pressure gage, switch, wiring, an electrical permit, and a water quality sample.

Wells shallower than 150-feet may be suitable for property located in low lying areas near Outlet Creek. Deeper wells (300-500 feet) are more likely to be encountered for the majority of the properties located within the sedimentary and andesite rock formations. Costs for a 500-foot deep well were estimated based on the average cost per foot for drilling and an increase in pump installation costs to account for a higher horsepower pump and longer conduit. The estimated costs for drilling and completing a 150-foot, 300-foot and 500-foot deep well on the subject properties are listed in Table 5-2.

Table 5-2
Cost Estimate for Well Development

Estimated Well Depth	Approximate Drilling Cost	Pump and Installation		Total Cost
		Cost	Pump Size	
150 feet	$5,500	$3,500	1 HP	$9,000
300 feet	$10,400	$4,300	1 HP	$14,700
500 feet	$17,500	$5,500	2.5 HP	$23,000

The total estimated cost for a 150-foot deep well is $9,000; for a 300-foot deep well is $14,700; and for a 500-foot deep well is $23,000. It should be noted that the well drilling estimates are based on an average cost per foot for drilling. The cost per foot for drilling may increase in rocky soils. The deeper wells may also provide a marginal yield and so a larger pressure tank may be needed to improve supply to the residence. In general, costs will vary depending on site-specific conditions and the costs listed should be used only as a preliminary estimate.

As noted previously, the use of groundwater only requires a water right permit if the use exceeds 5,000 gallons per day (enough to supply six houses). It is our understanding that the development of the Silver Lake property will require that each individual lot owner drill a well to provide water supply for his or her lot. Based on typical water demand for a single family residence, individual wells can be drilled for each lot without needing a water right permit. Generally county health departments have jurisdiction over the drilling and use of exempt wells. Appropriate permits will be required from the Cowlitz County Department of Health. Information and instructions regarding well drilling and requirements from the Cowlitz County Department of Health are included in Appendix D.

Respectfully submitted,

MONTGOMERY WATER GROUP, INC.

