STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
January 28, 2005	G2-30226		

NAME
High Ridge Land Company, LLC

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
602 NW 353rd Street	LaCenter	Washington	98629

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Six Wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	60	20

QUANTITY, TYPE OF USE, PERIOD OF USE
20 Acre-feet per year — Municipal supply — Year-round, as needed

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
All of the following distances are from the Northeast corner of Section 6:
Well 1: 402.6 feet West and 405.9 feet South
Well 2: 255.0 feet West and 277.4 feet South
Well 3: 850.5 feet West and 818.1 feet South
Well 4: 1107.7 feet West and 1375.8 feet South
Well 5: 852.0 feet West and 1196.0 feet South
Well 6: 1048.8 feet West and 1856.1 feet South.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
3 Wells NE¼ NW¼ 3 Wells SE¼ NW¼	6	5	1E	27	Cowlitz

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
Lots 35 - 74		High Ridge, a large lot sub-division

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the proposed High Ridge Water System in Section 6, Township 5N, Range 1 EWM. The place of use of this water right will be the service area as approved in the Water System Plan/Small Water System Management Program approved by the Washington State Department of Health, so long as High Ridge or its successors is and remains in compliance with the criteria in RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the place of use of this water right.

DESCRIPTION OF PROPOSED WORKS

Storage tanks of unspecified size, six low-yield wells, and distribution pipes to each of 40 connections.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Started	January 1, 2014	January 1, 2015

REPORT

BACKGROUND:

On January 28, 2005, the High Ridge Land Company, LLC applied for a ground-water right to pump 60 gallons per minute (gpm) and 20 acre-feet per year (afy) for the purpose of municipal supply for 40 connections. The project location is Township 5 North, Range 1 East, Section 6, NE ¼ of NW ¼ and SE ¼ of NE ¼, in Cowlitz County. The applications were duly accepted by the Washington Dept. of Ecology and assigned number GW30226.

The application was advertised on February 16 and 23, 2005, in The Daily News of Cowlitz County. No protests were received for this application; however, a protest for a related water right change, CS2- 23598, also by High Ridge Land Company, LLC, was received from Robert Espeland, a neighbor to the south of the High Ridge development.

The groundwater will be pumped from six wells that were drilled during 2004 to various depths. The six wells were drilled under the authorization of a preliminary permit from Ecology, issued on April 19, 2004, and modified on May 18, 2004, under ground water application for change CS2-23598C.

The applicant holds no other water rights in the High Ridge project area and no municipal or other water supply is available.

According to RCW 90.03.015(4)(a), municipal water supply purposes means a beneficial use of water for residential purposes through fifteen or more residential service connections. Until the High Ridge development actually serves 15 or more residential connections, it will be regarded as having a purpose of community domestic supply. When fifteen connections are served, the water right permit will become, by operation of law, a municipal water supply right.

INVESTIGATION:

Geologic, hydrologic, fishery, and water-system information contained within this Report of Examination were derived from the following references:

Boessow, Steve, 2005. *Proposal for Data Collection for Review of Potential Water Rights for the High Ridge Housing Development – Burris Creek and Robinson Creek, WRIA 27.* Email to Jean Caldwell, June 16.

Caldwell, Jean, 2005. *High Ridge Project, Burris and Robinson Creeks, Fish Distribution and Fish Habitat.* Caldwell & Associates, Olympia, WA, September 6.

Evarts, R., 2004. *Geologic Map of the Woodland Quadrangle, Clark and Cowlitz Counties, Washington.* U. S. Geological Survey, Scientific Investigations Map 2827, scale 1:24,000, 38-page report.

Lower Columbia River Estuary Partnership, 2004. *Supplement to the Mainstem Lower Columbia River and Columbia River Estuary Subbasin Plan; Vol. II, Chapter 11, Lewis River Subbasin – Lower North Fork.* Prepared for the Northwest Power and Conservation Council, Nov. 22.

