



MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Joel Jeffery, Well Construction Program Coordinator
Subject: Review of Water Right Application G-18596
Date: August 8, 2018

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Dennis Orlowski reviewed the application. Please see Dennis's review and the Well Logs.

Applicant's Well #1 (WASH 52339, and the well's Deepening WASH 53693): Based on a review of the Well Report, Applicant's Well #1 appears to meet Department standards.

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

JUL - 1 1998

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

WELL I.D. # L 14736
START CARD # W-115062

(1) OWNER: Well Number 510
Name Kraxberger Farms
Address 17935 SW Hillsboro Hwy.
City Hillsboro State OR Zip 97123

(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 412 ft.
Explosives used ☐ Yes ☐ No Type _____ Amount _____

HOLE			SEAL			
Diameter	From	To	Material	From	To	Sacks or pounds
6"	275	412				8
SET	TWO	SHALE TRAPS	AT	240'		
CEMENTED	FROM 280'	to	80'			
USED	8	SACKS CEMENT				

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☐ Other _____

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:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	4"	-2	412	1/4	☐	☒	☐	☒
					☐	☐	☐	☐

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:

☒ Perforations ☐ Screens		Method <u>Drilled</u>		Type _____	Material _____	Casing	Line
From	To	Slot size	Number	Diameter	Tek./pipe size		
385	412	1	30	4		☐	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump	☐ Bailer	☒ Air	☐ Flowing Artesian
Yield gal/min	Drawdown	Drill stem at	Time
130		412	1 hr.

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 _____

Depth of strata: _____

(9) LOCATION OF WELL by legal description:

County Wash. Latitude _____ Longitude _____
Township 2S N or S Range 2W E or W. WM.
Section 17 NW 1/4 SE 1/4
Tax Lot 2500 Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) Same as above

(10) STATIC WATER LEVEL:

140 ft. below land surface. Date 6/3/98
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:

Depth at which water was first found 385

From	To	Estimated Flow Rate	SWL
385	410	130	140

(12) WELL LOG:

Ground Elevation _____

[illegible]

Date started 6/3/98 Completed 6/3/98

(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.

WWC Number _____
Signed _____ Date _____

(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.

ERICAN WELL DRILLING WWC Number 663
Signed *[Signature]* Date 6/29/98

RECEIVED

Wash
52339

JUL 10 1997

WELL I.D.# L14736

STATE OF OREGON WATER SUPPLY WELL REPORT (as required by ORS 537.765)

WATER RESOURCES DEPT.
OREGON

(START CARD) # 098106

Instructions for completing this report are on the last page of this form.

(1) OWNER: Mr + Mrs Barry Kraxberger
Name Mr + Mrs Barry Kraxberger
Address P.O. Box 2073
City Beaumont State OR Zip 97005

(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 275 ft.
Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE SEAL
Diameter From To Material From To Sacks or pounds
10 1/2" 0 98 Cement 48 98 20 Sacks
6" 98 275 Benatite 0 48 25 Sacks

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E
☒ Other Benatite placed top to bottom slowly.
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" +2 98 250 ☒ ☐ ☒ ☐
Liner: 4" 15 275 160 ☒ ☒ ☒ ☐

Final location of shoe(s)
(7) PERFORATIONS/SCREENS:
☒ Perforations Method Electric drill
☐ Screens Type 3/8" circular Material _____
Slot size Number Diameter Tele/pipe size Casing Liner
From To From To From To
215 275 180 3/8" circular ☐ ☒

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer ☒ Air ☐ Flowing
Yield gal/min Drawdown Drill stem at Time
40 _____ 275 1 hr.

Temperature of water 52° 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 _____
Depth of strata: _____

(9) LOCATION OF WELL by legal description:
County Washington Latitude _____ Longitude _____
Township 25 N or S Range 2W E or W. WM.
Section 17 SE 1/4 SE 1/4
Tax Lot 2217 Lot 2500 Block _____ Subdivision _____
Street Address of Well (or nearest address) 17935 S.W. Highway 219
Hillsboro, OR

(10) STATIC WATER LEVEL:
144 ft. below land surface. Date June 25, 97
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:
Depth at which water was first found 150 ft 5 G.P.M.