David Rice

David W. Rice, P.E.
Water Resources Engineer

FIGURES

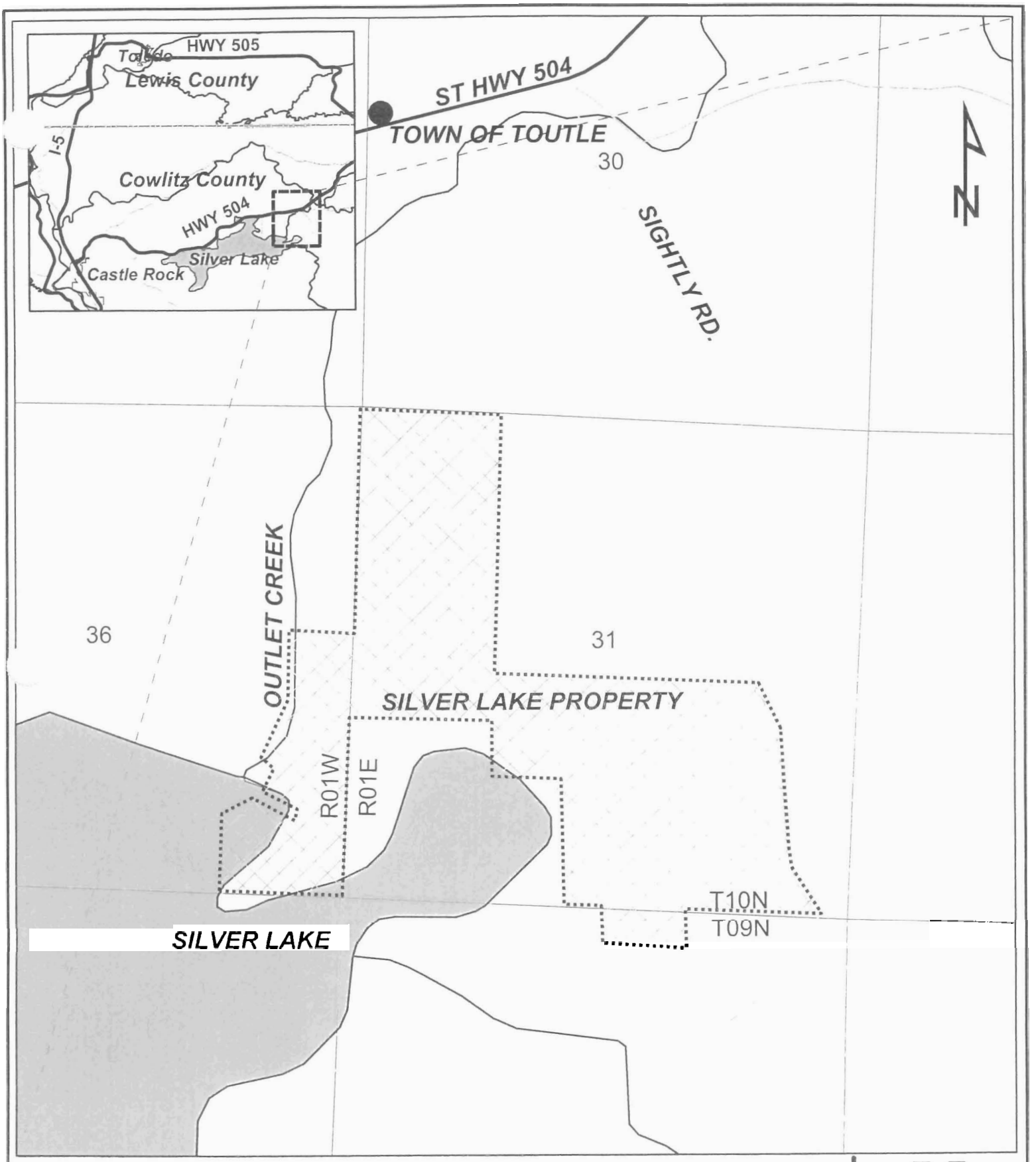


Figure 1
Location Map
WREDCO Silver Lake Development

MONTGOMERY WATER GROUP, INC.
Water Resources Engineering

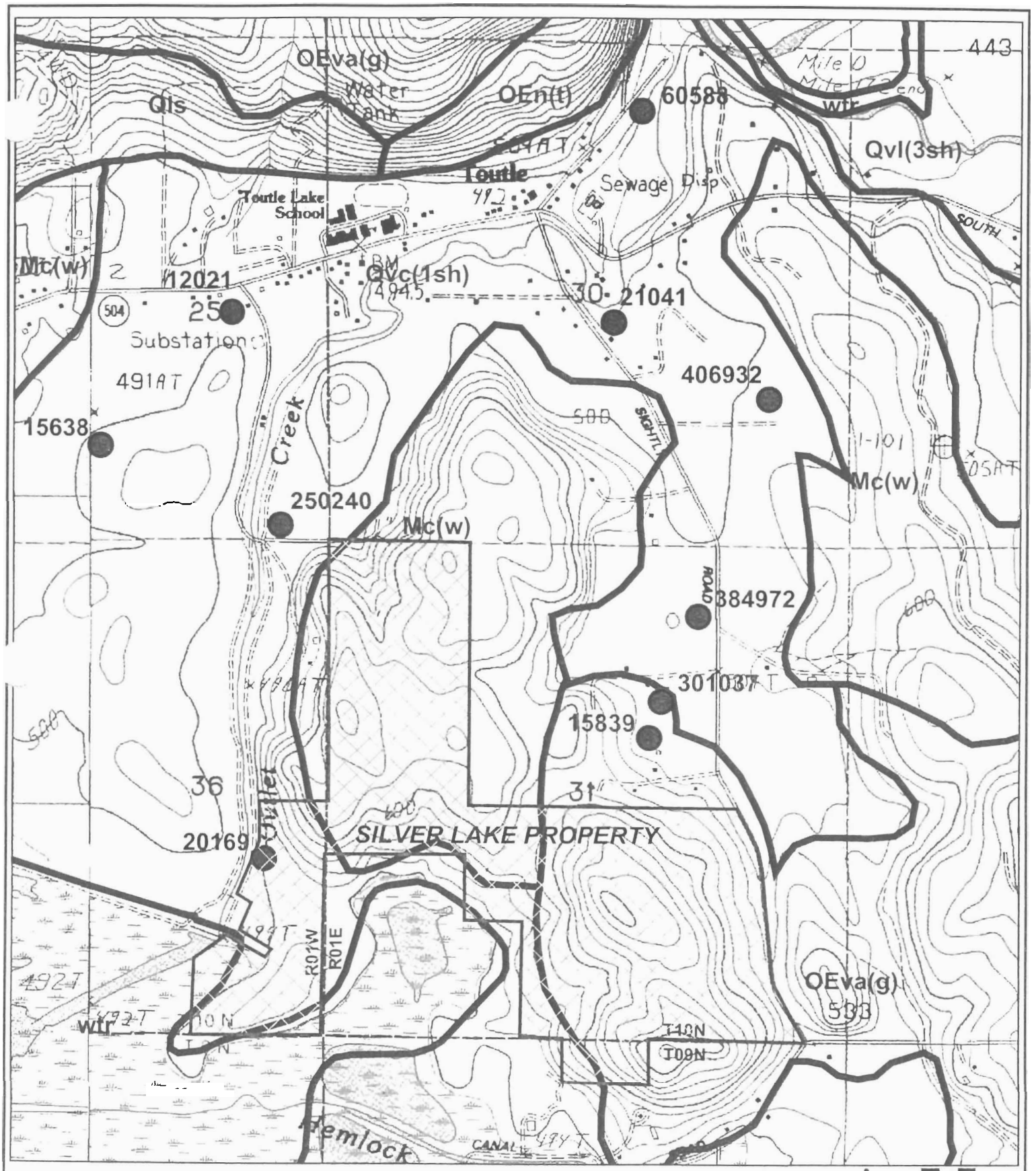


Figure 2

Representative Well Locations and Geology

WREDCO Silver Lake Development

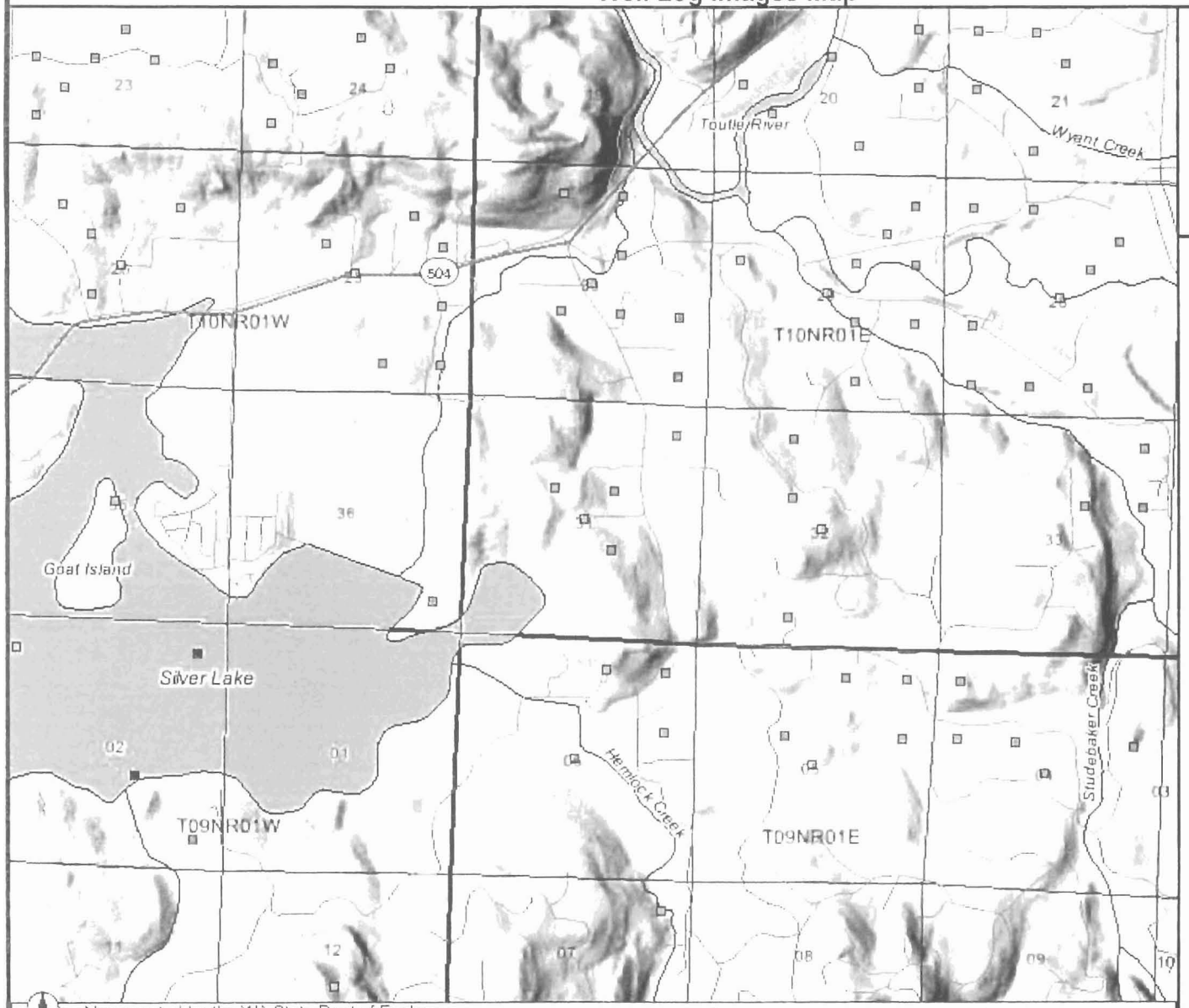
MONTGOMERY WATER GROUP, INC.

Water Resources Engineering

APPENDIX A

WELL LOGS

Well Log Images Map



Well Log Locations

- Water Supply
- Resource Protection
- Decommissioned
- Multiple Well Types

Major Roads

Streets

Sections

Cities

Counties

Water Bodies

- Reservoir
- Glacier
- Marsh
- Rock
- Island
- Water

Streams

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 Cowlitz County Dept of Public Works Address 207 North 4th Kelso Wash. 98626

(2) **LOCATION OF WELL:** County Cowlitz NE¼ SE¼ Sec. 25 T. 10 N., R. 1W W.M.

Bearing and distance from section or subdivision corner Toutle Community Well #4

(3) **PROPOSED USE:** Domestic ☐ Industrial ☐ Municipal ☑
Irrigation ☐ Test Well ☐ Other ☐

(4) **TYPE OF WORK:** Owner's number of well (if more than one) 4
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☑ Jetted ☐

(5) **DIMENSIONS:** Diameter of well 6 inches
Drilled 137'7" ft. Depth of completed well 137'4½" ft.

(6) **CONSTRUCTION DETAILS:**
Casing installed: 6 " Diam. from +2'6" ft. to 88'4½" ft.
Threaded ☐ 5 " Diam. from 81'4½ ft. to 137'4½ ft.
Welded ☑ " Diam. from ft. to ft.
100 slots 6 sticks 5"

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 Johnson
Type telescoping Model No. 304 SS
Diam. 5 Slot size 095 from 88'7½ ft. to 91'11½ ft.
Diam. 5 Slot size 60 from 91'11½ ft. to 137'4½ ft.

Gravel packed: Yes ☐ No ☑ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☑ No ☐ To what depth? 23 ft.
Material used in seal cement grout
Did any strata contain unusable water? Yes ☑ No ☐
Type of water? silty Depth of strata 76 to 80
Method of sealing strata off Pulling deeper casing over

(7) **PUMP:** Manufacturer's Name
Type: H.P.

