Agenda

San Miguel Groundwater Sustainability Agency

BOARD OF DIRECTORS

John Green, President — Ashley Sangster, Vice President
Anthony Kalvans, Director — Joseph Parent, Director — Hector Palafox, Director

THURSDAY, August 22, 2019
6:00 P.M. Opened Session
BOARD OF DIRECTORS MEETING AGENDA

SMCSD Boardroom
1150 Mission St.
San Miguel, CA 93451

Cell Phones: As a courtesy to others, please silence your cell phone or pager during the meeting and engage in conversations outside the Boardroom.

Americans with Disabilities Act: If you need special assistance to participate in this meeting, please contact the CSD Clerk at (805) 467-3388. Notification 48 hours in advance will enable the CSD to make reasonable arrangements to ensure accessibility to this meeting. Assisted listening devices are available for the hearing impaired.

Public Comment: Please complete a "Request to Speak" form located at the podium in the boardroom in order to address the Board of Directors on any agenda item. Comments are limited to three minutes, unless you have registered your organization with CSD Clerk prior to the meeting. If you wish to speak on an item not on the agenda, you may do so under "Oral Communications." Any member of the public may address the Board of Directors on items on the Consent Calendar. Please complete a "Request to Speak" form as noted above and mark which item number you wish to address.

Meeting Schedule: Regular Board of Director meetings are generally held in the SMCSD Boardroom on the fourth Thursday of each month at 7:00 P.M. Agendas are also posted at: www.sanmiguelcsd.org

Agendas: Agenda packets are available for public inspection 72 hours prior to the scheduled meeting at the Counter/ San Miguel CSD office located at 1150 Mission St., San Miguel, during normal business hours. Any agenda-related writings or documents provided to a majority of the Board of Directors after distribution of the agenda packet are available for public inspection at the same time at the counter/ San Miguel CSD office at 1150 Mission St., San Miguel, during normal business hours.

I. **Call to Order:** **6:00 PM**

II. **Pledge of Allegiance:**

III. **Roll Call:** *Green___ Sangster ___ Palafox___ Kalvans___ Parent ___*

IV. **Approval of GSA Meeting Agenda:**

M______________________ S________________________ V__________

V. **ADJOURN TO CLOSED SESSION:**

A. CLOSED SESSION AGENDA: None

VI. **Call to Order for Regular Board Meeting/Report out of Closed Session:** N/A

VII. **Public Comment and Communications for items not on the Agenda:**

Persons wishing to speak on a matter not on the agenda may be heard at this time; however, no action will be taken until placed on a future agenda. Speakers are limited to three minutes. Please complete a "Request to Speak" form and place in basket provided.

VIII. **Special Presentations/Public Hearings/Other:** None

IX. **Staff & Committee Reports – Receive & File:** None

X. **CONSENT CALENDAR:**

1. **Review and Approve Board Meeting Minutes:**
   a. 7-25-2019 Draft Meeting Minutes

The items listed above are scheduled for consideration as a group and one vote. Any Director or a member of the public may request an item be withdrawn from the Consent Agenda to discuss or to change the recommended course of action. Unless an item is pulled for separate consideration by the Board, the following items are recommended for approval without further discussion.

XI. **BOARD ACTION ITEMS:**

1. **Review, Discuss, Receive and File the Completed Final DRAFT of the Groundwater Sustainability Plan (GSP) For Basin 3-004.06 Salinas Valley Paso Robles Area.**

   Public Comments: (Hear public comments prior to Board Action)

   M______________________ S________________________ V__________

XII. BOARD COMMENT:

This section is intended as an opportunity for Board members to make brief announcements, request information from
staff, request future agenda item(s) and/or report on their own activities related to District business. No action is to be taken until an item is placed on a future agenda.

XIII. ADJOURNMENT TO NEXT GSA MEETING:

ATTEST:

STATE OF CALIFORNIA)
COUNTY OF SAN LUIS OBISPO) ss.
COMMUNITY OF SAN MIGUEL)

I, Tamara Parent, Board Clerk/Accounts Manager of San Miguel Community Services District, hereby certify that I caused the posting of this agenda at the SMCSD office on August 16, 2019

Date: August 16, 2019

Rob Roberson
Rob Roberson, Fire Chief/Interim General Manager Approved 8-14-2019

John Green
John Green President, Board of Directors Approved 8-12-2019

Tamara Parent
Tamara Parent, Board Clerk/ Accounts Manager

SAN MIGUEL COMMUNITY SERVICES DISTRICT
BOARD OF DIRECTORS
GROUNDWATER SUSTAINABILITY AGENCY MEETING MINUTES

July 25, 2019

MEETING HELD AT DISTRICT OFFICES
1150 MISSION STREET
SAN MIGUEL, CA 93451

I. Meeting Called to Order by Director Green – 6:00 P.M.

II. Pledge of Allegiance lead by Director Green

III. **Roll Call:** Directors Present: Palafox, Sangster, Parent, Green
Director Absent: Kalvans
District Staff in attendance: Rob Roberson, Kelly Dodds, Tamara Parent
District Engineer, Blaine Reely

IV. **Adoption of Special Meeting Agenda:**
Motion by Director Sangster to adopt Meeting Agenda as presented.
Seconded by Director Parent Motion was approved by vote of 4 AYES and 0 NOES 1 ABSENT.

V. **Adjourn to closed session:** None

VI. **Call to order out of closed session:** None

VII. **Public Comment and Communications** (for items not on the agenda)**:**
No Public Comment

VIII. **Special Presentation/Public Hearing/Other:** None

IX. **Staff & Committee Reports-** Receive & File: None

X. **Consent Calendar**: 1.a Review and approve 05-21-2019 GSA Meeting Minutes

Motion by Director Sangster to approve the Consent calendar, with corrections to Page 3.

Seconded by Director Palafox. Motion was approved by Vote of 4 AYES and 0 NOES and 1 ABSENT.

The items listed below are scheduled for consideration as a group and one vote. Any Director or a member of the public may request an item be withdrawn from the Consent Agenda to discuss or to change the recommended course of action. Unless an item is pulled for separate consideration by the Board, the following items are recommended for approval without further discussion.

XI. BOARD ACTION ITEMS:

1. **Review, Discuss, Receive and File the Invoice #14 dated 07-01-2019 (SM20190701-14) for payment for proportional share of the "Paso Robles Basin GSP" for 4-30-2019 $1,220.95 & 5-31-2019 $575.32 with overpayment of $1728.27 –Total Due $68.00**
Item presented by District Engineer Dr. Reely explaining that the District needs to approve invoice #12. Mr. Reely asked for any questions. Tamara Parent Board Clerk explained that a payment was made and the invoiced had been changed, so instead of canceling the check we had it applied to this invoice.

   Board Comment: None

   Public Comment: None

   Motion by Director Sangster to Receive and File Invoice SM20190701-14 for 4-30-2019 $1,220.95 & 5-31-2019 $575.32 with overpayment of $1728.27 – Total Due $68.00

   Seconded by Director Parent, Motion was approved by Vote of 4 AYES and 0 NOES and 1 ABSENT.

2. **Review and Approve Resolution 2019-01 of The San Miguel Groundwater Sustainability Agency to File A Notice of Intent to Hold a Public Hearing for Final Review and Adoption of the Groundwater Sustainability Plan for Basin 3-004.06 Salinas Valley Paso Robles Area.**

   Item was presented by Dr. Reely explaining that the Resolution as per the requirements of the Sustainable Groundwater Management Act (SGMA), the preparation of a Groundwater Sustainability Plan ("GSP") requires that each Groundwater Sustainability Agency ("GSA") review draft chapters of the GSP and each GSA must also provide an opportunity for public input on the draft chapters of the GSP as they are submitted. In addition to this requirement, each GSA must adopt a resolution which states its intent to hold a public hearing for final review and adoption of the GSP for Basin 3-004.06 Salinas Valley Paso Robles Area Sub-Basin and provide a copy of the resolution to each of the partner GSA's of its intent to hold a public hearing to adopt a GSP no sooner than 90 days from the date of this Resolution.

Board Comment: Discussion ensued about the process of public comments and when the final draft will be accessible.

Public Comment: Laverne Buckman, San Miguel resident thanked Blaine Reely for his impute. Asked if this plan is to protect our water basin. District water rights are protected, and anyone who has a well will have other regulations on them. Dr. Reely voiced that no immediate restrictions on residential Well owners. We will need to reduce pumping 17%, and the GSA will need to achieve that reduction and it was explained that is when the Well owners would have to reduce also. The District will look to the Well users and ask them to lower their pumping. Laverne Buckman asked Dr. Reely what part the State plays on the different rules that are to be implemented by the GSP. Dr. Reely explained that the state would only come in if we make goals for reduction and don't achieve those goals the way the law is set up, it states that the State has the right to come in and do the reductions for the Basin. Laverne Buckman asked what the difference between the District and County offset ordinance is, Dr. Reely explained that the offset ordinance will sunset when the GSP is implemented. The GSP will have land-use restrictions, objectives, and details on how to get to a sustainable groundwater level.

Richard Smithen San Miguel Resident, 9560 River Road, showed a map from the county, showing an overdraft. Mr. Smithen asked if the information that has been giving to the County is correct. Director of Utilities Kelly Dodds explained that The County comes in twice a year and measure all District wells. Dr. Reely feels that the data is incorrect and will be asking the county where they came up with their data, regarding the map. He wants to make sure that San Miguel is being heard and knows that the county is not always correct. Mr. Reely voiced that the state is mandating these changes and explained that the District has been working on this for over a year, and it is very expensive. The GSP has got a grant, but to date has not received any reimbursements.

Mr. Smithen voiced that retires and the cost on the backs of landowners.

Motion by Director Sangster to Approve Resolution 2019-01 of The San Miguel Groundwater Sustainability Agency to File A Notice of Intent to Hold a Public Hearing for Final Review and Adoption of the Groundwater Sustainability Plan for Basin 3-004.06 Salinas Valley Paso Robles Area.

Seconded by Director Palafox, Motion was approved by Vote of 4 AYES and 0 NOES and 1 ABSENT.

3. Consider Approval of Proposal for Supplemental Funding from Montgomery & Associates for Unplanned Scope of Work Associated with the Preparation

of the Groundwater Sustainability Plan for Basin 3-004.06 Salinas Valley Paso Robles Area.

Item was presented by Dr. Reely explaining that the request is based on the initial request from Montgomery & Associates $160,000. Dr. Reely informed the Board that the committee got together and reviewed the request from Montgomery & Associates and feels that the revised request was not in the initial scope of work and would like the Board to approve the District portion. San Miguel GSA is 3.03% of the total, which equates to $646.80.

Board Comment: Director Parent voiced his approval and thanked Dr. Reely for spearheading this and knows that San Miguel was the only District to vote no on the initial $160,000. Dr. Reely has saved all the GSA's money. Director Sangster Agreed and thanked Dr. Reely for his work with the District and GSA.

Motion by Director Parent to Approval of Proposal for Supplemental Funding from Montgomery & Associates for Unplanned Scope of Work Associated with the Preparation of the Groundwater Sustainability Plan for Basin 3-004.06 Salinas Valley Paso Robles Area for $19,600. San Miguel GSA is 3.03% of the total, which equates to $646.80.

Seconded by Director Sangster, Motion was approved by Vote of 4 AYES and 0 NOES and 1 ABSENT.

XII. BOARD COMMENT: None

This section is intended as an opportunity for Board members to make brief announcements, request information from staff, request future agenda item(s) and/or report on their activities related to District business. No action is to be taken until an item is placed on a future agenda.

XIII. ADJOURNMENT @ 6:30 P.M

San Miguel Groundwater Sustainability Agency

Board of Directors
Staff Report

August 22, 2019 **AGENDA ITEM: XI-1**

SUBJECT: Review, Discuss, Receive and File the Completed Final DRAFT of the Groundwater Sustainability Plan (GSP) For Basin 3-004.06 Salinas Valley Paso Robles Area

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RECOMMENDATION:

Review, Discuss, Receive and File the Completed Final DRAFT of the Groundwater Sustainability Plan (GSP) For Basin 3-004.06 Salinas Valley Paso Robles Area.

BACKGROUND:

On October 27, 2016 the District Board adopted Resolution 2016-34, wherein the Board determined to become a GSA for all of those portions of the Paso Robles Groundwater Basin that lie within the District's service area and sphere of influence. The District's application to form a GSA was filed with the DWR on November 22, 2016. Other GSA's were also formed within the Paso Robles Groundwater Basin, including the following agencies:

- County of San Luis Obispo
- City of Paso Robles
- Heritage Ranch CSD (Heritage Ranch CSD is no longer a party to the MOA)
- Shandon – San Juan Water District

California's Sustainable Groundwater Management Act (SGMA) requires the preparation and implementation of Groundwater Sustainability Plans (GSP) for High and Medium priority groundwater basins. The Paso Robles Groundwater Sub-basin (i.e. Basin 3-004.06 Salinas Valley Paso Robles Area) is a critically over-drafted high priority basin. Therefore, areas within the sub-basin must be managed under a GSP by January 31, 2020. For the purposes of efficiency and cost control, the parties to the MOA determined that it was in the best interest of all GSA's in the basin to participate in the preparation of a single basin-wide GSP. To assure that some measure of cooperation and collaboration is effective in preparing a Paso Robles Groundwater Basin GSP document, the Board directed the Interim General Manager to execute a Memorandum

Agreement (MOA) which sets forth the terms and conditions for determining, among other things, how the allocation of costs for the GSP preparation are to be distributed among the eligible agencies. The Interim General Manager executed the MOA on August 29, 2017.

The consultant team which was led by Montgomery & Associates, was retained by the City of Paso Robles on behalf of the other GSA's, to prepare the GSP. The consultant team, with guidance and support from staff of the participating GSA's has completed the preparation of the final DRAFT GSP. This document is now available for review and comment by each of the GSA's, other stakeholders in the Basin, and the public. The document has been posted on the County of San Luis Obispo GSP website:

(https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA)/Paso-Robles-Groundwater-Basin/GSP-Development.aspx)

In addition, the document has been posted on the Paso Robles Communication Portal (https://www.pasogcp.com) **THE PUBLIC COMMENT PERIOD ON THE DRAFT GSP IS OPEN UNTIL SEPTEMBER 29, 2019. COMMENTS FROM BOARD MEMBERS, DISTRICT STAFF AND THE PUBLIC WILL BE COLLECTED USING A COMMENT FORM. THE FORM CAN BE FOUND ONLINE AT (https://www.pasogcp.com).**

It is critically important that the Board members, District staff, and the public take the opportunity to review the DRAFT GSP and provide comments, concerns and suggestions, through the Paso Robles Communication Portal, to the GSP consultant team to insure that the FINAL GSP meets the needs and expectations of the District.

FUNDING:

No District funding is required in association with this item.

RECOMMENDATION

Receive and File.

PREPARED BY:

Blaine T. Reely

Blaine T. Reely, P.E., District Engineer

ES EXECUTIVE SUMMARY

This Groundwater Sustainability Plan (GSP) fulfills the requirements of the Sustainable Groundwater Management Act (SGMA) for the Paso Robles Subbasin of the Salinas Valley Basin. The GSP describes the Paso Robles Subbasin, develops quantifiable management objectives that consider the interests of the Subbasin's beneficial groundwater uses and users, and identifies management actions and conceptual projects that will allow the Subbasin to achieve sustainability by 2040. This GSP covers the entire Paso Robles Subbasin. The Paso Robles Subbasin GSP has been jointly developed by four Groundwater Sustainability Agencies (GSAs):

- City of Paso Robles GSA
- Paso Basin - County of San Luis Obispo GSA
- San Miguel Community Services District (CSD) GSA
- Shandon - San Juan GSA

ES-1 Plan Area

The Paso Robles Subbasin lies completely within San Luis Obispo County. The Subbasin is bounded by two groundwater basins and two subbasins, as shown on Figure ES-1. The Subbasin includes the incorporated City of Paso Robles. The Subbasin additionally includes the unincorporated census-designated places of Shandon, San Miguel, Creston, Cholame, and Whitley Gardens.

The Subbasin is drained by the Salinas River. Primary tributaries to the Salinas River include the Estrella River, Huer Huero Creek, and San Juan Creek. Highway 101 is the most significant north-south highway in the Subbasin, with Highways 41 and 46 running east-west across the Subbasin.

The Subbasin currently has two water source types: groundwater and imported surface water. Until 2015, all water demands in the Subbasin were met with groundwater. Water demands in the Basin are organized into the six water use sectors identified in the SGMA Regulations. Agriculture is the largest water use sector as measured by water use. Native vegetation is the largest water use sector as measured by land area.

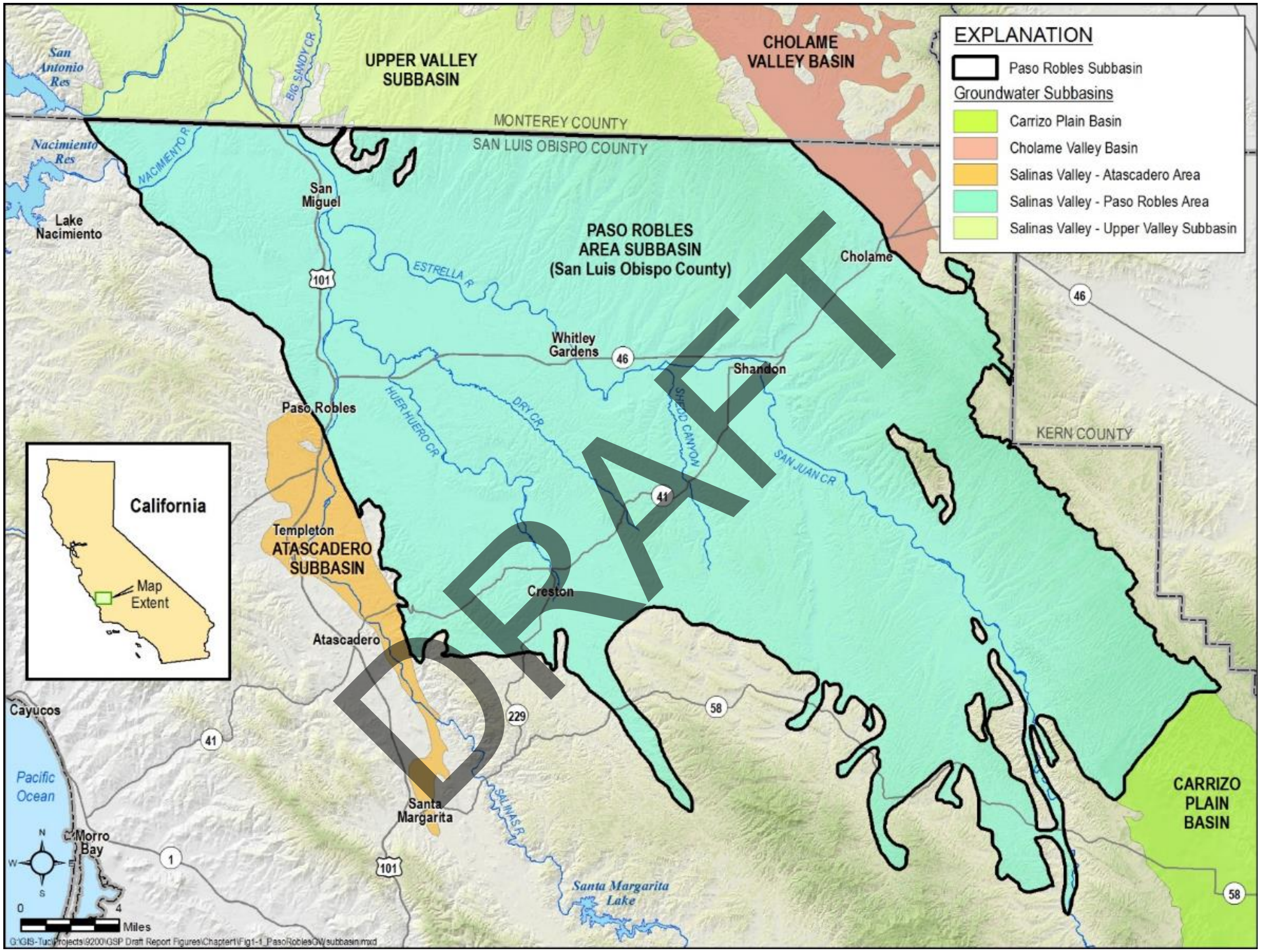

Figure ES-1: Paso Robles Subbasin Location

ES-2 Stakeholder Outreach

A stakeholder outreach and engagement strategy was developed to consider the concerns and ideas of a broad cross-section of stakeholders in the Subbasin. The stakeholder outreach strategy is detailed in Chapter 11 – Notice and Communication and Appendix F – Communications and Engagement (C&E) Plan.

Outreach and communication throughout GSP development included regular presentations at Cooperative Committee meetings, meetings with community groups, meetings with individual stakeholders, and community meetings. Comments from stakeholders were collected with a computerized system, and each GSA reviewed and considered the comments from their stakeholders. To date, over 190 comments have been received and reviewed by the GSAs.

ES-3 Subbasin Geology and Hydrogeology

Two mapped geologic formations constitute the primary water bearing formations in the Subbasin: the Quaternary Alluvium bordering streams and rivers, and the Plio-Pleistocene Paso Robles Formation. The Alluvium is typically no more than 100 feet thick and comprises coarse sand and gravel with some fine-grained deposits. The Alluvium is generally coarser than the Paso Robles Formation, with higher permeability. Well production capacities often exceed 1,000 gallons per minute (gpm) from the Alluvium. The Paso Robles Formation constitutes most of the Subbasin, with depths up to 3,000 feet thick in some places. This formation comprises relatively thin, often discontinuous sand and gravel layers interbedded with thicker layers of silt and clay. The formation is typically unconsolidated and generally poorly sorted. The sand and gravel beds in the Paso Robles Formation have lower permeability compared to the overlying Alluvium. These two geologic formations constitute the two principal aquifers in the Subbasin. Underlying and surrounding the Subbasin are various geologic formations including Tertiary-age or older consolidated sedimentary beds, Cretaceous-age metamorphic rocks, and granitic rock.

ES-4 Existing Groundwater Conditions

Groundwater elevations in some portions of the Subbasin have been declining for many years, while groundwater elevations in other areas of the Subbasin have remained relatively stable.

ES-4.1 Groundwater Flow Conditions

Groundwater elevations in the Alluvial Aquifer range from an elevation of approximately 1,400 feet above mean sea level (NAVD88) in the southeastern portion of the Subbasin to an elevation of approximately 600 feet above mean sea level near San Miguel. Groundwater flow generally follows the alignment of the creeks and rivers. The average horizontal hydraulic gradient in the Alluvial Aquifer is about 0.004 ft/ft from the southeastern portion of the Subbasin to San Miguel.

Groundwater elevations in the Paso Robles Formation Aquifer range from about 1,300 feet above mean sea level in the southeast portion of the Subbasin to about 550 feet above mean sea level near the City of Paso Robles and the town of San Miguel. Groundwater flow direction is generally to the northwest and west over most of the Subbasin, except in the area north of Paso Robles where groundwater flow is to the northeast. Groundwater flow in the western portion of the Paso Robles Formation Aquifer converges towards pumping depressions. Groundwater gradients range from approximately 0.003 ft/ft in the southeast portion of the Subbasin to approximately 0.01 ft/ft in the areas both southeast of Paso Robles and northwest of Whitley Gardens.

ES-4.2 Groundwater Storage

Groundwater model results for a simulation period 1981 through 2011 indicate that approximately 369,000 AF were lost from storage in the Paso Robles Formation Aquifer.

ES-4.3 Subsidence

Three years of recent Interferometric Synthetic Aperture Radar (InSAR) data provided by the California Department of Water Resources (DWR) suggests that there was only a minor amount of historical subsidence in small areas of the Subbasin over this period. Pumping induced subsidence is not a major concern for the Subbasin. Under this GSP, the GSAs will monitor subsidence annually using DWR's InSAR data.

ES-4.4 Interconnected Surface Water and Groundwater

There are no available data that establish whether or not the groundwater and surface water are connected through a continuous saturated zone in any aquifer. The potential for interconnected surface water and groundwater in the Subbasin will be assessed during GSP implementation.

ES-4.5 Groundwater Quality

Groundwater quality in the Subbasin is generally suitable for both municipal and agricultural uses. The most common drinking water quality standard exceedance in the Subbasin is Total Dissolved Solids (TDS). The second most common drinking water quality standard exceedance in the Subbasin is nitrate. No mapped groundwater contamination plumes from point sources exist in the Subbasin. Some historical groundwater samples from the Subbasin suggest slight to moderate restriction on irrigation use due to sodium or chloride toxicity.

ES-5 Water Budgets

Water budgets for the Paso Robles Subbasin were estimated using an integrated set of three models including a watershed model, a soil balance model, and a groundwater model. Water budgets were developed for historical, current, and future conditions. The future conditions modeled included climate change based on the approach developed by DWR. Both surface water and groundwater budgets were developed for all three time periods.

Historical and current groundwater budgets indicate a persistent groundwater storage decline in the Subbasin in the Paso Robles Formation Aquifer. Similarly, the future groundwater budget suggests continued groundwater storage decline if current water use practices continue. Historical, current, and projected sustainable yields were estimated based on the difference between current pumping practices and calculated groundwater storage deficits. While these calculated sustainable yields are a reasonable estimate of the long-term pumping that can be maintained without producing undesirable results, the definitive sustainable yield can only be determined once data show undesirable results have not occurred. Table ES-1 presents the general components of the three groundwater budgets, along with estimates of the historical, current, and projected sustainable yield. The sustainable yield for the current water budget period represents drought conditions, and therefore is not indicative of a long-term sustainable yield.

Table ES-1: Historical, Current, and Future Groundwater Budget Components

Groundwater Inflow Component	Historical	Current	Future
Streamflow Percolation	26,900	2,700	28,800
Agricultural Irrigation Return Flow	17,800	13,100	14,500
Deep Percolation of Direct Precipitation	12,000	1,400	12,600
Subsurface Inflow into Subbasin	10,100	4,900	8,300
Wastewater Pond Percolation	3,400	4,700	3,500
Urban Irrigation Return Flow	1,200	2,100	1,800
Total	71,400	28,900	69,500
Groundwater Outflow Component	**Historical**	**Current**	**Future**
Total Groundwater Pumping	72,400	85,800	74,800
Discharge to Streams and Rivers from Alluvial Aquifer	7,300	4,300	4,600
Groundwater Flow Out of Subbasin	2,600	2,500	2,100
Riparian Evapotranspiration	1,700	1,700	1,700
Total	84,000	94,300	83,200
Sustainable Yield Estimate	**Historical**	**Current**	**Future**
	59,800	20,400	61,100

ES-6 Monitoring Networks

Achieving sustainability will be demonstrated in the data collected from monitoring networks over the GSP implementation horizon. Monitoring networks are developed for four of the five applicable sustainability indicators in the Subbasin. Seawater intrusion is not applicable in the Paso Robles this Subbasin. While conceptually applicable, a monitoring network for the depletion of interconnected surface waters was not developed for the GSP, but will be developed in the future if new data indicate an interconnection exists.

All monitoring networks presented in the GSP are based on existing monitoring sites. The monitoring networks are limited to locations with data that are publicly available and not collected under confidentiality agreements. It will be necessary after GSP adoption to expand the existing monitoring networks sites to fully demonstrate sustainability, refine the hydrogeologic conceptual model, and improve the GSP model. The monitoring networks are designed to accomplish the following:

- Demonstrate progress toward achieving measurable objectives described in the GSP
- Identify impacts to the beneficial uses and users of groundwater
- Monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds
- Quantify annual changes in water budget components

There are currently 23 wells in the groundwater elevation monitoring network, 22 wells in the Paso Robles Formation Aquifer and one new well owned by the City of Paso Robles in the Alluvial Aquifer. An additional nine potential future monitoring wells that have publicly available data were also identified, but the aquifer in which they are screened is unknown. These nine wells will be added to the monitoring network after the well completion information has been verified and they have been assigned to the appropriate aquifer. The locations of the groundwater elevation monitoring wells are shown on Figure ES-2.

This GSP adopts groundwater elevations as a proxy for estimating change in groundwater storage. The groundwater elevation monitoring wells shown on Figure ES-2, will also be used to monitor change in groundwater storage.

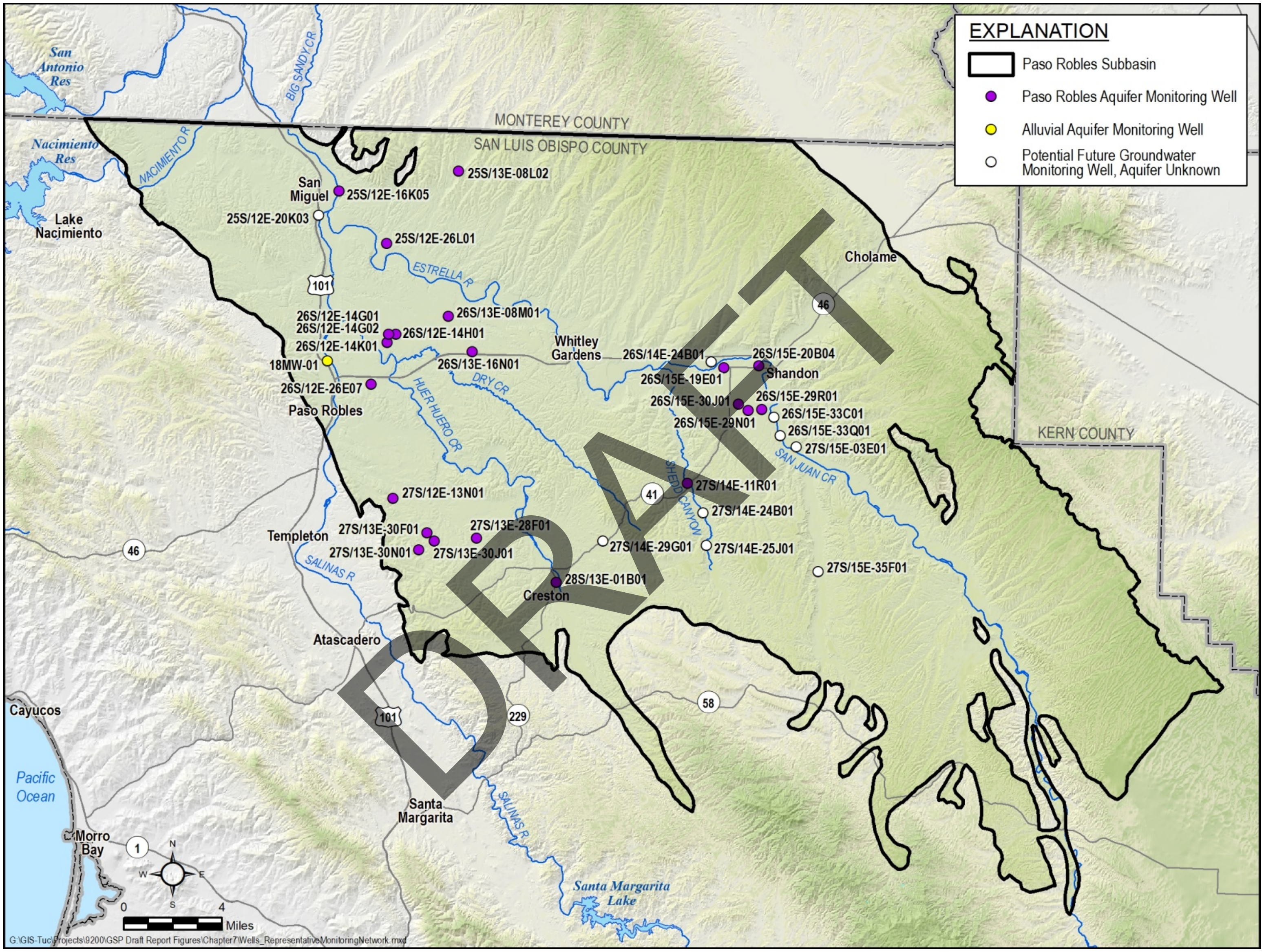

Figure ES-2: Groundwater Elevation Monitoring Well Locations

Degradation of groundwater quality is measured using existing wells. In particular, this GSP leverages groundwater quality data reported to the State Division of Drinking Water and groundwater quality data gathered as part of the State's Irrigated Lands Regulatory Program (ILRP). These two data sources provide a geographically extensive and complete network of wells to monitor groundwater quality in the Subbasin.

Land subsidence is monitored in the Subbasin with InSAR data provided by DWR. These data cover the years 2015 to 2018, and are adequate to identify areas of recent subsidence. One or more GSA may opt to contract with USGS or others with expertise in subsidence to gather any additional datasets and evaluate the cause(s) of any identified subsidence. The GSAs will continue to annually assess subsidence using the DWR provided InSAR data.

ES-7 Sustainable Management Criteria

Sustainable Management Criteria are the metrics by which sustainability is measured. Sustainable management criteria, including significant and unreasonable conditions, minimum thresholds, measurable objectives, and undesirable results, are established for four of the five applicable sustainability indicators in the Subbasin. Seawater intrusion is not applicable to this Subbasin. Because data are insufficient to determine if surface water and groundwater are interconnected, sustainable management criteria were not established for the depletion of interconnected surface water sustainability indicator.

Sustainable management criteria were developed with considerable public input and review, including:

- Holding a series of public outreach meetings.
- Surveying the public and gathering input on minimum thresholds and measurable objectives.
- Analyzing survey results to assess preferences and trends relevant to Sustainable Management Criteria.
- Combining survey results, outreach efforts, and hydrogeologic data to set initial conceptual minimum thresholds and measurable objectives.
- Conducting public meetings to present initial Sustainable Management Criteria and solicit additional public input.
- Reviewing public input on preliminary Sustainable Management Criteria with the GSAs.
- Modifying criteria based on public input and GSA recommendations.

The groundwater elevation measurable objective for each representative monitoring site in the monitoring network was set to the well's average 2017 groundwater elevation. The groundwater elevation minimum thresholds for each monitoring well was set to an elevation 30 feet below the measurable objective. Analysis of historical groundwater elevation data suggested that 30 feet allows for reasonable operational flexibility that accounts for seasonal and anticipated climatic variations on groundwater elevation.

Both the minimum threshold and measurable objectives for change in storage are set to no long-term change in storage in the Subbasin. After the subbasin achieves sustainability, there will be no ongoing loss of groundwater in storage.

This GSP sets minimum thresholds for the degradation of groundwater quality as a number of supply wells. Some supply wells already exceed groundwater quality standards. This GSP is not designed to remediate these existing exceedances. Therefore, the minimum thresholds and measurable objectives allow all existing exceedances, plus exceedances in an additional 10% of the monitoring wells. This allows for some flexibility in managing groundwater quality, while not allowing substantial degradation of groundwater quality.

Both the minimum threshold and measurable objectives for subsidence are set to no long-term decline in ground surface elevation in the Subbasin.

ES-8 Projects and Actions to Attain Sustainability

Achieving sustainability in the Subbasin will rely on management actions that reduce groundwater pumping. Both basin-wide and area specific management actions will be undertaken. Basin-wide management actions include monitoring and outreach, promoting best management practices for water use, promoting stormwater capture and recharge, and promoting voluntary irrigated land following.

Area specific management actions involve mandatory limitations on pumping in certain areas. The GSAs will establish a regulatory program to identify and enforce required pumping limitation as necessary to arrest persistent groundwater elevation declines in specific areas. The amount of mandatory pumping limitations is uncertain and will depend on the effectiveness and timeliness of voluntary actions by pumpers to limit pumping as well as the extent of the specific areas identified for mandatory limitations.

Developing and adopting the regulations for mandatory pumping limitations will require substantial negotiations between the GSAs, public hearings, and environmental review (CEQA). Regulations adopted by individual GSAs related to pumping limitations would need to be substantially identical to assure a consistent methodology for identifying those areas across the Subbasin. After GSP adoption, developing the pumping limitation regulations will require the following steps:

1. Establishing a methodology for determining baseline pumping in specific areas considering:
    a. Groundwater elevation trends in areas of decline and estimated yield in that area
    b. Land uses and corresponding irrigation requirements
2. Establishing a methodology to determine whose use must be limited and by how much considering, though not limited to, water rights and evaluation of anticipated benefits from projects bringing in supplemental water or other relevant actions individual pumpers take.
3. A timeline for limitations on pumping ("ramp down") in specific areas as required to avoid undesirable results
4. Approving a formal regulation to enact the program

Projects that supplement the Subbasin's water supply may be implemented by willing entities to offset pumping and lessen the degree to which the management actions would be needed. Implementing specific projects are not included in this GSP.

ES-9 Plan Implementation

Implementation of the GSP requires robust administrative and financial structures, with adequate staff and funding to ensure compliance with SGMA. The GSP calls for GSAs to routinely provide information to the public about GSP implementation and progress towards sustainability and the need to use groundwater efficiently. GSAs will likely either individually hire consultant(s) or hire staff to implement the GSP after deciding which GSA will lead each task.

A conceptual planning-level cost of about $7,800,000 will cover planned activities during the first five years of implementation. This equates to an estimated cost of $1,560,000 per year. This cost estimate reflects routine administrative operations, public outreach, and the basin wide and area specific management actions. The GSP will be implemented under the terms of the existing MOA between the four GSAs until DWR approves the GSP and a new or renewed cooperative agreement is established. Consistent with current MOA, an annual operating budget will be established that is considered for approval by each GSA.

