Purpose of Memo

This technical memorandum describes the hydrogeology of the Lake McMurray area with focus on the interaction of surface water and groundwater near the boundary between Water Resource Inventory Area (WRIA) 3 – Skagit to the north and WRIA 5 – Stillaguamish to the south. Field work for this study by RH2 Engineering, Inc., (RH2) was carried out between June 18, 2013, and September 24, 2013. After September 24, 2013, the Washington State Department of Ecology (Ecology) took over monitoring activities.

The study area is located in southern Skagit County along State Route 9 approximately 9 miles southeast of Mount Vernon, Washington (Figure 1). A preliminary memorandum was provided to Ecology in October 2013. Ecology shared the preliminary memorandum with representatives from the Swinomish Indian Tribal Community. Ecology and RH2 were provided with a memorandum dated February 3, 2014, prepared by Mr. Joel Massmann, Ph.D., P.E., for the Swinomish Indian Tribal Community, critiquing RH2’s preliminary memorandum. After reviewing the Massmann memorandum, RH2 reviewed additional well logs on the west side of Lake McMurray. This additional review has caused RH2 to amend the conceptual model of how groundwater moves from the aquifer into either Lake McMurray (WRIA 3) or the wetland area forming the headwaters of a tributary to the Pilchuck Creek (WRIA 5).
This revised memorandum contains the appropriate information from the preliminary memorandum, but includes additional information such as a longer period of water level data, additional well logs on the western side of the lake, additional figures, and a revised conceptual model and analysis of pumping impact on surface water.

**Elevation Control**

Light Detection and Ranging (LiDAR) bare earth data obtained from the Puget Sound LiDAR Consortium (http://pugetsoundlidar.ess.washington.edu/index.html) was used to determine the elevation of ground surface at the southern well sites and estimate the elevation at the State Route 9 wetland monitoring location. The datum used to create the LiDAR data is the National American Vertical Datum of 1988 (NAVD88). Elevation of ground surface at the western well sites was estimated using Google Earth. No site-specific surveys were performed.

A sign on the Lake McMurray staff gage, located at the Washington Department of Fish and Wildlife (WDFW) boat launch, identifies that the top of the gage is at elevation 230 feet (Figure 2). However, this elevation is not the same as the NAVD88 elevation. In this memo, direct readings from this staff gage are identified as staff gage height. For comparison with groundwater levels, the lake stage readings have been converted into NAVD88 elevation. Page (2010) provides a correlation between the staff gage reading and NAVD88. The correlation is as follows: the stage reading, plus 220 feet, plus 3.76 feet equals the elevation in NAVD88.

**Geology, Hydrogeology, and Hydrology**

Dragovich and DeOme (2006) have done the most recent surficial geologic mapping of the south Lake McMurray area. Prior to this, both surficial and subsurface geologic mapping had been performed by Rongey (1971), Grimstad (1971), and Hart Crowser and Associates (1983) as part of site-specific studies.

**Geology and Hydrogeology**

The valley containing Lake McMurray and continuing to the south-southeast is bounded on either side and below by bedrock. The bedrock at this location is referred to as the “Rocks of Bulson Creek”, which are Oligocene to Eocene age sedimentary rocks consisting primarily of sandstone with interbeds of siltstone, pebbly sandstone, coal, shale, and rare lenses of conglomerate. The rocks dip to the southwest at angles ranging from 7 to 75 degrees. The normal right-lateral strike-slip McMurray Fault, which is a splay of the Darrington-Devils Mountain Fault Zone, runs parallel to the strike of the Rocks of Bulson Creek and east of the axis of the valley (Dragovich and DeOme, 2006).

Dragovich and DeOme (2006) have mapped unconsolidated deposits from the Fraser Glaciation (both the Vashon Stade and Everson Interstade) as well as more recent peat deposits within the valley and bounded on each side by the bedrock. The valley bottom is generally mapped as glaciolacustrine deposits or peat. The deposits mapped adjacent to Lake McMurray include both glacial till and glaciolacustrine deposits. Glaciolacustrine deposits consist of clay, silt, silty sand, sand, and diamict with scattered dropstone (Dragovich and DeOme, 2006). Glacial till is composed of a mixture of clay, silt, sand, and gravel (diamicton) with disseminated cobbles and boulders (Dragovich and DeOme, 2006). Glaciolacustrine and glacial till deposits are fine-grained in nature and typically represent
barriers to groundwater flow or aquitards. Dragovich and DeOme’s (2006) A-A’ cross section runs through the study area. On that cross section, the sand and gravel aquifer is identified as being Vashon Advance Outwash that is underlain by either bedrock or glaciolacustrine deposits, interfingers with glaciolacustrine deposits, and is overlain by Vashon glacial till and younger glaciolacustrine and outwash units of the Everson Interstadte. All investigators identify that the main aquifer tapped by the Tatoosh Water Company (Tatoosh) and other productive wells is glaciofluvial in origin consisting of either gravel or sand and gravel. RH2 agrees with this interpretation. Five cross sections were created using the southern water well reports for wells identified on Figure 2. Those cross sections are Figures 3 through 7. In these cross sections, sediments were lumped into either the coarse-grained sand and gravel that forms the aquifer, or deposits that contain some fine-grained material such as clay and silt, which are identified on the cross sections as the clay and gravel unit.

To create the cross sections, well logs were obtained from Ecology’s water well log database and older hydrogeologic reports (Appendix A). Information contained on the well logs was used to cross reference the wells with particular parcels using parcel numbers, addresses, and the owner’s name (Appendix B). Permission was requested from property owners to gain access to their property to accurately locate the well and measure the depth to water. Twelve property owners on the south side of the lake voluntarily provided RH2 access to measure depth to water in their wells as part of this study (Appendix B).

After the locations of the wells were determined as accurately as possible, ground surface elevation of the wells was obtained from LiDAR data. The sediment penetrated, as recorded on the water well log reports, was analyzed and compared between wells to allow for creation of the cross sections in Figures 3 through 7.

Cross Section A-A’ runs generally southwest to northeast on the southeast end of Lake McMurray (Figures 2 and 3). The cross section shows that all wells from Martin through Koejche likely tap the sand and gravel aquifer. Northeast of the Koejche well, clay and gravel lies directly on bedrock and the sand and gravel aquifer is absent. Groundwater elevations are all similar and are higher than ground surface in the lowland north of the Koejche Well.

Cross Section B-B’ runs generally southwest to northeast farther southeast from the lake than cross section A-A’ (Figures 2 and 4). This cross section includes the Tatoosh Wells, the State Route 9 wetland, and the Camp Brotherhood Well. In this cross section, groundwater levels are consistent for the Tatoosh Wells and Cal Buck Construction Well, but rise to the northeast. As with A-A’, the potentiometric surface is above ground surface at both the Camp Brotherhood Well and near the valley at the State Route 9 wetland.

Cross Section C-C’ runs northwest to southeast along the southwest shore of Lake McMurray and extends down to the Tatoosh Wells (Figures 2 and 5). The potentiometric surface is relatively flat over the entire section. The northwestern extent of the aquifer is identified at the Erickson No. 3 well. Most domestic wells tap only the upper portion of the aquifer.

Cross Section D-D’ runs northwest to southeast along the northeast shore of Lake McMurray and extends down to the Camp Brotherhood Well (Figures 2 and 6). The northern wells along this section encountered clay and gravel overlying bedrock with no
sand and gravel aquifer present. The sand and gravel aquifer is only present in the wells near the southern extent of the section. The variation in water level in the wells completed within the sand and gravel aquifer is related to the projection of those wells onto the cross section.

Cross Section E-E’ runs southeast to northwest from the Tatoosh Wells into Lake McMurray (Figure 2 and 7). The Koejche Well represents the northeastern extent of the sand and gravel aquifer since Well TH-3 did not encounter the aquifer just a little farther to the northwest. The potentiometric surface elevation is consistent along this cross section. The potentiometric surface is higher than ground surface north of the Koejche Well and is also higher than the Lake McMurray water level.

From the cross sections, it can be generally stated that finer-grained deposits often occur adjacent to the bedrock and overlying the sand and gravel aquifer.

A review of ground surface and groundwater elevation shows that the State Route 9 wetland complex and, generally, the valley floor is lower in elevation than the potentiometric surface for the sand and gravel aquifer. As mentioned previously, if there was no confining layer, water from the sand and gravel aquifer would discharge into the wetland until the water level in the aquifer was the same as the water level in the wetland. Since this is not the case there must be an aquitard separating the aquifer from the wetland. The Camp Brotherhood Well penetrated 15 feet and Well TH-2 penetrated 20 feet of a glacial till-like material before encountering the sand and gravel aquifer (Appendix A). Both of these wells are located within the valley bottom, and it is assumed that the aquitard underlying the entire wetland is between 15 and 20 feet thick and is composed of sediment that is similar in nature to glacial till.

**Lake McMurray Hydrology**

Lake McMurray has a surface area of approximately 160 acres and is up to 52 feet deep (Wolcott, 1973) with a mean depth of 29 feet (First, 2002). Figure 8 shows a bathymetric map of the lake taken from Walcott (1973). Lake Creek is the outlet of Lake McMurray on the north end of the lake. Lake Creek flows to the north into Big Lake approximately 3.5 miles downstream. If the water surface elevation is considered to be 231.65 feet NAVD88 (average of all measurements available), then the open water at the deepest portion of the lake would occur from an NAVD88 elevation of 231.65 to 179.65 feet.

**Surface Water Divide**

The surface water divide between the watershed for Lake McMurray and that of the State Route 9 wetlands, which are tributary to Pilchuck Creek, is a very low topographic divide just south of the lake (Figure 2). Reports have been made that when the water level in Lake McMurray is high, there can be surface water flow from the lake to the south (First, 2002). This was discussed with long-time resident, Mr. Glenn Kensmoe, (personal communication, August 22, 2013) and he indicated that he has never seen the lake flow to the south. So, monitoring would have to be performed during periods of high lake water level to settle this matter.

Throughout the study period, water was observed to be flowing south through the culvert under State Route 9. Continuous surface water flow was never observed during the RH2 portion of the study period flowing between Lake McMurray and the State Route 9 wetland.
However, lake discharge to the south would only be anticipated in the winter months, when the lake is at its highest water level, and RH2’s study did not cover that time period.

**Historic Surface Water Level Monitoring**

Skagit County Public Works undertook a surface water monitoring effort on Lake McMurray from 2002 into 2005 related to concerns about elevated lake levels and beaver dam construction. Measurements were made sporadically over the 4-year period with the highest lake level recorded equal to 9.00 feet staff gage height (232.76 feet NAVD88 elevation) on November 20, 2003, and the lowest lake level recorded equal to 6.96 feet staff gage height (230.72 feet NAVD88 elevation) on August 20, 2004. The lake level shows a typical annual fluctuation with the highest water levels occurring in the winter and the lowest lake levels occurring in the summer or early fall (Figure 9 and Appendix C).

During this monitoring, there was also monitoring of a water body which appears to be the State Route 9 wetland. The water level for this gage was similar to the lake level and fluctuated over a range of 230.26 feet to 231.92 feet elevation (NAVD88) during the period monitored.

**Equipment Utilized and Monitoring Setup**

Ecology’s Water Resources Program provided three non-vented pressure transducer data loggers (Micro-Diver model DI602.20m) and one non-vented pressure transducer data logger designed to measure barometric pressure fluctuations (Baro-Diver model DI500) for use during this study. Since these are non-vented pressure transducers, the data collected by the pressure transducer data logger recording the barometric pressure is subtracted from the pressure measurements taken in water to accurately calculate the actual height of the water surface above the transducer. Each pressure transducer data logger was synchronized with the same clock time and was programmed to take a measurement every 15 minutes starting on the hour. The location of each measurement site is described in the following sections and shown on Figure 2.

**Lake McMurray**

An existing Skagit County Public Works staff gage was utilized for monitoring of the water level in Lake McMurray. This staff gage is located near the fence adjacent to the Washington State Department of Fish and Wildlife (WDFW) boat launch on the south end of the lake (Lat 48.31297, Lon -122.22072) (Figure 10). On the staff gage, it indicates that the top of the gage, which correlates to a stage of 10.0 is at elevation 230 feet. So, 220 feet is added to the raw gage measurement to determine the staff gage height with respect to the attached sign. As was mentioned previously, a correction factor needs to be applied to the staff gage height to determine the elevation with respect to NAVD88.

A 2-inch-diameter, acrylonitrile butadiene styrene (ABS), Schedule 40 pipe with an end cap was perforated and attached to the bottom portion of the staff gage. The pressure transducer data logger was suspended from a locking well cap with stainless steel wire rope so that it would hang slightly above the bottom of the pipe. This stilling well setup allows for the data logger to record the lake water level almost continuously while allowing for easy correlation with the attached staff gage.
State Route 9 Wetland

As has been noted by previous investigators, there appears to be a beaver dam or debris partially blocking water flow through the culvert running under State Route 9. This causes the water level to be elevated on the upstream (north) side of the road as compared with the water level on the downstream (south) side of the road crossing. Since RH2 was looking for connection with Lake McMurray, a pressure transducer data logger was installed in a portion of the wetland (Lat 48.30843, Lon -122.21538 on the upstream side of the culvert). The monitoring point for this site involved driving a T-bar fence post into the bottom of the wetland and affixing a staff gage and stilling well of similar construction to the lake stilling well. A photo of the wetland staff gage installation is shown in Figure 11. The gage numbers have been approximately correlated with elevation of the roadway, based on the LiDAR data, in that 0 feet on the gage is assumed to be equal to 228.39 feet NAVD88 elevation.

Tatoosh Water Company Well No. 1

An access port on the top of Well No. 1 was utilized for manual measurement of the static water level using a water level probe and also for insertion of the non-vented pressure transducer data logger. The pressure transducer data logger was placed at a depth of approximately 25 feet below the top of the access port, which was approximately 8 feet below the static water level as measured at the time of installation. Minimal submergence was needed given the extremely high specific capacity of the well at the time of completion at 705 gallons per minute per foot (gpm/ft) drawdown. This well is located within a vault surrounded by a locked fence (Lat 48.30794, Lon -122.21695).

Barometric Pressure Logger

In order to allow for accurate correction of the data obtained from the non-vented pressure transducers, a barometric pressure logger was placed within the Tatoosh Well No. 1 vault (Lat 48.30794, Lon -122.21695). The vault contains a vent that allows for the free exchange of air and accurate measurement of barometric pressure. The barometric pressure logger was located within 0.4 miles of the other three pressure transducer data loggers, which is much less than the suggested maximum of 9.3 miles (15 kilometers) as suggested by the manufacturer, Schlumberger (Figure 2).

Precipitation

To obtain precipitation data over the course of the study an existing nearby weather station was used. The closest station available was located on the northwest shore of Big Lake approximately 6 miles north of the project area. The weather station is identified as KWAMTVER2 on the website www.wunderground.com. Daily precipitation data was downloaded and used in this study to compare with the water level fluctuations (Figure 12).

Water Level Fluctuation Summary

The pressure transducer data loggers were installed in the surface water bodies and in Tatoosh Well No. 1 on June 18, 2013, and the collection of data by RH2 ceased on September 24, 2013. Subsequent to that, Ecology took over data monitoring activities and provided RH2 with additional data through approximately February 2014, when the data loggers stopped recording. Figure 12 contains the water level elevation of each monitoring
point over the observation period. While RH2 was performing the data collection, each monitoring site was visited on a monthly basis and the data was downloaded from the data loggers at that time. Manual measurements were made at the time of installation and during each site visit for correlation (Appendix D). Minor corrections to the data logger data were made to better match the data to the manual observations.

