# Groundwater Application Review Summary Form

**Application # G- 19432**

**GW Reviewer Stacey Garrison Date Review Completed: 5/13/2025**

**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** **May 13, 2025**

**TO:** **Application** G- **19432**

**FROM:** **GW:** **Stacey Garrison**
(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 May 13, 2025
FROM: Groundwater Section Stacey Garrison
Reviewer's Name
SUBJECT: Application G- **19432** 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: **The Nursery Outlet c/o Sergi Ovchinnikov** County: **Marion**

A1. Applicant(s) seek(s) 0.033[a] cfs from 1 well(s) in the Willamette Basin, Molalla-Pudding subbasin

A2. Proposed use Nursery (containerized) Seasonality: Year-round

A3. Well and aquifer data **(attach and number logs for existing wells; mark proposed wells as such under logid)**:

| POA 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 | MARI 1574 | 1 | Alluvial | 0.033[a] | 5S/1W-6 SE-NW | 1870' S, 1800' E fr NW cor S6 [a] |

* Alluvium, CRB, Bedrock

[a] There is a discrepancy between the mapped location of the POA as indicated on the applicant's map and the metes-and-bounds description using the Department's PLSS projection. The metes-and-bounds location is 210 ft east of the mapped location; the mapped location is used.

| POA Well | Well Depth (ft) | Seal Interval (ft) | Casing Intervals (ft) | Liner Intervals (ft) | Perforations Or Screens (ft) | Well Yield (gpm) | Drawdown (ft) | Test Type |
|---|---|---|---|---|---|---|---|---|
| 1 | 128 | 0 to 20 | +1 to 94 | 70 to 90 | 90 to 110 | 15 | 5 | Pump |

Use data from application for proposed wells.

A4. **Comments:** The POA/POU are located 2 miles north of Woodburn, Oregon. Applicant proposes to irrigate 3.6 ac of nursery stock at the containerized allocation of 5 AF/ac at a variable rate[a] with a maximum annual volume of 18 AF.
[a] Applicant proposes a variable rate to avoid triggering PSI with Mill Creek; the applicant's rounded up rates have been adjusted to match the 1 percent of the 80 percent Natural Flow for August, September, and October: November through July 0.033 cfs (14.8 gpm); August 0.0209 cfs (9.38 gpm); September 0.0188 cfs (8.44 gpm); October 0.0239 cfs (10.7 gpm).

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 POA is anticipated to develop a confined aquifer. Per OAR 690-502-0240, the relevant basin rules (OAR 690-502-0120) do 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) **7RLN (Small 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 **alluvial** 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 POAs/POU are located on terrace underlain by Missoula Flood deposits also known as the Willamette Silt. (Tolan, 2000; Hampton, 1972). The Willamette Silt in this area is approximately 120 ft thick, and the maximum thickness of clay and silt confining layers recorded in nearby wells is 132.5 ft[a] (Woodward et al., 1998). This is consistent with the yellow and blue clays recorded in nearby well logs[a] as the Willamette Silt is typified as blue and yellow sand, silt, and clay (Hampton, 1972; Conlon et al., 2005). The fine-grained clays and silts encase relatively thin beds of sand and gravel which do not appear to be continuous over a wide area. The water table occurs at a shallow depth in the Willamette Silt, which acts as a leaky confining layer for the more productive sands and gravels at depth. The water-bearing zone, WBZ, of the POA (MARI 1574) utilizes the underlying Willamette Aquifer, which is part of the Middle Sedimentary Unit (Woodward et al., 1998; Gannett & Caldwell, 1998; Conlon et al., 2005). The thickness of the Willamette Aquifer in this area is reportedly less than 20 ft, and in the POA (MARI 2242) the WBZ is 16 ft thick. The thickness of WBZs using the MSU of the Willamette Aquifer in surrounding wells varies from 6 to 323 feet in thickness[a], although there are layers of clay interspersed among the more conductive sands and gravels. There is a wide variability in hydraulic characteristics of the Willamette aquifer, owing to the variety of compositions and degree of consolidation (O'Connor et al., 2001). The limited thickness of the water-bearing layers, discontinuous geometry and confined conditions suggest that the aquifer system could be vulnerable to long term drawdown and/or interference.

A review of statistics for nearby well records was completed and compared with the proposed maximum rate of 0.033 cfs (14.8 gpm) for this application (see Well Statistics). The median reported well yield is 45 gpm, and the maximum reported yield is 1,300 gpm. The proposed rate for this application is 33% of the median and 1% of the maximum reported yield. Within a mile of the proposed POA, well yields range from 15 to 1,300 gpm with a median of 337.5 gpm. The proposed maximum rate of 0.033 cfs (14.8 gpm) is likely within the capacity of the groundwater resource.

