Groundwater Application Review Summary Form

Application # G- _18961 re-review_

GW Reviewer _Travis Brown_ Date Review Completed: _11/18/2022_

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 **November 18**, 2022

TO: **Application** G-**18961** re-review

FROM: **GW: Travis Brown**
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ **YES**
☒ **NO** The source of appropriation is hydraulically connected to a State Scenic 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 _____ 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: 11/18/2022
FROM: Groundwater Section Travis Brown
Reviewer's Name
SUBJECT: Application G- 18961 Supersedes review of 6/25/2020
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: **Jane Stockfleth, LLC** County: **MARION**

A1. Applicant(s) seek(s) 1.114[a] cfs from 1 well(s) in the Willamette Basin, Mainstem Willamette subbasin

A2. Proposed use Nursery (194.9 ac / 974.5 af[b]) Seasonality: Year-round

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

Well	Logid	Applicant's Well ID	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	MARI 2540	"POA 4"	Alluvium	1.114[c]	5S/2W-19 NE-SW	430' N, 270' E fr SW cor DLC90

* Alluvium, CRB, Bedrock

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
1	~143[d]		7	1959	89	0-40	0-89 (8")		65-70 (Perf) 75-77 (Perf) 84-89 (Perf)	500	33	Pump (4 hr)

Use data from application for proposed wells.

A4. **Comments:** The proposed POA/POU are ~4 miles west of Gervais, Oregon.

[a] The applicant amended the requested rate to 500 gpm (1.114 cfs) in an email to the Department dated October 13, 2020.

[b] The maximum annual volume (974.5 af) cannot be achieved at the requested rate (1.114 cfs). With constant pumping (24 hours per day, 365 days per year) at 1.114 cfs, the maximum achievable volume would be ~805 af.

[c] The proposed POA (MARI 2540) has overlapping rights. MARI 2540 is the only authorized POA under **Certificate 34521**. Via transfer T-13413, MARI 2540 is also an authorized APOA under Certificates 335555, 48059, and 48060. Via transfer T-13417, MARI 2540 is also an authorized APOA under Claim GR-116. Via transfer T-13419, MARI 2540 is also an authorized APOA under Claim GR-1487. However, all of the overlapping rights are for irrigation use and the applicant has stated the pumping for nursey use proposed under this application would not occur simultaneously with pumping for irrigation under other rights**. The permit should be conditioned such that the maximum combined rate of withdrawal from the proposed POA (MARI 2540) under all applicable rights is 1.114 cfs (500 gpm) or less.**

[d] Ground elevation at proposed POA location estimated from LIDAR (WatershedSciences, 2009)

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: Although the proposed POA (MARI 2540) is within ¼ mile of a surface water source, the proposed POA appears to be completed in a confined aquifer. Per OAR 690-502-0240, the relevant basin rules do not apply.

A6. ☐ **Well(s) #** _____ , _____ , _____ , _____ , _____ , tap(s) an aquifer limited by an administrative restriction.

Name of administrative area: **N/A**

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) **7n (annual measurement), large 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 is completed on a terrace of Missoula Flood and older deposits and is confined by the fine-grained sediments of the Willamette Silt (Gannett and Caldwell, 1998; O'Connor et al., 2001). Geologic mapping in this area estimates the Willamette Silt as between 80-100 ft thick and the underlying sands and gravels of the Willamette Aquifer as ~40 ft thick (Gannett and Caldwell, 1998). However, the log for **MARI 2540** indicates interbedded fine- and coarse-grained layers to its total depth of ~89 ft below land surface (bls). Nearby water level data does not indicate substantial persistent declines in the aquifer around the proposed POA (see attached Hydrograph). Therefore, groundwater in this aquifer appears to be not over-appropriated.

The nearest known neighboring well to the proposed POA (MARI 2540) is MARI 2541, ~1,020 ft southeast. MARI 2541 is the sole POA on Claim GR-92. Interference with MARI 2541 due to the proposed use was analyzed using the Theis (1935) solution for drawdown in a confined aquifer. Hydraulic parameters used for the analysis were derived from regional data and studies (Pumping Test Reports; Conlon et al., 2003, 2005; Iverson, 2002; McFarland and Morgan, 1996; Woodward et al., 1998) or are within a typical range of values for the given parameter within the hydrogeologic regime (Domenico and Mifflin, 1965; Freeze and Cherry, 1979; Halford and Kuniansky, 2002). Results of the analysis indicate the proposed use is unlikely to cause injury to MARI 2541 or similar neighboring wells (see attached Theis Drawdown Analysis).