The Lake McMurray water level was increasing as monitoring began and continued to increase until approximately July 4th when the water level started to decline until precipitation events in early September caused the lake level to stabilize and even rise slightly. In late September 2013, the lake level began to rise with the onset of the fall precipitation. Through the winter months the lake level rose in response to precipitation events. The highest lake water level elevation (NAVD88) measured was 232.67 feet on January 13, 2014, while the lowest was 230.60 feet on September 4, 2013 (Figure 12). The lake water level elevation observed during the study period was similar to the range of the historic water level measurements provided by Skagit County Public Works, although the low water level was slightly lower (0.12 feet) than had been historically observed (Figure 9).

The State Route 9 wetland water level generally fell over much of the study period. There were periods where the water level appears to have risen in response to precipitation events, but there are other instances when the level rose for no apparent reason. There might still be beaver activity in this area that is influencing water levels to some extent, or localized precipitation events might have occurred that were not captured at the precipitation station monitored. The highest wetland water level elevation (NAVD88) measured was 231.00 feet on June 20, 2013, while the lowest was 230.45 feet on September 22, 2013 (Figure 12). The wetland water level elevation observed during the study period fell within the range of historic water level measurements provided by Skagit County Public Works (Figure 9).

The elevation of water in Lake McMurray and the State Route 9 Wetland was similar from roughly August through the end of September 2013, although the elevation of the water in the wetland was always less than the lake level during the study period. The surface water bodies were more susceptible to fluctuations brought about by precipitation events than was the groundwater (Figure 12).

The Tatoosh Well No. 1 data shows a decline in water level from June 2013 through most of September 2013. The fluctuations that lower the water level by approximately 2.5 feet or 0.2 feet are related to pumping of the well at 930 gpm or interference drawdown caused by pumping of the Tatoosh Well No. 2 at 870 gpm, respectively. The groundwater monitoring showed a falling water level over the duration of monitoring. The static and pumping water level decline was approximately 0.034 feet per day in July, 0.026 feet per day in August, and 0.015 feet per day in September. The reduction in the rate of decline suggests that the groundwater level in the aquifer gets closer and closer to the elevation of the water body that the aquifer is discharging into as the dry season progresses. The groundwater level continued to decline until the end of October 2013, when the water level began to rise.

Analysis of the water level fluctuations in Tatoosh Well No. 1 show that the water level responds to not only Well No. 1 pumping, but also to Well No. 2 pumping (Figure 13). The measured interference drawdown was compared to the anticipated drawdown using the aquifer properties identified by previous investigators (Table 1).
Mr. Steve Aslanian (Tatoosh Water Company) confirmed that Tatoosh Well No. 2 typically pumps for 18 minutes when it operates at a rate of 870 gpm. After this period of pumping there is approximately 0.2 feet of interference drawdown measured in Tatoosh Well No. 1, which is 680 feet away. Using the Theis equation, the transmissivity and storage coefficient were altered until they predicted a drawdown of 0.2 feet at a distance of 680 feet. Transmissivity between the values identified by the previous investigators required that the storage coefficient be closer to 0.002. Storage coefficients within the range identified here suggest a confined aquifer, which is supported by most of the water well reports.

Analysis of water temperature as measured by the pressure transducer data loggers was performed. Groundwater temperature in Tatoosh Well No. 1 rose constantly from 8.7 to 9.1 degrees Celsius over the study period and did not show any changes in water temperature that could be correlated to precipitation events or changes in air temperature. The air temperature recorded by the barometric pressure logger and the water temperature measured in Lake McMurray and the State Route 9 wetland all showed similar patterns to one another. These patterns consisted of rapid and daily fluctuations with an overall range of approximately 6 degrees Celsius. However, the accuracy of the temperature for these monitoring sites is suspect due to the shallow depth of submergence and potential for the water within the data logger housing to become heated differently than the overall water body. Therefore, water temperature data was not used when attempting to determine connection between ground and surface water.

**Synoptic Water Level Elevation Measurements**

On August 22, 2013, static groundwater water level measurements were made in 13 wells in the study area (southern wells) along with surface water level measurements of Lake McMurray and the State Route 9 wetland. The elevation of water at each point was calculated (Appendix B and D).

The elevation of the water surface of Lake McMurray and the State Route 9 wetland were very similar on the day of the water level measurements.

Contouring of the groundwater potentiometric surface from this data provides a snapshot of groundwater elevation across the aquifer. Figure 14 shows the calculated water level elevations and interpretation of the water levels with respect to creation of the potentiometric surface map.

The Hirdler and Camp Brotherhood wells are the only wells completed in the sand and gravel aquifer that show water level elevations above 240 feet. These wells suggest that there is flow to the west-southwest in this portion of the aquifer. All of the other wells completed in the sand and gravel aquifer have water levels within a range of 2.5 feet from 237.4 to 239.9 feet elevation with no definitive flow direction that could be determined. Conceptually,
the flat potentiometric surface is like a subsurface lake and it is assumed that seasonal water level fluctuations will be similar across the entire sand and gravel aquifer.

The elevation of groundwater in the wells tapping the bedrock were both near 247 feet, or approximately 16.5 feet higher than the lake water level and 7 feet higher than the water in the sand and gravel aquifer. Water produced from the bedrock Tainor Well was reported to be very high in mineral content and of very poor quality. So, it is unlikely that the bedrock represents the primary reservoir that is supplying water to the sand and gravel aquifer since the water quality in the sand and gravel aquifer is generally considered to be good.

The sediment described on the water well logs suggests that the sand and gravel aquifer is surrounded by fine-grained aquitards both laterally and vertically. The very flat potentiometric surface combined with the high transmissivity support that the aquifer is not directly connected to the lake or wetland. If there was direct connection, the groundwater would quickly discharge from the aquifer and stabilize at the level of the connected surface water body. Recharge to the aquifer is from direct infiltration of precipitation and likely also from infiltration into the aquifer along the top of the contact between the bedrock and unconsolidated sediments. Discharge is to wells and to surface water bodies (likely both Lake McMurray and the State Route 9 Wetland) through the aquitards.

**Inclusion of Western Well Data**

Subsequent to the preliminary memorandum, 12 additional water well logs were reviewed for wells located along the western edge of Lake McMurray (*Figure 15*). The location of these wells was determined through the use of well site addresses (both current and historic) and parcel numbers. Approximate groundwater level elevation was calculated using Google Earth to calculate the ground surface elevation and subtract the depth to water obtained from the water well report. This method is much less accurate than for the southern wells since the western wells were not field located, a less accurate elevation estimate is used, water levels were measured at the time the well was drilled as opposed to on the same day, and there was no correction made for casing stickup. Groundwater elevation in these wells generally also appeared to be above the lake elevation and most often fell in the range of 230 to 240 feet (*Figure 16*). Based on this information, it is suspected that the wells all tap the same sand and gravel aquifer, the aquifer water level is above the lake level, and that the thickness and transmissivity of the aquifer varies spatially.

With the western wells appearing to tap the same sand and gravel aquifer tapped at the south end of the lake, it was reasonable to conclude that the aquifer likely extends under Lake McMurray. The Jonson Well tapped a 1-foot-thick sand and gravel aquifer before penetrating bedrock. The Dragovich and DeOme (2006) geologic map shows that bedrock forms the ridge to the north of the Jonson Well and also forms the linear ridge on the eastern side of the lake, including the peninsula that juts out into the lake, roughly lining up with the ridge north of the Jonson Well (*Figure 16*). The Lake McMurray Resort and McHaven, Inc., wells penetrate aquitard material before encountering bedrock suggesting that the sand and gravel aquifer might not underlie the southeastern corner of the lake. *Figure 17* shows RH2’s interpretation of the maximum extent of the sand and gravel aquifer, which is tapped by the Tatoosh Water Company Wells, beneath Lake McMurray.
The depth to the top of the sand and gravel aquifer in each well is shown on Figure 17 in addition to the elevation of the lake bottom. As can be seen, the top of the sand and gravel aquifer appears to drop toward the lake. If the top of the sand and gravel aquifer was equal to its elevation at the shoreline (approximately 150 feet) under the entire lake, this would put the average separation between the top of the aquifer and the bottom of the lake at approximately 60 feet. This assumption is likely conservative toward assuming connection with the lake since the elevation of the top of the sand and gravel is dropping steeply moving toward the lakeshore, which suggests it might continue to do that farther east.

**Aquifer Discharge Calculations**

Due to the geology of the area and the conceptual model of the hydrogeology of the sand and gravel aquifer and surrounding aquitards, it is possible to calculate the relative impact of pumping from this aquifer on surface water bodies. The assumptions for these calculations are laid out as follows.

**General Assumptions**

1. The aquifer water level measured at Tatoosh Well No. 1 is considered to be consistent across the entire sand and gravel aquifer.
2. The extent of the sand and gravel is as shown on Figure 17.
3. The clay and gravel sediments that form the aquitards have the same vertical hydraulic conductivity whether underlying the wetland or Lake McMurray.
4. Continuous pumping from the aquifer will lead to a reduction in aquifer discharge that is proportionate to the natural discharge to the lake and wetland.
5. Vertical seepage is how water moves from the sand and gravel aquifer to both the lake and the wetland.
6. Impacts will be calculated for the late summer when the wetland and lake water levels are the closest. This assumption is conservative and likely overestimates the discharge from the sand and gravel aquifer to the lake than if the average lake and wetland water level elevations were used.

**Assumptions Related to Discharge to the State Route 9 Wetland**

1. The average elevation of water in the wetland complex is represented by the elevation at the monitoring location.
2. The area of the valley floor that is below the potentiometric surface and within a reasonable distance of the Tatoosh Wells is 50 acres in size and is shown on Figure 14. The extent of the valley floor to include was truncated at a distance approximately equal to the distance from the Tatoosh Wells to the lake.
3. The thickness of the aquitard separating the sand and gravel aquifer from the wetland complex is on average 17.5 feet.

**Assumptions Related to Discharge to Lake McMurray**

1. The elevation of water in Lake McMurray is accurately represented by the measurements at the monitoring location.
2. The sand and gravel aquifer underlies 95 acres of the lake.

3. The thickness of the aquitard separating the sand and gravel aquifer from the lake is on average 60 feet.

**Darcy Solution**

Based on the assumptions above, it is possible to determine the percentage of natural groundwater discharge, and impact from continuous pumping, from the sand and gravel aquifer into either Lake McMurray and WRIA 3, or into the State Route 9 wetland complex and WRIA 5.

Since this investigation explores the relative pumping impact attributable to the lake and wetland, and due to the assumptions above, the area underlying each feature as well as the vertical thickness of the aquitard separating the aquifer from each feature are the controlling factors. An arbitrary vertical hydraulic conductivity was chosen and no attempt was made to try to correlate the calculated discharge with measured surface water flow.

The Darcy Equation is used for both the groundwater discharge to the wetland and Lake McMurray.

\[ Q = KA\left(\frac{dh}{dl}\right) \]

Where,

- \( Q \) = Discharge in cubic feet per second
- \( K \) = Vertical hydraulic conductivity of the aquitard (arbitrarily chosen to be 0.05 feet per day)
- \( A \) = Discharge area
- \( \frac{dh}{dl} \) = gradient (head difference divided by the flow length through the aquitard)

**Table 2. Variables Used in the Calculations**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Lake</th>
<th>Wetland</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>0.05 feet/day</td>
<td>0.05 feet/day</td>
<td>Same for both, so value does not matter.</td>
</tr>
<tr>
<td>A</td>
<td>95 acres</td>
<td>50 acres</td>
<td>Aquifer underlying two hydrologic features.</td>
</tr>
<tr>
<td>A</td>
<td>4,138,200 sq ft</td>
<td>2,178,000 sq ft</td>
<td></td>
</tr>
<tr>
<td>dh</td>
<td>7.66 feet</td>
<td>7.73 feet</td>
<td>Difference between aquifer water level and surface water level elevation.</td>
</tr>
<tr>
<td>dl</td>
<td>60 feet</td>
<td>17.5 feet</td>
<td>Thickness of the fine-grained material between the sand and gravel aquifer and the open surface water.</td>
</tr>
</tbody>
</table>
Lake:  
\[ Q = 0.05 \text{ feet/day} \times 4,138,200 \text{ square feet} \times (7.66 \text{ feet/60 feet}) \]  
\[ Q = 26,416 \text{ cubic feet/day} \]  
\[ Q = 137 \text{ gpm} \]

Wetland:  
\[ Q = 0.05 \text{ feet/day} \times 2,178,000 \text{ square feet} \times (7.73 \text{ feet/17.5 feet}) \]  
\[ Q = 48,103 \text{ cubic feet/day} \]  
\[ Q = 250 \text{ gpm} \]

Total discharge to both sources is 387 gpm, which suggests that 35 percent of the discharge is to Lake McMurray in WRIA 3 while 65 percent of the discharge is to the WRIA 5 wetland complex.

CONCLUSIONS

There is a prolific sand and gravel aquifer located in the vicinity of the west and south side of Lake McMurray. This aquifer is hydraulically connected to surface water bodies in both WRIA 3 and 5. However, connection is not direct but is instead through aquitard material that bounds the aquifer both laterally and vertically. The elevation of groundwater in the sand and gravel aquifer is approximately 8 feet higher than the water level elevation in either Lake McMurray, or the State Route 9 wetland.

Contouring of groundwater levels measured on August 22, 2013, suggests that there is flow into the aquifer from the eastern side near Camp Brotherhood but the potentiometric surface is essentially flat over the remainder of the aquifer. The very high transmissivity of the aquifer, as identified by previous investigators, was confirmed with interference drawdown calculations based on data collected from the pressure transducer data loggers. The high transmissivity helps to support that the groundwater is pooled in the aquifer by surrounding aquitards and the groundwater level will change in a uniform pattern across the aquifer.

It is assumed that continuous pumping from the Tatoosh Wells will lead to an overall lowering of the potentiometric surface within the sand and gravel aquifer, which in turn will lead to a proportional reduction in aquifer discharge to the surface water bodies. Calculations made suggest that the proportion of natural discharge to the State Route 9 Wetland within WRIA 5 is approximately 65 percent of the natural aquifer discharge while approximately 35 percent of the natural aquifer discharge is to Lake McMurray. Continuous pumping of a well tapping the sand and gravel aquifer will result in a proportional reduction in discharge from the sand and gravel aquifer into both the wetland and lake.

If water from the Tatoosh Water Company, which is produced from Tatoosh Well Nos. 1 and 2, was to be pumped directly into Lake McMurray, the pumping of 100 gpm would only increase the rate of water entering Lake McMurray by 65 gpm due to the reduction in natural discharge that would be brought about by pumping of the Tatoosh Water Company wells.
REFERENCES


First, L., December 2002, *Deceiving the Beavers*, The Washington State Lake Protection Association Newsletter, WATERLINE.


