Approved: 

MEMO

To:	Kristopher Byrd, Well Construction and Compliance Section Manager
From:	Travis Kelly, Well Construction Compliance Coordinator
Subject:	Review of Water Right Application G-19215
Date:	February 9, 2022

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

Applicant's Well #1 through Well #4 (Proposed Wells): Applicant's Well #1 through Well #4 are proposed wells, therefore they cannot be reviewed for construction. Construction of these proposed wells shall be completed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240. During construction of these wells, specific attention should be paid to ensure sealing requirements are met and that these wells do not commingle aquifers.

The construction of applicant's proposed Well #1 through Well #4 may not satisfy hydraulic connection issues.

Groundwater Application Review Summary Form

Application # G- _19215_

GW Reviewer _Phillip I. Marcy_ Date Review Completed: _12/15/2021_

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 **_12/15/2021_**

TO: **Application** G-**_19215_**

FROM: **GW:** **_Phillip I. Marcy_**
(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 _[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 Date 12/15/2021
FROM: Groundwater Section Phillip I. Marcy
Reviewer's Name
SUBJECT: Application G- **19215** Supersedes review of _____
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: **Spies Trust** County: **Benton**

A1. Applicant(s) seek(s) 0.91 cfs from 4 well(s) in the Willamette Basin, _____ subbasin

A2. Proposed use Irrigation (73 acres); Pond Maintenance Seasonality: March 1st – October 31st (245 days); 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 #	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	Proposed	1	Alluvium	0.91	11S/4W-18 NE-NW	1290'N, 1370'E fr W1/4 cor S 18
2	Proposed	2	Alluvium	0.91	11S/4W-18 SW-NW	380'N, 350'E fr W1/4 cor S 18
3	Proposed	3	Alluvium	0.91	11S/4W-18 SE-NW	470'N, 2460'E fr W1/4 cor S 18
4	Proposed	4	Alluvium	0.91	11S/4W-18 NW-NE	1370'N, 3310'E fr W1/4 cor S 18

* 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	216	NA	NA	NA	~50	>18	unknown	unknown	unknown	NA	NA	NA
2	222	NA	NA	NA	~50	>18	unknown	unknown	unknown	NA	NA	NA
3	215	NA	NA	NA	~50	>18	unknown	unknown	unknown	NA	NA	NA
4	215	NA	NA	NA	~50	>18	unknown	unknown	unknown	NA	NA	NA

Use data from application for proposed wells.

A4. **Comments:** The applicant proposes to construct 4 new wells for use of primary irrigation of 73 acres (182.5 AF/year) and pond maintenance (80 AF/year). The POA wells are designed to target the unconfined alluvium in the floodplain of the Willamette River. No details are given concerning casing depth, but based upon the seal depth of equal or greater than 18 feet, the reviewer assumes casing depth will be equal or greater than seal depth.

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: Wells will produce from an unconfined aquifer over ¼-mile from a surface water body (aside from man-made gravel pits), so the pertinent rule (OAR 690-502-0240) does not apply.

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) **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:** The applicant's proposed wells will develop water from unconfined, predominately course-grained Quaternary alluvial deposits that have a saturated thickness of 20-40 feet (Conlon et al., 2005, P. 9). Water levels in the aquifer are closely tied to stream stage in the Willamette River (Conlon et al., 2005, P. 50). The wells will be located adjacent to the floodplain of the Willamette River where the Willamette Silt has been removed. Since the water levels in this system are closely tied to the Willamette River stage, the long-term stability of the aquifer is not likely to be a problem, but the saturated thickness of the aquifer could drop substantially in late summer in conjunction with lower stream stage. The seasonal fluctuations are unknown at this time. The nearest well similarly located within the unconsolidated alluvial sediments, with long-term water level reporting is BENT 1558 (located ~ 6.9 miles to the northeast). The hydrograph for BENT 1558 shows no long-term decline and a correlation to the flow of the Willamette River as measured at the station in Albany.

