

April 20, 2018

Mr. Douglas Luetjen
BSRE Point Wells, LP
c/o Karr Tuttle Campbell
701 Fifth Avenue, Suite 3300
Seattle, Washington 98177

**Re: Hydrogeologic Report
Point Wells Redevelopment
Unincorporated Snohomish County, Washington
17203-54**

Dear Mr. Luetjen:

This letter presents a critical aquifer recharge area (CARA) hydrogeologic assessment for the proposed Point Wells Redevelopment, unincorporated Snohomish County, Washington (the Site) (Figure 1). The proposed project will be a mixed-use urban center development with multiple low-, mid-, and high-rise buildings, supporting infrastructure, and open space.

The Site was developed in 1912 by Standard Oil (now Chevron), Shell, and other smaller oil companies. The property has been used historically as an asphalt refinery and light products/lube oil distribution terminal. Petroleum products historically used, refined, transferred, or stored at the property include crude oil, asphalt products, lubrication oils, fuel oils, aviation fuels, motor vehicle and marine vessel fuels, and various thinners. Petroleum product additives have also been used, transferred, and stored. The light products/lube oil distribution terminal is no longer in operation. The asphalt refinery ceased operations in August 2000. Currently, the facility is used for the storage and distribution of marine fuels and asphalt.

Our work was completed to determine whether the proposed development complies with Snohomish County Title 30 Unified Development Code Chapter 30.62C – Critical Aquifer Recharge Areas (CARAs). This report also supports preparation of an environmental impact statement for the proposed development.

Purpose and Applicable Regulations

This assessment provides a hydrogeological evaluation and recommendations relevant to the proposed development activities at the project site.



A CARA is an area with a critical recharging effect on aquifers used for potable water, as defined by Washington Administration Code (WAC) 365-190-030(2). CARAs have prevailing geologic conditions associated with infiltration rates that have a high potential for contamination of groundwater resources or that contribute significantly to groundwater replenishment (Ecology 2005).

The scope of this assessment was to document and evaluate:

- Available information on geologic and hydrogeologic characteristics of the site, including the surface location of critical aquifer recharge areas on the site or immediately adjacent to the site, and the permeability of the unsaturated zone;
- Groundwater depth, flow direction, and gradient based on available information;
- Currently available data on wells, springs, and surface waters within one-quarter mile of the project area;
- Available historical water quality data for the area to be affected by the proposed activity or use compiled for at least the previous five-year period;
- The effects of the proposed project on the groundwater quality and quantity, including evaluation of withdrawal effects on nearby wells and surface water and evaluation of contaminant transport based on potential releases to groundwater;
- Best management practices (BMPs) relevant to the proposed activity or use, including recommendations for implementation and operation of activities;
- Provisions to monitor groundwater quality and quantity;
- Spill plans that identify equipment and structures whose failure would result in an impact to the CARA;
- Salt-water intrusion addendums for withdrawals of groundwater or reductions in available recharge within one-quarter mile of any part of Puget Sound;
- How development activity meets protection standards in Snohomish County Code 30.62C.320;
- Potential nitrate impacts on the aquifer; and
- Requirements by the project applicant if impacts to critical recharge areas are identified.



Project Background

Site Location and Description

The Point Wells facility is in unincorporated Snohomish County, Washington, on Puget Sound near the border of King County with Snohomish County (Figure 1). The Site is within the southwest quarter of Section 35 of Township 27 North and Range 03 East. The Site is approximately 60 acres. It is part of the United States Geological Survey (USGS) US Topographic 7.5-minute map for EDMONDS WEST, WA. A map of the project site is presented in Figure 2.

The site is bounded by the City of Shoreline to the south, Puget Sound to the north and west, and the Town of Woodway to the east. The Burlington Northern Santa Fe Railroad (BNSF) bisects the Site near its eastern edge. The entire site is part of unincorporated Snohomish County.

The west side of the site consists of a semicircular area of about 56 acres adjacent to Puget Sound, referred to as the “Lower Bench” because it is at a lower elevation than the rest of the site. The east portion of the site is a rectangular area of about 5 acres, referred to as the “Upper Bench” because it is at a higher elevation. The two areas are separated near the eastern side by the approximately north-south BNSF railroad tracks.

The Upper Bench is relatively flat, with a steep, ascending slope along its eastern perimeter. The western boundary of the Upper Bench descends on a short steep slope to the BNSF railroad tracks. The Lower Bench is generally flat with less than 10 feet of elevation change across the site. The Lower Bench is protected from the adjacent Puget Sound by a concrete seawall, sheet pile wall, and/or riprap.

The Lower Bench is currently used for industrial purposes as a tank farm, marine fuel terminal, and an asphalt plant. The Upper Bench has a few office buildings and a retention pond to support the industrial activity.

Proposed Development

We understand that the project will be a mixed-use waterfront community with low-, mid- and high-rise buildings, below-grade parking, supporting infrastructure, and open space. The site is currently underlain by petroleum-contaminated soil and groundwater, and is on the State’s contaminated sites list. It is expected that the site will be remediated to residential cleanup standards under a formal process with the Washington State Department of Ecology prior to development. The cleanup and development are anticipated to occur in four coordinated phases over a 10- to 20-year period.

It is our understanding that a local municipality will provide potable water from an off-site source(s) as well as sewer for the development. The nearest water and sewer district is Olympic View. Stormwater will be captured and conveyed to existing outfalls and ditches. Infiltration of stormwater to the water



table is not planned. Three existing piped outfalls to Puget Sound will continue to be utilized for the proposed development.

Development will not result in any of the following activities that are prohibited within CARAs:

- Landfills, including hazardous or dangerous waste, municipal solid waste, special waste, wood waste, and inert and demolition landfills;
- Underground injection wells;
- Mining of metals and hard rock;
- Wood treatment facilities occurring over permeable surfaces (natural or manmade); and
- Facilities that store, process, or dispose of radioactive substances.