FIGURES

Figure 1 – Study Area
Figure 2 – Wells, Monitoring Locations, and Cross Sections
Figure 3 – Cross Sections A-A'
Figure 4 – Cross Section B-B'
Figure 5 – Cross Section C-C'
Figure 6 – Cross Section D-D'
Figure 7 – Cross Section E-E'
Figure 8 – Lake McMurray Bathymetry
Figure 9 – Historic Lake and Wetland Water Levels (Skagit County Public Works)
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Figure 11 – Photo of State Route 9 Wetland Staff Gage and Data Logger Housing
Figure 12 – Water Levels and Precipitation Over the Course of the Study
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Figure 14 – Water Level Elevations and Potentiometric Surface August 22, 2013
Figure 15 – Name and Approximate Location of Well Logs Along the Western Side of Lake McMurray
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APPENDICES

Appendix A – Water Well Reports
Appendix B – Well Information
Appendix C – Historic Lake and Wetland Water Level Measurements (Skagit County Public Works)
Appendix D – Manual Water Level Measurements
Figures
Figure 2.
Wells, Monitoring Locations, and Cross Sections

Legend
- Bedrock Wells
- Data Logger
- Located Wells
- Parcel Address Located Wells
- Grimstad, 1971 Wells

- Section A-A'
- Section B-B'
- Section C-C'
- Section D-D'
- Section E-E'

Water Bodies
Parcels

Data Sources
Aerial Imagery: World Imagery basemap (ESRI)
Hillshade: Supermosaic (Puget Sound Lidar Consortium)
Parcels: Skagit County
Elevation in NGVD88
Well names from water well logs, not necessarily current owner.
Figure 3. Cross Section A-A'

10 times vertical exaggeration

Static Water Level
Ground Surface Elevation from LiDAR
Elevation in NAVD88
Figure 4. Cross Section B-B'

Elevation (feet MSL)

Distance (feet)

10 times vertical exaggeration

Static Water Level
Ground Surface Elevation from LiDAR
Elevation in NAVD88

J:\Data\DOE\410-056\06 - Skagit Mitigation\06-602 Lake McMurray Hydrogeology\GIS\Maps\Cross Section B.mxd

September 13, 2013 - ABD
Figure 5. Cross Section C-C'

Elevation (feet MSL)

Distance (feet)

Sand and Gravel

Clay

Clay and Gravel

Bedrock

Intersection with A-A'

Intersection with B-B' and E-E'

Intersection with B-B' and E-E'

10 times vertical exaggeration

Static Water Level

Ground Surface Elevation from LiDAR

Elevation in NAVD88
Figure 6. Cross Section D-D’

10 times vertical exaggeration

- Static Water Level
- Ground Surface Elevation from LiDAR
- Elevation in NAVD88

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September 13, 2013 - ABD
Figure 7. Cross Section E-E'

10 times vertical exaggeration

Static Water Level
Ground Surface Elevation from LiDAR
Elevation in NAVD88

E:
- Tatoosh #2 - Projected 580 feet NW
- Tatoosh #1 - Projected 360 feet SE
- Peterson - Projected 100 feet NE
- Stiehl - Projected 650 feet NW
- Koejche - Projected 70 feet SW

E':
- Intersection with B-B' and C-C'
- Intersection with A-A'
- Intersection with A-A'
- TH-3
- Lake McMurray
Figure 8. Lake McMurray Bathymetry (Wolcott, 1973)

Depth in Feet
Figure 9. Historic Lake and Wetland Water Levels  
(Skagit County Public Works)
Figure 10. Photo of Lake McMurray Staff Gage and Data Logger Housing. Logger housing secured behind staff gage by zip ties. Photo taken on July 23, 2013.
Figure 11. Photo of State Route 9 Staff Gage and Data Logger Housing. Logger housing and locking cap visible behind staff gage. Photo taken on July 23, 2013.
Figure 12. Water Levels and Precipitation Over the Course of the Study

- Tatoosh Well No. 1 Static Water Level
- Tatoosh Well No. 2 Interference Drawdown
- Data logger Failure

Legend:
- Tatoosh Well No. 1 (data logger)
- State Route 9 Wetland (data logger)
- Lake McMurray (data logger)
- Lake McMurray - Manual
- State Route 9 Wetland - Manual
- Tatoosh Well No. 1 - Manual
- Precipitation
Figure 13. Tatoosh Well No. 1 Water Level Compared to Tatoosh Water Company Well Starts

Well No. 2 Pumping
Well No. 1 Pumping

- Tatoosh Well No. 1 (data logger)
- Tatoosh Well No. 1 - Manual
- Precipitation
- Well 1 Start
- Well 2 Start
Figure 14.
Water Level Elevations and Potentiometric Surface
August 22, 2013

Legend

- Bedrock Wells
- Data Logger
- Located Wells
- Parcel Address Located Wells
- Grimstad (1971) Wells

- Potentiometric Contours
- Approximate Sand and Gravel Aquifer Extent
- Approximate Wetland Discharge Area
- Water Bodies
- Parcels
- WRIA Boundary

Data Sources
Hillshade: Supermosaic (Puget Sound Lidar Consortium)
Parcels: Skagit County
Elevation in NAVD88
Well names from water well logs, not necessarily current owner.
Figure 15. Name and Approximate Location of Well Logs along the Western Side of Lake McMurray

Legend
- Southern Wells
- Western Wells

Data Sources:
Aerial Photo: ESRI
Water Well Reports: Department of Ecology
Well names from water well logs, not necessarily current owner.
Figure 16. Approximate Groundwater Elevations Including the Western Well Logs

Legend

- Southern Wells
- Western Wells

Sources:
- Aerial Photo: ESRI
- Western Wells: Well Logs and Depth to Water: Department of Ecology
- Ground Surface Elevation: Google Earth
- Southern Wells: Field Located
- Ground Surface Elevation: LiDAR
- Elevation in NAVD88, feet.
Figure 17. Approximate Elevation of the Bottom of Lake McMurray Compared to the Top of the Sand and Gravel Aquifer

Legend

- Southern Wells
- Western Wells
- Top of Aquifer Elevation
- Top of Aquifer Elevation Extrapolated
- Aquifer Under Lake

Data Sources:
Aerial Photo: ESRI
Elevation in NAVD88, feet
Lake Bathymetry (Wolcott, 1973)
Appendix A

Water Well Reports
**WATER WELL REPORT**

**STATE OF WASHINGTON**

**Owner:** Lake McMurray Resort  
**Address:** 2294 McMurray Lane, Mt. Vernon

**Location:** Skagit County

**Bearings and Distance from Section or Subdivision Corner:**

**Proposed Use:** Domestic [X] Industrial [ ] Municipal [ ]  
Irrigation [ ] Test Well [ ] Other [ ]

**Type of Work:** New well [X] Method: Dug [ ] Bored [ ] Deepened [ ] Cable [ ] Driven [ ] Reconditioned [ ] Rotary [X] Jetted [ ]

**dimensions:**
- Drilled 300 ft.
- Diameter of well 6 inches
- Depth of completed well 300 ft.

**Construction Details:**
- Casing installed: 6 " Diam. from +3 ft. to 37 ft.
- Threaded [ ] Welded [X]
- Perforations: Yes [X] No [ ]
  - Type of perforator used:...
  - Size of perforations...
  - Perforations from...
  - Perforations to...
  - Diam.
  - SLOT size

**Screens:**
- Manufacturer's Name...
- Type...
- Model No...
- Diameter...
- Slot size...
- Diam.
- Size of gravel...
- Gravel placed from...
- Depth to...
- Material used in seal...

**Surface Seal:**
- Yes [X] No [ ]
- To what depth...
- Material used...
  - Did any strata contain unusable water? Yes [X] No [ ]
  - Type of water...
  - Depth of strata...
  - Method of sealing strata...

**Pump:**
- Manufacturer's Name...
- Type...
- HP...

**Water Levels:**
- Land-surface elevation...
- Above mean sea level...
- Static level...
- Ft. below top of well...
- Date...
- Artesian pressure...
- Ibs per square inch...
- Artesian water is controlled by...

**Well Tests:**
- Drawdown is in feet...
- Water level...
- Yield...
- Gal/min.
- With...
- Ft. drawdown after...

**Completion:**
- Work started...
- Completed...

**Driller's Statement:**
- This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

**Name:** Hayes Well Drilling & Pumps, Inc.  
**Address:** 556 Ershig Rd., Bow

**License No:** 762  
**Date:** 1/7, 1988

---

**MATERIAL**  
**FROM**  
**TO**

- **Topsoil**
- **Tan clay**
- **Gray clay**
- **Brown-gray siltstone**
- **Brown-gray siltstone - little water**
- **Gray siltstone**
- **Brown siltstone & water**
- **Gray siltstone**
- **Light gray siltstone & water**
- **Gray siltstone**
- **Dark gray sandstone & water**
- **Gray med. sandstone**
- **Light gray fine sandstone & water**
- **Light gray med. sandstone**
- **Light gray fine sandstone**
- **Light gray med-coarse sandstone**
- **Dark gray med-coarse sandstone**
- **Dark gray siltstone**
- **Dark gray fine sandstone**
- **Dark gray siltstone**
- **Light gray siltstone**
- **Light gray siltstone**
- **Dark gray siltstone**
- **Coal**
- **Brown fine sandstone**
- **Tan light brown fine sandstone**
- **Gray fine sandstone**
- **Gray fine-med. sandstone**
- **Med. to coarse gray sandstone**

---

**USE ADDITIONAL SHEETS IF NECESSARY**
(1) OWNER: Name McMENEMEY INC, JOE ZIPP
   Address 2290 LAKE MCMURRAY MT VERNON, WA 98273-
   Start Card No. 32/25/20
   Water Right Permit No. 32/25/20

(2) LOCATION OF WELL: County SKAGIT
   (2a) STREET ADDRESS OF WELL (or nearest address) 2290 LAKE MCMURRAY LN
   (2b) Legal reference: Sec 30 T 33 N, R 5E WM

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: Owner’s Number of well
   Method: ROTARY
   (if more than one)

(5) DIMENSIONS:
   Diameter of well 6 inches
   Drilled 220 ft. Depth of completed well 220 ft.

(6) CONSTRUCTION DETAILS:
   Casing installed: 6' Dia. from +3 ft. to 37 ft.
   WELDED from ft. to ft.
   Dia. from ft. to ft.

   Perforations: YES
   Type of perforator used AIR ROTARY PERF
   Size of perforations 1/4 in. by 1 in.
   15 perforations from 20 ft. to 24 ft.
   perforations from ft. to ft.
   perforations from ft. to ft.

   Screens: NO
   Manufacturer’s Name
   Type
   Model No.
   Dia. slot size from ft. to ft.
   Slot size from ft. to ft.

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

   Surface seal: YES
   To what depth? 10 ft.
   Material used in seal BENTONITE
   Did any strata contain unusable water? NO
   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 11 ft. below top of well Date 10/01/92
   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 Time Water Level

   Date of test / A
   Silt test gal./min. ft. drawdown after hrs.
   Air test 1 gal./min w/ stem set at 218 ft. for 1 hrs.
   Artesian flow g.p.m. Date
   Temperature of water Was a chemical analysis made? NO

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Work started 09/10/92
Completed 10/01/92

WELL CONSTRUCTOR CERTIFICATION:
I, <name>, have constructed and/or accept responsibility for con-
struction of this well, and its compliance with all
Washington well construction standards. Materials used
and the information reported above are true to the best
knowledge and belief.

NAME: <name>
(Person, firm, or corporation) (Type or print)

ADDRESS: <address>
License No. 1825
[Signature]

WELL SITE MEETS ALL SIGHTING CRITERIA UNDER S.C.C. 12.48.090 AND
WAC 173-160 BASED ON INFORMATION SUPPLIED BY THE OWNER OR OWNER'S
AUTHORIZED REPRESENTATIVE.
### WELL SCHEDULE

**No. 33-5-30M**

<table>
<thead>
<tr>
<th>Date</th>
<th>7/21 1971</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record by</td>
<td>PG</td>
</tr>
<tr>
<td>Source</td>
<td>OBS</td>
</tr>
</tbody>
</table>

#### 1. Location:
- **State of WASHINGTON**
- **County**: [Blank]
- **Area**: [Blank]
- **Map**: CLEAR LAKE
- **NW 1/4, SE 1/4 sec. 30 T. 33 N., R. 5 E.**
- **Details**: NW of house - against hillside.

#### 2. Owner or Tenant:
- **Mrs. H. Cook** (His No. ______)

#### 3. Driller:
- [Blank]

#### 4. Land-surface datum:
- **29 ft.** above lake level

#### 5. Type:
- **Driven** Drilled Driven Depth: Rept. ______ feet Bored Jetted Meas. ______ feet
- **Date**: 7/21 1971

#### 6. Casing:
- **Diam.** to ______ in. **Type**
- **Depth** ______ ft. **Finish**

#### 7. Chief aquifer(s):
- [Blank] from ______ ft. to ______ ft.

#### 8. Water level:
- **Rept.** ______ ft. 7/21 1971 above top of [Concrete C60(3)], which is ______ ft. above G.C. below datum
- **Meas.** ______ ft. 7/21 1971 below datum

#### 9. Pump:
- **Type**
- **Size** gal. min.
- **Driven by** horsepower

#### 10. Yield:
- **Flow** gal. min. **Pump** gal. min. **Meas.** Rept. Est. Drawdown ______ ft. after ______ hours pumping ______ gal. min.

#### 11. Use:
- **Dom. Stock. PS. Ind. Irr. Obs.**

#### 12. Quality:
- **Sample No.** ______ , 19_ Temp. ______ °F.

- **Taste, color, hardness, sanitation, etc.**

#### 13. Other data:
- Log Water levels Draft Pump test Analyses

*Turn up*
WELL SCHEDULE (Continued)

14. Well Log:

(As necessary, insert headings and use space below for full record. Complete logs should be recorded on separate form for that purpose, but fragmentary logs may be entered here)

<table>
<thead>
<tr>
<th>FROM (feet)</th>
<th>TO (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. Miscellaneous:

(On face of schedule add asterisks to identify topics amplified; use same topic headings here)

**Blasting necessary - Pores in Tec**

(Chuckanut FM)
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.

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>BROWN SAND &amp; GRAVEL</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>BROWN SILT SAND &amp; GRAVEL</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>GRAY CLAY SILT &amp; GRAVEL</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>BROWN GRAVEL SILT &amp; SAND</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>GRAY GRAVEL &amp; SAND</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>BROWN CLAY &amp; GRAVEL</td>
<td>0</td>
<td>28</td>
</tr>
<tr>
<td>BROWN GRAVEL SAND &amp; WATER</td>
<td>0</td>
<td>31</td>
</tr>
</tbody>
</table>

SCREENS: YES

Manufacturer's Name: COOK
Type: STAINLESS STEEL
Model No.
Dia. slot size 18 from 47 ft. to 52 ft.
Dia. slot size from ft. to ft.

Gravel packed: NO
Gravel placed from ft. to ft.

Surface Water: YES
To what depth: 10 ft.

Material used in seal: BENTONITE
Did any strata contain unusable water? NO
Type of water?
Method of sealing strata off

WELL LEVELS: Manufacturer's Name FLINT & WALKING
Type: SUBMERSIBLE

Land-surface elevation above mean sea level...
Static level 20.45 ft. below top of well
Date 09/16/98
Artesian Pressure lbs. per square inch
Artesian water controlled by

WELL TESTS: Drawdown is amount water level is lowered below static level.

Was a pump test made? YES If yes, by whom: HAYES DRILLING
Yield: 15 gal./min with 1.75 ft. drawdown after 1.5 hrs.

Recovery data
Time Water Level Time Water Level Time Water Level
Date of test
Well test 14 gal/min. 5 ft. drawdown after .5 hrs.
Air test 30 gal/min. with stem set at 50 ft. for 1 hrs.
Artesian flow g.p.m.
Date
Temperature of water Was a chemical analysis made? YES

WELL EXAMINATION 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 HAYES DRILLING, INC.
(Person, firm, or corporation) (Type or print)
ADDRESS 505 HAYES ST. BLDG.
[License No. 2189]
Contractor Registration No. HAYESD10635 Date 09/17/98

WELL SITE MEETS ALL SIGHTING CRITERIA UNDER S.C.C. 12.48.090 AND WAC 173-160 BASED ON INFORMATION SUPPLIED BY THE OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE.
STATE OF WASHINGTON

WATER WELL REPORT

STATE RIGHT PERMIT NO. 207892

OWNER: NAME: LONSDALE, CHUB
Address, 638 MORLINE RD, BOW, WA 98232.

