Approved: 

MEMO

To:	Kristopher Byrd, Well Construction and Compliance Section Manager
From:	Travis Kelly, Well Construction Compliance Coordinator
Subject:	Re-Review of Water Right Application G-18992
Date:	February 15, 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 (Proposed Well): Well #1 is a proposed well, therefore it cannot be reviewed for construction. Construction of this proposed well 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 this well, specific attention should be paid to ensure sealing requirements are met and that the well does not commingle aquifers.

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

Groundwater Application Review Summary Form

Application # G- _18992_

GW Reviewer _Phil Marcy_ Date Review Completed: _12/28/2021_

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 **December 28,** 2021

TO: **Application** G-**18992**

FROM: **GW: Phil 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 _____ 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 12/28/2021
FROM: Groundwater Section Phillip I. Marcy
Reviewer's Name
SUBJECT: Application G- 18992 Supersedes review of 06/12/2020
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: **Everett and Janet Kyniston** County: **Malheur**

A1. Applicant(s) seek(s) 0.13 cfs from 1 well(s) in the Malheur Basin, _____ subbasin

A2. Proposed use Irrigation (3.0 acres) Seasonality: April 1st – October 1st (183 days)

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	0.13	17S/47E-29 NE-SW	700' S, 180' E fr NW cor, S 29
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	2153	NA	**NA**	NA	~35	0-18	0-35	NA	NA	NA	NA	NA

Use data from application for proposed wells.

A4. **Comments:** This re-review addresses amendment to application G-18992 to resolve well construction problems cited in the original review.
The applicant proposes to construct a new well to develop groundwater from the unconfined alluvial aquifer for purposes of irrigation of 3 acres. At this time, cited acreage in WRIS is 2.65, but the application is requesting 3 acres, with proposed total pumping of 1-2 acre-feet per season.

A5. ☒ **Provisions of the** Malheur 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: _____

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) _____;

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:** There are not existing data within one mile of the proposed POA location to confirm recent groundwater trends. The nearest well with a significant water level record, MALH 53047, is located in the Ontario Heights area, about 2.4 miles northwest of the proposed POA and displays no decline trend in annual measurements. Despite the difference in surface elevation (MALH 53047 land surface elevation is 2374 AMSL, 221' higher than the proposed POA), the depth of this well overlaps the likely open interval in the proposed POA well. Groundwater levels in the Ontario have been stable for decades, partially owing to downward percolation of surface water irrigation, commonly applied in this region in the form of flood irrigation. This concept is illustrated by groundwater elevations typically rising during the irrigation season (Gannett, 1990; see attached hydrograph for MALH 1854). In addition, due to the availability of surface water from local irrigation districts, use of groundwater for irrigation is relatively sparse in this area. The proposed pumping of 0.1336 cfs is unlikely to cause undue interference with nearby users or overdraft the local alluvial aquifer system.

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	**Silts, sands, and gravels overlying Glenns Ferry Fmn.**	☐	☒
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: The alluvial deposits overlying siltstones of the Glenns Ferry Formation display only modest degrees of confinement in some locations, where in most local wells, the piezometric surface is represented where water is first encountered during drilling. What is commonly described as "brown sandy clay" on driller's logs under microscopic examination is revealed to be primarily crystal and lithic fragments, and contains little clay (Gannett, 1990), and thus is fairly permeable.

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**	**Malheur River**	**2140**	**2134**	**3,100**	☒	☐	☐	☐	☒
1	**2**	**Unnamed Slough to E**	**2140**	**2137**	**4,000**	☒	☐	☐	☐	☒
1	**3**	**Unnamed stream in Cyn. No. 1**	**2140**	**2143**	**2,830**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Alluvium overlying the Glenns Ferry Formation is fairly permeable, exhibits groundwater elevation gradients toward local drainages, and there is no evidence of lithology here that would prohibit groundwater from discharging to the Malheur River, Snake River, or other nearby surface waters.

Water Availability Basin the well(s) are located within: Malheur R > Snake R – 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 (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**	**NA**	☐	**83.8**	☐	**<<25%**	☐
1	**2**	☐	☐	**NA**	**NA**	☐	**83.8**	☐	**<<25%**	☐
1	**3**	☐	☐	**NA**	**NA**	☐	**83.8**	☐	**<<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: Considering the range of transmissivity values produced by local pump tests and aquifer tests performed by OWRD in the late 1980's (Gannett, 1990), the expected impacts to nearby surface waters is expected to be much less than 25% of the pumping rate at 30 days from the onset of pumping. These results were calculated using the stream depletion model of Jenkins(1970), which does not include any barriers between the well and nearby surface water, and therefore is a conservative estimate from the perspective of the stream.