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**	☐	☒
2	**Alluvium**	☐	☒
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Proposed POA wells will target unconfined Quaternary sediments (Qalc unit of O'Conner, 2001) adjacent to the floodplain of the Willamette River.

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**	**Asbahr Lake**	**200-210**	**192**	**4885**	☒	☐	☐	☐	☒
2	**1**	**Asbahr Lake**	**200-210**	**192**	**5750**	☒	☐	☐	☐	☒
3	**1**	**Asbahr Lake**	**200-210**	**192**	**3630**	☒	☐	☐	☐	☒
4	**1**	**Asbahr Lake**	**200-210**	**192**	**3000**	☒	☐	☐	☐	☒
1	**2**	**Mountain View Creek**	**200-210**	**215**	**2585**	☒	☐	☐	☐	☒
2	**2**	**Mountain View Creek**	**200-210**	**215**	**3760**	☒	☐	☐	☐	☒
3	**2**	**Mountain View Creek**	**200-210**	**215**	**3460**	☒	☐	☐	☐	☒
4	**2**	**Mountain View Creek**	**200-210**	**215**	**2930**	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: Water table maps indicate that ground water discharges to streams in the area. Additionally, water levels in nearby wells are coincident with the elevation of the Willamette River. These factors indicate a hydraulic connection between local surface water sources and the alluvial ground water system.

Water Availability Basin the well(s) are located within: 30200321: WILLAMETTE R > COLUMBIA R – AB PERIWINKLE CR AT GAGE 14174

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**	☐	☐	**NA**		☐	**2540.0**	☐	**<25%**	☐
3	**1**	☐	☐	**NA**		☐	**2540.0**	☐	**<25%**	☐
4	**1**	☐	☐	**NA**		☐	**2540.0**	☐	**<25%**	☐
1	**2**	☐	☐	**NA**		☐	**2540.0**	☐	**<25%**	☐
2	**2**	☐	☐	**NA**		☐	**2540.0**	☐	**<25%**	☐
3	**2**	☐	☐	**NA**		☐	**2540.0**	☐	**<25%**	☐
4	**2**	☐	☐	**NA**		☐	**2540.0**	☐	**<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: Modelling in similar circumstances suggests that due the distance from the well to nearby streams and the unconfined nature of the aquifer, impacts will be less than 25% of the pumping rate after 30 days of 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													
		%	%	%	%	%	%	%	%	%	%	%	%
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:

O'Connor, J. E., Sarna-Wojcicki, A., Wozniak, K. C., Polette, D. J., and Fleck, R. J., 2001, Geologic map of Quaternary units in the Willamette Valley, Oregon: Reston, Va., U.S. Geological Survey, Professional Paper 1620, map scale 1:250,000.

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 Report 2005-5168.