LOCATION OF WELL: County SKAGIT

(2a) STREET ADDRESS OF WELL (for nearest address) 2325 A HWY 9

PROPOSED USE: DOMESTIC

TYPE OF WORK: Owner's Number of well

NEW WELL

DIMENSIONS:

- Diameter of well: 6 inches
- Depth of completed well: 58 ft.

CONSTRUCTION DETAILS:

- Casing installed: 6 in. Dia. from 42 ft. to 58 ft. WELDED
- Dia. from ft. to ft.
- Dia. from ft. to ft.

Perforations: NO

- Type of perforator used
- Size of perforations
  - in.
  - ft.
  - ft.

Screen: NO

- Manufacturer's Name
- Model No.

Gravel packed: NO

- Size of gravel
- Gravel placed from ft. to ft.

Surface seal: YES

- To what depth? 18 ft.
- Material used in seal: BENTONITE
- Did any strata contain unusable water? NO
- Type of water?
- Method of sealing strata off

PUMP: Manufacturer's Name

- Type: SUBMERSIBLE
- HP: 1/2

WATER LEVELS:

- Land-surface elevation above mean sea level: 34 ft.
- Artesian Pressure: 0 lbs. per square inch
- Artesian water controlled by

WELL TESTS: Drawdown is amount water level is lowered below static level.

- Was a pump test made? NO
- If yes, by whom?

- Field data:
  - gal./min.
  - ft. drawdown after hrs.

- Recovery data:
  - Time Water Level
  - Time Water Level

- Date of test
  - Bailer test
  - Air test
  - Artesian flow
  - Temperature of water

- Was a chemical analysis made? NO

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

- BRONM GRAVEL SAND
- BROWN SAND
- BRONM GRAVEL SAND
- BRONM SAND GRAVEL & WATER
- BRONM GRAVEL SAND & WATER
- BRONM SAND GRAVEL & WATER
- BRONM GRAVEL SAND & WATER

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JUL 16 1993

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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.

NAME HAYES DRILLING, INC.
(Person, firm, or corporation) (Type or print)

ADDRESS: 556 ERSHIG RD., BOW, WA

[Signature] License No. 1825

Contractor's Registration No. HAYES110625 Date 07/14/93

WELL SITE MEETS ALL SIGHTING CRITERIA UNDER S.C.C. 12.48.090 AND 2906 WAC 173-160 BASED ON INFORMATION SUPPLIED BY THE OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE.
WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER: Name - Dave + Kathy Hider
Address - 2328 Legge Rd MT Vernon

(2) LOCATION OF WELL: County - SKAGIT
Location Description - NW 1/4 NE 1/4 Sec. 31 T 33 N R 5 W.M.

(2a) STREET ADDRESS OF WELL (or nearest address): 2328 Legge Rd MT Vernon

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

(4) TYPE OF WORK: Owner's number of well
☐ New well ☐ Drilled ☐ Recommissioned
☐ Reconditioned ☐ Deeper ☐ Drilled
☐ Deepened ☐ Deeper ☐ Drilled
☐ Reconditioned ☐ Other

(5) DIMENSIONS:
Diameter of well: 6 inches
Depth of completed well: 42 ft

(6) CONSTRUCTION DETAILS:
Casing Installed: 6 ft, Diameter: 1 1/4 in.
Wired: 42 ft, Diameter: 1 1/4 in.
Threaded: 42 ft, Diameter: 1 1/4 in.

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? 18 ft
Material used in seal
Did any strata contain unsuitable water? Yes ☐ No ☑
Type of water
Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type:

(8) WATER LEVELS:
Static level: 13 ft, below top of well
Date of measurement: 28 OCT 97
Artesian pressure: lbs per square inch
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 date (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:
Bail test: gal/min. with ft. drawdown after hrs.
Arrest: 60 gal/min. with stem set at 40 ft. for 1 hr.
Artesian flow: g.p.m.
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 land and nature of the material in each stratum penetrated, with at least one entry for each change of information.

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown Sand + Clay</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Brown Sand, Silt, Gravel</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Brown Sand/Gravel/Clay</td>
<td>10</td>
<td>23</td>
</tr>
<tr>
<td>Grey Sand + Gravel</td>
<td>23</td>
<td>43</td>
</tr>
</tbody>
</table>

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NOV - 1 1994

DEPT. OF ECOLOGY
Drilled in Compliance with SCC 12-48 Based on Information Supplied by
Owner

signature

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: Affordable Water Systems
Address: 1190 Valentine Rd MT Vernon
(Signed) Affordable Water Systems
License No. 1617
Contractor's Registration
No. AFFORD 101 PJ
Date: 28 OCT 97

(USE ADDITIONAL SHEETS IF NECESSARY)
WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER Name TRAINOR, DOUG
Address 23054 LK MC MURRAY LN MT VERNON, WA 98274-

(2) LOCATION OF WELL County SKagit
State WA 1/4 NE 1/4 Sec 31 T 33 N , R 5E WM

(3) PROPOSED USE DOMESTIC

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

NEW WELL

(5) DIMENSIONS Diameter of well 6 inches
Drilled 262 ft Depth of completed well 261.5 ft.

(6) CONSTRUCTION DETAILS:
Casing installed 6 " Dia from 6 ft to 28 ft
WELDED 4 " Dia from -15 ft to 25.5 ft
Perforations: NO
Liner installed " Dia from ft to ft

Perforations: NO
Type of perforator used in by in
perforations from ft to ft perforations from ft to ft
perforations from ft to ft

Screens: YES
Manufacturer's Name MONOFLEX
Type PVC Model No
Diam 4 slot size 10 from 25.5 ft to 261.5 ft
Diam slot size from ft to ft
Gravel packed YES Size of gravel 8/12
Gravel placed from 210 ft to 261.5 ft.

Surface seal YES To what depth? 18 ft
Material used in seal BENTONITE
Did any strata contain usable water? NO
Type of water? Artesian water controlled by
Method of sealing strata off

(7) PUMP Manufacturer's Name
Type HP

(8) WATER LEVELS
Land-surface elevation above mean sea level ft
Static level 137 ft below top of well Date 11/07/00
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

Date of test
Bailer test gal/min ft drawdown after hrs
Air test gal/min w/ stem set at 258 ft for 15 hrs.
Artesian flow gpm Date
Temperature of water Was a chemical analysis made? NO

MATERIAL
FROM TO
TOPSOIL 0 2
BROWN CLAY SILT 2 13
GRAY SILTSTONE 13 27
GRAY SANDSTONE 27 49
COAL 49 51
GRAY SANDSTONE 51 90
GRAY SANDSTONE 90 92
GRAY SANDSTONE 92 95
BROWN SILTSTONE 95 107
GRAY SANDSTONE 107 228
GRAY CONGLOMERATE 228 250
GRAY CONGLOMERATE & WATER 250

Well site meets all sighting criteria under S.C.C. 12.48.090 and WAC 173-160
based on information supplied by the owner or owner's authorized representative.

RECEIVED
NOV 21 2000
DEPARTMENT OF ECOTOLOGY
WELL DRILLING UNIT

Work started 11/06/00 Completed 11/07/00

WELL CONSTRUCTOR CERTIFICATION:
I constructed and/or accept responsibility for con-
struction 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 HAYES DRILLING, INC
(Person, firm, or corporation) (Type or print)

ADDRESS 5650 BISHOP RD, 880
Legal No 2189

[SIGNED] 07166
WELL SCHEDULE

Date: 9/21/71

Record by: PG

Source: DSS

1. Location: State of WASHINGTON
   County: Skagit
   Area: Lake McMurray
   Map: Clear Lake
   Section 30, T. 53 N., R. 5 E.
   Details: well is W. of house

2. Owner or Tenant: Dr. Bryant (His No.)
   Address: Rt. 5, Mt. Vernon, WA

3. Driller:

4. Land-surface datum: 375.7 ft above sea level
   Topography:

5. Type: Dug Drilled Driven Depth: Rept. 30 ft
   Bored Jetted Meas. feet
   Date:

6. Casing: Diam. to in. Type
   Depth ft. Finish

7. Chief aquifer(s):

8. Water level:

9. Pump:

10. Yield:


12. Quality: Sample No. 8-5, 1971

13. Other data: Log Water levels Draft Pump test Analyses

Turn up over
WELL SCHEDULE (Continued)

14. Well Log:

(As necessary, insert headings and use space below for full record. Complete logs should be recorded on separate form for that purpose, but fragmentary logs may be entered here.)

<table>
<thead>
<tr>
<th>FROM (feet)</th>
<th>TO (feet)</th>
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<tbody>
<tr>
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</tr>
</tbody>
</table>

15. Miscellaneous:

(On face of schedule add asterisks to identify topics amplified; use same topic headings here.)

- WELL SUFFICIENT FOR DOM. SUPPLY - CAN NOT IRRIGATE LAWN. OWNER MEOTIONS BLUE STAINING IN TOILET & WHERE WATER DROPS - Cu?
- RED. CABLES & PAILS SUGGEST WEATHERED WILL BE OUTWASH.
WATER WELL REPORT
STATE OF WASHINGTON

(1) Owner: Name BORBE, EDGAR
Address 10327 51ST AVE S S EATTLE, WA 98127-

(2) Location of well: County SKAGIT
Street address of well (or nearest address) 2327 HWY 9 MT. VERNON

(3) Proposed use: DOMESTIC

(4) Type of well:
Owner's number of well (if more than one) 1
New well
Method: ROTARY

(5) Dimensions:
Diameter of well 6
Inches
Drilled 44 ft.
Depth of completed well 44 ft.

(6) Construction details:
Casing installed: 6 " Dia. from 0 ft. to 44 ft.
WELDED

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: No
Manufacturer's name:

Type:
Diam. ft.
Slot size ft.
Diam. ft.
Slot size ft.

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

Surface seal: Yes
To what depth? 18 ft.
Material used in seal BENTONITE
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:
Static level 1 ft. below top of well Date 08/21/91
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? 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:

Boiler test 30 gal./min. 20 ft. drawdown after hrs.
Air test gal./min. a stem set at ft. for hrs.
Artesian flow g.p.m. Date 08/21/91
Temperature of water Was a chemical analysis made?

(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:

- BROWN CLAY GRAVEL
  FROM 0 TO 18
- WATER GRAVEL
  18 24
- BLUE CLAY GRAVEL
  24 33
- BLUE CLAY GRAVEL WATER
  33 40
- CLEAN GRAVEL WATER
  40 44

Work started 08/21/91 Completed 08/21/91

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 DAHLMAN PUMP & WELL DRILL
(Person, firm, or corporation) (Type or print)

ADDRESS PO BOX 422, BURLINGTON, WA

(SIGNED) [Signature]
License No. 0623
Contractor's Registration No. DAHLMAN12UL
Date 08/22/91

AUG 29 1991
DEPT. OF ECOLOGY
WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER: Foothills Investment
Address: P.O. Box 247 Arlington, Wash. 982

(2) LOCATION OF WELL:
County: 
Sec. 
T. N., R. W

(2a) STREET ADDRESS OF WELL (or nearest address)

(3) PROPOSED USE:
Domestic [ ] Irrigation [ ] DeWater [ ] Test Well [ ] Other [ ] Municipal [X]

(4) TYPE OF WORK:
Owner's number of well (if more than one)
Abandoned [ ] New well [ ] Method: Dug [ ] Bored [ ] Driven [ ] Reconditioned [ ] Drilled [ ] Rotary [ ] Jetted [ ]

(5) DIMENSIONS:
Diameter of well 12 inches
Drilled: 160 feet. Depth of completed well 160 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 12 ft. Diam. from 12 ft. to 158 ft
Welded [X] Liner installed [ ] Threaded [ ]
Perforations: Yes [X] No [ ]
Type of perforator used Mills Knife [ ]
SIZE of perforations 3/8 in. by 3/4 in
420 perforations from 70 ft. to 140 ft

Screens: Yes [X] No [ ]
Manufacturer's Name
Type: Model No:
Diam. from ft. to ft.
Diam. from ft. to ft.
Gravel packed: Yes [X] No [ ]
Gravel placed from ft. to ft.

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

(7) PUMP:
Manufacturer's Name N/A

(8) WATER LEVELS:
Type:
Land-surface elevation above mean sea level ft.
Static level: 17 ft. below top of well Date: 9/14/71
Artesian pressure lbs. per square inch
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 [X] No [ ]
If yes, by whom? Driller
Yield 1000 gal/min with 15' drawdown after 24 hrs

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

<table>
<thead>
<tr>
<th>Time</th>
<th>Water Level</th>
<th>Time</th>
<th>Water Level</th>
<th>Time</th>
<th>Water Level</th>
</tr>
</thead>
</table>

Date of test

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: John W. Smith
Address: 12345 Camano Is. Wa.
**WATER WELL REPORT**

**STATE OF WASHINGTON**

**Foothills Investment Company**

**Grand Central on the Park**

**Application No. 11-1902**

**Permit No. G1-00113P**

(1) OWNER: Name for Camp Brotherhood

Address: Seattle, Washington 98104

(2) LOCATION OF WELL: County: Skagit

Bearing and distance from section or subdivision corner: 1170' S and 1170' W of NE cor., Sec 31

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

(4) TYPE OF WORK: Owner's number of well (if more than one): #3 (4-6)

New well ☑️ Method: Dug ☐ Bored ☐

Deepened ☐ Cable ☑️ Driven ☐

Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well: 8" inches.

Drilled: 79' ft. Depth of completed well: 72' ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8" Diam. from 0' to 72-1/2' ft.

Threaded ☐ " Diam. from 0' to 72-1/2' ft.

Welded ☐ " Diam. from 0' to 72-1/2' ft.

Perforations: Yes ☑️ No ☐

Type of perforator used: Holes

SIZE of perforations: 1/2" in. by 3/2" in.

perforations from 0' to 60' ft.

perforations from 60' to 72' ft.

Gravel packed: Yes ☑️ No ☐

Size of gravel:

Gravel placed from 0' to 72' ft.

Surface seal: Yes ☑️ No ☐

To what depth: 72-1/2' ft.

Material used in seal:

Did any strata contain unusable water? Yes ☐ No ☑️

Type of water:

Method of sealing strata off:

(7) PUMP: Manufacturer's Name: Red Jacket Pump Co.

Type: Submersible

HP: 7.5

(8) WATER LEVELS:

Land-surface elevation above mean sea level:

Static level: 0' below top of well Date: 3/14/71

Artesian pressure: 3 lbs. per square inch Date: 3/14/71

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? O. C. Miller

Yield: 1320 gal./min. with 17' ft. drawdown after 8 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

<table>
<thead>
<tr>
<th>Time</th>
<th>Water Level</th>
<th>Time</th>
<th>Water Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>17</td>
<td></td>
</tr>
</tbody>
</table>

Date of test: 3/14/71

Ball test... gal./min. with... ft. drawdown after... hrs.

Artesian flow: 270 g.p.m. Date: 3/11/71

Temperature of water: 66°. Was a chemical analysis made? Yes ☑️ No ☐

(10) WELL LOG:

Material | FROM | TO |
----------|------|----|
Hard pan  | 0    | 13- |
Coarse gravel = water | 13- | 20- |
Sandstone | 20- | 76- |

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.

**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:**

K.J. Well Drilling

**Address:** 718 Smith Rd. Camas 1g Wa

**License No.:** 2117

Date: 1/27/13, 10:24

(Signed) A. J. Jackson (Well Driller)

(USE ADDITIONAL SHEETS IF NECESSARY)
WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER: Glenn Wilson
(2) LOCATION OF WELL: County, Skaqit

(3) PROPOSED USE: Domestic [X] Industrial [ ] Municipal [ ]

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

(5) DIMENSIONS: Diameter of well 4 inches.