Water level trends for wells that utilize alluvial aquifers within a mile of the POA appear to be stable (see Water Levels Measurements in Nearby Wells). Although notable declines have occurred in MARI 50856 and MARI 2218, these declines do not meet the Division 8 criteria for Declined Excessively or Excessively Declining. There are 35 groundwater POAs on 50

water rights within 1 mile of the subject POAs. However, the steady trends in water levels indicate that the groundwater resource is not likely over-appropriated and the proposed use is within the capacity of the resource.
The nearest groundwater user to the POA is MARI 50856, located 487 ft southeast of the POA (MARI 1574), at an elevation of 183 ft amsl. It is likely the proposed use would cause some degree of well-to-well interference with MARI 50856. To assess the degree of drawdown, a Theis drawdown analysis was conducted for the proposed use (see Theis Drawdown Analysis). Results indicate that the proposed use is not likely to cause well-to-well interference with MARI 50856 that exceeds the threshold under the standard condition for alluvial aquifers in the Willamette Basin.
Based on this analysis of the available data and under the assumptions previously identified, groundwater for the proposed use will likely be available in the amounts requested and within capacity of the resource. The conditions specified in B1(d)(i) and B2(c) are recommended to protect senior users and the groundwater resource.
NOTE: This evaluation considers a conservative scenario for the nearest authorized POA not owned by the applicant. Other authorized POAs in the area may also experience an increase in interference as a result of this application, although to a lesser extent than the scenario evaluated here.

[a] MARI 2211, MARI 1620, MARI 1612, MARI 1607, MARI 2218, MARI 1423/1409, MARI 2220, MARI 1566, MARI 1589, MARI 1622, MARI 1623, MARI 1633, MARI 1625, MARI 2223, MARI 2231, MARI 2233, MARI 1611, MARI 1624, MARI 50856, MARI 52712, MARI 52949, MARI 870, MARI 1599, MARI 70617, MARI 56254, MARI 1575, MARI 1574, MARI 1586, MARI 1587, MARI 1595, MARI 17220.

## 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** | **Alluvial** | ☒ | ☐ |

**Basis for aquifer confinement evaluation:** The SWL is above the WBZ in 32 wells within a mile of the POA. There is an unconfined alluvial WBZ recorded in some wells within one mile of the POAs, but the POA (MARI 1574) utilizes the confined alluvial WBZ overlain by clays and silts that range in thickness from 23 to 132.5 ft[a].
[a] MARI 2211, MARI 1620, MARI 1612, MARI 1607, MARI 2218, MARI 1423/1409, MARI 2220, MARI 1566, MARI 1589, MARI 1622, MARI 1623, MARI 1633, MARI 1625, MARI 2223, MARI 2231, MARI 2233, MARI 1611, MARI 1624, MARI 50856, MARI 52712, MARI 52949, MARI 870, MARI 1599, MARI 70617, MARI 56254, MARI 1575, MARI 1574, MARI 1586, MARI 1587, MARI 1595, MARI 17220.

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[b] | Distance (ft) | Hydraulically Connected? YES | NO | ASSUMED | Potential for Subst. Interfer. Assumed? YES | NO |
|---|---|---|---|---|---|---|---|---|---|---|
| **1** | **1** | **Senecal Creek** | **170.5** | **155 to 165** | **3,044** | ☒ | ☐ | ☐ | ☐ | ☒ |
| **1** | **2** | **Mill Creek** | **170.5** | **151 to 152** | **5,217** | ☒ | ☐ | ☐ | ☐ | ☒ |

**Basis for aquifer hydraulic connection evaluation:** Groundwater SWL in nearby wells range from 107 to 185 ft amsl[a] and the reported regional water table elevation is approximately 160 ft amsl. (Gannett and Caldwell, 1998; Woodward et al., 1998). The POA (MARI 1574) reports SWLs of 170.5 ft amsl. The streambed of SW 1 (Senecal Creek) is between 155 and 165 ft amsl within a mile of the POA, and between 151 and 152 ft amsl for SW 2 (Mill Creek) within a mile of the POA. The groundwater elevation is coincident with or above both SW 1 (Senecal Creek) and SW 2 (Mill Creek). The streambeds of SW 1 (Senecal Creek) and SW 2 (Mill Creek) have not incised below the elevation of the WBZs of the confined alluvial aquifer. This is consistent with published water level maps which indicate that groundwater in the alluvial aquifer system flows toward and discharges into perennial SW 1 (Senecal Creek) and SW 2 (Mill Creek). Hydraulic connection to SW 1 (Senecal Creek) and SW 2 (Mill Creek) is likely but anticipated to be inefficient due to the low vertical permeability of the overlying fine-grained sediments.
[a] Groundwater elevation calculated from static water level reported in well logs and/or static water level(s) reported for MARI 2211, MARI 1620, MARI 1612, MARI 1607, MARI 2218, MARI 1423/1409, MARI 2220, MARI 1566, MARI 1589, MARI 1622, MARI 1623, MARI 1633, MARI 1625, MARI 2223, MARI 2231, MARI 2233, MARI 1611, MARI 1624, MARI 50856, MARI 52712, MARI 52949, MARI 870, MARI 1599, MARI 70617, MARI 56254, MARI 1575, MARI 1574, MARI 1586, MARI 1587, MARI 1595, MARI 17220.
[b] Surface water elevations were estimated from land surface elevations along stream reaches (Watershed Sciences, 2009; USGS, 2013).

