

# Groundwater Application Review Summary Form

Application # G- 18913 (Re-review)

GW Reviewer Phillip I. Marcy Date Review Completed: 07/09/2020

## 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**

**July 09**, 20**20**

**TO:** Application G- 18913

**FROM:** **GW:** Phillip I. Marcy  
(Reviewer's Name)

**SUBJECT: Scenic Waterway Interference Evaluation**

**YES** The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries

**NO**

**YES** Use the Scenic Waterway Condition (Condition 7J)

**NO**

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 \_\_\_\_\_ 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 Date 07/09/2020
FROM: Groundwater Section Phillip I. Marcy Reviewer's Name
SUBJECT: Application G- 18913 Supersedes review of 04/28/2020 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: Zahary A. Reutov County: Clackamas

A1. Applicant(s) seek(s) 0.48 cfs from 2 well(s) in the Willamette Basin,
subbasin

A2. Proposed use Irrigation (38.66 acres) Seasonality: March 1st - October 31st (245 days)

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

Table with 7 columns: 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

\* Alluvium, CRB, Bedrock

Table with 13 columns: Well, Well Elev ft msl, First Water ft bls, SWL ft bls, SWL Date, Well Depth (ft), Seal Interval (ft), Casing Intervals (ft), Liner Intervals (ft), Perforations Or Screens (ft), Well Yield (gpm), Draw Down (ft), Test Type

Use data from application for proposed wells.

A4. Comments: This re-review is being conducted in order to consider whether Gribble Creek and other nearby drainages are losing reaches within one mile of the proposed POA wells, and therefore whether a finding of hydraulic connection, and thus Potential to Substantially Interfere (PSI) with surface water, is appropriate. This inquiry began after the agent suggested that the mapped perennial reach of Gribble Creek within 1/4 mile of the proposed POAs was inaccurate in the NHD coverage.

The applicant proposes to produce groundwater from two wells completed into alluvium. Details for proposed POA Well 2 concerning casing and seal depth are unknown, but based upon the proposed depth of 160', the reviewer assumes construction will be similar to that in existing well CLAC 18338 (POA 1).

A5. [X] Provisions of the Willamette (690-502-0240) Basin rules relative to the development, classification and/or management of groundwater hydraulically connected to surface water [ ] are, or [X] are not, activated by this application. (Not all basin rules contain such provisions.) Comments:

A6. [ ] Well(s) # , , , , tap(s) an aquifer limited by an administrative restriction. Name of administrative area: Comments:

**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) **“Medium Water Use Reporting”; 7N** \_\_\_\_\_;
  - 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 \_\_\_\_\_ 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:** Water levels in nearby alluvial wells are relatively stable (see attached hydrograph), with no discernable decline trend in the area. All wells displayed produce from sand and gravel lenses of the Willamette Aquifer (Gannett and Caldwell, 1998), and though open to varying depths, appear likely to be hydraulically connected and display elevation differences commensurate with gradients of local streams.

The closest authorized groundwater POA is just greater than 2,000 feet from proposed POA 1, with 6 total POAs previously authorized within ½ mile of both POA location proposed here. Wells between 100-200’ in this area producing from alluvium typically have relatively low yields (below 50 gpm) and available pump test data suggest a range of transmissivity values between 50-150 ft<sup>2</sup>/day. Assuming these tests are representative of this portion of the Willamette Aquifer, and a range of storativity values that include weakly confined to unconfined aquifers, expected drawdowns were calculated using a Theis time drawdown model. Based upon the full requested pumping rate from POA 1, model results plot a range of expected drawdowns at the nearest authorized groundwater POA between 18-75 feet after 245 days of pumping, with the majority of scenarios resulting in less than 35 feet of seasonal drawdown.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**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	Sand and gravel lenses of Willamette Aquifer	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Sand and gravel lenses of Willamette Aquifer	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Basis for aquifer confinement evaluation:** The static water level measured in POA well 1, as in the majority of similarly completed wells in the area, is measurably higher than the zone from which that water is produced. In addition, there exists a fairly widespread, continuous horizon of fine-grained material (likely silt) above water-bearing zones within the existing POA well, and presumably, the well yet to be constructed.