Based on our understanding of the preliminary development plans, the proposed project will not include any of the following activities or facilities that are subject to special conditions under applicable state and federal regulations:

- Above Ground Storage Tanks;
- Animal Feedlots;
- Animal feeding operations/concentrated animal feeding operations;
- Automobile Washing facilities;
- Below-ground Storage Tanks;
- Chemical Treatment Storage and Disposal Facilities;
- Dangerous Waste;
- Injection Wells;
- Junk Yards and Salvage Yards;
- On-Site Sewage Systems (Large Scale > 3,500 gallons/day);
- A single or multiple small on-site sewage systems with a combined design volume of greater than 3,500 gallons/day;
- Pesticide and Fertilizer Storage and Use;
- Reclaimed water for groundwater recharge;
- Sawmills;
- Solid Waste Handling and Recycling Facilities;
- Surface Mining; and
- Wastewater Application to Land Surface.



Mapped CARAs

In Snohomish County, CARAs are defined by three criteria:

- Sole-source aquifers designated by the U.S. Environmental Protection Agency in accordance with the Safe Drinking Water Act of 1974 (Public Law 93-523);
- Areas within the 10-year travel zone of Group A wellhead protection areas, determined in accordance with delineation methodologies specified by the Washington Department of Health under authority of chapter 246-290 WAC; and
- Areas of high, medium, and low sensitivity to groundwater contamination based on depth to groundwater and in accordance with The Ground-Water System and Ground-Water Quality in Western Snohomish County, Washington (United States Geological Survey [USGS], Water Resources Investigations, Report #96-4312, 1997).

The site is not within an area designated as a sole-source aquifer by the U.S. Environmental Protection Agency (EPA) pursuant to the Federal Safe Drinking Water Act (EPA 2013).

The site is not within the capture zone of a Group A water well (Figure 3).

The County's Aquifer Recharge/Wellhead Protection map (Snohomish 2007) shows that the site is within a USGS moderate sensitivity area with depth to aquifer as 40 to 100 feet (Figure 3). Since the depth to groundwater over most of the site is less than 10 feet, the site would qualify as high sensitivity area.

Site Conditions

Geology

We reviewed the relevant publicly available geologic and hydrogeologic maps and studies of the region (Booth 2004; DNR 2018; Minard 1982; USGS 2018; Yount 1993) to determine geologic conditions around the site (Figure 4). The project site is in the southwestern corner of unincorporated Snohomish County, along the Puget Sound shoreline area.

Relatively recent geotechnical borings have been completed at the site and at nearby sites (Hart Crowser 2016, 2018a). Based on subsurface explorations, four geology units identified are:

- **Fill Unit** – The uppermost unit is fill consisting of a mix of native soil (primarily silt and sand) and import material.
- **Colluvium** – This material consists of very soft silt and loose to medium dense silty sand.



- **Pre-Fraser Nonglacial Fluvial Deposits** – Pre-Fraser nonglacial fluvial deposits underlie the Lawton Clay on the eastern slope, the Colluvium in the Upper Bench and the Fill in the Lower Bench. This unit consists of loose to very dense gravelly to silty sand, and silty, sandy gravel.
- **Pre-Fraser Nonglacial Lacustrine Deposits** – This unit was observed to alternate with fluvial deposits on the Lower Bench. This unit consists of medium dense silty sand to stiff to very stiff sandy silt.

Most of the Lower Bench is considered modified land that has been tailored by man for construction or development purposes and generally includes land regions brought to grade by cut-and-fill methods. The railroad bed along the entire shoreline was modified by cutting, filling, and placing riprap. Fill was found in the upper 4 to 15 feet. This was underlain by alternating layers of pre-Fraser non-glacial fluvial deposits and pre-Fraser non-glacial lacustrine deposits down to at least 79 feet below ground surface (Figure 5). The fill consists of loose to dense, trace to silty, gravelly sand. The pre-Fraser deposits are sedimentary deposits typically consisting of poorly to well-sorted gravel, sand, silt, and clay.

The Upper Bench consists primarily of fill in the first 3 to 5 feet, followed by a layer of colluvium approximately 13 feet deep, followed by pre-Fraser non-glacial fluvial deposits down to at least 34 feet below ground surface (Figure 5). The colluvium was described as silt to sandy silt and slightly silty, very sandy gravel.

Groundwater

Groundwater conditions were explored in geotechnical explorations conducted in the Upper Bench (Hart Crowser 2010). Groundwater elevations on the Upper Bench ranges from 40 to 44.5 feet. Artesian conditions were also observed at a well drilled to 25 feet on the Upper Bench, in which water was observed flowing out of a well. Artesian conditions occur when groundwater is confined and groundwater pressures increase enough to cause groundwater to rise through the well and flow at ground surface. This can occur when infiltrating groundwater encounters a low-permeability soil and builds up in high-permeability soil. As the groundwater rises to the bottom of an overlying low-permeability layer, pressure builds up because vertical flow is impeded. Based on these observations, there is confined groundwater under the Upper Bench. Shallow groundwater flow in the Upper Bench is expected to be westward towards the Puget Sound.

Shallow groundwater in the Lower Bench ranges at depths of 3 to 10 feet (Hart Crowser 2006; 2010).

Groundwater typically is present at depths of 1 to 2.5 feet below ground surface in the eastern area of the Lower Bench and increases to 5 to 8 feet in the western area of the Lower Bench. The water table elevation is significantly influenced by precipitation. Groundwater levels in the western portion of the property were likely influenced by tidal fluctuations prior to the construction of seawalls and the sheet pile wall in the Asphalt Plant area. With some exceptions, tidal influence of groundwater levels



throughout the property generally appears to decrease with increasing distance from the shoreline. Groundwater generally flows westward towards and discharges into Puget Sound.

Direct recharge from infiltrating precipitation is likely the primary source for groundwater below the property.

Local Water Supply Wells

Three resources were consulted to identify local water supply wells: Washington Department of Health (DOH) Division of Environmental Health Office of Drinking Water Washington State Water System Data, Washington Department of Ecology (Ecology) Water Resources Explorer Map, and Ecology Well Log Database.