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													

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
(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: This section does not apply.

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 impacts of pumping at the proposed rate and location are anticipated to be minor, in respect to local surface water flows.

References Used:

Local well logs, pump tests, GWIS water-level database, amended application G-18992.

Jenkins, C.T., 1970, Computation of rate and volume of stream depletion by wells: U.S. Geol. Survey Techniques of Water-Resources Investigations of the Unites States Geological Survey, Chapter D1, Book 4,17 p.

Gannett, M.W., 1990, Hydrogeology of the Ontario Area, Malheur County, Oregon: Oregon Water Resources Department Groundwater Report No. 34

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:** The applicant has proposed to construct a new well that complies with well construction standards and removed the existing non-compliant well from the application.

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

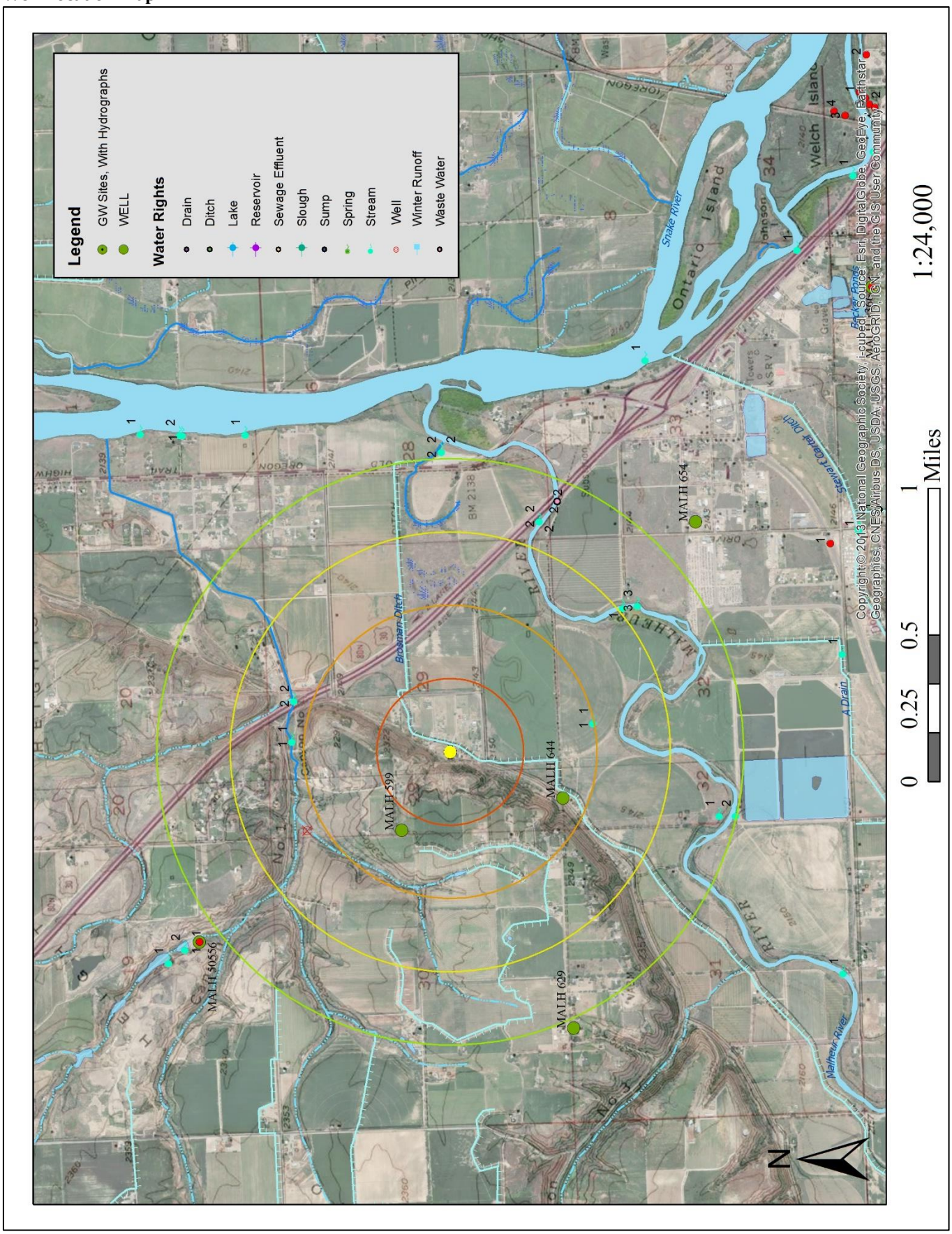
MALHEUR R > SNAKE R - AT MOUTH

Watershed ID #: 31011701 Basin: MALHEUR Exceedance Level: 80

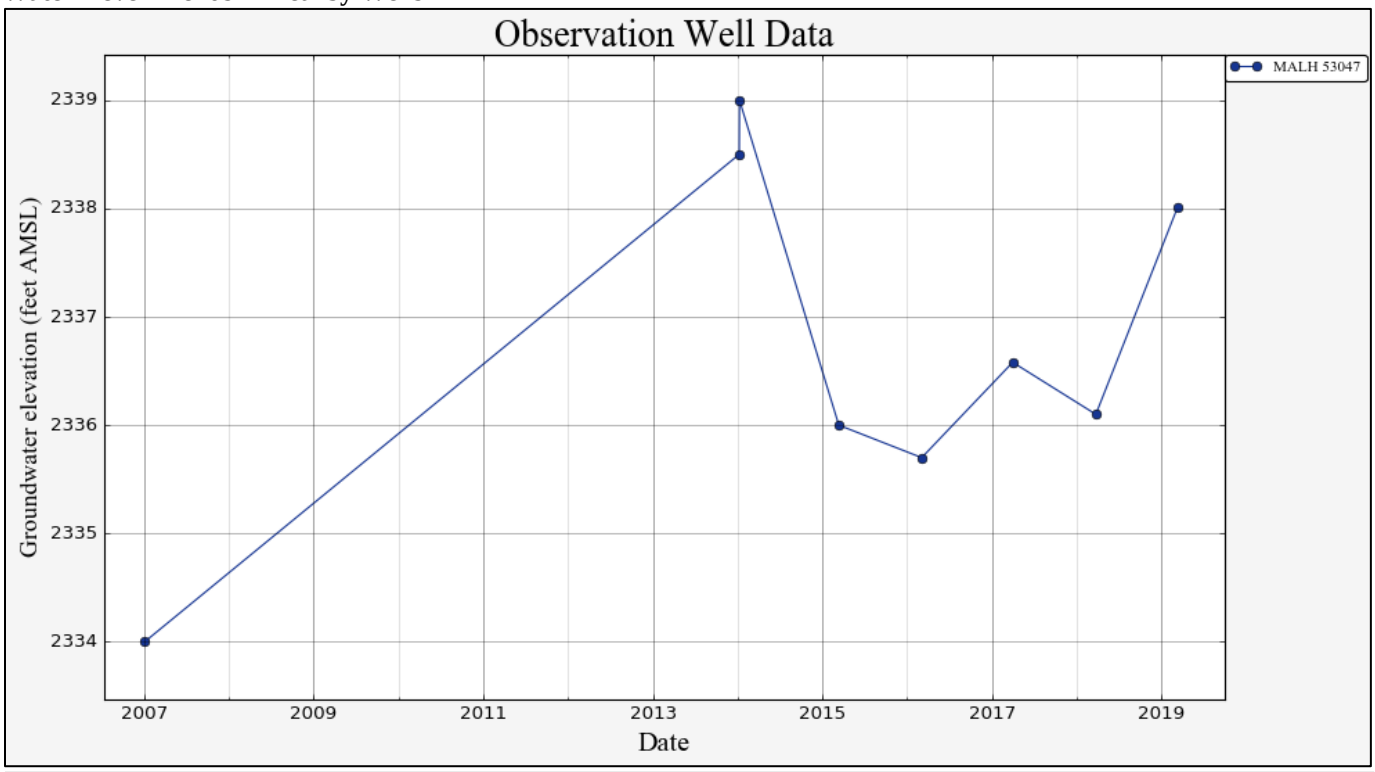
Time: 12:16 PM Date: 06/12/2020

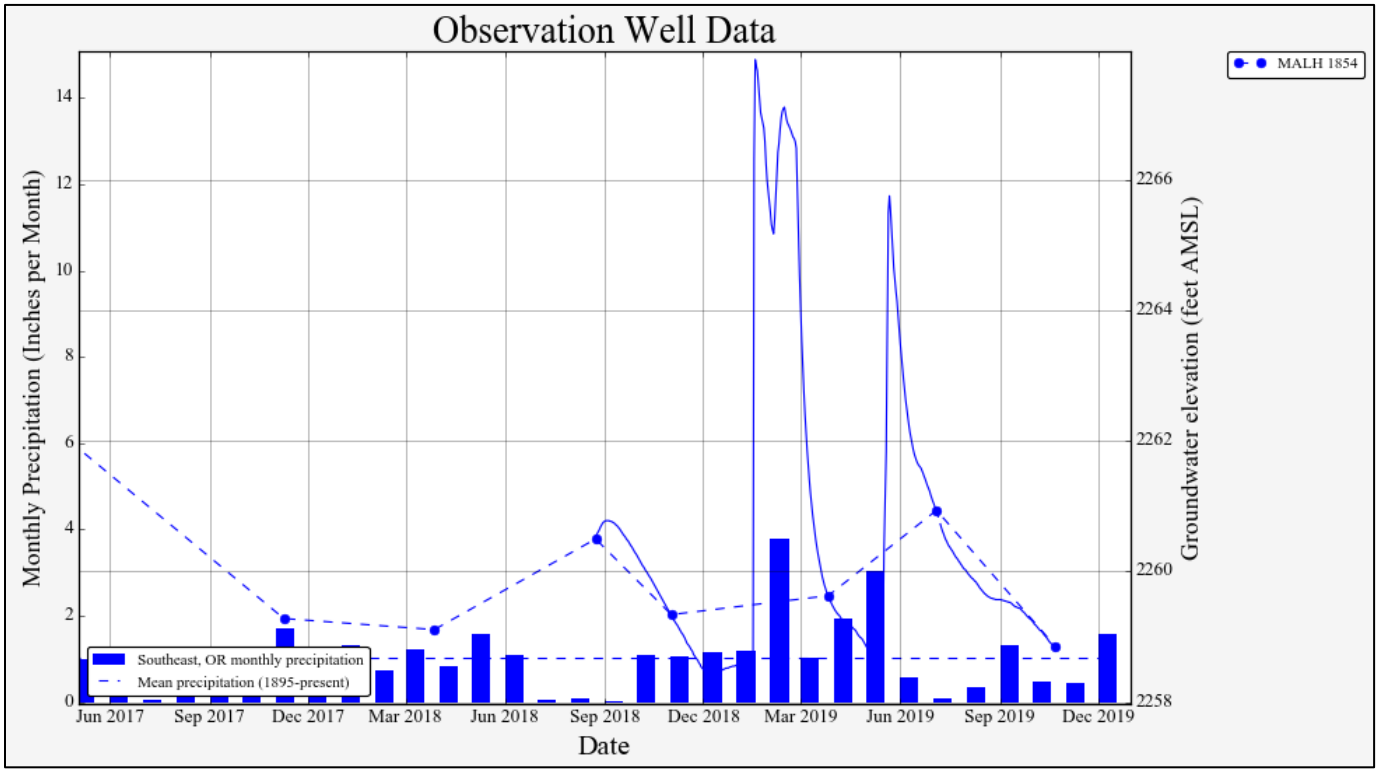
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
	Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.					
JAN	154.00	427.00	-273.00	0.00	0.00	-273.00
FEB	267.00	626.00	-359.00	0.00	0.00	-359.00
MAR	467.00	911.00	-444.00	329.00	0.00	-774.00
APR	780.00	1,060.00	-279.00	470.00	0.00	-749.00
MAY	524.00	958.00	-434.00	0.00	0.00	-434.00
JUN	324.00	858.00	-534.00	0.00	0.00	-534.00
JUL	150.00	687.00	-537.00	0.00	0.00	-537.00
AUG	99.90	541.00	-441.00	0.00	0.00	-441.00
SEP	83.80	376.00	-293.00	0.00	0.00	-293.00
OCT	106.00	209.00	-103.00	0.00	0.00	-103.00
NOV	135.00	223.00	-87.90	0.00	0.00	-87.90
DEC	132.00	297.00	-165.00	0.00	0.00	-165.00
ANN	338,000	433,000	29,500	48,200	0	0

Well Location Map



Water-Level Trends in Nearby Wells





Observation well MALH 1854 displays the trend cited in Section B3, with groundwater elevations rising during the dry summer months as a result of canal leakage and downward percolation of water applied during flood irrigation to the shallow unconfined aquifer system here. Dashed lines connect manual observations, with solid lines representing continuous recorder data. The peaks in water levels in both March and June of 2019 correspond to a high precipitation, however the recession curve of this event displays substantial interference from percolation of canal and irrigation returns. Lowest groundwater elevations occur in winter and spring months, contrary to trends observed in most aquifer systems around the state. This well is located near the town of Vale, about 14 miles WSW of the proposed POA location, but the aquifer system and irrigation practices do not differ significantly between the two locations.