Montgomery Water Group, 2005. *Monthly Stream Flows and Seepage – Robinson and Burris Creeks.* Technical Memorandum for Pacific Groundwater Group, August 30.

Morrissette & Associates, 2005. *High Ridge Water System/Mr. Robert Youngs/Water System Demand.* Letter Report to Linton Wildrick, October 5.

Robinson, Noble, & Saltbush, 2004. *High Ridge LLC, Hydrogeologic Investigation.* Report for High Ridge, LLC. Tacoma, WA. November.

Robinson, Noble, & Saltbush, 2005a. *Supplemental High Ridge Data Submittal Re: Streamflow Capture Potential And Water Level Conditions.* Report for High Ridge, LLC. Tacoma, WA, August 26.

Robinson, Noble, & Saltbush, 2005b. *Additional Data Submittal for the High Ridge Water Right Application.* Letter to Linton Wildrick, Pacific Groundwater Group, Report for High Ridge, LLC. Tacoma, WA, September 6.

SalmonScape 2005. Washington Dept. of Fish and Wildlife fish distribution and stream channel characteristic database. Obtained via the internet at "www.fortress.wa.gov/dfw/salmonscape. "

United States Geological Survey, 1997. *Magnitude and frequency of floods in Washington.* Water Resources Investigations Report, WRIR 97-4277.

Washington Dept. of Ecology (DOE), 2005. *Stormwater management in Western Washington. Volume III. Hydrologic analysis and flow control design/BMPs.* Water Quality Program, February 2005. Publication No. 05-10-31 (a revision of Publication No. 99-13). Olympia WA.

Further information was obtained during site visits by Linton Wildrick, on April 15 and August 17, 2005, and by Dan Matlock, on October 10, 2005, of Pacific Groundwater Group, consultant contractor to Dept. of Ecology.

This application was processed under a cost reimbursement agreement, contract C050006-9R25, between High Ridge Land Company and Department of Ecology, as authorized under RCW 90.03.265 and related Washington Administrative Code. The procedures used during the processing of this application are based on RCW's 90.44.060 and 90.03.250-340, and related Washington Administrative Codes.

Water System and Estimated Future Water Demand

The water system will supply 40 larger than average homes, at full buildout. As presently constructed the water system is supplied by six wells, ranging in depth from 444 to 622 feet. The estimated long-term yield of these wells ranges from 1 to 5 gpm, with an estimated combined yield of about 21 gpm.

Despite the short distances between wells (hundreds of feet), twenty-four hour long pumping tests revealed low hydraulic interconnectivity among the wells. It was found that wells 1 and 2 affected one another, wells 3 and 4 affected one another, and wells 5 and 6 did not affect any other well. A nearby domestic well, Mitchell/Espeland, exhibited no drawdown response when the High Ridge wells were pumped consecutively.

Morrissette (2005) estimated that the multiple domestic demands for the 40 homes will require 0.23 ac-ft/yr per connection (average daily supply of 200 gallons per day, gpd) for inside use, year around, and 0.27 ac-ft/yr for irrigation. The latter is based 57% of the irrigation demand for turf, in the State of Washington Irrigation Guide (1990). Therefore, the total demand is 0.5 ac-ft/yr per connection, or 20 ac-ft/yr for 40 connections. This is equivalent to 12.4 gpm year around, but with a peak seasonal demand of about 22 gpm, which is the current maximum yield from the wells as limited by pump settings. Higher peak hour demands will be obtained from storage, although the wells could yield more than 22 gpm on a short-term, but non-sustainable basis.

The applicant proposed that the following water conservation measures will be established by the water system;

- A progressive rate structure, with the last increment equal to the base cost and higher than the mid-range rate;
- A limit to not more than ¼ acre irrigated landscaping per lot, by covenant or other binding requirement;
- Alternate-day watering restriction option built into the water conveyance system;
- Low-flow plumbing fixtures meeting current codes and standards.