The reported yield for the proposed POA (MARI 2540) is ~500gpm or ~1.114 cfs. As noted in Section A3 above, the proposed POA has an overlapping right for which it is the *only* authorized POA (**Certificate 34521**) and several other overlapping rights for which it is an authorized APOA, but the applicant has stated that the pumping under this proposed use and other irrigation

rights would not occur simultaneously. **The permit should be conditioned such that the maximum combined rate of withdrawal from the proposed POA (MARI 2540) under all applicable rights is 1.114 cfs (500 gpm) or less. Additionally, the permit should require metering and annual reporting of the use of MARI 2540 under all applicable water rights to ensure compliance.**

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	**Missoula Flood Deposits (Alluvium)**	☒	☐

Basis for aquifer confinement evaluation: The log for **MARI 2540** (proposed POA 4) indicates predominantly fine-grained sediments to ~40 ft bls, while the static water level was reported as ~0.5 ft bls. The available evidence indicates that proposed POA 4 is completed in a confined 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? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Unnamed tributary to Willamette River**	**~140-155**	**~90-100**	**~2,480**	☒	☐	☐	☐	☒
1	**2**	**Unnamed tributary to Willamette River**	**~140-155**	**~106-136**	**~110**	☒	☐	☐	☐	☒
1	**3**	**Patterson Creek / Eldridge Slough**	**~140-155**	**~85-86**	**~4,480**	☒	☐	☐	☐	☒
1	**4**	**Willamette River**	**~140-155**	**~85-88**	**~3,720**	☒	☐	☐	☐	☒
1	**5**	**West Champoeg Creek**	**~140-155**	**~137-138**	**~4,130**	☐	☒	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: SW 1-4: Estimated groundwater elevations for the proposed POA are coincident with or above estimated surface water elevation for the proposed POA. No hydraulic barriers were identified between the proposed POA and these surface waters. The available evidence suggests that the proposed POA is hydraulically connected to SW 1-4.

SW 5: Although the estimated surface water elevation for SW 5 is within the range of estimated groundwater elevations for the proposed POA, topographic and potentiometric mapping in this area suggest that SW 5 is on the opposite side of a groundwater divide, with groundwater flow near the proposed POA moving predominantly toward the recent alluvial floodplain and the mainstem Willamette River (SW 4). SW 2 is between the proposed POA and SW 5, which will likely attenuate hydraulic stresses propagating towards SW 5. Similarly, the mainstem Willamette River (SW 4) is closer than SW 5 to the proposed POA; as the largest and most deeply incised surface water body in the area, it is anticipated to have a very efficient hydraulic connection to the proposed source aquifer, which will attenuate depletion of other, less efficiently connected streams. The available evidence suggests that the proposed POA does not have a meaningful hydraulic connection to SW 5.

Water Availability Basin the well(s) are located within: WID#182 WILLAMETTE R>COLUMBIA R – AB MOLALLA 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?	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	**1**	☐	☐	**N/A**	**N/A**	☐	**3,830**	☐	**<<25%**	☐
1	**2**	☒	☐	**N/A**	**N/A**	☐	**3,830**	☐	**<<25%**	☒
1	**3**	☐	☐	**N/A**	**N/A**	☐	**3,830**	☐	**<25%**	☐

1	**4**	☐	☐	**MF182**	**1,500**	☐	**3,830**	☐	**<25%**	☐

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?
	☐			☐		☐		☐

Comments: **The proposed POA (MARI 2540) is within ¼ mile of SW 2. Per OAR 690-009-0040(a), the Potential for Substantial Interference (PSI) is assumed.**

Interference with various surface water sources due to the proposed use was quantitatively estimated using the Hunt (2003) analytical model. Hydraulic parameters used for the analysis were derived from regional data and studies (Pumping Test Reports; Conlon et al., 2003, 2005; Iverson, 2002; McFarland and Morgan, 1996; Woodward et al., 1998) or are within a typical range of values for the given parameter within the hydrogeologic regime (Domenico and Mifflin, 1965; Freeze and Cherry, 1979; Halford and Kuniansky, 2002). Results indicate that the proposed POA is not anticipated to interfere with (deplete) nearby surface water sources at a rate greater than 25 percent of the rate of withdrawal within the first 30 days of continuous pumping.