The DOH State Water System Data identifies one municipal source of drinking water within 1 mile of the Site. The Olympic View Water and Sewer District was identified as having three inactive wells and two active water sources. The three inactive wells were identified as Deer Creek Wells, inactivated in 2008, and Well #1 and Well #2 inactivated in 2003. The well log for the Deer Creek Well from the Ecology Well Log Database is included in Attachment 1. The two active sources of water were identified as Deer Creek Springs and Deer Creek Surface, both mapped in the same location.

Time-of-travel protection zones were mapped as one area for these two water sources on the State's Source Water Assessment Program Map. There was a second unnamed time of travel protection zone to the west of Deer Creek Springs and Deer Creek Surface.

The Ecology Water Resources Explorer Map, which maps water rights, identified one surface water pump and three general water right withdrawal locations for Olympic View Water and Sewer District within the southwest Quarter of Section 35 of Township 27 North and Range 03 East. Although labelled as a pump, the source type and source name for the associated record number of the surface water pump (CG1-26021P) were well and groundwater, with a quantity of 500 gallons per minute. No associated well log image was provided by Ecology, but its location is near the unnamed time of travel protection zone. The three general water right withdrawal locations are described as representing centroids rather than actual locations of wells and could potentially be associated with the three inactive wells listed on the DOH Water Facilities Inventory Form.

The Ecology Well Log database (Ecology 2018) was also used to search for water wells within one-quarter mile of the project site. The initial search area consisted of the southwest Quarter of Section 35 in Township 27 North and Range 03 East. Approximately 333 well records were identified in the initial search area – 209 well records were for resource protection wells and 122 well records were for decommissioned wells. The resource protection wells are not water supply wells but are typically shallow and used to evaluate groundwater quality. There are least 139 resource protection wells on the Site.



Two private water supply wells were identified (Figure 3). According to the well logs, the first well was installed for land owner Bill Sprague, approximately one-quarter mile east to a depth of 135 feet in June of 1982 and is identified as a test well. The second well was also installed approximately one-quarter mile east for land owner Bernt Bodal at an elevation of approximately 260 feet to a depth of 69.5 feet in April 2005 as a domestic well. The domestic well is upgradient of the Site and withdraws water from an elevation of approximately 195 feet, a considerable elevation above the Lower Bench, which is at an elevation of approximately 15 feet, there is little concern of proposed activity impacting this well. The well logs are provided in Attachment 1.

Table 1. Ecology Well Log Data

Name	Proposed Use	Year of Installation	Approximate wellhead elevation	Depth (ft) bgs	Approximate withdrawal elevation
Bill Sprague	Test Well	1982	310	135	175
Bernt Bodal	Domestic Well	2005	240	69.5	170.5

Surface Water Hydrology

King County Rivers and Streams GIS data indicates Upper Barnacle Creek, Barnacle Creek, and Lower Barnacle Creek are within one-quarter mile south of the Site. Two informally named water courses, Chevron Creek and South Creek, were displayed flowing onto the Site on Snohomish County's Drainage Inventory Map (Snohomish County). Two additional small unnamed watercourses were displayed within one-quarter mile north of the Site. The other nearest body of surface water is Puget Sound to the west of the Site.

According to the USGS National Water information, there are no identified springs within one-quarter mile of the Site.

Recent Historic Water Quality Data

Groundwater sampling and analysis has been conducted periodically in the Lower Bench area since the 1990s. We reviewed reports from Hart Crowser (2006, 2010) and SLR (2013, 2015). Soil and groundwater contamination is present in large areas of Lower Bench due to historical releases from use of the Site for petroleum storage and asphalt production. Groundwater contamination is primarily from petroleum related compounds (BTEX [benzene, toluene, ethylbenzene and xylenes], diesel, heavy oil and metals. Areas with recoverable free phase petroleum are also present.



Impacts of Proposed Development

Effects on Nearby Groundwater Quality and Quantity

There would be no groundwater withdrawal effects on nearby wells or surface water features as there are no plans to withdraw groundwater as part of the proposed site development.

In addition, because development would require the site to be cleaned up to meet State cleanup requirements (Hart Crowser 2018b), the proposed project will improve groundwater quality as opposed to causing negative impacts.

Best Management Practices

BMPs, based on local and state regulations, will be implemented to minimize the impact of proposed development activities on the quality and quantity of groundwater near the site.

Monitoring Groundwater Quality and Quantity

There are no planned development activities that will negatively impact groundwater quality or quantity. Groundwater monitoring may be required as part of ongoing remediation and monitoring programs, and monitoring plans would be created as part of the remediation plan development under Ecology oversight (Hart Crowser 2018b).

Spill Plans

There are currently no proposed equipment or structures which would impact groundwater upon failure that would require a spill plan. Should such equipment or structures be identified during later design stages, spill plans will be created at that time.

Salt-Water Intrusion

There are currently no planned activities that would cause salt-water intrusion from the Puget Sound due to withdrawal of groundwater or reductions in available recharge.

Meeting Protection Standards of Snohomish County Code 30.62C.320

The project would make reasonable efforts to limit impacts to CARAs based on the requirements of Snohomish County Code 30.62C Part 300 through the following ways:

- Avoiding impacts altogether by not taking certain actions or parts of actions;
- Minimizing impacts by limiting the degree or magnitude of an action and its implementation, using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing to avoid or reduce impacts; and



- Mitigating for the impacts to the critical aquifer recharge area.

Potential Nitrate Impacts

There are no planned activities that should have potential nitrate impacts on the aquifer. Should any activities be identified during later design stages, appropriate recommendations for monitoring and BMPs of the nitrate generating activities will be provided.