Geographic Setting

The High Ridge development is located in Cowlitz County, about 2.5 miles north-northwest of Woodland, WA. The site occupies a steep ridge below Devils Peak and overlooking the Columbia and North Fork Lewis Rivers. The access road follows the ridgeline uphill. The buildable areas of the forty parcels are small, with steep slopes to the rear of each parcel. The wells that will serve the project are drilled along the ridgeline near the access road. Drainage from the west side of the ridge flows to Burris Creek; drainage to the east side drains to Robinson Creek.

Hydrogeologic Setting

The High Ridge site is underlain entirely by fractured volcanic bedrock. Surficial geology units consist of andesitic to rhyolitic tuff (Unit Tt) and basaltic andesite flows and breccia. Both units are Eocene Epoch age (5.3 to 23.7 million years old). Unit Tt is inferred to be mostly pyroclastic flow and lahar deposits. These units have been highly weathered, resulting in silty or clayey surface soils that range from 30 to 110 feet in thickness at the 6 wells drilled for the project.

Conceptual Model of the Groundwater Flow System

Groundwater recharge to the aquifer beneath High Ridge originates entirely from local precipitation falling on the ridge. Because of steep slopes and thick silty/clayey surface soils, much of the rainfall on the ridge probably runs overland to Burris and Robinson Creeks before it can infiltrate the soils and percolate to the aquifer. On the other hand, the fine-grained soils may have sufficient stored water content to supply a slow, but steady, supply of water to the bedrock aquifer.

The low permeability of the fractured bedrock and the dearth of fractures in these units results in low storativity, as well as low permeability because there are too few fractures to provide good interconnectivity. The aquifer tests indicate that the aquifer is confined, with barometric efficiencies ranging from 24 to 51%, and with low transmissivity ranging from approximately 200 to 2000 gpd/ft (27 to 270 ft^2/d). Storativity appears to be about 10^{-4}. The control of groundwater flow by wide-spaced, poorly interconnected, discrete bedrock fractures results in low well yields, slow water-level recovery, and little inference drawdown among the wells. Aquifer diffusivity, which is a measure of the rate that water level stresses will be transmitted through the aquifer, is relatively low.

Shallow groundwater beneath the ridge flows toward a line of springs between elevations 500 to 600 feet above sea level. Some of the groundwater no doubt percolates into underlying rock. A deeper groundwater system appears to feed domestic wells south of the High Ridge development and at lower elevations. Some of the groundwater probably percolates deeper into the groundwater system and discharges to the either the North Fork Lewis River valley or the Columbia River valley. The proportion of deep percolation of groundwater into the deepest part of the flow system cannot be reliably estimated from available information, but is likely less than 50% and may be less than 10%, judging from studies of other fracture-flow groundwater systems and the topography. In general, groundwater heads (water-level elevations) decrease with decrease with depth and as one moves down slope in the drainage basin. Burris and Robinson Creeks receive baseflow from the bedrock aquifer, so it is likely that some of the water pumped from the High Ridge wells would otherwise discharge to the springs or the creeks.

Consideration of the Protest by Robert Espeland

A protest was received from Robert Espeland, for a related water right change, CS2-23598C. Robinson, Noble & Saltbush (RNS, 2004; Appendix A) investigated the possibility that withdrawals from the High Ridge wells would impair the Mitchell/Espeland well or other nearby wells. During separate 24-hour pumping tests of each of the six High Ridge wells, interference drawdown was not detected in any neighboring well. Higher than normal withdrawals from the Cindy's Cupcakes well were noted during July and August of 2004 and were related to construction of a second home to be served by that well and daily irrigation of the new lawn to get it established. During this period, the water level in the Mitchell/Espeland well dropped 45 feet, but when the Cindy's Cupcakes well ceased daily withdrawals for irrigation, the water level recovered, except for several feet of decline related to natural seasonal drainage from the aquifer. It is concluded that the Mitchell/Espeland well is not likely to be impaired in the short-term (days to months) by the High Ridge wells. In the longer term, it will be necessary to monitor groundwater levels to ensure that nearby wells are not being adversely affected by the High Ridge withdrawals, as discussed in the following paragraph.