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

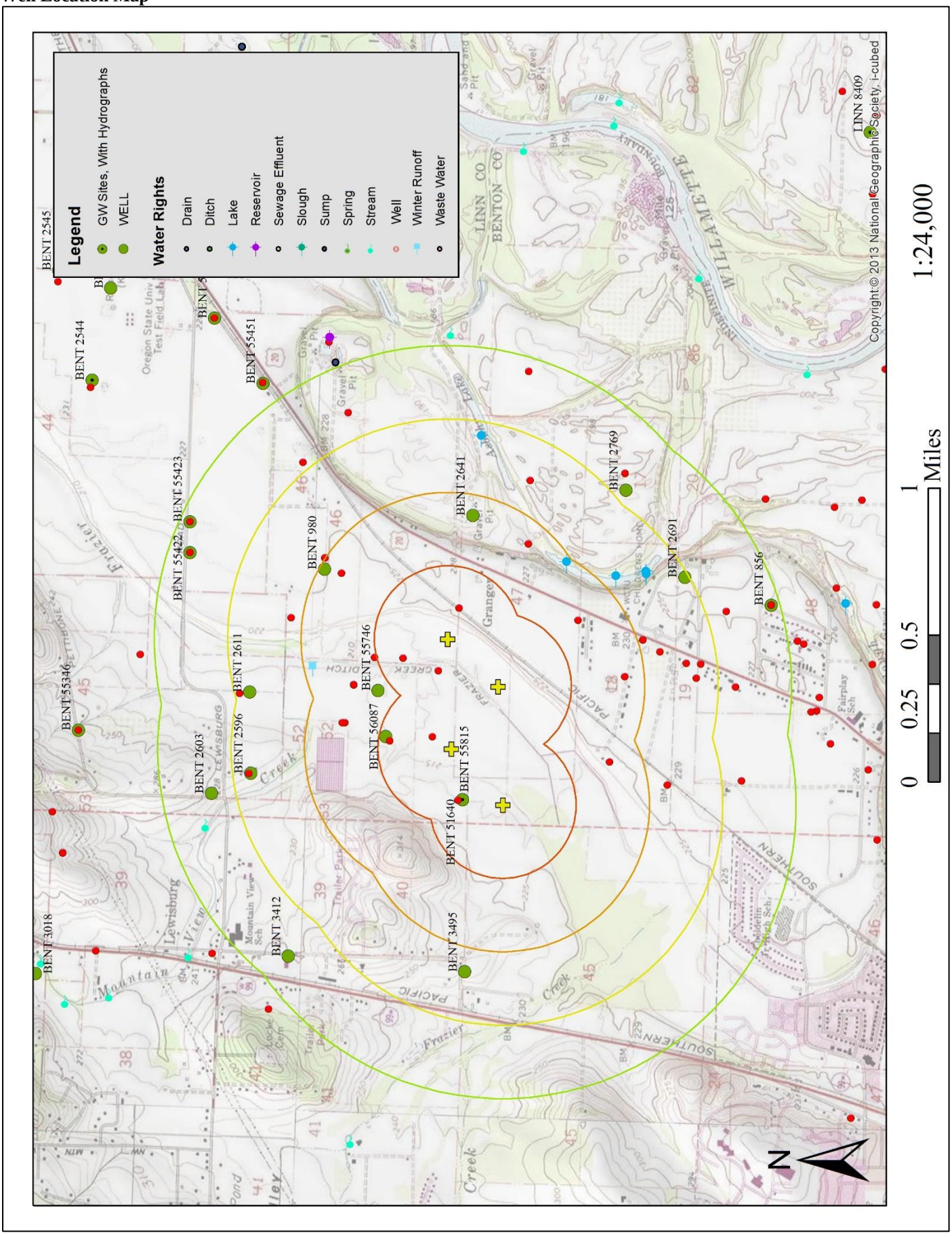
WILLAMETTE R > COLUMBIA R - AB PERIWINKLE CR AT GAGE 14174

Watershed ID #: 30200321 Basin: WILLAMETTE Exceedance Level: 80

Time: 3:27 PM Date: 12/15/2021

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	10,100.00	1,370.00	8,730.00	0.00	1,750.00	6,980.00
FEB	11,600.00	4,290.00	7,310.00	0.00	1,750.00	5,560.00
MAR	11,000.00	4,560.00	6,440.00	0.00	1,750.00	4,690.00
APR	9,760.00	4,260.00	5,500.00	0.00	1,750.00	3,750.00
MAY	8,430.00	2,560.00	5,870.00	0.00	1,750.00	4,120.00
JUN	5,360.00	857.00	4,500.00	0.00	1,750.00	2,750.00
JUL	3,270.00	667.00	2,600.00	0.00	1,750.00	853.00
AUG	2,560.00	605.00	1,950.00	0.00	1,750.00	205.00
SEP	2,540.00	518.00	2,020.00	0.00	1,750.00	272.00
OCT	2,860.00	270.00	2,590.00	0.00	1,750.00	840.00
NOV	4,170.00	355.00	3,820.00	0.00	1,750.00	2,070.00
DEC	8,150.00	380.00	7,770.00	0.00	1,750.00	6,020.00
ANN	7,460,000	1,240,000	6,230,000	0	1,270,000	4,960,000

Well Location Map



Water-Level Measurements in Nearby Wells