(6) CONSTRUCTION DETAILS:
Casing installed: 6" Diam. from 1 ft. to 69 ft.
Threaded [X] Welded [ ]

Perforations: Yes [X] No [ ]
Type of perforator used...
Size of perforations...

Screens: Yes [ ] No [X]
Manufacturer's Name: Houston Well Screen
Type: 2414.850
Model No.
Diam. Slot size...

Gravel packed: Yes [X] No [ ]
Size of gravel...
Gravel placed from...

Surface seal: Yes [X] No [ ] To what depth...
Material used...

(7) PUMP: Manufacturer's Name...

(8) WATER LEVELS:
Land-surface elevation above mean sea level...
Static level...
Artesian pressure...
Artesian water is controlled by...

(9) WELL TESTS:
Wass a pump test made? Yes [X] No [ ] If yes, by whom...
Yield: gal./min. with...
drawdown after...

Recovery data (time taken as zero when pump turned off)...

Date of test...

Bailer test: 15 gal./min. with...
drawdown after...

Artesian flow...
Temperature of water...

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: DAHLMAN PUMP & DRILLING
Address: P. O. Box 422, Burlington 98233

[Signed] Ralph Johnson
(Well Driller)

License No. 223-02-7387 Date: 11-30, 1971

USE ADDITIONAL SHEETS IF NECESSARY
WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER: Name: Hassell, Harriett  Address: 2320 State Hwy 9, Mt. Vernon, Wash.

(2) LOCATION OF WELL: County: Skagit  NE 1/4 NW 1/4 Sec 31, T. 33 N., R. 65 W.

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

(4) TYPE OF WORK: Owner's number of well

New well  Method: Dug  Bored
Deepened  Driven  Jetted
Reconditioned  Rotary

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

(6) CONSTRUCTION DETAILS:
Casing installed: 6' Diam. from 0 ft. to 8 ft.

Threaded  Diam. from  ft. to  ft.
Welded  Diam. from  ft. to  ft.

Perforations: Yes  No
Type of perforator used:

Size of perforations  in. by  in.

perforations from  ft. to  ft.

Screens: Yes  No
Manufacturer's Name

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: Jocure 21 Bmd.  Type: sub  HP: 3/4

(8) WATER LEVELS: Land-surface elevation
Static level  ft. below top of well  Date: 1-2-74
Artesian pressure  lbs. per square inch  Date:
Artesian water is controlled by:
(Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes  No  If yes, by whom:
Yield: gal./min. with ft. drawdown after hrs.

Recovery data, (time taken as zero when pump turned off) (water level measured from well top to water level)

Time Water Level Time Water Level Time Water Level

Date of test:
Ball test  30 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:

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay, brown and rock</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Cemented Gravel</td>
<td>7</td>
<td>69</td>
</tr>
<tr>
<td>Gravel, Water-bearing</td>
<td>60</td>
<td>88</td>
</tr>
<tr>
<td>Gravel and Sand</td>
<td>88</td>
<td></td>
</tr>
</tbody>
</table>

Work started: 12-20-73  Completed: 1-2-74

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: DAHLMAN  PUMP & DRILLING
(Person, firm, or corporation)  Type or print)
Address: Burlington 08233

[Signature]  (Well Driller)
License No. 223-02-7387  Date: 6-3-74

USE ADDITIONAL SHEETS IF NECESSARY

052821
WATER WELL REPORT
STATE OF WASHINGTON

11668

(1) OWNER: Name STEHL, JOHN
Address 2302 W SUNSET DRIVE BELLINGHAM, WA 98226

(2) LOCATION OF WELL: County SKAGIT
(2a) STREET ADDRESS OF WELL (or nearest address) 23225 HWY 9

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: 
Owner's Number of well (if more than one)
Method: ROTARY

(5) DIMENSIONS:
Drilled 60 ft. Depth of completed well 57 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 * Dia. from +3 ft. to 57 ft.
* Dia. from ft. to ft.
* Dia. from ft. to ft.

Perforations: NO
Type of perforator used
SIZE of perforations

WELDED

Perforations from
perforations from
perforations from

ft. to ft.
ft. to ft.
ft. to ft.

Screens: NO
Manufacturer's Name
Type
Diam. slot size from ft. to 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? 18 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? NO
Type of water?
Method of sealing strata off

(7) PUMP: Manufacturer's Name FLINT & WALLING
Type SUMMERSIBLE H.P. 3/4 HP

(8) WATER LEVELS:
Static level 39 ft. below top of well Date 09/14/05
Artesian Pressure lbs. per square inch Date
Artesian water controlled by

(9) WELL TESTS:

Was a pump test made? YES If yes, by whom? HAYES DRILLING
Yield: 13 gal./min with 9 ft. drawdown after 2 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 15 gal/min. w/ stem set at 55 ft. for 1 hrs.
Artesian flow g.p.m. Date
Temperature of water
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
TOPSOIL
0 2
BROWN SAND CLAY & GRAVEL
2 12
GRAY SAND & GRAVEL
12 18
GRAY GRAVEL & SAND
18 25
GRAVEL & SAND & WATER
25 40

RECEIVED
OCT 05 2005
DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

Well site meets all sighting criteria under S.C.C. 12.48.090 and WAC 173-160 based on information supplied by the owner or owner's authorized representative.

Work started 08/26/05 Completed 08/26/05

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 HAYES DRILLING, INC.
(Person, firm, or corporation) (Type or print)
ADDRESS 5696 IRISH RD BOW, WA
[SIGNED] License No. 2146
Contractor's
Registration No. HAYESD110635 Date 09/19/05

08004
WATER WELL REPORT

Construction/Decommission ("x" in circle)

- Decommission ORIGINAL INSTALLATION Notice of Intent Number

PROPOSED USE: [ ] Domestic [ ] Industrial [ ] Municipal [ ] DeWater [ ] Irrigation [ ] Test Well [ ] Other

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

- New well [ ] Reconditioned [ ] Method: [ ] Dug [ ] Bored [ ] Driven [ ] Deepened
- [ ] Cable [ ] Rotary [ ] Jetted

DIMENSIONS: Diameter of well [ ] inches, drilled [ ] ft. Depth of completed well [ ] ft.

CONSTRUCTION DETAILS

- Casing: [ ] Welded [ ] Diam from [ ] ft. to [ ] ft.
- Installed: [ ] Liner installed [ ] Diam from [ ] ft. to [ ] ft.
- [ ] Threaded [ ] Diam from [ ] ft. to [ ] ft.

Perforations: [ ] Yes [ ] No

- Type of perforator used

- Size of perforations

Screens: [ ] Yes [ ] No [ ] K-Pac Location

Manufacturer's Name: [ ] J M
d

Type: [ ] Stainless [ ] Model No. [ ]

Diam. [ ] 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 [ ] ft.

Material used in seal [ ]

Did any strata contain unusable water? [ ] Yes [ ] No

Type of water: [ ] Depth of static

Method of sealing strata off

PUMP: Manufacturer's Name: [ ] None

Type: [ ] H.P.

WATER LEVELS: Land-surface elevation above mean sea level [ ] ft. below top of well [ ] Date

Static level [ ] ft. above top of well [ ] Date

Artesian pressure [ ] lbs. per square inch [ ] Date

Artesian water is controlled by [ ]

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 date (time taken as zero when pump turned off) (water level measured from well to water level)

Time Water Level Time Water Level Time Water Level

Date of test [ ]

Bailer test: [ ] gal./min. with [ ] ft. drawdown after [ ] hrs.

Aerating [ ] gal./min. with stem set at [ ] ft. for [ ] hrs.

Artesian flow [ ] g.p.m. [ ] Date

Temperature of water [ ] Was a chemical analysis made? [ ] Yes [ ] No

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): [ ]

Driller/Engineer/Trainee Signature: [ ]

Driller or trainee License No.: [ ]

If TRAINEE,
Driller's Licensed No.: [ ]
Driller's Signature: [ ]

CURRENT
Notice of Intent No.: [ ]
Unique Ecology Well ID Tag No.: [ ]
Water Right Permit No.: [ ]
Property Owner Name: [ ]
Well Street Address: [ ]
City: [ ] County: [ ] Location [ ]
Location: [ ] Sec. [ ] Tw.[ ] R. [ ] M. [ ]
Lat./Long (s, °, ') Lat/Long (s, °, ') Lat Min/Sec
Still REQUIRED: Long Deg [ ] Long Min/Sec
Tax Parcel No.: [ ]

CONSTRUCTION OR DECOMMISSION PROCEDURE:

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL
FROM TO

- Brown Sand Clay + Gravel [ ] [ ]
- Brown Clay + Gravel [ ] [ ]
- Brown Clay [ ] [ ]
- Clay + Sand Gravel [ ] [ ]
- Clay + Gravel [ ] [ ]
- Clay + Gravel [ ] [ ]
- Clay + Gravel [ ] [ ]
- Clay + Clay [ ] [ ]

Start Date: [ ] Completed Date: [ ]

RECEIVED

WATER RESOURCES

OCT 13 2011

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

Affordable Water Systems

Contractor's
Registration No.: [ ] Date: [ ]

City, State, Zip: [ ]

Drilling Company: [ ]
Address: [ ]

City: [ ]

Affordable Water Systems

Ecology is an Equal Opportunity Employer

ECY 050-1-20 (Rev 3/05)
WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER: Mark Youngs
Address: 23179 SR9, McVernon, WA 98274

(2) LOCATION OF WELL: Skagit
(2a) STREET ADDRESS OF WELL (or nearest address) same

TAX PARCEL NO. P7791

(3) PROPOSED USE: [X] Domestic
[ ] Industrial
[ ] Municipal
[ ] Irrigation
[ ] Test Well
[ ] Other

(4) TYPE OF WORK: [X] New Well
[ ] Deepened
[ ] Reconditioned
[ ] Decommissioning

Inspection only - Aquatech Well Drilling did not construct this well.
Original driller or documents unknown.

(5) DIMENSIONS: Diameter of well 6 inches
Drilled feet. Depth of completed well 48.5 ft.

(6) CONSTRUCTION DETAILS:
Casing Installed: [X] Welded
[ ] Liner installed
[ ] Threaded

Perforations: [X] Yes
[ ] No

Type of perforator used
SIZE of perforations

Screens: [ ] Yes [X] No
[ ] K-Pac Location

Manufacturer’s Name
Type
Model No.
Diam. Slot size
Diam. Slot size

Gravel/Filter packed: [X] Yes
[ ] No
Size of gravel/sand

Material placed from

Surface seal: [X] Yes [ ] No
To what depth?

Material used in seal
Did any strata contain unusable water?
[ ] Yes
[X] 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

Static level 39.4 ft. below top of well Date 12/2/2010
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? [X] Yes [ ] No
If yes, by whom?

aquatech

Yield:

13.6 gal./min. with 2.85 ft. drawdown after 0.5 hrs.

13.6 gal./min. with 2.85 ft. drawdown after 1 hrs.

13.6 gal./min. with 2.85 ft. drawdown after 1.5 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time 1 min 2 min 3 min 5 min
Water Level 39.5 39.5 39.5 39.5

Date of test 12/2/2010

Bail test gal./min. with ft. drawdown after hrs.

Artesian flow g.p.m. Date

Temperature of water Was a chemical analysis made? [ ] Yes [X] No

(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION:
Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. Indicate all water encountered.

MATERIAL
FROM TO

WELL CONSTRUCTION CERTIFICATION:
I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Type or Print Name Jason Boyd
License No. 3098

Trainer Name
License No.

Drilling Company Aquatech Well Drilling & Pumps Inc.
(Signed)
License No. 3098

Address 2675 Butler Crk Rd SedroWoolley WA 98284

Contractor’s Registration No. AQUATWD040K4 Date 12/8/2010

(USE ADDITIONAL SHEETS IF NECESSARY)
Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (360) 407-6600. The TDD number is (360) 407-6006.
WELL SCHEDULE

Date: 7-2-1, 1971

Record by: P.G.

Source: OBS

1. Location: State of WASHINGTON
   County
   Area
   Map: 36 1/4 sec. 30, T.33 N., R.5 W.
   Details

2. Owner or Tenant: MC LELLAN (His No.)
   Address: Rt. 5, MT. VERNON, WA.

3. Driller: JOHNSON
   Address

4. Land-surface datum: 5 ft. above LATE LEVEL
   Topography:

5. Type: Dug Drilled Driven Depth: Rept. 21 feet
   Bored Jetted Meas. feet
   Date:

6. Casing: Diam. to in. Type
   Depth ft. Finish

7. Chief aquifer(s):
    from ft. to ft.

8. Water level: Rept. Meas. 5 1/2 ft. 7-21, 1971, above TOP
    CONCRETE CCR
    which is 6" A. above datum

9. Pump: Type
    Capacity gal. min.
    Driven by horsepower

    Drawdown ft. after hours pumping gal. min.
    Adequacy, permanence


12. Quality: Sample No. 7-5, 1971
    Temp. °F.
    Taste, color, hardness, sanitation, etc.

13. Other data: Log Water levels Draft Pump test Analyses

Turn up
WELL SCHEDULE (Continued)

14. Well Log:

(As necessary, insert headings and use space below for full record. Complete logs should be recorded on separate form for that purpose, but fragmentary logs may be entered here.)

<table>
<thead>
<tr>
<th></th>
<th>FROM (feet)</th>
<th>TO (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Till</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Sand (Teal-Chuckaming)</td>
<td>19(?)</td>
<td>21</td>
</tr>
</tbody>
</table>

15. Miscellaneous:

(On face of schedule add asterisks to identify topics amplified; use same topic headings here.)
WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER: Name: Rod Peterson

(2) LOCATION OF WELL: County: Skagit
Bearing and distance from section or subdivision corner: Tract C - Govt. Lot 1 Lake McMurray

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐

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

(5) DIMENSIONS:
Diameter of well... ft. Depth of completed well... ft.

(6) CONSTRUCTION DETAILS:
Casing installed: ft. Diam. from ft. to ft.
Threaded ☐ Diam. from ft. to ft.
Welded ☐ Diam. from ft. to ft.

Perforations: Yes ☑ No ☐
Type of perforator used...
SIZE of perforations... in. by... in.
perforations from... ft. to... ft.

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 ☐
What depth... ft.

Work started: 4-10-81, 19 Completed: 4-10-81, 19

(7) PUMP: Manufacturer's Name...
Type...
HP...

(8) WATER LEVELS:
Land-surface elevation above mean sea level...
Static level...
ft. below top of well Date...
Artesian pressure...
lb. 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)

Date of test...

(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.

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Soil</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Clay &amp; Gravel</td>
<td>2</td>
<td>55</td>
</tr>
<tr>
<td>Water &amp; Gravel</td>
<td>55</td>
<td>60</td>
</tr>
</tbody>
</table>

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: DAHLIAN PUMP & DRILLING
(Person, firm, or corporation)
Address: Box 422 Burlington, WA 98233

[Signed]... (Well Driller)
License No... Date... 8-12-81, 19

(USE ADDITIONAL SHEETS IF NECESSARY)
WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER: Name: Ronald Martin

Address: 410 N. Section, Burlington 98233

(2) LOCATION OF WELL: County: Skagit, Lake McMurray - NW, Sec. 31, T. 33 N., R. 5 E. W.M.

Bearings and distance from section or subdivision corner:
West 750' of Gov. Lot 2

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

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

(5) DIMENSIONS:
- Diameter of well: 8 3/8 inches.
- Depth of completed well: 38 ft.