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													
(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: _____

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:** _____

References Used:

Application File: G-18961

Claims: GR-116, GR-1487

Certificates: 33555, 34521, 48059, 48060

Pumping Test: MARI 2522, 2718, 2602, 2735, 2505, 17627, 18362, 2564, 2541, 2753, 2561, 2496

Conlon, T.D., Lee, K.K., and Risley, J.R., 2003, Heat tracing in streams in the central Willamette Basin, Oregon, in Stonestrom, D.A. and Constantz, Jim, eds., Heat as a tool for studying the movement of groundwater near streams: U.S. Geological Survey Circular 1260, chapter 5, p. 29-34.

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, Scientific Investigations Report 2005-5168: U. S. Geological Survey, Reston, VA.

Domenico, P.A. and Mifflin, 1965, Water from low-permeability sediments and land subsidence: Water Resource Research, v. 1, no. 4, p. 563-576.

Freeze, R.A. and Cherry, J.A., 1979, Groundwater, Prentice Hall, Englewood Cliffs, New Jersey, 604 p.

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

Halford, K.J., and Kuniansky, E.L., 2002, Documentation of Spreadsheets for the Analysis of Aquifer-Test and Slug-Test Data, Open File Report 02-197, 51 p: U. S. Geological Survey, Reston, VA.

Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, Vol 8, p. 12-19.

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.

McFarland, W.D., and Morgan, D.S., 1996, Description of the Ground-Water Flow System in the Portland Basin, Oregon and Washington, Water Supply Paper 2470-A, 58 p: U. S. Geological Survey, Reston, VA.

O'Connor, J. E., Sarna-Wojcicki, A., Wozniak, K. C., Polette, D. J., Fleck, R. J., 2001, Origin, Extent, and Thickness of Quaternary Units in the Willamette Valley, Oregon, Professional Paper 1620: U. S. Geological Survey, Reston, VA

Theis, C.V., 1935, The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage, American Geophysical Union Transactions, vol. 16, p. 519-524.

United States Geological Survey, 2014, National Hydrography Dataset (NHD), 1:24,000, U. S. Department of the Interior, Reston, VA.

United States Geological Survey, 2017, Gervais quadrangle, Oregon [map], 1:24,000, 7.5 minute topographic series, U.S. Department of the Interior, Reston, VA.

United States Geological Survey, 2017, Saint Paul quadrangle, Oregon [map], 1:24,000, 7.5 minute topographic series, U.S. Department of the Interior, Reston, VA.

Watershed Sciences, 2009, LIDAR remote sensing data collection, Department of Geology and Mineral Industries, Willamette Valley Phase I, Oregon: Portland, OR, December 21.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #**: **1** **Logid:** **MARI 2540**

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 _____;