(8) **WATER LEVELS:** Land-surface elevation above mean sea level .... ft.
Static level 7'6" ft. below top of well Date 9-26-80
Artesian pressure 0 lbs. per square inch Date 9-26-80
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: 60 gal./min. with 127½ ft. drawdown after 6 hrs.
Air Rotary tested at 135 feet " " " "

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.
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
sandy clay brownish yellow	0	2
plumis stone ash and sand	2	23
plumis boulders sand	23	25
plumis sand silt	25	92
plumis stone sand silt	92	41
clay blue gray	41	45
silt clay	45	50'7
silt plumis sand gravel	50'7"	55
plumis sand broken rock	55	59
plumis sand	59	70'8"
fractured rock with sand	70'8"	87
sand coarse w/some rock	87	98
sandy silt w/some pebbles	98	103
silty clay	103	113
clay blue	113	118
sand and gravel	118	121
clay	121	137'4½

RECEIVED
JAN 5 1981
DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

Work started Sept. 22, 1980 Completed Sept. 26, 1980

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 3039 Allen St. Kelso, Wash.

[Signed] Dale McGhee
(Well Driller)

License No. 0996 Date Dec. 31, 1980

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71)
ECY-070-28

3

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. 069966
Water Right Permit No.

(1) OWNER: Name PEPPER, KEN Address 222 HANSON RD. TOUTLE, WA 98649-

(2) LOCATION OF WELL: County COWLITZ - SW 1/4 SE 1/4 Sec 25 T 10 N., R 1W WM
(2a) STREET ADDRESS OF WELL (or nearest address) 222 HANSON RD.

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: Owner's Number of well (If more than one)
NEW WELL Method: ROTARY AIR

(5) DIMENSIONS: Diameter of well 8 inches
Drilled 99 ft. Depth of completed well 97 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +1 ft. to 90 ft.
STEEL 5 " Dia. from 85 ft. to 90 ft.
5 " Dia. from 95 ft. to 97 ft.

Perforations: 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
Manufacturer's Name HUSTON
Type STAINLESS STEEL Model No. TELESCOPE
Diam. 5 slot size 14 from 90 ft. to 95 ft.
Diam. slot size from ft. to ft.

Gravel packed: NO Size of gravel
Gravel placed from ft. to ft.

Surface seal: YES To what depth? 20 ft.
Material used in seal CEMENT GROUT
Did any strata contain unusable water? NO
Type of water? Depth of strata ft.
Method of sealing strata off PRESSURE GROUT

(7) PUMP: Manufacturer's Name
Type N/A H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ... 100 ft.
Static level 31 ft. below top of well Date 10/07/92
Artesian Pressure lbs. per square inch Date
Artesian water controlled by N/A

(9) WELL TESTS: Drawdown is amount water level is lowered below static level.
Was a pump test made? NO If yes, by whom?
Yield: gal./min with ft. drawdown after hrs.

Recovery data
Time Water Level Time Water Level Time Water Level

Date of test / /
Bailer test gal/min. ft. drawdown after hrs.
Air test 25 gal/min. w/ stem set at 80 ft. for 1 hrs.
Artesian flow g.p.m. Date
Temperature of water 51 Was a chemical analysis made? YES

(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 in formation.

MATERIAL	FROM	TO
CLAY SANDY BROWN	0	2
SAND W/ GRAVEL GREY	2	31
SAND SILTY BROWN	31	35
SAND FINE GREY	35	74
SAND COARSE W/ GRAVEL	74	90
SAND & GRAVEL GREY WATER BEARING	90	99

Work started 10/06/92 Completed 10/07/92

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 EDGELL WELL DRILLING INC.
(Person, firm, or corporation) (Type or print)

ADDRESS P O BX 695 CASTLE ROCK WA

[SIGNED] Ron Edgell License No. 115

Contractor's Registration No. EDWELDPW121QM Date 10/09/92

File Original and First Copy with

Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W122021

UNIQUE WELL I.D. # AFG102

Water Right Permit No.

(1) OWNER: Name Leona Allen Pace Address 406 Hansen Rd. Toutle, WA 98649

(2) LOCATION OF WELL: County Cowlitz . SE ¼ SE ¼ Sec 25 T. 10 N. R 1 W W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) 406 Hansen Rd. Toutle, 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 20 feet. Depth of completed well 78 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from +2 ft. to 69 ft.
Welded ☒ 5" Diam. from 68 ft. to 70 ft.
Liner installed ☐
Threaded ☐ 5" Diam. from 75 ft. to 78 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 Johnson

Type Telescoping Model No.

Diam. 5 Slot size 12 from 70 ft. to 75 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 18 ft. below top of well Date 1-24-00

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.

Airlift 20 gal./min. with stem set at 76 ft. for 1 hrs.

Artesian flow g.p.m. Date 1-24-00

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
Pumicy gravel & sand wb	58	63
Pumicy sand-fine wb	63	68
Pumicy sand, coarse wb.	68	77
Pumicy sand & gravel - some water	77	78
Clay Gray soft	78	

Work Started 12-1-00 Completed 1-24-2000

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 Moerke & Son's (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 1286 NW Maryland Chehalis

(Signed) Chris Moerke (WELL DRILLER) License No. 2253

Contractor's Registration No. MOERKSSO92NS Date 1-25-2000

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (206) 407-6600. The TDD number is (206) 407-6006.

ECY 050-1-20 (9/93)

Department of Ecology does not warrant 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

Start Card No. W071781

UNIQUE WELL I.D. # ACK 555

Water Right Permit No. _____

OWNER: Name Verl LEE Address 318 Sightly Rd. Toutle wa.

(2) LOCATION OF WELL: County Cowlitz - NW 1/4 SE 1/4 Sec 30 T. 10 N., R. 1E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) 318 Sightly Rd. Toutle wa.

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ 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 6" inches.
Drilled 75 feet. Depth of completed well 75 ft.

(6) CONSTRUCTION DETAILS:

Casing Installed: 6" Diam. from +1 ft. to 71' ft.
Welded ☒
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? 60 ft.
Material used in seal Betonite
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 270' ft.
Static level 12 ft. below top of well Date 7-11-96
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 14 + gal./min. with stem set at 66 ft. for 1 hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water 51° 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
Top soil Gritty Lt. Brown	0	5
Sand Gritty Grey	5	10
Sand w/ Gravel Coarse Grey	10	60
Gravel w/ Sand Coarse Grey Water Bearing	60	75

Work Started 7-9-96 19. Completed 7-11-96 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 ADVANCED WELL DRILLING (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address P.O. Box 1255 Longview wa. 98632

(Signed) _____ (WELL DRILLER) License No. 2165

Contractor's Registration No. ADVANWD044JG Date 7-11-96 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 (206) 407-6600. The TDD number is (206) 407-6006.

ECY 050-1-20 (9/93)

The Department of Ecology does NOT warrant the data and/or the information on this well rep

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

66779

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W102830

UNIQUE WELL I.D. # ACR-061

Water Right Permit No. _____

(1) OWNER: Name Alan Bates Address 1411 Kerron ST Enumclaw 98596

(2) LOCATION OF WELL: County Cowlitz NW 1/4 NE 1/4 Sec 30 T. 10 N, R 1E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) 5405 Spirit Lake Hwy, ~~Silverlake~~ Toutle WA

(3) PROPOSED USE: ■ Domestic ☐ Irrigation ☐ DeWater ☐ Industrial ☐ Test Well ☐ Municipal ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) 1

Abandoned ☐ New well ■ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ■ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6" inches. Drilled 65 feet. Depth of completed well 65 ft.

(6) CONSTRUCTION DETAILS:

Casing Installed: 6" Diam. from +1 ft. to 64 ft.
Welded ■ 8" Diam. from _____ ft. to _____ ft.
Liner Installed ☐ 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? 50 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 Grundfos
Type: 10SQE12 H.P. 3/4

(8) WATER LEVELS: Land-surface elevation above mean sea level 400
Static level 25 ft. below top of well Date 4-26-99
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 4-26-99
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs
Airtest 20 gal./min. with stem set at 65 ft. for 2 hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water 49° 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
Top Soil	0	1
Sand Stone (Soil)	1	20
Pumice Gravel Rock (fractured)	20	65

RECEIVED
MAY 03 1999
DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

Work Started 4-23-99 19 Completed 4-24 19 99

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 IRA Boff Pump & Well (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 2110 S. Pacific Kelso, WA.