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	Gribble Creek	229	223-238*	>5280**	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Gribble Creek	~229	223-238*	>5280**	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Creamery Creek	229	223-233*	>5280**	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	2	Creamery Creek	~229	223-233*	>5280**	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3	Dove Creek	229	216-226*	~2320**	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	3	Dove Creek	~229	216-226*	~2340**	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Basis for aquifer hydraulic connection evaluation:** \*Represents surface water elevations within one mile of proposed POAs.

\*\*Streams in this area are mapped on the NHD as becoming perennial downgradient of the proposed POA locations at distances less than ¼ mile to greater than one mile. Water table contours of Hampton (1972) are consistently below land surface elevation of the incised drainages in the area near the proposed POAs and generally “v” downgradient, indicating that the portion of Gribble Creek within one mile is a losing reach. In addition, a survey of nearby wells (see attached table) confirms that the reaches of Gribble Creek and Creamery Creek in this area are significantly higher than groundwater elevations in wells located perpendicular to the local hydraulic gradient from the stream, the exception being Dove Creek, which is incised to below the elevation of nearby water level records (which are limited) and is indicated as a gaining reach approximately 2320 feet from the proposed POA by Hampton 1972. Therefore, while groundwater in the proposed POA wells is likely hydraulically connected to the regional flow system that inevitably discharges to local drainages downstream, the point at which Gribble Creek and Creamery Creek receive this discharge appears to be greater than one mile downstream from the proposed POA, while the point at which Dove Creek receives discharge is greater than ¼ mile from the proposed POA.

**Water Availability Basin the well(s) are located within:** Molalla R > Willamette R – At Mouth

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?	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
1	3	<input type="checkbox"/>	<input type="checkbox"/>	IS69796A	100	<input type="checkbox"/>	134	<input type="checkbox"/>	<<25%	<input type="checkbox"/>
2	3	<input type="checkbox"/>	<input type="checkbox"/>	IS69796A	100	<input type="checkbox"/>	134	<input type="checkbox"/>	<<25%	<input type="checkbox"/>

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 #	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

**Comments:** This section does not apply.

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.

<b>Non-Distributed Wells</b>													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
<b>Distributed Wells</b>													
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													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
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:** This section does not apply.

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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:** If a permit is issued, it is recommended that Condition 7N, requiring annual measurements, shall be in place. This will provide the Department with ongoing data to assess the relationship between groundwater and surface water in the area, as well as monitoring the sustainability of the productive aquifer system here.

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**References Used:**

Gannett, Marshall W., and Caldwell, Rodney R., 1998, Geologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington: U. S. Geological Survey Professional Paper 1424-A, 32p, 8 plates.

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Conlon and others, 2005, Ground-water hydrology of the Willamette Basin, Oregon: U.S Geological Survey Scientific Investigations Report 2005-5168.

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Hampton, E.R., 1972, Geology and Ground Water of the Molalla-Salem Slope Area, Norther Willamette Valley, Oregon: USGS Water Supply Paper 1997. 79 pages, 2 plates.

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Theis, C.V., 1941, The effect of a well on the flow of a nearby stream: Am. Geophys. Union Trans., v. 22, pt.3, p. 734-738.

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OWRD well log database, OWRD water level database.

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**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:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