Findings and Recommendations

In summary, our findings and recommendations are:

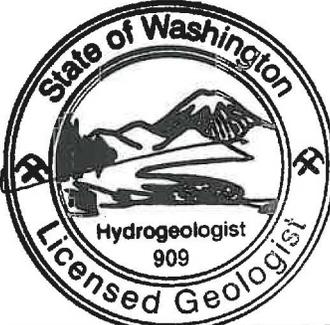
- The proposed Point Wells mixed-use urban center development will include an Urban Plaza with low-, mid-, and high-rise residential and commercial buildings and below-grade parking/transit levels on the east side of the BSNF railroad tracks. North, Central, and South Village mixed-use, low-, mid-, and high-rise residential and retail buildings as well as below-grade parking on the west side of the BSNF railroad tracks. Potable water and sewer will be provided by a local municipal service. Stormwater will be treated through Low-impact Development (LID) strategies to the extent feasible; however, infiltration of stormwater to groundwater is not currently planned because some petroleum-impacted groundwater may persist for a period of time following site development.
- Shallow groundwater occurs at depths of 1.5 to 7.5 feet below the site. Groundwater flow is toward the west.
- There are no city or county water supply wells within one-quarter mile of the Site.
- The site is not located within the recharge area of a sole-source aquifer.
- The proposed development will not significantly impact groundwater supply or water quality beneath the site. Since the development would need to meet state cleanup requirements (Hart Crowser 2018b) for unrestricted land use, the proposed development is expected to improve shallow water quality.
- Based on our review of available information and our understanding of proposed site activities, no prohibited activities are planned as part of the proposed development.
- Proposed site activities must follow the County's general performance requirements, and Ecology cleanup requirements (Hart Crowser 2018b), to ensure that construction activities will not contaminate the aquifer, will not adversely affect aquifer recharge, and will comply with the appropriate water source protection requirements and surface water design manual.



- If the proposed development is designed, constructed, operated, and maintained in conformance with the appropriate construction practices and County regulations, and Ecology cleanup requirements (Hart Crowser 2018b), groundwater is unlikely to be degraded by the proposed development, and County requirements for CARAs will be satisfied.

Sincerely,

HART CROWSER, INC.



Roy E. Jensen

ROY E. JENSEN, LHG
Senior Hydrogeologist

Attachments:

- Figure 1 – Vicinity Map
- Figure 2 – Site Map
- Figure 3 – Wellhead and Surface Water Protection Map
- Figure 4 – Geologic Map
- Figure 5 – Generalized Subsurface Cross Section A-A'
- Attachment 1 – Well Logs

References

Booth, D., B. Cox, K. Troost, and S. Shimel, 2004. Composite Geologic Map of the Sno-King Area, Central Puget Sound Lowland, Washington. Seattle-Area Geologic Mapping Project (SGMP), University of Washington, and the USGS. January 5, 2004.



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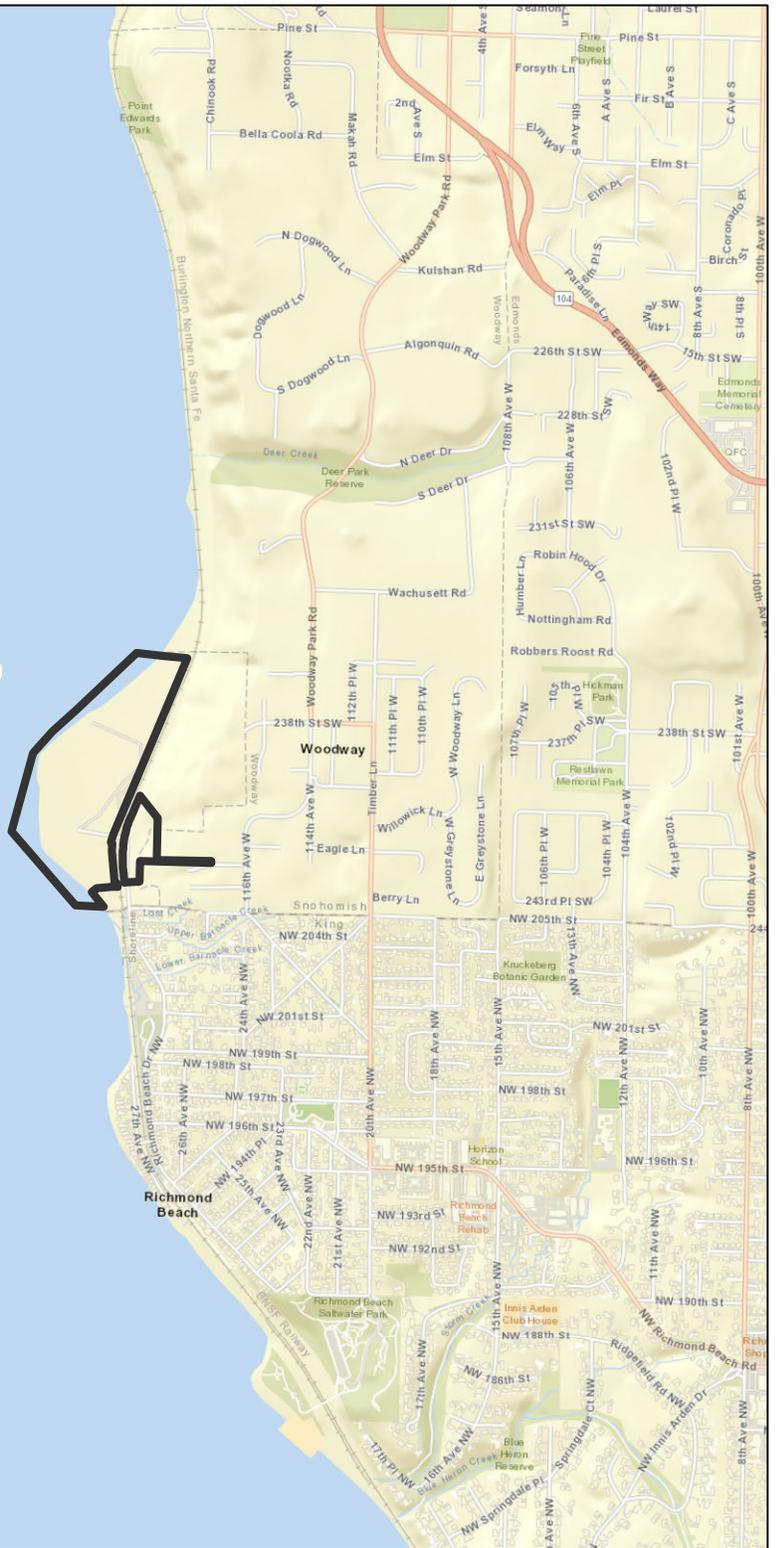
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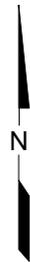
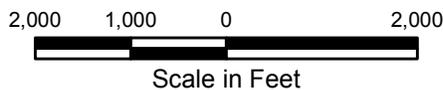
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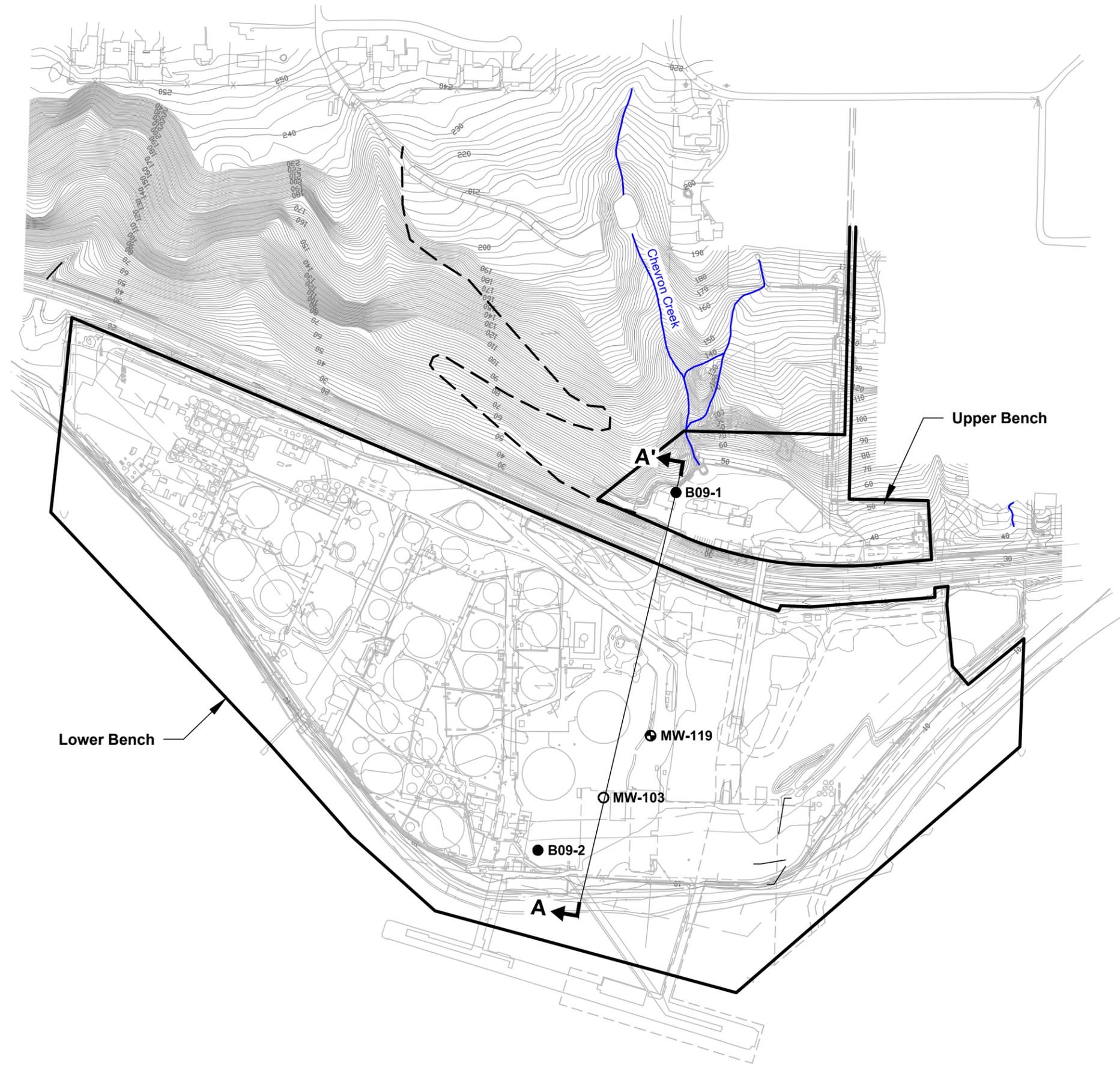


Project Site

Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
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Point Wells Richmond Beach, Washington	
Vicinity Map	
17203-54	4/18
Figure 1	



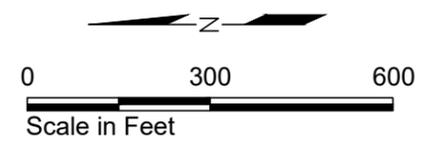
Legend

- B09-1 ● Hart Crowser boring (2009)
- MW-110 ⊕ Hart Crowser monitoring well (2008)
- MW-99 ○ KHM monitoring well (2001)
- A A' Cross section/slope profile designation
- Abandoned access road

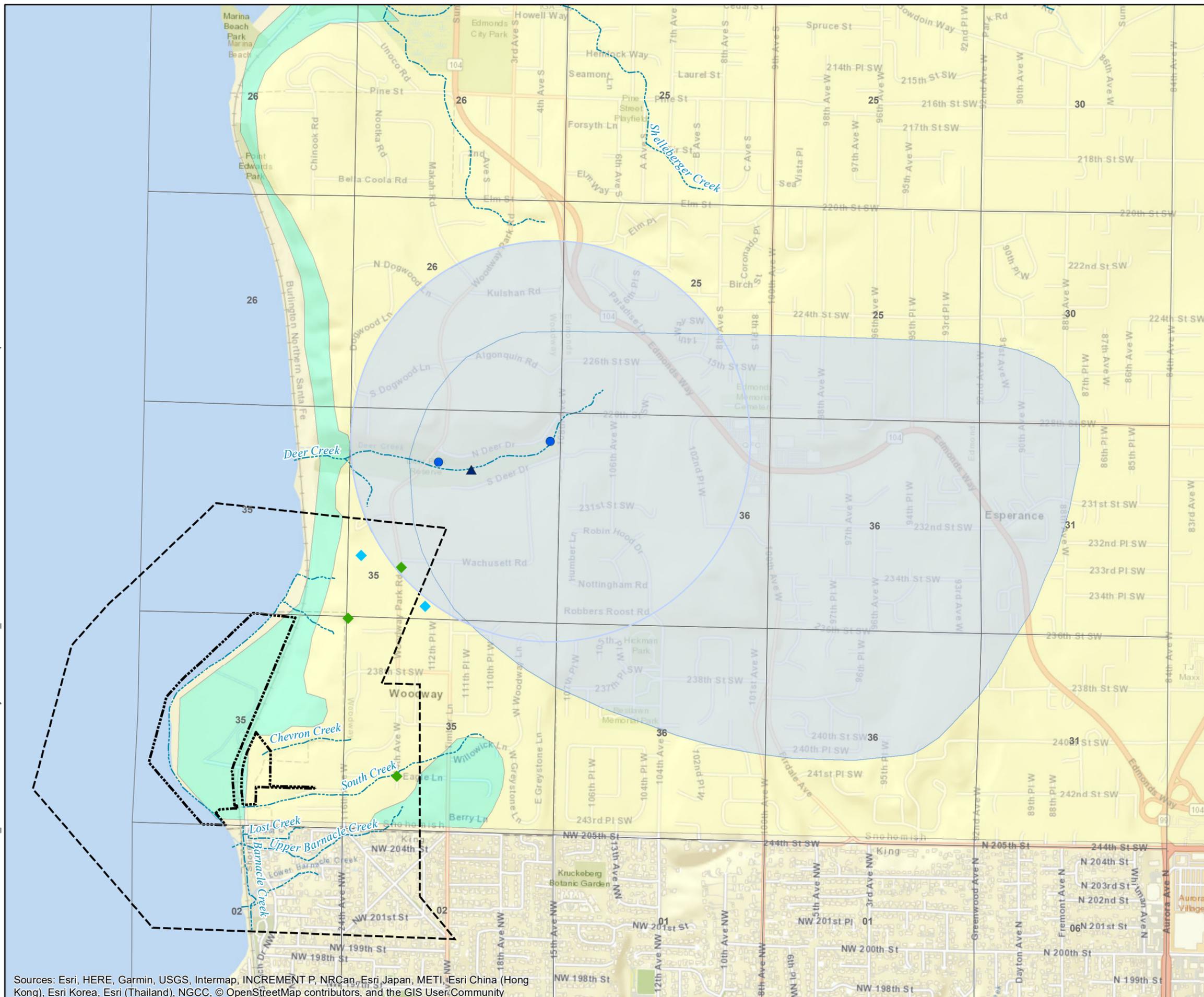
Lower Bench

Upper Bench

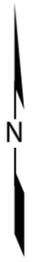
Note: Explorations shown are 20 feet or deeper. Previous shallower explorations are not shown.



Point Wells Richmond Beach, Washington	
Site Map	
17203-54	4/18
	Figure 2



Note: Feature locations are approximate.



LEGEND

- ◆ Olympic View Water & Sewer District Well
- ▲ Olympic View Water & Sewer District Surface Water Pump
- ◆ Private Water Well
- WSDOH GPS Wellhead

- 1/4 Mile Site Buffer
- Quarter Section Grid
- Project Boundary
- River
- Wellhead Protection Buffer

USGS Aquifer Sensitivity with Depth to Aquifer

- Low, Over 100ft.
- Moderate, 40 to 100ft.

Sources:
 USGS Aquifer Sensitivity: U.S. Geological Survey, "The Ground-Water System and Ground-Water Quality in Western Snohomish County, Washington" (1997).

Point Wells
 Richmond Beach, WA

Wellhead and Surface Water Protection Map

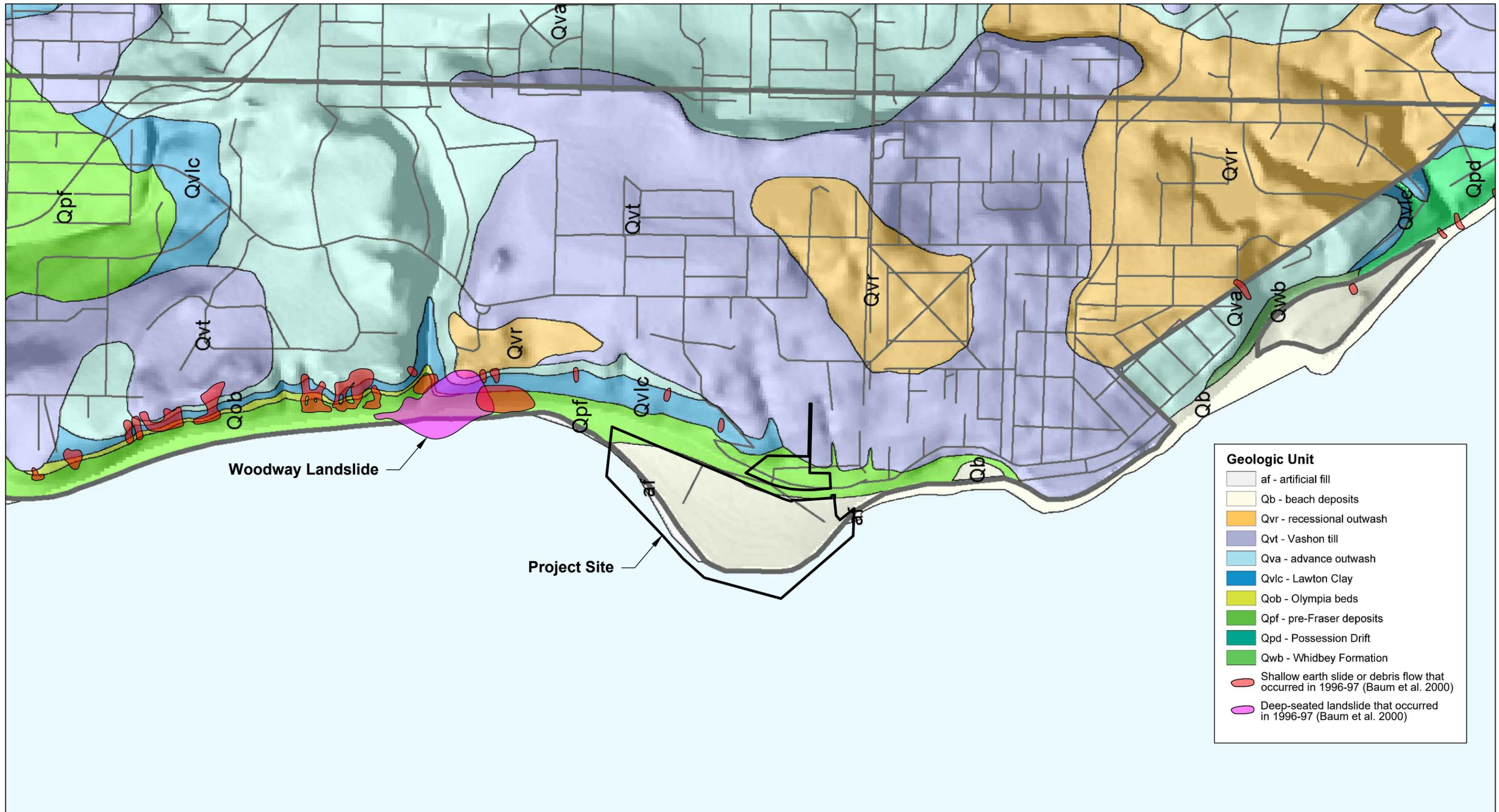
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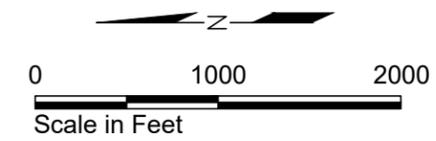


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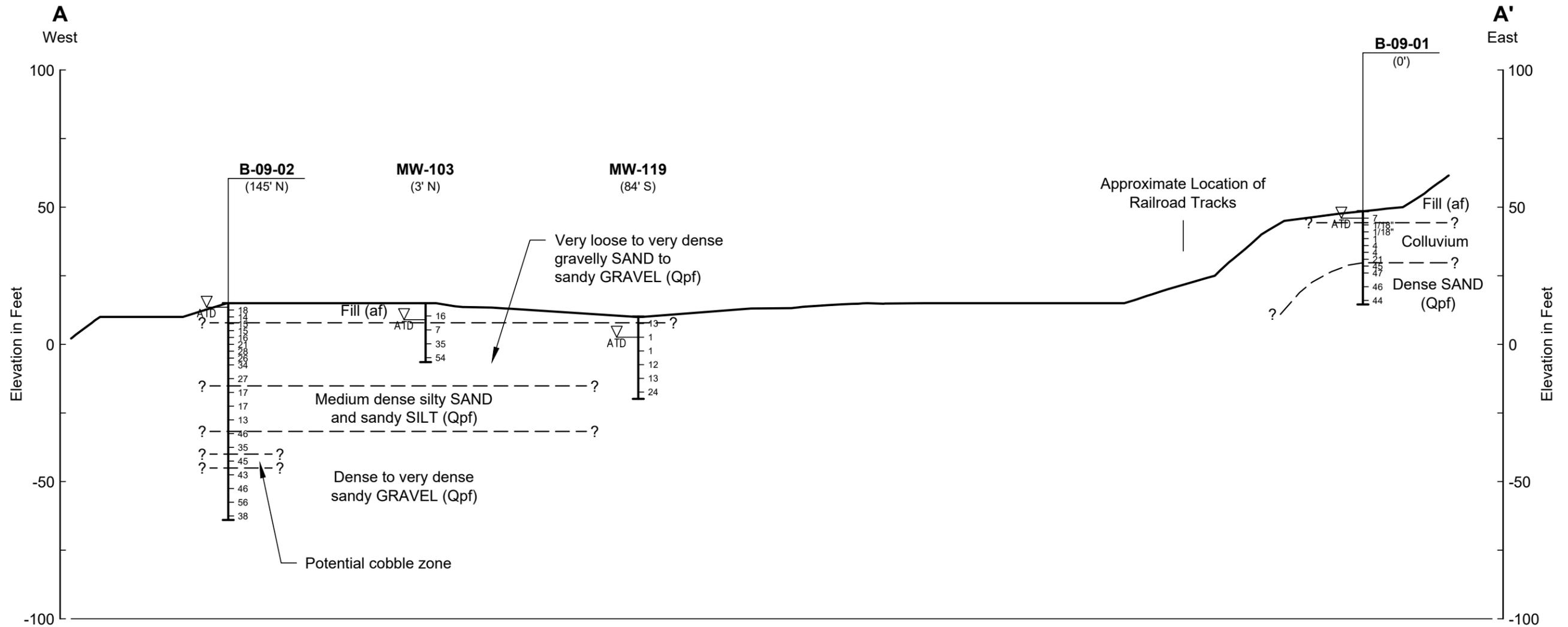
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Source: "Composite Geologic Map of the Sno-King Area," Central Puget Lowland, Washington, by Derek Booth, Brett Cox, Kathy Troost, and Scott Shimel. Seattle-Area Geologic Mapping Project (SGMP), University of Washington, and the United States Geological Survey (USGS) January 5, 2004. Map scale 1:24,000.



Point Wells Richmond Beach, Washington	
Geologic Map	
17203-54	4/18
	Figure 4



Legend

HC-102 Exploration Number
(34.5' E) (Offset Distance and Direction)

- Exploration Location
- Water Level
- Standard Penetration Resistance in Blows per Foot

Horizontal Scale in Feet
0 100 200

Vertical Scale in Feet
0 40 80
Vertical Exaggeration x 2.5

Note:
Contacts between soil units are based upon interpolation between borings and represent our interpretation of subsurface conditions based on currently available data.