Although nearby wells are not likely to be impaired by withdrawals from the High Ridge wells, during the short term, longer-term water-level declines, due to overdrafting of the aquifer, are a concern. To assess the potential for longer-term declines, RNS (2005b) surveyed nearby wells in the River Run development, that are located downslope from High Ridge, and wells on an adjacent ridge to the west, adjacent to Green Mountain Road. RNS concluded that long-term declines were not occurring. However, a closer look at the data reveals declines over 3 to 18 years of 2 to 32 feet, depending on the well, and discounting the data for the Bigoni well which may be an isolated occurrence. The declines averaged 0.1 to 11 feet per year. While the number of wells surveyed is small and a number of uncertainties exist, the data imply that declines have commonly occurred in the High Ridge area and may be continuing. When withdrawals commence, it is common for water levels in confined aquifers to decline toward a new equilibrium. In this case, it is not known whether the water levels in the older wells have stabilized or continue to decline. Long-term monitoring is required to assess temporal trends in water levels.

Potential for Surface Water Capture from Burris and Robinson Creeks

Prior to the investigations for the High Ridge Development, discharge in Burris and Robinson creeks apparently had not been measured. Discharge during August 2005, in the lower reaches of both creeks, was less than 1 cfs (Montgomery Water Group, 2005). This is not unexpected for a bedrock-dominated watershed, with groundwater storage only in fractures, rather than porous granular soils. Because the baseflow and well yields are so low, it is unlikely that capture of surface water by a well could be measured. However, there is no hydraulic discontinuity or barrier that would prevent such effects. Also, the perennial flow in the creeks indicates a groundwater source during the dry season.

The actual surface-water capture rate due to pumping the High Ridge wells will be less than the groundwater withdrawal rate, because some of the pumped water will return to the groundwater system via on-site septic system drainfields; this may be as much as 80% of the pumped water. Therefore, for the estimated average irrigation season pumping rate of 20 gpm, the consumptive quantity that would not return to the aquifer is 4 gpm. Not all of the consumed water would have drained to the creeks. Given the uncertainties in estimating the deep percolation quantities and the nature of the fracture flow system, it is concluded that most of the water consumptively pumped from the six High Ridge wells would otherwise discharge into Burris or Robinson Creeks. Based on the well locations and approximately equal distances east or west to the creeks, it is concluded that capture will be equal in each creek, which is ½ of the average combined pumping rates. For the six-month irrigation season, the average pumping rate will be 20 gpm. RNS (2005a) estimates that 80% of the pumped water will return to the aquifer, so only 20 %, or 4 gpm would be captured from the streams. Given the uncertainties in the demand and return flow estimate, I conclude that 6 gpm will be captured from streamflow, or 3 gpm from Robinson Creek and 3 gpm from Burris Creek. Three gpm is equivalent to 0.0067 cubic feet per second (cfs).

Surface Drainage, Streamflow Rates, and Fisheries Conditions

The Washington Dept. of Fish and Wildlife (WDFW) requested information regarding fish presence, fish habitat, and channel characteristics, and stream hydrology (Boessow, 2005). In response, two field investigations were conducted. Caldwell (2005) observed fish habitat and measured streamflows in Burris and Robinson Creeks. Montgomery Water Group (MWG, 2005) also measured streamflows, and estimated mean monthly discharges for both streams.

It was not possible to collect all of the information requested by WDFW. Reasons included lack of access due to private property and steep terrain, whether the measurement requested was appropriate for the small stream channels, and at what scale hydrologic estimates could appropriately be made.

The Robinson Creek watershed is approximately 2.9 square miles (1,829 acres) in area. The Burris Creek watershed upstream of Interstate Five is approximately 2.8 square miles (1,767 acres) in area (MWG, 2005). MWG estimated monthly streamflows for Burris and Robinson Creeks by two methods:

- A relationship between the drainage area of these ungaged streams and drainage area of a nearby, similar, gaged stream, Salmon Creek near Battle Ground (USGS 1997);
- Department of Ecology's Western Washington Hydraulic Model (WWHM) for Cowlitz County (Ecology, 2005).