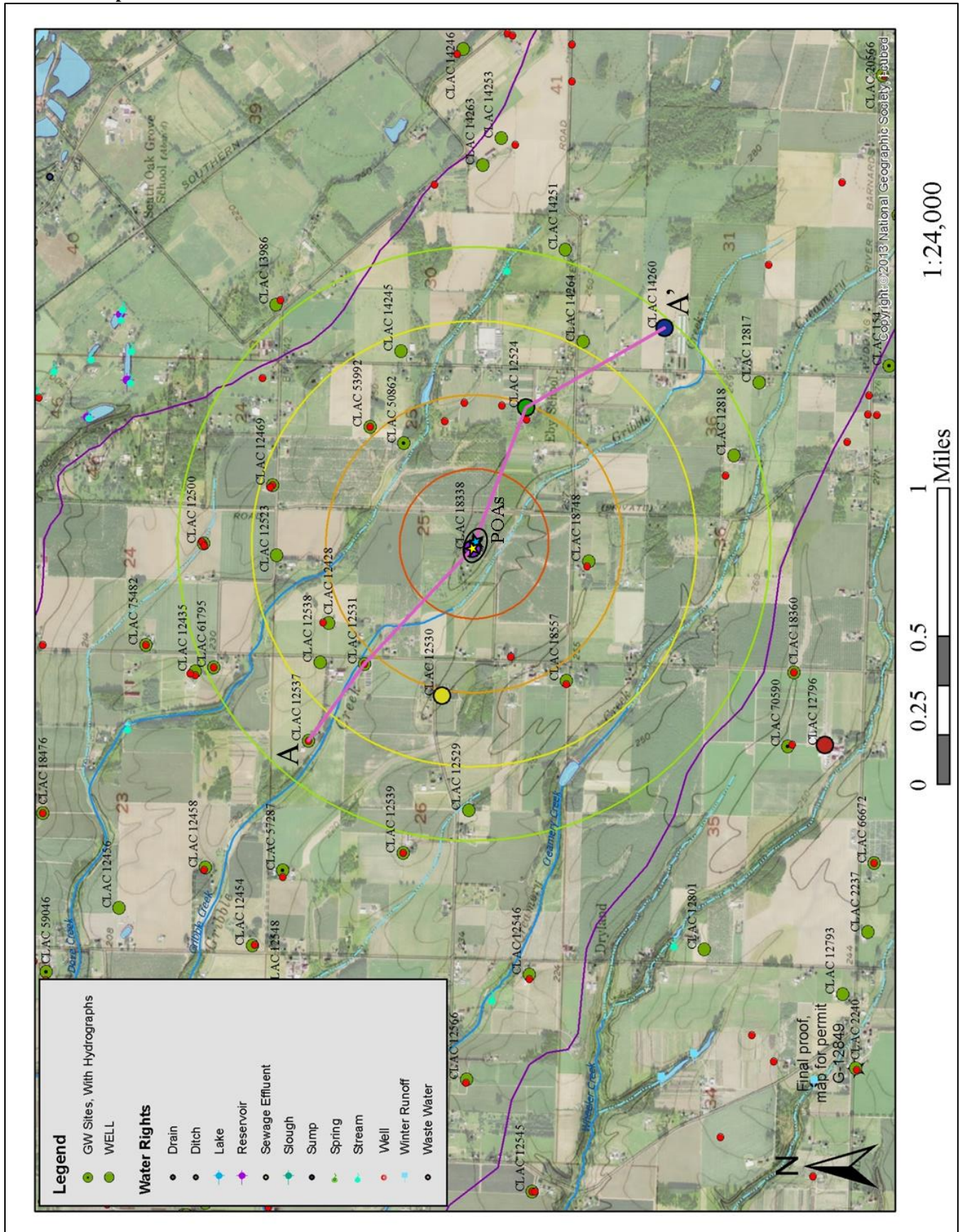
D4.  **Route to the Well Construction and Compliance Section for a review of existing well construction.**