(Signed) _____ (WELL DRILLER) License No. 1755

Contractor's Registration No. IRABopuWC104 Date 4-27- 19 99

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (206) 407-6600. The TDD number is (206) 407-6006.

ECY 050-1-20 (5/93) * * I.

The Department of Ecology does NOT warrant the data and/or the information on this well report

Please print, sign and return to the Department of Ecology

Water Well Report

– Ecology, 1st copy – owner, 2nd copy – driller

Construction/Decommission

☑ Construction
☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* 171976

Current
Notice of Intent No. W 174729
Unique Ecology Well ID Tag No. AKH-232
Water Right Permit No.
Property Owner Name GILBERT, JOHN
Well Street Address 426 SIGHTY RD.
City TOUTLE **County** COWLITZ
Location NE 1/4-1/4 SE 1/4 Sec 30 Twn 10 R 1 EWM or WWM ☑ circle one
Lat/Long (s, t, r still REQUIRED) Lat Deg Lat Min/Sec Long Deg Long Min/Sec
Tax Parcel No. EF3004018

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 ☐ Deepened *Method:* ☐ Dug ☐ Bored ☐ Driven ☐ Cable ☑ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 220 ft.
Depth of completed well 220 ft.

CONSTRUCTION DETAILS
Installed: ☑ Welded 6 " Diam. from +1.5 ft. to 207 ft.
☑ Liner installed 4.5 " Diam. from 150 ft. to 210 ft.
☐ Threaded " Diam. from ft. to ft.
☐ 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 pvc wire wrapped Model No. SPS4X5WRP10
Diam. 4" Slot size 10 from 210 ft. to 220 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.
Material used in seal BENTONITE
Did any strata contain unusable water? ☐ Yes ☑ No
Type of water? Depth of strata
Method of sealing strata off

PUMP: Manufacturer's Name GOULDS
SUBMERSIBLE H.P. 3/4

WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level 56 ft. below top of well Date 4/13/05
Artesian pressure lbs. per square inch Date
Artesian water is controlled by N/A (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 7 gal./min with stem set at 205 ft. for ONE hrs.
Artesian flow g.p.m. Date
Temperature of water 53 Was a chemical analysis made? ☑ Yes ☐ 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
CLAY BROWN	0	11
CLAY LIGHT BROWN	11	29
CLAY GREY	29	36
CLAY BLUISH GREY	36	57
CLAY BROWN	57	76
CLAY BLUISH GREY	76	146
CLAY GREY	146	153
CLAY BLUISH GREY	153	212
SAND W/WOOD GREY	212	216
GRAVEL SAND W/WOOD GREENISH GREY	216	218
SAND W/CLAY BINDER GREY	218	220

Start Date APRIL 6 Completed Date 4/13/05

RECEIVED
MAY 12 2005
Washington State Department of Ecology

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) TIM LAPHAM
Driller/Engineer/Trainee Signature
Driller or trainee License No. 2165

IF TRAINEE,
Driller's Licensed No.
Driller's Signature

Drilling Company RON EDGELL WELL DRILLING INC
Address PO BOX 695
City, State, Zip CASTLE ROCK, WA 98611
Contractor's Registration No. RONEDWDO65D1 Date 4/15/2005

Ecology is an Equal Opportunity Employer. ECY 050-1-20 (Rev 2/03)

WATER WELL REPORT Start Card No. W 059544
State of Washington Water Right Permit No. N/A

(1) OWNER: Larry Cox Address: 763 Sightly Rd. Toutle, WA

(2) LOCATION OF WELL: County Cowlitz SW 1/4, NE 1/4, Sec. 31 ,T 10N R 1E WM.
(2a) STREET ADDRESS OF WELL: (or nearest address) 763 Sightly Rd. Toutle, WA

(3) PROPOSED USE: Domestic

(4) TYPE OF WORK: New Owner's number of well (if more than one)
Method: Air rotary

(5) DIMENSIONS: Diameter of well: 6 inches
Drilled 285 ft. Depth of completed well: 285 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +2 ft. to 18 ft.
P.V.C. 4 1/2 " Dia. from 10 ft. to 285 ft.
" Dia. from ft. to ft.

Perforations: Yes
Type of perforator used: Drill
Size of perforations: 5/8 in. by round
80 perforations from 220 ft. to 260 ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: No
Manufacturer's name:
Type: Mod. No.
Dia. slot size: from ft. to ft.
Dia. slot size: from ft. to ft.

Gravel packed: No Size of gravel:
Gravel placed from: ft. to ft.

Surface seal: Yes To what depth: 28 ft.
Material used in seal: Bentonite
Did any strata contain unusable water? No
Type of water: Depth of strata:
Method of sealing strata off:

PUMP: Manufacturers name:
Type: Size: H.P.:

(8) WATER LEVELS: Land-surface elevation above mean sea level: ft.
Static level: 7 ft. below top of well Date: 4-25-95
Artesian pressure: lbs. per sq. in. Date:
Controlled by:

9) WELL TESTS: Drawdown is amount water level is lowered below static water level.
Was a pump test made? No If yes, by whom:
Yield: GPM with ft. drawdown after hrs.
GPM with ft. drawdown after hrs.
Date of test: / /
Bailer test: GPM w/ ft. drawdown after hrs.
Air test: 15 GPM w/stem set at 280 ft. for 2 hrs.
Artesian flow: GPM Temp: o Chemical analysis:No

(10) WELL LOG

MATERIAL	FROM	TO
Topsoil	0	2
Clay, yellow	2	15
Rock, blue	15	25
Rock, blue, medium hard	25	40
Rock, blue, hard	40	120
Rock, blue, w/ red streaks	120	150
Rock, blue, hard	150	200
Rock, blue	200	225
Rock, blue, W.B. 8 GPM	225	235
Rock, blue, w/ brown streaks	235	255
Rock, blue, w/ broken zones, W.B.	255	285

RECEIVED
95 AUG 23 P3:56
DEPARTMENT OF ECOLOGY
S.W. REGIONAL OFFICE

Work Started: 4-21-95 Completed: 4-25-95

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 the best of my knowledge and belief.

NAME: WILLIAMS WELL DRILLING, INC.
ADDRESS: 957 Jackson Hwy. So.
Toledo, Wa. 98591 Phone: 864-2951

[Signed] Scott Reed
Scott Reed
License No. 2263 Date: 4-26-95
Cont. Reg. No. WILLIWD251R3

WATER WELL REPORT Start Card No. W134610
State of Washington Unique Well # AET 175

(1) OWNER: Stanley Adams Address: 745 Sightly Rd. Toutle, Wa.

(2) LOCATION OF WELL: County Cowlitz N.W. 1/4, S.E.1/4, Sec. 31 ,T 10 R 1 E. WM.
(2a) STREET ADDRESS OF WELL: (or nearest address) Same As Above

(3) PROPOSED USE: Domestic

(4) TYPE OF WORK: New Owner's number of well (if more than one)
Method: Air rotary

(5) DIMENSIONS: Diameter of well: 6 inches
Drilled 320 ft. Depth of completed well: 320 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +2 ft. to 42 ft.
P.V.C. Casing 4 1/2 " Dia. from 30 ft. to 320 ft.
" Dia. from ft. to ft.

Perforations: Yes
Type of perforator used: Drilled
Size of perforations: 5/8 in. by Pound in.
40 perforations from 280 ft. to 320 ft.
25 perforations from 180 ft. to 200 ft.
40 perforations from 80 ft. to 20 ft.
perforations from ft. to ft.

Screens: No
Manufacturer's name:
Type: Mod. No.
Dia. slot size: from ft. to ft.
Dia. slot size: from ft. to ft.

Gravel packed. No Size of gravel:
Gravel placed from: ft. to ft.

