

Groundwater Application Review Summary Form

Application # G- 19410

GW Reviewer James Hootsmans/Travis Brown Date Review Completed: 10/31/2024

Summary of GW Availability and Injury Review:

☐ Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

Summary of Potential for Substantial Interference Review:

☐ There is the potential for substantial interference per Section C of the attached review form.

Summary of Well Construction Assessment:

☐ The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).

WATER RESOURCES DEPARTMENT

MEMO

10/31/2024

TO: Application G- 19410

FROM: GW: James Hootsmans/Travis Brown
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ YES The source of appropriation is hydraulically connected to a State Scenic
☒ NO Waterway or its tributaries

☐ YES
☒ NO Use the Scenic Waterway Condition (Condition 7J)

☐ Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below

☐ Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway**

DISTRIBUTION OF INTERFERENCE

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is unable to make a Preponderance of Evidence finding.

Exercise of this permit is calculated to reduce monthly flows in [Enter] Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section
FROM: Groundwater Section James Hootsmans/Travis Brown
SUBJECT: Application G- 19410 Supersedes review of _____
Date 10/31/2024
Reviewer's Name
Date of Review(s)

PUBLIC INTEREST PRESUMPTION; GROUNDWATER

OAR 690-310-130 (1) *The Department shall presume that a proposed groundwater use will ensure the preservation of the public welfare, safety and health as described in ORS 537.525. Department staff review groundwater applications under OAR 690-310-140 to determine whether the presumption is established. OAR 690-310-140 allows the proposed use be modified or conditioned to meet the presumption criteria. This review is based upon available information and agency policies in place at the time of evaluation.*

A. GENERAL INFORMATION: Applicant's Name: Ed Landholdings LLC County: Marion

A1. Applicant(s) seek(s) 0.855 cfs from 1 well(s) in the Willamette Basin,
Mainstem Willamette subbasin

A2. Proposed use Irrigation (68.4 ac; 171 af/y) Seasonality: March 1 through October 31

A3. Well and aquifer data (attach and number logs for existing wells; mark proposed wells as such under logid):

POA Well	Logid	Applicant's Well #	Proposed Aquifer*	Proposed Rate(cfs)	Location (T/R-S QQ-Q)	Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36
1	PROP 519	1	Alluvial	0.855	6S/3W-1 SE-NE	1420' S, 1380' W fr NE cor S 1

* Alluvium, CRB, Bedrock

POA Well	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Drawdown (ft)	Test Type
1	150	20	0 to 150					

POA Well	Land Surface Elevation at Well (ft amsl)	Depth of First Water (ft bls)	SWL (ft bls)	SWL Date	Reference Level (ft bls)	Reference Level Date
1	117					

Use data from application for proposed wells.

A4. **Comments:** The proposed POA (PROP 519) is located in the floodplain deposits of the Willamette River, just south of Woodburn, Oregon. The proposed construction of the POA targets the alluvial aquifer system for the purposes of irrigation.

A5. ☐ **Provisions of the** Willamette Basin rules relative to the development, classification and/or management of groundwater hydraulically connected to surface water ☐ **are**, or ☒ **are not**, activated by this application. (Not all basin rules contain such provisions.)

Comments: The proposed Well 1 produces groundwater from an unconfined aquifer but is not within ¼ mile of a surface water source; therefore, the pertinent Willamette Basin rules (OAR 690-502-0240) do not apply.

A6. ☐ **Well(s) #** 1, _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: _____
Comments: NA

B. GROUNDWATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. **Based upon available data**, I have determined that groundwater* for the proposed use:

- a. ☐ is over appropriated, ☒ is not over appropriated, or ☐ cannot be determined to be over appropriated during any period of the proposed use. * This finding is limited to the groundwater portion of the over-appropriation determination as prescribed in OAR 690-310-130;
- b. ☐ will not or ☐ will likely be available in the amounts requested without injury to prior water rights. * This finding is limited to the groundwater portion of the injury determination as prescribed in OAR 690-310-130;
- c. ☐ will not or ☐ will likely to be available within the capacity of the groundwater resource; or
- d. ☒ will, if properly conditioned, avoid injury to existing groundwater rights or to the groundwater resource:
 - i. ☒ The permit should contain condition #(s) 7RLN, Medium water use reporting;
 - ii. ☒ The permit should be conditioned as indicated in item 2 below.
 - iii. ☐ The permit should contain special condition(s) as indicated in item 3 below;