August 14, 2019

Paso Robles Subbasin Groundwater Sustainability Plan VOLUME 1

Prepared for:

Paso Robles Subbasin Cooperative Committee and the Groundwater Sustainability Agencies

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ABBREVIATIONS AND ACRONYMS

$/AF	dollar per acre-foot
$/AF-benefit	dollar per acre-foot of basin benefit
Act (or SGMA)	Sustainable Groundwater Management Act
AF	acre-feet
AFY	acre-feet per year
AMWC	Atascadero Mutual Water Company
Basin Plan	Water Quality Control Plan for the Central Coast Basin
BPs	Best Water Use Practices
BMPs	Best Management Practices
C&E	Communications and Engagement
CASGEM	California Statewide Groundwater Elevation Monitoring
CCR	California Code of Regulations
CCRWQCB	Central Coast Regional Water Quality Control Board
CGPS	Continuous GPS
CIMIS	California Irrigation Management Information System
City	City of Paso Robles
Cooperative Committee	Paso Basin Cooperative Committee
County	San Luis Obispo County
CSA16	Community Service Area 16
CSD	Community Services District
CWWCP	Countywide Water Conservation Program
DAIv2	Data Archive Interface
DDW	Division of Drinking Water
DMS	Paso Robles Subbasin Data Management System
DWR	Department of Water Resources
EPA	Environmental Protection Agency
ET (or ETo)	evapotranspiration
ft/day	feet per day
ft2/day	square feet per day
ft msl	feet above mean sea level
GAMA	Groundwater Ambient Monitoring and Assessment
GDE	Groundwater-Dependent Ecosystem
GMP	Groundwater Management Plan
gpd/ft	gallons per day per foot
gpm	gallons per minute
GSA	Groundwater Sustainability Agency
GSI	GSI Water Solutions, Inc.
GSP (or the Plan)	Groundwater Sustainability Plan
GSSI	Geoscience Support Services, Inc.

hp	horsepower
ILRP	Irrigated Lands Regulatory Program
InSAR	Interferometric Synthetic Aperture Radar
IRWMP	Integrated Regional Water Management Program
LID	Low Impact Development
LOS	Level of Severity
LUCE	Land Use and Circulation Element
MCL	Maximum Contaminant Limit (or Maximum Contaminant Levels)
MO	measurable objectives
MOA	Memorandum of Agreement
mg/L	milligram per liter
msl	mean sea level
MT	minimum thresholds
MWR	Master Water Report
NCCAG	Natural Communities Commonly Associated with Groundwater
NDMC	National Drought Mitigation Center
NHD	National Hydrology Dataset
NRCS	USGS National Resources Conservation Service
NWIS	National Water Information System
NWP	Nacimiento Water Project
O&M	operations and maintenance
OSWCR	DWR Online System for Well Completion Reports
pCi/L	picocuries per liter
PWIS	CA Water Boards Public Water Information System
RW	recycled water
SAGBI	Soil Agricultural Groundwater Banking Index
SB	Senate Bill
SGMA (or Act)	Sustainable Groundwater Management Act
SGMA Regulations	CCR Subchapter 2. Groundwater Sustainability Plans
SLO County	San Luis Obispo County
SLOFCWCD	San Luis Obispo County Flood Control and Water Conservation District
SMC	Sustainable Management Criteria
SMCL	Secondary Maximum Contaminant Limit
SMCSD	San Miguel Community Services District
SNMP	Salt and Nutrient Management Plan
SPI	Standardized Precipitation Index
SSURGO	Soil Survey Geographic Database
Subbasin	Paso Robles Area Subbasin of the Salinas Valley Groundwater Basin
SWP	State Water Project
SWRCB	State Water Resources Control Board

SWRP	San Luis Obispo Stormwater Resource Plan
TDS	total dissolved solids
TMDLs	Total Maximum Daily Load
UNAVCO	University NAVSTAR Consorium
USACE	United States Army Corps of Engineers
USGS	United States Geologic Survey
USDA	United States Department of Agriculture
UWMP	Urban Water Management Plan
Water Board	State Water Resources Control Board
WPA	Water Planning Areas
WRAC	Water Resources Advisory Committee
WY	Water Year

REGULATIONS CHECKLIST FOR GSP SUBMITTAL

GSP Regulations Section	Requirement	Description	Section Number, or other location as indicated in the GSP
Article 3. Technical and Reporting Standards			
352.2	Monitoring Protocols	Monitoring protocols adopted by the GSA for data collection and management	7.8
		Monitoring protocols that are designed to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence for basins for which subsidence has been identified as a potential problem, and flow and quality of surface water that directly affect groundwater levels or quality or are caused by groundwater extraction in the basin	Chapter 7, including Appendix F
Article 5. Plan Contents, Subarticle 1. Administrative Information			
354.4	General Information	Executive Summary	Executive Summary
		List of references and technical studies	References Cited
354.6	Agency Information	GSA mailing address	2.1
		Organization and management structure	2.2
		Contact information of Plan Manager	2.4
		Legal authority of GSA	2.3
		Estimate of implementation costs	10.2, Table 10-1
354.8(a)	Map(s)	Area covered by GSP	3.1 (Figure 3-1)
		Adjudicated areas, other agencies within the basin, and areas covered by an Alternative	Not applicable
		Jurisdictional boundaries of federal or State land	Figure 3-2
		Existing land use designations	Figure 3-4
		Density of wells per square mile	Figures 3-7, 3-8, 3-9
354.8(b)	Description of the Plan Area	Summary of jurisdictional areas and other features	3.2, 3.3
354.8(c) 354.8(d) 354.8(e)	Water Resource Monitoring and Management Programs	Description of water resources monitoring and management programs	3.6, 3.7, 3.8
		Description of how the monitoring networks of those plans will be incorporated into the GSP	3.9.1
		Description of how those plans may limit operational flexibility in the basin	3.9.2
		Description of conjunctive use programs	3.9.3, not applicable
354.8(f)	Land Use Elements or Topic Categories of Applicable General Plans	Summary of general plans and other land use plans	3.10
		Description of how implementation of the GSP may change water demands or affect achievement of sustainability and how the GSP addresses those effects	3.10.4
		Description of how implementation of the GSP may affect the water supply assumptions of relevant land use plans	10.3, 10.4
		Summary of the process for permitting new or replacement wells in the basin	2.3.1.2 and 3.8.6

		Information regarding the implementation of land use plans outside the basin that could affect the ability of the Agency to achieve sustainable groundwater management	3.10.4
354.8(g)	Additional GSP Contents (optional items)	Description of Actions related to: Control of saline water intrusion	Not applicable
		Wellhead protection	Not applicable
		Migration of contaminated groundwater	5.6.3
		Well abandonment and well destruction program	Not applicable
		Replenishment of groundwater extractions	Not applicable
		Conjunctive use and underground storage	3.9.3
		Well construction policies	2.3.1.2 and 3.8.6
		Addressing groundwater contamination cleanup, recharge, diversions to storage, conservation, water recycling, conveyance, and extraction projects	Not applicable
		Efficient water management practices	9.3.2
		Relationships with State and federal regulatory agencies	3.3.1, 3.3.3
		Review of land use plans and efforts to coordinate with land use planning agencies to assess activities that potentially create risks to groundwater quality or quantity	3.10
		Impacts on groundwater dependent ecosystems	4.7.2, Appendix C
354.10	Notice and Communication	Description of beneficial uses and users	Appendix G, including Section G.3
		List of public meetings	Table 11-2
		GSP comments and responses	Appendix M
		Decision-making process	Appendix G, including Section G.4
		Public engagement	Appendix G
		Encouraging active involvement	Appendix G, including Sections G.7, 8, 9 and Appendices H, I, and J
		Informing the public on GSP implementation progress	Appendix G, including Section G. 7
Article 5. Plan Contents, Subarticle 2. Basin Setting			
354.14	Hydrogeologic Conceptual Model	Description of the Hydrogeologic Conceptual Model	Chapter 4, inclusive
		Two scaled cross-sections	Figures 4-12, 4-13, 4-14, 4-15
		Map(s) of physical characteristics: topographic information, surficial geology, soil characteristics, surface water bodies, source and point of delivery for imported water supplies	Figures 4-1, 4-2, 4-3, 4-4, 4-19, 3-5
354.14(c)(4)	Map of Recharge Areas	Map delineating existing recharge areas that substantially contribute to the replenishment of the basin, potential recharge areas, and discharge areas	Figures 4-16, 4-17
	Recharge Areas	Description of how recharge areas identified in the plan substantially contribute to the replenishment of the basin	4.7.1, Figure 4-16; 6.1
354.16	Current and Historical Groundwater Conditions	Groundwater elevation data	5.1
		Estimate of groundwater storage	5.2
		Seawater intrusion conditions	5.3, not applicable

		Groundwater quality issues	5.6
		Land subsidence conditions	5.4
		Identification of interconnected surface water systems	5.5
		Identification of groundwater-dependent ecosystems	4.7.2
354.18	Water Budget Information	Description of inflows, outflows, and change in storage	6.2.1, Appendix E
		Quantification of overdraft	Chapter 6
		Estimate of sustainable yield	Chapter 6
		Quantification of current, historical, and projected water budgets	Chapter 6
	Surface Water Supply	Description of surface water supply used or available for use for groundwater recharge or in-lieu use	3.4.1, Figure 3-5; Appendix I
354.20	Management Areas	Reason for creation of each management area	8.10.1
		Minimum thresholds and measurable objectives for each management area	8.10.2
		Level of monitoring and analysis	8.10.3
		Explanation of how management of management areas will not cause undesirable results outside the management area	8.10.4
		Description of management areas	8.10
Article 5. Plan Contents, Subarticle 3. Sustainable Management Criteria			
354.24	Sustainability Goal	Description of the sustainability goal	8.2
354.26	Undesirable Results	Description of undesirable results	8.4.5, 8.5.4, 8.7.4, 8.8.4, 8.9.4
		Cause of groundwater conditions that would lead to undesirable results	8.4.5.2, 8.5.4.2, 8.7.4.2, 8.8.4.2, , 8.9.4
		Criteria used to define undesirable results for each sustainability indicator	8.4.5.1, 8.5.4.1, 8.7.4.1, 8.8.4.1, , 8.9.4
		Potential effects of undesirable results on beneficial uses and users of groundwater	8.4.5.3, 8.5.4.3, 8.7.4.3, 8.8.4.3, 8.9.4
354.28	Minimum Thresholds	Description of each minimum threshold and how they were established for each sustainability indicator	8.4.4, 8.5.2, 8.7.2, 8.8.2, 8.9.2
		Relationship for each sustainability indicator	8.4.4.4, 8.5.2.2, 8.7.2.4, 8.8.2.2, 8.9.2
		Description of how selection of the minimum threshold may affect beneficial uses and users of groundwater	8.4.4.6, 8.5.2.4, 8.7.2.6, 8.8.2.4, 8.9.2
		Standards related to sustainability indicators	8.4.4.7, 8.5.2.5, 8.7.2.7, 8.8.2.5, 8.9.2
		How each minimum threshold will be quantitatively measured	8.4.4.8, 8.5.2.6, 8.7.2.8, 8.8.2.6, 8.9.2
354.30	Measureable Objectives	Description of establishment of the measureable objectives for each sustainability indicator	8.4.3, 8.5.3, 8.7.3, 8.8.3, 8.9.3
		Description of how a reasonable margin of safety was established for each measureable objective	8.4.3, 8.5.3, 8.7.3, 8.8.3, 8.9.3
		Description of a reasonable path to achieve and maintain the sustainability goal, including a description of interim milestones	8.4.3, 8.5.3.2, 8.7.3.4, 8.8.3.2, 8.9.3
Article 5. Plan Contents, Subarticle 4. Monitoring Networks			

354.34	Monitoring Networks	Description of monitoring network	Chapter 7, including 7.2. through 7.6
		Description of monitoring network objectives	7.1
		Description of how the monitoring network is designed to: demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features; estimate the change in annual groundwater in storage; monitor seawater intrusion; determine groundwater quality trends; identify the rate and extent of land subsidence; and calculate depletions of surface water caused by groundwater extractions	Chapter 7, including 7.2. through 7.6
		Description of how the monitoring network provides adequate coverage of Sustainability Indicators	Chapter 7, including 7.2. through 7.6
		Density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends	Chapter 7, including 7.2. through 7.6
		Scientific rational (or reason) for site selection	Chapter 7, including 7.2. through 7.6
		Consistency with data and reporting standards	Chapter 7, including 7.2. through 7.6
		Corresponding sustainability indicator, minimum threshold, measureable objective, and interim milestone	Chapter 7, including 7.2. through 7.6; Chapter 8 Tables 8-1 through 8-10
		Location and type of each monitoring site within the basin displayed on a map, and reported in tabular format, including information regarding the monitoring site type, frequency of measurement, and the purposes for which the monitoring site is being used Description of technical standards, data collection methods, and other procedures or protocols to ensure comparable data and methodologies	Chapter 7, including 7.2. through 7.6
354.36	Representative Monitoring	Description of representative sites	7.7
		Demonstration of adequacy of using groundwater elevations as proxy for other sustainability indicators	8.5.2
		Adequate evidence demonstrating site reflects general conditions in the area	7.7
354.38	Assessment and Improvement of Monitoring Network	Review and evaluation of the monitoring network	Chapter 10
		Identification and description of data gaps	Chapter 7, including 7.2.1, 7.3.1, 7.4.1, 7.5.1, 7.6.1
		Description of steps to fill data gaps	Chapter 10
		Description of monitoring frequency and density of sites	Chapter 7, including 7.2. through 7.6
Article 5. Plan Contents, Subarticle 5. Projects and Management Actions			
354.44	Projects and Management Actions	Description of projects and management actions that will help achieve the basin's sustainability goal	Chapter 9
		Measureable objective that is expected to benefit from each project and management action	
		Circumstances for implementation	
		Public noticing	
		Permitting and regulatory process	

		Time-table for initiation and completion, and the accrual of expected benefits	
		Expected benefits and how they will be evaluated	
		How the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.	
		Legal authority required	
		Estimated costs and plans to meet those costs	
		Management of groundwater extractions and recharge	
354.44(b)(2)		Overdraft mitigation projects and management actions	
Article 8. Interagency Agreements			
357.4	Coordination Agreements - Shall be submitted to the Department together with the GSPs for the basin and, if approved, shall become part of the GSP for each participating Agency.	Coordination Agreements shall describe the following: A point of contact	Not applicable
		Responsibilities of each Agency	
		Procedures for the timely exchange of information between Agencies	
		Procedures for resolving conflicts between Agencies	
		How the Agencies have used the same data and methodologies to coordinate GSPs	
		How the GSPs implemented together satisfy the requirements of SGMA	
		Process for submitting all Plans, Plan amendments, supporting information, all monitoring data and other pertinent information, along with annual reports and periodic evaluations	
		A coordinated data management system for the basin	
		Coordination agreements shall identify adjudicated areas within the basin, and any local agencies that have adopted an Alternative that has been accepted by the Department	

DEFINITIONS

California Water Code

Sec. 10721

Unless the context otherwise requires, the following definitions govern the construction of this part:

(a) Adjudication action means an action filed in the superior or federal district court to determine the rights to extract groundwater from a basin or store water within a basin, including, but not limited to, actions to quiet title respecting rights to extract or store groundwater or an action brought to impose a physical solution on a basin.

(b) Basin means a groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to Chapter 3 (commencing with Section 10722).

(c) Bulletin 118 means the department's report entitled California's Groundwater: Bulletin 118 updated in 2003, as it may be subsequently updated or revised in accordance with Section 12924.

(d) Coordination agreement means a legal agreement adopted between two or more groundwater sustainability agencies that provides the basis for coordinating multiple agencies or groundwater sustainability plans within a basin pursuant to this part.

(e) De minimis extractor means a person who extracts, for domestic purposes, two acre-feet or less per year.

(f) Governing body means the legislative body of a groundwater sustainability agency.

(g) Groundwater means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.

(h) Groundwater extraction facility means a device or method for extracting groundwater from within a basin.

(i) Groundwater recharge or recharge means the augmentation of groundwater, by natural or artificial means.

(j) Groundwater sustainability agency means one or more local agencies that implement the provisions of this part. For purposes of imposing fees pursuant to Chapter 8 (commencing with Section 10730) or taking action to enforce a groundwater sustainability plan, groundwater sustainability agency also means each local agency comprising the groundwater sustainability agency if the plan authorizes separate agency action.

(k) Groundwater sustainability plan or plan means a plan of a groundwater sustainability agency proposed or adopted pursuant to this part.

(l) Groundwater sustainability program means a coordinated and ongoing activity undertaken to benefit a basin, pursuant to a groundwater sustainability plan.

(m) In-lieu use means the use of surface water by persons that could otherwise extract groundwater in order to leave groundwater in the basin.

(n) Local agency means a local public agency that has water supply, water management, or land use responsibilities within a groundwater basin.

(o) Operator means a person operating a groundwater extraction facility. The owner of a groundwater extraction facility shall be conclusively presumed to be the operator unless a satisfactory showing is made to the governing body of the groundwater sustainability agency that the groundwater extraction facility actually is operated by some other person.

(p) Owner means a person owning a groundwater extraction facility or an interest in a groundwater extraction facility other than a lien to secure the payment of a debt or other obligation.

(q) Personal information has the same meaning as defined in Section 1798.3 of the Civil Code.

(r) Planning and implementation horizon means a 50-year time period over which a groundwater sustainability agency determines that plans and measures will be implemented in a basin to ensure that the basin is operated within its sustainable yield.

(s) Public water system has the same meaning as defined in Section 116275 of the Health and Safety Code.

(t) Recharge area means the area that supplies water to an aquifer in a groundwater basin.

(u) Sustainability goal means the existence and implementation of one or more groundwater sustainability plans that achieve sustainable groundwater management by identifying and causing the implementation of measures targeted to ensure that the applicable basin is operated within its sustainable yield.

(v) Sustainable groundwater management means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.

(w) Sustainable yield means the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus that can be withdrawn annually from a groundwater supply without causing an undesirable result.

(x) Undesirable result means one or more of the following effects caused by groundwater conditions occurring throughout the basin:

(1) Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.

(2) Significant and unreasonable reduction of groundwater storage.

(3) Significant and unreasonable seawater intrusion.

(4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.

(5) Significant and unreasonable land subsidence that substantially interferes with surface land uses.

(6) Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

(y) Water budget means an accounting of the total groundwater and surface water entering and leaving a basin including the changes in the amount of water stored.

(z) Watermaster means a watermaster appointed by a court or pursuant to other law.

(aa) Water year means the period from October 1 through the following September 30, inclusive.

(ab) Wellhead protection area means the surface and subsurface area surrounding a water well or well field that supplies a public water system through which contaminants are reasonably likely to migrate toward the water well or well field.

Official California Code of Regulations

Title 23. Waters
Division 2. Department of Water Resources
Chapter 1.5. Groundwater Management
Subchapter 2. Groundwater Sustainability Plans
Article 2. Definitions
23 CCR § 351
§ 351. Definitions.

The definitions in the Sustainable Groundwater Management Act, Bulletin 118, and Subchapter 1 of this Chapter, shall apply to these regulations. In the event of conflicting definitions, the definitions in the Act govern the meanings in this Subchapter. In addition, the following terms used in this Subchapter have the following meanings:

(a) "Agency" refers to a groundwater sustainability agency as defined in the Act.

(b) "Agricultural water management plan" refers to a plan adopted pursuant to the Agricultural Water Management Planning Act as described in Part 2.8 of Division 6 of the Water Code, commencing with Section 10800 et seq.

(c) "Alternative" refers to an alternative to a Plan described in Water Code Section 10733.6.

(d) "Annual report" refers to the report required by Water Code Section 10728.

(e) "Baseline" or "baseline conditions" refer to historic information used to project future conditions for hydrology, water demand, and availability of surface water and to evaluate potential sustainable management practices of a basin.

(f) "Basin" means a groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to Water Code 10722 et seq.

(g) "Basin setting" refers to the information about the physical setting, characteristics, and current conditions of the basin as described by the Agency in the hydrogeologic conceptual model, the groundwater conditions, and the water budget, pursuant to Subarticle 2 of Article 5.

(h) “Best available science” refers to the use of sufficient and credible information and data, specific to the decision being made and the time frame available for making that decision, that is consistent with scientific and engineering professional standards of practice.

(i) “Best management practice” refers to a practice, or combination of practices, that are designed to achieve sustainable groundwater management and have been determined to be technologically and economically effective, practicable, and based on best available science.

(j) “Board” refers to the State Water Resources Control Board.

(k) “CASGEM” refers to the California Statewide Groundwater Elevation Monitoring Program developed by the Department pursuant to Water Code Section 10920 et seq., or as amended.

(l) “Data gap” refers to a lack of information that significantly affects the understanding of the basin setting or evaluation of the efficacy of Plan implementation, and could limit the ability to assess whether a basin is being sustainably managed.

(m) “Groundwater dependent ecosystem” refers to ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface.

(n) “Groundwater flow” refers to the volume and direction of groundwater movement into, out of, or throughout a basin.

(o) “Interconnected surface water” refers to surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted.

(p) “Interested parties” refers to persons and entities on the list of interested persons established by the Agency pursuant to Water Code Section 10723.4.

(q) “Interim milestone” refers to a target value representing measurable groundwater conditions, in increments of five years, set by an Agency as part of a Plan.

(r) “Management area” refers to an area within a basin for which the Plan may identify different minimum thresholds, measurable objectives, monitoring, or projects and management actions based on differences in water use sector, water source type, geology, aquifer characteristics, or other factors.

(s) "Measurable objectives" refer to specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions that have been included in an adopted Plan to achieve the sustainability goal for the basin.

(t) "Minimum threshold" refers to a numeric value for each sustainability indicator used to define undesirable results.

(u) "NAD83" refers to the North American Datum of 1983 computed by the National Geodetic Survey, or as modified.

(v) "NAVD88" refers to the North American Vertical Datum of 1988 computed by the National Geodetic Survey, or as modified.

(w) "Plain language" means language that the intended audience can readily understand and use because that language is concise, well-organized, uses simple vocabulary, avoids excessive acronyms and technical language, and follows other best practices of plain language writing.

(x) "Plan" refers to a groundwater sustainability plan as defined in the Act.

(y) "Plan implementation" refers to an Agency's exercise of the powers and authorities described in the Act, which commences after an Agency adopts and submits a Plan or Alternative to the Department and begins exercising such powers and authorities.

(z) "Plan manager" is an employee or authorized representative of an Agency, or Agencies, appointed through a coordination agreement or other agreement, who has been delegated management authority for submitting the Plan and serving as the point of contact between the Agency and the Department.

(aa) "Principal aquifers" refer to aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems.

(ab) "Reference point" refers to a permanent, stationary and readily identifiable mark or point on a well, such as the top of casing, from which groundwater level measurements are taken, or other monitoring site.

(ac) "Representative monitoring" refers to a monitoring site within a broader network of sites that typifies one or more conditions within the basin or an area of the basin.

(ad) "Seasonal high" refers to the highest annual static groundwater elevation that is typically measured in the Spring and associated with stable aquifer conditions following a period of lowest annual groundwater demand.

(ae) “Seasonal low” refers to the lowest annual static groundwater elevation that is typically measured in the Summer or Fall, and associated with a period of stable aquifer conditions following a period of highest annual groundwater demand.

(af) “Seawater intrusion” refers to the advancement of seawater into a groundwater supply that results in degradation of water quality in the basin, and includes seawater from any source.

(ag) “Statutory deadline” refers to the date by which an Agency must be managing a basin pursuant to an adopted Plan, as described in Water Code Sections 10720.7 or 10722.4.

(ah) “Sustainability indicator” refers to any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results, as described in Water Code Section 10721(x).

(ai) “Uncertainty” refers to a lack of understanding of the basin setting that significantly affects an Agency's ability to develop sustainable management criteria and appropriate projects and management actions in a Plan, or to evaluate the efficacy of Plan implementation, and therefore may limit the ability to assess whether a basin is being sustainably managed.

(aj) “Urban water management plan” refers to a plan adopted pursuant to the Urban Water Management Planning Act as described in Part 2.6 of Division 6 of the Water Code, commencing with Section 10610 et seq.

(ak) “Water source type” represents the source from which water is derived to meet the applied beneficial uses, including groundwater, recycled water, reused water, and surface water sources identified as Central Valley Project, the State Water Project, the Colorado River Project, local supplies, and local imported supplies.

(al) “Water use sector” refers to categories of water demand based on the general land uses to which the water is applied, including urban, industrial, agricultural, managed wetlands, managed recharge, and native vegetation.

(am) “Water year” refers to the period from October 1 through the following September 30, inclusive, as defined in the Act.

(an) “Water year type” refers to the classification provided by the Department to assess the amount of annual precipitation in a basin.

1 INTRODUCTION TO PASO ROBLES SUBBASIN GROUNDWATER SUSTAINABILITY PLAN

1.1 Purpose of the Groundwater Sustainability Plan

In 2014, the State of California enacted the Sustainable Groundwater Management Act (SGMA). This law requires groundwater basins in California that are designated as medium or high priority be managed sustainably. Satisfying the requirements of SGMA generally requires four basic activities:

1. Forming one or multiple Groundwater Sustainability Agency(s) (GSAs) to fully cover a basin;
2. Developing one or multiple Groundwater Sustainability Plan(s) (GSPs) that fully cover the basin;
3. Implementing the GSP and managing to achieve quantifiable objectives; and
4. Regular reporting to the California Department of Water Resources (DWR).

This document fulfills the GSP requirement for the Paso Robles Area Subbasin of the Salinas Valley Groundwater Basin (Paso Robles Subbasin or Subbasin). This GSP describes the Paso Robles Subbasin, develops quantifiable management objectives that account for the interests of the Subbasin's beneficial groundwater uses and users, and identifies a group of projects and management actions that will allow the Subbasin to achieve sustainability within 20 years of plan adoption.

The GSP was developed specifically to comply with SGMA's statutory and regulatory requirements. As such, the GSP uses the terminology set forth in these requirements (see e.g. Water Code Section 10721 and 23 CCR Section 351) which is oftentimes different from the terminology utilized in other contexts (e.g. past reports or studies, past analyses, judicial rules or findings). The definitions from the relevant statutes and regulations are attached to this report for reference.

1.2 Description of Paso Robles Subbasin

The Paso Robles Subbasin is identified by DWR in Bulletin 118 as Subbasin No. 3-004.06 (DWR, 2016). The Subbasin is part of the greater Salinas Valley Basin in the Central Coastal region of California. The Subbasin as defined in this GSP encompasses an area of approximately 436,240 acres, or 681 square miles and is entirely within San Luis Obispo County. The Subbasin boundaries delineate the groundwater basin; the watershed includes the area that drains the surface water to the Subbasin, and encompasses a much larger area.

The Subbasin as originally defined by DWR (2003) was in both Monterey and San Luis Obispo Counties. On February 11, 2019, DWR released the Final 2018 Basin Boundary Modifications approving two revisions to the Subbasin boundary. One revision made the northern boundary of the Paso Basin coincident with the Monterey and San Luis Obispo County line, placing the Paso Basin entirely within San Luis Obispo County and making formal coordination with Salinas Valley Basin GSA optional. The other revision removed the basin area underlying Heritage Ranch Community Services District GSA, making them no longer subject to SGMA or required to develop a GSP. A basin boundary modification was approved by DWR that moved the northern boundary of the Paso Robles Area Subbasin to the Monterey/San Luis Obispo county line. A subsequent basin boundary adjustment was approved by DWR in 2019 to remove the land covered by Heritage Ranch Community Services District from the Subbasin. Heritage Ranch Community Services District was originally an active GSA in the Subbasin. The Plan has been modified to take out Heritage Ranch Community Services District and the land it overlies after the boundary adjustment was approved. The final basin boundary is shown on Figure 1-1.

The Subbasin is bounded by two groundwater basins and two subbasins, as shown on Figure 1-1.

- The Atascadero Area Subbasin (3-004-11) is located southwest of the Paso Robles Subbasin. The boundary with the Subbasin is the Rinconada Fault zone which is a leaky barrier to groundwater flow.
- The Upper Valley Aquifer Subbasin of the Salinas Valley Groundwater Basin is located north of the Paso Robles Subbasin. Its aquifers are in hydraulic continuity with those in the Subbasin.
- The Cholame Valley (3-005) groundwater basin is located east of the Paso Robles Subbasin. Its western boundary is the San Andreas Fault that is a barrier to groundwater flow.
- The Carrizo Plain (3-019) groundwater basin is located southeast of the Paso Robles Subbasin. The Carrizo Plain boundary with the Subbasin is a topographic high with sediments in hydraulic continuity with the Basin.

The Atascadero, Carrizo Plain and Cholame Valley groundwater basins are designated as very low priority and therefore not required to submit GSPs. Although not required to develop a GSP, the Atascadero Area Subbasin is planning to prepare and adopt a GSP. The Paso Robles Subbasin and Salinas Valley Upper Valley Aquifer Subbasin are subject to SGMA and are required to develop GSPs.

The Subbasin includes the incorporated City of Paso Robles. The Subbasin additionally includes the unincorporated census-designated places of Cholame, Creston, San Miguel, Shandon, and Whitley Gardens (Figure 1-1).

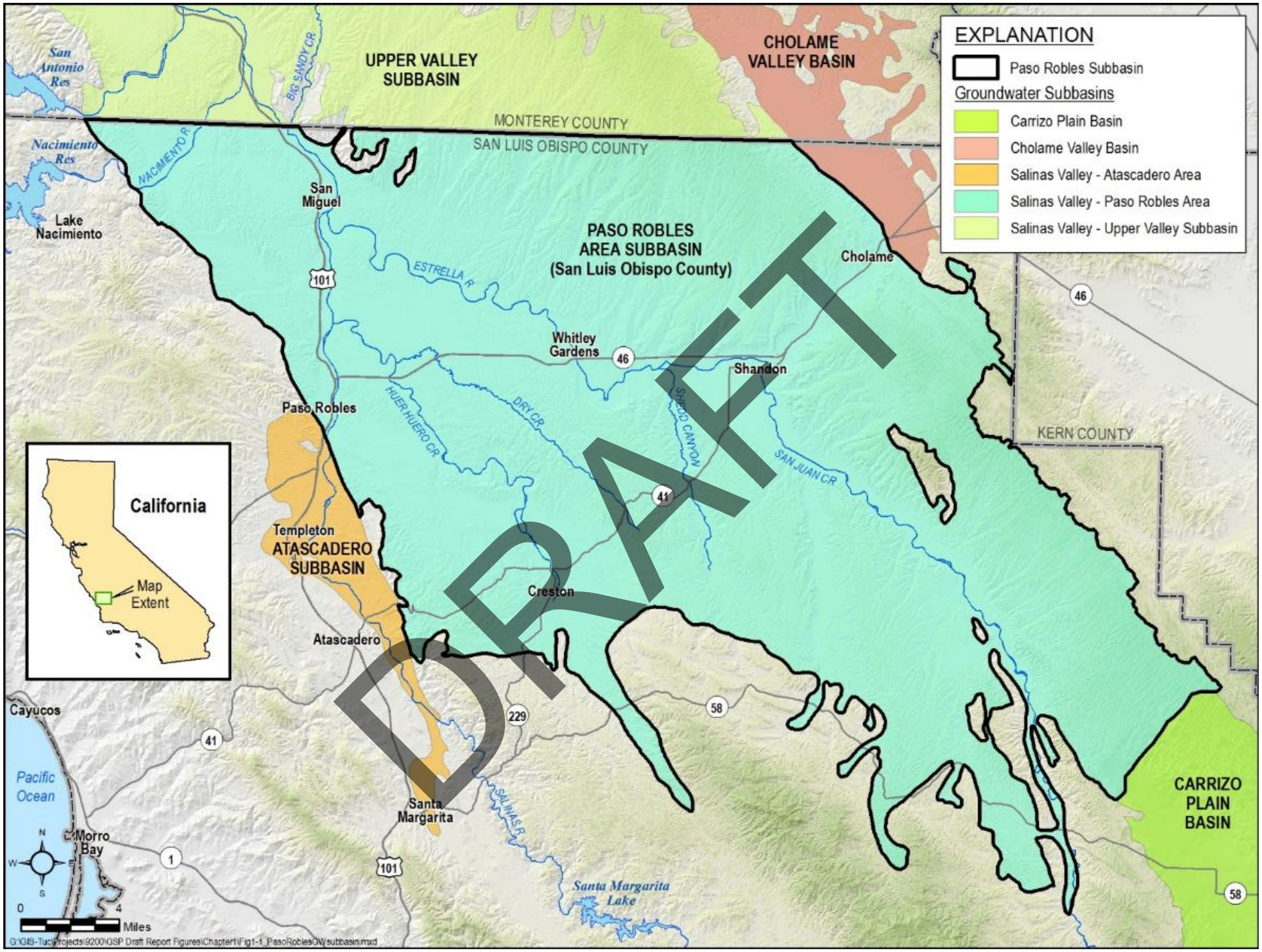


Figure 1-1. Paso Robles Subbasin and Surrounding Subbasins

2 AGENCIES' INFORMATION

The Paso Robles Subbasin GSP has been jointly developed by four GSAs:

- City of Paso Robles
- Paso Basin - County of San Luis Obispo GSA
- San Miguel Community Services District (CSD)
- Shandon - San Juan GSA

2.1 Agencies' Names and Mailing Addresses

The following contact information is provided for each GSA pursuant to California Water Code § 10723.8.

City of Paso Robles GSA
1000 Spring Street
City of Paso Robles, CA 93635

Paso Basin - County of San Luis Obispo GSA
C/O County of San Luis Obispo Department of Public Works - Water Resources
County Government Center, Room 206
San Luis Obispo, CA 93408

San Miguel Community Services District GSA
P.O. Box 180
San Miguel, CA 93451

Shandon - San Juan GSA
P.O. Box 150
Shandon, CA 93461

2.2 Agencies' Organization and Management Structure

The organization and management structures of each of the four subbasin GSAs are described below. Each of the GSAs appoints a representative to a Cooperative Committee that is further described in Section 2.3.2. The Cooperative Committee coordinates activities among all the GSAs during the GSP development phase.

2.2.1 City of Paso Robles GSA

The City of Paso Robles is an incorporated city that operates under a Council-Manager general law form of government. The City Council consists of five members elected at-large, on a non-partisan basis. Council members serve four-year overlapping terms. The mayor is directly elected and serves a two-year term. Decisions on all GSA-related matters require an affirmative vote of a majority of the five-member City Council. One member from the City Council sits on the Cooperative Committee that coordinates activities among all GSAs in accordance with the Memorandum of Agreement (MOA) further described in section 2.3.1.5 and included in Appendix A. The City of Paso Robles GSA's activities are staffed through the City's Department of Public Works.

2.2.2 Paso Basin - County of San Luis Obispo GSA

The County of San Luis Obispo is governed by a five-member Board of Supervisors. Board members are elected to staggered four-year terms. Decisions on all GSA-related matters require an affirmative vote of a majority of the Board. One member from the Board of Supervisors sits on the Cooperative Committee that coordinates activities among all GSAs in accordance with the MOA further described in section 2.3.1.5 and included in Appendix A. The Paso Basin - County of San Luis Obispo GSA's activities are staffed through the County's Department of Public Works.

2.2.3 San Miguel Community Services District GSA

San Miguel CSD is governed by a five-member Board of Directors. Directors are elected to four-year terms. Decisions on all GSA-related matters require an affirmative vote of a majority of the five Board of Directors members. One member from the San Miguel CSD Board of Directors sits on the Cooperative Committee that coordinates activities among all in accordance with the MOA further described in section 2.3.1.5 and included in Appendix A. The San Miguel CSD GSA's activities are staffed by the CSD's staff engineer.

2.2.4 Shandon - San Juan GSA

The Shandon-San Juan Water District is governed by a five-member Board of Directors elected to staggered four year terms. The District elected to serve as the exclusive GSA for the portion of the Subbasin situated within the boundaries of the District, and therefore also functions as the Shandon-San Juan GSA. Decisions on all GSA-related matter require an affirmative vote of a majority of the five-member Board of Directors. One member from the Shandon - San Juan GSA Board of Directors sits on the Cooperative Committee that coordinates activities among all in accordance with the Memorandum of Agreement (MOA) further described in section 2.3.1.5 and included in Appendix A. The Shandon - San Juan GSA's activities are staffed by members of the Water District or their representatives and by contracted professional engineers.

2.3 Authority of Agencies

Each of the GSAs developing this coordinated GSP is formed in accordance with the requirements of California Water Code § 10723 *et seq*. The resolutions of formation for all GSAs are included in Appendix A. The specific authorities for forming a GSA and implementing the GSP for each of the agencies that formed GSAs are listed below.

2.3.1 Individual GSAs

2.3.1.1 City of Paso Robles GSA

The City of Paso Robles is incorporated under the laws of the State of California. The City provides water supply and land use planning services to its residents. The City is therefore a local agency under California Water Code § 10721 with the authority to establish itself as a GSA. Upon establishing itself as a GSA, the City obtains all the rights and authorities provided to GSAs under California Water Code § 10725 *et seq.* subject to the terms and conditions set forth therein. In addition, the City retains its ability to manage groundwater pursuant to its police powers and well permitting authority.

2.3.1.2 Paso Basin - County of San Luis Obispo GSA

The County of San Luis Obispo has land use authority over the unincorporated areas of the County, including areas overlying the Paso Robles Subbasin. The County of San Luis Obispo is therefore a local agency under California Water Code § 10721 with the authority to establish itself as a GSA. Upon establishing itself as a GSA, the County obtains all the rights and authorities provided to GSAs under California Water Code § 10725 *et seq*. subject to the terms and conditions set forth therein. In addition, the County retains its ability to manage groundwater and the construction of wells pursuant to its police powers.

2.3.1.3 San Miguel Community Services District GSA

San Miguel CSD is a local public agency of the State of California, organized and operating under the Community Services District Law, Government Code § 6100 *et seq*. San Miguel CSD provides water and sewer services to its residents. San Miguel CSD is therefore a local agency under California Water Code § 10721 with the authority to establish itself as a GSA. Upon establishing itself as a GSA, San Miguel CSD obtains all the rights and authorities provided to GSAs under California Water Code § 10725 *et seq*. subject to the terms and conditions set forth therein.

2.3.1.4 Shandon - San Juan GSA

The Shandon - San Juan Water District was formed in accordance with California's Water District Law, California Water Code § 34000 *et seq*. In accordance with California's Water District Law, the Shandon - San Juan Water District obtains the water supply and management authorities included in California Water Code § 35300 *et seq.*, with the exception of the ability to export groundwater beyond the boundaries of the Paso Robles subbasin. The Shandon - San Juan Water District is therefore a local agency under California Water Code § 10721 with the authority to establish itself as a GSA. Upon establishing itself as a GSA, the District obtains all the rights and authorities provided to GSAs under California Water Code § 10725 *et seq*. subject to the terms and conditions set forth therein.

2.3.1.5 Memorandum of Agreement for GSP Development

The five GSAs overlying the original Subbasin entered into a Memorandum of Agreement (MOA) in September 2017. Heritage Ranch CSD was an original party to the MOA. With the basin boundary modification approval by DWR in 2019, Heritage Ranch is no longer part of the Subbasin. A copy of the MOA is included in Appendix A.

The purpose of the MOA is to establish a committee to develop a single GSP for the entire Paso Robles Subbasin. The single GSP developed under this MOA will be considered for adoption by each individual GSA and subsequently submitted to DWR for approval. Per §12.2 of the MOA, the MOA shall automatically terminate upon DWR's approval of the adopted GSP. The GSAs may decide to enter into a new agreement to coordinate GSP implementation at that time.

The MOA establishes the Paso Basin Cooperative Committee (Cooperative Committee) consisting of one member and one alternate from each of the GSAs. The Cooperative Committee conducts activities related to GSP development and SGMA implementation. The full list of activities the Cooperative Committee is authorized to undertake is included in the MOA in Appendix A; highlights include:

- Developing a GSP that achieves the goals and objectives outlined in SGMA;
- Reviewing and participating in the selection of consultants related to Cooperative Committee efforts;
- Developing annual budgets and additional funding needs;
- Developing a stakeholder participation plan; and

The MOA sets forth each GSAs' weighted voting percentages and the votes needed to implement certain actions or make certain recommendations to the individual GSAs. In particular, the MOA states that the Cooperative Committee must unanimously vote to recommend that the GSAs adopt the final GSP, though the MOA provides that each GSA may adopt the GSP for its jurisdiction without the Cooperative Committee's recommendation. Any vote to recommend changes to the MOA requires unanimous approval by the Cooperative Committee Members.

2.3.2 Memorandum of Agreement for GSP Implementation

Pursuant to Section 1 of the MOA, the GSAs intend to use the current MOA as a basis for continued cooperation in the management of the Subbasin during the period between adoption of the GSP by each GSA and approval of the GSP by DWR.

2.3.3 Coordination Agreements

The single GSP developed by the GSAs completely covers the entire Paso Robles Subbasin. Therefore, no coordination agreements with other GSAs are necessary.

2.3.4 Legal Authority to Implement SGMA Throughout the Plan Area

Figure 2-1 shows the extent of the GSP plan area, along with the jurisdictional boundary of each of the exclusive GSAs cooperating on this GSP. This figure shows that the entire plan area is covered by the exclusive GSAs, and no portion of the Subbasin is covered by a non-exclusive GSA. Therefore, the combination of the GSAs provides the legal authority to implement this GSP throughout the entire plan area. No authority is needed from any other GSA to implement this plan.

2.4 Contact Information for Plan Manager

This section will be completed prior to submittal of the GSP.

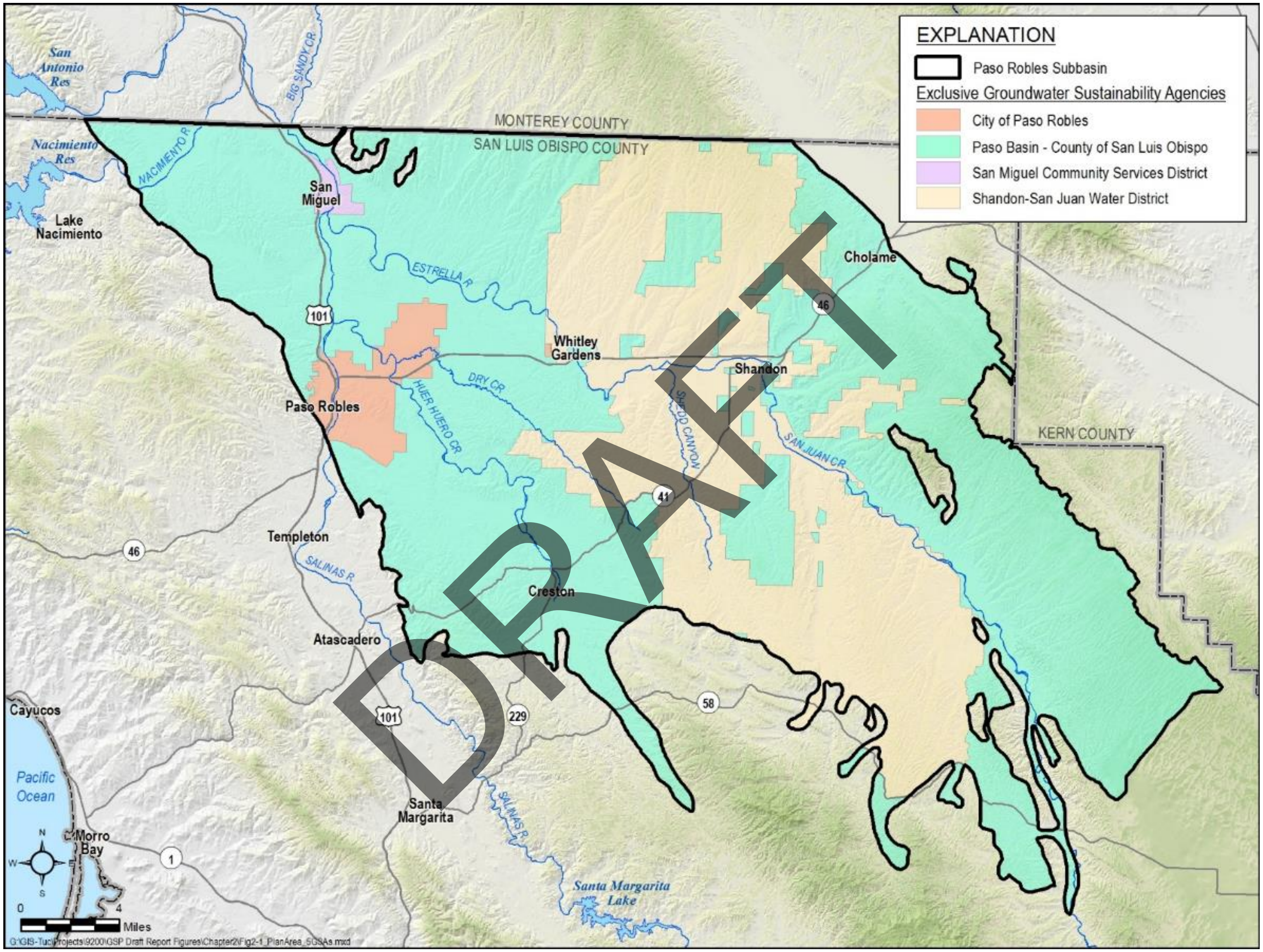


Figure 2-1. Extent of GSP Plan Area and Exclusive Groundwater Sustainability Agencies

3 DESCRIPTION OF PLAN AREA

3.1 Paso Robles Subbasin Introduction

This GSP covers the entire Paso Robles Subbasin. The Subbasin lies in the northern portion of San Luis Obispo County. The majority of the Subbasin comprises gentle flatlands near the Salinas River Valley, ranging in elevation from approximately 445 to 2,387 feet above mean sea level. The Subbasin is drained by the Salinas River. Tributaries to the Salinas River include the Estrella River, Huer Huero Creek, and San Juan Creek. Communities in the Subbasin are the City of Paso Robles and the communities of San Miguel, Creston, and Shandon. Highway 101 is the most significant north-south highway in the Subbasin, with Highways 41 and 46 running east-west across the Subbasin. Figure 3-1 shows the extent of the plan area as well as the significant water bodies, communities, and highways.