Surface seal: Yes To what depth: 35
Material used in seal: Bentonite
Did any strata contain unusable water? No
Type of water: Depth of strata:
Method of sealing strata off:

PUMP: Manufacturers name:
Type: Size: H.P.:

(8) WATER LEVELS: Land-surface elevation above mean sea level: ft.
Static level: 53 ft. below top of well Date: 9/20/00
Artesian pressure: lbs. per sq. in. Date:
Controlled by:

9) WELL TESTS: Drawdown is amount water level is lowered below static water level.
Was a pump test made? No If yes, by whom:
Yield: GPM with ft. drawdown after hrs.
GPM with ft. drawdown after hrs.
Date of test: 9 /20 / 00
Bailer test: GPM w/ ft. drawdown after hrs.
Air test: 5 GPM w/stem set at 315 ft for 2 hrs.
Artesian flow. GPM Temp: o Chemical analysis:No

77905

(10) WELL LOG

MATERIAL	FROM	TO
Topsoil	0	2
Clay, Yellow	2	35
Rock, Brown	35	37
Rock, Blue (Med)	37	48
Shale, Blue (Hard)	48	58
Rock, Blue	58	69
Shale, Blue (Hard)	69	75
Rock, Blue	75	80
Shale,Blue (Hard)	80	106
Shale Black (Hard)	106	112
Rock, Blue (Soft)	112	151
Shale, Blue Gray (Hard)	151	193
Rock, Blue (Med)	193	266
SandRock, Gray (Hard)	266	320

RECEIVED
NOV 1 6 2000
Washington State
Department of Ecology

Work Started: 9/18/00 Completed: 9/20/00

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 the best of my knowledge and belief.

NAME: WILLIAMS WELL DRILLING, INC.
ADDRESS: 957 Jackson Hwy. So.
Toledo, Wa. 98591 Phone: 864-2951

[Signed] Luke Williams
Willie Williams
License No. 2470 Date: 9/22/00
Cont. Reg. No. WILLIWD251R3

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* 150586

MAR 0 5 2004
DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

CURRENT
Notice of Intent No. W172725
Unique Ecology Well ID Tag No. AHG120
Water Right Permit No.
Property Owner Name Stanley Fiest
Well Street Address 616 Sightly Rd
City Touttle County: Cowlitz
Location NE 1/4 - 1/4 NE 1/4 Sec 31 Twn 10 R 1 (EWM) or WWM (circle one)
Lat/Long: (s,t,r still REQUIRED) Lat Deg ____ Lat Min/Sec ____ Long Deg ____ Long Min/Sec ____
Tax Parcel No. EF3101003

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 305 ft
Depth of completed well 305 ft

CONSTRUCTION DETAILS
Casing ☒ Welded 6" Diam from +2 ft to 138 ft
Installed: ☒ Liner installed 4" Diam from 125 ft to 305 ft
☐ Threaded ____" Diam from ____ ft to ____ ft

Perforations: ☒ Yes ☐ No
Type of perforator used Cut
SIZE of perfs 1/4 in by 6 in and no of perfs 70 from 150 ft to 295 ft

Screens: ☐ Yes ☒ No ☐ K-Pac Location
Manufacturer's Name
Type Model No
Diam Slot Size from ft to 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
Materials used in seal Bentonite
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? Depth of strata
Method of sealing strata off

PUMP: Manufacturer's Name Grundfos
Type. 10 GPM Submersible H.P 1½

WATER LEVELS: Land-surface elevation above mean sea level 500 ft
Static level 54 ft below top of well Date 2-12-2004
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? Wells and More
Yield 10 gal/min with 241 ft drawdown after 56 min
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
00	54	1:56	295	1:16	295
1:28	295	1:58	228	2:17	295

Date of test 2-12-2004
Bailer test ____ gal/min with ____ ft drawdown after ____ hrs
Airtest 3.5 ± gal/min with stem set at 305 ft for 2 hrs
Artesian flow 3.5 ± g p m Date 2-12-2004
Temperature of water ____ Was a chemical analysis made? ☐ Yes ☒ 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
Dark Brown Clay	1	4
Brown Clay	4	6
Tan Clay	6	12
Lite Tan Clay	12	16
Redder Tan Clay	16	28
Tan Clay	28	36
Gray Clay with Sand		
and Gravel	36	52
Wood	52	54
Gray Clay with Sand		
and Gravel	54	97
Brown Clay Stone	97	94
Gray Sand Stone	94	112
Brown Clay Stone	112	156
Gray ~~Stone~~ Clay Stone	156	162
Redder Brown Clay Stone	162	165
Gray Clay Stone	165	184
Grey Sand Stone	184	254
Tan Sand Stone	254	269
Gray ~~Sand~~ Clay Stone	269	274
Black Shale	274	287
Gray Clay Stone	287	305
Water 189		
3.5 GPM		

Start Date 1-12-2004 Completed Date 2-12-2004

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) Ted R. Frandsen
Driller/Engineer/Trainee Signature Ted R. Frandsen
Driller or Trainee License No. 0811

Drilling Company Wells and More
Address 1042 Luebke Rd
City, State, Zip Toutle Wa. 98649
Contractor's Registration No. CCCDEXWELL 3M*121OG Date 2-18-2004

If trainee, licensed driller's Signature and License no.

Ecology is an Equal Opportunity Employer ECY 050-1-20 (Rev 4/01)

The Department of Ecology does NOT warrant the Data and/or the information on this well rep

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W 056193
Unique Well I.D. # AAH943
Water Right Permit No.

(1) OWNER: Name ABBOTT GARNER Address 3859 PENNSYLANIA # 3 LONGVIEW, WA 98632-

(2) LOCATION OF WELL: County COWLITZ - SE 1/4 SE 1/4 Sec 36 T 10 N., R 1W WM

(2a) STREET ADDRESS OF WELL (or nearest address) 414 HANSEN ROAD, TOUTLE

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: Owner's Number of well (If more than one) 2
NEW WELL Method: ROTARY

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 100 ft. Depth of completed well 84 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +1 ft. to 46 ft.
WELDED 4 " Dia. from .6 ft. to 44 ft.
4 " Dia. from 64 ft. to 84 ft.

Perforations: 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
Manufacturer's Name HALLIBURTON
Type PIPE SIZE Model No. STAINLESS STEEL
Diam. 4 slot size 30 from 44 ft. to 64 ft.
Diam. slot size from ft. to ft.

Gravel packed: YES Size of gravel #8SRI
Gravel placed from 1 ft. to 84 ft.

Surface seal: YES To what depth? 26 ft.
Material used in seal CEMENT GROUT
Did any strata contain unusable water? NO
Type of water? Depth of strata ft.
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 24 ft. below top of well Date 12/23/94
Artesian Pressure lbs. per square inch Date
Artesian water controlled by

(9) WELL TESTS: Drawdown is amount water level is lowered below static level.
Was a pump test made? NO If yes, by whom?
Yield: gal./min with ft. drawdown after hrs.

Recovery data
Time Water Level Time Water Level Time Water Level

Date of test / /
Bailer test gal/min. ft. drawdown after hrs.
Air test 5.5 gal/min. w/ stem set at 83 ft. for 1 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? 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 in formation.

MATERIAL	FROM	TO
	0	1
CLAY BROWN RED	1	4
CLAY BROWN YELLOW	4	16
SANDY CLAY BROWN RED	16	40
SAND VERY DIRTY	40	54
BROWN YELLOW	40	54
SAND DIRTY RED	54	57
SAND MEDIUM AND	57	65
COARSE DIRTY RED	57	65
SAND YELLOW-BROWN VERY	65	79
DIRTY W/SOME CLAY	65	79
AND SCATTERED GRAVEL	65	79
SILTSTONE BLUE SOFT	79	100
	100	

RECEIVED
'95 JAN -9 AM 10:10
DEPARTMENT OF ECOLOGY
S.W. REGIONAL OFFICE

Work started 12/19/94 Completed 12/23/94

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 DALE MCGREER & SONS,
(Person, firm, or corporation) (Type or print)

ADDRESS 3032 ALLEN ST. KELSO, WA

[SIGNED] Chris R McGreer License No. 2115

Contractor's Registration No. DALEMI#212MC Date 01/04/95

APPENDIX B

DEPARTMENT OF ECOLOGY

GROUNDWATER PERMIT EXEMPTION

Focus on
The Ground Water Permit Exemption

from Ecology's Water Resources Program

In Washington state, prospective water users must obtain authorization from the Department of Ecology (Ecology) before diverting surface water or withdrawing ground water, with the one exception discussed below. Authorization to use surface or ground water is granted by Ecology in the form of a water right permit or certificate.