Point Wells Richmond Beach, Washington	
Generalized Subsurface Cross Section A-A'	
17203-54	4/18
	Figure 5

ATTACHMENT 1

Well Logs

Olympic View Water District
Deer Creek Site
Well Log

0	4	Quarry rock & loan
4	14	Sand, med
14	16	Clay, grey
16	20	Clay w/gravel, grey
20	44	Clay, grey, w/wood, some sand
44	46	Clay, hard, grey
46	72	Clay, grey, med-soft
72	136	Clay, grey, layer of hard & soft w/little wood
136	137	Sand, flaky w/lots of mica
137	138	Clay, grey, layer of med-hard & med-soft
138	139	Sand, flaky w/mica & wood
139	154	Clay, grey, med-soft
154	172	Sand, grey, med-crse
172	185	Sand, grey, crse w/pea gravel
185	189	Sandy, clay, grey, little peat, med-soft
189	197	Sand, grey, little pea gravel, med
197	222	Clay, sandy, grey, little peat, med-soft w/brwn streak
222	235	Sand, grey, little peat layers, med
235	248	Clay, brown, grey, med, some peat, little sand, lots of wood
248	250	Sand, grey, med w/peat layers
250	258	Clay, brown & grey, med
258	262	Sand, grey, med-crse
262	295	Gravel chips, sand, med-crse
295	298	Clay, grey, med-hard
298	303	Gravel chips & sand, med-crse
303	326	Sand, gravel, grey, med-crse
326	355	Sand, grey, med, little gravel
355	365	Clay, grey, med-hard w/wood, little silty
365	377	Sand, grey, med
377	385	Sand, grey, med w/clay streaks & wood
385	517	Clay, grey, med-soft, clam shell & some wood
517	567	Clay, grey, med-soft
567	576	Sand, grey, med w/pea gravel, little clay
576	587	Gravel & sand layers, med, peat & wood
587	612	Sand, grey, med
612	626	Sand & gravel layers, med
626	651	Clay, grey, silty
651	663	Sand, crse w/gravel 3/4"- w/some clay streaks, grey
663	695	Clay, grey, med w/some hard streaks
695	707	Clay, grey w/sand, med, black
707	721	Clay, grey, med
721	730	Sand, med, some rocks, small gravel 1/2"-
730	734	Sand w/gravel & some clay, grey
734	742	Clay, black, med
742	746	Clay, black, sandy
746	750	Clay, grey, sand w/gravel 1/2"
750	758	Clay, grey, some sandy
758	768	Clay, grey, sandy
768	775	Sand, med w/some clay, sandy
775	779	Clay, grey

MAR 30 1998

779	794	Clay, grey w/sandy streaks, med-crse
794	825	Sand, med-crse w/silt, grey
825	838	Clay, silty, sandy, grey
838	860	Clay, grey, silty
860	881	Sand, crse, pea gravel, some wood
881	887	Gravel, cobbles w/sand, crse & clay, grey streaks
887	845	Sand, crse w/gravel & cobbles
945	957	Sand, crse w/gravel & cobbles, streaks of clay, grey
957	986	Gravel w/sand, crse, some cobbles

155	205	SWL 142'	20-50 gpm	3/9/88
267	317	SWL 183'	260 gpm 17' DD	3/1/88
936	986	SWL 173'	100 gpm 26' DD	2/12/88

The Department of Ecology does NOT Warrant the Data and/or the Information on this Well Report.

W0025.OVW


 MAR 22 1988



WELL LOG CHANGE FORM

Instructions: Record any change made to the well log record on this form. Then always append this form to the well log image. File with the original.

WCL Log ID (Required) 172650 Well Log ID _____

Regional Office: CRO ERO NWRO SWRO

Type of Well: Water Resource

Notice of Intent: W187722 Ecology Well ID Tag No. _____

Property (Well) Owner's Name Bodal

Well Street Address _____

City _____ County _____ Zip Code _____

Location: 1/4-1/4 1/4 Sec _____ Twn _____ R _____ E or W (Circle One)

Lat./Long.: (Required) Lat. Deg. _____ Lat. Min/Sec _____

Long. Deg. _____ Long. Min/Sec _____

Horizontal Collection Method Code _____

Tax Parcel No. _____

Type of Work: New Well Reconditioned Deepened

Well Log Received Date _/_/

Well Diameter _____ (in inches) Well Depth _____ (in feet) Well Completed Date _/_/

Driller's Ecology License No. _____

Trainee's Ecology License No. _____

Reason/Source of Change (Required)

Changed Notice of Intent # to match
Notice # assigned in HQ. Duplicate #'s

Signature of Well Log Tracker (Required) Melisa Inaeburger Date 5/26/05



NOTICE OF INTENT TO CONSTRUCT A WATER WELL

RECEIVED

APR 13 2005

Notification Number

~~WE03340~~

W187722

100

This form and required fees MUST BE RECEIVED by the Department of Ecology 72 HOURS BEFORE you construct a well. WELL DRILLING UNIT

Submit one form and required fee (check or money order ONLY) for each job site. Mail this form to the Department of Ecology, P.O. Box 5128, Lacey, WA 98509-5128.

Property Owner Bernt & Elisabeth Bodal

Phone No. 206-546-2688

Address (include city, state, zip) 23300 Woodway Park Road, Woodway, WA 98020

Consulting Firm (if different from #1) (N/A)

Phone No. (N/A)

Address (include city, state, zip) (N/A)

CODE NUMBER AND COUNTY NAME 31-NWR Snohomish County

Well Location: Quarter Quarter Section NE Quarter Section SW Section 35 Township 27 Range 3E

Approximate well construction start date: 4/15/2005

Will the intended withdrawal from this well exceed 5000 gallons per day or be used to irrigate more than 1/2 acre of non-commercial lawn or garden? No

Type of well construction: New

Purpose of Use Domestic

Number of homes to be served 1

Latitude and Longitude (if available)

Lat Degrees (N/A) Lat Time (N/A)

Long Degrees (N/A) Long Time (N/A)

Horizontal Collection Method (N/A)

Well Site Street Address 23300 Woodway Park Road, Woodway, WA 98020

Tax Parcel Number 00384700202404

Contractor's L & I Registration No. DAHLMPW123LC

Well Drilling Company Name Dahlman Pump & Well Drilling Inc.

Well Driller Name Ralph Riggles

Phone No. 360-757-6666

License No. 2043

Warranty the Data and/or the Information on this Well Report.

DEPT. OF ECOLOGY
FISCAL CLERK
BUSH
4/15/05