**Water Availability Basin the well(s) are located within:** MILL CR>PUDDING 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** | ☐ | ☐ | | | ☐ | Nov-Jul: 3.79<br>Aug: 2.09<br>Sep: 1.88<br>Oct: 2.39 | ☐ | **<25%** | ☐ |
| **2** | **1** | ☐ | ☐ | | | ☐ | Nov-Jul: 3.79<br>Aug: 2.09<br>Sep: 1.88<br>Oct: 2.39 | ☐ | **<25%** | ☐ |

**Comments:** Potential depletion (interference with) SW 1 (Senecal Creek) by proposed pumping at the POA (MARI 1574) was estimated using Hunt 2003 analytical model. Hydraulic parameters used for the model were derived from regional data or studies of the hydrogeologic regime (OWRD Well Log Query Report; Conlon et al., 2003, 2005; Iverson, 2002; McFarland and Morgan, 1996; Woodward et al., 1998) or are within a typical range of values for the parameter within the hydrogeologic regime (Freeze and Cherry, 1979; Domenico and Mifflin, 1965). See attached "Stream Depletion Analysis" for the specific parameters used in the analysis. The Hunt 2003 analytical model results indicate that depletion of (interference with) SW 1 due to pumping of the POA (MARI 1574) is anticipated to be much less than 25 percent of the well discharge at 30 days of continuous pumping.

Because only the distance is expected to vary between the POA and surface water sources, only the POA-SW pair with the shortest distance (in this case, POA 1 and SW 1) was analyzed quantitatively for interference (stream depletion). All other POA-SW pairs would presumably result in less interference due to their greater separation relative to POA 1 and SW 1. Therefore, the interference of the proposed POA with all surface water sources within 1 mile are anticipated to result in much less than 25 percent of the well discharge at 30 days of continuous pumping.

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:** N/A-Q not distributed.

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:** N/A-impacts to streams within 1 mile assessed above.

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:** _____

Application File: G-19432

Pumping Test Files: MARI 52993, MARI 905, MARI 1386, MARI 2211, MARI 1270 , MARI 2310, MARI 2011, MARI 17630, MARI 19191, MARI 52215, MARI 54047, MARI 54550, MARI 55251, MARI 55427, MARI 55994, MARI 56347, MARI , 56348, MARI 614, MARI 58399, MARI 52913, MARI 17330, MARI 59508, MARI 60011, MARI 60041, MARI 66208.

Well Reports: MARI 2211, MARI 1620, MARI 1612, MARI 1607, MARI 2218, MARI 1423/1409, MARI 2220, MARI 1566, MARI 1589, MARI 1622, MARI 1623, MARI 1633, MARI 1625, MARI 2223, MARI 2231, MARI 2233, MARI 1611, MARI 1624, MARI 50856, MARI 52712, MARI 52949, MARI 870, MARI 1599, MARI 70617, MARI 56254, MARI 1575, MARI 1574, MARI 1586, MARI 1587, MARI 1595, MARI 17220

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*, Scientific Investigations Report 2005-5168: U. S. Geological Survey, Reston, VA.

Gannett, M.W. and Caldwell, R., 1998, *Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington*, Professional Paper 1424-A, 32 p: U. S. Geological Survey, Reston, VA.

Hampton, E.R. 1972. Geology and Ground Water of the Molalla-Salem Slope Area, Northern Willamette Valley, Oregon. USGS Water Supply Paper 1997.

Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, 2003.

Iverson, J., 2002, Investigation of the hydraulic, physical, and chemical buffering capacity of Missoula flood deposits for water quality and supply in the Willamette Valley of Oregon: Unpublished M.S. thesis, Oregon State University, 147 p.

O'Connor, J.E., Sarna-Wojcick, A., Woznikak, K.C., Polette, D.J., Fleck, R.J., 2001, Origin, Extent, and Thickness of Quaternary Geologic Units in the Willamette Valley, Oregon; U.S. Geological Survey, Professional Paper 1620, 51 p.

Theis, C.V., 1935, The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using ground-water storage: American Geophysical Union transactions, v. 16, p. 519-524.

United States Geological Survey, 2013, National Elevation Dataset (NED) [DEM geospatial data]. 1/9th arc-second, updated 2013.

Watershed Sciences, 2009, LIDAR remote sensing data collection, Department of Geology and Mineral Industries, Willamette Valley Phase I, Oregon: Portland, OR, December 21.

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82 p.

