Groundwater Application Review Summary Form

Application # G- _19418_

GW Reviewer _Joe Kemper_ Date Review Completed: _8/2/2024_

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 **_August 2, 2024_**

TO: Application G-_19418_

FROM: GW: _Joe Kemper_
(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 __Whychus__ 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 8/2/2024
FROM: Groundwater Section Joe Kemper
Reviewer's Name
SUBJECT: Application G- **19418** 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: **City of Sisters** County: **Deschutes**

A1. Applicant(s) seek(s) 1.68 cfs from 3 well(s) in the Deschutes Basin, Upper Deschutes subbasin

A2. Proposed use Municipal 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	DESC 3023	1	Deschutes Aquifer	1.68	15S/10E-9 NW-SW	2950' S, 650' E fr NW cor S 9
2	DESC 62447	4	Deschutes Aquifer	1.68	15S/10E-9 SW-NE	1505' S, 1715' W fr NE cor S 9
3	PROP 499	5	Deschutes Aquifer	1.68	15S/10E-8 SW-SW	230' N, 1125' E fr SW cor S 8
4						

* Alluvium, CRB, Bedrock

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	211	0-40	0-195		50-100, 95-195	1300+	5	Pump
2	293	0-137	0-200		190-290	1970	13	Pump
3	230 (est.)	0-90 (est.)	0-230		120-220 (est.)	NA	NA	NA
4								

POA Well	Land Surface Elevation at Well (ft amsl)	Depth of First Water (ft bls)	SWL (ft bls)	SWL Date	Reference Level (ft bls)	Reference Level Date
1	3207	105	85	10/2/1975	107	2/14/1995
2	3178	102	76.5	1/11/2021	79.3	3/24/2022
3	3251	NA	NA	NA	NA	NA
4						

Use data from application for proposed wells.

A4. **Comments:** Reference levels for DESC 3023 and DESC 62447 are previously defined in City of Sister's Water Level Monitoring Plan date 4/25/2022. A reference level for Well 5 (PROP 499) will be set after initial water levels have been submitted to OWRD.

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: Impacts to surface water are addressed by the Mitigation program as defined in basin program rules.

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) **7RLS (March, 25), Large 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 _____ 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 wells access the Deschutes regional aquifer where it is hosted by Deschutes Formation lavas and overlying glacial outwash sediments. Hydrograph one below shows a change in water level elevation that is coincident with traces of the Sisters Fault Zone and associated geologic structure. Upgradient (west) of the SFZ extent, water levels are approximately 3090-3120 feet AMSL. DESC 3016 has the longest record of the target aquifer zone, which appears to be in dynamic equilibrium with decadal scale climate fluctuations. Assuming that those decadal scale wet-dry periods will continue, water levels at this location will likely recover from their current lows with the onset of wetter-than-average years. At present, the target aquifer in this location does not have persistent year-on-year declines that raise issues of capacity of the resource issues elsewhere in the basin. It is noted that DESC 3016 also shows longer term declines that may reflect century-scale climate trends that are not as well documented.

There is moderate groundwater development in the area, including two wells located within ~1000 from Well 4. Because the aquifer is highly transmissive, has low seasonal variation, and has a high saturated thickness (at least 250 feet at this location and likely more than 500 feet), it is unlikely that any well-to-well interference with be large enough to be considered injury to a senior groundwater user that fully penetrates the aquifer.

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

C6. **SW / GW Remarks and Conditions:** Groundwater elevations are below nearest reaches of streams but will likely have efficient connection with Whychus Creek and adjacent springs near McKinney Butte. Impacts to surface water are addressed by the Mitigation program as defined in basin program rule.

References Used:

Gannett, M. W. and Lite, K. E., 2004, Simulation of Regional Ground-Water Flow in the Upper Deschutes Basin, Oregon, USGS Water Resources Investigation Report 2003-4195, 84 p., https://pubs.er.usgs.gov/publication/wri034195

Gannett, M. W. and Lite, K. E., 2013, Analysis of 1997-2008 Groundwater Level Changes in the Upper Deschutes Basin, Central Oregon, USGS Scientific Investigations Report 2013-5092, 34p., https://pubs.er.usgs.gov/publication/sir20135092

Gannett, M. W., Lite Jr, K. E., Morgan, D. S., and Collins, C. A., 2001, Ground-Water Hydrology of the Upper Deschutes Basin, Oregon, USGS Water-Resources Investigations Report 00-4162, 74 p., https://pubs.usgs.gov/wri/wri004162/pdf/WRIR004162.pdf

Gannett, M.W., Lite, K.E., Jr., Risley, J.C., Pischel, E.M., and La Marche, J.L., 2017, Simulation of groundwater and surface-water flow in the upper Deschutes Basin, Oregon: U.S. Geological Survey Scientific Investigations Report 2017–5097, 68 p., https://doi.org/10.3133/sir20175097.

Groundwater Information System (GWIS). Oregon Water Resources Department. https://apps.wrd.state.or.us/apps/gw/gw_info/gw_info_report/gw_search.aspx Accessed 8/2/2024

Lite, K. E. and Gannett, M. W., 2002, Geologic Framework of the Regional Ground-Water Flow System in the Upper Deschutes Basin, Oregon. USGS Water-Resources Investigation Report 02-4015, 44 p., https://pubs.er.usgs.gov/publication/wri024015

Sherrod, D. R., Taylor, E. M., Ferns, M. L., Scott, W. E., Conrey, R. M. and Smith, G. A., 2004, Geologic Map of the Bend 30-x-60-Minute Quadrangle, Central Oregon. U. S. Geological Survey Geologic Investigations Series Map I-2683. 49p., https://pubs.usgs.gov/imap/i2683/

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 _____;

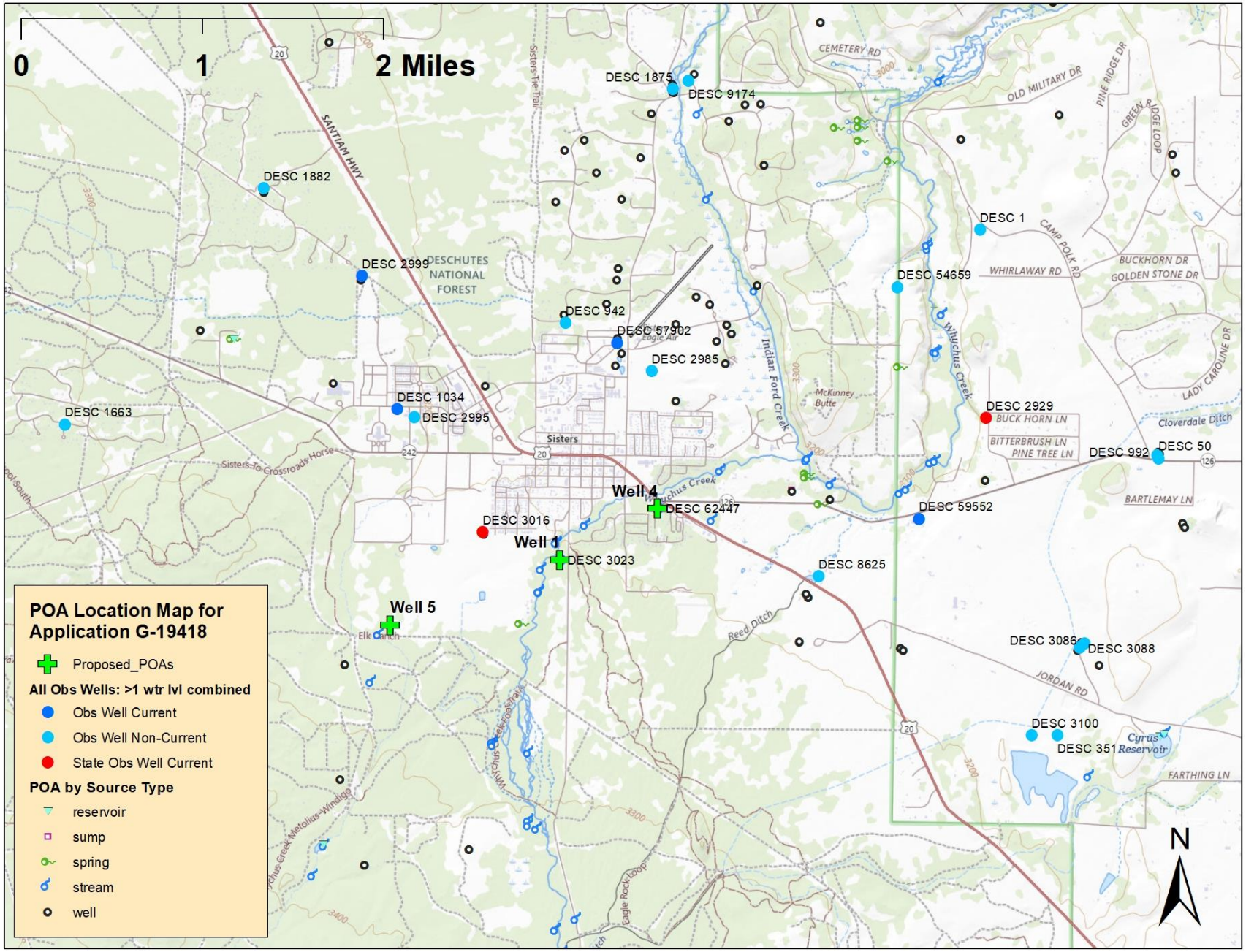
c. ☐ report of CWRE _____;

