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-19026
Date:	December 7, 2020

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

Applicant's Well #1 (JEFF 325): Based on a review of the Well Report, Applicant's Well #1 seems to protect the groundwater resource.

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

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the
WATER RESOURCES DEPARTMENT,
SALEM, OREGON 97310
within 30 days from the date of well completion.

Jeff 325

RECEIVED
AUG 5 1981
WATER RESOURCES DEPT.
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON

(Please type or print) (Do not write above this line)

State Well No. .....

State Permit No. .....

(1) OWNER:
Name Homestead Investment Co.
Address 1204 Chestnut St.
Madras, Oregon

(2) TYPE OF WORK (check):
New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☒ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) CASING INSTALLED:
Threaded ☐ Welded ☒
8 " Diam. from +1 ft. to 122 ft. Gage .250
6 " Diam. from 110 ft. to 250 ft. Gage .188
" Diam. from ft. to ft. Gage

PERFORATIONS:
Perforated? ☒ Yes ☐ No
Type of perforator used cutting torch
Size of perforations 1/4 in. by 6 in.
480 perforations from 123 ft. to 182 ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☒ No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom?
Yield: 52 gal./min. with total ft. drawdown after 1½ hrs.
" " "
" " "
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used cement
Well sealed from land surface to 20 ft.
Diameter of well bore to bottom of seal 12 in.
Diameter of well bore below seal 8 in.
Number of sacks of cement used in well seal 18 sacks
How was cement grout placed? pumped
Was a drive shoe used? ☒ Yes ☐ No Plugs Size: location ft.
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☒ No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County Jefferson Driller's well number D-226-79
S.E. ¼ S.W. ¼ Section 6 T. 10S R. 13E W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 123 ft.
Static level 80 ft. below land surface. Date 5-10-79
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 8
Depth drilled 250 ft. Depth of completed well 250 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
topsoil	0	3	
brown clay	3	68	
blue clay	68	84	
claystone gray	84	123	
rock-decomp-clay-water	123	182	80
gray claystone	182	218	
brownish blue clay	218	250	

Work started 5-2 1979 Completed 5-10 1979
Date well drilling machine moved off of well 5-10 1979

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] David Donnelly (Drilling Machine Operator) Date 5-11, 1979
Drilling Machine Operator's License No. 883

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name S & M Drilling & Supply, Inc. (Person, firm or corporation) (Type or print)
Address 399 S.E. Walnut, Canby, Oregon 97013
[Signed] Walter Mace (Water Well Contractor)
Contractor's License No. 497 Date 5-11, 1979

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

Groundwater Application Review Summary Form

Application # G- _19026_

GW Reviewer _Aurora C Bouchier_ Date Review Completed: _11/10/2020_

Summary of GW Availability and Injury Review:

☐ Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

Within USGS Groundwater Study Area

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 10, 2020

TO: Application G-__19026_____

FROM: GW: __Aurora C Bouchier_____
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference & General/Local Surface Water Evaluation for Deschutes Ground Water Study Area

The source of appropriation is within or above the Deschutes_____ Scenic Waterway

Use the Scenic Waterway condition (Condition 7J).

PREPONDERANCE OF EVIDENCE FINDING UNDER ORS 390.835:

Department has found that there is a preponderance of evidence that the proposed use of groundwater will measurably reduce the surface water flows necessary to maintain the free-flowing character of the Deschutes_____ Scenic Waterway in quantities necessary for recreation, fish and wildlife.

LOCALIZED IMPACT FINDING

☐ The proposed use of groundwater will have a localized impact to surface water in the _____ River/Creek Subbasin.

If the localized impact box above is checked, then the water use under any right issued pursuant to this application is presumed to have a localized impact on surface water within the identified subbasin. Mitigation of the impact, originating from within the Local Zone of Impact identified by the Department, will be required before a permit may be issued for the proposed use.

If the localized impact box above is not checked, then the water use under any right issued pursuant to this application is presumed to have a general (regional) impact on surface water. Mitigation of the impact, originating anywhere within the Deschutes Basin above the Madras gage, will be required before a permit may be issued for the proposed use.