## 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.**

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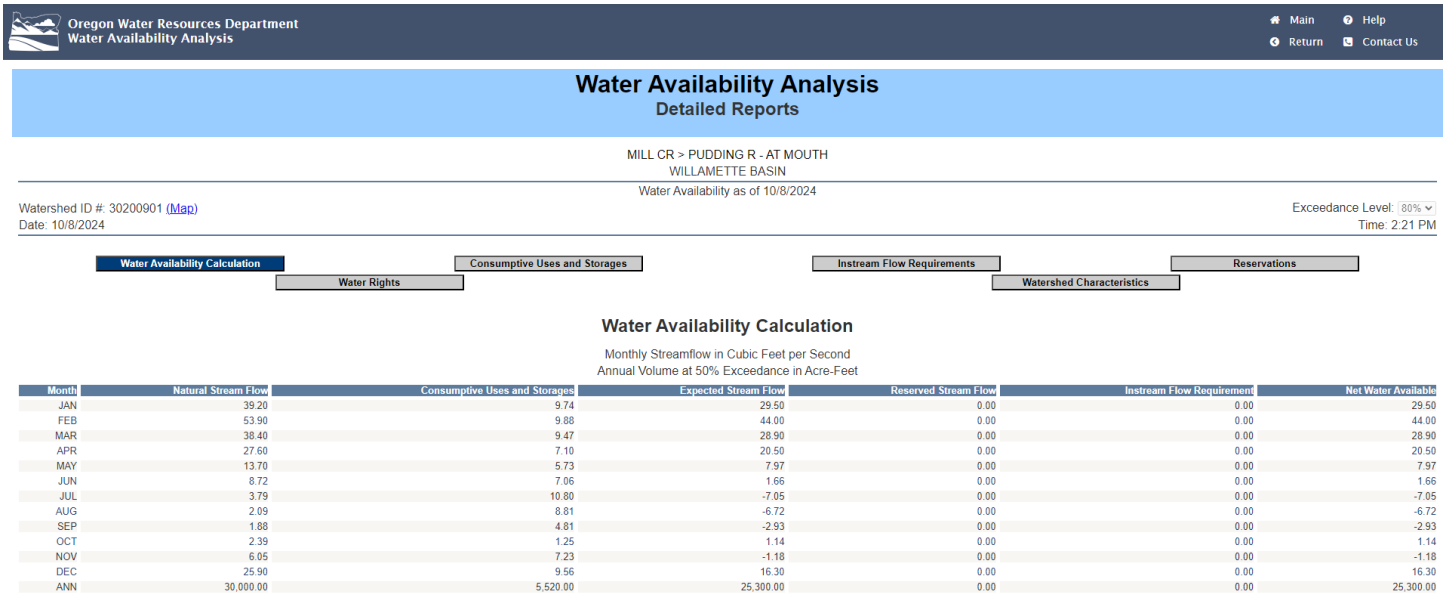
### Water Availability Tables



Oregon Water Resources Department
Water Availability Analysis

Main Help Return Contact Us

**Water Availability Analysis**
**Detailed Reports**

MILL CR > PUDDING R - AT MOUTH
WILLAMETTE BASIN
Water Availability as of 10/8/2024

Watershed ID #: 30200901 (Map)
Date: 10/8/2024

Exceedance Level: 80%
Time: 2:21 PM

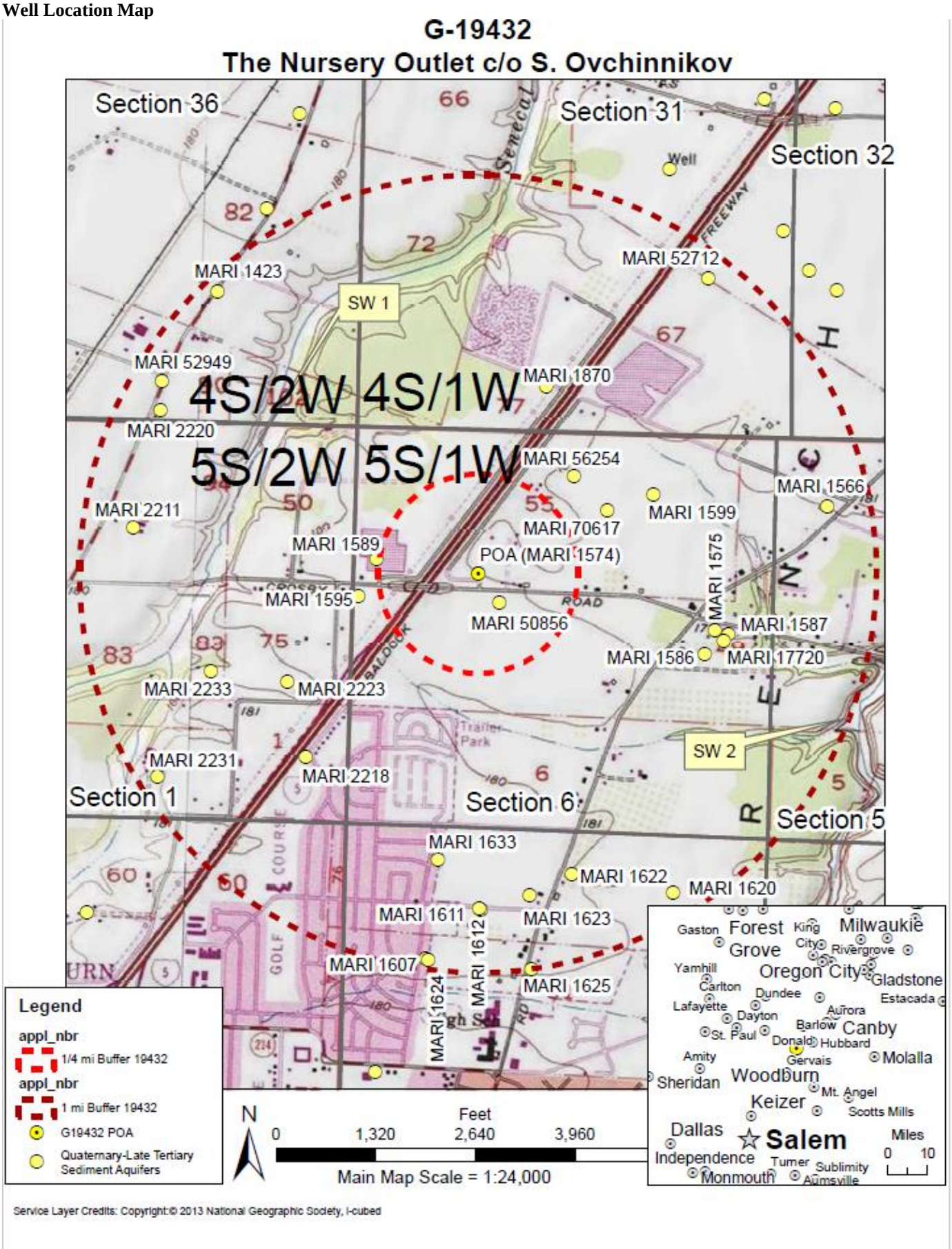
Water Availability Calculation | Consumptive Uses and Storages | Instream Flow Requirements | Reservations
Water Rights | Watershed Characteristics