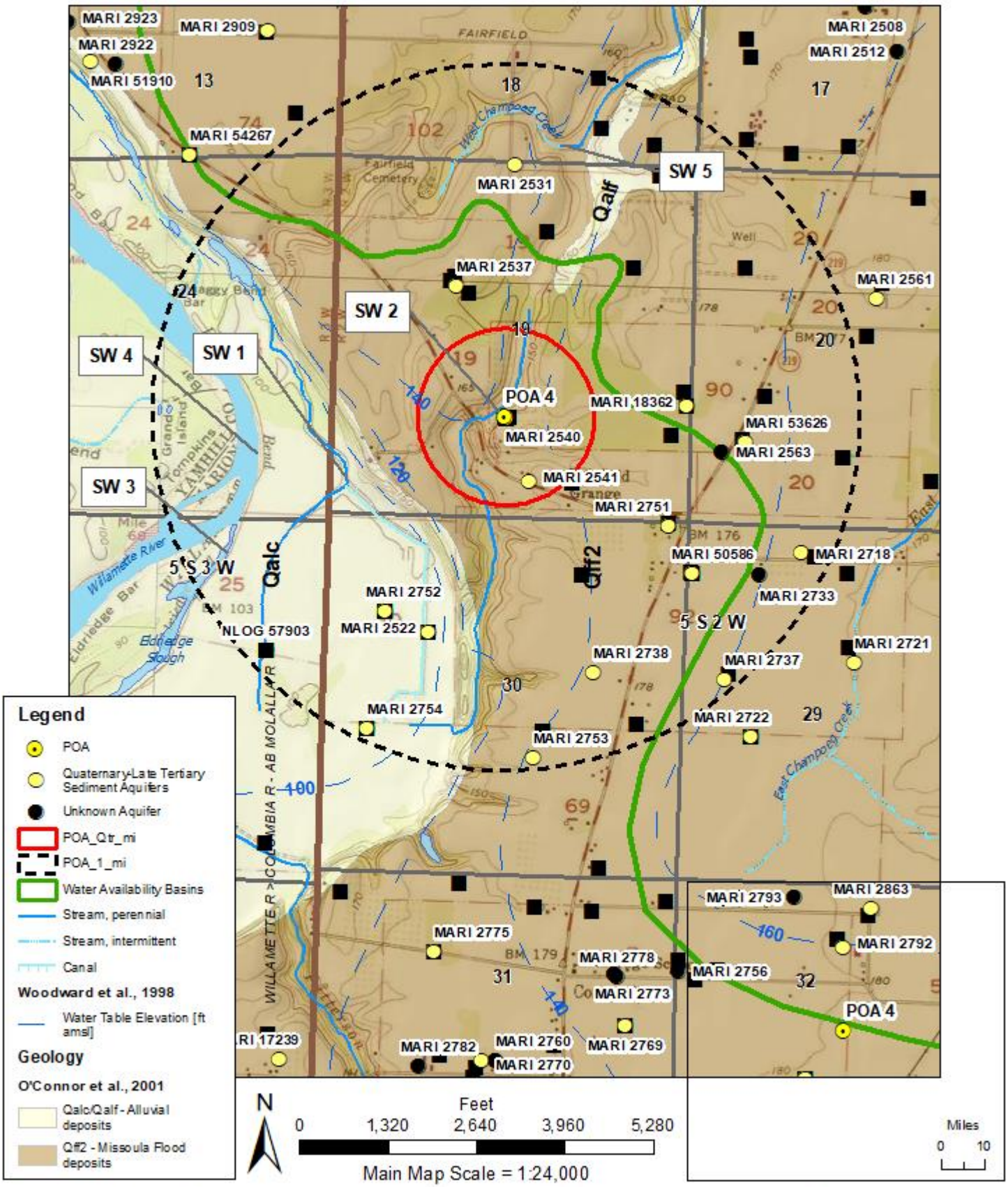
d. ☐ other: (specify) _____

D3. **THE WELL construction deficiency or other comment is described as follows:** In a memo dated July 7, 2020, Travis Kelly of the Well Construction and Compliance Section, noted that applicant's well "POA 4" (MARI 2540) was not in compliance with current minimum well construction standards. The original Well Report for MARI 2540 does not indicate that the well head extends at least one foot above land surface. The Well Report also indicates that puddled clay was used for the annular seal. Puddled clay is not an approved seal material. The Well Report also does not indicate the volume of seal material used, or the diameter of the borehole where the seal was placed. The memo recommended that the Department not issue a permit for applicant's well "POA 4" (MARI 2540) unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is constructed to meet current minimum well construction standards.