From	To	Estimated Flow Rate	SWL
<u>150</u>	<u>152</u>	<u>10 G.P.M.</u>	
<u>175</u>	<u>176</u>	<u>10 G.P.M.</u>	
<u>230</u>	<u>235</u>	<u>20 G.P.M.</u>	

(12) WELL LOG:
Ground Elevation _____

Material	From	To	SWL
<u>Topsoil</u>	<u>0</u>	<u>3</u>	
<u>Brown & yellow clays</u>	<u>3</u>	<u>58</u>	
<u>Reddish silty clay</u>	<u>58</u>	<u>85</u>	
<u>Decomposed brown basalt</u>	<u>85</u>	<u>90</u>	
<u>Medium Hard blue</u>	<u>90</u>	<u>150</u>	
<u>Basalt</u>	<u>150</u>	<u>275</u>	
<u>Blue & Brown basalt</u>	<u>150</u>	<u>275</u>	
<u>with pinkish layers</u>	<u>150</u>	<u>275</u>	
<u>Unstable basalt</u>	<u>275</u>	<u>291</u>	
<u>Clay</u>	<u>275</u>	<u>291</u>	

Date started June 19, 97 Completed June 25, 97
(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.
WWC Number _____
Signed _____ Date _____

(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.
WWC Number 1765
Signed June 1 Wilcox Date June 28, 97

Groundwater Application Review Summary Form

Application # G- 18596

GW Reviewer DENNIS ORLOWSKI

Date Review Completed: 7/31/2012

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.

SI 8/7/12

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).

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section
 FROM: Groundwater Section _____ Dennis Orłowski
 Reviewer's Name
 SUBJECT: Application G- 18596 _____
 Supersedes review of _____
 Date 7/31/2018
 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: Kraxberger Living Trust County: Washington

A1. Applicant(s) seek(s) 0.019 cfs from one well(s) in the Willamette Basin,
McFee Creek > Tualatin River subbasin

A2. Proposed use Nursery (11.1 acres) 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 #	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	WASH 52339/53693	1	CRB	0.019	T2S/R2W-17 SW-SE	See comment

* 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	260	385	140	6/3/98	412	0-98	+2-98	15-275	215-275, 385-412	130	--	Air

Use data from application for proposed wells.

A4. **Comments:** For this proposed POA, WASH 52339/53693, there is a discrepancy between the location description provided on this application map and the location as recorded in multiple OWRD documents pertaining to this same well. The established OWRD location for WASH 52339/53693 is approximately 450 feet west of the application map location.

WASH 52339/53693 was the authorized POA for the following permits: G-13400 EX, G-15637 EX, and G-16304 EX. The location description for the well is identical on each of these permits, the earliest of which was initiated about 20 years ago; furthermore, all three now-expired permits were for the same use and by the same business, Kraxberger Farms.

Thus, for this review the proposed POA location is that established in previous water rights for this same property and business, and not the location description provided on the current application map.

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

Comments: The proposed POA produces groundwater from a confined basalt aquifer, and thus the pertinent Basin rules (OAR 690-502-0240) do not apply.

A6. ☒ **Well(s) #** 1, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction. Name of administrative area: Chehalem Mountain Groundwater Limited Area
 Comments: Groundwater in the basalt aquifers in the Chehalem Mountain Groundwater Limited Area (GWLA) is classified for exempt uses, irrigation and rural residential fire protection systems only. Permits may be issued, for a period not to exceed five years, for fire protection and for drip or equally efficient irrigation provided the Director finds the proposed use and amount do not pose a threat to the groundwater resource or existing permit holders. The amount of water used for irrigation shall be further limited to one acre-foot per acre per year. Permits may be extended for additional five-year periods if the Director finds that the groundwater resource can probably support the extended use (OAR 690-502-0200 (1)).

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) **Large water-use reporting; 7I (Willamette CRB condition)**;
 - 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 proposed POA, WASH 52339/53693, obtains groundwater from one or more water-bearing zones in the Columbia River Basalt Group (CRBG) aquifer system. The CRBG in this area consists of a series of lava flows/basalt layers with a composite thickness that ranges from 800 to 1000 feet (Conlon et al., 2005). Each layer is characterized by a series of internal features, including a thin rubble zone at the contact between flows and a thick, dense, low porosity and low permeability interior zone. In some cases, sedimentary layers were deposited during the time between basalt flow emplacements. A flow top, sedimentary interbed and flow bottom are collectively referred to as an “interflow zone”. Unconfined groundwater can occur near the weathered top of the basalts, but most water occurs under confined conditions in deeper interflow zones at the contacts between lava flows. CRBG flow features result in a series of stacked, thin aquifers that are confined by dense flow interiors. The low permeability of the basalt flow interiors usually results in little connection between stacked aquifers, which generally results in tabular aquifers with unique water level heads (Reidel et al., 2002).

Groundwater elevations in the area suggest the water-bearing zone(s) in the applicant’s well may be shared by other groundwater users (see attached hydrograph). Long-term trends indicate relatively stable water levels in the area, with no significant losses in head within the CRBG aquifers at the current level of use. However, the typically low storativity of CRBG aquifers limit their potential productivity, both in rate and total volume and the long-term duration of sustainable use.

To protect existing users, water use reporting and water level monitoring conditions are recommended.

SPECIAL GWLA CONDITION: If issued, the permit should also include relevant limitations of the Chehalem Mountain GWLA, including type and quantity of use, the 5-year time limit, and best management practices that maximize the efficiency of water use.

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	CRBG	☒	☐

Basis for aquifer confinement evaluation: Nearby CRBG well logs report static water levels above respective water-bearing zones, indicating a confined aquifer or series of aquifers. Additionally, aquifer tests in the CRBG yield storativity values typical of confined aquifers.

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	Unnamed tributary to McFee Creek (west)	140-150	140-500	800	☒	☐	☐	☐	☒
1	2	Heaton Creek	140-150	150	4850	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: The estimated range of groundwater elevations at the proposed POA is coincident with SW1 in the area where the creek has incised through the CRBG aquifer system (the SW1 elevations shown above are within approximately one mile of Well 1). Groundwater in the upland areas likely discharges to surface water where the CRBG water-bearing zones intersect the stream, providing baseflow to sustain perennial reaches of the stream.

Furthermore, groundwater elevations are largely coincident with the elevation of SW2 at its nearest reach.

These facts indicate hydraulic connection with both SW1 and SW2.

Water Availability Basin the well(s) are located within: WID 30201001: McFee Creek > Tualatin River – 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 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	☒	☐			☐	1.90	☐	See comment	☒
1	2	☐	☐			☐	1.90	☐	See comment	☐

- 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: C3a: there is no readily-available analytical model than can be used to estimate stream depletion impacts from wells that obtain groundwater from CRBG aquifers.

C3b: not applicable.

- 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: Not applicable.

- 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:
- ☐ The permit should contain condition #(s) _____;
 - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

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

References Used:

Application G-18596 file.

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

Reidel, S.P., Johnson, V.G., and Spane, F.A., 2002, Natural gas storage in basalt aquifers of the Columbia Basin, Pacific Northwest USA—A guide to site characterization: Richland, Wash., Pacific Northwest National Laboratory, 277 p.

US Geological Survey Scholls, Oregon Topographic Quadrangle Map.

OWRD water level database, includes reported water levels, accessed 7/31/2018.

D. WELL CONSTRUCTION, OAR 690-200

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

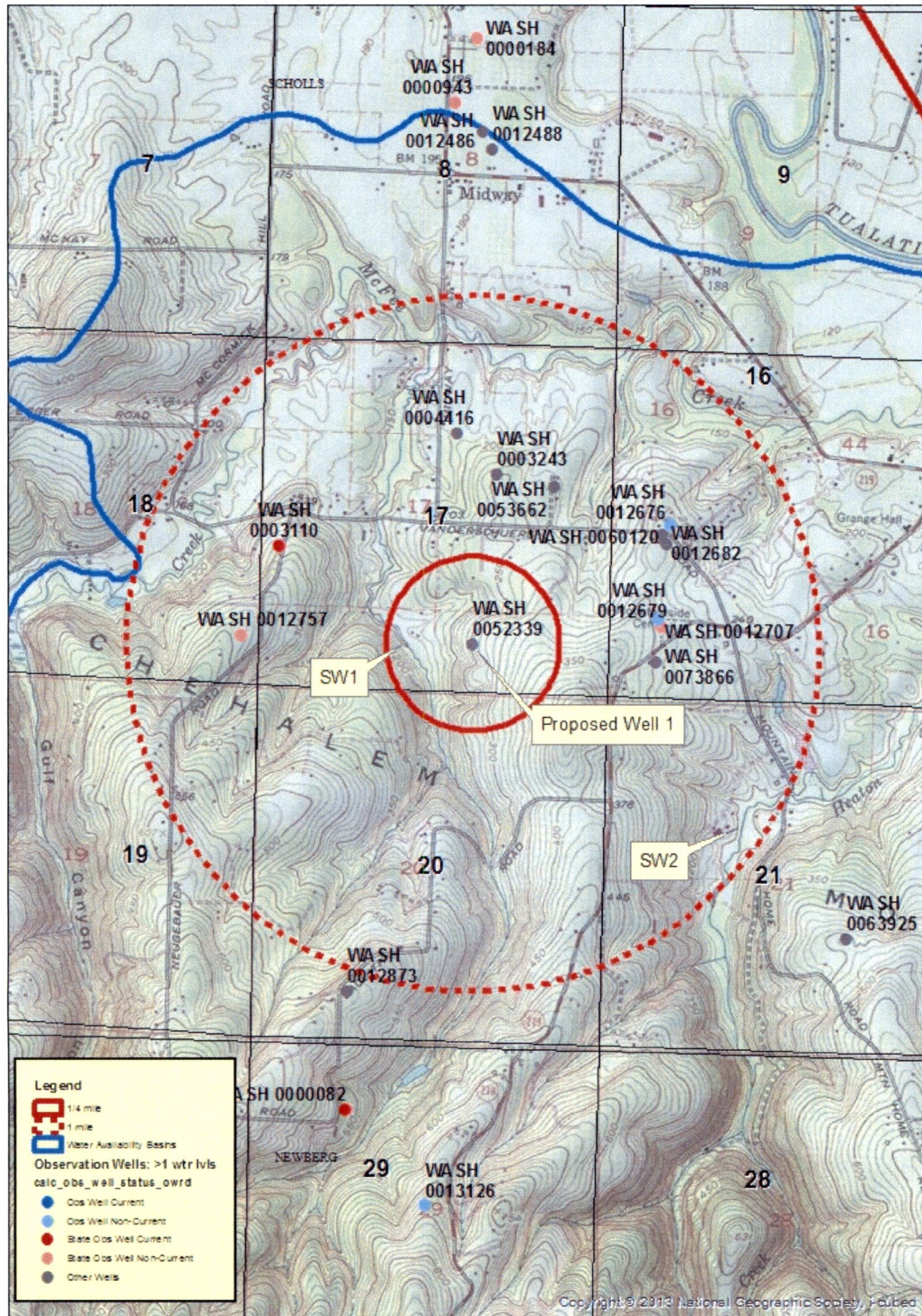
D2. **THE WELL does not appear to meet current well construction standards based upon:**