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 11/10/2020
FROM: Groundwater Section Aurora C Bouchier
Reviewer's Name
SUBJECT: Application G- **19026** Supersedes review of na
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: **Hettervig Properties LLC** County: **Jefferson**

A1. Applicant(s) seek(s) 0.25 cfs from 1 well(s) in the Deschutes Basin, Lower Deschutes (General ZOI) subbasin

A2. Proposed use Storage/Multipurpose 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	JEFF 325	1	Bedrock	0.25	10S/13E-6 NW-SW	1060' S, 460'E fr W ¼ Cor S 6
2						

* 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	1578	123	80*	5/10/1979	250	0-20	-1-122	110-250	123-182	52	Total**	P

Use data from application for proposed wells.

A4. **Comments:** * The static water level listed on the well log is 80 feet bls. JEFF 325 has been monitored by OWRD since the mid 1990's through present over which the water level has ranged between ~98 and ~93 feet bls.
** The pump test listed on the well log lists 'total' drawdown after 1.5 hrs pumping at 52 gpm.

This application appears to be for year-round storage and multipurpose use of up to 4 AF from JEFF 325. The application map includes a second map indicating that JEFF 325 is intended to be used for application G-18406. It should be noted that application G-18406 (submitted in November 2016) has not yet been approved. Application G-18406 proposed using JEFF 51162 and a second well which had not been drilled at that time. The maps associated with application G-18406 were inconsistent and incredibly vague. The second map included with this application is more precise as to the land that is intended to be irrigated, presumably under application G-18406. Based on Google Earth imagery, it appears that irrigation has begun on a portion of the land to be irrigated under app G-18406 at some point between 4/19/2015 and 8/20/2017 (see images below).

A5. ☒ **Provisions of the** Deschutes 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: Within the USGS Deschutes Groundwater Study Area Boundary and subject to Division 690-505-0500 to 0620.

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, 7J**;

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 well, JEFF 325, has been monitored periodically since the mid 1990's through present. Between 2006 and 2017 the water level in JEFF 325 rose approximately 5 feet. However, since 2017 the water level dropped approximately 3.5 feet and the well was found to be pumping during the fall 2020 site visit. The hydrograph for JEFF 325 shows fluctuations which are likely driven by climate cycles, although long-term effects from the filling of Lake Billy Chinook / Lake Simtustus / Pelton Regulating Reservoir may be contributing to the overall increase in water level and recent pumping likely contributing to the recent decline.

C. GROUNDWATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

The USGS Deschutes groundwater study concludes that groundwater and surface water are directly linked within the DGWSA, with virtually the entire flow of the Deschutes River at Madras supplied by groundwater discharge during the summer and early fall (Gannett et al., 2001). Therefore, the following sections of groundwater reviews are not required to establish surface water groundwater connections.

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Not required to be evaluated within the DGWSA

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
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Not required to be evaluated within the DGWSA

Water Availability Basin the well(s) are located within: Not required to be evaluated within the DGWSA

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?
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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: Not required to be evaluated within the DGWSA

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: Not required to be evaluated within the DGWSA

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:** The USGS Deschutes groundwater study concludes that groundwater and surface water are directly linked within the DGWSA, with virtually the entire flow of the Deschutes River at Madras supplied by groundwater discharge during the summer and early fall (Gannett et al., 2001). Management rules within the DGWSA (OAR Division 690-505-0500 to 0620) were crafted to allow a limited number of additional groundwater permits to be granted while still maintaining the Deschutes River Oregon Scenic Waterway/Federal Wild and Scenic River.

References Used: Application file: G-19026 and associated application G-18406.

Gannett, Marshall W., Lite, Kenneth E. Jr., Morgan, David S., and Collins, Charles A., 2001, Ground-Water Hydrology of the Upper Deschutes Basin, Oregon; U.S. Geological Survey Water-Resources Investigations Report 00-4162.

Gannett, Marshall W., and Lite, Kenneth E. Jr., 2004, Simulation of the Regional Ground-Water Flow in the Upper Deschutes Basin, Oregon; U.S. Geological Survey Water-Resources Investigations Report 03-4195.

Lite, Kenneth E. Jr., and Gannett, Marshall W., 2002, Geologic Framework of the Regional Ground-Water Flow System in the Upper Deschutes Basin, Oregon; U.S. Geological Survey Water-Resources Investigations Report 02-4015.

OWRD Well Log database and groundwater-level data.