(6) CONSTRUCTION DETAILS:
- Casing installed: 10 ft. to 38 ft.
- Perforations: Yes ☑ No ☐
- Type of perforator used:
- Size of perforations: In.
- per perforations from ft. to ft.
- Screens: Yes ☑ No ☐
- Manufacturer's Name:
- Diam. Slot size from ft. to ft.
- Gravel packed: Yes ☑ No ☐
- Size of gravel:
- Gravel placed from ft. to ft.
- Surface seal: Yes ☑ No ☐
- Material used in seal:
- To what depth? ft.
- 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:

(8) WATER LEVELS:
- Land-surface elevation ft. above mean sea level:
- Static level:
- 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):
- Date:
- Time Water Level Time Water Level Time Water Level

(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:

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topsoil</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Sand &amp; Gravel</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Blue Clay &amp; Gravel</td>
<td>12</td>
<td>34</td>
</tr>
<tr>
<td>Water &amp; Gravel</td>
<td>81</td>
<td>81</td>
</tr>
</tbody>
</table>

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: DAHLMAN PUMP & DRILLING, INC.
(Person, firm, or corporation)

Address: Burlington 98233

(Signed) R.C. Johnson

(Well Driller)

License No.: 203-02-7387 Date: 9-5-75

(USE ADDITIONAL SHEETS IF NECESSARY)
WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER: Name Tatavash Water
Address 1624-300 1/2 1.1. N.W. - Stanwood, Wash.

(2) LOCATION OF WELL: County Snohomis
Section 150 West 1670 North, each corner of section.

(3) PROPOSED USE: Domestic [ ] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(4) TYPE OF WORK: New well [ ]
Method: Drilled [ ] Bored [ ]
Deepened [ ] Cable [ ] Driven [ ]
Reconditioned [ ] Rotary [ ] Jetted [ ]

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 135 ft. Depth of completed well

(6) CONSTRUCTION DETAILS:
Casing installed: 8 in. Diam. from 0 ft. to 113 ft.
Threaded [ ] Drilled [ ]
Welded [ ]
Perforations: Yes [ ] No [ ]
Type of perforator used
SIZE of perforations
Perforations from 0 to 113 ft.
Perforations from 113 to 135 ft.
Screen: Yes [ ] No [ ]
Manufacturer's Name Johnson [ ]
Type Wire [ ]
Model No. 304 [ ]
Diam. 8 in. Slot size 100 ft. to 113 ft.
Diam. 8 in. Slot size 113 ft. to 135 ft.
Gravel packed: Yes [ ] No [ ]
Size of gravel
Gravel placed from 0 to 113 ft.
Surface seal: Yes [ ] No [ ]
To what depth? 0 ft.
Material used in seal Bentonite mudd [ ]
Did any strata contain unusable water? Yes [ ] No [ ]
Type of water [ ]
Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name [ ]
Type [ ]
HP [ ]

(8) WATER LEVELS:
Land-surface elevation above mean sea level
Statie level 60 ft. below top of well Date 6/30/69
Artesian pressure lbs. per square inch Date [ ]
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [ ]
If yes, by whom Driller [ ]
Yield: 350 gal./min. with 7 ft. drawdown after 24 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)
Time Water Level Time Water Level Time Water Level
0.00 60.7
001 60.0

Date of test 6/30/79
Builder's Test 75 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.

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clayey gravel</td>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td>Coarse gravel with thin streaks of sand</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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: [ ]
Address: 797 N. Smith Rd. Camano Island, WA 98229
[ ]
License No. 0047 Date 10/9 1980

(Signed) [ ]
(Well Driller) [ ]

(USE ADDITIONAL SHEETS IF NECESSARY) OCT 10 1980
**WATER WELL REPORT**

**Construction/Decommission**
- Construction
- Decommission
- ORIGINAL CONSTRUCTION Notice
- Notice of Intent Number: 139303

**PROPOSED USE:**
- Domestic
- Irrigation
- Test Well
- Other

**TYPE OF WORK:**
- New Well
- Reconditioned
- Method: Dog
- Bored
- Driven
- Deepened
- Cable
- Rotary
- Jetted

**DIMENSIONS:**
- Diameter of well: 6 inches, drilled: 95 ft
- Depth of completed well: 95 ft

**CONSTRUCTION DETAILS**
- Casing: Welded
- Installed: Liner installed
- Diam from: 0 to 0.6 ft
- Dia from: 0 to 0.6 ft
- Dia from: 0 to 0.6 ft

**Perforations:**
- Yes
- No

**Screens:**
- Yes
- No
- K-Pac
- Location
- Model No

**Manufacturer's Name:**
- Diameter:
- Slot Size:
- Slot Size:

**Gravel/Filter packed:**
- Yes
- No
- Size of gravel/sand:

**Surface Seal:**
- Yes
- No
- Bentonite
- Materials used in seal:
- Did any strata contain unusable water? Yes
- No

**Type of water:**
- Depth of strata:

**Method of sealing strata off:**

**PUMP:**
- Manufacturer's Name
- Type: Sub 10 GPM 5HP 1/2 HP

**WATER LEVELS:**
- Land-surface elevation above mean sea level: 73 ft
- State level: 73 ft below top of well
- Date: 9/10/03
- Artesian pressure: lbs per square inch
- Artesian water is controlled by:

**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
- drawn down after:
- hrs

**Recovery data:**
- Time:
- Water Level:
- Time:
- Water Level:
- Time:
- Water Level:

Date of test:
- Baier test:
- 0 gals/minute
- with:
- ft
- drawn down after:
- hrs
- Artesian flow:
- a.p.m
- p Date:
- Temperature of water:
- Was a chemical analysis made? Yes
- No

**WELL CONSTRUCTION CERTIFICATION:**
- Driller: Anderson Wells
- Engineer/Trainee Name (Pm)
- Address: 6310-14th St
- City, State, Zip: WA 98255
- Contractor's Registration No:
- Date: 9-10-03
- Ecology is an Equal Opportunity Employer

**RECEIVED**
- Sep 30 2003
- DEPT OF ECOLOGY

**CURRENT**
- Notice of Intent No.
- Unique Ecology Well ID Tag No.
- Water Right Permit No.
- Property Owner Name
- Well Street Address
- City
- County
- Location
- Lat/Lng:
- Tax Parcel No.
- OR DECOMMISSION PROCEDURE

**MATERIAL**
- FROM
- TO
- Top soil
- 0
- 2
- Brown clay + silt w/gravel + rocks
- 2 11
- Fine clay had
- 34 34
- Gravel & boulders
- 34 34
- Brown coarse gravel
- 34 95
- With sand
- Water
- 75 75

**Start Date:** 9-10-03
**Completed Date:** 9-10-03

**If trainee, licensed driller's**
**Signature and License no.**
WATER WELL REPORT
STATE OF WASHINGTON

6258

(1) OWNER: Name ERICKSON, MAURICE
Address 2282 HWY 9  MOUNT VERNON, WA  98273

(2) LOCATION OF WELL: County SNOH
Street Address (or nearest address) 2282 HWY 9
NE 1/4 NE 1/4 Sec 36 T 33 N., R 4E WM

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: Owner’s Number of well
NEW WELL

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 160 ft. Depth of completed well 160 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 ft - Dia. from +2.5 ft. to 50 ft.
WELDED - Dia. from ft. to ft.

Perforations: NO

Screens: NO

Gravel packed: NO
Gravel placed from ft. to ft.

Surface seal: YES
To what depth? 10 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? NO

(7) PUMP: Manufacturer’s Name
Type

(8) WATER LEVELS:
Static level ft. below top of well Date 10/13/97
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 gal./min. w/ stem set at ft. for hrs.
Artesian flow G.P.M. Date
Temperature of water
Was a chemical analysis made? NO

WELL CONSTRUCTION CERTIFICATION:
I constructed and/or accept responsibility for con-
struction 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 HAYES DRILLING, INC.
(Person, firm, or corporation) (Type or print)
ADDRESS 1550 ERSKING RD. SNOH WA
License No. 2189

(SIGNED)  
Contractor’s Registration No. HAYESDI10653 Date 11/11/97

WELL SITE MEETS ALL SIGHTING CRITERIA UNDER S.C.C. 12.48.090 AND
WAC 173-160 BASED ON INFORMATION SUPPLIED BY THE OWNER OR OWNER’S
AUTHORIZED REPRESENTATIVE.
WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER: Name ERICKSON, MAURICE
Address 2202 HWY 9 MOUNT VERNON, WA 98274

(2) LOCATION OF WELL: County SKAGIT
STREET ADDRESS OF WELL (or nearest address) 2202 HWY 9

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: Owner's Number of well
[If more than one] 3
NEW WELL
METHOD: ROTARY

(5) DIMENSIONS:
Drilled 79 ft. Depth of completed well 79 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 Dia. from 1.5 ft. to 79 ft.
WELDED Dia. from ft. to ft.
Dia. from ft. to ft.

Perforations: NO
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: NO
Manufacturer's Name
Model No.
Type
Diam. slot size from ft. to 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? 18 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? NO
Type of water:
Method of sealing strata off

(7) PUMP: Manufacturer's Name FLINT & WALLING
Model No.
Type SUBMERSIBLE H.P. 3/4

(8) WATER LEVELS:
Land-surface elevation above mean sea level ft.
Static level 55.50 ft. below top of well Date 11/13/97
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 dump test made? YES If yes, by whom? HAYES DRILLING
Yield: 17 gal./min with 0.50 ft. drawdown after 1.5 hrs.

Date of test
Recovery data
Time Water Level Time Water Level
Date

Bailer test gal/min. ft. drawdown after hrs.
Air test gal/min. w/ stem set at ft. for hrs.
Artesian flow of water G.P.M. Date
Temperature of water °F
Was a chemical analysis made? YES

WELL SITE MEETS ALL SIGHTING CRITERIA UNDER S.C.C. 12.48.090 AND
WAC 173-160 BASED ON INFORMATION SUPPLIED BY THE OWNER OR OWNER'S
AUTHORIZED REPRESENTATIVE.

RECEIVED
DEPT. OF ECOLOGY

NOV 2 4 1997

WELL CONSTRUCTOR CERTIFICATION:
I constructed and/or accept responsibility for con-
struction 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 HAYES DRILLING, INC.
(Person, firm, or corporation) (Type or print)
ADDRESS 556 ERBING RD., BOW, WA

(SIGNED) License No. 1966
[Signature]
Contractor's
Registration No. HAYES010635 Date 11/14/97

[Image 611x804]
WATER WELL REPORT

(1) OWNER: Name: Hazen, Raymond
Address: 2237 Highway 9
Government Lot 7, Sec 34
T. 33 N., R. 44 W.

(3) PROPOSED USE: Domestic ☑, Industrial ☐, Municipal ☐

(4) TYPE OF WORK: Owner's number of well
New well ☑ Method: Drilled ☑, Bored ☐, Reconditioned ☐

(5) DIMENSIONS:
Diameter of well: 4.5 ft.
Depth of completed well: 45 ft.

(6) CONSTRUCTION DETAILS:
Casing installed:
Threaded ☐ Diam. from 0 ft. to 45 ft.
Welded ☑ Diam. from 0 ft. to 45 ft.

Perforations:
Yes ☑ No ☐
Type of perforator:
Welded ☑ Size of perforation:

Screens:
Yes ☑ No ☐
Manufacturer's Name:

Type:
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.

(7) PUMP:
Manufacturer's Name: J. C. P. B. B.
Type: Submersible H.P.

(8) WATER LEVELS:
Land-surface elevation above mean sea level:

Static level: 28 ft. below top of well Date: 4-5-76
Artesian pressure: lbs. per square inch Date:
Artesian water is controlled by:

(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)

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 strata 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

(USE ADDITIONAL SHEETS IF NECESSARY)

WA06-0049 A#17858
The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

**WATER WELL REPORT**

**Construction/Decommission:**
- [X] Construction
- [ ] Decommission

**Proposed Use:**
- [X] Domestic
- [ ] Industrial
- [ ] Municipal
- [ ] Recreational
- [ ] DeWater
- [ ] Irrigation
- [ ] Other

**Type of Work:**
- [X] New well
- [ ] Redesigned
- [ ] Resealed
- [ ] Rotated
- [ ] Other Method

**Dimensions:**
- Diameter of well: 6 inches, drilled to 100 ft.
- Depth of completed well: 100 ft.

**Construction Details:**
- Casing: 6 in. Diameter, from 0 ft. to 95 ft.
- Installations: 2 in. Diameter, from 0 ft. to 100 ft.
- Perforations: No
- Screen: 6 in. by in. and so. of parts from 0 ft. to 100 ft.

**Gravel/Filter Pack:**
- Gravel pack: Yes
- Size of gravel/sand: 95 ft. to 100 ft.

**Surface Seal:**
- Yes
- No
- To what depth: 18 ft.

**Materials used in seal:**
- BENTONITE

**Pump:**
- Manufacturer's Name: 
- Type: 
- Location: 

**Water Levels:**
- Static level: 17 ft. below top of well, Date: 10/1/07
- Artisanal pressure: Res. per sq. inch, Date: 
- Artisanal water is controlled by: 

**Well Tests:**
- Drawdown: 
- Was a pump test made? Yes
- If yes, by whom?: 
- Yield: 
- Storage: 
- Recovery: 

**Date of test:**
- Bailer Test: 
- Airtest: 
- Temperature of water: 
- Was a chemical analysis made? Yes

**Received:**
- Oct 2 3 2007
- DEPT. OF ECOLOGY

**Drilling Company:**
- DAHLMAN PUMP & WELL DRILLING INC
- Address: P.O. BOX 422
- City, State, Zip: BURLINGTON, WA, 98233
- Contractor's Registration No: DAHLMPW123LC
- Date: 10/10/07

**Water Well Report:**
- Notice of Intent No: WE07470
- Unique Ecology Well ID Tag No: BAT 119
- Water Right Permit No: 
- Property Owner Name: JOE DAVIS
- Well Street Address: 22853 LAKESIDE LANE
- City: MOUNT VERNON
- County: SKAGIT
- Location: NW 1/4 NW 1/4 Sec 25 Twn 33 R 4
- Tax Parcel No. (Required): 330425-4-052-0005

**Constitution or Decommission Procedure:**
- Description: Describe by color, character, size of material and structure, the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.
- Use additional sheets if necessary.

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUSCANY AND GRAVEL</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>GRAVEL AND BROWN SAND</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>BROWN CLAY</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>GRAVEL COBBLES SAND &amp; BROWN CLAY</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>GRAVEL SAND AND GREY CLAY</td>
<td>20</td>
<td>52</td>
</tr>
<tr>
<td>GRAVEL SAND AND GRAVEL</td>
<td>52</td>
<td>65</td>
</tr>
<tr>
<td>GRAVEL SAND AND SILT</td>
<td>65</td>
<td>85</td>
</tr>
<tr>
<td>GRAVEL SAND AND WATER</td>
<td>85</td>
<td>100</td>
</tr>
</tbody>
</table>

**WELL LOCATED ACCORDING TO SKAGIT:**
- COUNTY ORDINANCE: 24-8F
- 85 ft. of FINES
- DOWN-17
- WELow-222

**Start Date:** 10/1/07
**Completed Date:** 10/1/07

**Well Construction Certification:**
- Driller/Engineer Trainee Name: RALPH RIGGLES
- Driller/Engineer Trainee License No: 2043

**Driller's License No:**
- CEC 056-1-20 (Rev 4/07)
WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER: Robert Cherry
Address: 2250 Hult, R.D. 1

(2) LOCATION OF WELL: County: Mason
Sec 25 T 33 N, R 4 W
169.7 South of Lot

(3) PROPOSED USE: Domestic [ ] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(4) TYPE OF WORK: Owner's number of well
New well [ ] Method: Dug [ ] Bored [ ]
Deepened [ ] Cable [ ] Driven [ ]
Reconditioned [ ] Rotary [ ] Jetted [ ]

(5) DIMENSIONS: Diameter of well: 6 inches
Drilled: 0 ft. Depth of completed well: 88 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: [ ] Diam. from ___ ft. to ___ ft.
Threaded [ ] Diam. from ___ ft. to ___ ft.
Welded [X] Diam. from ___ ft. to ___ ft.

Perforations: Yes [X] No [ ]
Type of perforator used: 
Size of perforations: ___ in. by ___ in.
Perforations from ___ ft. to ___ ft.

Screens: Yes [X] No [ ]
Manufacturer's Name:
Type [ ] Model No. [ ]
Diam. Slot size: ___ ft. to ___ ft.
Diam. Slot size: ___ ft. to ___ ft.

Gravel packed: Yes [X] No [ ]
Size of gravel:
Gravel placed from ___ ft. to ___ ft.

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

(7) PUMP: Manufacturer's Name:
Type: [ ]

(8) WATER LEVELS:
Land-surface elevation above mean sea level:
Static level: ___ ft. below top of well Date: 7-7-73
Artesian pressure: ___ lbs. per square inch Date:
Artesian water is controlled by:
(Cap, valve, etc.)

(9) WELL TESTS:
Was a pump test made? Yes [ ] No [X]
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):

<table>
<thead>
<tr>
<th>Time</th>
<th>Water Level</th>
<th>Time</th>
<th>Water Level</th>
<th>Time</th>
<th>Water Level</th>
</tr>
</thead>
</table>

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 [X] No [ ]

(10) WELL LOG:
Formation: Describe by color, character, size of material and structure, and other 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.

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top soil</td>
<td>0' 1'</td>
<td></td>
</tr>
<tr>
<td>Sand and gravel</td>
<td>1' 5'</td>
<td></td>
</tr>
<tr>
<td>Sand and gravel (coarse)</td>
<td>5' 8'</td>
<td></td>
</tr>
<tr>
<td>CS = 233</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOW = 0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WDOW 2325</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC = 1.35 w/c</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Work started: 7-3, 1973 Completed: 7-7, 1973

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: RADKE WELL DRILLING
(Person, firm, or corporation) (Type of business)

Address: 1632 W. 19th St., Kennewick

(Signed) [ ]
(Well Driller)

License No.: Date: 7-16, 1973

USE ADDITIONAL SHEETS IF NECESSARY
279564

WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER: Name WICKSTROM, PAT
Address P66115 MOUNT VERNON, WA

(2) LOCATION OF WELL: County SKagit
(2a) STREET ADDRESS OF WELL (or nearest address) 22721 NULL ROAD

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: Owner's Number of well 1

NEW WELL

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 160 ft. Depth of completed well 157.8 ft.

(6) CONSTRUCTION DETAILS
Casing installed: 6 " Dia. from 0 ft. to 154.3 ft.
WELDED " Dia. from 0 ft. to 0 ft.
Perforations from 0 ft. to 0 ft.

Type of perforator used
SIZE of perforations in. by in.

Screens: YES Manufacturer's Name JOHNSON
Type STAINLESS STEEL Model No.
Diam. slot size 18 from 152.8 ft. to 157.8 ft.

Gravel packed: NO Size of gravel
Gravel placed from 0 ft. to 0 ft.

Surface seal: YES To what depth? 18 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? NO
Type of water: Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name GOULDS 10D565
Type SUBMERSIBLE H.P. 1/2

(8) WATER LEVELS:
Land-surface elevation above mean sea level... ft.
Static level...33 ft. below top of well Date 11/05/97
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? YES If yes, by whom? HAYES DRILLING
Yield: 14.5 gal./min with 15 ft. drawdown after 1.5 hrs.

Recovery data

- Time Water Level Time Water Level Time Water Level

Date of test:
Bailer test...5 gal/min. 10 ft. drawdown after 1 hrs.
Air test...6 gal/min. w/ stem set at... ft. for hrs.
Artesian flow... gpm. Date
Temperature of water...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
BROWN SAND & SILT 0 20
BROWN SAND & SILT & WATER 20 40
BROWN CLAY & SAND 40 65
GRAY CLAY & GRAVEL 65 90
GRAY GRAVEL 90 112
GRAY GRAVEL & WATER 112 140
GRAY SAND & GRAVEL & WATER 140 152

RECEIVED
DEC 05 2007
DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

Well site meets all piping w/fic under S.C.C. 12.48.090 and WAC 173-160 based on information supplied by the owner or owner's authorized representative.

Variance attached.

S. C. = 0.5

Work started 10/23/97 Completed 10/25/07

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: HAYES DRILLING, INC.
(Person, firm, or corporation) (Type or print)
ADDRESS: 5656 BERNG RD. BOW, WA
License No. 2562
(Signature) contractor's signature Registration No. HAYESDI10605 Date 11/13/07

08345
WATER WELL REPORT

Construction/Decommission ("x" in circle) 205580

Type of Use: Domestic

Type of Work: Owner's number of well (if more than one)
- New well
- Recommissioned

Dimensions: Diameter of well ___, length ___, drilled 100 ft.

Construction Details
- Casing:
- Installed:
- Perforations:
- Screen:
- Manufacturer's Name:
- Type:
- Model:
- Diameter: 6"

Gravel/Filter packed: Yes

Surface Seal: Yes

Water Levels: Land-surface elevation above mean sea level ___, below top of well ___, Date 8/2/06

Well Tests: Drawdown is amount water level is lowered below static level

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/Trainer License No. 2043

Driller/Engineer/Trainer Signature:

DECLARATION OF WELL: An equal opportunity employer.

The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.
WATER WELL REPORT

STATE OF WASHINGTON

(1) OWNER: Name JOHNSON, JAMES
Address 22897 FRONT ST MOUNT VERNON, WA 98273

(2) LOCATION OF WELL: County SKagit
(2a) STREET ADDRESS OF WELL (or nearest address) 22897 FRONT ST.

(3) PROPOSED USE: DOMESTIC

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

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 79 ft. Depth of completed well 77.66 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 * Dia. from #2 ft. to 74 ft.
WELDED * Dia. from ft. to ft.
* Dia. from ft. to ft.

Perforations: NO
Type of perforator used:
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: YES
Manufacturer: JOHNSON
Type STRAIGHT STEEL Model No. 68
Diam. 6 slot size: from 72.66 ft. to 77.66 ft.
Diam. slot size: from ft. to ft.

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

Surface seal: YES
Material used in seal NITROCRETE
Did any strata contain unusable water? NO
Type of strata: Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name 4105007 3/4 HP
Type SUBMERSIBLE

(8) WATER LEVELS:
Land-surface elevation above mean sea level ft.
Static level 48 ft. below top of well Date 05/30/06
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? YES If yes, by whom? HAYES DRILLING
Yield: 13 gal./min with 3 ft. drawdown after 1 hrs.

Recovery data:
Time Water Level Time Water Level Time Water Level

Date of test:
Bailer test 10 gal/min. 1 ft. drawdown after 1 hrs.
Air test gal/min. w/ stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water

(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
TOPOSOIL 0 1
BROWN SAND & SILT 1 7
GRAY SILT & SAND 7 15
GRAY SAND & SILT 15 20
GRAY GRAVEL SAND & CLAY 20 29
GRAY CLAY SAND & GRAVEL 29 39
BROWN GRAVEL SAND & SILT 39 47
BROWN GRAVEL & SAND 47

Well site meets all sighting criteria under S.C.C 12.48.090 and WAC 173-160 based on information supplied by the owner or owner's authorized representative.

RECEIVED

JUN 14 2006

DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

Work started 05/15/06 Completed 05/17/06

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

ADDRESS 5639 BISHOP RD. BOON WA
(SIGNED)
License No. 2109
Contractor's Registration No. HAYESDI00635 Date 06/06/06

08083
WATER WELL REPORT
STATE OF WASHINGTON

OWNER: MIKE SMITH
Address: 22913 FRONT ST, MT VERNON

LOCATION OF WELL: County - SKAGIT
STREET ADDRESS OF WELL: Same as property

TAX PARCEL NO.: 4410-018-025-0001

PROPOSED USE:
- Domestic
- Irrigation
- Municipal
- Domestic Irrigation

TYPE OF WORK:
- Owner's number of well (if more than one)
- Well Drilled
- Reconditioned
- renovated

DIMENSIONS:
- Diameter of well: 6 inches
- Depth of completed well: 63' 3"

CONSTRUCTION DETAILS:
- Gravel packed: Yes
- Screen/Filter: Yes
- Diam. from: 6 ft to 61.7 ft
- Slot Size: 3/8 in.

SCREENS:
- Manufacturer's Name: JOHNSON
- Model No.: 5S
- Material placed: 3 ft to 10 ft
- Depth of strata: 19 ft

Gravels/Filter packed: Yes
- Diam. from: 6 ft to 61.7 ft
- Slot Size: 3/8 in.

WATER LEVELS:
- Static level: 50 ft below top of well
- Artesian pressure: 30 psi per square inch
- Artesian water controlled by:
  - Cap. valve, etc.

WELL TESTS:
- Drawdown is amount water level is lowered by static level
- Wells pumped for 15 minutes
- Artesian water after 5 hours
- Recovery data (time taken as zero when pump turned off)

WELL LOG OR DECOMMISSIONING PROCEDURE DESCRIPTION:
Formation: Describe by color, character, size, shape, and structure, and the kind and nature of the material in each stratum penetrated. Indicate any changes in water content or other relevant information encountered.

MATERIAL:
- FROM: TO
- Brown Top Soil 0 2
- Brown Clay 2 22
- Clay 12 38
- Sand & Gravel 38 54

WELL CONSTRUCTION CERTIFICATION:

Date: 19 Nov 99
Completed: 19 Nov 99

ECY 011 2011 92
HDI # 2990

STATE OF WASHINGTON

WATER RESOURCES COMMISSION
WENATCHEE

OWNER: Name CRIPPEL, ROB
Address 2205 COMMERCIAL ST MOUNT VERNON, WA 98273

LOCATION OF WELL: County SNOHOMISH

STREET ADDRESS OF WELL for nearest address: HOLYoke ST & COMMERCIAL

PROPOSED USE: DOMESTIC

TYPE OF WELL: Owner's Number of well
(If more than one) 2

WELL

DIMENSIONS: Diameter of well in inches
Drilled 77 ft. Depth of completed well 76.5 ft.

CONSTRUCTION DETAILS:
Casing installed: 6 Dia. from 41.5 ft to 74.5 ft.
WELDED Dia. from 51 ft to 51 ft.
Perforations: NO
Type of perforator used
Silk of perforations
Perforations from ft. to ft.
Perforations from ft. to ft.

SCREENS:
Manufacturer's Name: HOWARD SMITH
Type STEEL Model No. K0
Dia. 6 slot size IS from 71.5 ft to 76.5 ft.
Dia. slot size from ft. to ft.

GRAVEL PACKED: NO Size of gravel
Gravel placed from ft. to ft.

SHELTER: YES To what depth? 18 ft.
Material used in shelter BENTONITE
Did any strata contain unusable water? NO
Type of water: Depth of strata ft.
Method of sealing strata off

PUMP: Manufacturer's Name: AEROMOTOR
Type SUBMERSIBLE H.P. 1/2

WATER LEVELS:
Static level 59.5 ft below top of well Date 01/25/94
Artesian Pressure Date
Artesian water controlled by

WELL TESTS:
Date of test / /
Bairer test 15 gal/min. 3 ft. drawdown after 1 hrs.
Air test gal/min. W/steam set at ft. for hrs.
Artesian flow g.m.m. Date
Temperature of water

WELL SITE MEETS ALL SIGHTING CRITERIA UNDER S.C.C. 12.48.090 AND WAC 173-160 BASED ON INFORMATION SUPPLIED BY THE OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE.
WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER: Name DiBase, Jeanette
Address 2265 Spy. 9 Mount Vernon 98273

(2) LOCATION OF WELL: County Skagit
Bearing and distance from section or subdivision corner Lots 1 thru 4 Block 10 Town of McMurray Skagit Co.

(3) PROPOSED USE: Domestic [ ] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(4) TYPE OF WORK: owner's number of well [ ] if more than one:
New well [ ] Method: Dug [ ] Bored [ ]
Deepened [ ] Cable [ ] Driven [ ]
Reconditioned [ ] Rotary [ ] Jetted [ ]

(5) DIMENSIONS:
Drilled 69 ft Diameter of well 6 inches
Depth of completed well 69 ft

(6) CONSTRUCTION DETAILS:
Casing installed: 6 ft Diam. from 0 ft to 64 ft
Threaded [ ] Diam. from ft to ft.
Weled [ ] 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 Houston Well Screen
STAINLESS [ ] Model No.
Diam. 6 in Slot size 25 in from 6 4 ft. to 6 7 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 [ ]
Material used in seal
To what depth 18 in.
Did any strata contain unusable water? Yes [ ] No [ ]
Type of water
Method of sealing strata off

(7) PUMP: Manufacturer's Name JACOB
Type Submersible HP 1/2

(8) WATER LEVELS:
Land-surface elevation ft.
Static level 39 ft below top of well Date 8.14
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 on (water level measured from well top to water level)

Date of test
Bailer test gal/min with ft. drawdown after hrs.
Artesian flow gpm Date 8.31.78
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.

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dirt and gravel</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Hard pan and gravel</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>Course gravel and water</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>


SC = 0.27 9PM 1st

65 7.20

DWM = 33.5

WLMN = 236.5

Work started 8 28 78. Completed 9 31 78

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: DAHLMAN PUMP AND DRILLING
(Person, firm or corporation) Type or print
Address: Burlington, 98233

(Signed) R. C. Johnson
(Well Driller)

License No. 0222 Date Sept. 5, 1978

(USE ADDITIONAL SHEETS IF NECESSARY)
**WATER WELL REPORT**

**STATE OF WASHINGTON**

**Mail:** 4022 Stone Way N., Seattle, 98103  
**Address:** Hull Rd. SE, McMurtry, 98279

(1) **OWNER:** Name  
George Gamble

(2) **LOCATION OF WELL:** County  
Skagit  
**Well:** 22607 Hull Rd.

(3) **PROPOSED USE:**  
Domestic [ ]  
Industrial [ ]  
Municipal [ ]  
Irrigation [ ]  
Test Well [ ]  
Other [ ]

(4) **TYPE OF WORK:**  
Owner's number of well  
New well [ ]  
Method: Dug [ ]  
Drilled [ ]

Deepened [ ]  
Cable [ ]  
Driven [ ]

Reconditioned [ ]  
Rotary [ ]  
Jetted [ ]

(5) **DIMENSIONS:**  
Diameter of well 6.0 inches  
Depth of completed well 113 ft.

(6) **CONSTRUCTION DETAILS:**  
Casing installed:  
- Diam. from 0 ft. to 108 ft.  
- Threaded [ ]  
- Welded [ ]

- Diam. from 108 ft. to 113 ft.

Perforations:  
- Yes [ ]  
- No [X]

- 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 [X]  
- No [ ]

- Manufacturer's Name  
HIDJOHNSON

- Type  
STAINLESS

- Diam. from 108 ft. to 113 ft.

- Diam. from 108 ft. to 113 ft.

Gravel packed:  
- Yes [X]  
- No [ ]

- Size of gravel  
- ft. to  
- ft.

- Gravel placed from  
- ft. to  
- ft.

Surface seal:  
- Yes [X]  
- No [ ]

- What depth?  
- ft.

- Material used in seal  
Cement

- Did any strata contain usable water?  
- Yes [X]  
- No [ ]

- Type of water  
- Depth of strata  
- ft.

- Method of sealing strata off  
- ft.

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

(8) **WATER LEVELS:**  
Land-surface elevation above mean sea level  
- ft.

Static level  
- ft. below top of well  
- Date 7-17-82

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 [X]  
- No [ ]

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)

<table>
<thead>
<tr>
<th>Time</th>
<th>Water Level 1</th>
<th>Time</th>
<th>Water Level 2</th>
<th>Time</th>
<th>Water Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date of test  
-  

Bailent  
- gal./min. with  
- ft. drawdown after  
- hrs.

Artesian flow  
- g.p.m.  
- Date

Temperature of water  
- Was a chemical analysis made?  
- Yes [X]  
- No [ ]

(10) **WELL LOG:**

FORMATION: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and source of the material in each stratum penetrated, with at least one entry for each change of formation.

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top soil</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Silty blue clay</td>
<td>2</td>
<td>107</td>
</tr>
<tr>
<td>Water, gravel and sand</td>
<td>107</td>
<td>113</td>
</tr>
</tbody>
</table>

RECEIVED

OCT 04 1982

DEPT. OF ECOL.

GSP 239

DPP 239

SDP 239

SC 0.07 12/82

Work started July 19 1982  
Completed July 19 1982

**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:** DAHMAN PUMP AND DRILLING  
**Address:** P.O. Box 422, Burlington, 98233

[Signed]  
[Well Driller]

License No 0222  
Date July 20 1982

(USE ADDITIONAL SHEETS IF NECESSARY)
WATER WELL REPORT
STATE OF WASHINGTON

(1) OWNER: Name — Bill Cederberg
Address — 5309 204th St W Lynwood Wa. 98036

(2) LOCATION OF WELL: County — Skagit
Township — Sec. 25 T 33 N R 4 W M

(2a) STREET ADDRESS OF WELL (or nearest address) — 2283 Hull Rd. Lk McMurray

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

(4) TYPE OF WORK: Owner’s number of well (if more than one)
- Abandoned ☐ New well ☐ Method: Dug ☐ Bored ☐ Depended ☐ Reconditioned ☐
- Cable ☐ Driven ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well — 6 inches.
Drilled — 124 ft.
Depth of completed well — 124 ft.

(6) CONSTRUCTION DETAILS:
- Casing installed: L Diam. from 0 ft. to 1 ft.
- Welded ☐ Threaded ☐ Perforations: Yes ☐ No ☐
- Type of perforator used:
  - Size of perforations in by in:
  - perforations from ft. to ft.
- Screens: Yes ☐ No ☐
  - Manufacturer’s Name
  - Diameter from ft. to ft.
  - 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:
  - Did any strata contain unsuitable water? Yes ☐ No ☐
  - Type of water:
  - Method of sealing strata off:

(7) PUMP: Manufacturer’s Name
Type

(8) WATER LEVELS:
- Land-surface elevation above mean sea level
- Static level — 3-8-20
- Artesian pressure lbs. per square inch
- Artesian water is controlled by (Gas, water, 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 Time Water Level
  - Date of test:
  - Battery test — gal. min. with ft. drawdown after hrs.
  - Arttest — 56PM — gal./min. with stem set at ft. for hrs.
  - Artesian flow — g.p.m.
  - Temperature of water
- Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION:
Formation: Describe 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.

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Soil</td>
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</tr>
<tr>
<td>Silty Blue Clay</td>
<td>4</td>
<td>75</td>
</tr>
<tr>
<td>Blue Clay &amp; Gravel</td>
<td>75</td>
<td>110</td>
</tr>
<tr>
<td>Gravel &amp; Water</td>
<td>110</td>
<td>124</td>
</tr>
</tbody>
</table>

DEPARTMENT OF ECOLOGY
NORTHWEST REGION

receiVED
MAR 27 1990

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 Dahlman Pump & Well Drilling Inc.
(PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address P.O. Box 422 Burlington Wa. 98233

Contractor’s License No. 0623

(Signed) Ed Reicher
(WELL DRILLER)

Registration No. DAHLMPW1231C Date 3-8-1990

(USE ADDITIONAL SHEETS IF NECESSARY)
## Skagit Well Report

<table>
<thead>
<tr>
<th>SC Well ID: 1339</th>
<th>DOE Well ID:</th>
<th>Unique Well ID:</th>
<th>NOI023236</th>
<th>Water Right Permit #</th>
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<td>Owner</td>
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<td></td>
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</tr>
<tr>
<td>Last Name</td>
<td>First Name</td>
<td>Organization</td>
<td>City</td>
<td>State</td>
</tr>
<tr>
<td>JONSON</td>
<td>LOWELL</td>
<td>Road</td>
<td>SULTAN</td>
<td>WA</td>
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<td>Parcel</td>
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<td>98273 NW</td>
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<td>Water Levels</td>
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<td>Flow</td>
<td>Measured By</td>
<td>Depth</td>
<td>Measured</td>
<td>Date</td>
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<tr>
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<td>5</td>
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<td>19880824</td>
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<tr>
<td>Work</td>
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<td>Proposed Use</td>
<td>Work Type</td>
<td>Method</td>
<td>Owners Well</td>
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<td>Domestic</td>
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<td>Rotary</td>
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<td>Casing</td>
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<td>Connection Method</td>
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<td>Model</td>
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<td>Horsepower</td>
<td>Gravel Pack</td>
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<td>Surface Seal</td>
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<td>Depth</td>
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<td>Method</td>
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<td>Temperature Reading</td>
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<td>Date Measured</td>
<td>Measured By</td>
<td>Artesian Pressure</td>
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<td>Well Tests</td>
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<tr>
<td>Type</td>
<td>Yield (gpm)</td>
<td>Drawdown/Stemset Hours</td>
<td>Measured By</td>
<td>Measured Date</td>
</tr>
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<td>Bailier</td>
<td>30</td>
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<tr>
<td>Air</td>
<td>7</td>
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<tr>
<td>Well Log</td>
<td></td>
<td></td>
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<tr>
<td>Material</td>
<td>Top</td>
<td>Bottom</td>
<td>Driller Contractor</td>
<td>Last Name</td>
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<td>TOPSOIL</td>
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<td>15</td>
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<td>0623</td>
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<td>SOUPY BLUE CLAY</td>
<td>15</td>
<td>30</td>
<td>DRILLING INC</td>
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<tr>
<td>BROWN CLAY &amp; GRAVEL</td>
<td>30</td>
<td>35</td>
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<tr>
<td>BLUE CLAY 7 GRAVEL</td>
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<tr>
<td>WATER &amp; GRAVEL</td>
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<td></td>
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<tr>
<td>SANDSTONE</td>
<td>40</td>
<td>45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Skagit County Well Report

$G_5 \sim 237$

$D_{TW} = 5$

$W_{EW} \sim 232$


3/28/2014
OFFICE OF WATER RESOURCES

WATER WELL REPORT
STATE OF WASHINGTON

OWNER: Name ALLAN, LARRY
Address: 2272 HIGHWAY 9, MT. VERNON, WA 98273

LOCATION OF WELL: County SKagit
STREET ADDRESS OF WELL (or nearest address): 2272 HIGHWAY 9

PROPOSED USE: DOMESTIC

TYPE OF WORK:
Owner's Number of well
(If more than one) 1

NEW WELL

DIMENSIONS:
Drilled 61 ft. Diameter of well 6 inches
Depth of completed well 61 ft.

CONSTRUCTION DETAILS:
Casing installed: 6 Dia. from 42 ft. to 61 ft.
WELDED Dia. from ft. to ft.
Dia. from ft. to ft.

Perforations: NO
Type of perforator used
SIZE of perforations
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: NO
Manufacturer's Name
Model No.

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

Surface seal: YES
To what depth? 10 ft.
Material used in seal: MUD TIGHT CLAY
Did any strata contain unusable water? NO
Type of water? Depth of strata
Method of sealing strata off

PUMP: Manufacturer's Name
Type

WATER LEVELS:
Land-surface elevation above mean sea level
Static level 55 ft. below top of well Date 11/15/88
Artesian Pressure lbs. per square inch Date
Artesian water controlled by

WELL TESTS:
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
Boiler test gal/min. ft. drawdown after hrs.
Air test 15 gal/min. w/ steam set at 50 ft. for 3 hrs.
Artesian flow g.p.m. Date
Temperature of water
Was a chemical analysis made? NO

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 strata penetrated, with at least one entry for each change in formation.

MATERIAL

<table>
<thead>
<tr>
<th>From</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOPSOIL</td>
<td></td>
</tr>
<tr>
<td>FROM</td>
<td>20</td>
</tr>
<tr>
<td>BROWN CLAY</td>
<td></td>
</tr>
<tr>
<td>FROM</td>
<td>20</td>
</tr>
<tr>
<td>GRAY CLAY COARSE SAND &amp; GRAVEL</td>
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</tr>
<tr>
<td>FROM</td>
<td>20</td>
</tr>
<tr>
<td>BRUN COMAS SAND &amp; GRAVEL &amp; CLAY</td>
<td></td>
</tr>
<tr>
<td>FROM</td>
<td>55</td>
</tr>
<tr>
<td>BUILDER</td>
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</tr>
<tr>
<td>FROM</td>
<td>55</td>
</tr>
<tr>
<td>GRAY COARSE SAND &amp; GRAVEL</td>
<td></td>
</tr>
<tr>
<td>FROM</td>
<td>60</td>
</tr>
<tr>
<td>GRAY HARD CLAY</td>
<td></td>
</tr>
<tr>
<td>FROM</td>
<td>61</td>
</tr>
<tr>
<td>GRAY COARSE SAND &amp; GRAVEL &amp; WATER</td>
<td></td>
</tr>
</tbody>
</table>

\[65 = 275\]
\[\text{Date} = 06/15/88\]

Work started 11/15/88 Completed 11/15/88

WELL CONSTRUCTOR CERTIFICATION:
I constructed and/or accept responsibility for construction of the wall, 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 HAYES WELL DRILLING/PUMPS
(Person, firm, or corporation) (Type or print)

ADDRESS 556 ERSHIG RD. BON
(SIGNED) License No. 762

Contractor's Registration No. HAYESW10870N Date 06/02/89

DEPARTMENT OF ECOLOGY
NORTHWEST REGION

RECEIVED JUN 5 1989
Appendix B
Well Information
<table>
<thead>
<tr>
<th>Well Log Name</th>
<th>Current Owner</th>
<th>Parcel Number</th>
<th>Site Address</th>
<th>DTW (ft)</th>
<th>DTW Date</th>
<th>Sticker of MP (ft)</th>
<th>LiDAR GS Elevation (ft)</th>
<th>Google Earth Elevation (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ronald Martin</td>
<td>Henry G. Baumgartner</td>
<td>18348</td>
<td>23142 SR 9, Mount Vernon, WA 98274</td>
<td>63.54</td>
<td>8/22/2013</td>
<td>1.35</td>
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<tr>
<td>Foothills Investment Well 1</td>
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<td>18362</td>
<td>NA</td>
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<td>8/22/2013</td>
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<td>Tatoosh Water Well 2</td>
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<td>18362</td>
<td>NA</td>
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<td>5/10/1979</td>
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<td>Mark Youngs</td>
<td>Mark L. Youngs</td>
<td>77793</td>
<td>23179 SR 9, Mount Vernon, WA 98274</td>
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<td>Harriett Hassell</td>
<td>Johnny L. Tate</td>
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<td>23190 SR 9, Mount Vernon, WA 98274</td>
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<tr>
<td>Lake McMurray Resort</td>
<td>McHaven, Inc.</td>
<td>18301</td>
<td>22989 Lake McMurray In, Mount Vernon, WA 98274</td>
<td>8.67</td>
<td>8/22/2013</td>
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<tr>
<td>McHaven Inc, Joe Zipp</td>
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<td>Glenn Wilson</td>
<td>Richard D. and Shelley M. Rondeau</td>
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<td>Tatoosh Water Well 2</td>
<td>Evan R. Evans</td>
<td>119152</td>
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<td>Cal Buck/G&amp;K Construction</td>
<td>Virginia A. and Jesse Elves</td>
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<td>Dave and Kathy Hirdler</td>
<td>David W. Hirdler</td>
<td>18361</td>
<td>24797 Brotherhood Rd, Mount Vernon, WA 98274</td>
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<td>8/22/2013</td>
<td>0.92</td>
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<td>Doug Trainor</td>
<td>Ron and Cris Jilk</td>
<td>18347</td>
<td>23054 Lake McMurray Ln, Mount Vernon, WA 98274</td>
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<td>24880 Brotherhood Rd Apt A., Mount Vernon, Wa 98274</td>
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<td>Jim Kooske</td>
<td>Glenn W. Kensmoe</td>
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<td>John and Marie A. Steih</td>
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<td>Chub Lomsdalmen</td>
<td>Donald L. Lomsdalmen</td>
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<td>Rod Peterson</td>
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**Western Wells**

| Joe Davis                      |                               | 22853 Lakeside Lane | 17 | 10/1/2007 | Unknown | 250 |
| Robert Cheney                  |                               | 17753             | 1755 Hull Road (22565 Hull Road) | 0.5     | 7/7/1979 | Unknown | 233 |
| Pat Wickstrom                  |                               | 66165             | 22721 Hull Road | 0.23     | 11/5/2007 | Unknown | 239 |
| Doug and Judy Overturf         |                               | 22957 Lakeside Lane | 16 | 8/2/2006 | Unknown | 243 |
| James Johnson                  |                               | 75142             | 22897 Front Street | 48 | 5/30/2006 | Unknown | 280 |
| Mike Smith                     |                               | 75139             | 22913 Front Street | 50 | 11/19/1999 | Unknown | 282 |
| Rob Easley                     |                               | 95670             | Hollyoke St & Commercial | 59.5 | 1/25/1994 | Unknown | 307 |
| Jeanette Dillase               |                               | 2265 Highway 9    | 33.9 | 8/11/1979 | Unknown | 270 |
| George Gamble                  |                               | 66154             | 22711 Hull Road (approx 22607 Hull Road) | 1 | 7/19/1982 | Unknown | 234 |
| Bill Cederberg                 |                               | 66159             | 2283 Hull Road (22669 Hull Road) | 1 | 3/8/1990 | Unknown | 235 |
| Lowell Jonson                  |                               | 17245             | 2239 Highway 9 | 5 | 8/24/1988 | Unknown | 237 |
| Larry Allan                    |                               | 75115             | 2272 Highway 9 (22848 Highway 9) | 55 | 11/15/1988 | Unknown | 275 |

**TWN:** Township
**RGE:** Range
**SEC:** Section
**Qtr-Qtr:** Quarter Quarter Section
**Qtr:** Quarter Section
**LAT:** Latitude
**LON:** Longitude
**DTW:** Depth to water
**MP:** Measurement point
**GS:** Ground surface

Negative depth to water values indicate that the static water level is above the measurement point.
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<th>Well Log Name</th>
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TWN: Township
RGE: Range
SEC: Section
Qtr-Qtr: Quarter Quarter Section
Qtr: Quarter Section
LAT: Latitude
LON: Longitude
DTW: Depth to water
MP: Measurement point
GS: Ground surface
Negative depth to water values indicate...
Appendix C

Historic Lake and Wetland Water Level Measurements (Skagit County Public Works)
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Correction for NAVD88 is performed by adding 3.76 feet to raw data (Page, 2010)
Appendix D
Manual Water Level Measurements
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Elevation correction is based on:
Adding 220 feet to staff gage reading
Then adding 3.76 feet to correct for NAVD88

Elevation correction is based on:
Adding 228.39 feet to staff gage reading

Elevation correction is based on:
Ground surface from LiDAR is 260.42
Top of access port (MP) is 3.5 feet below ground surface