- B2.
- a. ☐ **Condition** to allow groundwater production from no deeper than _____ ft. below land surface;
 - b. ☐ **Condition** to allow groundwater production from no shallower than _____ ft. below land surface;
 - c. ☒ **Condition** to allow groundwater production only from the Alluvial groundwater reservoir ~~between approximately~~ _____ ft. and _____ ft. below land surface;
 - d. ☐ **Well reconstruction** is necessary to accomplish one or more of the above conditions. The problems that are likely to occur with this use and without reconstructing are cited below. Without reconstruction, I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Groundwater Section.

Describe injury –as related to water availability– that is likely to occur without well reconstruction (interference w/ senior water rights, not within the capacity of the resource, etc): _____

B3. **Groundwater availability remarks:**

The proposed POA sits along the outside corner of a meander bend of the Willamette River, therefore the POA is situated in younger alluvium of the river.

Regionally to the north and east of the POA, the subsurface contains low-permeability silt and clay to a depth of approximately 70-90 feet below land surface. About 40-60 feet of primarily sand and gravel underlie the silt and clay, which act as an aquifer system. However, the upper layer is mostly to completely removed by erosion in the immediate area of the POA, and at this boundary the aquifer system transitions from being confined to unconfined. Beneath these two units lie over 700 feet of predominantly clay and silt, with thin interbeds of sand and gravel (Gannett and Caldwell, 1998; Conlon and others, 2005).

The water table is about 10-40 feet below land surface, so the POA will be saturated most of the total depth of the well. Water level data available from nearby wells in the sedimentary aquifer system show fairly stable trends over the past ~60 years (see attached hydrographs). However, water-level data from MARI 3803 indicate that seasonal fluctuations range from 20-35 feet and that water levels fall to within <20 feet of the top of the sand and gravel layers. These seasonal fluctuations are consistent with those found in much of the alluvial aquifer of the central Willamette Basin and likely reflect the combined interference from irrigation wells (Conlon and others, 2005).

The nearest neighboring well to the proposed POA is MARI 4776, ~400 ft south of the proposed POA. Potential interference with MARI 4776 from the proposed use was assessed using the Theis (1935) solution (see attached Well Interference Analysis). Results of the analysis indicate the proposed use is unlikely to exceed the standard permit condition limit of 25 ft of interference with a neighboring senior water right or cause injury to MARI 4776.

Yields from nearby wells completed in the sedimentary aquifer system range from moderate to high (~100-1000 gpm). The potential for large drawdowns during pumping, combined with seasonal water level fluctuations, could create problems for well operation.

The stable annual water levels in nearby wells indicate that groundwater for the proposed use is likely available within the capacity of the resource, but if a permit is granted, the recommended permit conditions should be included to monitor and protect the resource.

C. GROUNDWATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

C1. 690-09-040 (1): Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	Alluvium	☐	☒

Basis for aquifer confinement evaluation: Well logs from other wells in the region indicate water-bearing sands and gravels at depth (Willamette Aquifer Upper Sedimentary Unit) that are confined by more than 30 - 80 ft of overlying low-permeability fine grained sediments (Willamette Silt). However, at the location of the POA (on the margins of a Willamette River meander bend) much of the fine sediments that overlie the water bearing zones have been eroded away. POA 1 (PROP 519) is anticipated to be 150 ft deep. Given these depths and the thickness of the Holocene deposits, the proposed well is likely to utilize the unconsolidated gravel and/or sand water-bearing zone of the Holocene floodplain deposits, which are mapped at the surface. Some wells in the area appear to exhibit localized confining layers, however, a continuous confining layer is not likely given the geomorphology of the Willamette River (Wallick et al., 2013). Most wells within one mile of the POAs report a SWL that is near the elevation of the water table (Gannett and Caldwell, 1998; Woodward et al., 1998) and the Willamette River. The POA is anticipated to develop an unconfined aquifer.

C2. 690-09-040 (2) (3): Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Hubbard Lake	100-130	95-100	1400	☒	☐	☐	☐	☒
1	2	Patterson Creek	100-130	110-140	2500	☒	☐	☐	☐	☒
1	3	Willamette River	100-130	85-120	8500	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: The POA is proposed to be located just over a quarter mile from a surface water body, however a shallow seal is proposed for construction and the surficial alluvial deposits is targeted for the source water. Water levels in nearby wells are similar to surface water body elevations in the region which include the Willamette River and its tributaries, Patterson Creek, and local oxbow lakes like Hubbard, Deep and Ryan Lakes. The oxbow lakes are remnant Willamette River flow pathways. Water table maps indicate that groundwater flows toward, and discharges into Hubbard Lake and the Willamette River (Conlon and others, 2005; Gannett and Caldwell, 1998). This fact indicates that the alluvial aquifer is hydraulically connected to these surface water bodies.

All three surface water bodies in table C2 are within the same Water Availability Basin (WAB).

Water Availability Basin the well(s) are located within: Willamette R > Columbia R > AB Mollala R

- C3a. **690-09-040 (4):** Evaluation of stream impacts for each well that has been determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water (SW) source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that SW source, not lower SW sources to which the stream under evaluation is tributary. Compare the requested rate against the 1% of 80% *natural* flow for the pertinent Water Availability Basin (WAB). If Q is not distributed by well, use full rate for each well. Any checked ☒ box indicates the well is assumed to have the potential to cause PSI.

Well	SW #	Well < ¼ mile?	Q _w > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Q _w > 1% ISWR?	80% Natural Flow (cfs)	Q _w > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
1	1	☐	☐			☐	3830	☐	*	☐
1	2	☐	☐			☐	3830	☐	*	☐

- C3b. **690-09-040 (4):** Evaluation of stream impacts by total appropriation for all wells determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. **Complete only if Q is distributed among wells.** Otherwise same evaluation and limitations apply as in C3a above.

	SW #		Q _w > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Q _w > 1% ISWR?	80% Natural Flow (cfs)	Q _w > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
			☐			☐		☐		☐

Comments: *Potential depletion of nearby surface water sources could not be quantitatively analyzed due to the lack of readily available appropriate model. However, given the hydrogeologic setting and distances, it is very likely less than 25 percent of the rate of withdrawal within the first 30 days of pumping.

Please note – this finding of no PSI is for the current location of the proposed well location, which is just outside a quarter mile in an unconsolidated aquifer system. Should the well be drilled closer to Hubbard Lake or other surface water bodies, PSI will/may be assumed.

- C4a. **690-09-040 (5):** Estimated impacts on **hydraulically connected surface water sources greater than one mile** as a percentage of the proposed pumping rate. Limit evaluation to the effects that will occur up to one year after pumping begins. This table encompasses the considerations required by 09-040 (5)(a), (b), (c) and (d), which are not included on this form. Use additional sheets if calculated flows from more than one WAB are required.

Non-Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
(A) = Total Interf.													
(B) = 80 % Nat. Q													
(C) = 1 % Nat. Q													
(D) = (A) > (C)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
(E) = (A / B) x 100		%	%	%	%	%	%	%	%	%	%	%	%

(A) = total interference as CFS; (B) = WAB calculated natural flow at 80% exceed. as CFS; (C) = 1% of calculated natural flow at 80% exceed. as CFS; (D) = highlight the checkmark for each month where (A) is greater than (C); (E) = total interference divided by 80% flow as percentage.

Basis for impact evaluation: The requested rate (0.855 cfs) is less than 1 percent of the natural flow that is equaled or exceeded 80 percent of time for the Willamette River. Therefore, regardless of the percentage of the withdrawal rate that manifests as depletion of the Willamette River, it will not reach the threshold of PSI.

C4b. **690-09-040 (5) (b)** The potential to impair or detrimentally affect the public interest is to be determined by the Water Rights Section.

- C5. ☐ **If properly conditioned**, the surface water source(s) can be adequately protected from interference, and/or groundwater use under this permit can be regulated if it is found to substantially interfere with surface water:
- i. ☐ The permit should contain condition #(s) _____;
 - ii. ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:**

Please note – this finding of no PSI is for the current location of the proposed well location, which is just outside a quarter mile in an unconsolidated aquifer system. Should the well be drilled closer to Hubbard Lake or other surface water bodies, PSI will/may be assumed.

References Used: Application file: G-18434; G-19410

Pumping test reports: MARI 2522, 4792, 5075, 5367, 5368, 18339; POLK 100, 1127

Conlon, T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, Ground-water hydrology of the Willamette Basin, Oregon: U.S. Geological Survey Scientific Investigations Report 2005-5168.

Gannett, M.W. and Caldwell, R., 1998, Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-A, 32 p.

Hunt, B., 1999, Unsteady stream depletion from ground water pumping: Ground Water, v. 37, no. 1, p. 98-102

Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, 2003.

Iverson, J., 2002, Investigation of the hydraulic, physical, and chemical buffering capacity of Missoula flood deposits for water quality and supply in the Willamette Valley of Oregon: Unpublished M.S. thesis, Oregon State University, 147 p.

Jenkins, C.T., 1970, Computation of rate and volume of stream depletion by wells: U.S. Geol. Survey Techniques of Water-Resources Investigations of the United States Geological Survey, Chapter D1, Book 4, 17 p.

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82 p.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** _____ **Logid:** _____

D2. **THE WELL does not appear to meet current well construction standards based upon:**

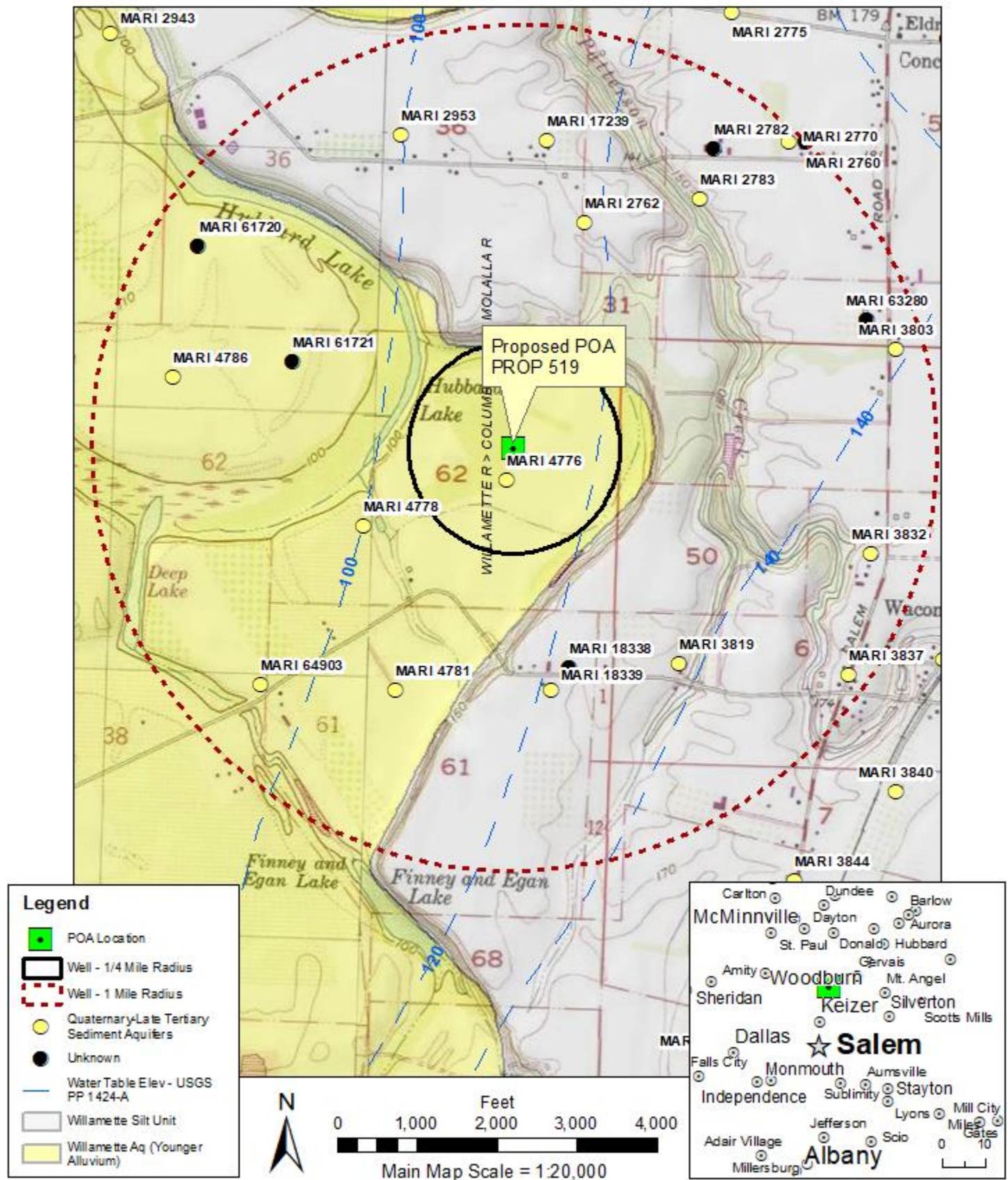
- a. ☐ review of the well log;
- b. ☐ field inspection by _____;
- c. ☐ report of CWRE _____;
- d. ☐ other: (specify) _____

D3. **THE WELL construction deficiency or other comment is described as follows:** _____

D4. ☐ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

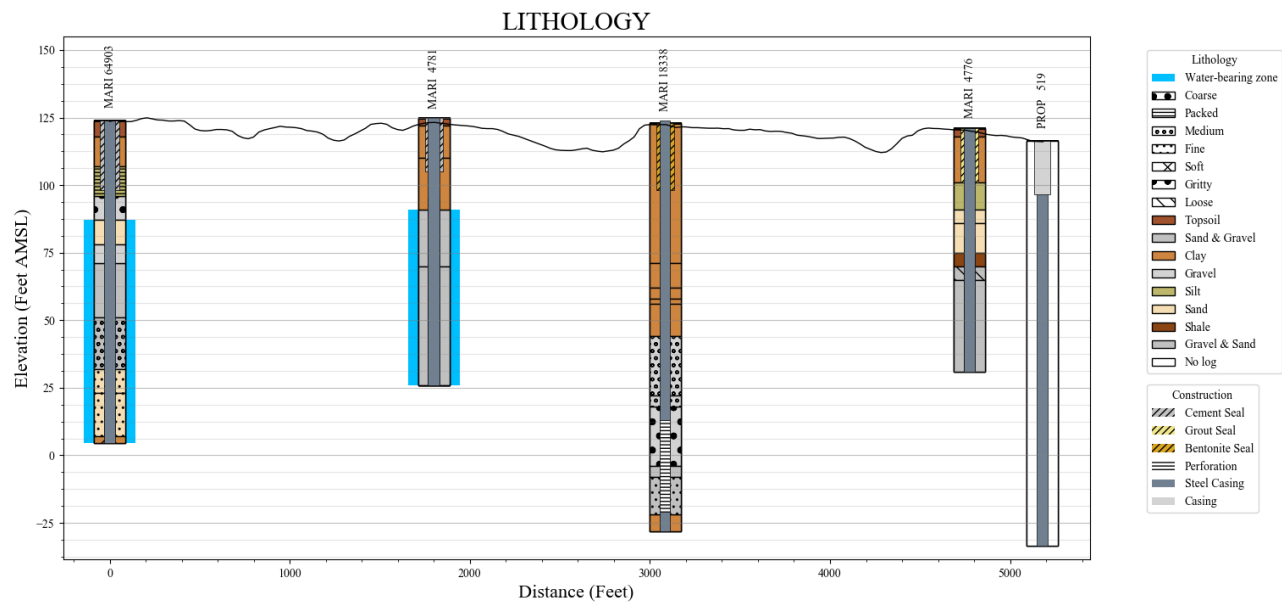
Location Map with Geology

G19410 Ed Landholdings LLC

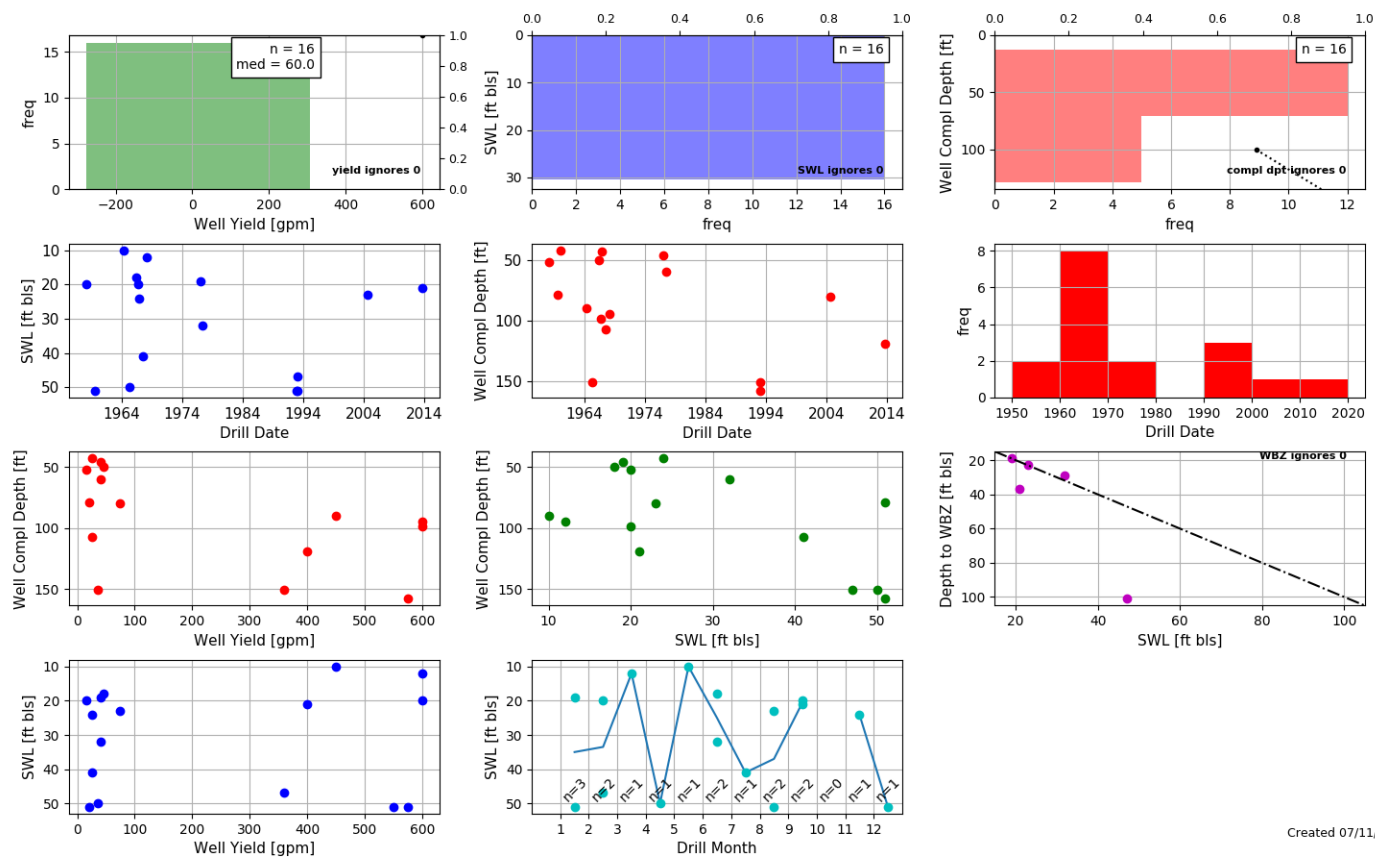


Service Layer Credits: Copyright© 2013 National Geographic Society, i-cubed

Cross-Section

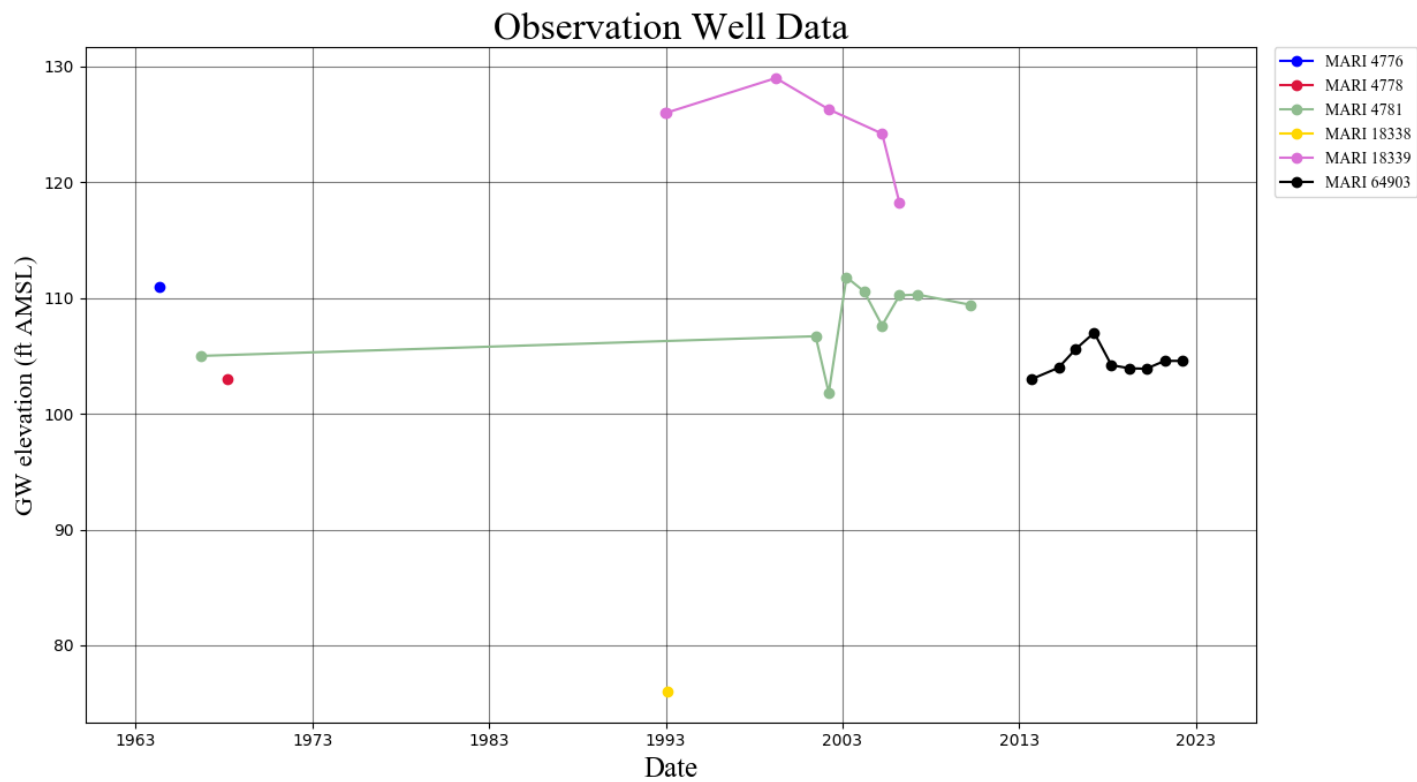


Well Statistics



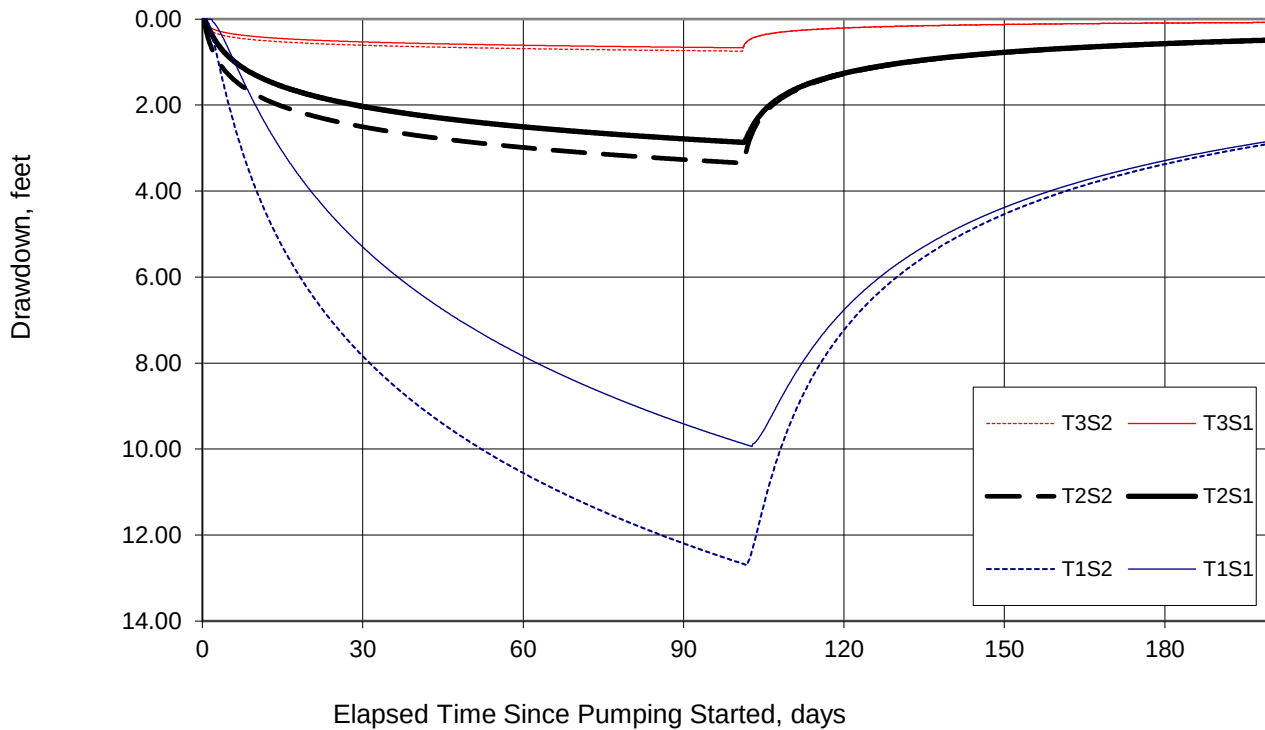
Created 07/11/2024

Water-Level Measurements in Nearby Wells



Well Interference Analysis (Theis, 1935)Theis Drawdown and Recovery at $r = 400$ ft From Pumping Well

Pump on = 145440 minutes = 101.00 days

**Radial Distance, $r = 400$ ft [approximate distance from proposed POA to MARI 4776]****Pumping rate, $Q = 0.855$ cfs [maximum requested rate]****Pumping time, $t_{\text{pump}} = 101$ days [approximate time to exhaust duty at maximum rate]****Transmissivity: $T1 = 1,400$ ft²/d | $T2 = 8,400$ ft²/d | $T3 = 52,000$ ft²/d [pumping test reports]****Storativity: $S1 = 0.2$ | $S2 = 0.1$ [Conlon et al., 2005]**

Water Availability Tables

WILLAMETTE R > COLUMBIA R - AB MOLALLA R

WILLAMETTE BASIN

Water Availability as of 7/11/2024

Watershed ID #: 182 (Map)

Exceedance Level: 80% v

Date: 7/11/2024

Time: 10:06 AM

Water Availability Calculation

Consumptive Uses and Storages

Instream Flow Requirements

Reservations

Water Rights

Watershed Characteristics

Water Availability Calculation

Monthly Streamflow in Cubic Feet per Second

Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	21,400.00	2,300.00	19,100.00	0.00	1,500.00	17,600.00
FEB	23,200.00	7,490.00	15,700.00	0.00	1,500.00	14,200.00
MAR	22,400.00	7,260.00	15,100.00	0.00	1,500.00	13,600.00
APR	19,900.00	6,910.00	13,000.00	0.00	1,500.00	11,500.00
MAY	16,600.00	4,250.00	12,300.00	0.00	1,500.00	10,800.00
JUN	8,740.00	1,980.00	6,760.00	0.00	1,500.00	5,260.00
JUL	4,980.00	1,810.00	3,170.00	0.00	1,500.00	1,670.00
AUG	3,830.00	1,650.00	2,180.00	0.00	1,500.00	681.00
SEP	3,890.00	1,390.00	2,500.00	0.00	1,500.00	997.00
OCT	4,850.00	753.00	4,100.00	0.00	1,500.00	2,600.00
NOV	10,200.00	887.00	9,310.00	0.00	1,500.00	7,810.00
DEC	19,300.00	975.00	18,300.00	0.00	1,500.00	16,800.00
ANN	15,200,000.00	2,250,000.00	13,000,000.00	0.00	1,090,000.00	11,900,000.00

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