Smith, G.A., 1987, Geologic map of the Madras West and Madras East quadrangle, Jefferson County, Oregon, Geologic Map Series GMS 45, Oregon Department of Geology and Mineral Industries Portland, OR., map scale 1:24,000.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** 1 **Logid:** JEFF 325

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

a. ☐ review of the well log;

b. ☐ field inspection by _____;

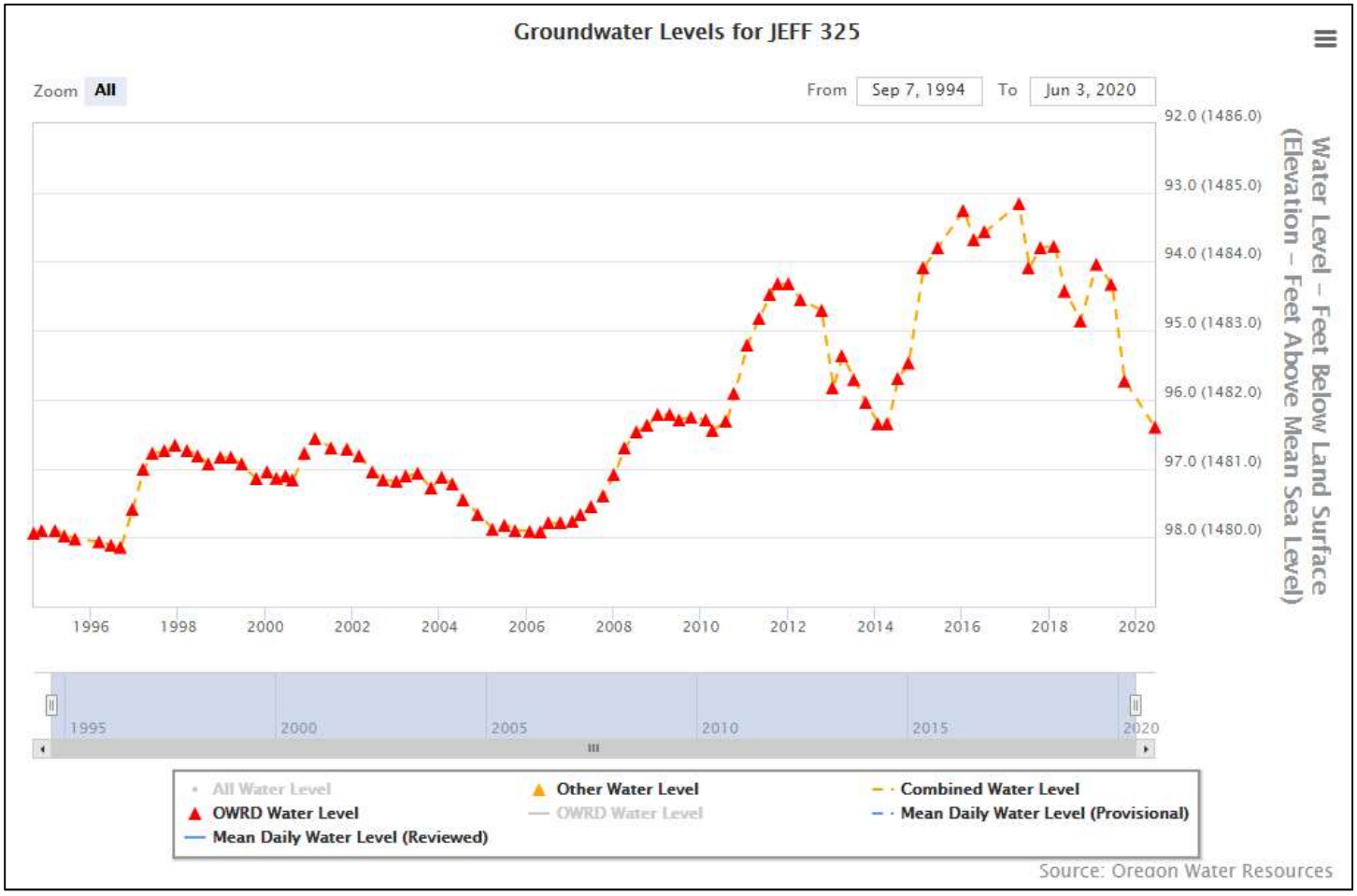
c. ☐ report of CWRE _____;