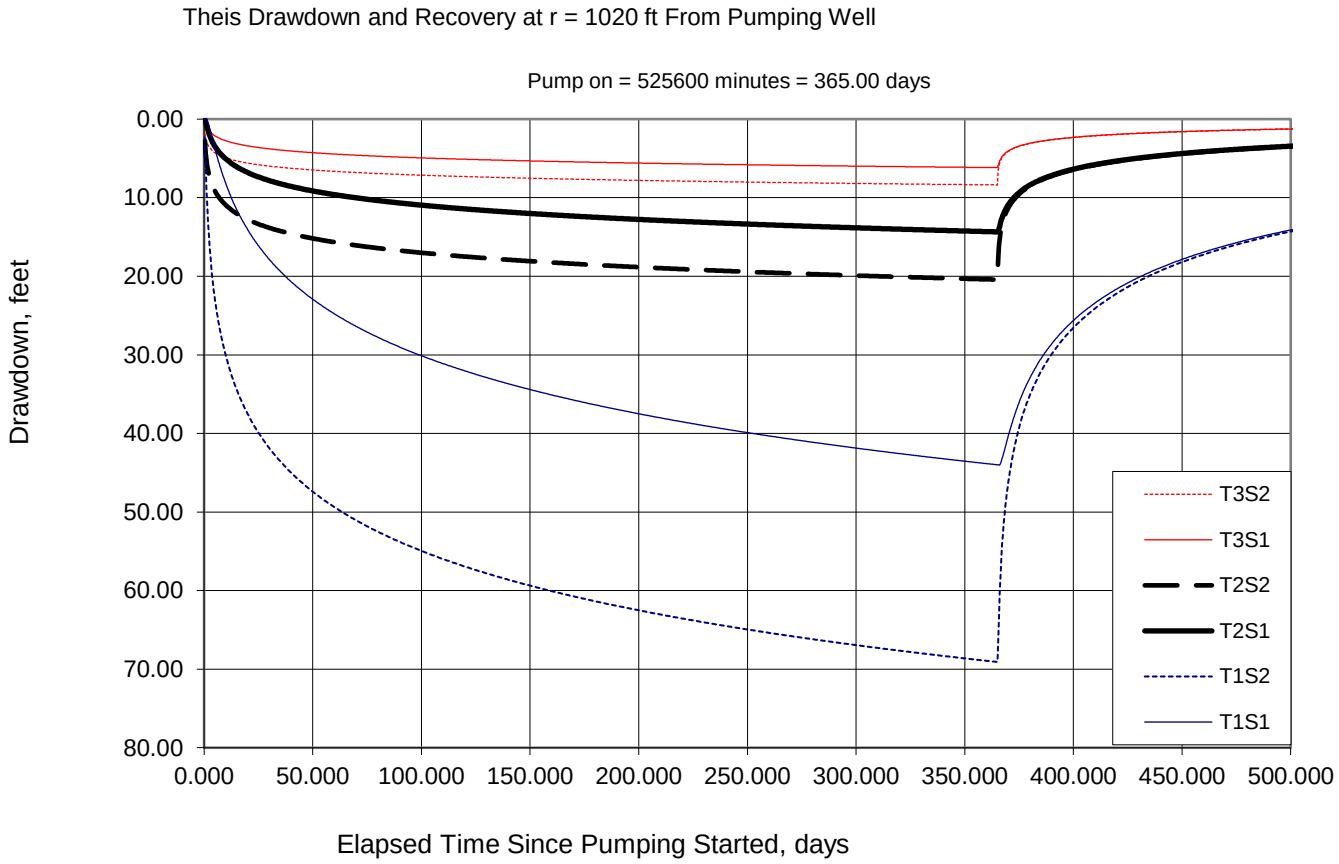
D4. ☐ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Well Location Map