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

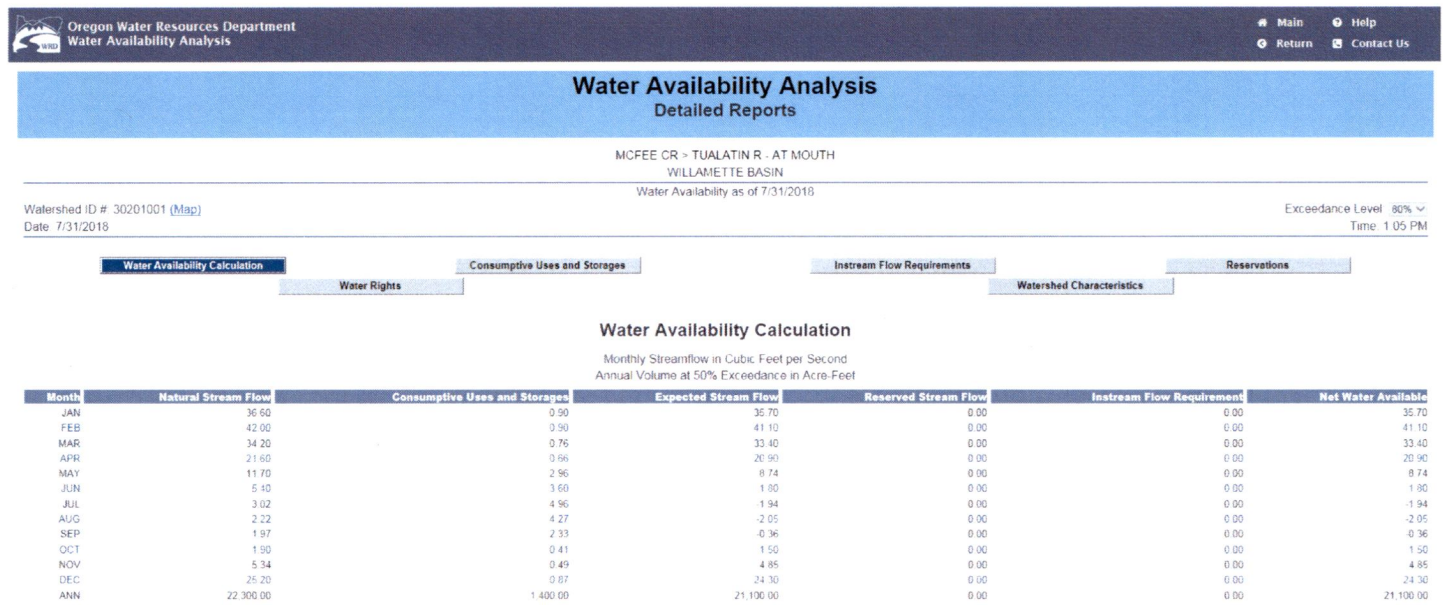
D3. **THE WELL construction deficiency or other comment is described as follows:** _____

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

Well Location Map

Application G-18596, Kraxberger Living Trust
T2S, R2W, Section 17

Water Availability Table



Water-Level Trends in Nearby Wells