The USGS method likely overestimates the higher flows, because the estimate is based on flows observed in a larger drainage area. The WWHM method likely underestimates the low flows, because the model does not account well for groundwater discharge (baseflow), which is a larger component of low flows in small drainage areas. For the lowest flow month, August, the USGS method estimated 0.8 cfs for both creeks, and the WWHM method estimated 0.0 flow for both creeks.

WDFW provided information about fish species and lifestages presence, timing of life history phases, and the extent of fish use (S. Boessow, S. VanderPloeg, WDFW, pers. comms. 2005; SalmonScape 2005).

For Burris Creek, fish distribution is inferred from GIS-based estimates of stream gradient and channel characteristics. Coho and winter steelhead are presumed to have been historically present upstream of Interstate 5: coho to a point just upstream of Green Mountain Road, and winter steelhead to a point in the upper portion of Section 1 (T5N R1W). Juvenile spring and fall chinook are listed as present only in a ditched tributary of Burris Creek that flows north next to the Columbia River within the Woodland Diking District and meets Burris Creek at the mouth, in Section 3 (T5N R1W). A pump station at the mouth of Burris Creek pumps water into the Columbia River. The pumps are believed to be a barrier to fish migration (S. VanderPloeg, WDFW, personal comm. 2005). In addition, of the eight culverts on Burris Creek associated with Interstate 5, the Dike Access Road, and the railroad grade, three are listed by WDFW as "not a blockage" and five as "unknown" status as passage barriers (SalmonScape 2005).

Burris Creek flow in August 2005 was 0.7 cfs at Green Mountain Road, which is similar to the 0.8 cfs estimated August mean monthly flow. Above Green Mountain Road, landuse is residential and pasture. In upper Burris Creek, streamflow was measured at 0.2-0.3 cfs in early August and 0.27 cfs in late August.

Burris Creek, downstream of Green Mountain Road, is highly affected by land use and ditching.
Riparian conditions are poor, and summer water temperatures are likely to be high. Fish passage is limited by pump station operations and possibly by some of the culverts associated with Interstate 5 and the railroad grade. Upstream of Green Mountain Road, there are a few private road crossings. Fish passage presumably is only limited by channel configuration, low summer flows, and stream gradient. Some spawning gravels are available in pools, although fine sediments may limit spawning. Riparian conditions are good, with medium to large riparian trees. Summer water temperatures are likely to be high but sublethal.

For Robinson Creek, the upstream limit of anadromous distribution is known, with coho and winter and summer steelhead present up to approximately river mile (RM) 0.9, where fish access is blocked by a bedrock waterfall approximately 35 feet high. Resident fish distribution upstream of this point is unknown.

Robinson Creek, downstream of the waterfall, runs for approximately 0.9 mile across a flat terrace and under Highway 503 via a fishway, to the Lewis River (SalmonScape, 2005). Just downstream of the waterfall, landslide debris has entered the stream and floodplain, causing aggradation of the stream channel. Flows were measured at 0.08 cfs, on August 26, 2005, in the aggraded area of landslide debris, and at 0.04 cfs at the culvert under Lewis River Drive, indicating a losing reach, or surface-water diversions, downstream of the waterfall (MWG, 2005). Upstream of the waterfall (at approximately 160 feet elevation), measured flows were 0.15-0.25 cfs, on August 8, 2005 (Caldwell, 2005. Habitat was very consistent, with bedrock streambeds (pools are fractures in the bedrock). All potential habitat was in pools, with the remainder of the stream being shallow sheetflow over bedrock. Upstream, at approximately 420 feet in elevation, flow was measured at 0.26-0.27 cfs. Habitat conditions included a step-pool system, controlled by bedrock and boulders.