**Water Availability Calculation**

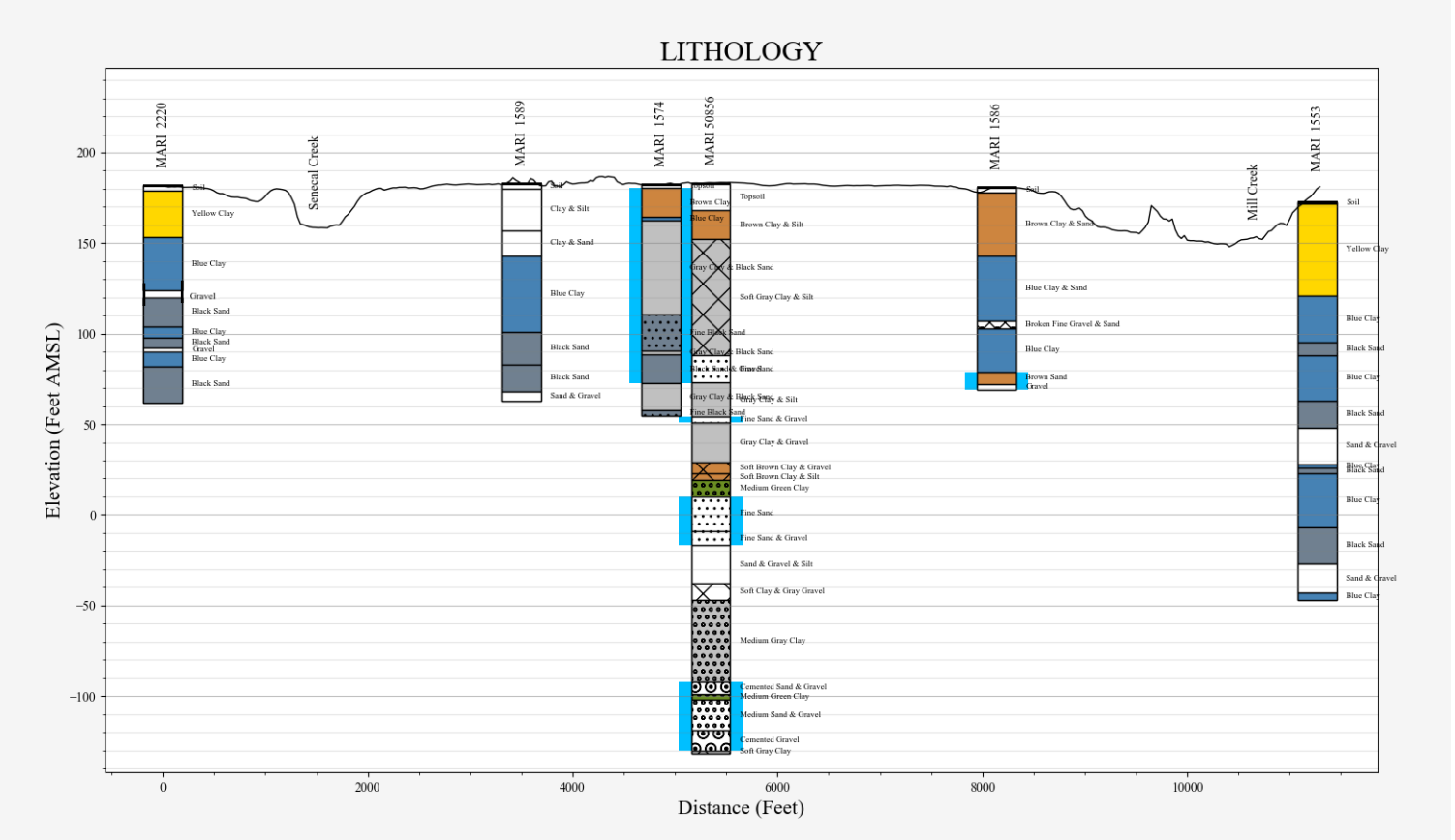
Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