d. ☐ other: (specify) _____

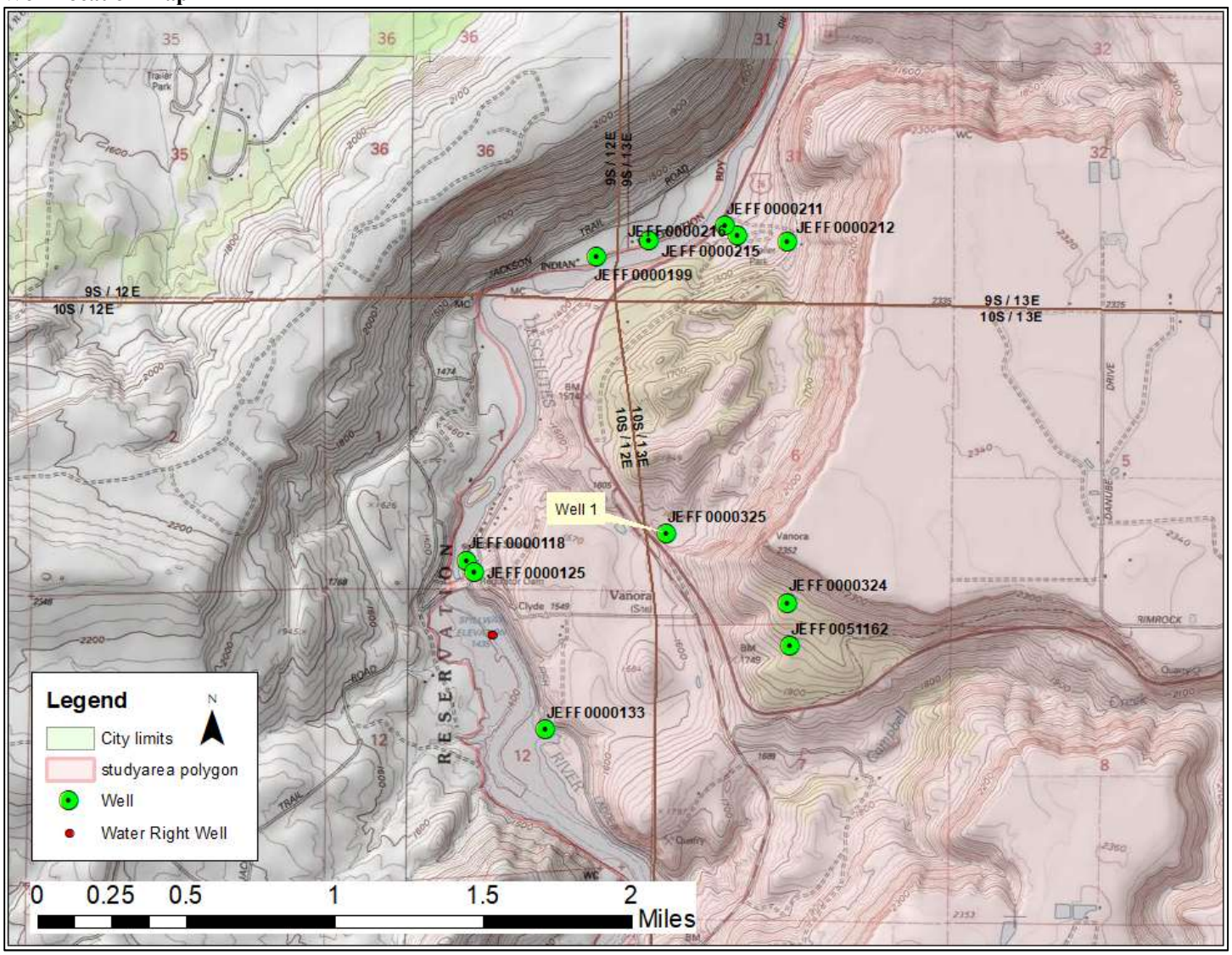
D3. **THE WELL construction deficiency or other comment is described as follows:** _____

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

Water-Level Measurements in JEFF 325



Well Location Map



Google Earth Imagery (4/19/2015)

Google Earth Imagery (8/20/2017)