Surface water is water located above ground, such as a river, stream, spring or lake.

Ground water is water located under the ground.

Ground water right exemption

There is one exception to the requirement for a ground water right. (No similar exception exists for surface water rights.) You do not need to apply for a ground water right permit if your daily ground water use from a well or wells is 5,000 gallons a day or less for any of the following combinations of uses:

- Providing drinking and cleaning water for livestock (stock-watering).
- Single or group domestic purposes such as drinking, cooking and washing.
- Industrial purposes.
- Watering a lawn or noncommercial garden that is a half acre or less in size.

Although you are exempt from the water right permit process in these cases, all other water laws and regulations still apply.

How the permit exemption works

The permit exemption allows certain users of small quantities of ground water (most commonly, single residential well owners) to construct wells and develop their water supplies without first obtaining a water right permit from Ecology. Here are some other facts ground water users should know:

- **All wells for a given project apply toward the limits of the exemption.** For example, you cannot irrigate two acres by installing four wells (each serving 1/2 acre). If you wish to develop land and supply the commercial or domestic development with water from several wells, all the wells of the development *together* must pump 5,000 gallons a day or less to be covered under this exemption. Remember, if the *cumulative* total of withdrawn ground water for a project exceeds 5,000 gallons a day, you need to secure a water right from Ecology.
- Water users have the option of applying for a water right permit from Ecology even if their uses fall under the permit exemption.
- Water users withdrawing ground water under the exemption establish a water right that is subject to the same privileges and restrictions as a water right permit or certificate obtained directly from Ecology.
- Although exempt ground water withdrawals don't require a water right, they are always subject to state water law. In some instances, Ecology has had to regulate or condition ground water withdrawals when they interfere with prior or "senior" water rights, including instream flow rules.

Revised August 2004 Publication #F-WR-92-104 *Original printed on recycled paper*

- The permit exemption is not available to prospective water users in certain areas that have been closed to further appropriation because there is limited or no water available. Check with Ecology staff at the regional offices (listed below) for special restrictions that may apply to your development site.

Residential subdivisions and the permit exemption

In 2002 the State Supreme Court ruled (Ecology v. Campbell & Gwinn) that if you wish to develop land and supply the development with domestic water from several wells, and each well will pump less that 5,000 gallons per day but all the wells together will pump more than 5,000 gallons per day, the project is considered a single withdrawal of ground water and is **not** exempt from permitting requirements.

Other laws and regulations: well-drilling

It is important to remember that although you are exempt from the water right permit process under the ground water exemption, all other water laws and regulations still apply. For example, there are a number of rules and regulations associated with the actual drilling of the well. To begin, it is mandatory under state law to submit a Notice of Intent to Construct a Water Well form to Ecology, accompanied by the appropriate fee, *at least 72-hours prior to the beginning of construction.*

State law requires that all wells meet certain minimum standards for construction. Information on well construction laws and requirements can be accessed at Ecology's Well Construction and Licensing website at http://www.ecy.wa.gov/programs/wr/wells/wellhome.html

For more information

If you have additional questions, please contact the Ecology regional office nearest you:

Northwest Regional Office
3190 - 160th Avenue SE
Bellevue, WA 98008-5452
(425) 649-7000

Central Regional Office
15 W. Yakima Ave., Suite 200
Yakima, WA 98902-3452
(509) 575-2490

Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775
(360) 407-6300

Eastern Regional Office
N. 4601 Monroe
Spokane, WA 99205-1295
(509) 329-3400

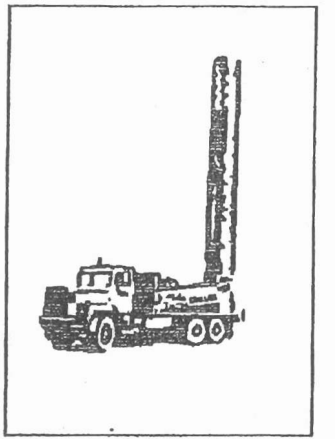
This publication, and others about water rights and well-drilling, are available to view, download and/or print at: http://www.ecy.wa.gov/programs/wr/wrhome.html

If you require this document in an alternate format, please contact the Water Resources Program at (360) 407-6600 or TTY (for the speech or hearing impaired) at 711 or 1-800-833-6388.

APPENDIX C

DRILLING ESTIMATES

DALE MCGHEE & SONS WELL DRILLING, INC.
3032 ALLEN STREET, KELSO, WA. 98626 (360-423-8493)



Name: **Monterey Water Group** Date: December 23, 2005
Attention: Dave Rice

Address: P.O. Box 2517 Job Site: Silver Lake
Kirkland, WA. 98083

Phone: (425) 827-3243 Fax: (425) 827-3509
Subject: Well & Pump Estimate
Estimator: Chris McGhee / Glenn Wilkerson

150 ft. Well Estimate

Item #	Description	Amount
1	150 feet x 6" diameter drilled @ $25.00 /ft	3,750.00
2	Start card fee	200.00
3	100 feet x 6" casing @ $8.00/ft.	800.00
4	60 feet x 4.5" PVC liner @ $4.00/ft.	240.00
5	***Well total***	***$4,990.00***

Pump System Estimate

Items #	Description	Phase I	Phase II
6	7LS07 Goulds submersible pump	744.00	---
7	Five year pump warranty	50.00	---
8	140 feet x 1" galvanized pipe	266.00	---
9	145 feet x #12-4 sub wire	116.00	---
10	Well seal	26.00	---
11	One ¾" pressure relief valve	15.00	---
12	Bacteria sample	40.00	---
13	Two 1" check valve	20.00	20.00
14	Miscellaneous plumbing and electrical fittings	85.00	220.00
15	81 gallon Challenger PC 244 pressure tank	---	450.00
16	Pump house wiring	---	250.00
17	Pressure switch and gauge	---	20.00
18	Insulated well cover	---	100.00
19	Electrical permit	---	50.00
20	Pump installation	180.00	200.00
21	***Pump system total***	***$1,542.00***	***$1,310.00***

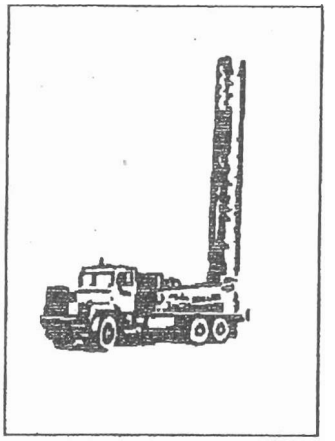
Trenching & Utilities Installation

Item #	Description	Amount
22	110 feet x #12-4 w/grd TC wire	88.00
23	100 feet x 1"160 psi p.p.	45.00
24	Miscellaneous fittings	85.00
25	Trenching	195.00
26	Labor	200.00
27	***Trenching and Utilities total***	***$613.00***

28	***Total of items from lines 5, 21, & 27***	***$8,455.00***
	Plus sales tax if applicable	

Note: The above estimate is good for 30 days after date on estimate.

DALE MCGHEE & SONS WELL DRILLING, INC.
3032 ALLEN STREET, KELSO, WA. 98626 (360-423-8493)



Name: **Monterey Water Group** Date: December 23, 2005
Attention: Dave Rice

Address: P.O. Box 2517 Job Site: Silver Lake
Kirkland, WA. 98083

Phone: (425) 827-3243 Fax: (425) 827-3509
Subject: Well & Pump Estimate
Estimator: Chris McGhee / Glenn Wilkerson

300 ft. Well Estimate

Item #	Description	Amount
1	300 feet x 6" diameter drilled @ $25.00 /ft	7,500.00
2	Start card fee	200.00
3	100 feet x 6" casing @ $8.00/ft.	800.00
4	220 feet x 4.5" PVC casing @ $4.00/ft.	880.00
5	***Well total***	***$9,380.00***

Pump System Estimate

Items #	Description	Phase I	Phase II
6	7LS10 Goulds submersible pump	838.00	---
7	Five year pump warranty	50.00	---
8	290 feet x 1" galvanized pipe	551.00	---
9	295 feet x #10-4 sub wire	295.00	---
10	Well seal	26.00	---
11	One ¾" pressure relief valve	15.00	---
12	Bacteria sample	40.00	---
13	Three 1"check valve	40.00	20.00
14	Miscellaneous plumbing and electrical fittings	85.00	220.00
15	81 gallon Challenger PC244 pressure tank	---	450.00
16	Pump house wiring	---	250.00
17	Pressure switch and gauge	---	20.00
18	Insulated well cover	---	100.00
19	Electrical permit	---	50.00
20	Pump installation	185.00	200.00
21	***Pump system total***	***$2,125.00***	***$1,310.00***

Trenching & Utilities Installation

Item #	Description	Amount
22	110 feet x #12-4 w/grd TC wire	295.00
23	100 feet x 1" 160 psi p.p.	45.00
24	Miscellaneous fittings	85.00
25	Trenching	195.00
26	Labor	200.00
27	***Trenching and Utilities total***	***$820.00***

28	***Total of items from lines 5, 21 & 27***	***$13,635.00***
	Plus sales tax if applicable	

Note: The above estimate is good for 30 days after date on estimate.

DON PITNER JR. WELL DRILLING

PO BOX 21

BATTLE GROUND, WA 98604
360-686-3776

Estimate

DATE	ESTIMATE NO.
12/22/2005	8

NAME / ADDRESS
Montgomery Water Group Dave Rice

PROJECT

DESCRIPTION	QTY	TOTAL
6" WELL DRILLED	150	5,400.00
SURFACE SEAL	1	500.00
D.O.E. INTENT TO START FEE	1	200.00
Job location: 1 mile N.E. of Silverlake, near Toutle, S. of Hwy 504 Price quote based on 150' well drilled for resale under normal drilling conditions, additional cost may include a sand pack ($1000.00 plus $15.00 per bag of sand). If this job is not for resale, local sales tax fees are applied.		

UNPAID BALANCES ADD 1.5% PER MONTH. THANK YOU!

TOTAL $6,100.00

DON PITNER JR. WELL DRILLING

PO BOX 21

BATTLE GROUND, WA 98604
360-686-3776

Estimate

DATE	ESTIMATE NO.
12/22/2005	9

NAME / ADDRESS
Montgomery Water Group Dave Rice

PROJECT

DESCRIPTION	QTY	TOTAL
6" WELL DRILLED	300	10,800.00
SURFACE SEAL	1	500.00
D.O.E. INTENT TO START FEE	1	200.00
Job location: 1 mile N.E. of Silverlake, near Toutle, S. of Hwy 504 Price quote based on 300' well drilled for resale under normal drilling conditions, additional cost may include a sand pack ($1000.00 plus $15.00 per bag of sand). If this job is not for resale, local sales tax fees are applied.		

UNPAID BALANCES ADD 1.5% PER MONTH. THANK YOU!

TOTAL $11,500.00

APPENDIX D

COWLITZ COUNTY

WELL DRILLING REQUIREMENTS

Search
build - plan
Building & Planning Home Page
Building Division
Planning Division
Environmental Health
Code Enforcement
Permit Process
Contact Us
Permit Search
Links
Forms
Fees

Cowlitz County Department of Building and Planning
207 4th Avenue North, Kelso, WA 98626
Tel: 360-577-3052
Fax: 360-414-5550
Hours:
8:30am - 5:00pm
Monday-Friday

Frequently Asked Questions regarding Water Availability

When do I need a Water Availability Certificate?

Water Certificates are required prior to application for a building permit of a buil necessitating potable water [RCW19.27.097], and prior to final approval of rural short subdivisions. It is the property owner's responsibility to submit the applicat materials for *Water Availability* or to appoint an authorized agent or representativ do so.

Well drillers will supply the property owner with a copy of the *Water Well Repor* within 30 days of completing of the well. Drillers may take water samples for qu analyses if contracted to do so prior to drilling. All other necessary documentatio a *Water Availability* application is the responsibility of the property owner or representative.

The fee for the *Water Availability* application is required at the time of applicatio includes inspections of the water source site, and reviews of plot plans, water ana and *Water Well Reports*. The water evaluation is generally completed within a 7- period. Applicants are notified during the review process if additional informatio required and will be notified when the final approval has been made.

There is no expiration on a *Water Availability Certificate* as long as the evaluated source remains the source of potable water to the residence. If an alternative wat source is used after certification, a review is required for the new source.

What are the requirements for an individual Water Availability Certificate?

The application requires:

1. Assessor's Map
2. Detailed Plot Plan [form
3. Water Well Report (Well Log) or
4. Water Right Certificate (Surface Water, springs)

5. Well Site Inspection Form [form]

6. Satisfactory Bacteriological Analysis (Total Coliform, including fec coli)

Water sample bottles for bacteriological analysis are available in the Building anc Planning Department or the Cowlitz County Health Department, and analysis can done by the Cowlitz County Laboratory (The bottle fee includes analysis by the C Laboratory). Bacteriological bottles are also available from private laboratories. list of Washington State Certified Laboratories is available in the Environmental I Unit.

Can I share my well with my neighbor?

Cowlitz County has a shared (two party) water system evaluation. Shared (Two I water systems have the requirements listed above for individual systems in additi

1. Satisfactory Chemical Analyses for:

   a. Primary Contaminants: Arsenic, Sodium, Nitrate as Nitrogen

   b. Secondary Contaminants: Iron, Manganese, Zinc, Chloride, Sul

2. *Water Users Easement and Agreement* [form]

A *Shared Water Users Easement and Agreement* document is available in the Bui and Planning Department. Applicants may use their own document, but it must b reviewed and approved by the Environmental Health Unit prior to recording in th Auditor's office. The purpose of the document is to ensure that a continued suppl water will be available to the two properties described in the document and that al parties involved are aware of Washington State wellhead protection requirements Washington State Certified Laboratory must perform Bacteriological and Chemic Analyses. A list of Washington State Certified laboratories is available in the Environmental Health Unit.

What can I do if I do not have a Water Well Report for my well?

All wells constructed after May 30, 1973 were required to have subsequent *Water Report* sent to the Department of Ecology. *Water Well Report* copies may be req from the Department of Ecology at (360) 407-6300 or the Cowlitz County Environmental Health Unit. Wells drilled prior to May 30, 1973 that may not hav *Water Well Report* or wells with missing *Water Well Reports* must as much information as is available regarding the well shall be provided, such as, but not li to, static level, well depth, casing width, presence and condition of seal and heigh casing above the ground surface. All wells must meet minimum well constructio standards to ensure the health and welfare of consumers. In addition to the other requirements for a *Water Availability Certificate*, a minimum of an on site inspect the well will be performed by the Environmental Health Unit and a flow test must performed by a licensed driller, pump installer, or qualified agent. Contact a licer

water well contractor or licensed pump installer for information on pump tests.

How close to my property line can I place a new well?

Well Construction Standards [WAC 173-160] do not specifically state property li restrictions, but states that wells must be located a minimum of one-hundred (100 from sources of know or potential contamination sources. Prior to constructing a near a property line, consider the protection of the 100-foot radius sanitary zone. I property line is adjacent to a state, county or private road, there are also road and easements that must be maintained.

What can I do if my well is a low yield water supply?

Low yield water sources are required to have a pump test. The objective of the pu test is to provide information to support the source's ability to reliably provide an adequate yield and the well/aquifer's potential vulnerability to water degradation increased pumping. A constant rate pump test shall be required for all low or mar yield water sources and water sources without flow rate information. A pump tes report shall show the static water level, yield, draw down, recovery rate and durat pumping. The duration of the pump test must be for a sufficient period of time to ensure that the well can produce enough water to adequately supply the proposed project and is determined case by case.

Can I get a Water Availability Certificate with a spring?