Lower Robinson Creek, downstream of the waterfall, is highly affected by inputs of sediment from landslide debris, and by rural residential land use. Riparian conditions are poor, sediment supply is high, and summer water temperatures are likely to be high but sublethal. This limits the value of this reach for rearing salmonids. Spawning areas outside of the immediate aggradation zone may not be as affected by the landslide debris, because the low stream power will limit sediment transport.

Upstream of the waterfall, Robinson Creek has no known road crossings that have culverts. Fish passage would be limited by the shallow depths in the bedrock channel, low summer flows, and stream gradients. Fish habitat is limited by the few "pool" features in the bedrock channel. Spawning will be limited in this reach because of the lack of instream gravels. Riparian conditions are similar to below the falls. Fish use of this reach is unknown, but habitat would be limited by the low amount of pool habitat, amount of bedrock present in the channel, and low summer flows. Spawning may be limited by the large substrates and fine sediments. Fish passage may be limited by stream gradients. Riparian conditions are good, with medium to large riparian trees. Summer water temperatures are likely to be high but sublethal.

Potential for Impairment of Senior Water Rights or Exempt Wells

Department of Ecology's Water Rights Application Tracking System (WRATS) database was used to identify senior water rights within about one mile of the High Ridge project. The water rights are listed in **Table 1**, attached. Impairment of nearby wells was found to be unlikely, as discussed above in the discussion of the protest by Robert Espeland. Therefore, wells located farther away will not be impaired either.

Diversions for three senior surface-water rights (S2-*07296C, S2-20723C, and S2-23672C) are located on lower Robinson Creek, below the waterfall, which total 0.25 cfs. This is more than the late August flow measurement at river mile 0.5, of 0.10 cfs. On the other hand, the measurement of 0.03 to 0.05 cfs near the mouth, and below the diversion points of the senior water rights, indicates that the estimated streamflow capture of 0.0067 cfs (3gpm) by the High Ridge wells could be accommodated without impairment of senior rights.

Diversions for four senior surface-water rights are located on lower Burris Creek (S2-*118660C, S2-00317C, S2-00437C, and S2-23431C). Although the streamflow is quite low during late summer, it appears that none of the senior surface-water rights on Burris Creek will be impaired by the small surface-water capture rate of 0.0067 cfs that would be attributed to the High Ridge wells.

The status of diversions and use for water rights S2-*07296C, S2-20723C, and S2-23672C on Robinson Creek was investigated during a field visit on October 10, 2005. The points of diversion could not be located. It appears that the places of use described in the water rights have been sub-divided in small lots of 2 to 5 acres that are now occupied by homes and a storage rental facility and served by domestic wells. Other than small garden plots, no evidence of irrigation was observed. Many of the homes appear to have been built more than five years ago. Even though the surface-water rights goes with the sub-divided pieces of land, the withdrawals appear to have shifted from surface water to groundwater, which is not in keeping with the original water rights. Therefore, it appears that the surface-water rights on lower Robinson Creek have not been used for at least five years and may have been abandoned due to non-use.

CONCLUSIONS:

I find that the requested use of water for continuous municipal water supply is a beneficial use pursuant to RCW 90.54.020(1).

I also find that additional groundwater is available for appropriation and that a withdrawal of 20 acre-feet per year, year around, at a maximum rate of 60 gpm, subject to the provisions below, will not impair senior water rights.

The new appropriation will not be detrimental to the public welfare.

Based on recommendations for mitigation, by Washington Dept. of Fish and Wildlife, High Ridge will provide a significant habitat protection easement along Burris Creek where it flows through the High Ridge property. High Ridge Land Company, LLC, has proposed a conservation easement in the southwest corner of the property that is 300 feet east-west and 2,000 feet north-south. This easement is acceptable to mitigate the 6-gpm capture rate from both creeks.

RECOMMENDATIONS:

Available data on hydraulic properties and groundwater levels are sparse, and hydrogeologic analyses based on the information have considerable uncertainty. It is possible that the local groundwater system might be overdrafted by the planned withdrawals. Therefore, monitoring of groundwater levels, water use, and water quality will be required, in order to protect both the future owners of the connections and neighboring domestic wells. Groundwater levels should be recorded at a minimum of monthly intervals, with a pressure transducers and datalogger in at least one High Ridge well, preferably the one that is closest to the down-slope wells, if otherwise suitable. Groundwater levels in the other wells should be monitored at least yearly.

I recommend that application G2-30226 be approved for 60 gpm and 20 afy for municipal use, year-round as needed, subject to the following reguirements:

- The applicant shall provide one acre of conservation easement along Burris Creek for every gpm of estimated capture from Burris and Robinson Creeks, combined, that is, at least six acres. This easement shall forbid tree cutting, land clearing, or construction of any type.
- No more than ¼ acre of each parcel shall be irrigated.
- The amount of water granted is a maximum limit that shall not be exceeded.

PROVISIONS:

"Groundwater levels will be monitored continuously in Well 6, with a calibrated pressure transducer and datalogger, commencing from the time that any of the High Ridge wells begin service and for at least one year following full build-out of the project. Thereafter, the well shall be monitored monthly from July through October. Water levels in wells 1 through 5 shall be monitored once each year during October, commencing from the time that any of the High Ridge wells begin service. The groundwater levels shall be reported to Department of Ecology, Water Resources Program, Southwest Region, or successor agency, once each year."

The applicant is advised that the quantity of water allocated by this permit may be reduced at the time of final certification to reflect system capacity and actual usage.

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC.

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Water use data shall be recorded weekly. The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year.

In order to maintain a sustainable supply of water, pumping must be managed so that static water levels do not progressively decline from year to year. Water levels shall be measured and recorded monthly, using a consistent methodology. The length of the pumping period or recovery period prior to each measurement shall be constant, and shall be included in the record. Data shall be submitted annually, in the month of February, to the Department of Ecology.

The Water Resources Act of 1971 specifies certain criteria regarding utilization and management of the waters of the state in the best public interest. Use of water may be subject to regulation at certain times, based on the necessity to maintain water quantities sufficient for preservation of the natural environment.

Issuance of this water right is subject to the implementation of the minimum requirements established in the Conservation Planning Requirements, Guideline and Requirements for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs, July 1994, and as revised.

Under RCW 90.03.005 and 90.54.020(6), conservation and improved water use efficiency must be emphasized in the management of the states water resources, and must be considered as a potential new source of water. Accordingly, as part of the terms of this water right, the applicant shall prepare and implement a water conservation plan approved by Department of Health. The standards for such a plan may be obtained from either the Department of Health or the Department of Ecology.

The subject well has been tagged with a well identification number. This unique well number shall remain attached to the well, please reference this number when submitting data.

Installation and maintenance of an access port as described in Chapter 173-160 is required. An air line and gauge may be installed in addition to the access port.

The Water Resources Act of 1971, Chapter 90-54 RCW specifies certain criteria regarding utilization and management of the waters of the State in the best public interest. Favorable consideration of this application has been based on sufficient waters available, at least during portions of the year. However, it is pointed out to the applicant that this use of water may be subject to regulation at certain times, based on the necessity to maintain water quantities sufficient for preservation of the natural environment.

REPORTED BY: Jeffrey S. Marti Date: Nov 8, 2005

FINDINGS OF FACT AND DECISION

Upon reviewing the above report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. Furthermore, I find water is available for appropriation and the appropriation as recommended is a beneficial use and will not be detrimental to existing rights or the public welfare.

Therefore, I ORDER a permit be issued under Ground Water Application Number G2-30226, subject to existing rights and indicated provisions, to allow appropriation of public ground water for the amount and uses specified in the foregoing report.

Signed at Olympia, Washington, this 17th day of November, 2005.

Thomas Loranger

Thomas Loranger
Water Resources Section Manager
Southwest Regional Office