**Water Availability Tables**

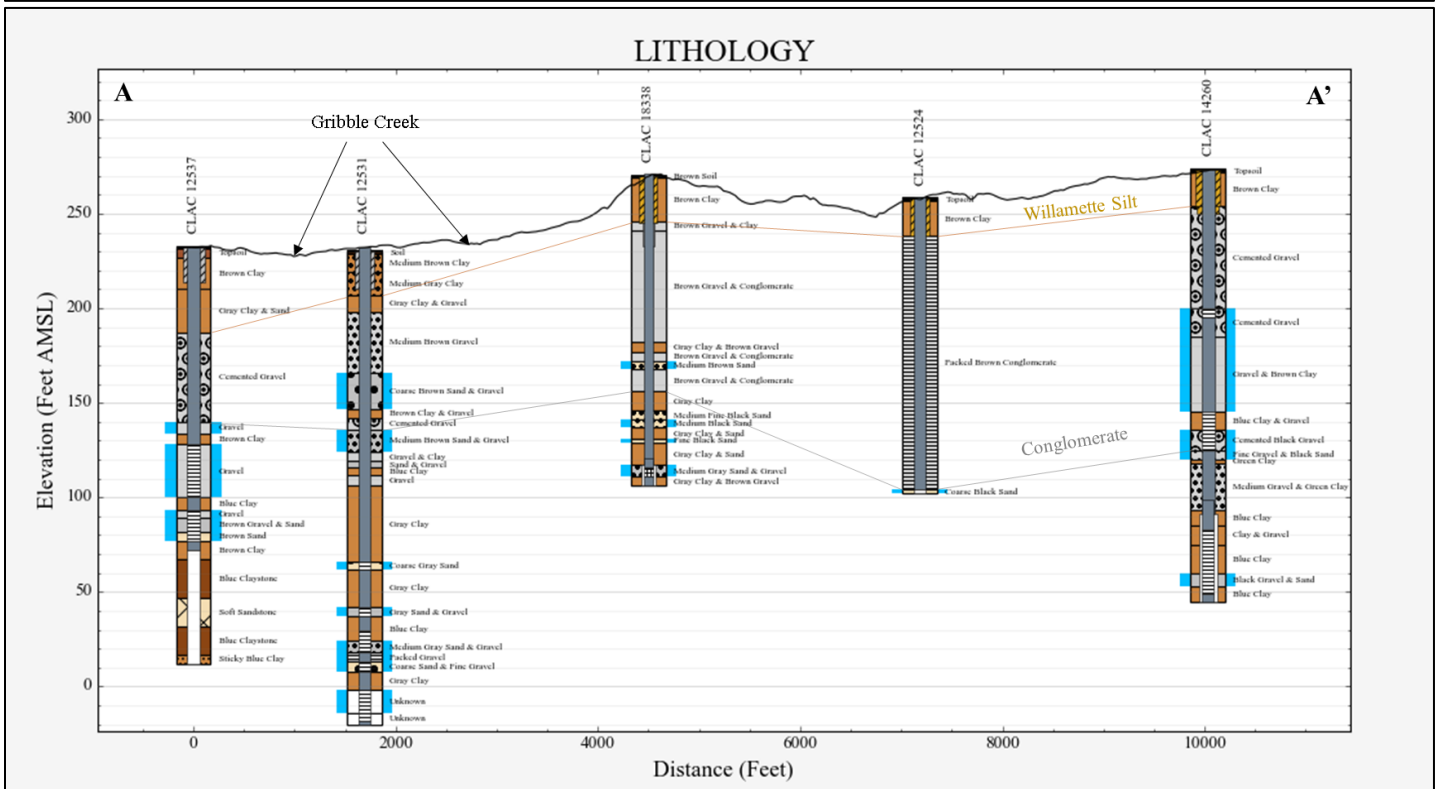
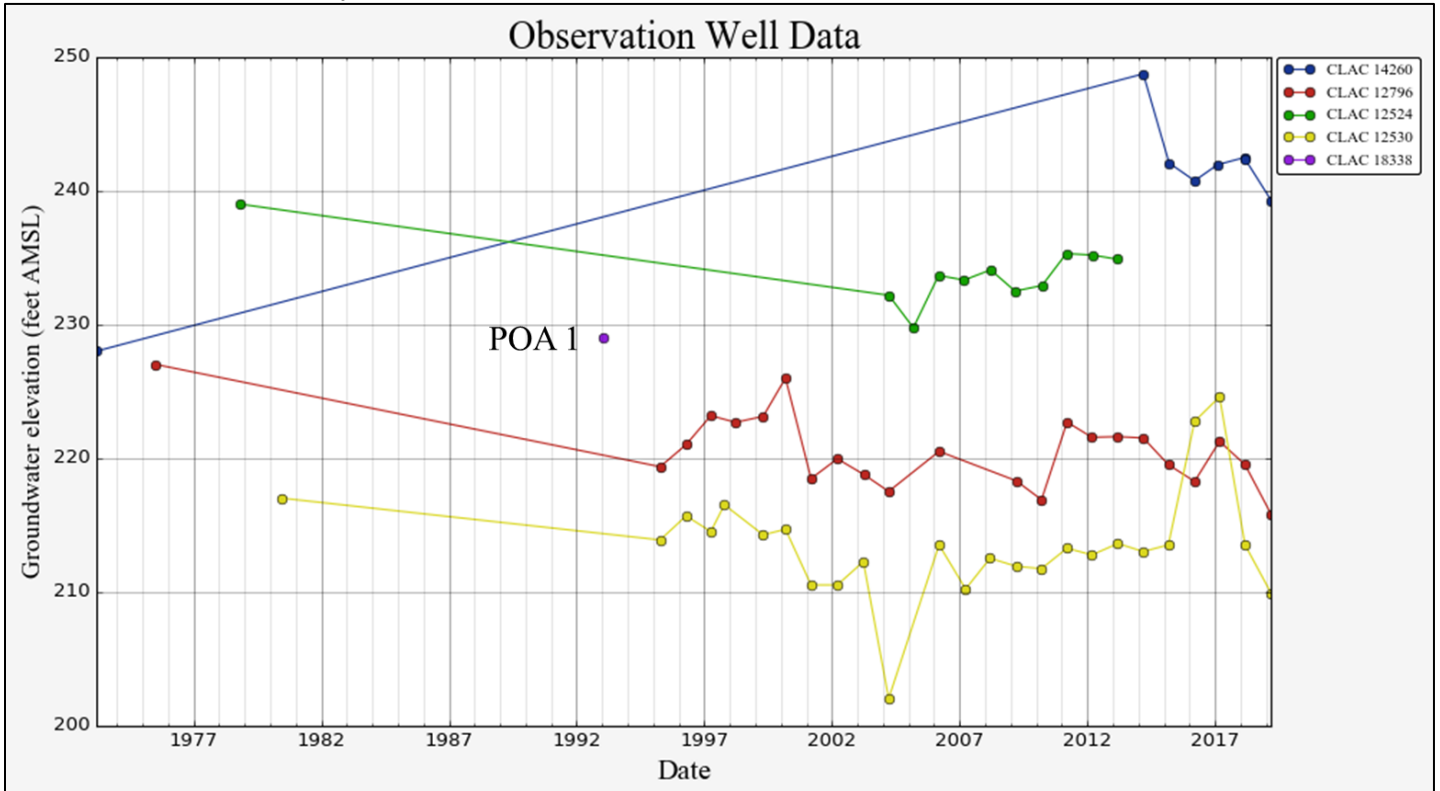
DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION						
Watershed ID #: 69796		MOLALLA R > WILLAMETTE R - AT MOUTH			Exceedance Level: 80	
Time: 4:30 PM		Basin: WILLAMETTE			Date: 04/27/2020	
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	1,870.00	155.00	1,710.00	0.00	500.00	1,210.00
FEB	2,010.00	145.00	1,870.00	0.00	500.00	1,370.00
MAR	1,830.00	113.00	1,720.00	0.00	500.00	1,220.00
APR	1,530.00	86.60	1,440.00	0.00	500.00	943.00
MAY	927.00	97.30	830.00	0.00	500.00	330.00
JUN	431.00	119.00	312.00	0.00	500.00	-188.00
JUL	204.00	184.00	20.30	0.00	200.00	-180.00
AUG	139.00	154.00	-15.40	0.00	100.00	-115.00
SEP	134.00	82.10	51.90	0.00	150.00	-98.10
OCT	188.00	39.50	148.00	0.00	450.00	-302.00
NOV	637.00	80.00	557.00	0.00	500.00	57.00
DEC	1,700.00	150.00	1,550.00	0.00	500.00	1,050.00
ANN	1,320,000	84,900	1,240,000	0	295,000	966,000

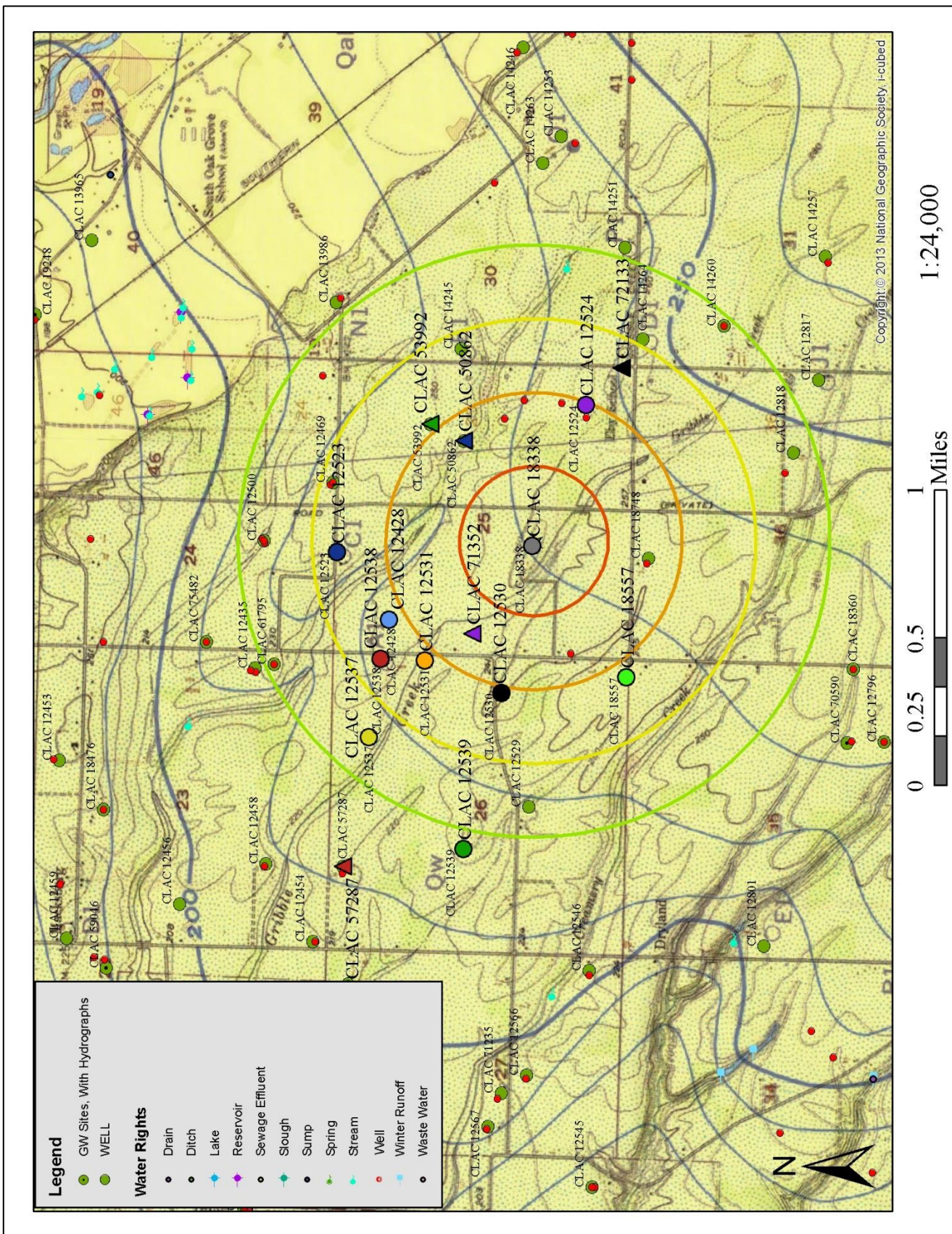


### Well Location Map



Water-Level Trends in Nearby Wells





Water level contours from WSP 1997 (Hampton, 1972) are shown in blue, and are consistently lower than land surface elevations where they intersect drainages in the area surrounding the proposed POA wells. Colored symbols represent wells whose water level elevations are compared in the table below.

Well Log	GW Elevation	Gribble Creek*
CLAC 12530	209.84	235
CLAC 12531	202.5	231
CLAC 12524	242.88	259
CLAC 53992	173.38	245
CLAC 50862	203.92	248
CLAC 18338	229	243
CLAC 18557	206	242
CLAC 12523	222	231
CLAC 12428	196	232
CLAC 71352	219	235
CLAC 72133	247	262
CLAC 12538	223	231
CLAC 12537	217	226
CLAC 57287	189.37	221
CLAC 12539	207	222

\*Gribble Creek streambed elevation measured perpendicular to hydraulic gradient from corresponding well  
 Compared above are available water level data from nearby wells, compared to the elevation of the streambed of Gribble Creek. Though inexact, a best estimate was made to obtain the streambed elevation at right angles to the slope of the hydraulic gradient. In some cases, wells are very close to the Gribble Creek Drainage, such as CLAC 12531 which is less than 100 feet away from the creek, and yet reports a groundwater elevation almost 30 feet lower than the nearby streambed elevation. CLAC 57287 is located greater than one mile downstream, and also reports groundwater well below the elevation of Gribble Creek.