G-18961 Jane Stockfleth, LLC



Theis (1935) Drawdown Analysis



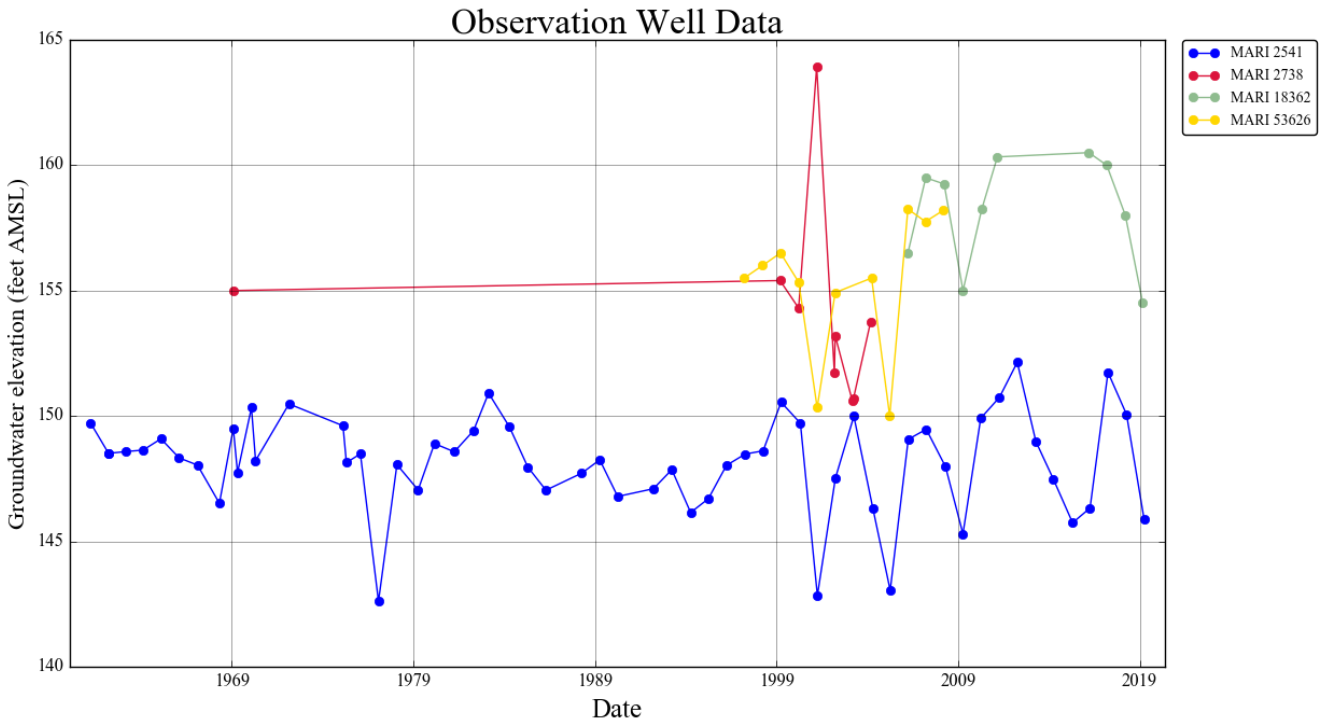
Total pumping time: 365 days [season of use]

Pumping rate: 1.114 cfs [maximum combined rate (requested rate)]

Transmissivity: T1=700 ft^2/d; T2=2900 ft^2/d; T3=8000 ft^2/d [pumping test reports]

Storativity: S1=0.01; S2=0.001 [Conlon et al., 2005]

Hydrograph



Water Availability Tables

Water Availability Analysis
Detailed Reports

WILLAMETTE R > COLUMBIA R - AB MOLALLA R
WILLAMETTE BASIN

Water Availability as of 6/23/2020

Watershed ID #: 182 (Map)
Date: 6/23/2020

Exceedance Level: 80%
Time: 12:49 PM

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	7,480.00	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	6,920.00	13,000.00	0.00	1,500.00	11,500.00
MAY	16,600.00	4,260.00	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	680.00
SEP	3,890.00	1,400.00	2,490.00	0.00	1,500.00	995.00
OCT	4,850.00	757.00	4,090.00	0.00	1,500.00	2,590.00
NOV	10,200.00	890.00	9,310.00	0.00	1,500.00	7,810.00
DEC	19,300.00	973.00	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

Version: 05/07/2018

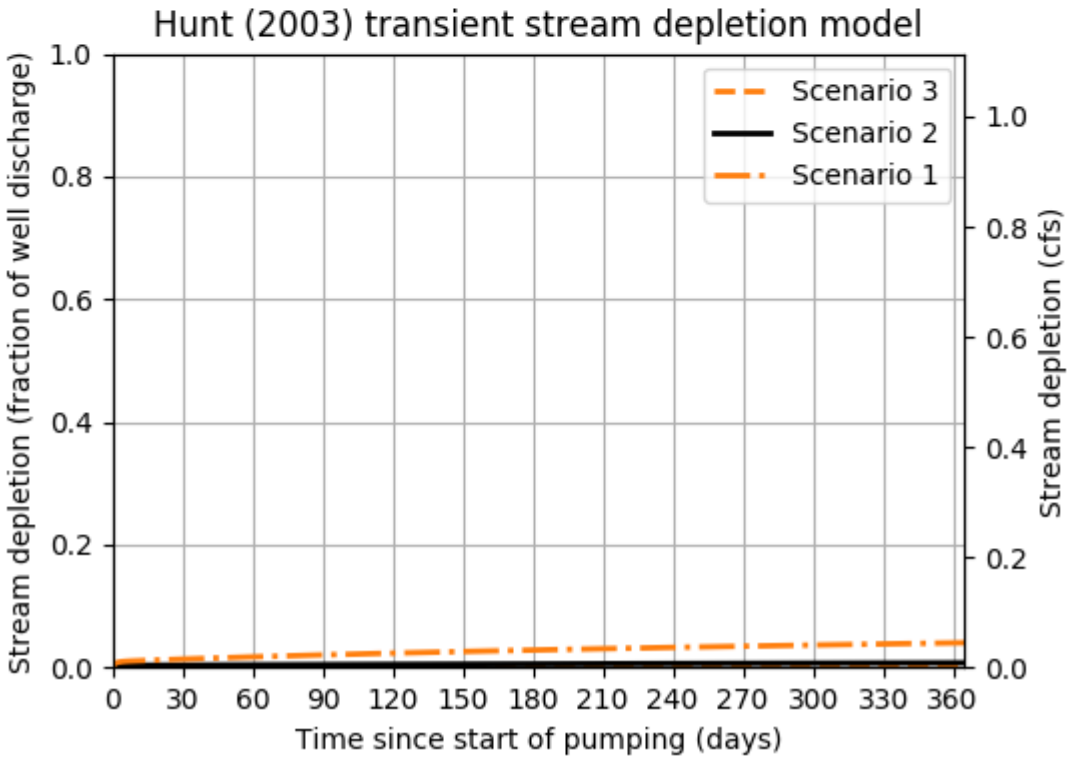
Stream Depletion Analysis: POA 4 – SW 2

Application type:	G
Application number:	18961
Well number:	4
Stream Number:	2
Pumping rate (cfs):	1.114
Pumping duration (days):	365.0
Pumping start month number (3=March)	1.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	110	110	110	ft
Aquifer transmissivity	T	700.0	2900.0	8000.0	ft2/day
Aquifer storativity	S	0.01	0.005	0.001	-
Aquitard vertical hydraulic conductivity	Kva	0.1	0.05	0.01	ft/day
Aquitard saturated thickness	ba	20	30	35	ft
Aquitard thickness below stream	babs	20	30	35	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	10	10	10	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330
Depletion (%)	0	0	0	0	1	1	1	1	1	1	1	1
Depletion (cfs)	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01



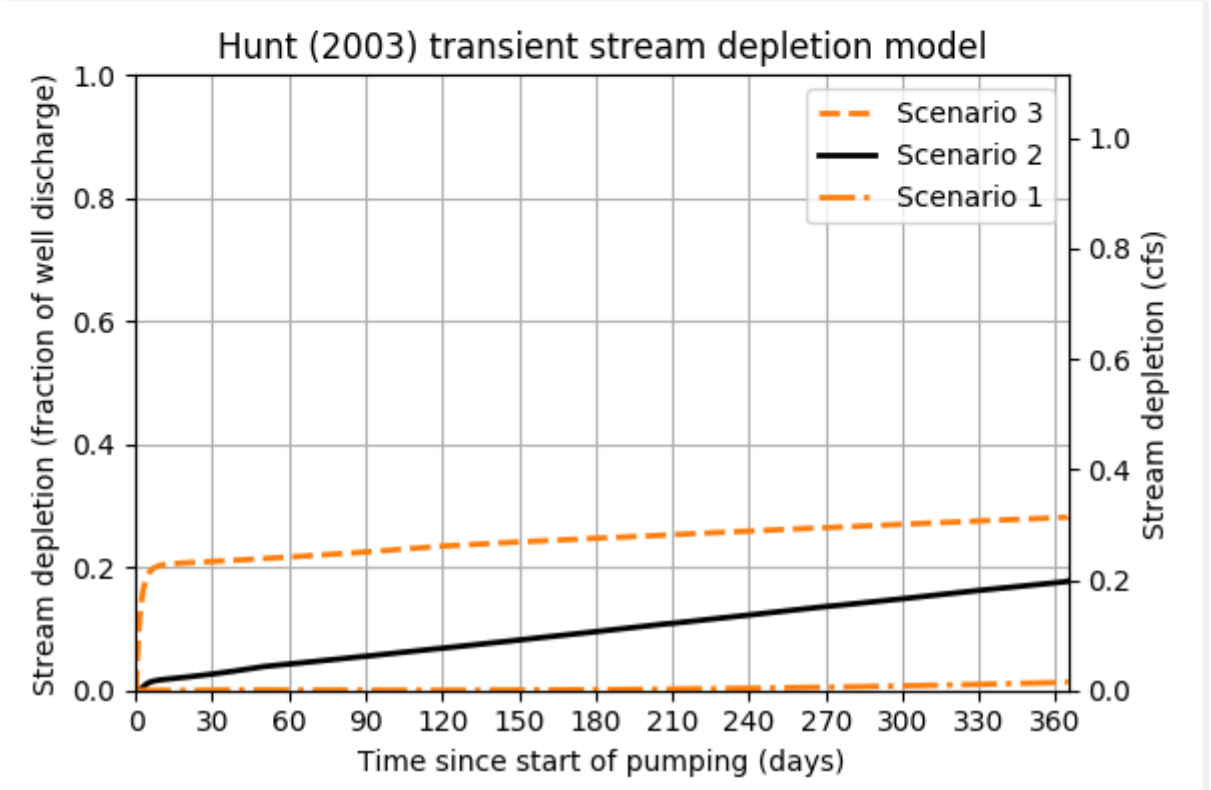
Stream Depletion Analysis: POA 4 – SW 4

Application type:	G
Application number:	18961
Well number:	4
Stream Number:	4
Pumping rate (cfs):	1.114
Pumping duration (days):	365.0
Pumping start month number (3=March)	1.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	3700.0	3700.0	3700.0	ft
Aquifer transmissivity	T	700.0	2900.0	8000.0	ft2/day
Aquifer storativity	S	0.01	0.005	0.001	-
Aquitard vertical hydraulic conductivity	Kva	0.1	0.05	0.01	ft/day
Aquitard saturated thickness	ba	10.0	20.0	30.0	ft
Aquitard thickness below stream	babs	15.0	5.0	2.0	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	500.0	500.0	500.0	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	2	3	4	6	7	8	10	11	12	14	15	16	17
Depletion (cfs)	0.02	0.03	0.05	0.06	0.08	0.09	0.11	0.12	0.14	0.15	0.17	0.18	0.19



Approved:

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager

From: Travis Kelly, Well Construction Program Coordinator

Subject: Review of Water Right Application G-18961

Date: July 7, 2020

The attached application was forwarded to the Well Construction and Compliance Section by the Groundwater Section. Travis Brown reviewed the application. Please see Travis's Groundwater Review and the Well Reports.

Applicant's Well POA1 (No Well Report): There is no Well Report associated with this well that shows how it was originally constructed to verify compliance with well construction standards.

My recommendation is that the Department **not issue** a permit for Applicant's Well POA1: Unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is constructed to meet current minimum well construction standards.

The repair of Applicant's Well POA1 may not satisfy hydraulic connection issues.

Applicant's Well POA2 (MARI 2754): There is no Well Report associated with this well that shows how it was originally constructed. The only information available is an informational report compiled by Water Resources Department staff. This does not confirm the construction of this well and is not adequate to verify compliance with well construction standards.

My recommendation is that the Department **not issue** a permit for Applicant's Well POA2: Unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is constructed to meet current minimum well construction standards.

The repair of Applicant's Well POA2 may not satisfy hydraulic connection issues.

Applicant's Well POA3 (MARI 2752): There is no Well Report associated with this well that shows how it was originally constructed. The only information available is an informational report compiled by Water Resources Department staff. This does not confirm the construction of this well and is not adequate to verify compliance with well construction standards.

My recommendation is that the Department **not issue** a permit for Applicant's Well POA3: Unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is constructed to meet current minimum well construction standards.

The repair of Applicant's Well POA3 may not satisfy hydraulic connection issues.

Applicant's Well POA4 (MARI 2540): Based on a review of the Well Report, Applicant's Well POA4 does not appear to comply with current minimum well construction standards (See OAR 690 Division 210). The problem is that the Well Report does not indicate that the well head extends at least one foot above land surface. The Well Report also indicates that puddled clay was used for the annular seal. Puddled clay is not an approved seal material. The Well Report also does not indicate the volume of seal material used, or the diameter of the borehole where the seal was placed.

My recommendation is that the Department **not issue** a permit for Applicant's Well POA4: Unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is constructed to meet current minimum well construction standards.

The repair of Applicant's Well POA4 may not satisfy hydraulic connection issues.