d. ☐ other: (specify) _____

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

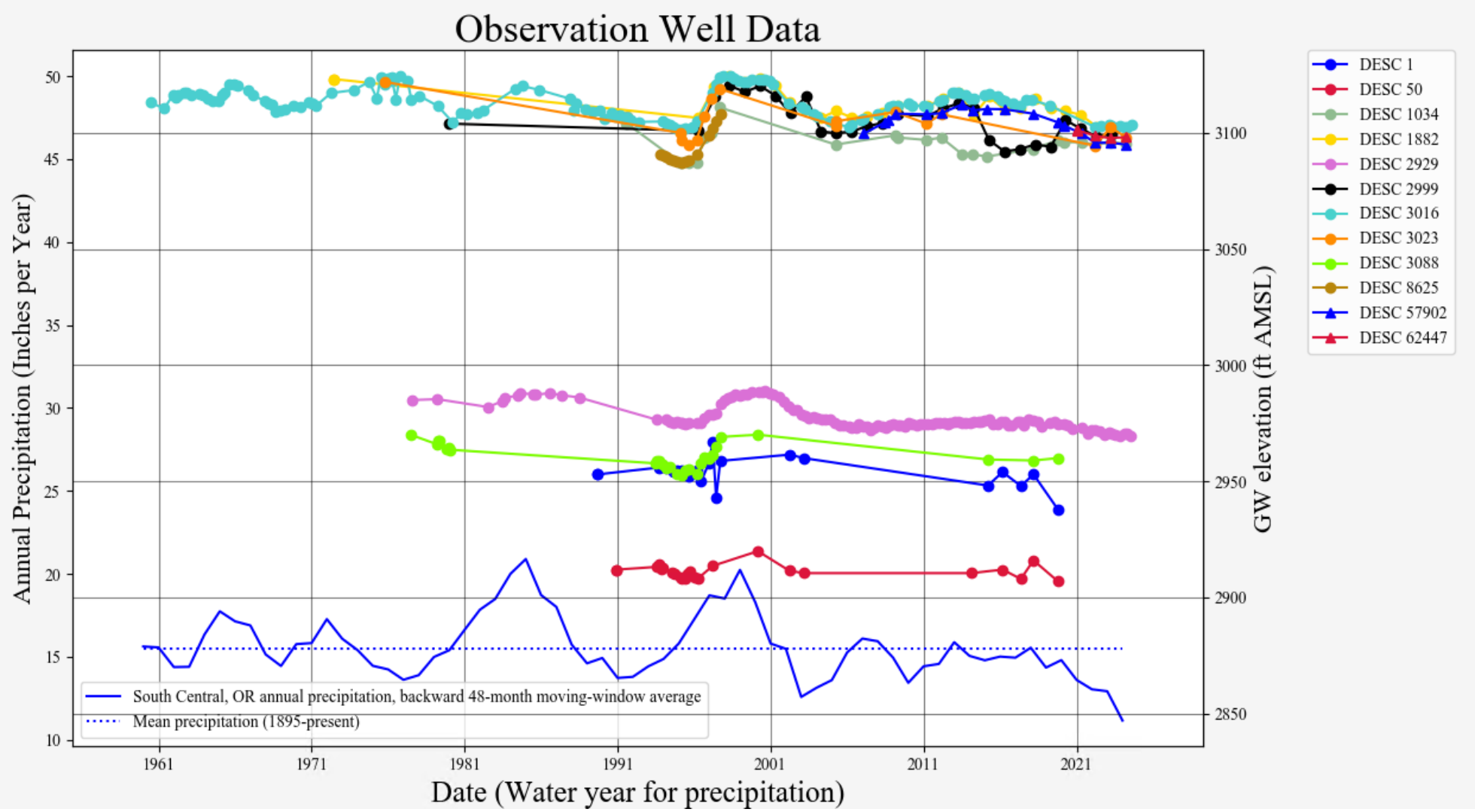
D4. ☐ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Well Location Map



Water-Level Measurements in Nearby Wells

Hydrograph One: Water level records for wells near Sisters. The change in water level elevation corresponds to traces of the Sisters Fault Zone and associated geologic structure.



Hydrograph Two: Water level elevations of City of Sister's wells and adjacent long-term observation wells. Dashed lines indicate reference levels for corresponding wells.