| Month | Natural Stream Flow | Consumptive Uses and Storages | Expected Stream Flow | Reserved Stream Flow | Instream Flow Requirement | Net Water Available |
|---|---|---|---|---|---|---|
| JAN | 39.20 | 9.74 | 29.50 | 0.00 | 0.00 | 29.50 |
| FEB | 53.90 | 9.88 | 44.00 | 0.00 | 0.00 | 44.00 |
| MAR | 38.40 | 9.47 | 28.90 | 0.00 | 0.00 | 28.90 |
| APR | 27.60 | 7.10 | 20.50 | 0.00 | 0.00 | 20.50 |
| MAY | 13.70 | 5.73 | 7.97 | 0.00 | 0.00 | 7.97 |
| JUN | 8.72 | 7.06 | 1.66 | 0.00 | 0.00 | 1.66 |
| JUL | 3.79 | 10.80 | -7.05 | 0.00 | 0.00 | -7.05 |
| AUG | 2.09 | 8.81 | -6.72 | 0.00 | 0.00 | -6.72 |
| SEP | 1.88 | 4.81 | -2.93 | 0.00 | 0.00 | -2.93 |
| OCT | 2.39 | 1.25 | 1.14 | 0.00 | 0.00 | 1.14 |
| NOV | 6.05 | 7.23 | -1.18 | 0.00 | 0.00 | -1.18 |
| DEC | 25.90 | 9.56 | 16.30 | 0.00 | 0.00 | 16.30 |
| ANN | 30,000.00 | 5,520.00 | 25,300.00 | 0.00 | 0.00 | 25,300.00 |