Yes, once the requirements are met. The first thing you need is a Washington Stat Department of Ecology *Water Right Permit/Certificate* issued to the property, wh gives approval to withdraw the State's surface water. The Environmental Health will then perform an on site inspection of the spring site to determine if the site or water storage equipment is satisfactory. Proper spring development helps protect water supply from contamination. The objective of spring development is to coll flowing water while still underground to protect it from surface contamination an store it in a sanitary spring box. Once the site is approved, water quality analyses be done and application for a *Water Availability Certificate* can be submitted.

| County Home Page | Building & Planning Home Page | Building Division | Planning Division | Environmental Healt

COWLITZ COUNTY
DEPARTMENT OF BUILDING AND PLANNING

207 FOURTH AVENUE NORTH, KELSO, WASHINGTON 98626

www.cowlitzcounty.org/buildplan

TELEPHONE: (360) 577-3052
FAX: (360) 414-5550
TDD: (360) 577-3061

LARRY K. FRAZIER, AICP, DIRECTOR

COUNTY COMMISSIONERS
DISTRICT NO. 1 J. BILL LEHNING
DISTRICT NO. 2 GEORGE RAITER
DISTRICT NO. 3 JEFF M. RASMUSSEN

Well Construction/Decommissioning Notification Form

FAX this form to the Environmental Health Unit of the Department of Building and Planning 24-hours prior to drilling or decommissioning - FAX #: (360) 414-5550

Site Address: _____

City: _____ Zip: _____

Parcel # _____ ___ 1/4 of the ___ 1/4 Sec ___ T. ___ N. R ___ W / E

Start Card # _____ **Unique Well I.D. #:** _____

Reason for well: ____ Short Plat/Subdivision ____ Building Permit _____Not Applicable

Type of well: ____ Domestic Water ____ Decommission ____
Reconstruction/Alteration

Estimated Time and Date of Sealing/Decommissioning: _____

Directions/Notes (please attach a map if you have one): _____

_____

_____

_____

Property Owner: _____ Phone: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Drilling Company: _____

Well Driller: _____

Phone: _____ FAX:

_____

APPENDX E

DEPARTMENT OF HEALTH

WATER CONSERVATION INFORMATION

Indoor Water Conservation

Guideline 1

Did you know: Efficient water use can save you money on water & utility bills, and reduce the costs for sewer and septic services. Use the following household tips in the bathroom, kitchen and laundry room to help protect the environment and save your family money!

Bathroom

Each flush wastes water. Don't use the **toilet as a wastebasket.**

Check toilets for leaks. Use food coloring or a leak detection tablet in the toilet tank. If color appears in the bowl without flushing, there is a leak that requires immediate attention.

Reduce the water level per flush by installing an ultra low-flow toilet or a toilet displacement device. Use a plastic bottle weighted with pebbles and water. Never use a brick.

Check faucets and pipes for leaks. A small drip can waste 20 or more gallons of water per day.

Don't let the bathroom sink run while wetting your toothbrush, brushing your teeth or when shaving. Use a glass of water to rinse or clean your razor in a small pool of water.

Install water-efficient showerheads and take shorter showers.

Kitchen

Only wash dishes when necessary. Turn the dishwasher on only when it is full.

Use both sides of the sink when washing dishes by hand. Use one side to wash and the other side to rinse. Do not wash dishes under a running faucet.

Install low-flow fixtures, then buy and install aerators for every faucet in the house.

Keep a bottle or pitcher of drinking water in the refrigerator. This eliminates letting the tap run while waiting for the water to get cold.

Clean vegetables in a pan of water and not under a running faucet. Water used to clean vegetables can also be used to water houseplants.

In-sink garbage disposal devices use roughly 11.5 gallons of water each day. Try composting organic wastes instead of throwing them away.

Laundry

Pre-rinse clothes only when absolutely necessary.

Use the proper water level, load size selection and water temperature when washing clothes. Consider installing a water efficient washing machine.

More Information

Washington State Department of Health
Office of Drinking Water
P.O. Box 47828 • Olympia, WA 98504-7828
(360) 236-3100 • 1-800-521-0323
http://www.doh.wa.gov/ehp/dw/

DOH PUB. # 331-120-1

Health

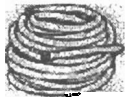
Outdoor Water Conservation

Did you know: Efficient water use is critical to a healthy and clean environment. Fish, trees and animals depend on wise use of our limited water supplies. Use the following tips to save water (and money) outdoors.

Lawn & Garden

The lawn is getting dry when footprints remain after walking on it (see Guideline 3 - Lawn Watering).

Water in short repeated intervals for best absorption, especially on slopes or compacted soils. Prevent water runoff from your sprinkler system.



To reduce evaporation, water the lawn in the early morning or evening. Avoid watering during the heat of the day or when it is windy.

Install a trickle or drip irrigation system for a slow, steady supply of water to the plant roots. (See Guideline 7 - Irrigation & Landscaping.)

Water only when needed. Frequency depends on plant and soil type.

Water root areas of your plants to establish hardiness. (See Guideline 6 - Soil Preparation & Planning.)

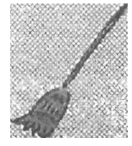
Low or no-water landscaping requires minimal amounts of water, fertilizer and pesticides. This can save you money and will protect the environment.

Place a 2" to 4" layer of mulch around plants and trees to avoid excess evaporation.

Use native and adapted plants when landscaping your yard. These plants usually require less care and water. Consider installing plants that don't require water once they are established for some or all of your yard.

If your lawn is healthy, consider letting your lawn go dormant in the summer. It will turn green again when it rains.

Cleaning



Use a broom to clean walkways and driveways. Do not use the hose. Watering the sidewalk, gutter and street wastes water.

Clean gutters and downspouts manually instead of hosing them down.

Use a hose with a shut-off nozzle along with a bucket of soapy water to wash the car.

More Information

Washington State Department of Health
Office of Drinking Water
P.O. Box 47828 • Olympia, WA 98504-7828
(360) 236-3100 • 1-800-521-0323
http://www.doh.wa.gov/ehp/dw/

DOH PUB. # 331-120-2

Health

Lawn Watering

Guideline 3

Did you know: During the summer, water use can more than double due to lawn and garden watering. Preserve the environment, save money, save fish and save water by following these simple steps when watering your lawn.

1. Place three or more flat bottom cans or mugs randomly around your lawn. Inexpensive rain gauges may also be used.

2. Turn on your sprinkler(s) for 15 minutes.

3. Measure and record the depth of water in each can (mug) with a ruler. Determine the average depth of water for all of the cans combined. Notice the uniformity of your water application.

4. Refer to the example & chart on the back to determine the number of minutes you should water each week. Record the times for future reference. (See Guideline 6 - Soil Preparation & Planning for additional information.)

REMEMBER: Your watering practices should be influenced by the weather. Decrease watering time during cool or humid conditions and skip a scheduled watering after a moderate rainfall. This brochure is only a guide. Consult your local nursery, garden center or county extension office for more information.

Example
(Season is Spring)

CAN # 1	1/2 inch	12.7 mm
CAN # 2	1/4 inch	6.35 mm
CAN # 3	1/2 inch	12.7 mm
CAN # 4	1/4 inch	6.35 mm
TOTAL	1.5 inches	38.10 mm
AVERAGE *	1.50 / 4 = 3/8 inch (approx.)	38.10 / 4 = 9.52 mm

WATERING TIME 20 minutes

* Average equals total amount of water in all cans divided by the total number of cans.

* One inch of water a week, including rainfall, is all your lawn needs.

Lawn watering depth chart

Average Depth in Test Can		Minutes to Water Once Each Week in		
Inches	Millimeters	Spring	Summer	Fall
1/8	3.2	60	120	48
¼	6.3	30	60	24
3/8	9.5	20	40	16
½	12.7	15	30	12
5/8	15.9	12	24	9.5
¾	19.1	10	20	8
1.0	25.4	8	16	6.5
1-1/8	28.6	6	13	5

More Information

Washington State Department of Health
Office of Drinking Water
P.O. Box 47828 • Olympia, WA 98504-7828
(360) 236-3100 • 1-800-521-0323
http://www.doh.wa.gov/ehp/dw/

DOH PUB. # 331-120-3

Health