3.2 Adjudicated Areas, Other GSAs, and Alternative Plans

As of the date that this GSP was completed and submitted to DWR for evaluation: (1) No part of the Subbasin nor any surrounding subbasin is identified in SGMA (Water Code § 10720.8) as an adjudicated area and no part of the Subbasin nor any surrounding subbasin has been the subject of a comprehensive common law groundwater adjudication or comprehensive adjudication as described in Code of Civil Procedure Section 830 *et seq.*; (2) No other GSAs exist within the Subbasin; and (3) No alternative plans have been submitted for any part of the Subbasin, nor for any surrounding subbasin. Consequently, no map is included in the GSP for adjudicated areas, other GSAs or alternative plans.

3.3 Other Jurisdictional Areas

In addition to the GSAs, there are several federal, state, and local agencies that have some degree of water management authority in the Subbasin. Each agency or organization is discussed below. A map of the jurisdictional extent of the Federal and State agencies within the Subbasin is shown on Figure 3-2. The source of this information is the DWR SGMA data viewer, available on the DWR SGMA website. A map showing the jurisdictional extent of city and local jurisdictions within the Subbasin is shown on Figure 3-3, though boundaries are unknown, and therefore not included in the map, for other entities with water management/supply responsibilities (mutual water companies, small water systems, etc.).

3.3.1 Federal Jurisdictions

Federal agencies with land holdings in the Subbasin include the National Forest Service and the Bureau of Land Management. A portion of the Los Padres National Forest covers a small area near the southern boundary of the Subbasin. The Bureau of Land Management owns two small parcels in the Red Hills area that partially overlie the Subbasin.

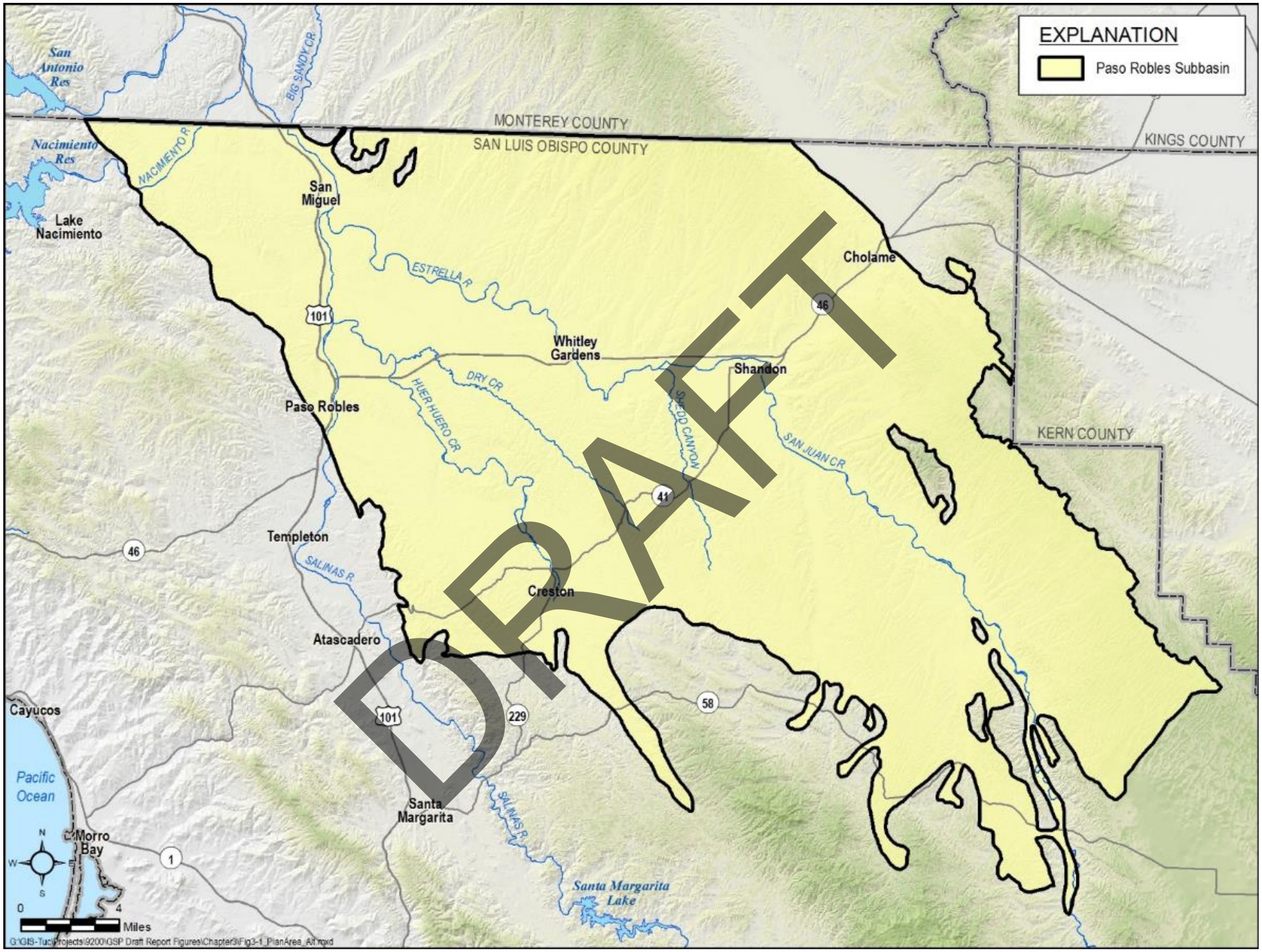


Figure 3-1. Area Covered by GSP

3.3.2 Tribal Jurisdiction

The two prominent Native American Tribes in San Luis Obispo County are the Salinan and Northern Chumash Indian tribes. These two tribes do not have any recognized tribal land in the Subbasin.

3.3.3 State Jurisdictions

State agencies in the Subbasin include the California National Guard and the California Department of Fish and Wildlife. The California National Guard occupies Camp Roberts at the north end of the Subbasin. The California Department of Fish and Wildlife oversees an area along the Salinas River near Camp Roberts. The Department of Fish and Wildlife additionally has three conservation easements that partially overlie the eastern boundary of the Subbasin.

3.3.4 County Jurisdiction

The County of San Luis Obispo and the associated San Luis Obispo County Flood Control and Water Conservation District (SLOFCWCD) have jurisdiction over the entire Subbasin. Land owned or managed by the County in the Subbasin includes a conservation easement south of the City of Paso Robles operated by the Land Conservancy of San Luis Obispo County; CW Clark Park in Shandon; and Wolf Property Natural Area in San Miguel.

3.3.5 City and Local Jurisdictions

The City of Paso Robles lies on the west side of the Subbasin. The City has water management authority over its incorporated area and manages a number of parks and recreational sites. One community service district exists in the Subbasin: the San Miguel CSD. Two primarily agricultural water districts exist in the Subbasin: the Shandon - San Juan Water District and the Estrella-El Pomar-Creston Water District.

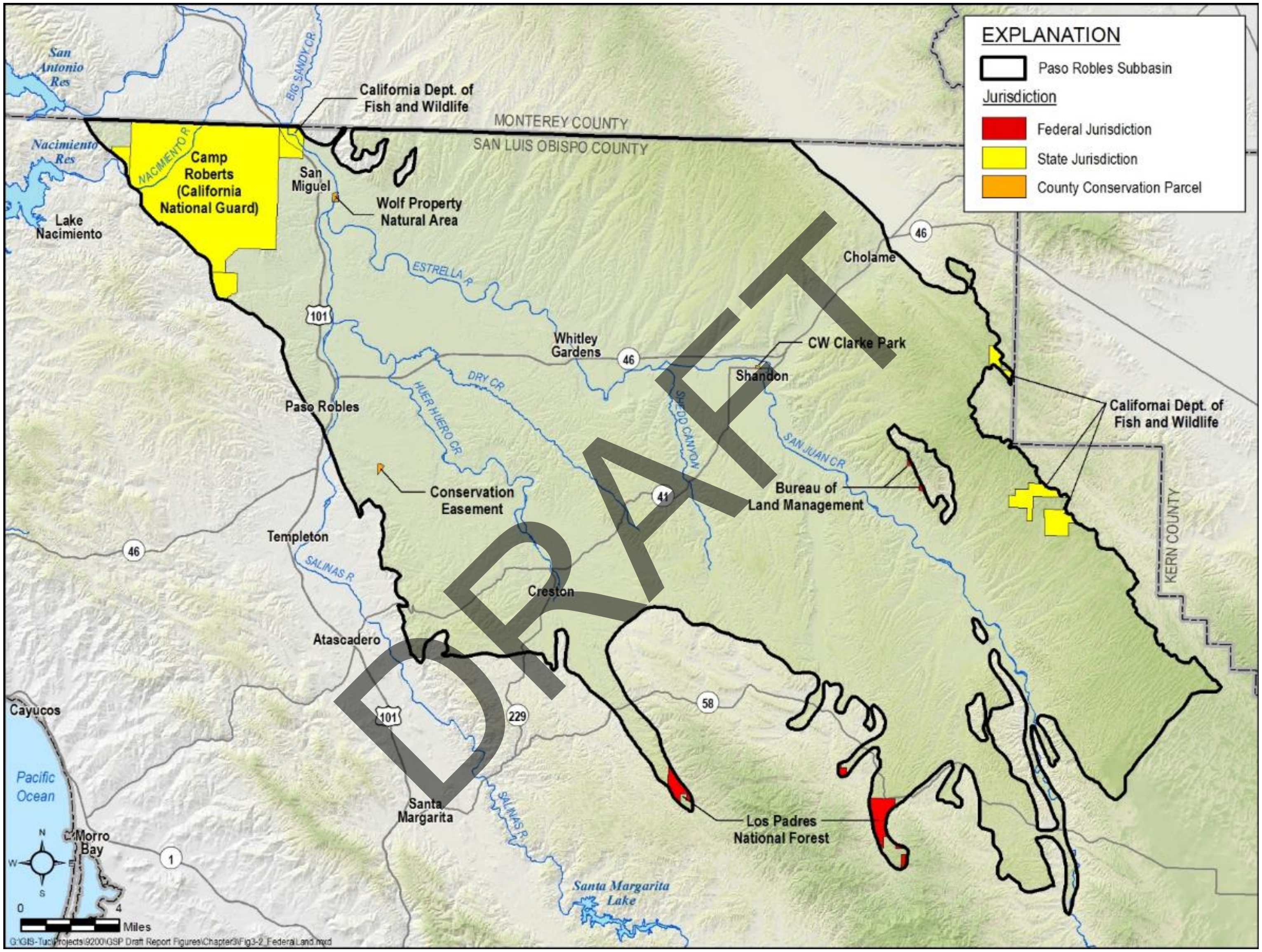


Figure 3-2. Map of Federal Jurisdictional Areas, State Jurisdictional Areas and County Conservation Parcels

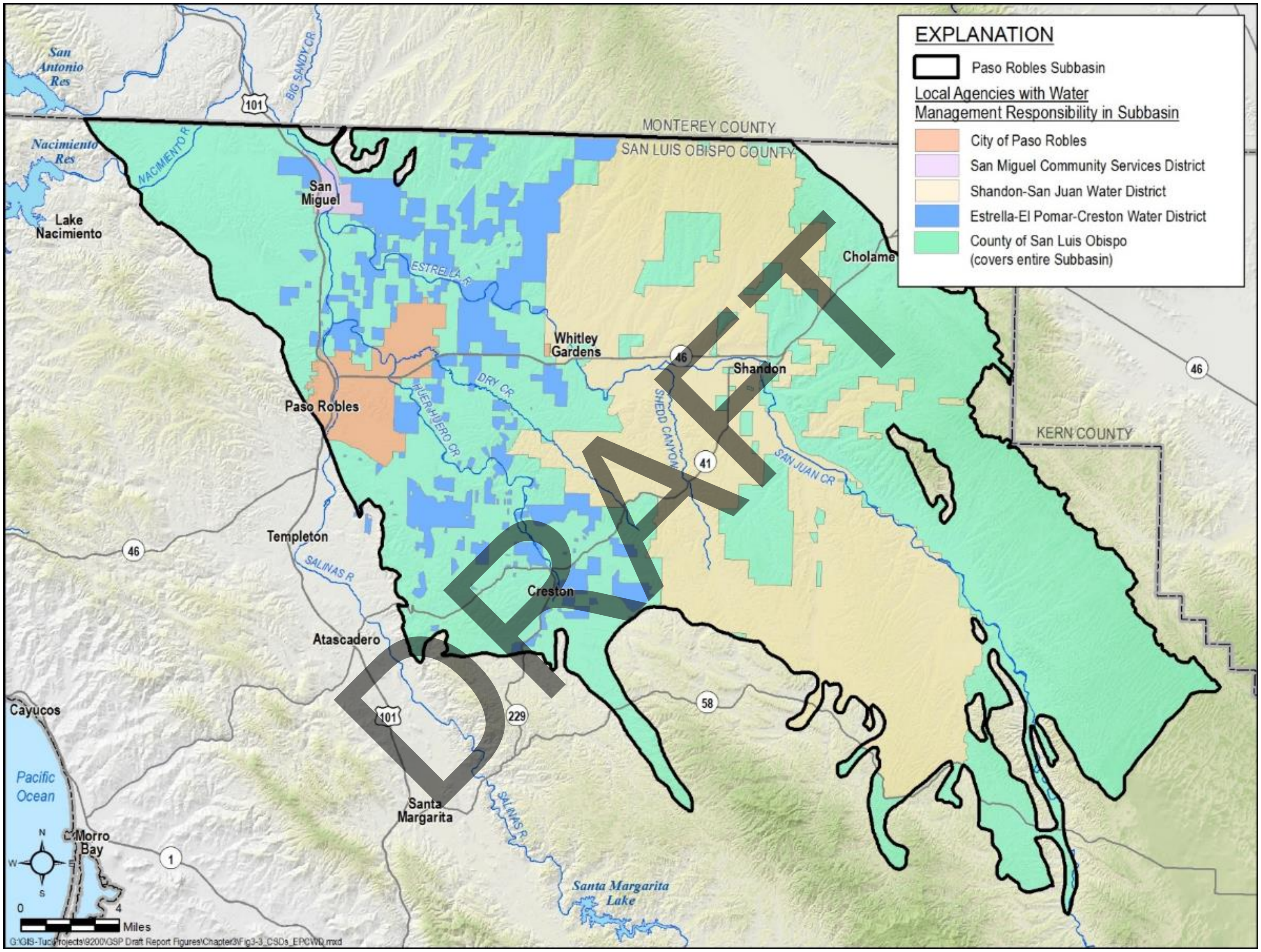


Figure 3-3. Map of City, CSD, and Water District Jurisdictional Areas

3.4 Land Use

Land use planning authority in the Subbasin is the responsibility of the City of Paso Robles (within its boundary) and of the County of San Luis Obispo (within all other areas of the Subbasin). Current land use in the Subbasin is shown on Figure 3-4 and is summarized by group in Table 3-1. The urban land use category is provided by DWR based on data compiled by Land IQ from 2014 (LandIQ, 2017). The agricultural land use categories and acreage is provided by the County of San Luis Obispo's Agricultural Commissioner's Offices (SLO County ACO) (2016). The balance of the 436,240 acres in the GSP Plan Area is classified as native vegetation and could include dry farmed land.

Table 3-1. Land Use Summary

Land Use Category	Acres
Citrus	397
Deciduous	471
Alfalfa	1,590
Nursery	63
Pasture	667
Vegetable	1,691
Vineyard	35,349
Native vegetation	387,435
Urban	8,577
Total	**436,240**

Sources: Department of Water Resources and County of San Luis Obispo's Agricultural Commissioner Offices

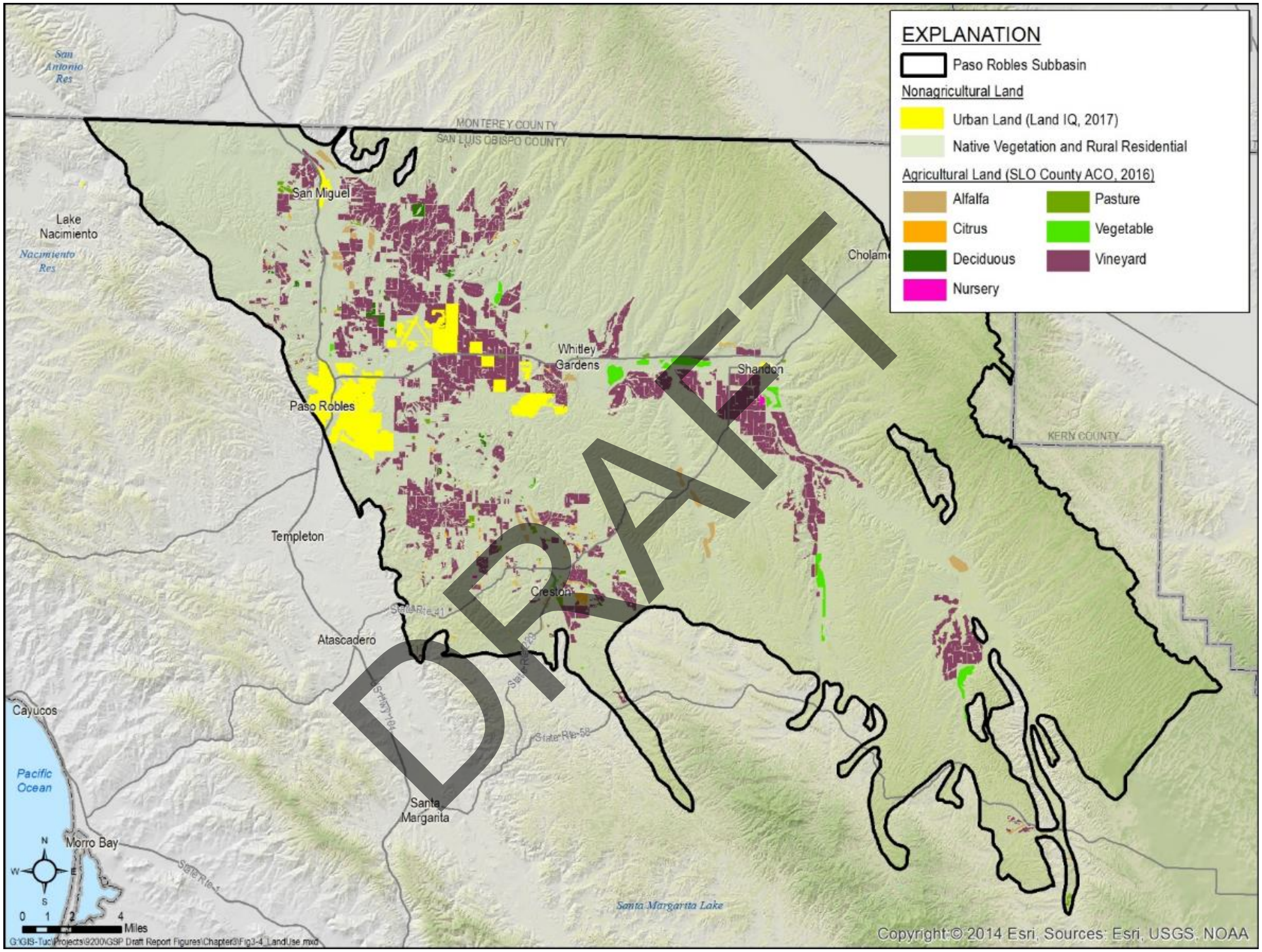


Figure 3-4. Existing Land Use Designations

3.4.1 Water Source Types

The Subbasin has three water source types: groundwater, surface water, and recycled water. Until 2015, all water demands in the Subbasin were met with groundwater. Figure 3-5 shows the communities, defined as cities and census-designated places that depend on groundwater as the source of water.

The City of Paso Robles began using Nacimiento Project Water in 2015. (Todd Groundwater, 2016). The City has a contractual entitlement to 6,488 acre-feet per year (AFY). Community Service Area 16 (CSA16), surrounding the community of Shandon, has a State Water Project (SWP) contract entitlement to 100 AFY from the Coastal Branch of the SWP. In 2017, CSA16 took delivery of 99 AF of water, which was the first delivery of SWP water. The locations of the pipelines supplying these water sources are shown on Figure 3-5, along with the land areas supplied by these surface water sources.

Historically, recycled water has not been used as a source of water in the Subbasin. The City of Paso Robles, San Miguel CSD, and Camp Roberts operate wastewater treatment plants. The City of Paso Robles is currently upgrading its water treatment system and plans to use its treated wastewater for irrigation and other non-potable uses. San Miguel CSD is also investigating non-potable use of wastewater. Currently, there is no land using wastewater as a water source type.

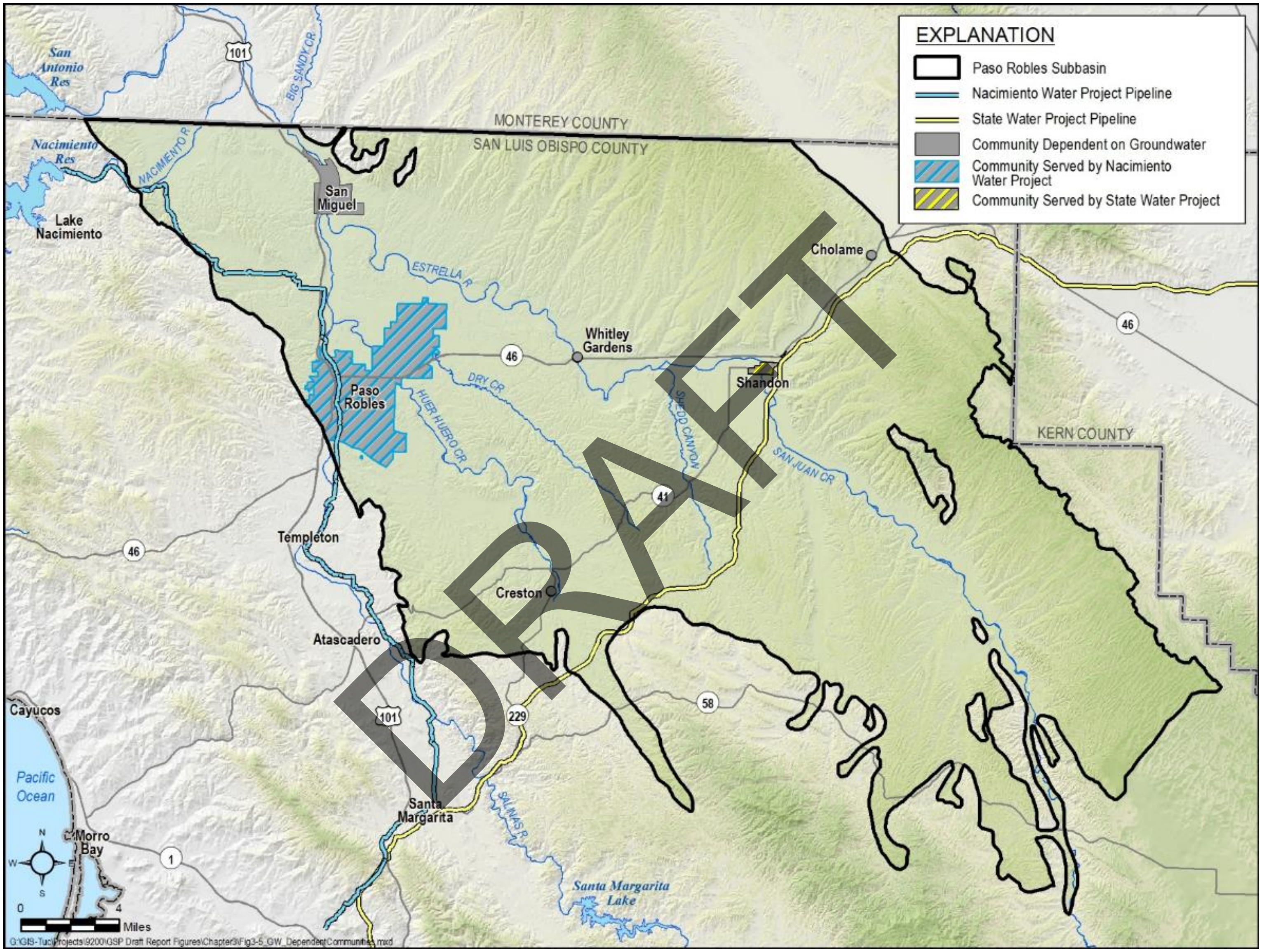


Figure 3-5. Communities Dependent on Groundwater and With Access to Surface Water

3.4.2 Water Use Sectors

Water demands in the Basin are organized into the six water use sectors identified in the SGMA Regulations. The urban, agricultural, and native vegetation areas are the same as the land use categories that were defined in Figure 3-4 and Table 3-1. These are:

- **Urban**. Urban water use is assigned to non-agricultural water uses in the cities and census-designated places. Domestic use outside of census-designated places is not considered urban use.
- **Industrial**. There is limited industrial use in the Subbasin. DWR does not have any records of wells in the subbasin that are categorized as for industrial use. Most industrial use is associated with agriculture and is lumped into the agricultural water use sector.
- **Agricultural**. This is the largest water use sector in the Subbasin by water use.
- **Managed wetlands**. There are no managed wetlands in the Subbasin.
- **Managed recharge**. There is no managed recharge in the Subbasin. Recycled water discharge to ponds is included in the urban water use sector
- **Native vegetation.** This is the largest water use sector in the Subbasin by land area. This sector, required by the SGMA Regulations, includes rural residential areas. Native vegetation is the term used in the SGMA Regulations for all other unmanaged and non-irrigated land use sectors.

Figure 3-6 shows the distribution of the water use sectors in the Subbasin.

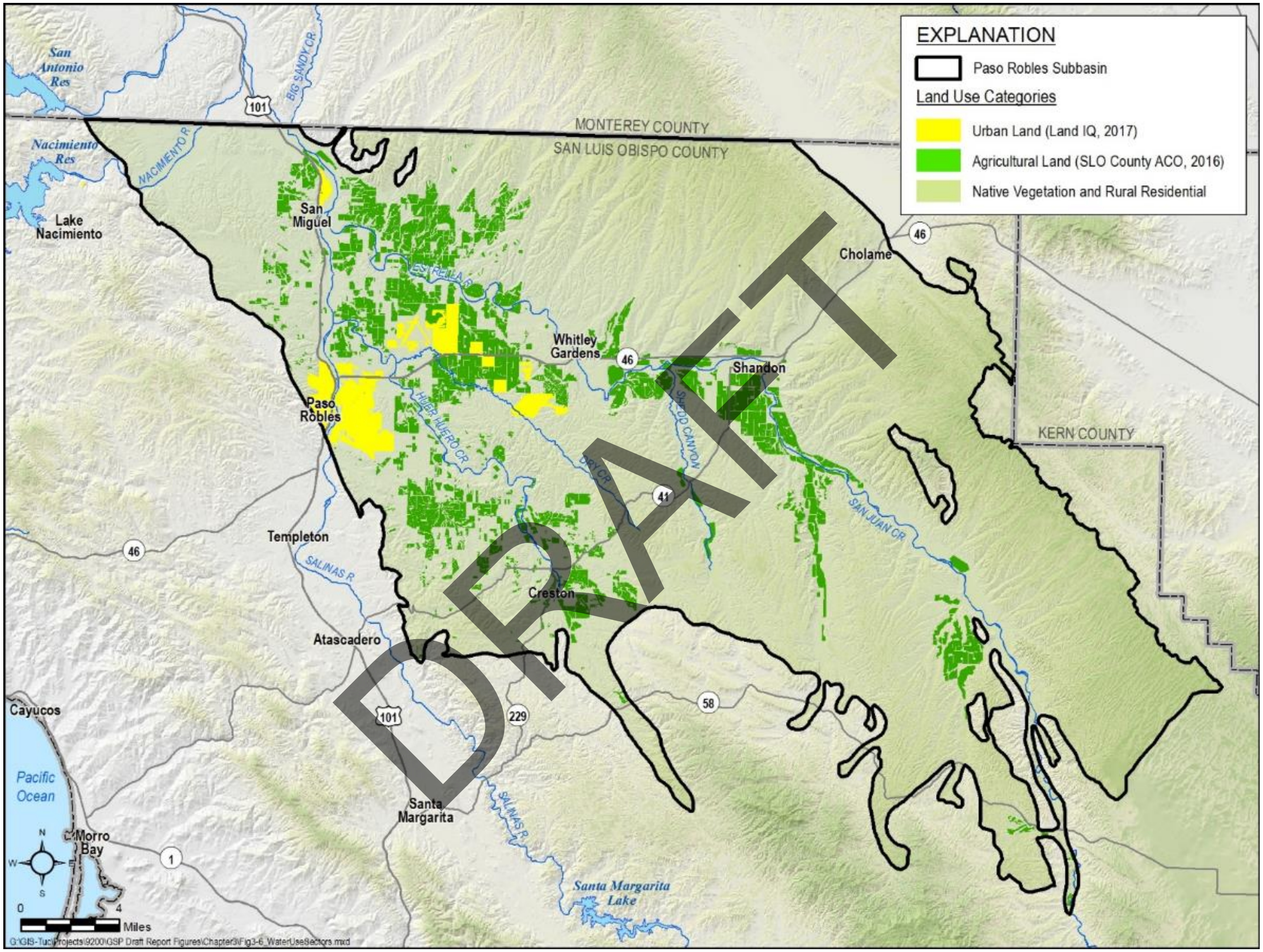


Figure 3-6. Water Use Sectors

3.5 Existing Well Types, Numbers, and Density

The total number of existing and active wells is not known. Well types, well depth, and well distribution data were downloaded from DWR's well completion report map application. (DWR, 2018). DWR provided this information specifically for developing GSPs. DWR categorizes wells in this mapping application as either domestic, production, or public supply. These categories are based on the well use information submitted with the well logs to DWR. The majority of the wells categorized on well logs as production wells are used for agriculture. Most of the wells in the Subbasin are used for domestic purposes.

Figure 3-7 through Figure 3-9 show the density of these DWR wells in the Subbasin by their types of use. These DWR data used to develop these maps are not the same set of well data from other sources listed below. DWR data were used to develop maps of well densities because they are organized for easy mapping of well density per square mile. These maps should be considered representative of well distributions, but not definitive.

In addition to DWR datasets, described above, other well information is available from other public databases. Many wells in these databases may have been destroyed or abandoned. Some wells are located in more than one database. Additionally, it is possible that some wells exist in multiple sources listed below due to multiple well naming conventions. The number of wells in each database are listed below. These numbers are updated as of June 12, 2019 and contain duplicates (i.e. each well was included in the count for every source the well was found):

- Online System for Well Completion Reports (OSWCR): 5,854 wells
- SGMA Data Viewer: 20 wells
- SLO County Public Data: 41wells
- SLO County Confidential Data: 193 wells
- SLO County Public Health Department Data Request: 207 wells
- City of Paso Robles: 1 well
- CASGEM: 9 wells

Finally, the County of SLO Public Health Department has a well inventory database of wells permitted between 1965 and the present. The database is based on the best available historical data compiled from the Environmental Health Services well construction permit application process. Of the 5,164 wells documented in the subbasin, most are domestic wells, and approximately 600 are irrigation wells (County of SLO Public Health Department, June 2019).

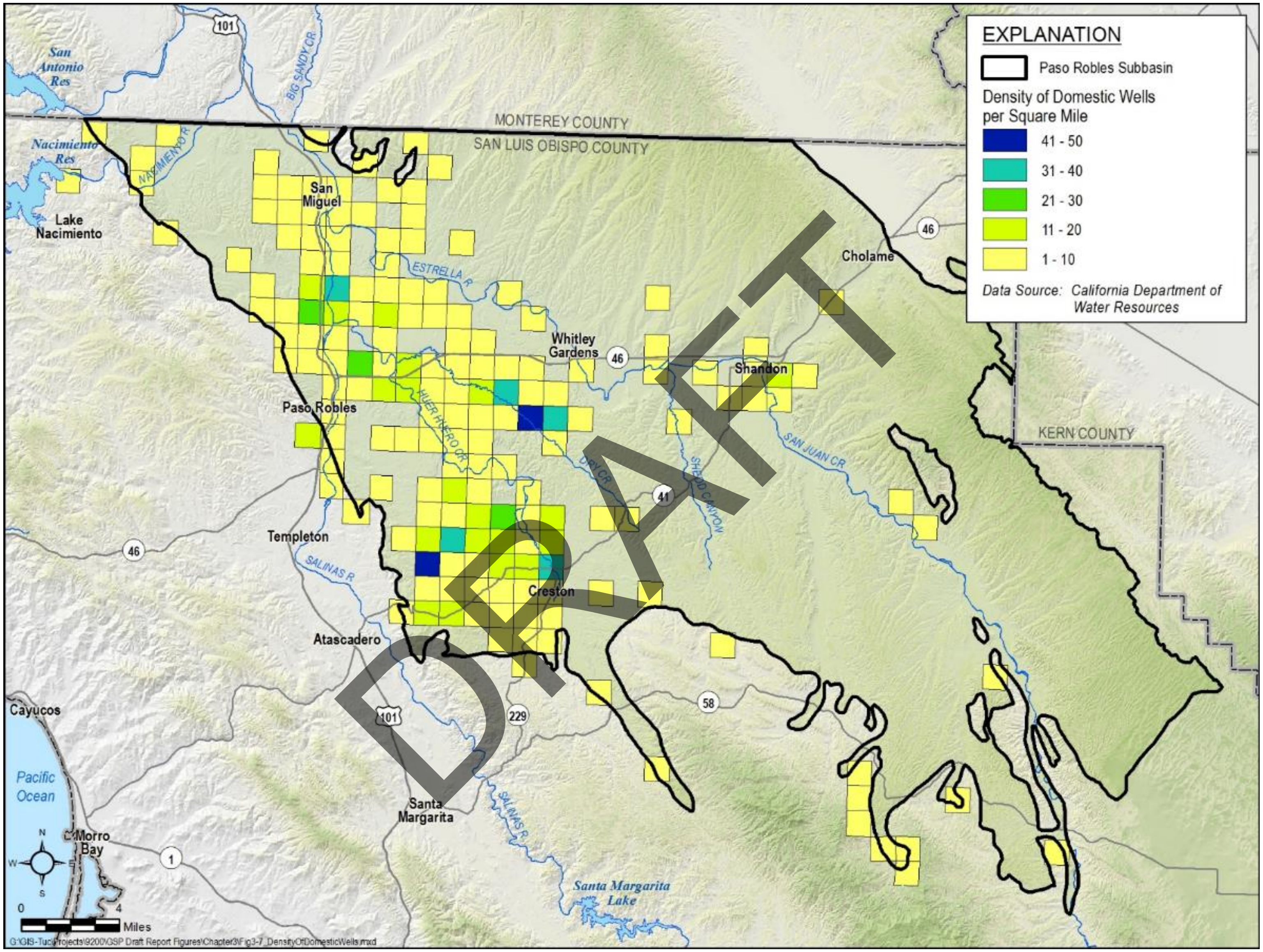


Figure 3-7. Density of Domestic Wells per Square Mile

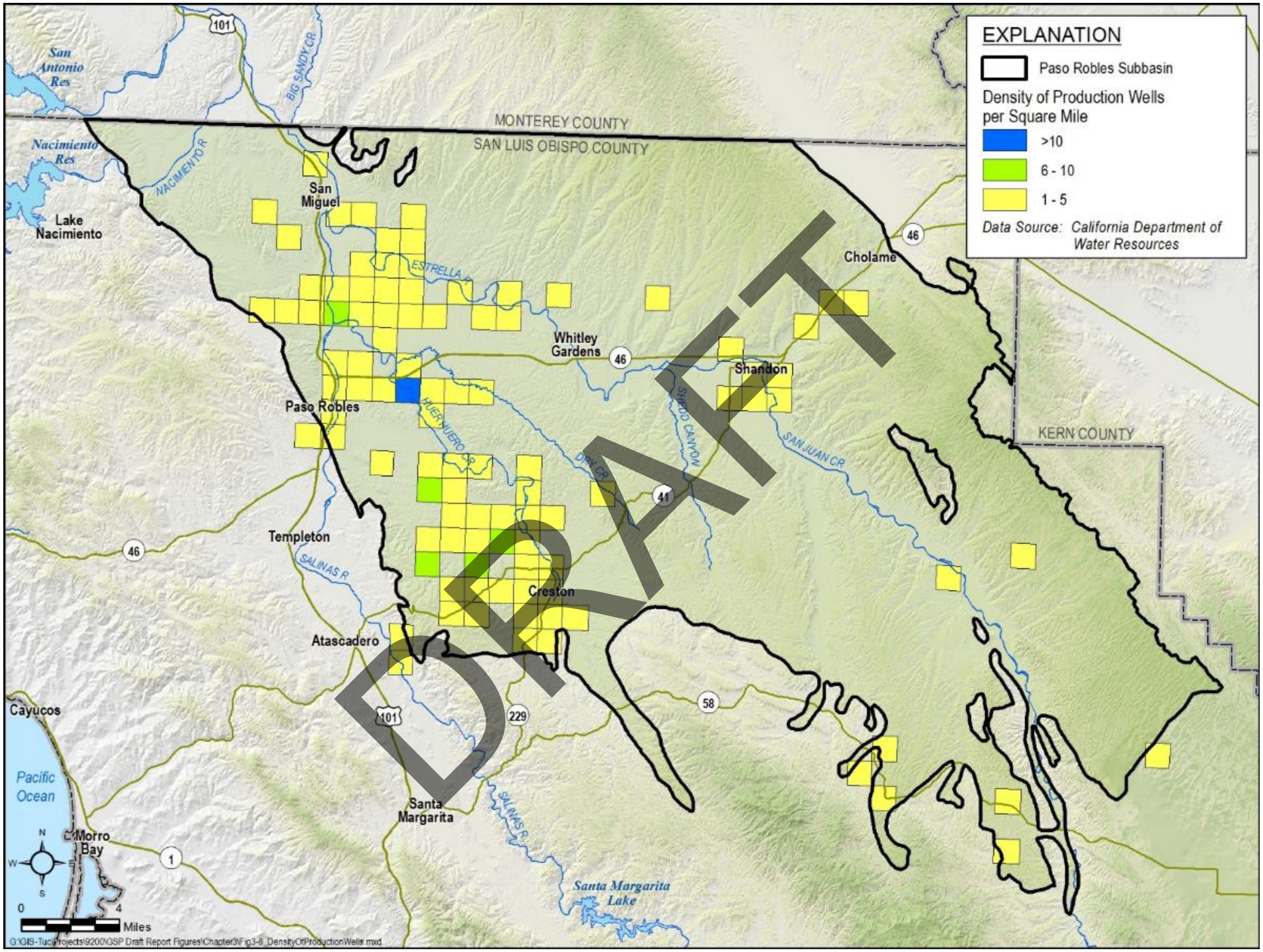


Figure 3-8. Density of Production Wells per Square Mile

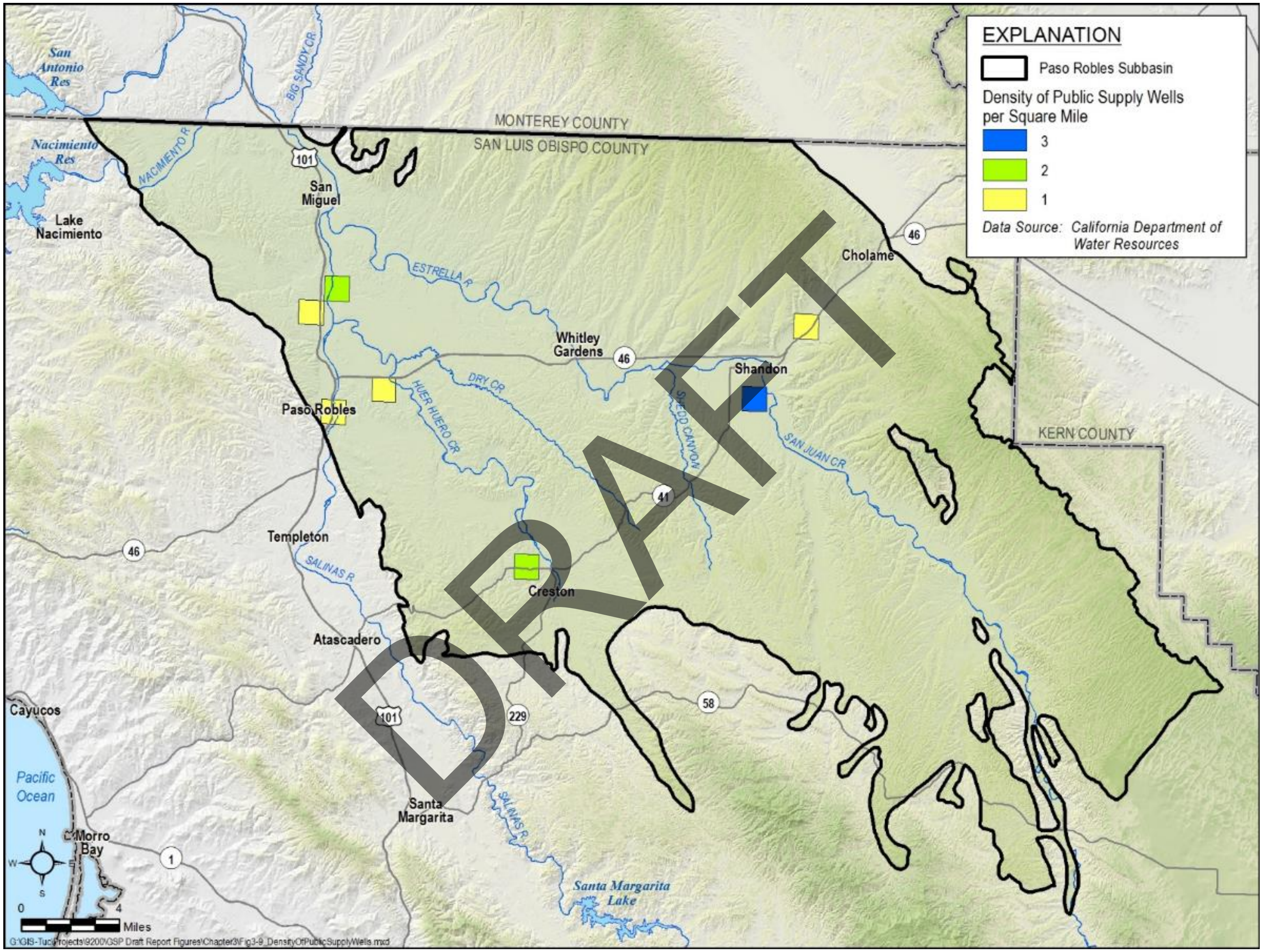


Figure 3-9. Density of Public Water Supply Wells per Square Mile

3.6 Existing Monitoring Programs

3.6.1 Groundwater Level Monitoring

The SLOFCWCD has been monitoring groundwater levels county-wide on a semi-annual basis for more than 50 years to support general planning and for engineering purposes. Groundwater level measurements are taken once in the spring and once in the fall. The monitoring takes place from a voluntary network of wells. The voluntary monitoring network has changed over time as access to wells has been lost or new wells have been added to the network.