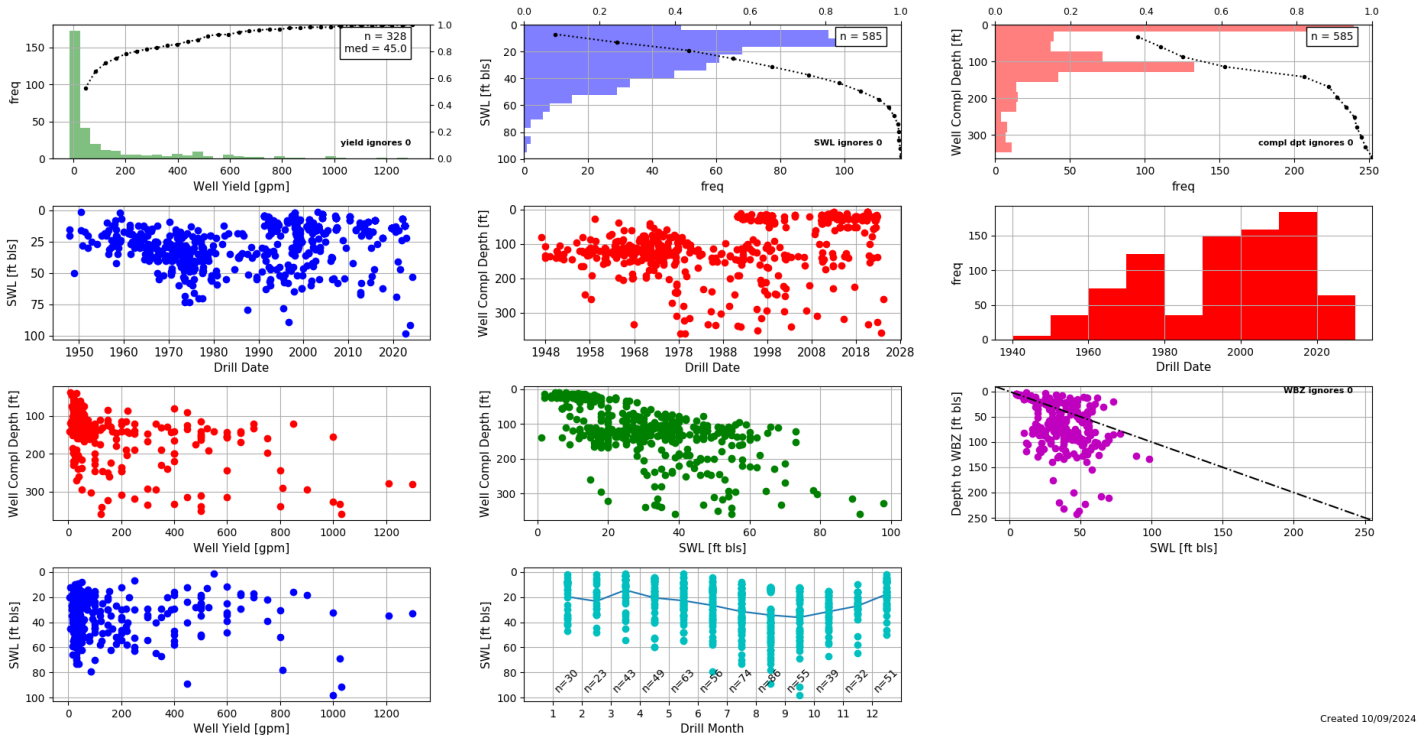
**Well Location Map**



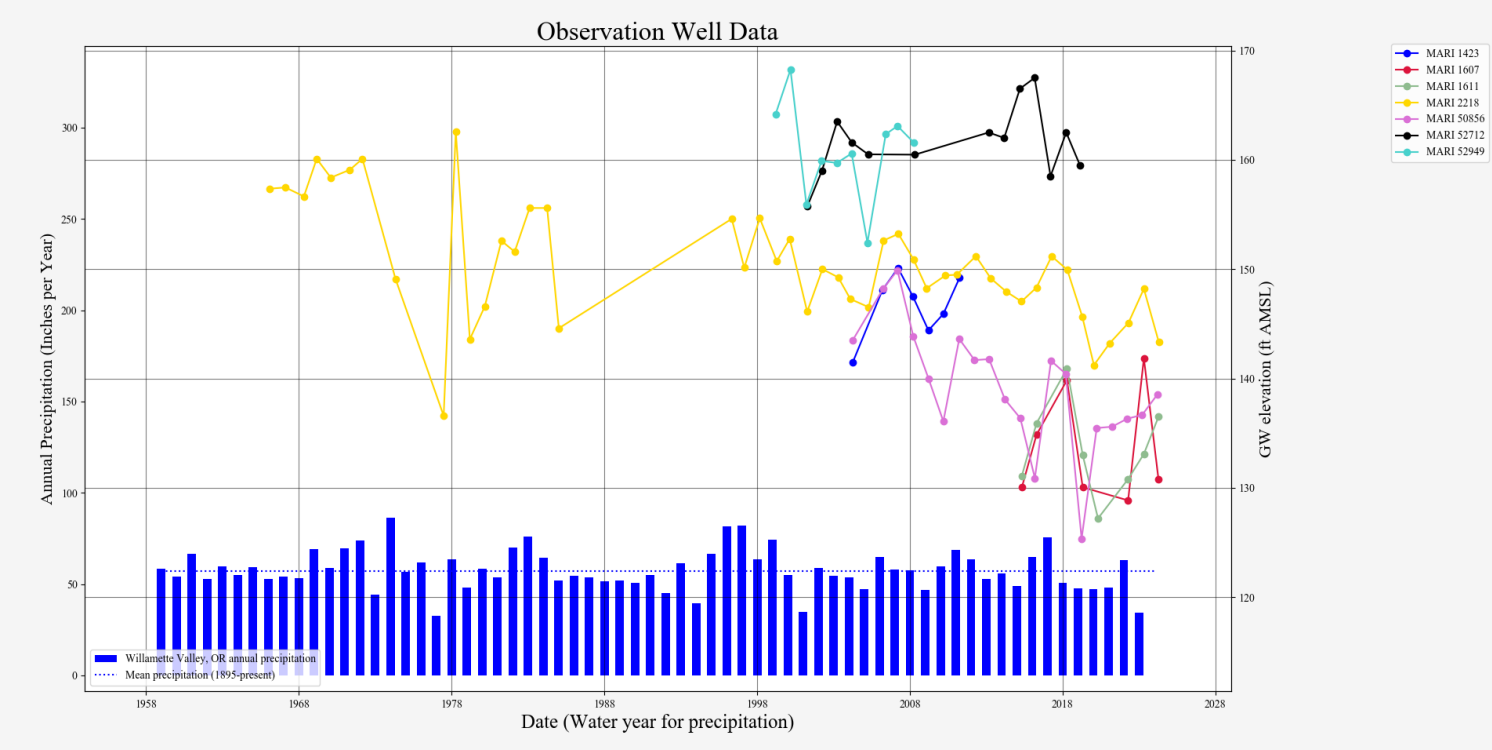
## Cross-Section



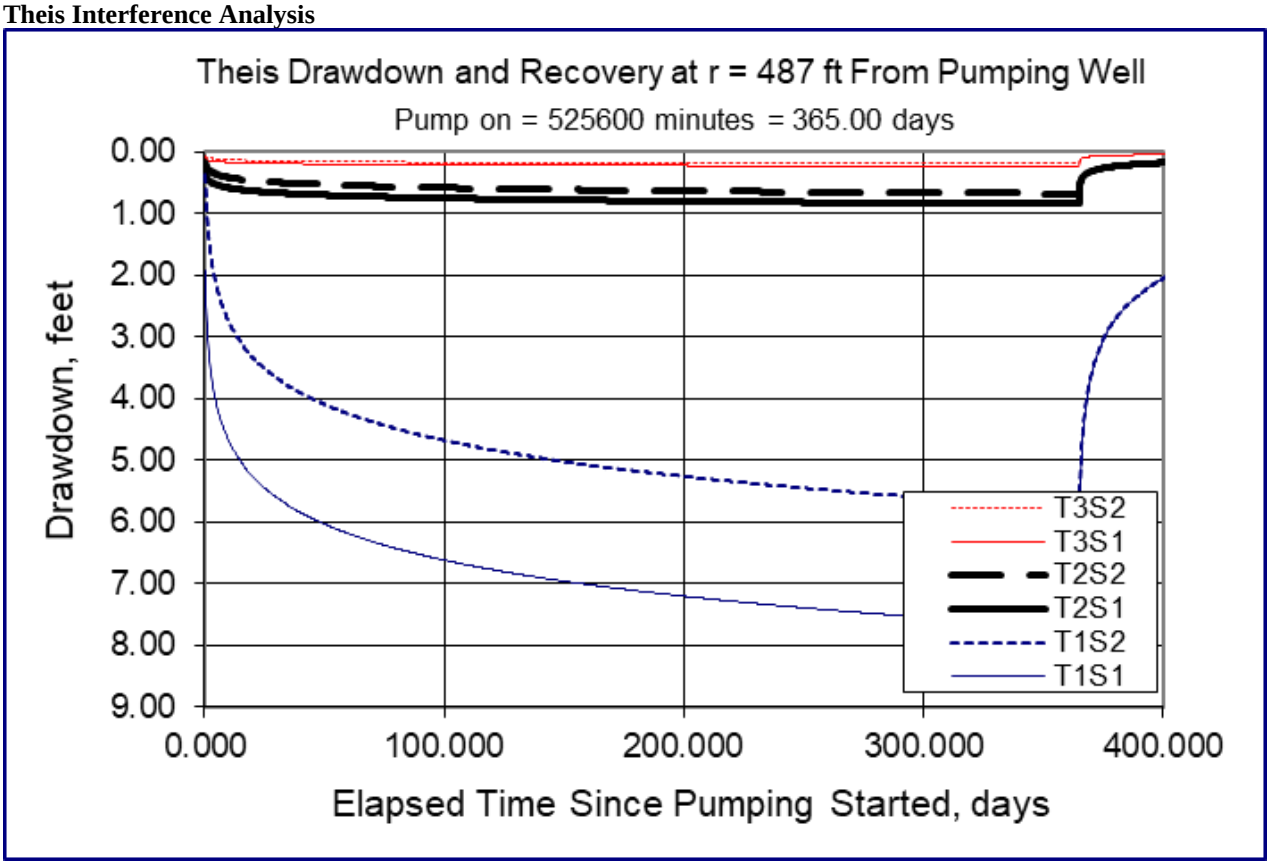

## Well Statistics



**Water-Level Measurements in Nearby Wells**




**Theis Interference Analysis**




Radial distance from pumping well (r)=487 ft [estimated radial distance to nearest user, MARI 50856]
**Pumping Rate (Q)= 0.033 cfs (~ 14.8 gpm)**
Aquifer Transmissivity (T1)= 2,010 gpd/ft (270 $ft^2$/day), (T2)= 23,188 gpd/ft (3,100 $ft^2$/day), (T3)= 92,969 gpd/ft (12,429 $ft^2$/day)
Storativity (s1) = 0.0001, (s2) = 0.001 [Conlon et al 2005, Table 1 and 2 values for MSU]
Total pumping time=365 days [Year-round nursery]

**Stream Depletion (Hunt) Model Analysis**

| | |
|---|---|
| Application type: | G |
| Application number: | 19432 |
| Well number: | 1 |
| Stream Number: | 1 |
| Pumping rate (cfs): | 0.033 |
| Pumping duration (days): | 365.0 |
| Pumping start month number (3=March) | 1.0 |
| Plotting duration (days) | 365 |

| Parameter | Symbol | Scenario 1 | Scenario 2 | Scenario 3 | Units |
|---|---|---|---|---|---|
| Distance from well to stream | a | 3044 | 3044 | 3044 | ft |
| Aquifer transmissivity | T | 270 | 3100 | 12429 | ft2/day |
| Aquifer storativity | S | 0.0001 | 0.1 | 0.05 | - |
| Aquitard vertical hydraulic conductivity | Kva | 0.01 | 0.005 | 0.001 | ft/day |
| Aquitard saturated thickness | ba | 90.0 | 90.0 | 90.0 | ft |
| Aquitard thickness below stream | babs | 90.0 | 90.0 | 90.0 | ft |
| Aquitard specific yield | Sya | 0.2 | 0.2 | 0.2 | - |
| Stream width | ws | 20.0 | 20.0 | 20.0 | ft |

Stream depletion for Scenario 2:

| Days | 1 | 31 | 62 | 92 | 122 | 153 | 183 | 213 | 244 | 274 | 304 | 335 | 365 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depletion (%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Depletion (cfs) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |