Groundwater Application Review Summary Form

Application # G- 18808

GW Reviewer Jen Woody **Date Review Completed:** 6/20/19

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.
JR 7/10/19

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 June 20, 2019

TO: **Application G-** 18808

FROM: **GW:** J Woody
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ YES
The source of appropriation is within or above a Scenic Waterway
☒ 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

OK.

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager

From: Joel Jeffery, Well Construction Program Coordinator

Subject: Review of Water Right Application G-18808

Date: July 12, 2019

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Jen Woody reviewed the application. Please see Jen's review and the Well Log.

Applicant's Well #1 (POLK 54111): Based on a review of the Well Report, Applicant's Well #1 seems to protect the groundwater resource.

The construction of Well #1 may not satisfy hydraulic connection issues.

POLK 54111

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)
Instructions for completing this report are on the last page of this form.

RECEIVED
MAR 20 2018
OWRD

(WELL I.D.)# L 128065
(START CARD) # 214835

(1) OWNER: Well Number 1
Name Atlas Vineyard Inc.
Address 841 Latour Court, Suite A
City Napa State CA Zip 94558

(2) TYPE OF WORK
☑ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☑ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:
☑ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☑ No Depth of Completed Well 300 ft.
Explosives used ☐ Yes ☑ No Type Amount

HOLE			SEAL			
Diameter	From	To	Material	From	To	Sacks or pounds
10"	0'	39'	Bentonite	0'	39'	17 Bags
						Cal 9.27ft^3
6"	39'	300'				

How was seal placed: Method ☐A ☐B ☐C ☐D ☐E
☑ Other Filled and hydrated to the top with dry Bentonite.
Backfill placed from ft. to ft. Material
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6"	+1'	39'	.250	☑	☐	☑	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	4"	5'	300'	160	☐	☑	☑	☐
					☐	☐	☐	☐

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:
☑ Perforations Method Saw cut
☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
160'	300'	1/8	70	6" long	4"	☐	☑
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer ☑ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
15.5 Gpm		280'	1 hr.
8.0 Gpm	209'	267'	24 hr. pump

Temperature of water 54* Depth Artesian Flow Found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other TDS of .268
Depth of strata:

(9) LOCATION OF WELL by legal description:
County Polk Latitude Longitude
Township 6 S Range 4 W WM.
Section 22 NW 1/4 NE 1/4
Tax Lot 201 Lot Block Subdivision
Street Address of Well (or nearest address) 6675 Bethel Rd. Rickreall, OR

(10) STATIC WATER LEVEL:
131 ft. below land surface. Date 3/13/18
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found 122'

From	To	Estimated Flow Rate	SWL
122'	276'	15.5 Gpm	131'

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
Soil	0'	1'	
Sticky brown clay	1'	2'	
Tan/brown claystone	2'	19'	
Gray/blue clay	19'	21'	
Gray claystone	21'	42'	
Gray/brown sandstone	42'	44'	
Blue/green clay	44'	46'	
Gray/brown claystone	46'	90'	
Gray/blue claystone	90'	92'	
Sandy gray/green hard sandstone	92'	102'	
Dark gray/brown sandstone	102'	118'	
Sandy gray/green hard sandstone	118'	122'	
Sandy gray sandstone	122'	132'	131'
Sandy gray/green sandstone	132'	148'	
Sandy brown/white sandstone	148'	209'	
Gray/brown clay	209'	212'	
Gray brown claystone	212'	238'	
Blue/green sandstone	238'	240'	
Gray/white sandstone	240'	271'	
Gray/brown claystone	271'	300'	

Date started 3/7/18 Completed 3/15/18

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief. Nathan Stevens - Assistant WWC Number
Signed Date 3/15/18

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief. Robinson Well Drilling WWC Number 1585
Signed Date 3/15/18

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 6/20/2019

FROM: Groundwater Section Benjamin Scandella, Jen Woody
Reviewer's Name

SUBJECT: Application G-18808 Supersedes review of n/a
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: PEARLSTAD VINEYARD County: POLK

A1. Applicant(s) seek(s) 0.033 CUBIC FOOT PER SECOND from 1 well(s) in the Willamette Basin, Yamhill subbasin

A2. Proposed use IRRIGATION Seasonality: June 1- October 31

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	**POLK 54111**	**1**	**Bedrock**	**0.033**	**6S/4W-22 NWNE**	**2600' N, 200' E fr mid cor S 22**
2						
3						
4						
5						

* 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	**630**	**122**	**131**	**3/13/2018**	**300**	**0-39**	**0-39**	**5-300**	**160-300**	**8**	**209**	**Pump 24-hr**

Use data from application for proposed wells.

A4. **Comments:** Note that this well and place of use are also listed in application LL-1782. The subject well is located in the Eola Hills, about 1 mile east of Bethel. The application states the volume to be used is 0.4 acre-feet, or 130,340 gallons. Pumping at 15 gpm, this volume will be exceeded in 6 days. This review assumes the total acre feet noted in the application is an error, and evaluates for 15 gpm June-October.

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 applicant's well will produce from a confined aquifer, so the pertinent basin rules (690-502-0240) do not apply.

A6. ☐ **Well(s) # POLK 54111** tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: **Eola Hills Groundwater Limited Area (690-502-0200)**
Comments: While the subject well lies geographically within the Eola Hills Groundwater Limited Area, it does not access a basalt aquifer, so the administrative restrictions do not apply.

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) **7C, 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 **Marine Sedimentary Rock Aquifer** ~~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:** Groundwater for the proposed use cannot be determined to be over-appropriated due to insufficient available data regarding rates of recharge and the current quantity of groundwater withdrawals from the aquifer system.

The subject wells are all completed in the low-yield bedrock aquifer system, which is composed of Tertiary marine sedimentary and volcanic rocks. This system generally has low porosity, low permeability, and low well yield. Most of the available pore space in this unit is likely to occur in fractures where groundwater is confined by the low-permeability matrix (Conlon, 2005; Woodward *et al.*, 1998). Fractured rock aquifers generally have large seasonal water level fluctuations, and the con eof depression from a pumping well is expected to be narrow and steep (large drawdown at the pumping well, limited horizontal extent). The applicant is requesting a rate of about 15 gpm, which is high relative to typical well yields in the area, though the well log for POLK 54111 lists a yield of 15 gpm for 1 hour. Over a 24-hour pump test at 8 gpm, the water level was drawn down over 200 ft.

Limited water-level data show no evidence of long-term declines (see Figure 3). Well density in the bedrock aquifer is relatively low (14 new well logs are reported in T6S/R4W-22). Adjacent taxlots are primarily large agricultural plots without groundwater rights, not individual domestic homes. Therefore, well spacing appears large enough to avoid injurious well-to-well interference. The sparseness of nearby water level data indicates the need to monitor water use and water levels during development. Relevant conditions are recommended.

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	**Bedrock**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: General experience indicates that the low-yield bedrock aquifer is typically confined. Reported water levels in nearby well logs report most static water levels rise above the water-bearing zone, indicating aquifer confinement.

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 Zena Ditch**	**499**	**300-500**	**3450**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: POLK 54111 is completed in the marine sedimentary bedrock aquifer system, which is incised by multiple nearby ephemeral and perennial streams. Water-table maps, where they exist, generally show flow paths that converge on local perennial streams. Groundwater from the uplands likely discharges to surface water down-gradient, providing baseflow or spring flow to sustain nearby perennial reaches of the creek.

Water Availability Basin the well(s) are located within: SALT CR > S YAMHILL R - AT MOUTH (WID 73562)

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 source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that surface water source, and 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**	☐	**9.76**	☐	*	☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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: * There is no appropriate model to estimate stream depletion from pumping in fractured rock that is incised by streams or discharges to point sources such as springs. Therefore, the percentage of interference at 30 days is not calculated.

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													
		%	%	%	%	%	%	%	%	%	%	%	%
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: N/A

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:** Potential for substantial interference with surface water is not found, as defined in **690-09-040.**

References Used:

Conlon, T.D., 2005. Ground-Water Hydrology of the Willamette Basin, Oregon. Reston, Va.: U.S. Dept. of the Interior, U.S. Geological Survey. http://purl.access.gpo.gov/GPO/LPS100769. Accessed 7 Jun 2018.

Oregon Water Resources Department Groundwater Information System: water level data, includes reported data.

US Geological Survey topographic maps, Amity Quadrangle.

Woodward, D.G., M.W. Gannett, and J.J. Vaccaro, 1998. Hydrogeologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington. U.S. G.P.O. ; For sale by U.S. Geological Survey, Information Services, Washington : Denver, CO.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** _____ **Logid:** N/A

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.**

Figure 1. Water Availability Tables

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

SALT CR > S YAMHILL R - AT MOUTH

Watershed ID #: 73562 Basin: WILLAMETTE Exceedance Level: 80

Time: 4:06 PM Date: 06/03/2019

Monthly values are in cfs.
Storage is the annual amount at 50% exceedance in ac-ft.

Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
JAN	154.00	17.10	137.00	0.00	0.40	137.00
FEB	168.00	14.90	153.00	0.00	0.40	153.00
MAR	143.00	12.50	130.00	0.00	0.40	130.00
APR	75.10	5.06	70.00	0.00	0.40	69.60
MAY	43.90	7.00	36.90	0.00	0.40	36.50
JUN	27.30	14.60	12.70	0.00	0.40	12.30
JUL	18.30	18.10	0.24	0.00	0.40	-0.16
AUG	12.90	14.50	-1.53	0.00	0.40	-1.93
SEP	9.76	7.27	2.49	0.00	0.40	2.09
OCT	10.00	1.18	8.84	0.00	0.40	8.44
NOV	22.40	4.23	18.20	0.00	0.40	17.80
DEC	107.00	15.80	91.10	0.00	0.40	90.70
ANN	92,900	7,990	85,000	0	290	84,800

Figure 2. Well Location Map

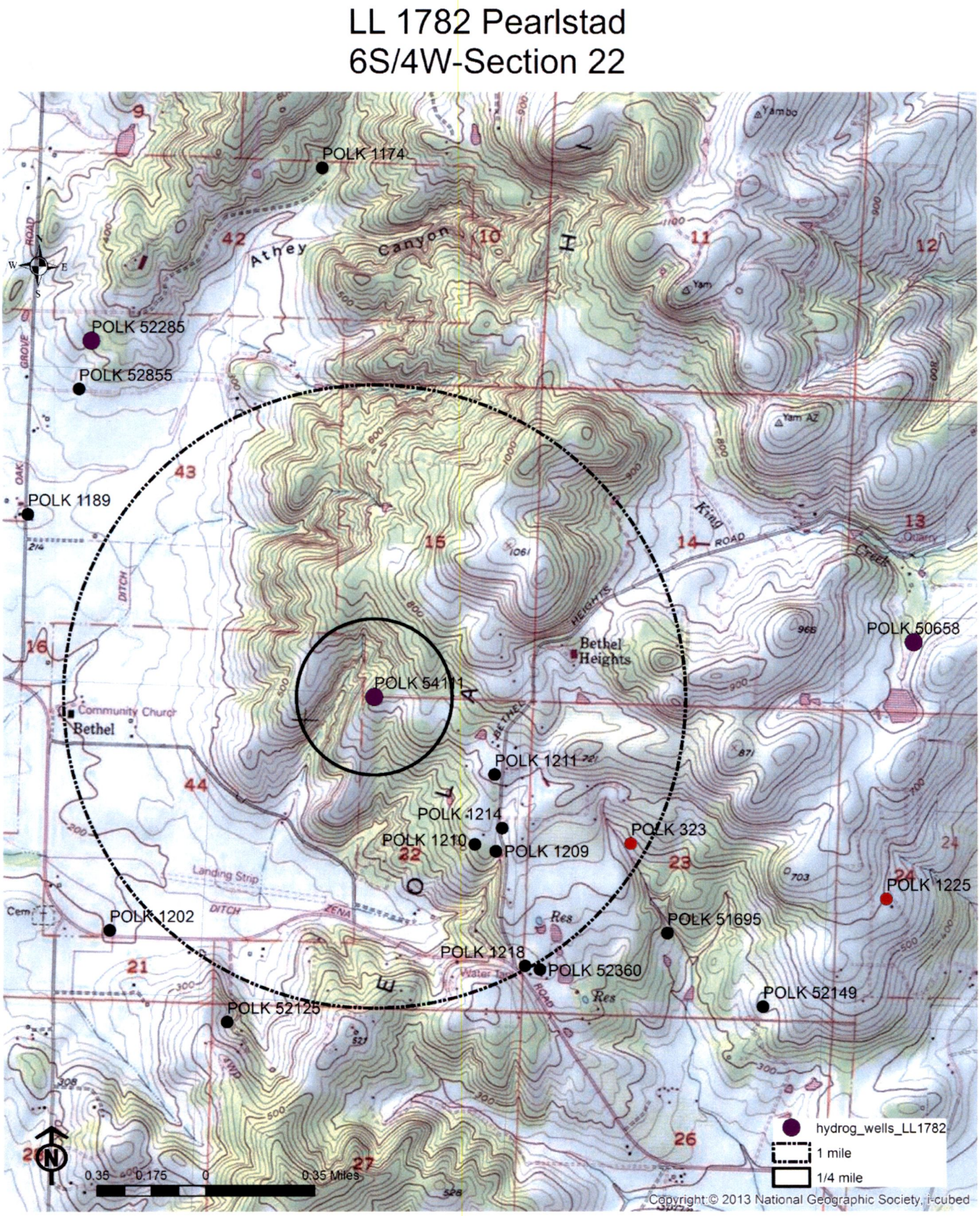

Figure 3. Water-Level Trends in Nearby Wells in the Marine Sedimentary Aquifer