The U.S. Geological Survey (USGS) monitors groundwater levels at two monitoring wells in the Basin. The two wells in the Paso Robles Subbasin only have one measurement, collected in November 2017. The frequency for monitoring is given as “periodic” so the frequency is unknown at this time.

Routine monitoring of groundwater levels is conducted in the Subbasin by County Staff through the SLOFCWCD program. Figure 3-10 shows the locations of monitoring wells in the SLOFCWCD’s database that are designated as public and the locations of monitoring wells reported to the state’s California Statewide Groundwater Elevation Monitoring (CASGEM) system. The monitoring network also includes a number of other wells in the Plan Area that are not shown on this map as the data was gathered under confidentiality agreements between monitoring network participants and SLOFCWCD. Additional evaluation of the current monitoring program was conducted for the GSP to establish a representative monitoring network of wells with public data that will be used during plan implementation to track groundwater elevations and ensure that minimum thresholds, described in Chapter 8, Sustainable Management Criteria, have not been exceeded.

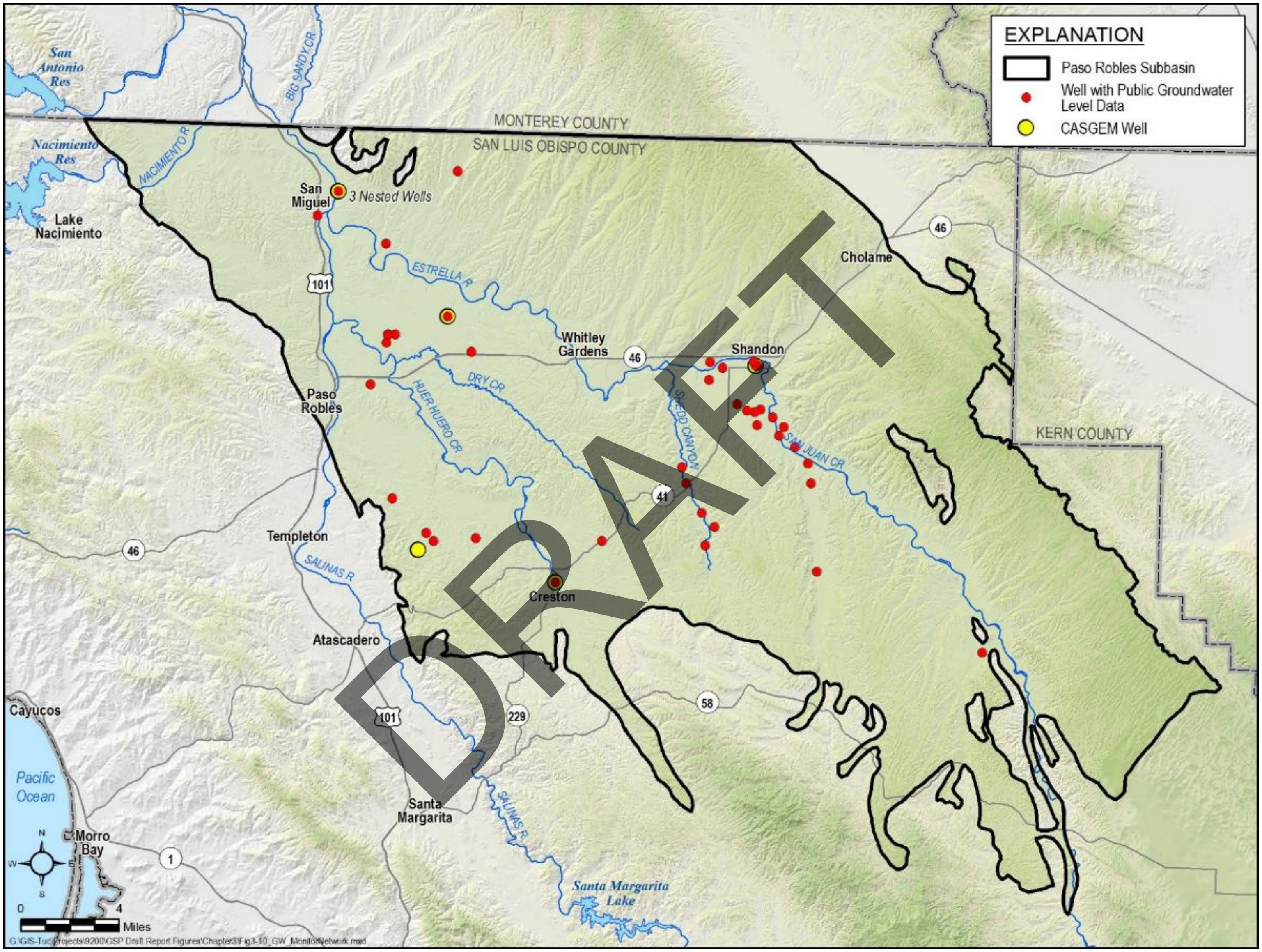


Figure 3-10. Wells with Publicly Available Groundwater Level Data

3.6.2 Groundwater Quality Monitoring

Groundwater quality is monitored under several different programs and by different agencies including:

- Municipal and community water purveyors must collect water quality samples on a routine basis for compliance monitoring and reporting to the California Division of Drinking Water.
- The USGS collects water quality data on a routine basis under the Groundwater Ambient Monitoring and Assessment (GAMA) program. These data are stored in the State's GAMA/Geotracker system.
- The State Water Resources Control Board's 2009 Recycled Water Policy required the development of Salt Nutrient Management Plans for groundwater basins in California. This plan was developed in 2015 for the Paso Robles Subbasin (RMC, 2015).
- There are multiple sites that are monitoring groundwater quality as part of investigation or compliance monitoring programs through the Central Coast Regional Water Quality Control Board.

Figure 3-11 shows the location of wells in the State's GAMA Geotracker database. The USGS monitors groundwater quality at two monitoring wells in the Subbasin. Only one sample has been collected (in 2017) from each of the wells. The monitoring frequency is unknown.

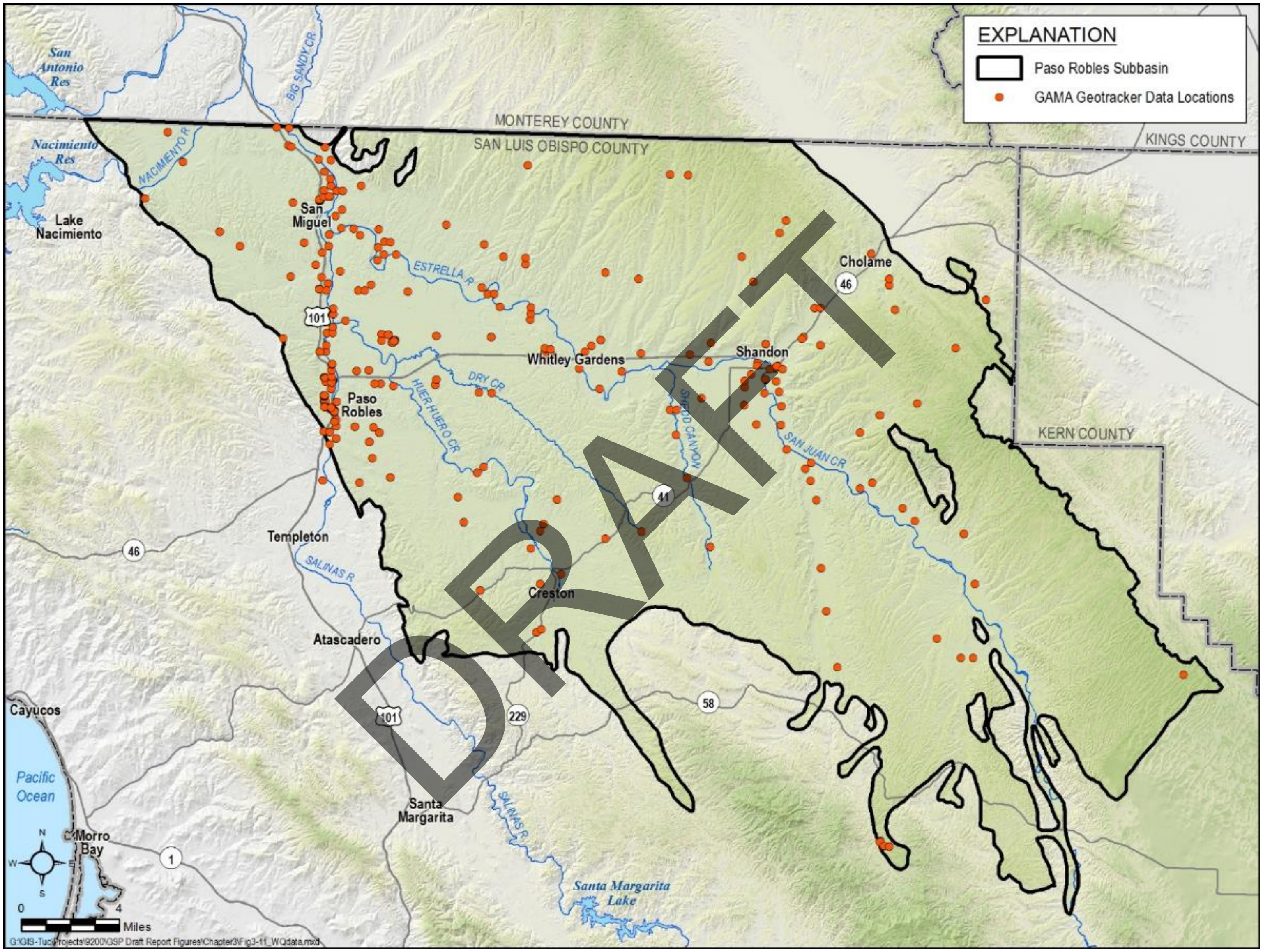


Figure 3-11. Groundwater Quality Monitoring Well Locations

3.6.3 Surface Water Monitoring

Stream gauges have historically been maintained and monitored by the USGS and the SLOFCWCD. Data are stored electronically in National Water Information System (NWIS) files and are retrievable from the USGS Water Resources Internet site.

The SLOFCWCD also stores electronic stream gauge data. There are various SLOFCWCD stream gauges surrounding the Subbasin, but no SLOFCWCD stream gauges lie within the Subbasin. Of the USGS stream gauges with historical data, only three gauges are currently active in the Subbasin:

- Salinas River above the City of Paso Robles,
- Estrella River near Estrella,
- Nacimiento River below the Nacimiento Dam near Bradley

A fourth stream gauge, the Salinas River gauge, lies at the base of Santa Margarita dam upstream of the Subbasin. This gauge is important for this GSP because it provides estimates of the streamflow released towards the Subbasin. Figure 3-12 shows the locations of the three active stream gauges in the Subbasin and the one SLOFCWCD gauge upstream of the Subbasin. These three stream gauges in the study area report daily average stream flows.

3.6.4 Climate Monitoring

Climate data are measured at seven stations located in the Subbasin. Data from these seven stations were obtained from the SLOFCWCD. The locations of the stations are shown on Figure 3-13. A discussion of climate will be provided in another chapter of the GSP (Chapter 6 – Water Budgets).

Figure 3-13 displays the long-term precipitation record at the Paso Robles station.

The Paso Robles precipitation station measures daily temperatures in addition to rainfall. The California Irrigation Management Information System (CIMIS) station number 163 in Atascadero measures a number of climatic factors that allow a calculation of daily reference evapotranspiration (ETo) for the area. Table 3-2 provides a summary of average monthly rainfall, temperature, and reference ETo for the Basin.

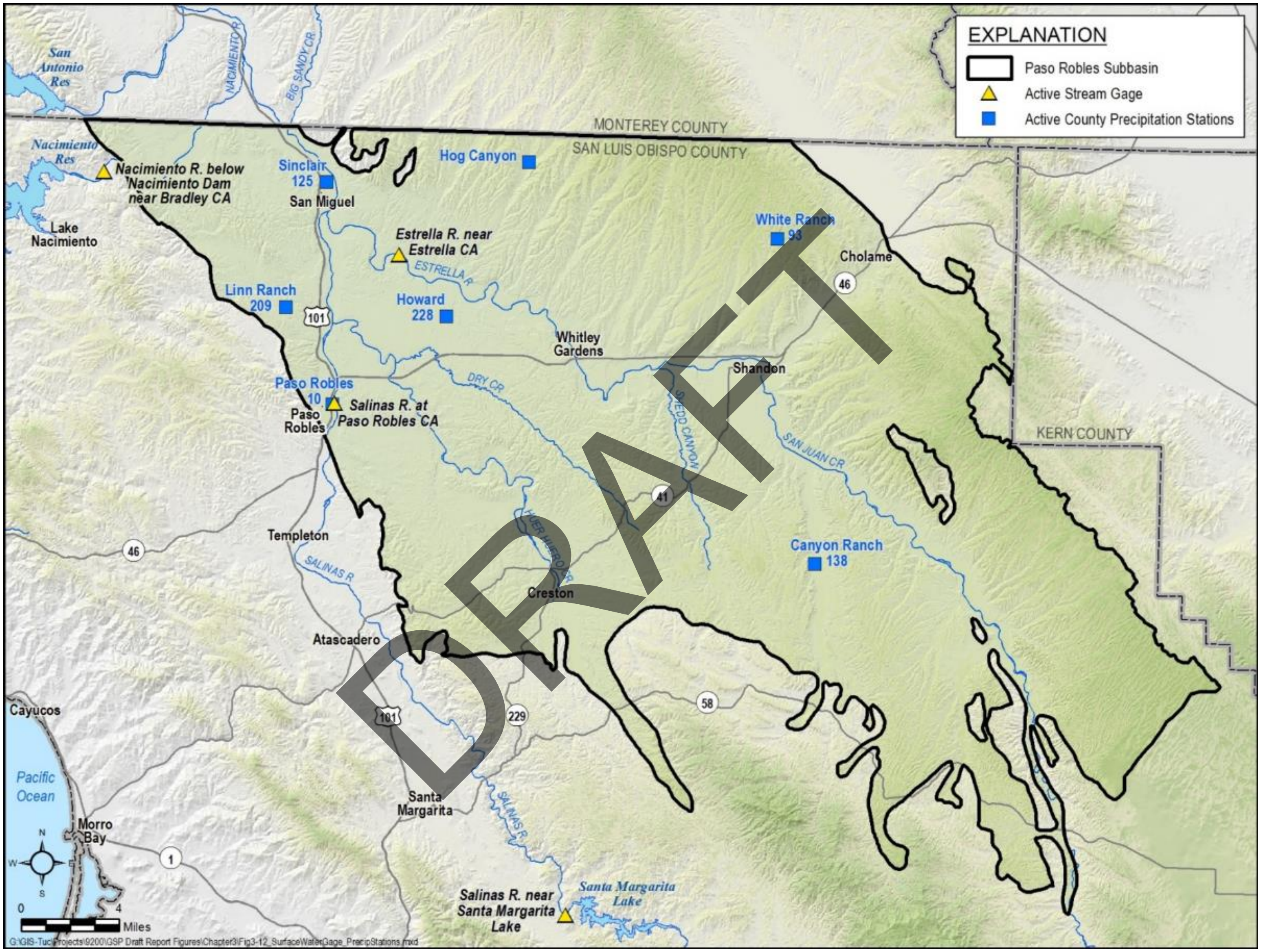


Figure 3-12. Surface Water Gauging and Precipitation Stations

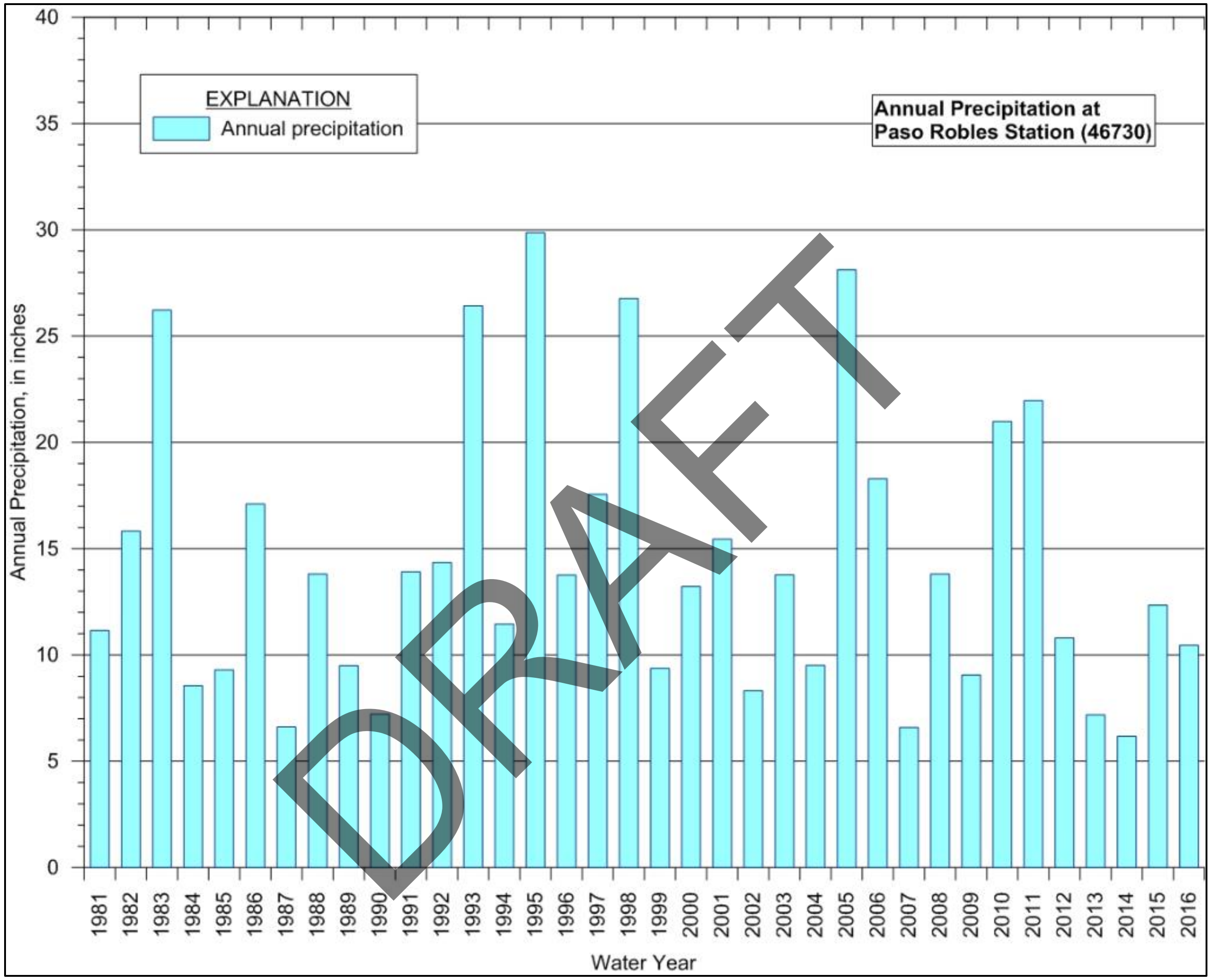


Figure 3-13. Annual Precipitation at the Paso Robles Station

Table 3-2. Average Monthly Climate Summary

Month	Average Rainfall (inches)[a]	Average ET_o (inches)[b]	Average Daily Temperature (F°)[c]
January	3.4	1.7	46.7
February	3.1	2.1	49.6
March	2.6	3.6	54.0
April	0.8	4.7	57.4
May	0.4	6.5	61.5
June	0.0	7.5	68.6
July	0.1	8.0	70.8
August	0.0	7.2	70.5
September	0.2	5.6	68.4
October	0.9	3.7	60.9
November	1.0	2.3	51.2
December	2.4	1.4	45.2
Monthly Average	1.2	4.5	-
Average Calendar Year[d]	15.0	54.5	58.7

[a] Average of monthly precipitation at Paso Robles Station 046730 for Jan 1989-Dec 2017 (NOAA NCDC).

[b] ETo = Average of monthly evapotranspiration at Paso Robles Station PR-1 for Jan 1989 through Dec 2017. PR-1 is operated by Western Weather Group. Data prior to Jan 2010 was compiled by Geoscience Support Services, Inc.

[c] Average daily temperature at Paso Robles Station (PR-1) for Jan 2010 through Dec 2017.

[d] Average Calendar Year is not the sum of monthly averages, but rather a historical annual average over the period of record.

3.6.4.1 Incorporating Existing Monitoring Programs into the GSP

The SLOFCWCD, the City of Paso Robles, and the City of San Miguel's monitoring programs provide a foundation of groundwater level data to develop the GSP. Chapter 7 of this GSP describes the long-term GSP Monitoring Program, including its relationship to the existing SLOFCWCD program.

The current water quality monitoring program for the production wells will be incorporated into this GSP to demonstrate that groundwater quality undesirable results do not occur based on data from a representative number of production wells. The existing stream gauges will also be incorporated into this GSP monitoring plan.

3.6.4.2 Limits to Operational Flexibility

The existing monitoring programs are not anticipated to limit the operational flexibility of this GSP.

3.7 Existing Management Plans

There are multiple groundwater and water management plans that cover the Subbasin. These plans are described in the following subsections, along with brief descriptions of how they relate to the management of current water supply, projected water supplies, and land use.

3.7.1 Groundwater Management Plan (2011)

The City of Paso Robles, having authority to manage the groundwater resources within their city limits, and SLOFCWCD, having authority to prepare a groundwater management plan within the unincorporated portions of the Paso Basin within San Luis Obispo County, developed a Groundwater Management Plan (GMP) (GEI, 2011) that is compliant with AB3030 and SB1938 legislation. The plan covered both the Atascadero and Paso Robles Subbasins but excluded the area between the San Juan and San Andreas Faults.

The GMP included a list of 73 groundwater management activities that could be implemented in the Subbasin. The groundwater management activities were grouped into various categories including stakeholder involvement, monitoring and data collection, resource protection, sustainability, and water management. The plan included an implementation schedule and a requirement for periodic updates.

3.7.2 San Luis Obispo County Master Water Report (2012)

The Master Water Report (MWR) (Carollo, 2012) is a compilation of the current and future water resource management activities being undertaken by various entities within San Luis Obispo County and is organized by Water Planning Areas (WPA). The MWR explores how these activities interrelate, analyzes current and future supplies and demands, identifies future water management strategies and ways to optimize existing strategies, and documents the role of the MWR in supporting other water resource planning efforts. The MWR evaluates and compares the available water supplies to the water demands for the different water planning areas. This was accomplished by reviewing or developing the following:

- Current water supplies and demands based on available information
- Forecast water demands and water supplies available in the future under current land use policies and designations
- Criteria under which there is a shortfall when looking at supplies versus demands

- Criteria for analyzing potential water resource management strategies, projects, programs, or policies
- Potential water resource management strategies, projects, programs, or policies to resolve potential supply deficiencies.

3.7.3 San Luis Obispo County Region Integrated Regional Water Management Plan (2014)

The San Luis Obispo County Integrated Regional Water Management Plan (IRWMP) was initially developed and adopted by the SLOFCWCD in 2005 (GEI Consultants, 2005), and has been updated several times. The 2014 IRWMP (San Luis Obispo County, 2014) included goals and objectives that provide the basis for decision-making and are used to evaluate project benefits. The goals and objectives reflect input from interested stakeholders on the region's major water resources issues.

The SLOFCWCD, in cooperation with the SLOFCWCD's Water Resources Advisory Committee (WRAC), prepared the IRWMP to align the region's water resources management planning efforts with the State's planning efforts. The IRWMP is used to support the Region's water resource management planning and submittal of grant applications to fund these efforts. The IRWMP integrated 19 different water management strategies that have or will have a role in protecting the region's water supply reliability, water quality, ecosystems, groundwater, and flood management objectives. The integration of these strategies resulted in a list of action items (projects, programs, and studies) needed to implement the IRWMP. The IRWMP is currently being updated, with a DWR submittal target date of October 2019.

3.7.4 Salt and Nutrient Management Plan for the Paso Robles Groundwater Basin (2015)

The City of Paso Robles, along with the City of Atascadero, San Miguel CSD, Templeton CSD, Heritage Ranch CSD, County of San Luis Obispo, and Camp Roberts, prepared a Salt and Nutrient Management Plan (SNMP) for the Subbasin in accordance with the State's 2009 Recycled Water Policy (RMC, 2015).

In the SNMP, baseline groundwater quality conditions were established as a framework under which salt and nutrient issues can be managed, and to streamline the permitting process of new recycled water projects while meeting water quality objectives and protecting beneficial uses. The SNMP will eventually be used by the Central Coast Regional Water Quality Control Board (CCRWQCB) to aid in the management of basin groundwater quality.

3.7.5 City of Paso Robles Urban Water Management Plan (2016)

The Urban Water Management Plan (UWMP) (Todd Groundwater, 2016) describes the City's current and future water demands, identifies current water supply sources, and assesses supply reliability for the City. The UWMP describes the City's reliance on groundwater and its support for efforts to mitigate or avoid conditions of overdraft by developing additional sources. The UWMP provides a forecast of future growth, water demand and water sources for the City through 2035. These sources include water conservation, surface water from Lake Nacimiento, and the use of recycled water for irrigation. The UWMP identifies beneficial impacts to groundwater quality through the use of these sources.

3.8 Existing Groundwater Regulatory Programs

There are several water-related regulatory programs in the Subbasin.

3.8.1 Salinas River Live Stream Agreement (SWRCB, 1972)

In 1972, the State Water Resources Control Board (SWRCB) issued a decision regarding the storage of water at Salinas Reservoir in order to protect vested downstream rights. The decision presumed that downstream rights would be met if a visible surface flow (i.e., a "live" stream) existed in the Salinas River between the Salinas Reservoir and the confluence with the Nacimiento River. If there was no live stream, then total daily inflow to the Salinas Reservoir was to be released to pass downstream.

The Live Stream Agreement was first implemented in 1972 using flow at the stream gauge on the Salinas River near the City of Paso Robles as an indicator of "live" stream conditions. In 1976, a set of six observation points was established to determine "visible surface flow". A seventh observation point, located immediately upstream of the Graves Creek confluence, was added in 1978. It is this seventh point that has always been the first point to go dry, triggering the live stream release period.

3.8.2 Groundwater Export Ordinance (2015)

In 2015, the County of San Luis Obispo passed an Exportation of Groundwater ordinance that requires a permit for the export of groundwater out of a groundwater basin or out of the County. An export permit is only approved if the Department of Public Works Director or his/her designee finds that moving the water would not have any adverse impacts to groundwater resources, such as causing aquifer levels to drop, disrupting the flow of neighboring wells or resulting in seawater intrusion. Export permits are only valid for one year.

3.8.3 County of San Luis Obispo Water Demand Offset Ordinance (2015)

In October 2015, the Board of Supervisors adopted the Ordinance and Resolution 2015-288. The Ordinance limited new or expanded irrigated agriculture in areas within the Subbasin except by offset of existing irrigated agriculture either on the same property or on a different property in the Subbasin. The Ordinance also identified areas of severe decline in groundwater elevation and properties overlying these areas would be further restricted from planting new or expanded irrigated agriculture except for those converting irrigated agriculture on the same property into a different crop type. Resolution 2015-288 established the Countywide Water Conservation Program (CWWCP). The CWWCP helps to substantially reduce increases in groundwater extraction in areas that have been certified Level of Severity (LOS) III.

In June 2019, the Board of Supervisors directed the County of San Luis Obispo Department of Planning and Building to develop recommendations for extending the Ordinance such that there is no gap between the expiration of the Ordinance and any pumping restrictions or controls that may be implemented as part of this GSP. The Department of Planning and Building is developing a two-phase extension. It is anticipated that the first phase will be presented to the Board of Supervisors in November, 2019, and will include a time extension as well as additions to the Ordinance that do not trigger significant review under CEQA. The second phase will likely be presented to the Board of Supervisors sometime in 2020, and will include Ordinance additions that may trigger more significant CEQA review.

3.8.4 Agricultural Order (RWQCB, 2017)

In 2017 the CCRWQCB issued Agricultural Order No. R3-2017-0002, a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Agricultural Order). The permit requires that growers implement practices to reduce nitrate leaching into groundwater and improve surface receiving water quality. Specific requirements for individual growers are structured into three tiers based on the relative risk their operations pose to water quality.

Growers must enroll, pay fees, and meet various monitoring and reporting requirements according to the tier to which they are assigned. All growers are required to implement groundwater monitoring, either individually or as part of a cooperative regional monitoring program. Growers electing to implement individual monitoring (i.e., not participating in the regional monitoring program implemented by the Central Coast Groundwater Coalition or CCGC) are required to test all on-farm domestic wells and the primary irrigation supply well for nitrate or nitrate plus nitrite, and general minerals, including, but not limited to, total dissolved solids (TDS), sodium, chloride and sulfate.

3.8.5 Water Quality Control Plan for the Central Coast Basins (SWRCB, 2017)

The Water Quality Control Plan for the Central Coastal Basin (Basin Plan) was most recently updated in September 2017. The objective of the Basin Plan is to outline how the quality of the surface water and groundwater in the Central Coast Region should be managed to provide the highest water quality reasonably possible.

The Basin Plan lists beneficial users, describes the water quality which must be maintained to allow those uses, provides an implementation plan, details SWRCB and CCRWQCB plans and policies to protect water quality and a statewide surveillance and monitoring program as well as regional surveillance and monitoring programs.

Present and potential future beneficial uses for inland waters in the Basin are: surface water and groundwater as municipal supply (water for community, military or individual water supplies); agricultural; groundwater recharge; recreational water contact and non-contact; sport fishing; warm fresh water habitat; wildlife habitat; rare, threatened or endangered species; and, spawning, reproduction, and/or early development of fish.

Water Quality Objectives for both groundwater (drinking water and irrigation) and surface water are provided in the Basin Plan.

Total Maximum Daily Load (TMDLs) requirements have been developed for Fecal Indicator Bacteria and Alternative Implementation Program for the Cholame Creek Watershed and Lower San Antonio River Subwatershed in San Luis Obispo and Monterey Counties. A TMDL for boron in the Estrella River Subwatershed, San Luis Obispo and Monterey Counties has also been developed. A TDML for to the Upper Salinas River has not been developed.

The Basin Plan identified actions to be implemented in the Basin, including:

- Dischargers along the Salinas River should remain as separate treatment facilities with land disposal to evaporation/percolation systems and land application (irrigation) systems where possible. Disposal should be managed to provide maximum nitrogen reduction (e.g., through crop irrigation or wet and dry cycle percolation).
- The City of Paso Robles owns and operates a nominal 5 mgd secondary wastewater treatment plant. Treated wastewater is discharged to the Salinas River channel. Beneficial use of reclaimed water should be investigated and implemented, if feasible.
- The City of Paso Robles also owns and operates the wastewater facility serving the California Youth Authority and Paso Robles Airport. Wastewater from the California Youth Authority is currently treated at the City of Paso Robles' WWTP. This wastewater is part of the Recycled Water project that is currently in construction.

3.8.6 Requirements for New Wells

In October, 2017, Governor Brown signed Senate Bill (SB) 252 which became effective on January 1, 2018. SB 252 requires well permitting authorities to request certain information, such as depth of the proposed well, identification of existing wells on the property, the planned category of water use and the estimated cumulative extraction volume before January 1, 2020, from a well permit applicant to construct a new well within a critically overdrafted basin and to post the information provided. The law is subject to certain exceptions, such as the applicant would be a *de minimis* extractor, the proposed well is a replacement well that would not result in an increase in extraction, or the proposed well is located within an area subject to a GSP. The requirements set forth in SB 252 become inoperative on January 30, 2020.

3.8.7 Title 22 Drinking Water Program (SWRCB)

The SWRCB Division of Drinking Water (DDW) regulates public water systems in the State to ensure the delivery of safe drinking water to the public. A public water system is defined as a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. Private domestic wells, wells associated with drinking water systems with less than 15 residential service connections, industrial and irrigation wells are not regulated by the DDW. County of SLO Environmental Health has primacy and regulates smaller community systems less than 200 connections.

The SWRCB-DDW enforces the monitoring requirements established in Title 22 of the California Code of Regulations (CCR) for public water system wells, and all the data collected must be reported to the DDW. Title 22 also designates the regulatory limits (known as maximum contaminant levels [MCLs]) for various waterborne contaminants, including volatile organic compounds, non-volatile synthetic organic compounds, inorganic chemicals, radionuclides, disinfection byproducts, general physical constituents, and other parameters.

3.9 Monitoring and Management Programs with GSP

3.9.1 Incorporation into GSP

Information in these plans have been incorporated into this GSP and used during the preparation of Sustainability Goals, when setting Minimum Thresholds and Measurable Objectives, and were considered during development of Projects and Management Actions. This GSP specifically incorporates the following plans and programs, described above:

- The Salt and Nutrient Management Plan for the Paso Robles Groundwater Basin is incorporated into the existing conditions and the Sustainable Management Criteria

- The County of San Luis Obispo Water Demand Offset Ordinance is acknowledged as an important tool for controlling new land uses dependent on groundwater until groundwater management controls can be finalized as part of GSP implementation.
- The Salinas River Live Stream Agreement requirements are incorporated in the Sustainable Management Criteria and projects as a restriction on surface water use
- The Groundwater Export Ordinance is incorporated as a limitation on groundwater use in the Projects and Management Actions
- Agricultural Order (CCRWQCB, 2017) is incorporated into the monitoring plan and Sustainable Management Criteria as monitoring locations for agricultural water quality

3.9.2 Limits to Operational Flexibility

Some of the existing management plans and ordinances will limit operational flexibility. These limits to operational flexibility have already been incorporated into the sustainability projects and programs included in this GSP. Examples of limits on operational flexibility include:

- The Groundwater Export Ordinance prevents export of water out of the Subbasin. This is likely not a significant limitation because exporting water out of the Subbasin hinders sustainability.
- The Basin Plan and the Title 22 Drinking Water Program restrict the quality of water that can be recharged into the Subbasin.

3.9.3 Conjunctive Use Programs

There are no active conjunctive use programs currently operating within the Subbasin.

3.10 Land Use Plans

The County of San Luis Obispo, the City of Paso Robles and Camp Roberts have land use authority. The GSAs do not have land use authority by virtue of being GSAs. Land use is an important factor in water management as described below. The following sections provide a general description of these land use plans and how implementation may affect groundwater. Per statute, when there is a substantial amendment to a city or county's general plan, the planning agency must review and consider the GSP.

3.10.1 City of Paso Robles General Plan (2011)

The City of Paso Robles General Plan is the fundamental land use policy document of the City of Paso Robles. The City's General Plan was developed to address several areas within the City's Planning Area; which includes areas defined as City Limits, the Sphere of Influence, and the

Planning Impact Area. The City's General Plan defines the framework by which the City's physical and economic resources are to be managed and used in the future. This City General Plan has a planning horizon of 2025.

Present City policy recommends that residential growth be managed toward a target population of 44,000 in 2025. Most growth is anticipated to occur within the existing City limits where services and public facilities are available. Additional growth is likely to occur in the urban area east of the Salinas River, but minor annexations to the City would be necessary in order to fully develop at the densities recommended in the City's General Plan.

3.10.2 San Luis Obispo County General Plan (2014)

The County of San Luis Obispo General Plan contains three pertinent elements that are related to land use and water supply. Pertinent sections include:

- Land Use Element
- Agricultural Element
- Inland Area Plans Element

The County General Plan also contains programs which are specific, non-mandatory actions or policies recommended by the Land Use and Circulation Element (LUCE) to achieve community or area wide objectives. Implementing each LUCE program is the responsibility of the County or other public agency that is identified in the program. Because programs are recommended actions rather than mandatory requirements, implementation of any program by the County should be based on consideration of community needs and substantial community support for the program and its related cost.

The LUCE, adopted in 2014, consolidates and reorganizes the former Adelaida, El Pomar-Estrella, Las Pilitas, Nacimiento, and Salinas River planning areas, and the northern portions of the Los Padres and Shandon-Carrizo planning areas, into a single watershed-based planning area called the North County planning area. The Planning Area does not conform to the Subbasin boundaries but does provide a general representation of the land use in the area.

Article 9 and Article 10 of the LUCE incorporates a number of community plans that were developed for the communities in the Subbasin. These include the Creston Village Plan, the North County Villages Plan, the San Miguel Community Plan, and the Shandon Community Plan.

The County General Plan identifies land use types and acres within the North County planning area. The data from the 2014 update are summarized on Table 3-3.

Table 3-3. Land Use Acreage

Land Use Category	Adelaida	El Pomar-Estrella	Las Pilitas	Los Padres North	Nacimiento	Salinas River	Shandon[2]	Total
Agriculture	152,715	104,762	21,270	11,613	36,049	52,954	348,569	**727,932**
Rural Lands	26,711	14,613	3,528	21,133	31,334	7,945	3,941	**109,205**
Recreation	277	0	460	0	2,725	664	0	**4,126**
Open Space	1,352	0	3,520	74,943	9,954	13,630	1,421	**104,820**
Residential Rural	77	11,816	625	0	2,363	5,530	170	**20,581**
Residential Suburban	0	363	0	0	0	82	0	**445**
Residential Single Family	0	0	0	0	0	22	0	**22**
Residential Multi-Family	0	0	0	0	0	0	0	**0**
Commercial Retail	0	0	8	0	0	5	3	**16**
Commercial Service	0	0	0	0	0	87	3	**90**
Industrial	0	0	0	0	0	20	0	**20**
Public Facilities	26,146	2	0	0	0	86	0	**26,234**
Dalidio Ranch	0	0	0	0	0	0	0	**0**
Total	**207,278**	**131,556**	**29,411**	**107,689**	**82,425**	**81,025**	**354,107**	**993,491**

[1]Acreage quantities are current as of the last major update to each of the former North County area plans (refer to Table 1-1).
[2]Northern half of the former Shandon-Carrizo planning area.

Projected growth in the planning subareas in the Subbasin as defined in the County General Plan includes:

- The City of Paso Robles population in 1995 was estimated to be 21,539, or 15.9 percent above the population of 18,138 in 1990, increasing at an average annual growth rate of 3.1 percent.
- Population in the Adelaida sub-area has been steadily increasing, but slower than the county as a whole. This pattern will likely continue, declining slightly as countywide growth also declines.
- The Las Pilitas sub-area's present population is estimated to be 1,101. Since the sub- area contains no urban areas, a large population increase is not expected. Population growth in the Las Pilitas sub-area has been slightly less than 2 percent per year and is expected to slowly decline as the countywide growth rate also declines.

The SLO County Planning Department estimated potential water demands from rural residential areas in the County. They assumed that a reasonable ultimate build-out equates to development of 75 percent of all possible parcels currently zoned for rural residential areas. This would result in a rural residential demand of just over 37,000 AFY. This estimate includes small community water systems. If ultimate build-out occurred by 2025, the annual growth rate would be an unrealistic 12.8 percent. In order to determine the demand in 2025, a growth rate of 2.3 percent per year was assumed. As a result, the County estimated rural residential pumping in 2025 will be 16,504 AF, which is 44 percent of ultimate build-out.

An overarching assumption in this plan is that any future increases in groundwater use within the Subbasin will be offset by equal reductions in groundwater use in other parts of the Subbasin, or in other words, groundwater neutral through implementation of the GSP.

In addition, in 1990, the County created the Resource Management System (RMS) with the purpose of establishing a process whereby development could be sustained through planned resource management. The RMS focuses on collecting data, identifying issues and recommending solutions with respect to a number of resources, including water and sewage disposal. As part of the RMS, the County Planning and Building Department produces Biannual Resource Summary Reports (RSRs) and, under certain circumstances, Resource Capacity Studies (RCSs). When a resource deficiency becomes apparent, efforts are made to determine how the resource capacity might be expanded, where conservation measures could be introduced to extend the availability of the unused capacity, or where development should be limited or redirected to areas with remaining resource capacity.

The RMS uses resource-related data and analyses to classify resource deficiencies using three alert levels known as levels of severity (LOS). The criteria for each LOS in the context of water supply are as follows:

- LOS I is reached when water demand projected over 20 years equals or exceeds the estimated dependable supply.
- LOS II occurs when water demand projected over 15-20 years (or other lead time determined by an RCS) equals or exceeds the estimated dependable supply.
- LOS III is reached when water demand projected over 15 years (or other lead time determined by an RCS) equals or exceeds the estimated dependable supply or the time required to correct the problem is longer than the time available before the dependable supply is reached.

In 2007, the County Board of Supervisors directed staff to prepare an RCS for the water supply in the Paso Basin. The RCS addresses the state of the Paso Basin based on work already completed, which included:

- Paso Robles Groundwater Basin Study (Fugro, 2002)

- Paso Robles Groundwater Basin Study Phase II - Numerical Model Development, Calibration, and Application (Fugro, 2005)
- Evaluation of Paso Robles Groundwater Basin Pumping- Water Year 2006 (Todd, 2009)
- Paso Robles Groundwater Basin Water Balance Review and Update (Fugro, 2010)

These studies have calculated the water use by major water use sectors (agriculture, rural land uses, small commercial uses, municipal systems, and small community systems). These studies show that outflows exceed inflows on an average annual basis.

In February 2011, the County Board of Supervisors adopted the RCS, which recommended an LOS III for the Paso Basin and an LOS I for the Atascadero Basin. The RCS also recommended actions to include:

- Water conservation measures that will lead to more efficient water use.
- Land use controls that will reduce conflicts over the limited groundwater resource.

The RCS recognized various decision-making constraints that complicated potential actions by the County at that time, such as the limited regulatory role over water use throughout the entire basin. However, SGMA "…declares that it is vital that there be close coordination and consultation between California's water supply or management agencies and California's land use approval agencies to ensure that proper water supply and management planning occurs to accommodate projects that will result in increased demands on water supplies or impact water resource management." (Government Code 653525). Therefore it will be important to coordinate the County's land use authority with the planning and actions necessary to achieve the sustainability goals identified in local GSPs.

3.10.3 Camp Roberts Joint Land Use Study

Located north of the City of Paso Robles and spanning nearly 43,000 acres, Camp Roberts is one of the state's three main training bases for the California National Guard and trains more than 15,000 guardsmen in a typical year. Most of the base is in San Luis Obispo County, within the Subbasin, with the remainder in Monterey County. The Camp Roberts Joint Land Use Study was developed to improve communication between the installation and local communities about land use regulation and conservation decisions as well as natural resource management issues (Matrix Design Group, 2013).

The plan acknowledges groundwater supply planning must be coordinated to ensure viable water resources: "Groundwater supply is of great concern for San Luis Obispo and Monterey Counties. The increases in well drilling for development—residential, commercial, and agriculture—causes more concern in maintaining adequate levels of the Paso Robles Groundwater Basin.

Camp Roberts is a minimal user of the Basin, but development must be strategically planned to avoid unnecessary draws on the Basin."

The plan outlines the following monitoring activities related to water:

- Monitor surface water quality on Camp Roberts and throughout the watershed. Focus studies on the relationship between surface water and groundwater resources. Camp Roberts should allow collection of water samples on Camp Roberts by other agencies, if needed.

- Coordinate with local, regional and state water supply providers and permitting agencies to ensure continued availability of adequate potable water supplies. Identify primary users and anticipated needs through a future time period. Develop plans to sustain and manage water resources more efficiently and update plans regularly.

3.10.4 Land Use Plans Outside of Basin

The stakeholders submitting this GSP have not included information regarding the implementation of land use plans outside the Subbasin, as these adjacent subbasins are also required to implement SGMA and their GSPs will require them to achieve sustainable groundwater management.

4 HYDROGEOLOGIC CONCEPTUAL MODEL

This chapter describes the hydrogeologic conceptual model of the Paso Robles Subbasin, including the Subbasin boundaries, geologic formations and structures, and principal aquifer units. The chapter also summarizes general Subbasin water quality, the conceptual interaction between groundwater and surface water, and generalized groundwater recharge and discharge areas. This chapter draws upon previously published studies, primarily hydrogeologic and geologic investigations by Fugro Consultants Inc. completed for SLOFCWCD in 2002 and 2005. Subsequent groundwater model updates (GSSI 2014 and 2016), relied upon the original geologic interpretations (Fugro, 2002 and 2005), with the exception of the basin boundaries that are defined in accordance with Bulletin 118 (DWR 2003 and 2016). The Hydrogeologic Conceptual Model presented in this chapter is a summary of aspects of the Subbasin hydrogeology that influence groundwater sustainability based on available information. The basin understanding will be adapted as hydrogeology are better understood in the future. Detailed information can be found in the original reports (Fugro, 2002 and 2005). This chapter, along with Chapter 3 – Description of Plan Area, sets the framework for subsequent chapters on groundwater conditions and water budgets.

4.1 Subbasin Topography and Boundaries

The Subbasin is a structural northwest-trending trough filled with sediments that have been folded and faulted by regional tectonics. The top of the Subbasin is the ground surface. The elevation of the Subbasin ranges from approximately 2,000 feet above mean sea level (msl) at the southeastern corner to approximately 600 feet above msl in the northwest where the Salinas River exits the Subbasin.

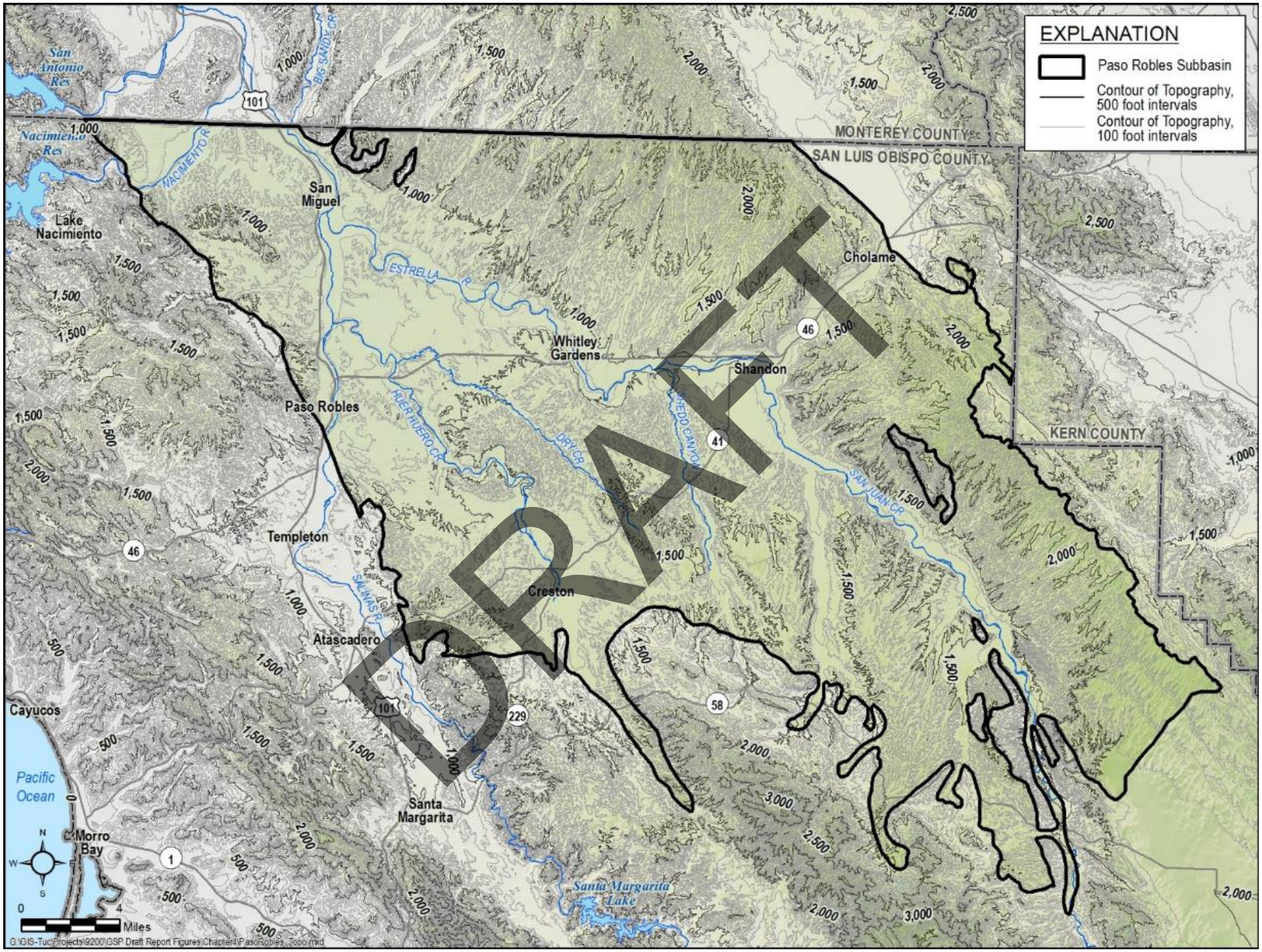


Figure 4-1. Paso Robles Subbasin Topography

Figure 4-1 shows the topography of the Subbasin using 100-foot contour intervals. The Subbasin is bounded by sediments with low permeability, sediments with poor groundwater quality, rock, and structural faults. In some areas the sediments of the Subbasin are continuous with adjacent subbasins.

The bottom of the Subbasin is generally defined as the base of the Paso Robles Formation, an irregular surface formed as the result of folding, faulting, and erosion (Fugro, 2002). The Subbasin bottom is not considered an absolute barrier to flow because some of the geologic units underlying the Paso Robles Formation produce sufficient quantities of water, but the water is generally of poor quality and therefore, is not considered part of the Subbasin. Figure 4-2 shows the lateral boundaries of the Subbasin and the approximate depth to the bottom of Paso Robles Formation in areas where it is saturated.

The Subbasin lateral boundaries are as follows:

- The western boundary of the Subbasin is defined by the contact between the sediments in the Subbasin and the sediments of the Santa Lucia Range. An additional section of the western boundary is defined by the San Marcos-Rinconada fault system which separates the Paso Robles Subbasin from the Atascadero Subbasin.
- The northern boundary of the Subbasin is defined by the county line between San Luis Obispo County and Monterey County. This boundary is not defined by a physical barrier to groundwater flow; water-bearing sediments are continuous with the Salinas Valley Upper Valley Subbasin in Monterey County.
- The eastern boundary of the Subbasin is defined by the contact between the sediments in the Subbasin and the sediments of the Temblor Range. The San Andreas Fault generally forms the northeastern Subbasin boundary, although the basin boundary was identified in the groundwater model as further west, in the area of the White Canyon/Red Hills/San Juan faults (Fugro, 2002).
- The southern boundary of the Subbasin is defined by the contact between the sediments in the Subbasin and the sediments of the La Panza Range. To the southeast, a watershed divide separates the Subbasin from the adjacent Carrizo Plain Basin; sedimentary layers are likely continuous across this divide.

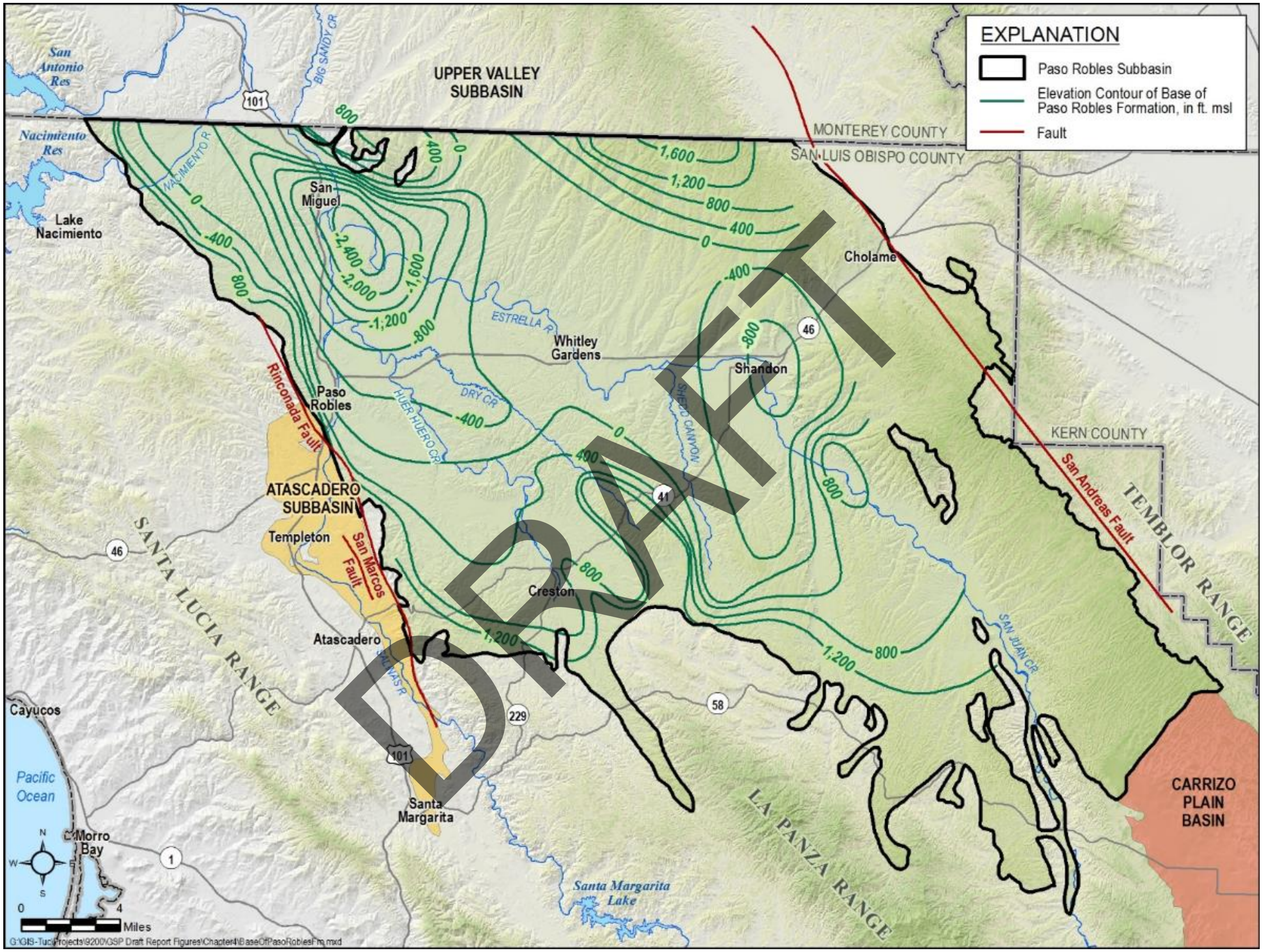


Figure 4-2. Base of Subbasin as Defined by the Base of the Paso Robles Formation

4.2 Soils Infiltration Potential

Saturated hydraulic conductivity of surficial soils is a good indicator of the soil's infiltration potential. Soil data from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey Geographic Database (SSURGO) (USDA NRCS, 2018) is shown by the four hydrologic groups on Figure 4-3. The soil hydrologic group is an assessment of soil infiltration rates that is determined by the water transmitting properties of the soil, which includes hydraulic conductivity and percentage of clays in the soil, relative to sands and gravels. The hydrologic soil group is "determined by the water transmitting soil layer with the lowest saturated hydraulic conductivity and depth to any layer that is more or less water impermeable or depth to a water table" (USDA NRCS, 2007).The groups are defined based on characteristics within 100 centimeters (40 inches) of the surface as:

- Group A – High Infiltration Rate: water is transmitted freely through the soil; soils typically less than 10 percent clay and more than 90 percent sand or gravel
- Group B – Moderate Infiltration Rate: water transmission through the soil is unimpeded; soils typically have between 10 and 20 percent clay and 50 to 90 percent sand
- Group C – Slow Infiltration Rate: water transmission through the soil is somewhat restricted; soils typically have between 20 and 40 percent clay and less than 50 percent sand
- Group D – Very Slow Infiltration Rate: water movement through the soil is restricted or very restricted; soil typically have greater than 40 percent clay, less than 50 percent sand

The hydrologic group of the soil generally correlates with the hydraulic conductivity of underlying geologic units, with lower soil hydraulic conductivity zones correlating to areas underlain by clayey portions of the Paso Robles Formation. The higher soil hydraulic conductivity zones correspond to areas underlain by alluvium or areas of coarser sediments within the Paso Robles Formation.

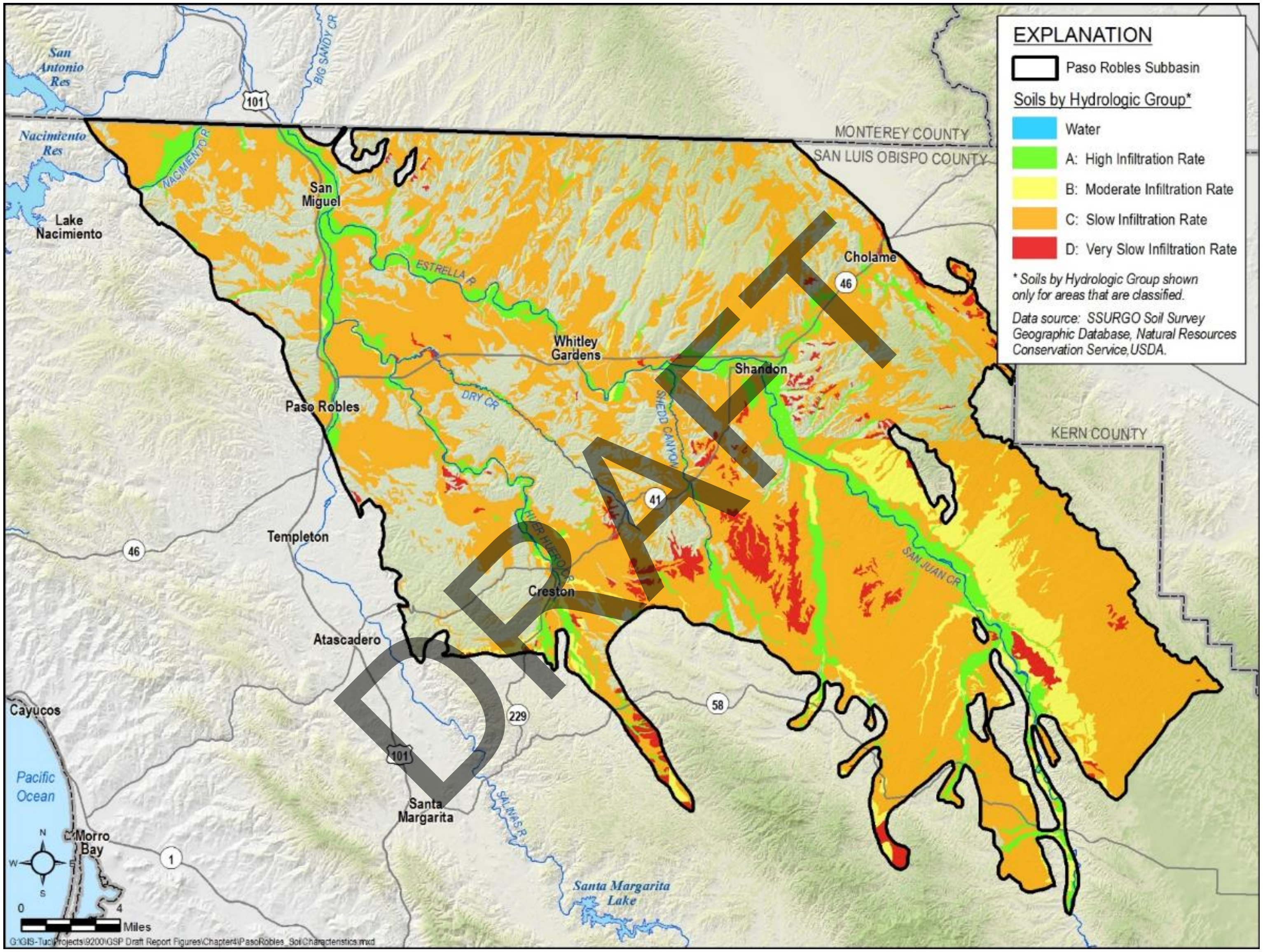


Figure 4-3. Paso Robles Subbasin Soil Characteristics

4.3 Regional Geology

This section provides a description of the geologic formations in the Subbasin. These descriptions are summarized from previously published reports by Fugro (2002 and 2005). Figure 4-4 shows the surficial geology and geologic structures of the Subbasin (County of SLO, 2007). .Figure 4-5 provides the location of the geologic cross-sections shown on Figure 4-6 through Figure 4-10. The selected geologic cross-sections illustrate the relationship of the geologic formations that constitute the Subbasin and the geologic formations that underlie and surround the Subbasin based on lithologic data from wells. The cross-sections are from different reports so the format differs but the geologic units are consistent. Likewise, the cross sections were created from base maps that are not included in this report but the general geologic units and structures are the same as represented in Figure 4-4. Figure 4-6 through Figure 4-8 are from Fugro (2002). Figure 4-9 and Figure 4-10 are from Fugro (2005), which also label the various layers from the groundwater model that was developed at this time. The groundwater model was subsequently updated (GSSI, 2016) and is presented in Chapter 6.

4.3.1 Regional Geologic Structures

The base of the Subbasin is locally divided by two semi-parallel bedrock ridges: the San Miguel Dome and the Creston Anticlinorium (Figure 4-4). These two bedrock ridges are often not exposed at the ground surface, but are apparent in the east – west subsurface cross-sections, which show subsurface expression of the bedrock. Cross sections Figure 4-6 and Figure 4-8 show these areas where bedrock (generally consisting of the Pancho Rico Formation, the Santa Margarita Formation, or the Monterey Formation) is shallow or exposed at the surface. The shallow bedrock ridge does not appear to be present between San Miguel and Creston (Figure 4-7).

The deepest portion of the Subbasin is west of the San Miguel Dome and north of Paso Robles, with over 3,000 feet of sediments (Fugro, 2005). This deep trough extends through the Paso Robles area and shallows progressively to the south. As shown on Figure 4-6, the sediments are generally relatively thin on the order of a few hundred feet in the Creston area. East of the San Miguel Dome and near the community of Shandon the Paso Robles Formation is over 2,000 feet thick.

The faults within and along the borders of the Subbasin boundaries are shown on Figure 4-6 and are based on the basin boundaries defined by the State's Bulletin 118 – 2003 Update (DWR, 2003). The predominant fault near the western side of the Subbasin is the San Marcos-Rinconada fault system. The predominant fault near the eastern side of the Subbasin is the San Andreas Fault. Within the Subbasin and sub-parallel to the San Andreas Fault are the Red Hill, San Juan, and White Canyon faults, but it is unknown to what degree these faults are barriers to groundwater flow. These faults could create compartments in the sediments and limit the ability of groundwater to move within the Subbasin. The Paso Robles Formation is either not present or not saturated east of the San Juan fault system; there is very little well data in this portion of the Subbasin.

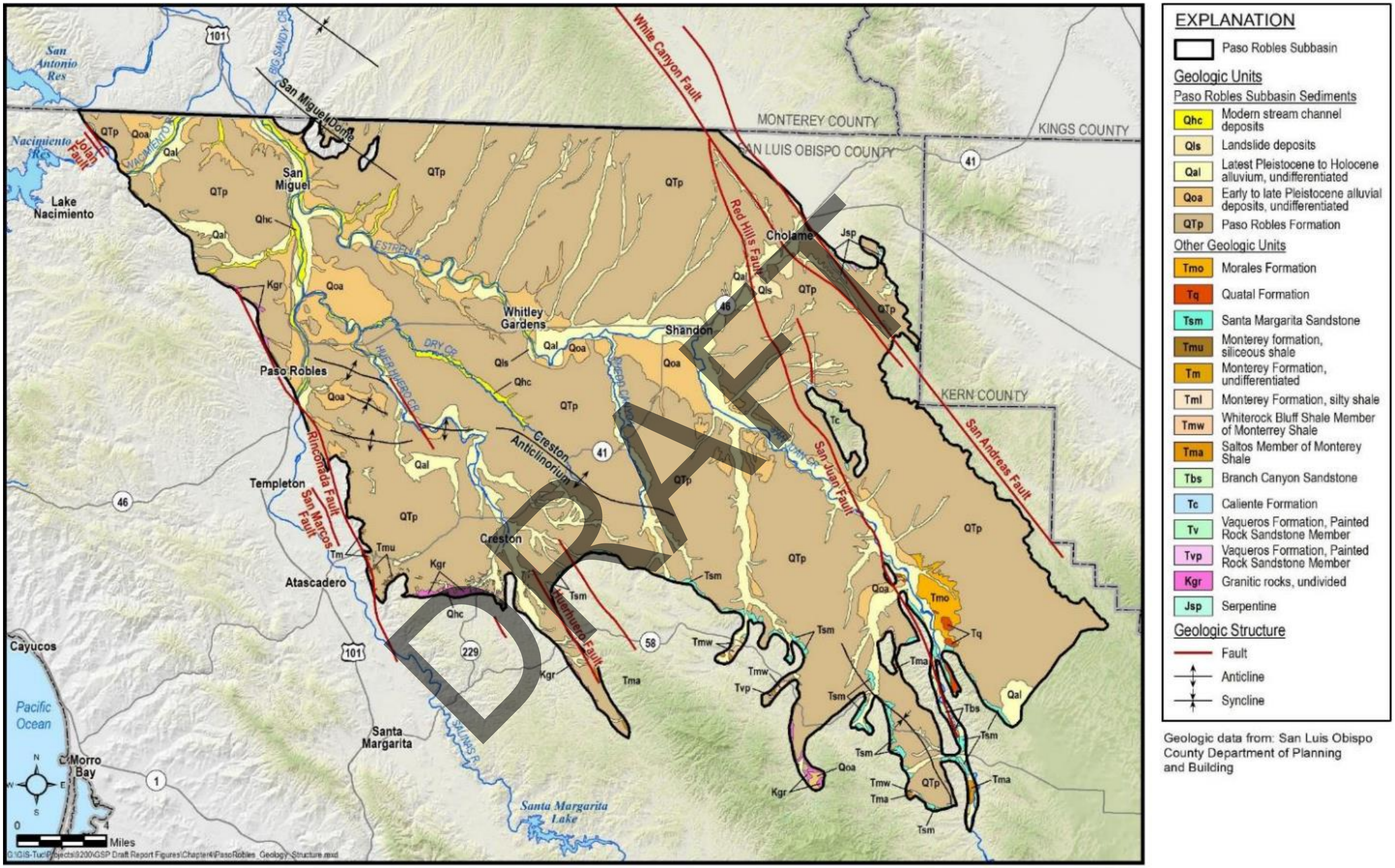


Figure 4-4. Surficial Geology and Geologic Structures

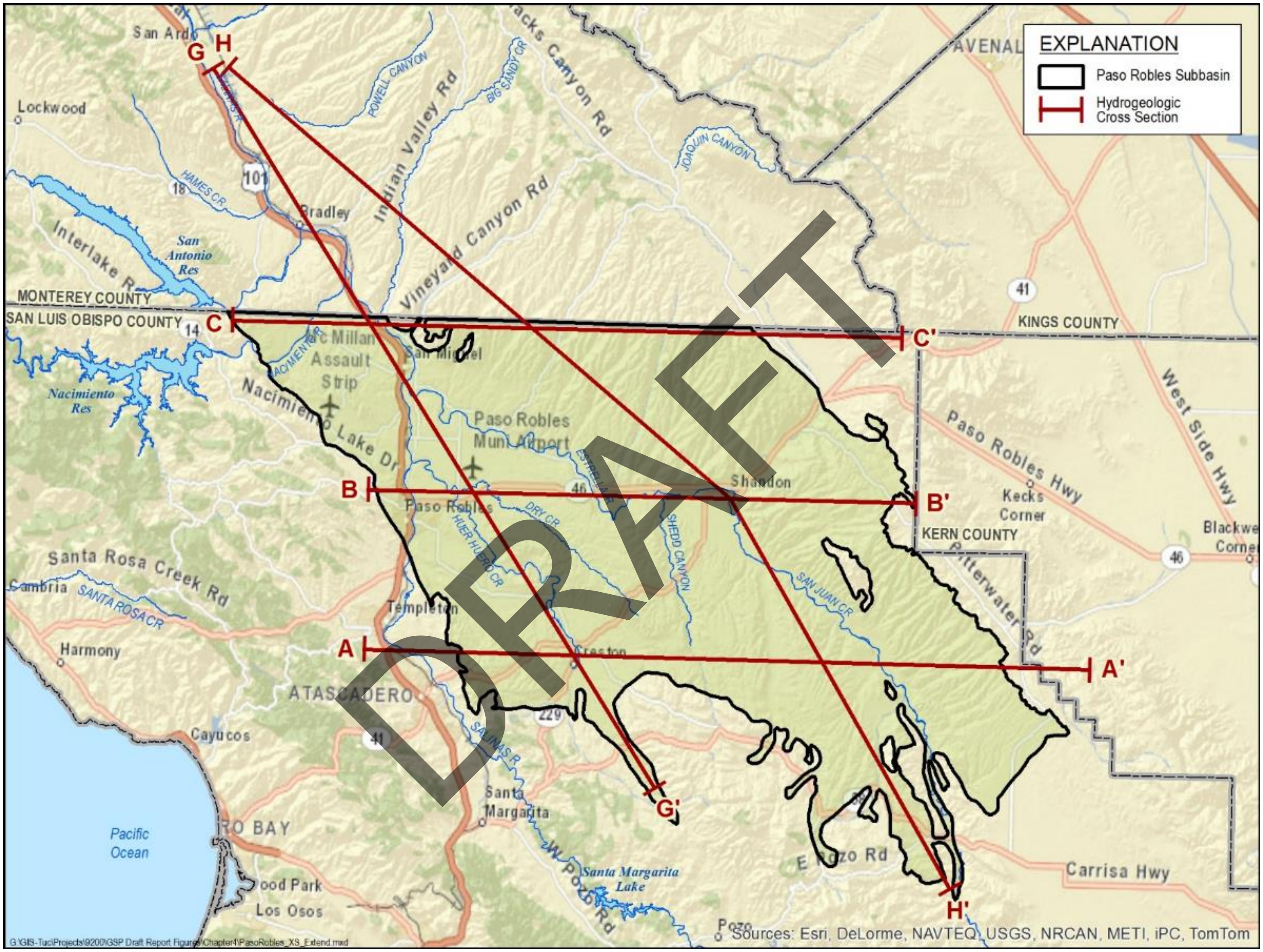
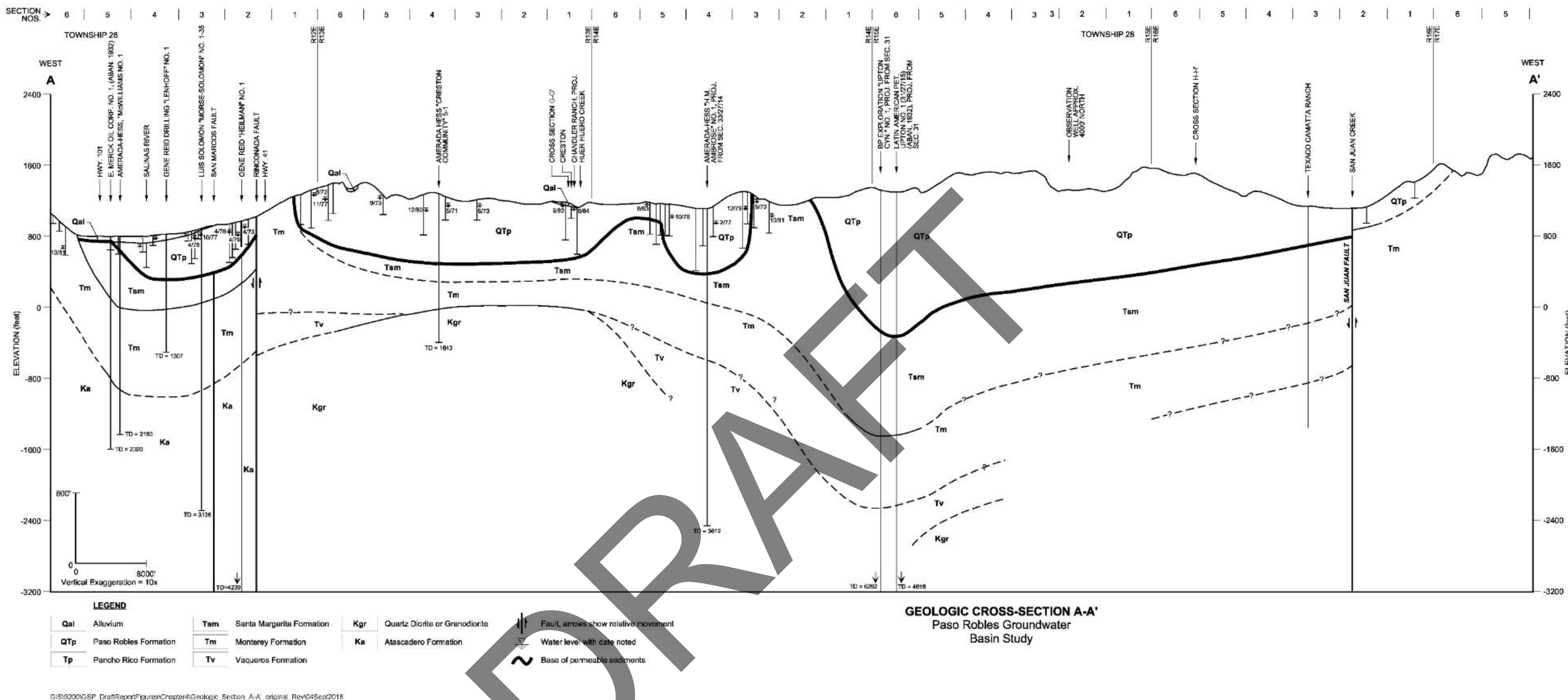
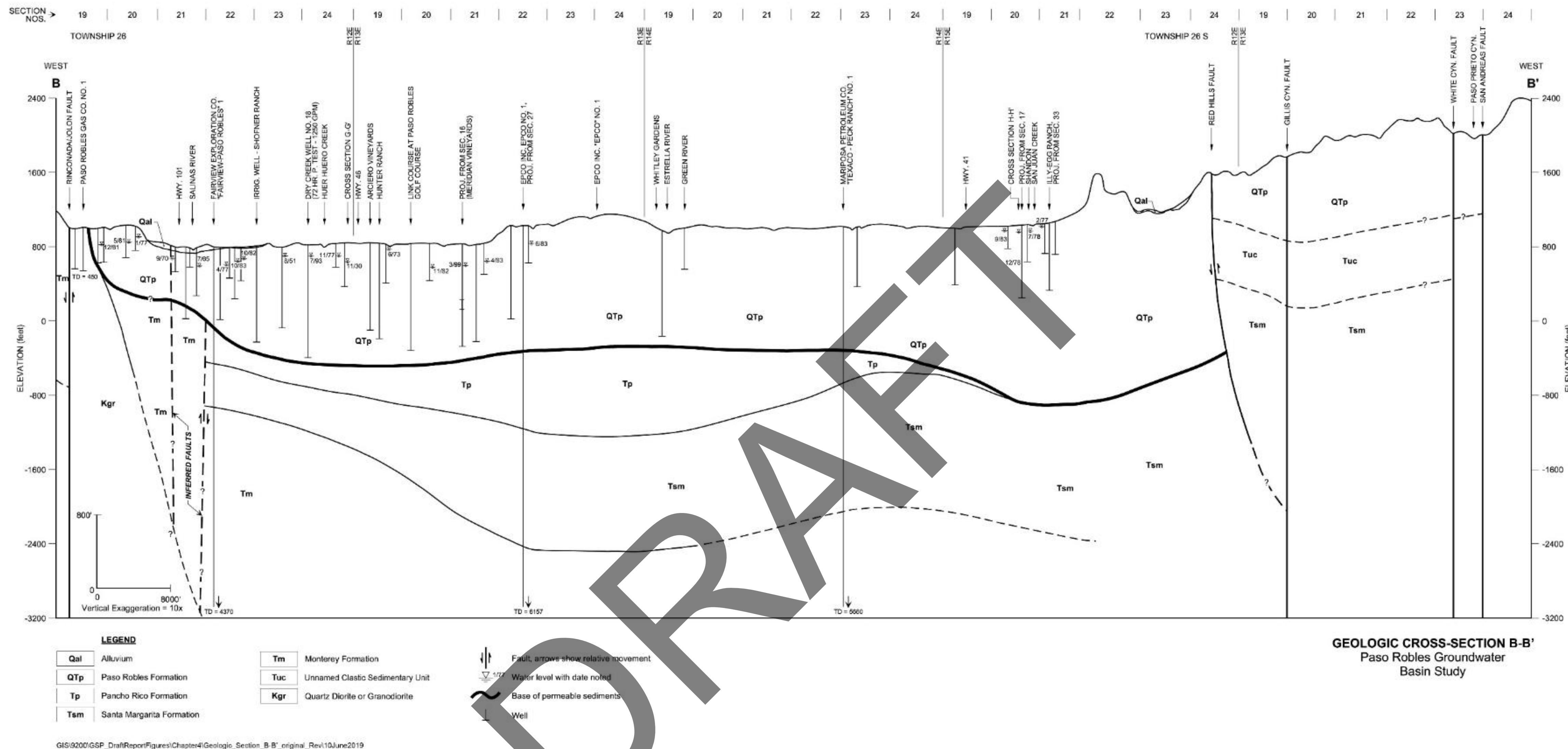


Figure 4-5. Cross Sections Locations



Source: Modified from Fugro (2002)

Figure 4-6. Geologic Section A-A'



Source: Modified from Fugro (2002)

Figure 4-7. Geologic Section B-B'

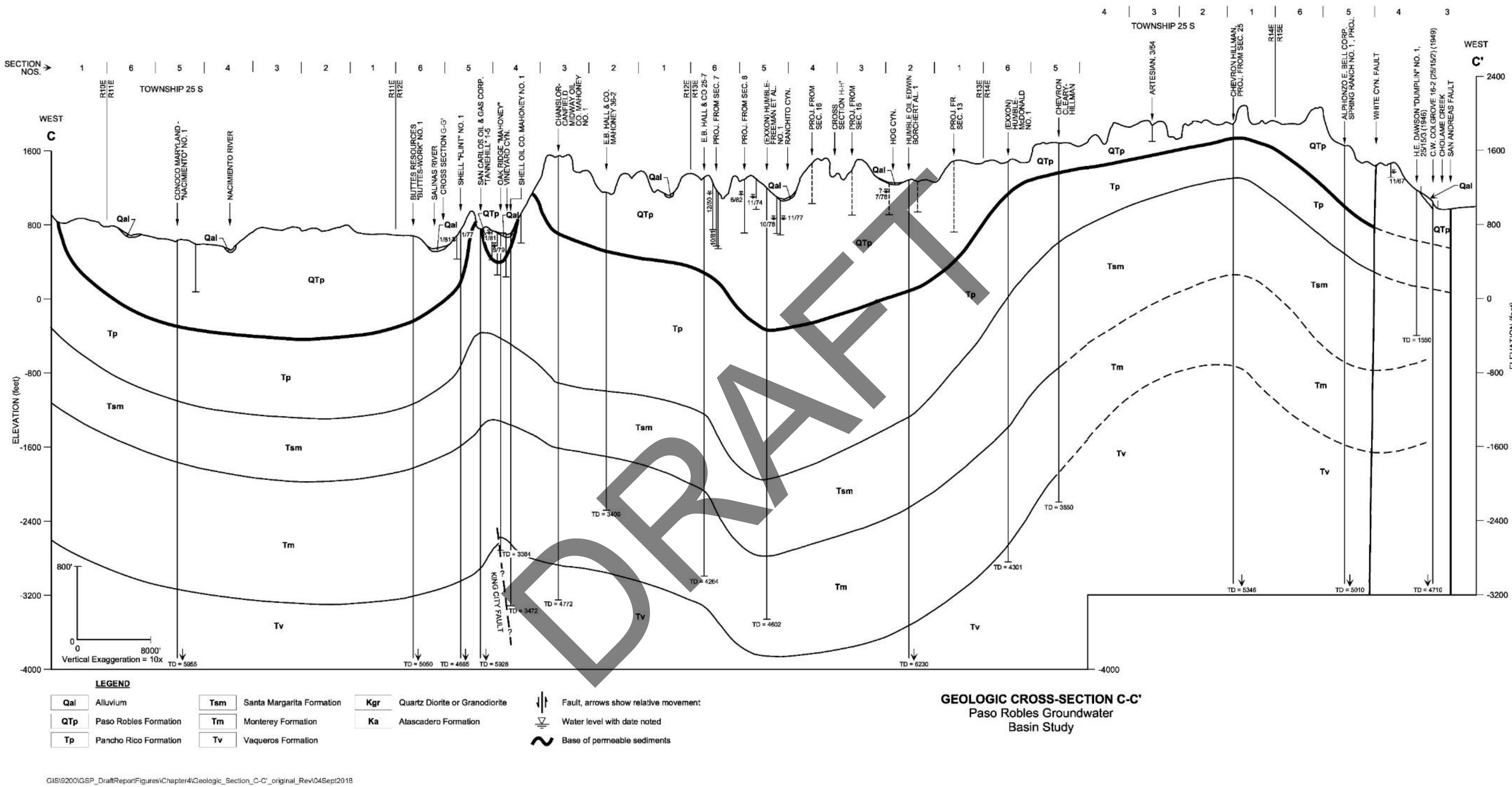


Figure 4-8. Geologic Section C-C'

Source: Modified from Fugro (2002)

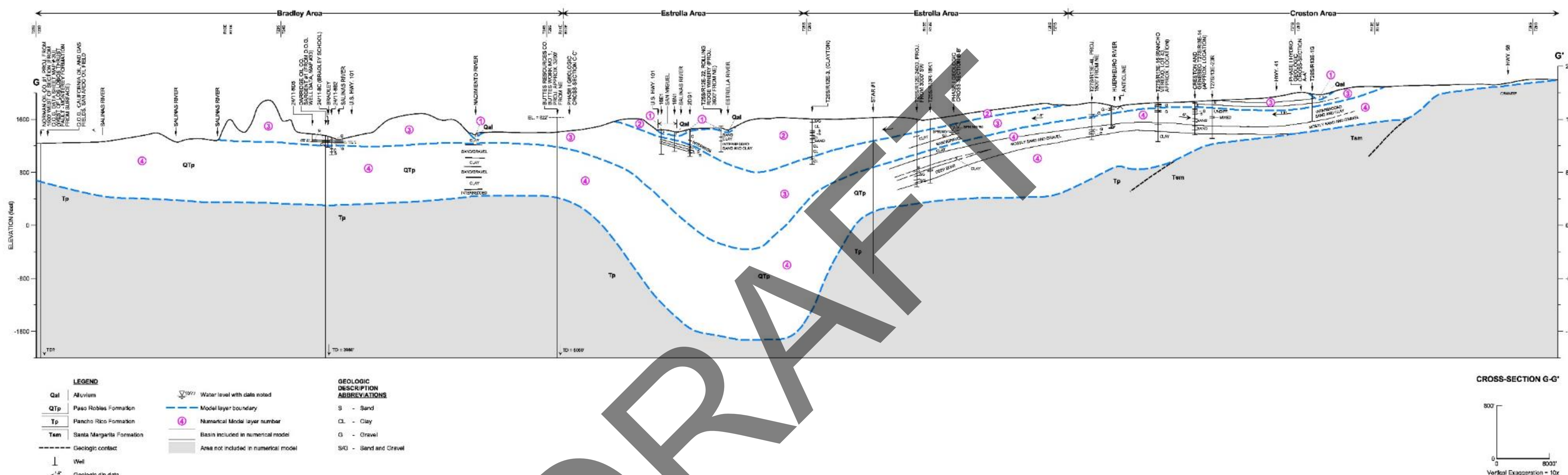


Figure 4-9. Geologic Section G-G'

Source: Modified from Fugro (2005)

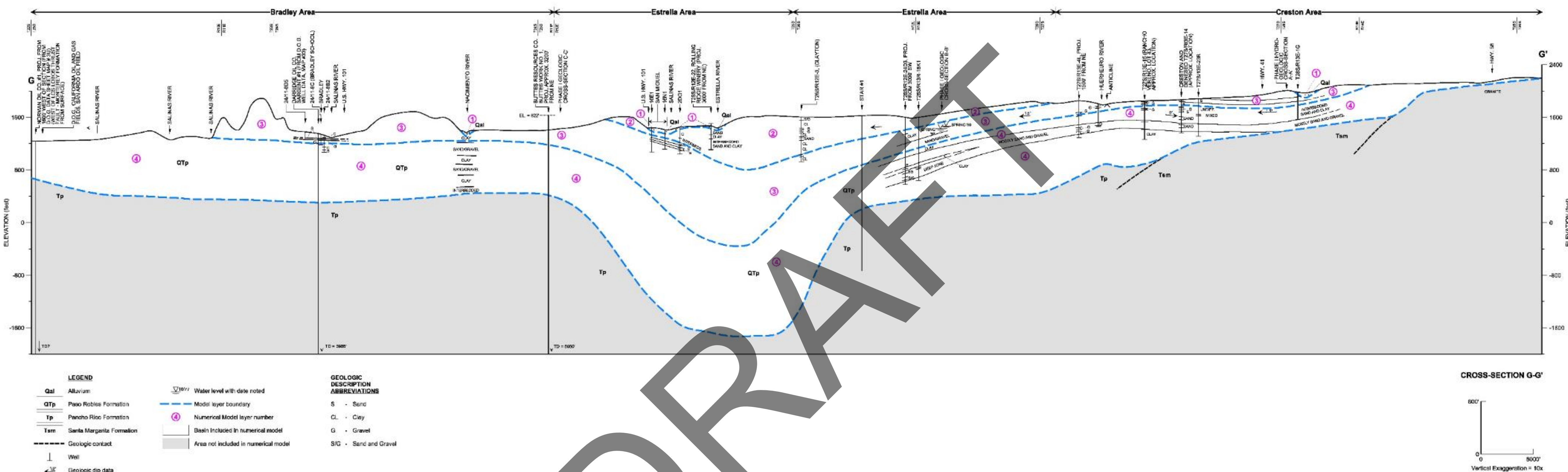


Figure 4-10. Geologic Section H-H'

Source: Modified from Fugro (2005)

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4.3.2 Geologic Formations Within the Subbasin

The main criteria used by previous authors for defining which geologic formations constitute the groundwater basin are:

1. The formation must have sufficient permeability and storage potential for the movement and storage of groundwater such that wells can reliably produce more than 50 gallons per minute (gpm), and

2. The groundwater produced from the geologic formation must be of generally acceptable quality (Fugro, 2002) based on the classification by DWR (1979) of groundwater with a conductivity of 3,000 micromhos/centimeter or less as fresh water.

The only two geologic formations that reliably meet these two criteria are the Quaternary-age alluvial deposits and the Tertiary-age Paso Robles Formation. Therefore, these are the only two formations that constitute the Subbasin. A general discussion of these two formations is presented below.

4.3.2.1 Alluvium

Alluvium occurs beneath the flood plains of the rivers and streams within the Subbasin. Figure 4-4 shows the location of the alluvial deposits, labeled as Quaternary alluvium, identified as Qal. These deposits are typically no more than 100 feet thick and comprise coarse sand and gravel with some fine-grained deposits. The alluvium is generally coarser than the Paso Robles Formation, with higher permeability that results in well production capability that often exceeds 1,000 gpm.

4.3.2.2 Paso Robles Formation

The largest volume of sediments in the Subbasin are in the Paso Robles Formation. This formation has sedimentary layers up to 3,000 feet thick in the northern part of the Estrella area and up to 2,000 feet near Shandon. Figure 4-4 shows the location of the Paso Robles Formation deposits, identified as QTp. Throughout most of the Subbasin the Paso Robles Formation sediments have a thickness of 700 to 1,200 feet.

The Paso Robles Formation is derived from erosion of nearby mountain ranges. Sediment size decreases from the east and the west, becoming finer towards the center of the Subbasin, indicating sediment source areas are both to the east and west. The Paso Robles Formation is a Plio-Pleistocene, predominantly non-marine geologic unit comprising relatively thin, often discontinuous sand and gravel layers interbedded with thicker layers of silt and clay. The formation was deposited in alluvial fan, flood plain, and lake depositional environments. The formation is typically unconsolidated and generally poorly sorted. The sand and gravel beds in the Paso Robles Formation have a high percentage of eroded Monterey shale and have lower permeability compared to the overlying alluvial unit. The formation also contains minor amounts of gypsum and woody coal.

Poor quality groundwater with elevated concentrations of iron, manganese, and in some cases hydrogen sulfide odor have been observed within deeper portions of the Paso Robles Formation in some areas. There is no published evidence of elevated arsenic. The 2002 Fugro report says, “No fluoride, arsenic, selenium, or uranium radioactivity exceeded the MCL in the samples reviewed from public water purveyor wells” and “Dissolved arsenic concentrations are present in most areas of the basin, typically at levels below 10 μg/l.”

4.3.3 Geologic Formations Surrounding the Subbasin

Underlying and surrounding the Subbasin are older geologic formations that either typically have low well yields or have poor quality water. In general, the geologic units underlying the Subbasin include:

1. Tertiary-age or older consolidated sedimentary beds;
2. Cretaceous-age metamorphic rocks; and
3. Granitic rock.

Figure 4-11 shows the location of oil and gas exploration wells drilled in the Subbasin. These oil and gas wells help identify the depth and extent of the geologic formations that surround and underlie the Subbasin.

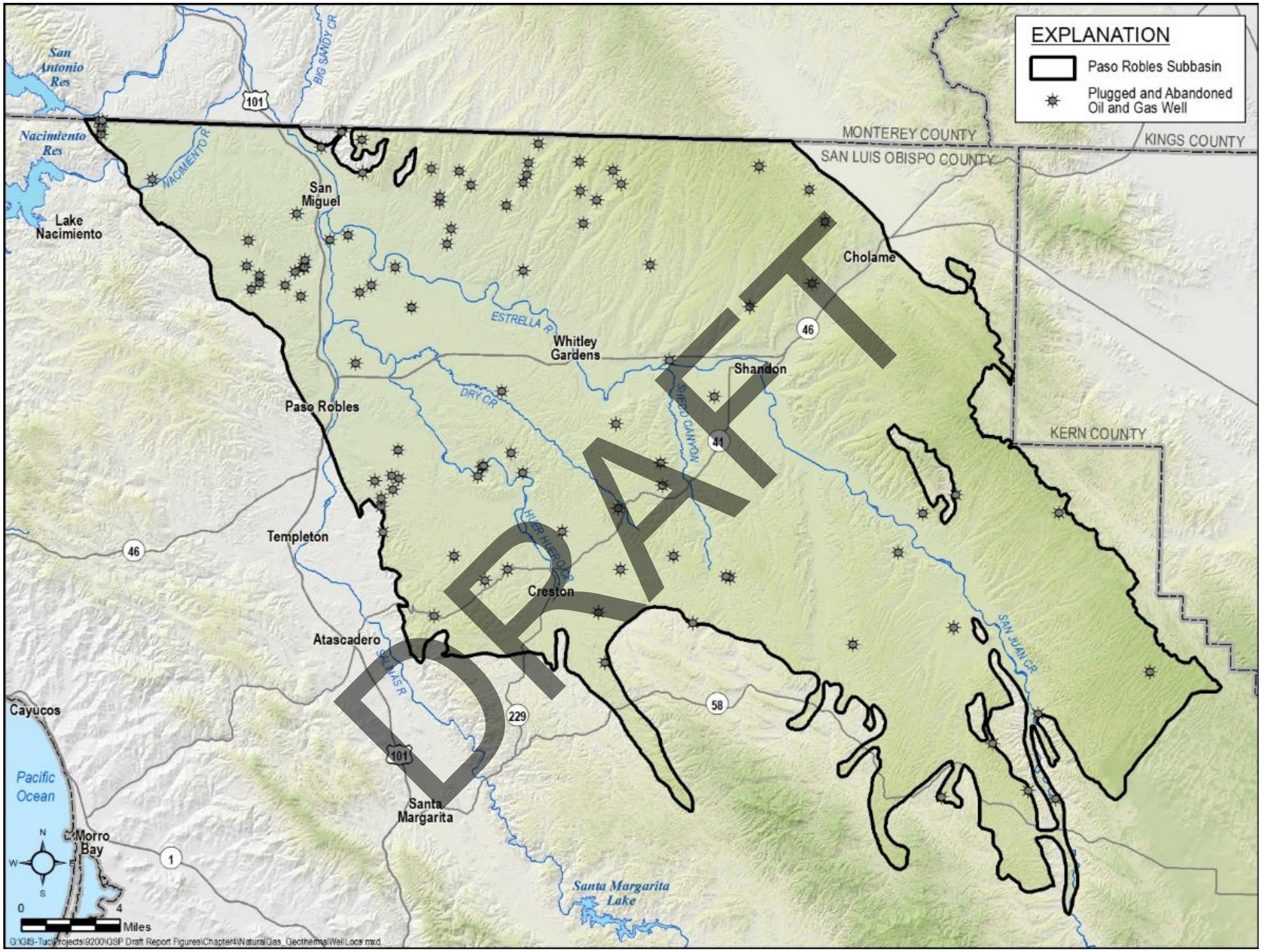

Figure 4-11. Natural Gas Exploration Well Locations and Geothermal Wells

4.3.3.1 Pancho Rico Formation

The Pancho Rico Formation (Tp) is a Pliocene-age marine deposit found mostly in the northern portion of the study area. In places it appears to be time-correlative to the Paso Robles Formation, and may be in lateral contact as a facies change. The unit predominantly consists of fine-grained sediments up to 1,400 feet thick that yield low quantities of water.

4.3.3.2 Santa Margarita Formation

The Santa Margarita Formation (Tsm) is an upper Miocene-age marine deposit, consisting of a white, fine-grained sandstone and siltstone with a thickness of up to 1,400 feet. The unit is found beneath most of the Subbasin. The Santa Margarita Formation is relatively permeable, but is not considered part of the Subbasin because the water quality is usually very poor. The geothermal waters contained in the Santa Margarita Formation in this area are often highly mineralized and characterized by elevated boron concentrations that restrict agricultural uses.

4.3.3.3 Monterey Formation

The Miocene-age Monterey Formation (Tm) consists of interbedded argillaceous and siliceous shale, sandstone, siltstone, and diatomite. The unit is as great as 2,000 feet thick in the study area, and is often highly deformed. Wells in the Monterey Formation are generally of too low yield to consider the Monterey Formation part of the Subbasin; although isolated areas in the Monterey Formation can yield more than 50 gpm. Additionally, groundwater produced from the Monterey Formation often has high concentrations of hydrogen sulfide, total organic carbon, manganese, and iron.

4.3.3.4 Vaqueros Formation

The marine Oligocene-age Vaqueros Formation (Tv) is a highly cemented fossiliferous sandstone that reaches a thickness up to 200 feet. Springs in the Vaqueros Formation with flows up to 25 gpm are common in canyons on the western and southern sides of the study area. Most water wells tapping this formation produce less than 20 gpm. Generally, the quality of water in this unit is good, though hard due to the calcareous cement within the rock.

4.3.3.5 Metamorphic and Granitic Rocks

The southern and western edges of the Subbasin are bordered by Cretaceous-age metamorphic and granitic rock. The metamorphic rock units include the Franciscan, Toro, and Atascadero Formations. The Franciscan consists of discontinuous outcrops of shale, chert, metavolcanics, graywacke, and blue schist, with or without serpentinite. The Toro Formation (Kt) is a highly consolidated claystone and shale that does not typically yield significant water to wells. The

Atascadero Formation (Ka) is highly consolidated, but does have some sandstone beds that yield limited amounts of water to wells.

The granitic rock unit (Kgr) lies east of the Rinconada fault system, south of Creston, east of Atascadero, and in the area northwest of Paso Robles. The granitic rocks are often capped by a layer of granular decomposed granite that may be weathered to clay. This decomposed granite may be up to 80 feet in thick and may contain limited amounts of groundwater.

4.4 Principal Aquifers and Aquitards

Water-bearing sand and gravel beds that may be laterally and vertically discontinuous are generally grouped together into zones that are referred to as aquifers. The aquifers can be vertically separated by fine-grained zones that can impede movement of groundwater between aquifers. Two aquifers exist in the Subbasin:

- A relatively continuous aquifer comprising alluvial sediments that underlie streams;
- An interbedded and discontinuous aquifer comprising sand and gravel lenses in the Paso Robles Formation.

Figure 4-4 shows the location of geologic sections that were used to depict the aquifers in the subsurface. Figure 4-12 through Figure 4-15 show the aquifers that are interpreted from the geologic logs, geophysical logs, groundwater levels, and water quality (Fugro, 2002 and 2005). Water-bearing zones are interpreted to be discontinuous lenses of sand and gravel and shown as tapering off on the cross sections. Because these cross sections are adopted from a study that supported a groundwater model, the cross sections include labels identifying the various layers from the groundwater model. The groundwater model was subsequently updated (GSSI, 2016) and is presented in Chapter 6. For the GSP several additional well logs were added to the sections to refine the extent of the aquifers. These logs have been labeled with the state well inventory number (e.g. E0188061). Appendix B contains the well logs used to update the sections that have publicly available data.

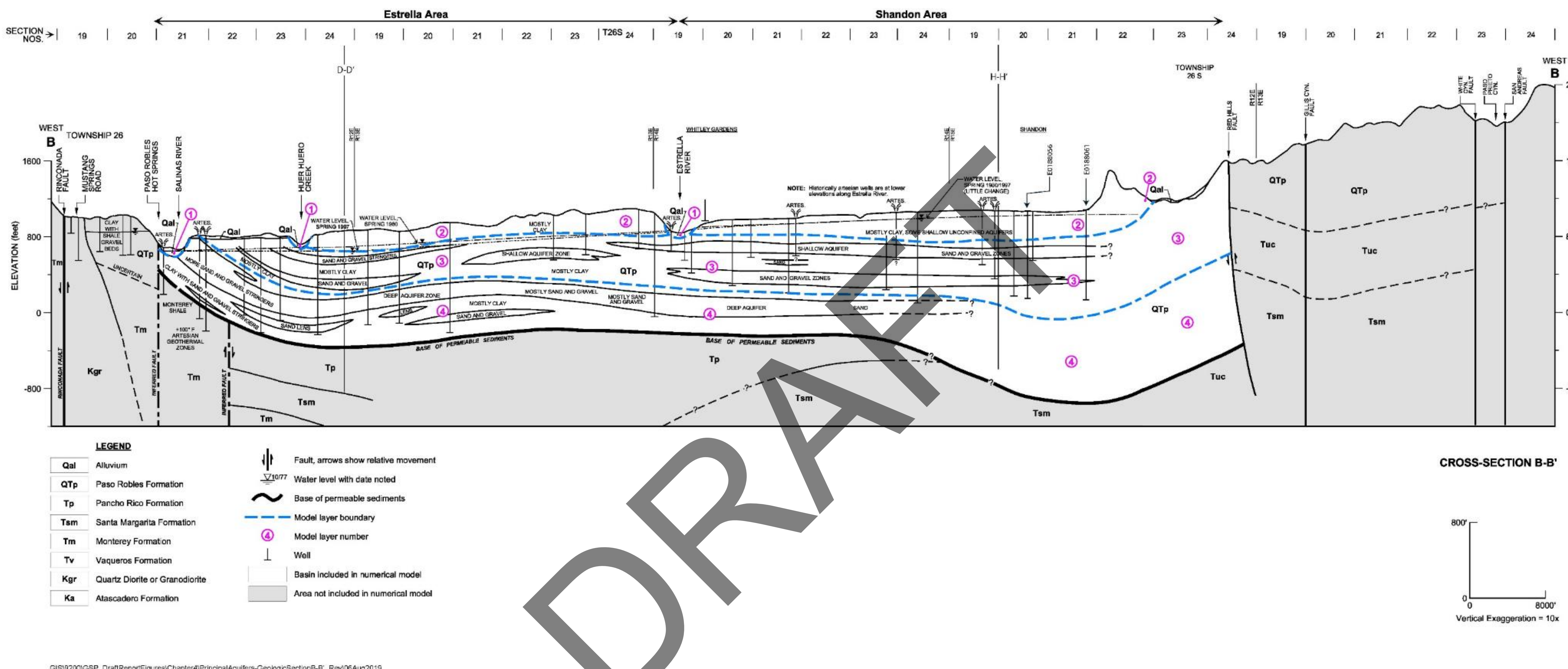

Figure 4-12. Aquifers - Geologic Section B-B'

Source: Modified from Fugro (2005)

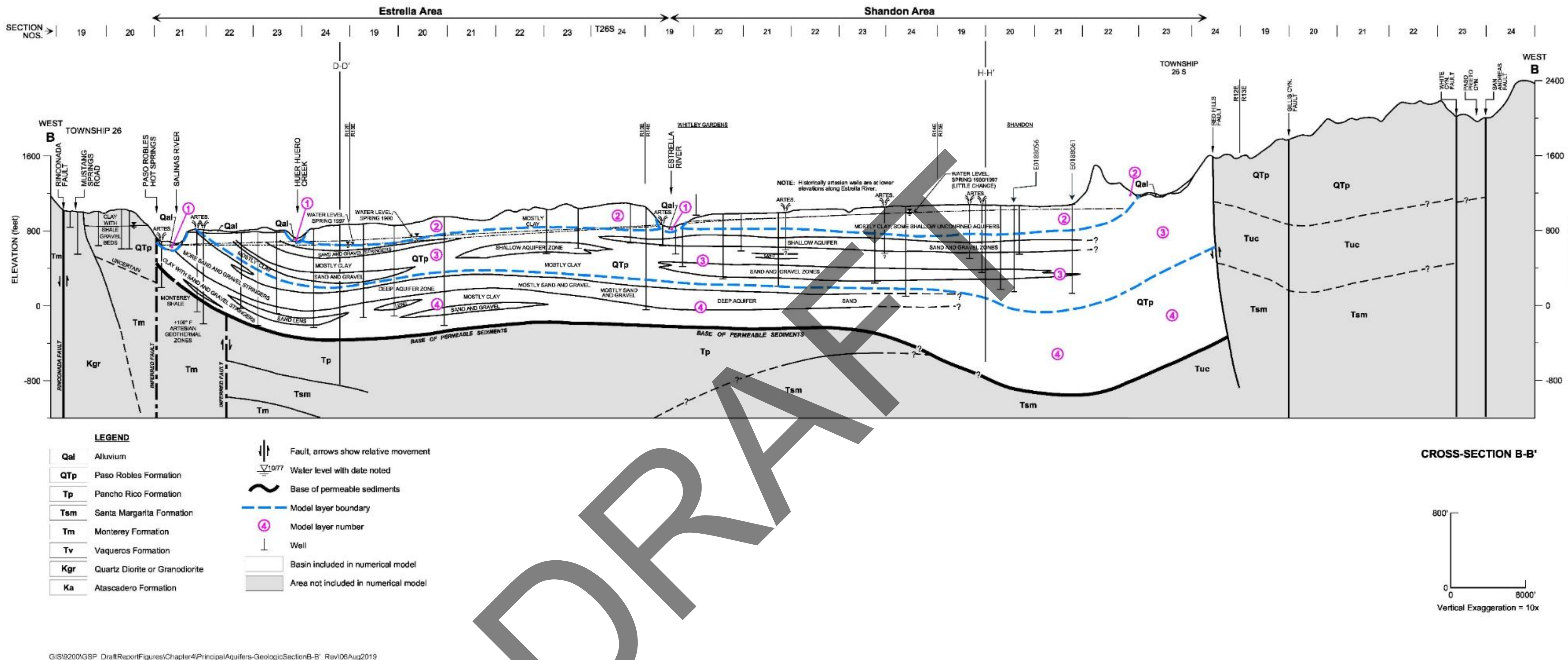

Figure 4-13. Aquifers - Geologic Section C-C'

Source: Modified from Fugro (2005)

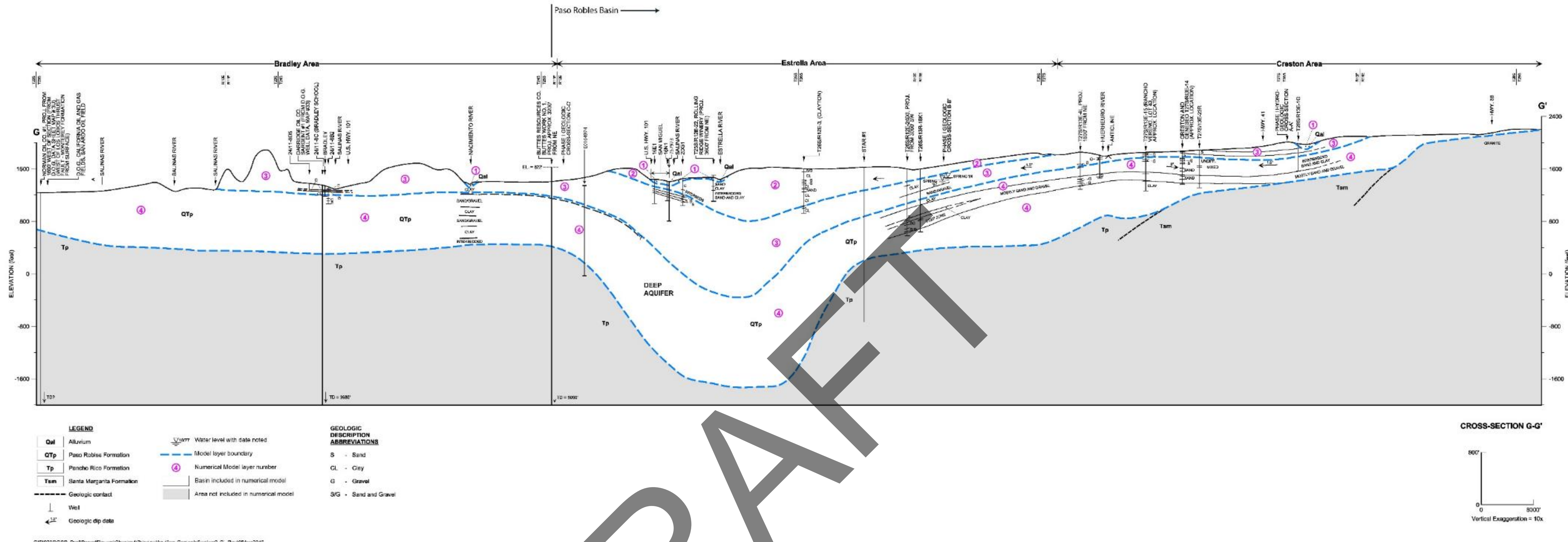

Figure 4-14. Aquifers - Geologic Section G-G'

Source: Modified from Fugro (2005)

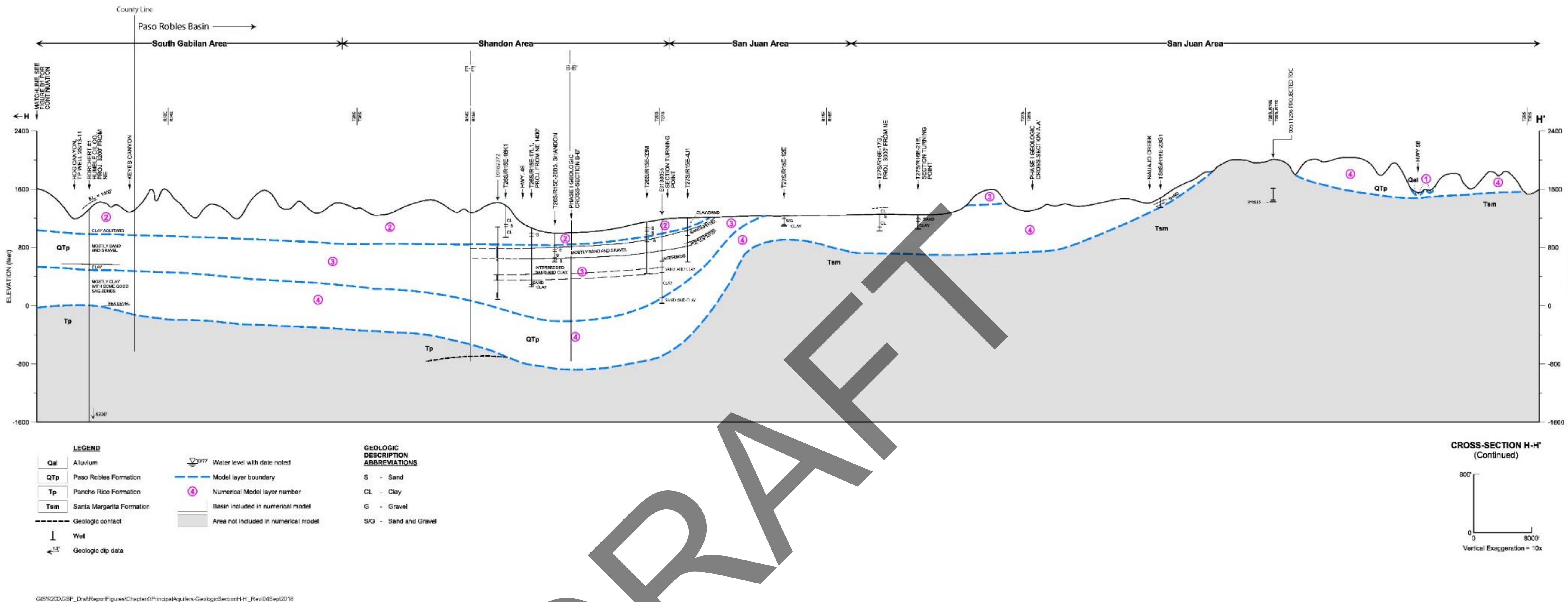

Figure 4-15. Aquifers - Geologic Section H-H'

Source: Modified from Fugro (2005)

4.4.1 Alluvial Aquifer

The unconfined Alluvial Aquifer is generally composed of saturated coarse-grained sediments and occurs along Huer Huero Creek, the Salinas River, and the Estrella River; the extent of this aquifer is shown on Figure 4-4. The alluvial aquifer varies in thickness, but is generally about 100 feet thick. The Alluvial Aquifer is highly permeable. Wells screened in the alluvial aquifer can yield up to a 1,000 gpm (Fugro, 2005).

4.4.2 Paso Robles Formation Aquifer

Geologic information reported in Fugro (2002) suggests that the sand and gravel zones that constitute the Paso Robles Formation Aquifer are generally thin, discontinuous, and are usually separated vertically by relatively thick zones of silts and clays. Figure 4-4 shows the extent of the Paso Robles Formation in the Subbasin. In general, the sand and gravel zones occur throughout the Paso Robles Formation, although they may be locally discontinuous or absent in some areas. As shown on Figure 4-14, near Creston the shallow sand and gravel zones are shown as disconnected from western parts of the Paso Robles aquifer, although data is limited in this region.

4.4.3 Aquifer Properties

Data reported in Fugro (2002) were reviewed to estimate representative aquifer hydraulic properties. Most aquifer tests have been conducted in the Estrella and Creston areas. Estimated aquifer properties are summarized in Table 4-1, which includes the following characteristics (Driscoll, 1986):

- Hydraulic conductivity: the rate of flow of water in gallons per day through a cross section of one square foot under a unit hydraulic gradient.
- Specific capacity: the rate of discharge of a water well per unit of drawdown, commonly expressed in volume of water at a reference temperature.
- Storativity: the volume of water an aquifer releases from or takes into storage per unit surface area of the aquifer per unit change in head.
- Transmissivity: the rate at which water is transmitted through a unit width of an aquifer under a unit hydraulic gradient.

Table 4-1. Paso Robles Subbasin Aquifer Hydrogeologic Properties

Well Location	Test Duration (hours)	Flow (gpm)	Well Depth (feet)	Perforated Interval (ft)	Transmissivity (gpd/ft)	Specific Capacity (gpm/ft)	Hydraulic Conductivity (ft/day)
Alluvial Aquifer							
28S/13E-36	24	367	70	40	186,300	68	620
Paso Robles Formation Aquifer							
27S/12E-09	72	300	450	170	8,800	4.9	6.9
26S/12E-22	12	220	430	100	900	1.2	1.2
25S/11E-24	12	150	350	90	800	0.62	1.2
27S/12E-18	8	140	225	35	4,100	3	15.7
26S/12E-20	48	115	400	50	7,600	10	20
26S/12E-36	24	400	660	280	8,800	5.1	4.2
26S/12E-35	18	690	830	370	7,900	4.9	2.9
27S/14E-18	24	600	740	220	6,100	5.5	3.7
26S/13E-16	24	200	820	350	3,100	2.63	1.2
26S/12E-25	24	500	730	340	5,700	3.6	2.2
25S/13E-30	24	600	720	260	6,900	79	3.5
26S/13E-7	24	600	825	380	3,200	3	1.1
26S/13E-7	24	600	990	610	5,000	4.2	1.1
24S/11E-34	24	850	612	100	2,805	4.5	3.8

Source: Fugro, 2002

Based on limited aquifer property data available for the Alluvial Aquifer, the transmissivity may be in the range of 150,000 to 200,000 gallons per day per foot (gpd/ft); or between 20,000 and 27,000 square feet per day (ft^2/day). Hydraulic conductivity of the Alluvial Aquifer may be over 500 feet per day (ft/d) based on estimated transmissivity and the thickness of the well's perforated interval.

The estimated transmissivity of the Paso Robles Formation Aquifer ranges between 800 gpd/ft and about 9,000 gpd/ft; or between 100 and 1,200 ft^2/day. The geometric mean of the Paso Robles Formation transmissivity values is about 4,200 gpd/ft, or 560 ft^2/day.

The estimated hydraulic conductivity of the Paso Robles Formation Aquifer ranges from about 1 ft/d to about 20 ft/d. The geometric mean of the tabulated hydraulic conductivity values for the Paso Robles Formation Aquifer is 5 ft/d.

Limited data exist to assess the confined storage properties, such as storativity, of the Paso Robles Formation aquifer (Fugro, 2002). Table 4-2 summarizes reported estimates of specific yield for unconfined portions of the aquifers. Average specific yield was estimated by analyzing 10 to 20 of the deepest well completion logs for each area. Each interval was assigned a specific yield by comparison of the formation description with published estimates based on extensive field and laboratory investigations conducted in southern coastal basins by the DWR and modified for the Paso Robles Formation (DWR, 1958). The assigned specific yield was then weighted according to the thickness of each bed and averaged over the entire depth of the well (Fugro, 2002). Results of this analysis suggested that a representative average value for specific yield for the Paso Robles Formation in the Subbasin was 0.09. This specific yield may be low. Average specific yields for unconsolidated sand and gravel sedimentary aquifers are commonly between 0.1 and 0.3 (Driscoll, 1986).

Table 4-2. Paso Robles Subbasin Specific Yield Estimates

Area	Number of Wells Used to Calculate	Average Estimated Specific Yield
Creston Area	47	0.09
Estrella	20	Not provided
San Juan	5	0.10
Shandon	20	0.08
North and South Gabilan	20	0.09
Basin Wide Average		0.09

Estimates of vertical hydraulic conductivity for each of the aquifers were not in reports from previous studies for the Subbasin. Estimates of vertical hydraulic conductivity incorporated into the basin-wide groundwater model are discussed in Appendix E.

4.4.4 Confining Beds and Geologic Structures

There is limited information regarding the continuity of stratigraphic features in the Subbasin that restrict groundwater flow within the Subbasin. Conceptually, the presence of laterally continuous zones of fine-grained strata within the Paso Robles Formation can restrict vertical movement of groundwater. These fine-grained zones are generally shown on the sections on Figure 4-12 through Figure 4-15. These figures show that the fine-grained strata are likely more continuous than the sand and gravel layers. These fine-grained zones act as confining beds, and are the cause of the artesian wells that were historically reported in the Subbasin. Fine-grained layers that limit vertical movement of groundwater appear to be more prevalent in the Estrella and Creston areas than in the eastern portion of the Shandon area. This may indicate that infiltration and recharge is more limited in the central part of the basin than it is to the east in the Shandon area.

There is some anecdotal evidence that subsurface geologic structures such as folds and faults may affect groundwater flow in the Subbasin, particularly in the Whitley Gardens area between Estrella and Shandon. Additional investigations would be needed to characterize the effect of structures on groundwater flow.

4.5 Primary Users of Groundwater

The primary groundwater users in the Subbasin include municipal, agricultural, rural residential, small community water systems, and small commercial entities. Municipal, domestic, and agricultural demands in the Subbasin currently rely almost entirely on groundwater. Some municipal demands are partially met through imported surface water as presented previously in Chapter 3. The municipal sector pumps primarily from the Paso Robles Aquifer in the Subbasin. The agriculture sector uses groundwater from the Alluvial Aquifer and the Paso Robles Aquifer.

4.6 General Water Quality

This section presents a general discussion of the natural groundwater quality in the Subbasin, focusing on general minerals. The general water quality of the Subbasin described in this section is a summary of results in the Fugro 2002 report. A more complete discussion of the distribution and concentrations of specific constituents is presented in Chapter 5.

Groundwater in the Subbasin is generally suitable for drinking and agricultural uses. The two main water types as defined by water chemistry in the Subbasin are calcium bicarbonate and sodium bicarbonate. Calcium-bicarbonate type is the most prominent and is found in the Creston and San Juan areas. Sodium-bicarbonate is the second most dominant water type and is found in the Estrella and Shandon areas. Minor areas of sodium-chloride type water can be found in the eastern portion of the Subbasin and near Cholame Valley. In the northwest portion of the Subbasin, magnesium bicarbonate waters are found in the San Miguel area and a mixed water type is seen in the Bradley area. Summary tables of general water quality in groundwater is provided in Chapter 5.

4.7 Groundwater Recharge and Discharge Areas

Areas of significant, natural, areal recharge and discharge within the Paso Robles Subbasin are discussed below. Quantitative information about natural and anthropogenic recharge and discharge is provided in Chapter 6.

4.7.1 Groundwater Recharge Areas Inside the Subbasin

In general, natural areal recharge occurs via the following processes:

1. Distributed areal infiltration of precipitation, and
2. Infiltration of surface water from streams and creeks.

Figure 4-16 is a map that ranks soil suitability to accommodate groundwater recharge based on five major factors that affect recharge potential, including: deep percolation, root zone residence time, topography, chemical limitations, and soil surface condition. The map[1] was developed by the California Soil Resource Lab at UC Davis and the University of California Agricultural and Natural Resources Department.

Areas with excellent recharge properties are shown in green. Areas with poor recharge properties are shown in red. Not all land is classified, but this map provides good guidance on where natural recharge likely occurs. Natural recharge is discussed in more detail in Chapter 6.

[1] Figure 4-16 shows the Soil Agricultural Groundwater Banking Index (SAGBI) map for the Paso Robles Subbasin. While the UC Davis database title SAGBI includes the term “banking”, its use in this section is strictly as a dataset for evaluating recharge potential in the basin.

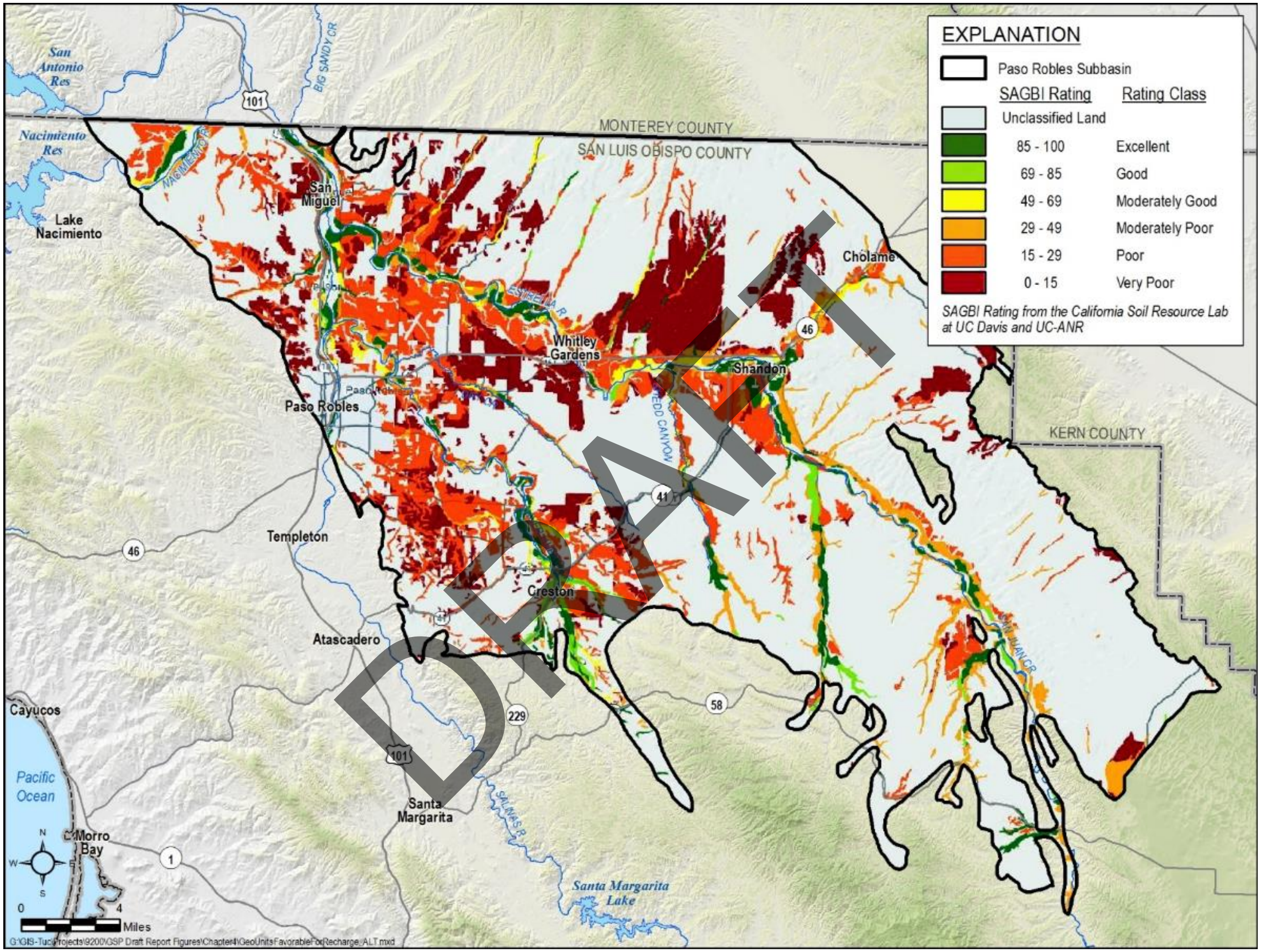

Figure 4-16. Potential Recharge Areas

4.7.2 Groundwater Discharge Areas Inside the Subbasin

Natural groundwater discharge areas within the Plan area include springs and seeps, groundwater discharge to surface water bodies, and ET by phreatophytes. Phreatophytes are plants with roots that tap into groundwater. Springs and seeps identified in the National Hydrology Dataset (NHD), and shown on Figure 4-17, tend to be located in the foothills of the Santa Lucia and Temblor mountain ranges. Based on the elevation of mapped springs and seeps, it is likely that these discharge groundwater from shallow, and possibly perched aquifer units. Groundwater discharge to streams – primarily, the Salinas River and Estrella River – has not been mapped to date. Instead, areas of potential groundwater discharge to streams are identified using the groundwater flow model. Orange areas on Figure 4-17 represent streams in the model where simulated average groundwater discharge to the stream reach is at least 10 AFY. In contrast to mapped springs and seeps, which are derived from groundwater in the Paso Robles Formation, groundwater discharge to streams is derived from the Alluvium.

Figure 4-18 shows the distribution of potential groundwater-dependent ecosystems (GDEs) and Natural Communities Commonly Associated with Groundwater (NCCAG) within the Plan area. In areas where the water table is sufficiently high, groundwater discharge may occur as ET from phreatophyte vegetation within these GDEs. Appendix C describes methods used to determine the extent and type of potential GDEs. Figure 4-18 shows only potential GDEs. There has been no verification that the locations shown on this map constitute groundwater dependent ecosystems. Additional field reconnaissance is necessary to verify the existence of these potential GDEs.

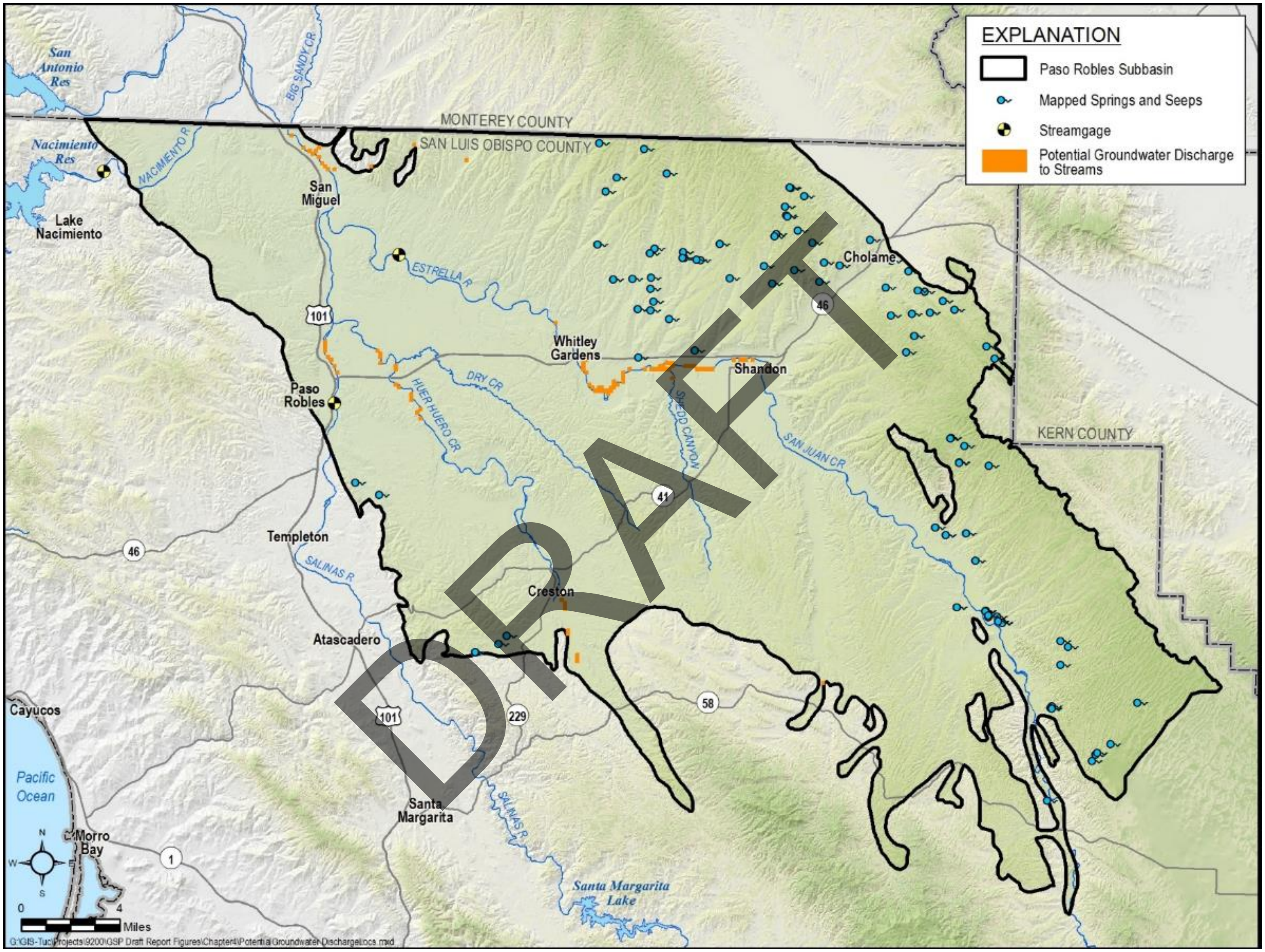

Figure 4-17. Potential Groundwater Discharge Areas

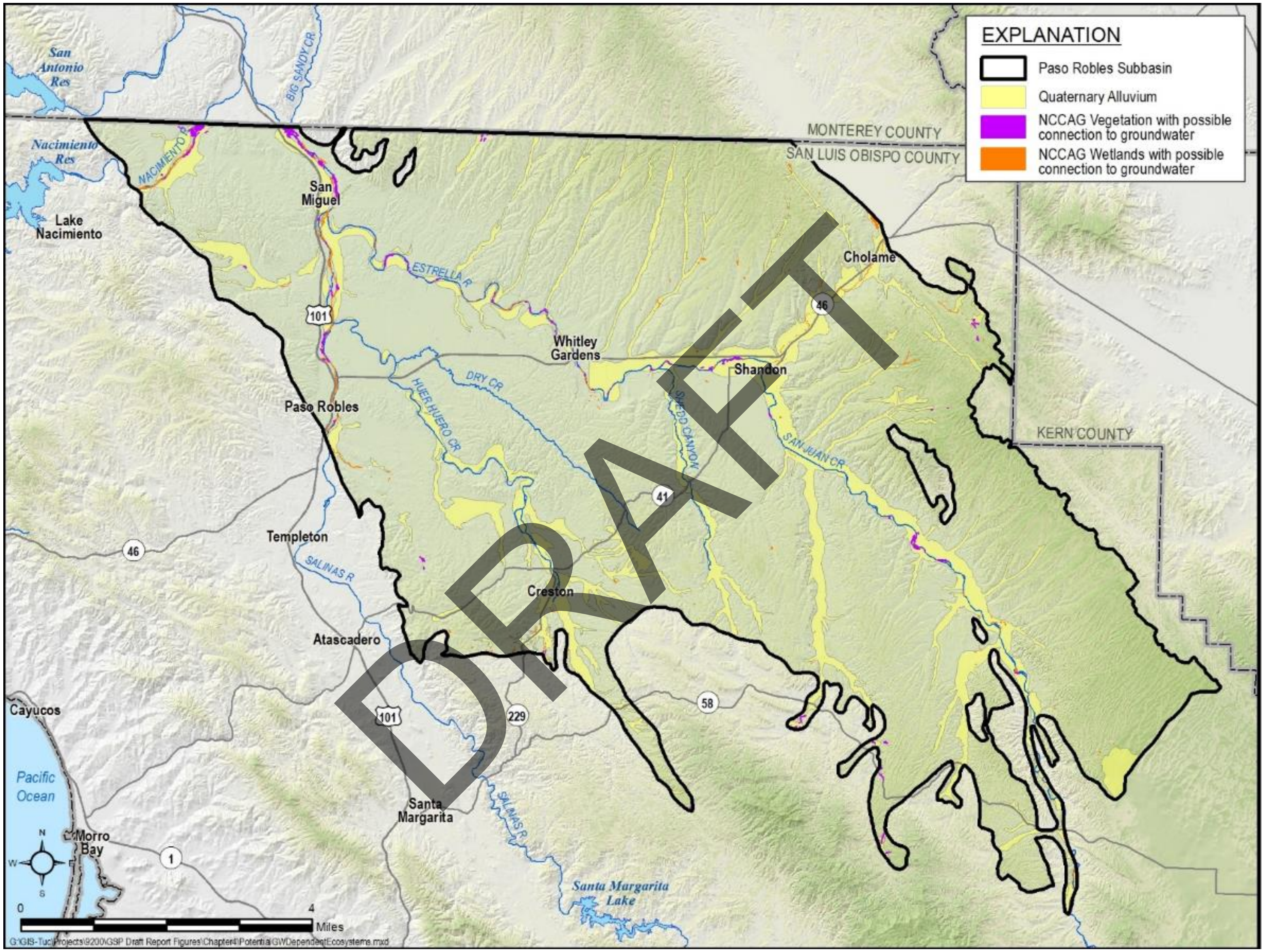

Figure 4-18. Potential Groundwater- Dependent Ecosystems

4.8 Surface Water Bodies

Figure 4-19 shows the rivers in the Subbasin that are considered significant to the management of groundwater in the Subbasin. Significant streams that are mostly perennial in the Subbasin include the Nacimiento River, Salinas River, the Estrella River, Huer Huero Creek, San Juan Creek, Dry Creek, and Shedd Canyon. Shell Creek is not included in this list since it is classified as either intermittent or ephemeral with no perennial stretches. These rivers and creeks are ephemeral, and during most of the year the streams lose water to the shallow aquifers. A complete description and quantification of the stream/aquifer interaction is included in Chapters 5 and 6. There are no natural lakes in the Subbasin.

There are no reservoirs within the Subbasin; however, there are two reservoirs in the watershed. The Salinas Dam south of the Subbasin on the Salinas River forms Santa Margarita Lake. The Salinas Dam was constructed in the early 1940s as an emergency measure to provide adequate water supplies for Camp San Luis Obispo. The United States Army Corps of Engineers (USACE) now has jurisdiction over the dam and reservoir facilities. The City of San Luis Obispo has an agreement with USACE to divert the entire yield of Salinas Reservoir (Santa Margarita Lake) for water supply. Nacimiento Reservoir lies just outside of the Subbasin to the northwest. The reservoir discharges to the Nacimiento River, which crosses the northwest corner of the Subbasin.

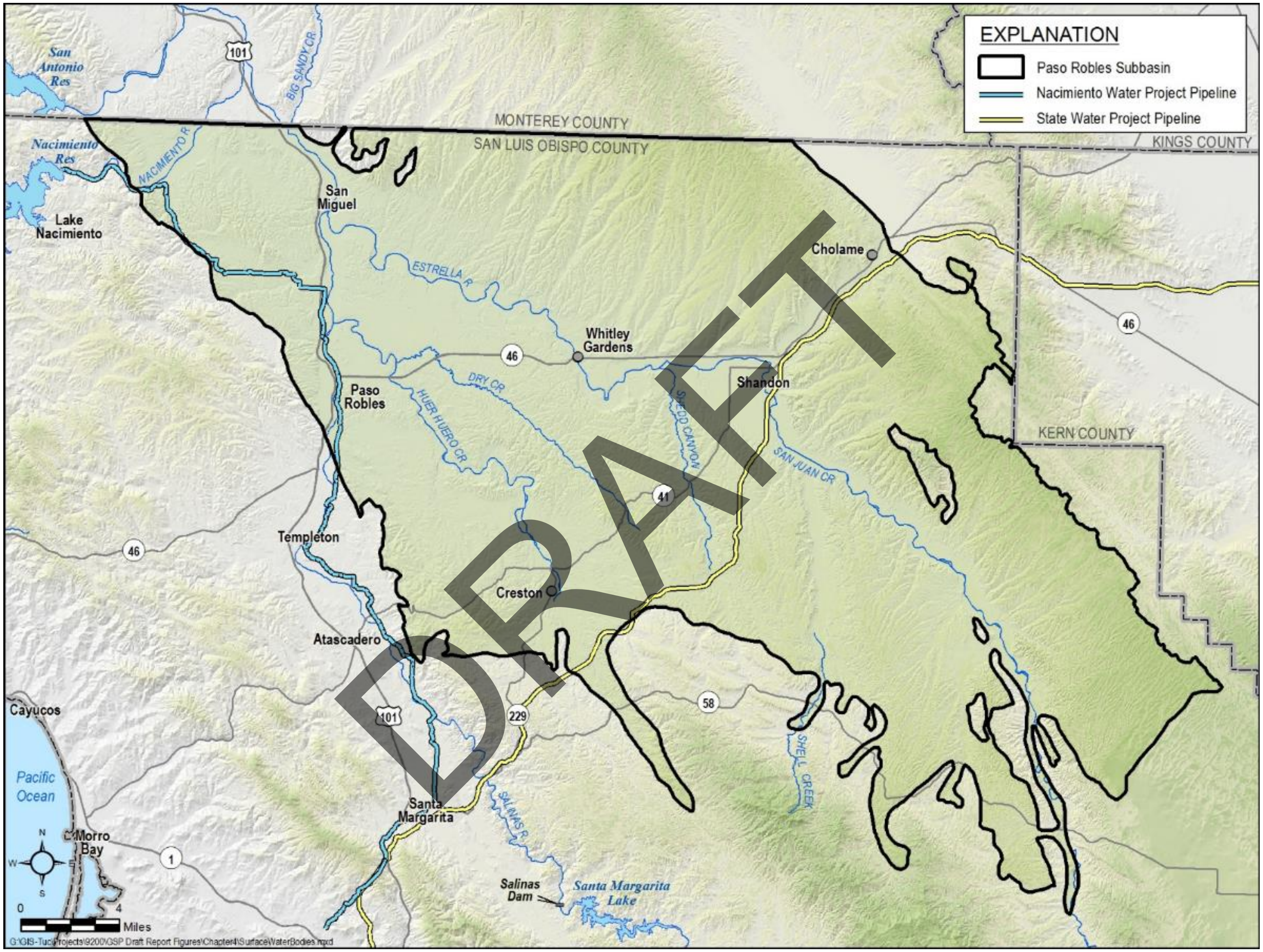

Figure 4-19. Surface Water Bodies

4.9 Data Gaps in the Hydrogeologic Conceptual Model

All hydrologic conceptual models contain a certain amount of uncertainty, and can be improved with additional data and analysis. The hydrogeologic conceptual model of the Paso Robles Subbasin could be improved with certain additional data and analyses. Several data gaps are identified below.

4.9.1 Aquifer Continuity

Aquifer continuity has a significant impact on how projects and management actions in one part of the Subbasin may influence sustainability in other parts of the Subbasin. As noted earlier, the Paso Robles aquifer comprises many discontinuous sand and gravel beds. However, Figure 4-12 shows a previous interpretation of a deep sand and gravel zone that is relatively continuous across the Subbasin. The continuity of this zone may prove to be important in how effective various projects and programs may promote sustainability. The extent and continuity of the Paso Robles Aquifer should be confirmed through existing or new well logs or other methods such as aerial geophysics. This is particularly important in the areas around Shandon and San Juan. Chapter 10 addresses the implementation plan for addressing data gaps.

4.9.2 Fault Influence on Groundwater Flow

Southeast of Paso Robles is an interbasin fault. It is unknown whether this fault and others are barriers to groundwater flow. If these interbasin faults are barriers to groundwater flow, they could compartmentalize the Subbasin and have a significant impact on where projects must be located in order to achieve sustainability. It may be possible to get a better understanding of the influence of these faults by performing aquifer tests and geophysical surveys in the vicinity of these faults.

4.9.3 Vertical Groundwater Gradients

There are limited data that demonstrate vertical hydraulic gradients across the basin. Data from a single set of nested wells are presented in Chapter 5; the data are inconclusive to establish a consistent upward or downward vertical gradient. More data about vertical gradients are included in Chapter 5. Demonstrating vertical gradients could be important to assess vertical flows between the Alluvium and the Paso Robles Aquifer as well as vertical flows within the Paso Robles Aquifer.

4.9.4 Specific Yield Estimates

The current estimates of specific yield of the various sedimentary layers composing the Paso Robles Aquifer are based on very limited data. This is a data gap that when filled, will improve the ability of the Model to reflect Basin conditions and interactions.

5 GROUNDWATER CONDITIONS

This chapter describes the current and historical groundwater conditions in the Alluvial Aquifer and the Paso Robles Formation Aquifer in the Paso Robles Subbasin. In accordance with the SGMA emergency regulations §354.16, current conditions are any conditions occurring after January 1, 2015. By implication, historical conditions are any conditions occurring prior to January 1, 2015. The chapter focuses on information required by the GSP regulations and information that is important for developing an effective plan to achieve sustainability. The organization of Chapter 5 aligns with the five sustainability indicators applicable to the Subbasin. As required by the regulations, these are:

1. Chronic lowering of groundwater elevations
2. Changes in groundwater storage
3. Subsidence
4. Depletion of interconnected surface waters
5. Groundwater quality

The sixth sustainability indicator, seawater intrusion, is not applicable to the Paso Robles Subbasin.

5.1 Groundwater Elevations

The following assessment of groundwater elevation conditions is largely based on data from the SLOFCWCD's groundwater monitoring program. Groundwater levels are measured by the SLOFCWCD through a network of public and private wells in the Subbasin. Additional groundwater elevation data for wells were obtained from other available data sources, including the CASGEM database, USGS, and other regulatory compliance programs. Locations of the wells (about 50 to 55 depending on year) used for the groundwater elevation assessment are shown on Figure 5-1. Data from some of the wells on this figure was collected subject to confidentiality agreements between the SLOFCWCD and well owners. Consistent with the terms of such agreements, the well owner information and specific locations for these wells is not published in this GSP. The set of wells shown on Figure 5-1 were selected from a larger set of monitoring wells in the SLOFCWCD database if there was sufficient information to assign the well to either the Alluvial Aquifer or Paso Robles Formation Aquifer. Additionally, in order to create maps showing historical water level changes over an approximately 20-year period, the wells were chosen if there was data from the years 1997 and 2017.

Groundwater elevation data were deemed representative of static conditions based on a check of consistency with nearby wells. Additional information on the monitoring network is provided in Chapter 7 – Monitoring Networks. In accordance with the SGMA Regulations, the following information is presented based on available data, in subsequent subsections for both aquifers in the Subbasin:

- Groundwater elevation contour maps for the seasonal high and low periods for 1997 and 2017
- A map depicting the change in groundwater elevation between 1997 and 2017
- Hydrographs for wells with publicly available data
- Assessments of horizontal and vertical groundwater gradients

5.1.1 Alluvial Aquifer

Groundwater elevation data for the Alluvial Aquifer are limited. The locations of the Alluvial Aquifer monitoring wells with available groundwater elevation data are shown on Figure 5-1. Some Alluvial Aquifer wells are all in the Alluvium as mapped in Figure 4-4, although some are not adjacent to mapped, named streams.

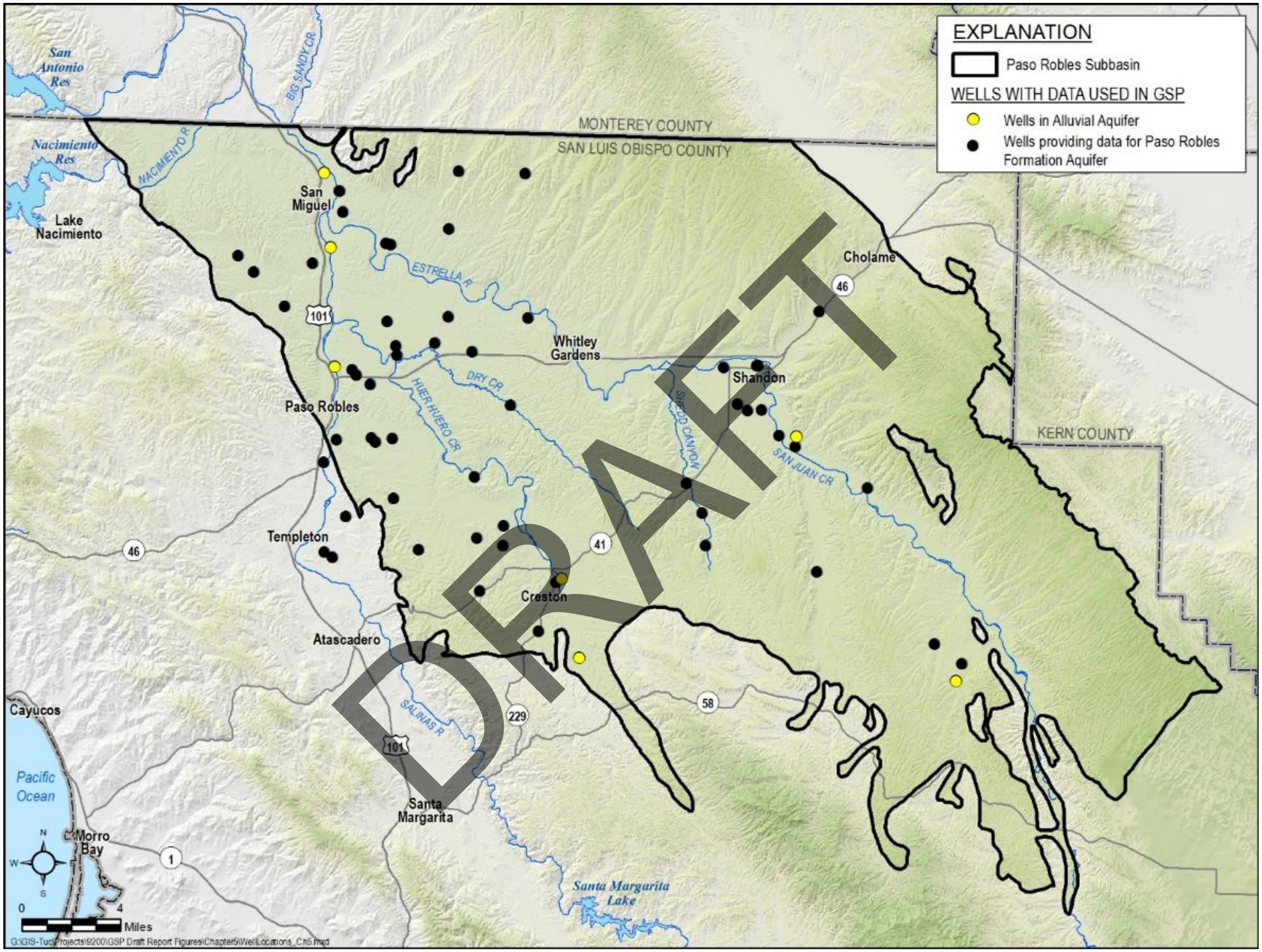

Figure 5-1. Location of Wells Used for Groundwater Elevation Assessments

5.1.1.1 Alluvial Aquifer Groundwater Elevation Contours and Horizontal Groundwater Gradients

Groundwater elevation data for the Alluvial Aquifer are too limited to prepare representative contour maps of the seasonal high and seasonal low groundwater elevations, or to prepare maps of historical groundwater elevations. Figure 5-2 shows current groundwater elevation contours for the Alluvial Aquifer. The contours were developed using 2017 data when available and the most recent data prior to 2017. Contours are only depicted on the map in areas near the wells that are shown on Figure 5-1.

Groundwater elevations range from approximately 1,400 feet above mean sea level (ft msl) in the southeastern portion of the Subbasin to approximately 600 ft msl near San Miguel. Groundwater flow direction is inferred as being from high to low elevations in a direction perpendicular to groundwater elevation contours. Groundwater flow direction in the Alluvial Aquifer generally follows the alignment of the creeks and rivers. Overall, groundwater in the Alluvial Aquifer flows from southeast to northwest across the Subbasin. Groundwater elevation data in the Alluvial Aquifer are too sparse to estimate local horizontal groundwater gradients. On a basin-wide scale, the average horizontal hydraulic gradient in the alluvium is about 0.004 ft/ft from the southeastern portion of the Subbasin to San Miguel.

5.1.1.2 Alluvial Aquifer Hydrographs

Groundwater level data for all of the Alluvial Aquifer wells shown on Figure 5-1 were collected under confidentiality agreements. Therefore, hydrographs for the Alluvial Aquifer are not included in this GSP. The lack of publicly available groundwater level data for the Alluvial Aquifer is a significant data gap. The approach for filling data gaps is presented in Chapter 10.

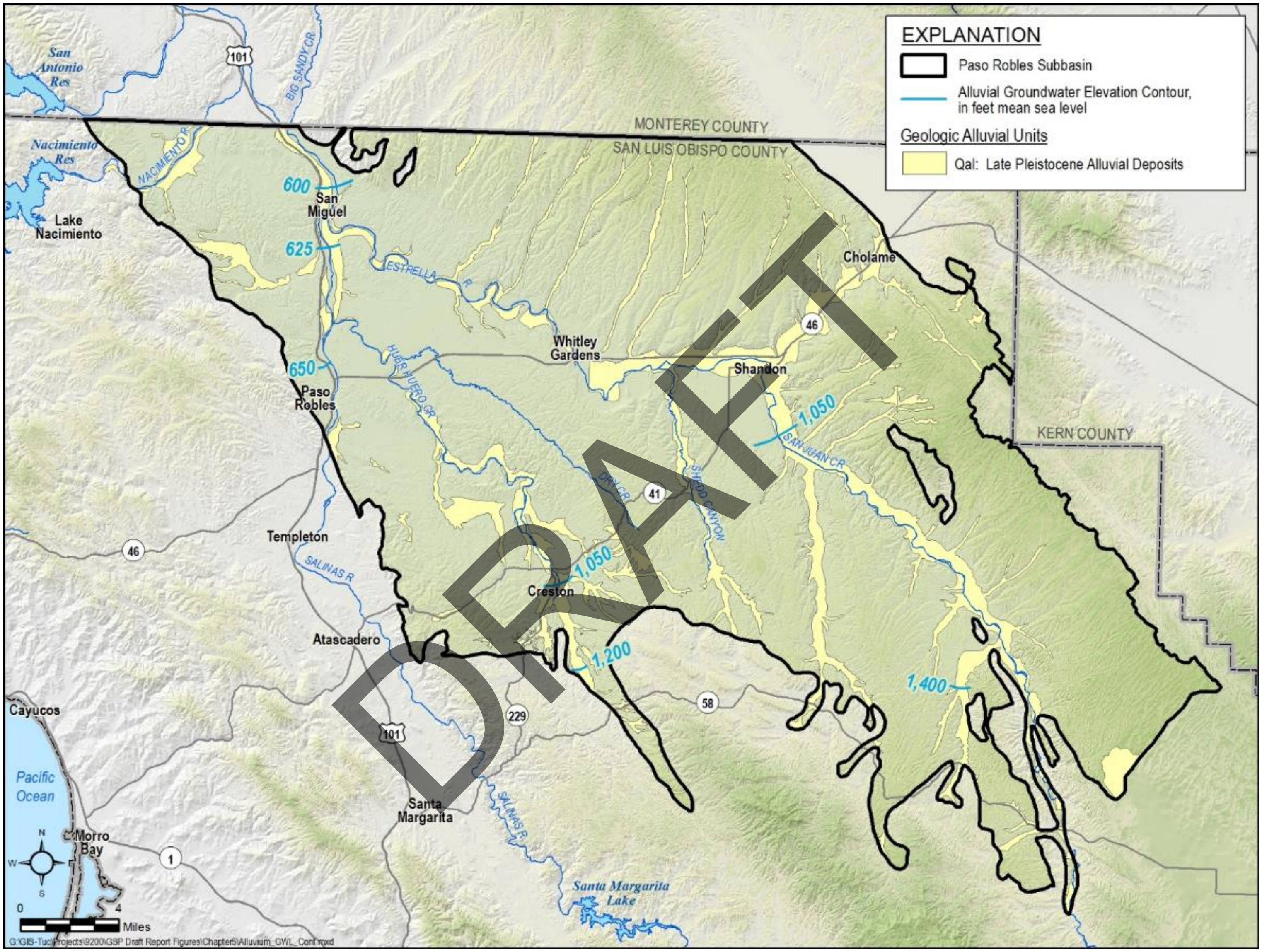

Figure 5-2. Groundwater Elevation Contours for the Alluvial Aquifer

5.1.2 Paso Robles Formation Aquifer

The locations of the Paso Robles Formation Aquifer monitoring wells used to assess the hydrogeologic conditions of the Paso Robles Formation Aquifer are shown on Figure 5-1. Groundwater occurs in the Paso Robles Formation Aquifer under unconfined, semi-confined, and confined conditions.

5.1.2.1 Paso Robles Aquifer Groundwater Elevation Contours and Horizontal Groundwater Gradients

Groundwater elevation data for 1997 and 2017, respectively, for the Paso Robles Formation Aquifer were contoured to assess current spatial variations, groundwater flow directions, and horizontal groundwater gradients. Contour maps were prepared for the seasonal high groundwater levels, which is typically in the spring, and the seasonal low groundwater levels, which is typically in the fall In general, the spring groundwater data are for April and the fall groundwater data are for October. Data from public and private wells were used for contouring; information identifying the owner or detailed location of private wells is not shown on the maps. The contours are based on groundwater elevations measured at the well locations shown on Figure 5-1. Contour maps were generated using a computer-based contouring program and checked for representativeness by a qualified hydrogeologist. Groundwater elevation data deemed unrepresentative of static conditions or obviously erroneous were not used for contouring. Similar to groundwater elevation contour maps prepared for previous studies, close inspection of the maps indicates localized areas where interpolated groundwater elevations are above land surface. This typically occurs near streams and incised drainages where land surface tends to be locally lower than surrounding areas. While it is hydrologically possible that groundwater elevations in the Paso Robles Formation Aquifer are above land surface in some local areas, this is more likely an artifact of the computer contouring of sparse groundwater elevation data.

Figure 5-3 and Figure 5-4 show contours of historical groundwater elevations in the Paso Robles Formation Aquifer for spring 1997 and fall 1997, respectively. Overall, groundwater conditions in the Subbasin in the spring and fall of 1997 are similar, but groundwater elevations are generally lower in the fall than spring. Groundwater elevations ranged from about 1,300 ft msl in the southeast portion of the Subbasin to about 550 ft msl near the City of Paso Robles and the town of San Miguel (Figure 5-3 and Figure 5-4). Groundwater flow direction is inferred as being from high to low elevations in a direction perpendicular to groundwater elevation contours. Groundwater flow direction is generally to the northwest and west over most of the Subbasin, except in the area north of Paso Robles where groundwater flow is to the northeast. In general, groundwater flow in the western portion of the Subbasin tends to converge toward areas of low groundwater elevations.

Groundwater gradients range from approximately 0.003 ft/ft in the southeast portion of the Subbasin to approximately 0.01 ft/ft in the areas both southeast of Paso Robles and northwest of Whitley Gardens. The steepest groundwater gradients in the Subbasin are on the margins of the pumping depression in the vicinity of the city of Paso Robles and community of San Miguel.

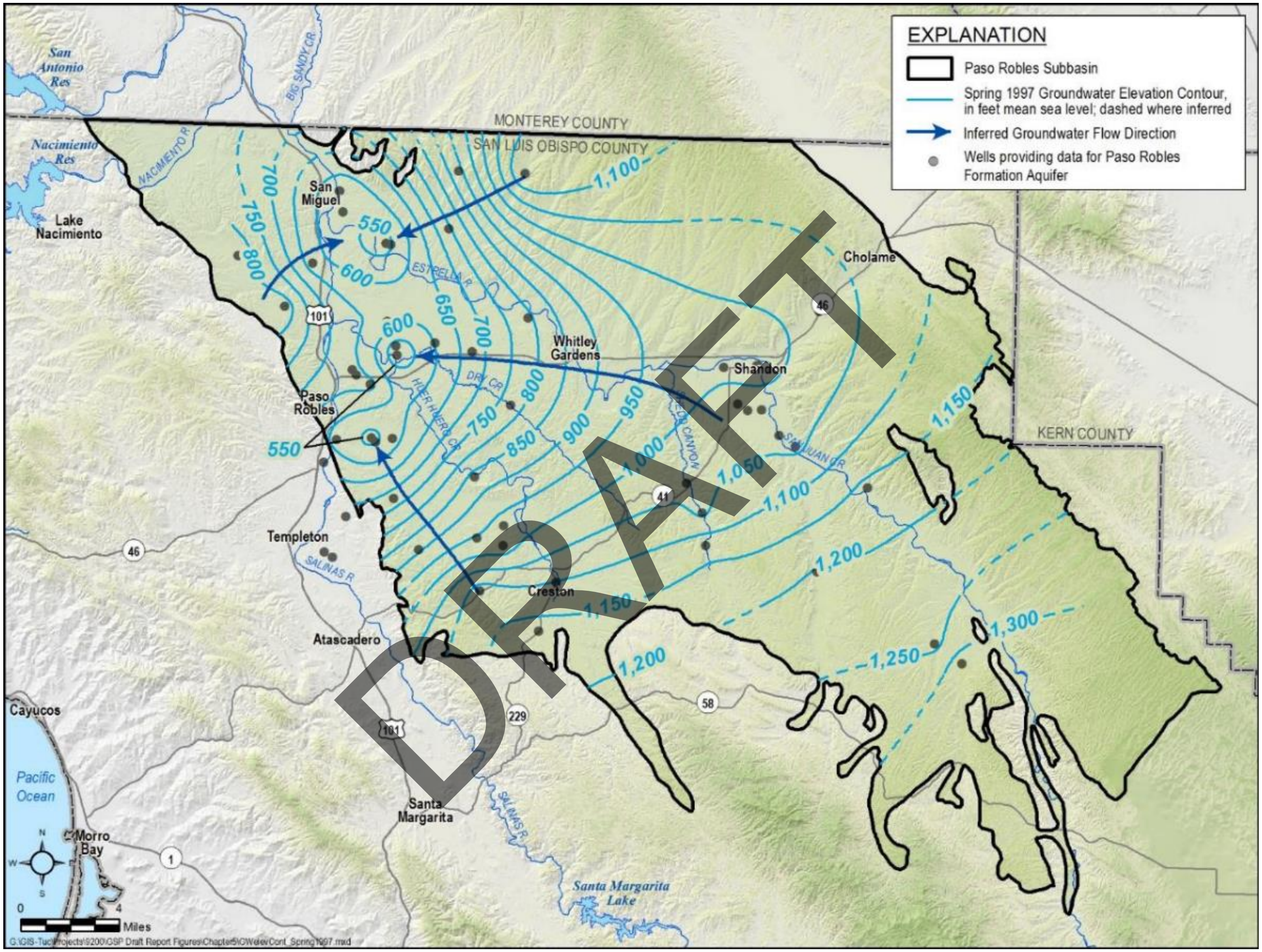

Figure 5-3. Paso Robles Formation Aquifer Spring 1997 Groundwater Elevation Contours

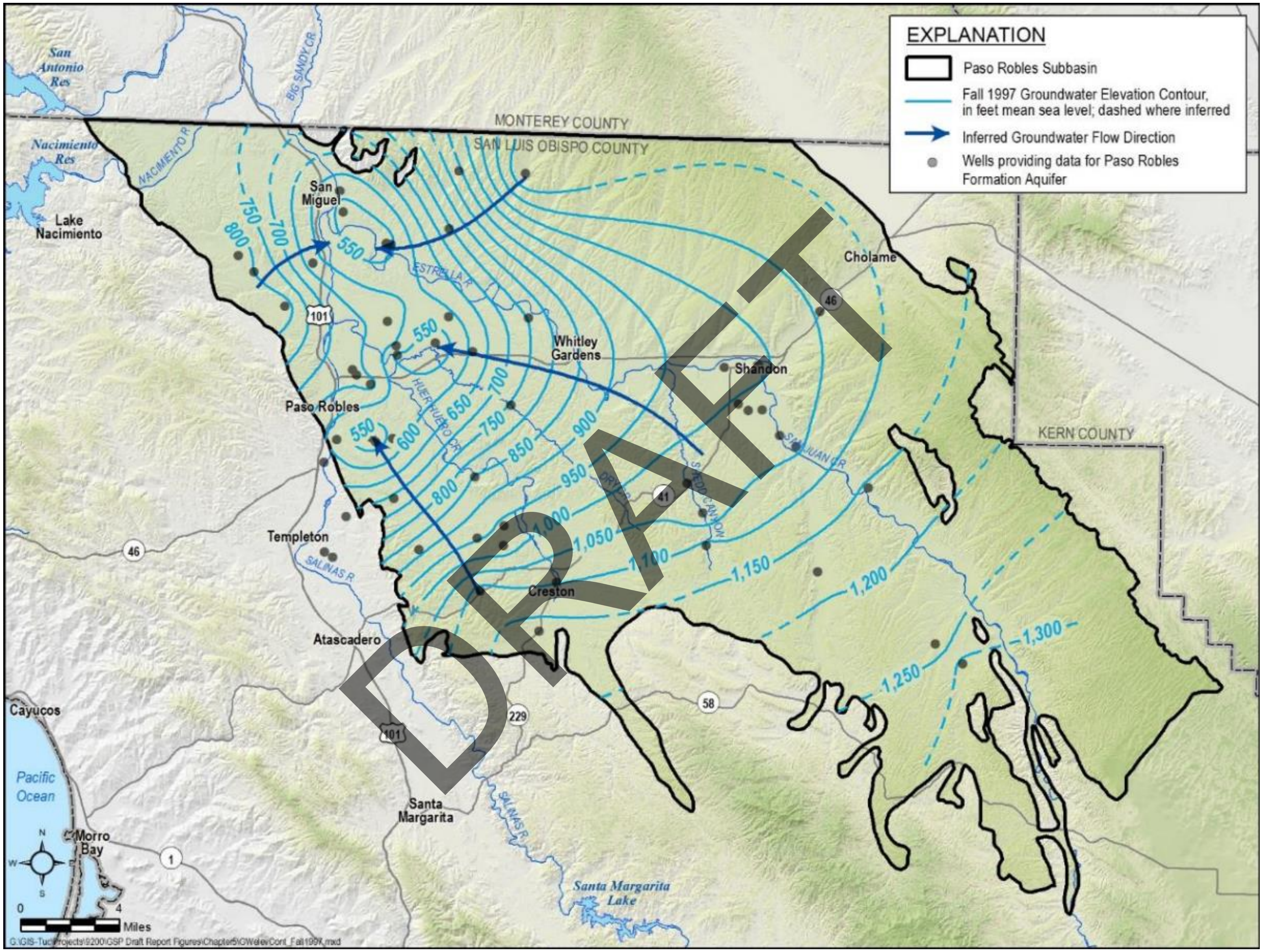

Figure 5-4. Paso Robles Formation Aquifer Fall 1997 Groundwater Elevation Contours

Figure 5-5 and Figure 5-6 show contours of current groundwater elevations in the Paso Robles Formation Aquifer for spring 2017 and fall 2017, respectively. Overall, groundwater conditions in the Subbasin in the spring and fall of 2017 were similar. Close inspection of the contour maps indicates that groundwater elevations are generally lower in the fall than spring. Groundwater elevations in 2017 are also lower than groundwater elevations in 1997. Groundwater elevations in 2017 ranged from about 1,250 ft msl in the southeast portion of the Subbasin to about 500 ft msl east of the City of Paso Robles (Figure 5-5 and Figure 5-6). Groundwater flow direction is inferred as being from high to low elevations in a direction perpendicular to groundwater elevation contours. Groundwater flow direction is generally to the northwest and west over most of the Subbasin, except in the area north of the City of Paso Robles where groundwater flow is to the northeast. In general, groundwater flow in the western portion of the Subbasin tends to converge toward areas of low groundwater elevations. These areas of low groundwater elevation are caused by pumping in the area between the City of Paso Robles and the communities of San Miguel and Whitley Gardens. Horizontal groundwater gradients range from approximately 0.002 foot/foot in the southeast portion of the Subbasin to approximately 0.02 foot/foot in the area southeast of Paso Robles. The steepest horizontal groundwater gradients in the Subbasin in 2017 are on the margins of the pumping depression east of Paso Robles and southeast of the community of San Miguel.

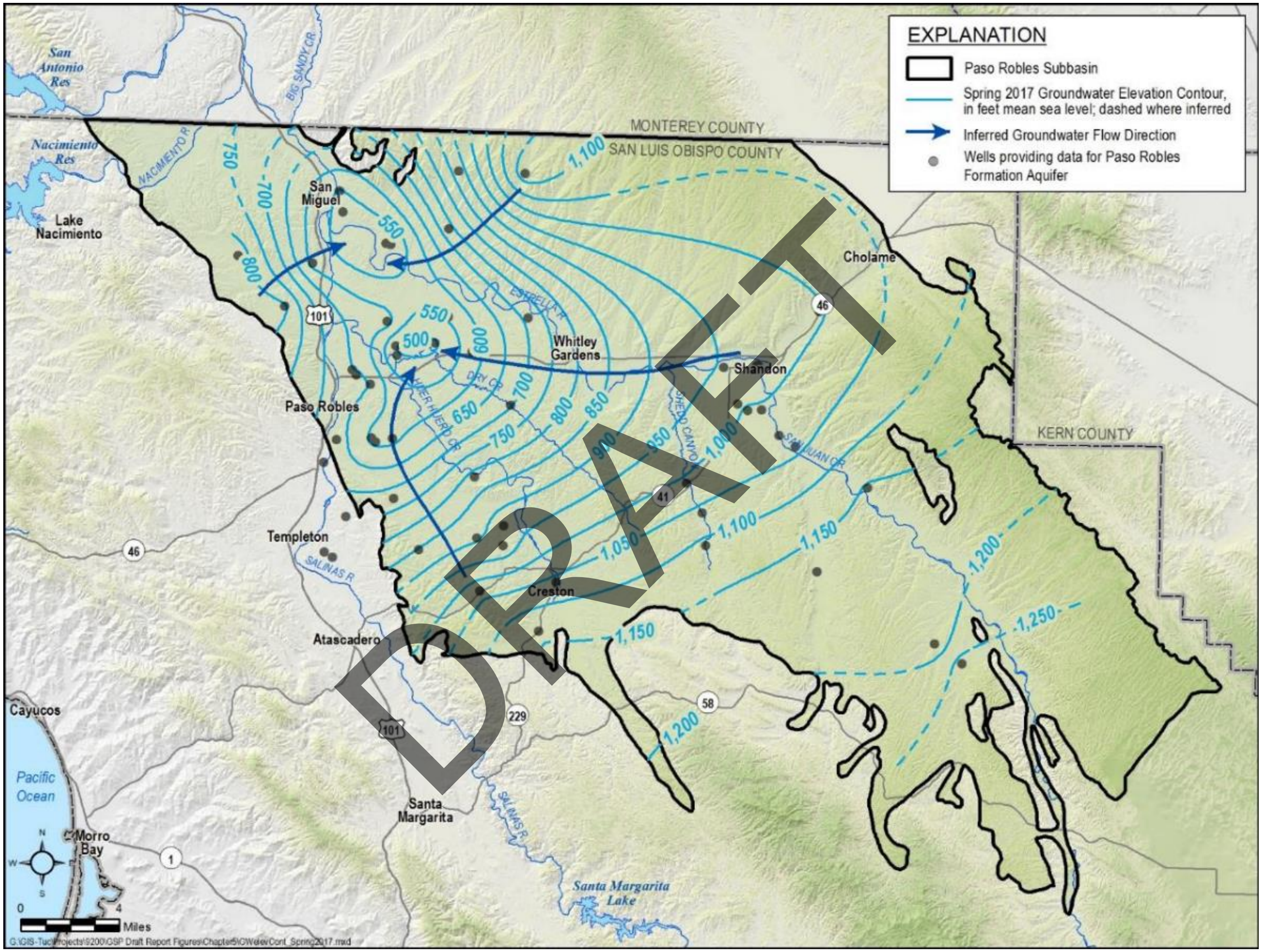

Figure 5-5. Paso Robles Formation Aquifer Spring 2017 Groundwater Elevation Contours

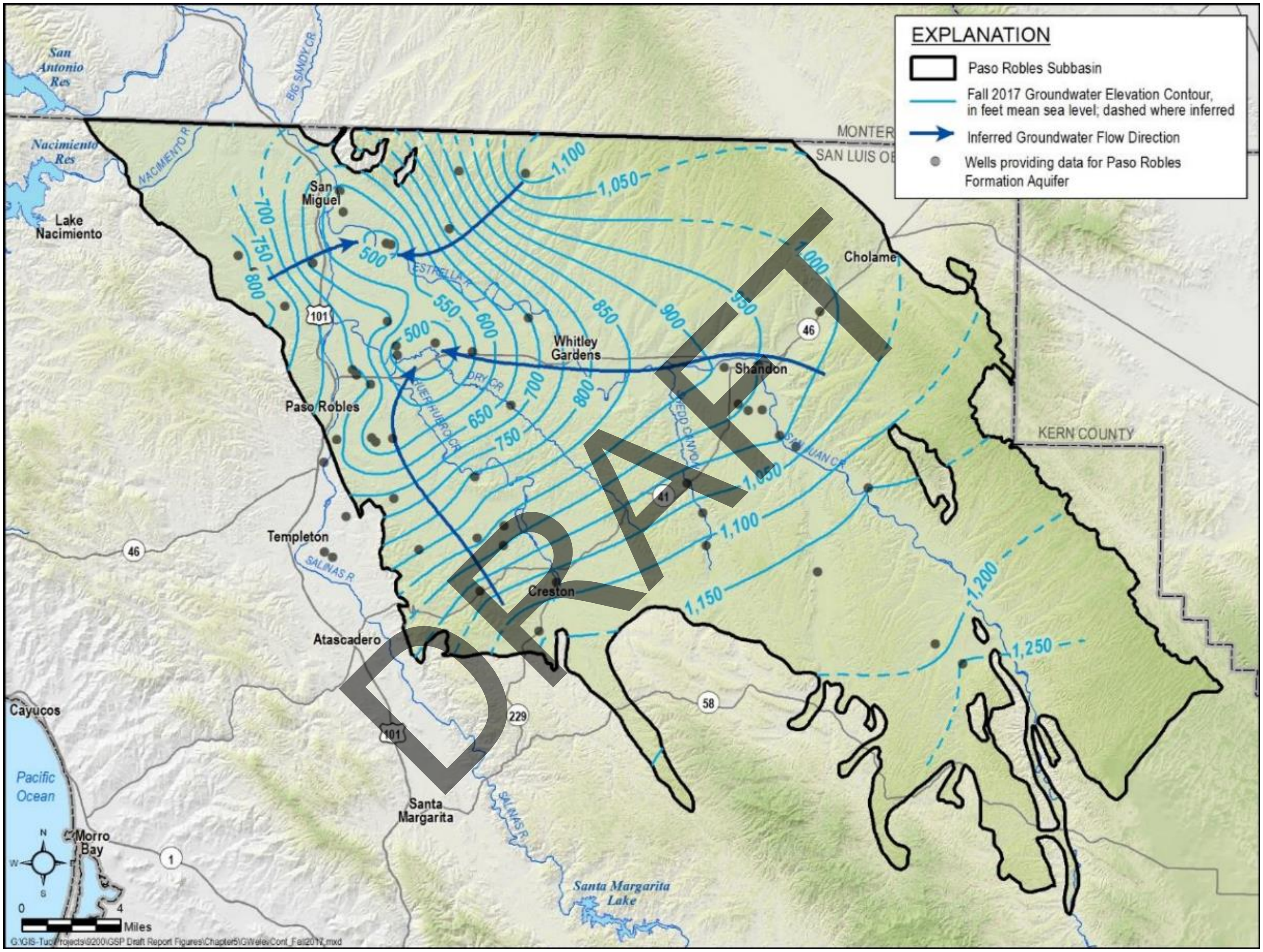

Figure 5-6. Paso Robles Formation Aquifer Fall 2017 Groundwater Elevation Contours

Figure 5-7 depicts the change in spring groundwater elevations in the Paso Robles Formation Aquifer between 1997 and 2017. Figure 5-8 depicts the change in fall groundwater elevations in the Paso Robles Formation Aquifer between and 1997 and 2017. Groundwater elevations are lower in 2017 than 1997 throughout most of the Subbasin. In general, the pattern of groundwater level decline in the spring and fall are similar, with a more pronounced area of decline extending toward Shandon in the fall. More than 80 feet of decline is observed in places during this period. Areas of largest decline are east of Paso Robles, near Creston, and in the southeastern portion of the basin. Limited data suggest an area of higher groundwater elevations exists in the vicinity of Paso Robles in 2017 compared to 1997. The increase may be related to reductions in groundwater pumping and proximity to the Salinas River. Monitoring data obtained during plan implementation will be used to further evaluate these areas.

The groundwater level contours and groundwater level change maps in this GSP are based on a reasonable and thorough analysis of the currently available data. As discussed in Chapter 8, the monitoring network should be expanded to more completely assess Subbasin conditions and demonstrate compliance with the sustainability goal for the Subbasin. Expanding the monitoring network and acquiring more groundwater elevation data will allow the GSAs to refine and modify this GSP in the future based on a more complete understanding of Subbasin conditions.

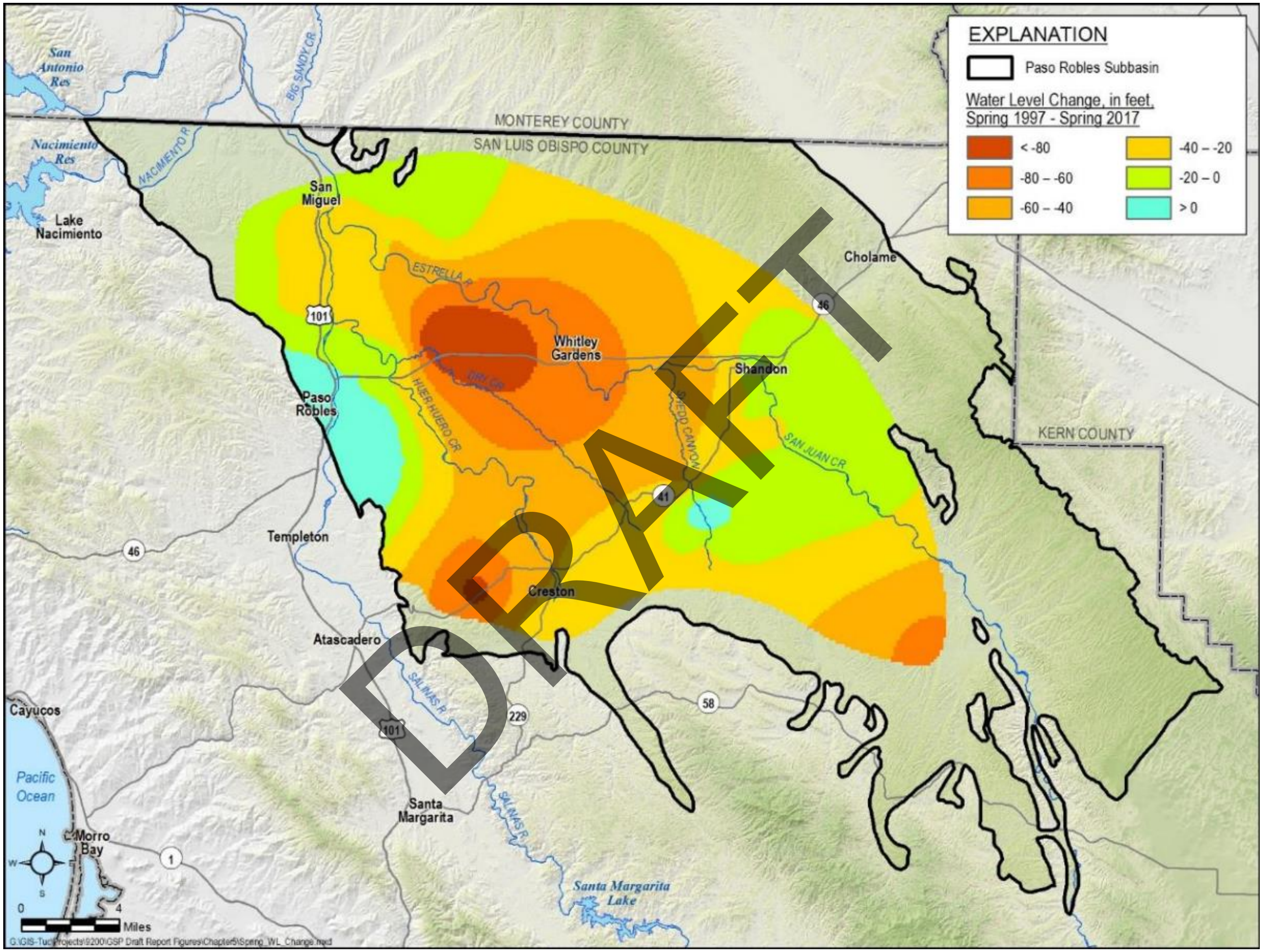

Figure 5-7. Paso Robles Formation Aquifer Change in Groundwater Elevation – Spring 1997 to Spring 2017

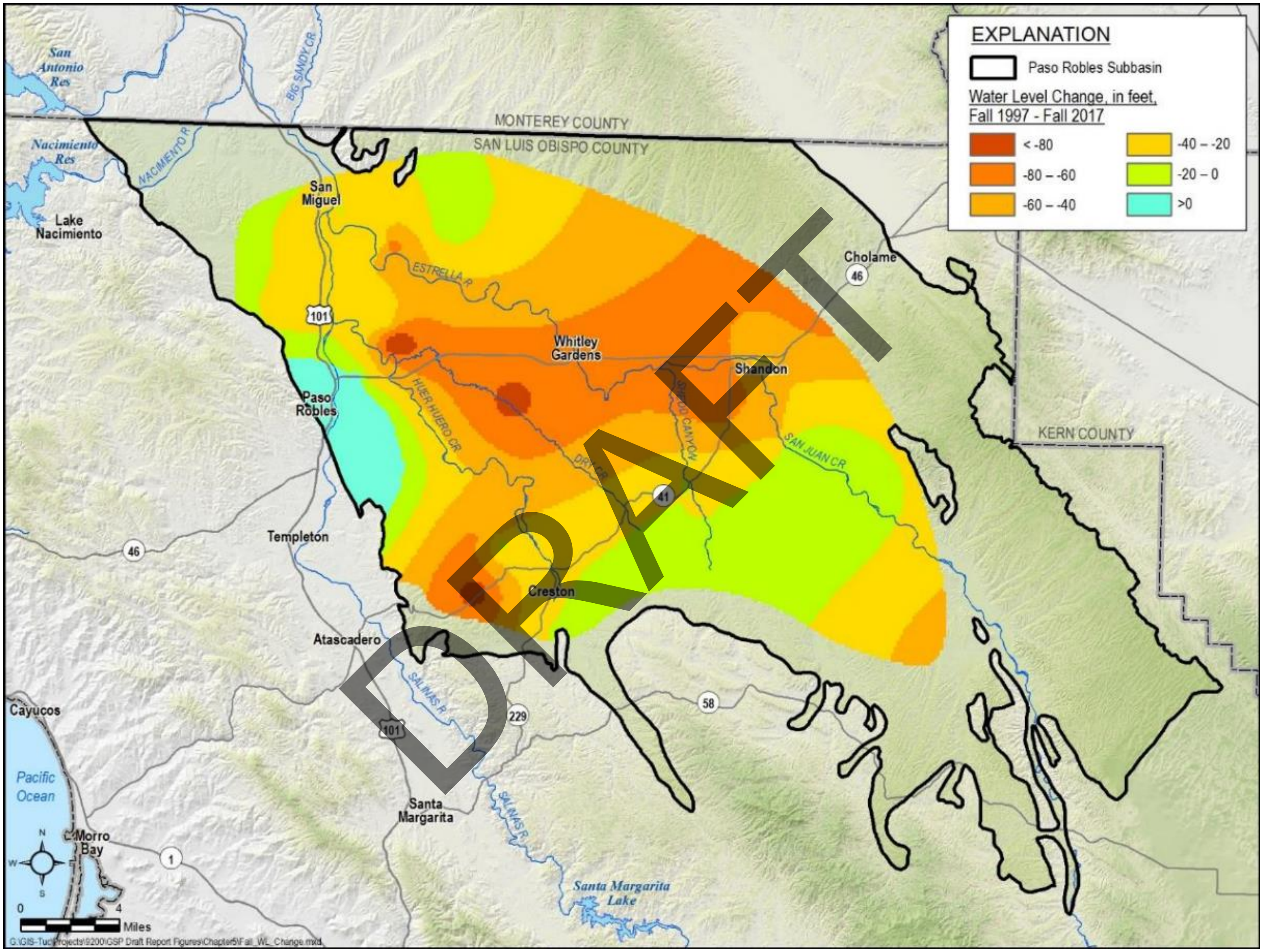

Figure 5-8. Paso Robles Formation Aquifer Change in Groundwater Elevation – Fall 1997 to Fall 2017

5.1.2.2 Paso Robles Formation Aquifer Hydrographs

Appendix D includes hydrographs for wells in the Paso Robles Formation Aquifer that have publicly available data. Only 22 of the monitoring wells have groundwater elevation data that were not collected under confidentiality agreements and sufficient information to confirm that the wells are screened in the Paso Robles Formation Aquifer. The lack of publicly available groundwater level data for the Paso Robles Formation Aquifer is a significant data gap. Long-term groundwater elevation declines are evident on some of the hydrographs shown in Appendix D. The magnitude of measured declines over the period of record is generally more than 50 feet at well 25S/12E-26L01, 26S/15E-20B02, and 27S/13E-28F01. Varying hydrogeology and pumping patterns in these locations leads to variable hydrographs for each of these wells.

The hydrographs show periods of climatic variations grouped by the following designations: wet, dry, or average/alternating wet and dry. Precipitation data were reviewed and analyzed to determine the occurrence and duration of wet and dry periods for the Paso Robles Subbasin. Precipitation from the Paso Robles weather station (NOAA station 46730) was used for this analysis because it is representative of conditions in the Subbasin and has the longest period of record of any station in the Subbasin. Figure 5-9 shows total annual precipitation by water year recorded at the Paso Robles station. Mean annual precipitation over the period 1925 to 2017 is 14.6 inches.

Wet and dry periods were determined based on a calculation and review of the Standardized Precipitation Index (SPI), which quantifies deviations from normal precipitation. The SPI was calculated at 1-, 2-, and 5-year time scales using the SPI Generator Tool developed by the National Drought Mitigation Center (NDMC, 2018). The 5-year, or 60-month SPI was selected as representative of multi-year meteorological fluctuations in the basin based on review of the data and computed SPI time series. For a given water year, the 60-month SPI quantifies the wetness or dryness of the preceding 60 months relative to the overall period of record. The annual time-series of the 60-month SPI was reviewed and generalized to determine wet and dry periods from 1930 to 2017 (Figure 5-9). A third category, “average/alternating”, is included for years during which the preceding 60-month period does not show a strong and persistent deviation from normal precipitation.

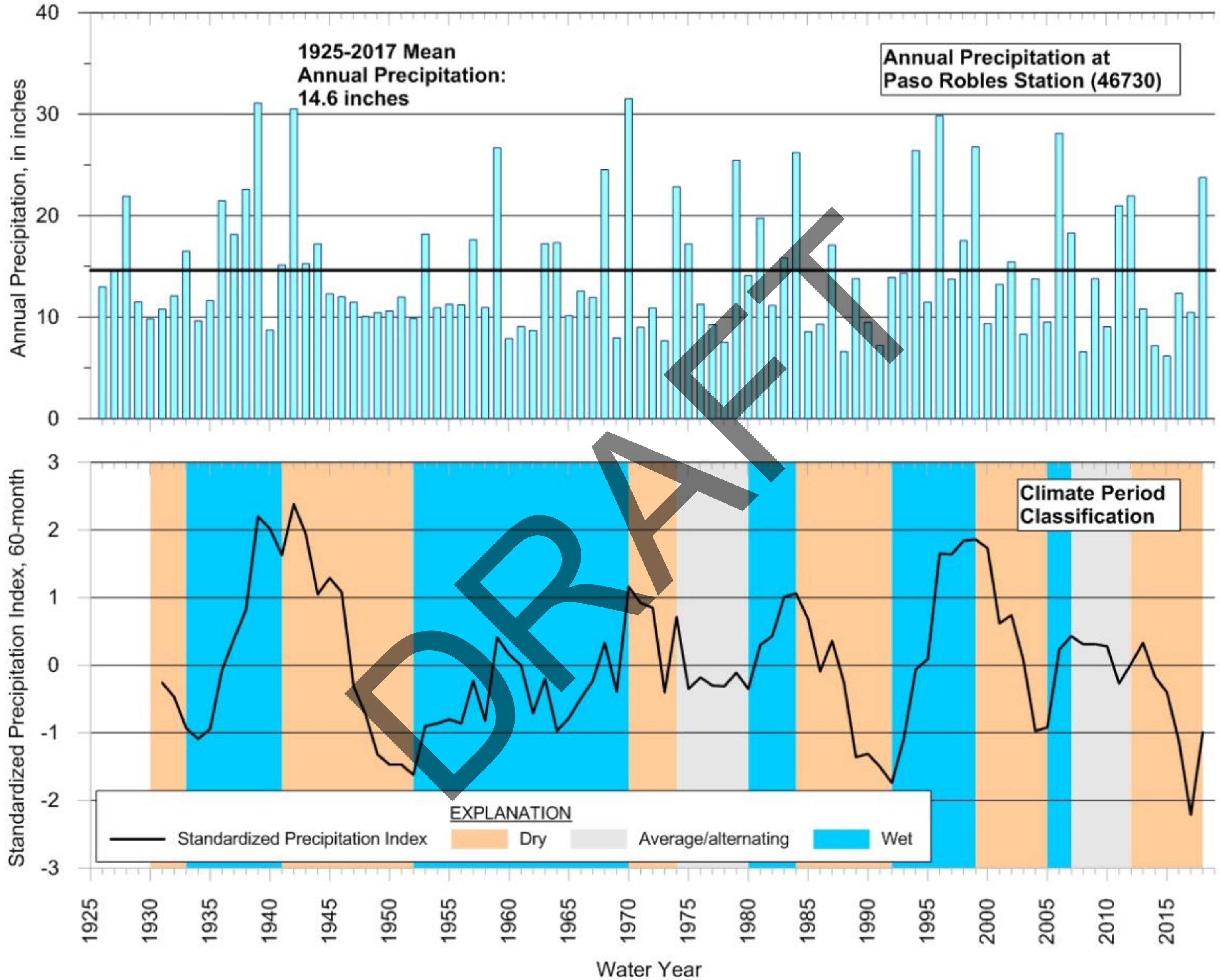

Figure 5-9. Climatic Periods in the Paso Robles Subbasin

5.1.3 Vertical Groundwater Gradients

SGMA regulations require assessment of vertical gradients to evaluate the vertical direction of groundwater movement between and within aquifers. Limited data exist to assess vertical groundwater gradients. Previous hydrologic studies of the Subbasin indicate that groundwater elevations are generally higher in the Alluvial Aquifer than the underlying Paso Robles Formation Aquifer, resulting in groundwater flow from the Alluvial Aquifer to the underlying Paso Robles Formation Aquifer (Fugro, 2005). The *Paso Robles Groundwater Basin Study, Phase II* (Fugro, 2005) stated that there is an assumed upward vertical groundwater gradient within the Paso Robles Formation near the northern portion of the Subbasin, although data were not provided to verify this assumption.

Vertical groundwater gradients can be estimated from nested or clustered wells. Wells 25S/12E-16K04, K05, and K06 are nested and provide groundwater elevation data from different depths in the Paso Robles Formation Aquifer near San Miguel. These wells are adjacent to a water supply well and therefore the vertical groundwater gradients may reflect local pumping conditions rather than broad, regional conditions. Hydrographs for these wells are shown on Figure 5-10. Groundwater levels in the shallowest well are shown with a green line, groundwater levels in the middle depth well are shown with a yellow line, and groundwater levels in the deepest well are shown with a red line. Prior to 2002, groundwater levels in the deepest well (red line) were generally higher than the groundwater levels in the middle and shallow wells, indicating an upward vertical groundwater gradient. A consistent vertical groundwater gradient is not apparent between the shallow and middle wells prior to 2002; groundwater elevations in the shallow and middle depth wells fluctuate around each other. After 2012, groundwater elevations in the deepest well were usually similar to or below the groundwater elevations in the shallow and middle depth wells; indicating a change to a downward vertical groundwater gradient.

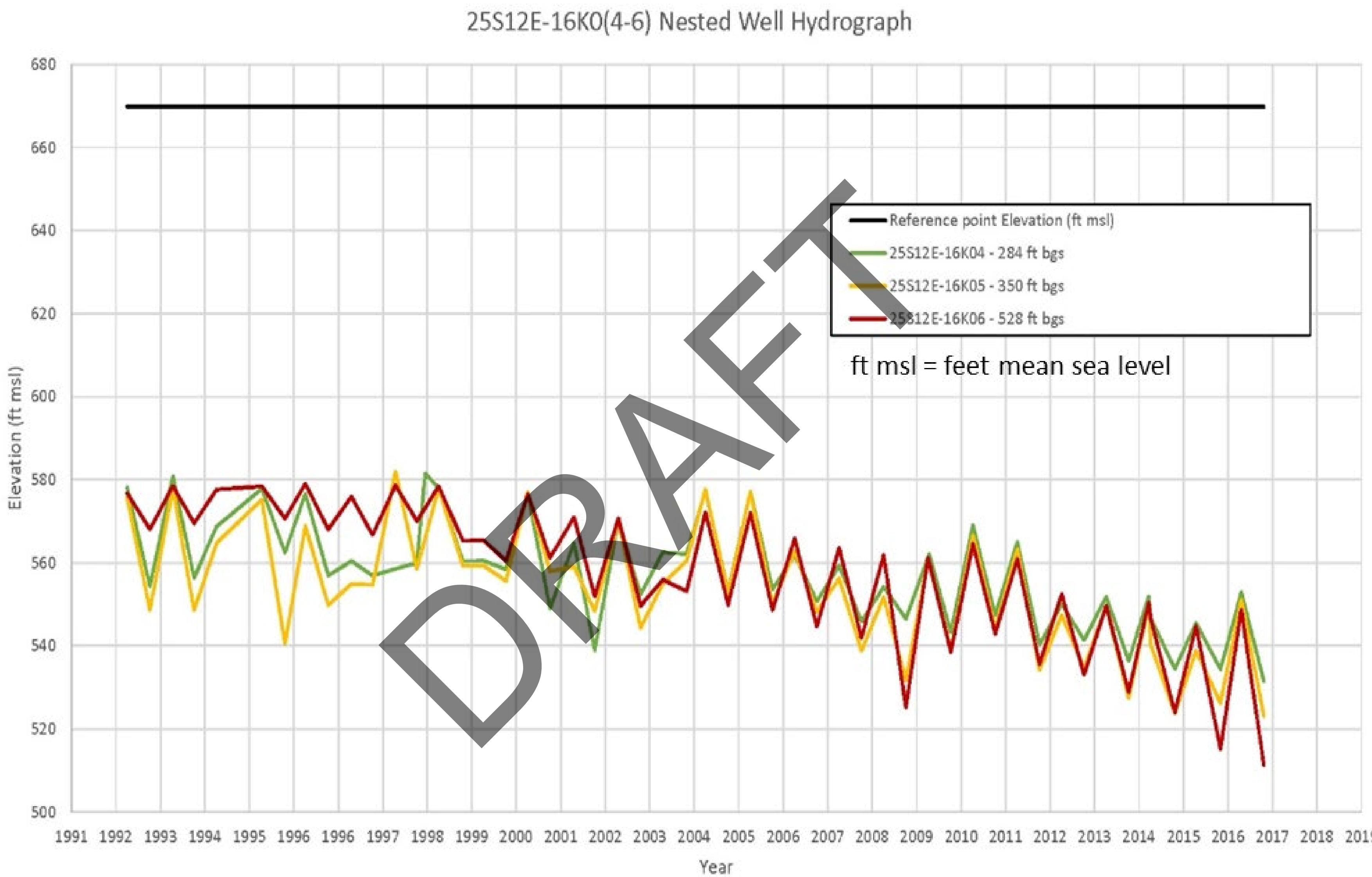

Figure 5-10. Vertical Groundwater Gradients near San Miguel

5.2 Change in Groundwater in Storage

This section summarizes changes in the amount of groundwater stored in the Subbasin. Changes in the amount of groundwater stored in the Subbasin was estimated for water years 1981 through 2016 using the updated Paso Robles Subbasin groundwater model. Chapter 6 provides additional information about the groundwater model.

5.2.1 Alluvial Aquifer

Figure 5-11 shows the cumulative change in the amount of groundwater stored in the Alluvial Aquifer for water years 1981 through 2016. The cumulative change is calculated as change since 1981. The period from 1981 through 2011 is considered representative of long-term hydrologic conditions prior to the drought period of 2012 through 2016. In accordance with SGMA Regulations § 354.16 (b), the graph also shows the estimated annual groundwater pumping derived from the updated groundwater model and wet, dry, and average/alternating climatic periods based on the analysis presented in Section 5.1.2.2. The cumulative change in storage is generally a function of both annual pumping and annual climatic conditions.

Over the period 1981 through 2011, the model indicates that approximately 20,000 acre-feet (AF) of storage change occurred in the Alluvial Aquifer. During the drought period 2012 through 2016, the model suggests a loss of groundwater in storage in the Alluvial Aquifer of about 50,000 AF. The loss of groundwater from storage during the drought represents an extreme condition which is not indicative of long-term storage trends in the Alluvial Aquifer.

As indicated on Figure 5-11, a decrease in the amount of groundwater stored in the Alluvial Aquifer generally occurs during dry periods and an increase in the amount of groundwater stored in the Alluvial Aquifer generally occurs during wet periods. During the period 1981 through 2011, estimated groundwater pumping from the Alluvial Aquifer decreased from about 6,000 AFY to about 2,000 AFY as indicated by the black bars on Figure 5-11. This suggests that the loss in groundwater in storage is not due to increased pumping, but is more likely a result of lack of recharge during low precipitation years.

The projections of groundwater storage loss in the Alluvial Aquifer were made using the groundwater model. Representation of groundwater conditions in the model for the Alluvial Aquifer is based on a relatively sparse groundwater level dataset. Available data suggest that groundwater levels in the Alluvial Aquifer over model period have been generally stable. This suggests that the amount of groundwater in storage has also been relatively stable. Additional groundwater elevation data will be obtained after GSP adoption to improve the understanding of groundwater conditions in the Alluvial Aquifer, update and recalibrate the groundwater model, and further evaluate groundwater storage conditions in the Alluvial Aquifer.

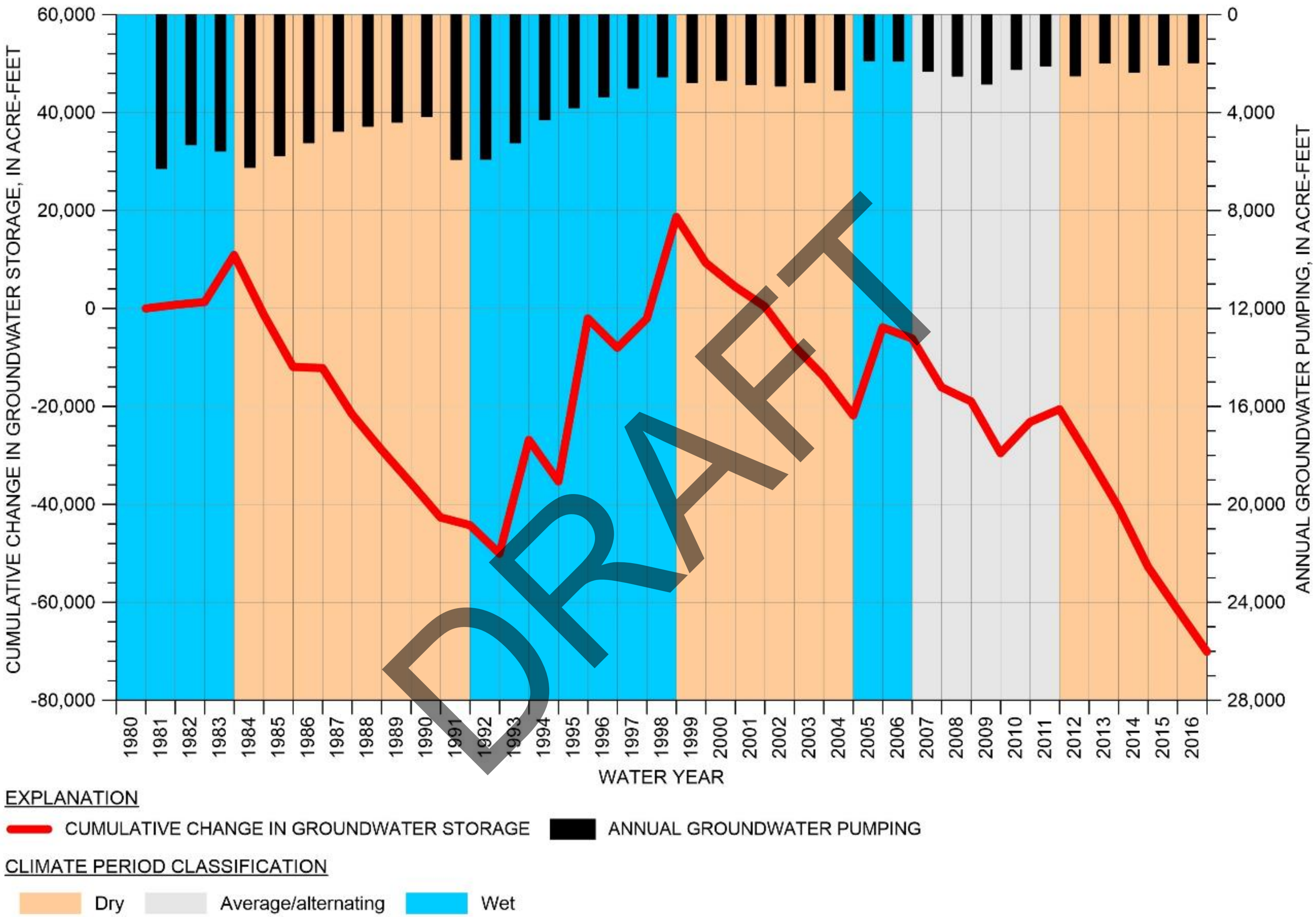

Figure 5-11. Estimated Cumulative Change of Groundwater in Storage in the Alluvial Aquifer

5.2.2 Paso Robles Formation Aquifer

Figure 5-12 shows the cumulative change of groundwater in storage in the Paso Robles Formation Aquifer for water years 1981 through 2016. In accordance with SGMA Regulations § 354.16 (b), the graph also shows the annual groundwater pumping and water year type. The climatic variation shown on Figure 5-12 is the same climatic variation developed on Figure 5-9. The cumulative change in storage is generally a function of both annual pumping and annual climatic conditions. Over the period 1981 through 2011, approximately 369,000 AF were removed from storage in the Paso Robles Formation Aquifer. Over the period 1981 through 2016, approximately 646,000 AF were removed from storage in the Paso Robles Formation Aquifer. Depletion of groundwater in storage generally occurs during dry periods and increases in groundwater in storage generally occur during wet periods, as indicated on Figure 5-12. Groundwater pumping decreased during the period from 1981 to 1999 and generally increased from 1999 to 2016. The loss in groundwater in storage in the Paso Robles Formation Aquifer appears to be from a combination of increased pumping since 1999 and a number of dry years with limited recharge.

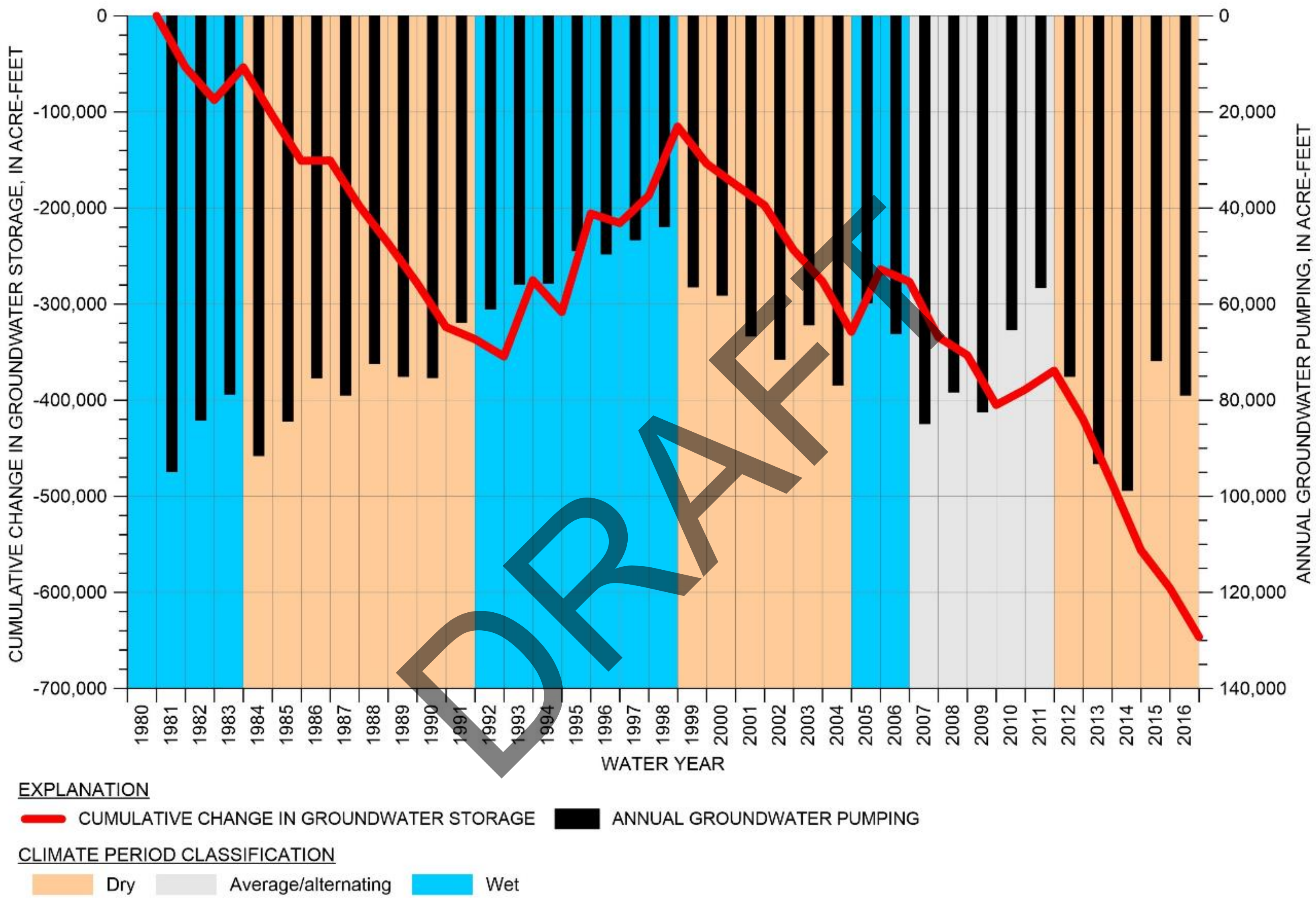

Figure 5-12. Estimated Cumulative Change of Groundwater in Storage in the Paso Robles Formation Aquifer

5.3 Seawater Intrusion

Seawater intrusion is not an applicable sustainability indicator for the Subbasin. The Subbasin is not adjacent to the Pacific Ocean, a bay, or inlet.

5.4 Subsidence

Land subsidence is the lowering of the land surface. While several human-induced and natural causes of subsidence exist, the only process applicable to the GSP is subsidence due to lowered groundwater elevations caused by groundwater pumping.

Historical subsidence can be estimated using Interferometric Synthetic Aperture Radar (InSAR) data provided by DWR. InSAR measures ground elevation using microwave satellite imagery data. DWR provides maps of the Subbasin depicting the difference in InSAR measured ground surface elevation for any two months between June 2015 and June 2018.

The InSAR data provided by DWR is subject to measurement error. DWR has stated that, on a statewide level, the total vertical displacement measurements between June 2015 and June 2018 is subject to two error sources (Brezing, personal communication):

1. The error between InSAR data and continuous GPS data is 16 mm (0.052 feet) with a 95% confidence level
2. The measurement accuracy when converting from the raw InSAR data to the maps provided by DWR is 0.048 feet with 95% confidence level.

Simply adding the errors 1 and 2 results in a combined potential error of 0.1 foot (or 1.2 inches). While this is not a robust statistical analysis, it does provide an estimate of the potential error in the InSAR maps provided by DWR. A land surface change of less than 0.1 feet is therefore within the noise of the data, and is equivalent to no subsidence in this GSP.

Figure 5-13 shows the InSAR measured subsidence in the Subbasin. The yellow area on Figure 5-13 is the area with measured ground surface rise or drop of less than 0.1 feet. This is within the measurement error and therefore is an area of no subsidence. The green area on Figure 5-13 is the area with measured ground surface drop of between 0.1 feet and 0.125 feet. This is slightly outside the measurement area, and may indicate subsidence of up to 0.025 feet over three years, or approximately 0.1 inches per year. This is a minor rate of subsidence and is relatively insignificant and not a major concern for the Subbasin. However, ongoing subsidence over many years could add up to a more significant ground surface drop and the GSAs will continue to monitor annual subsidence.

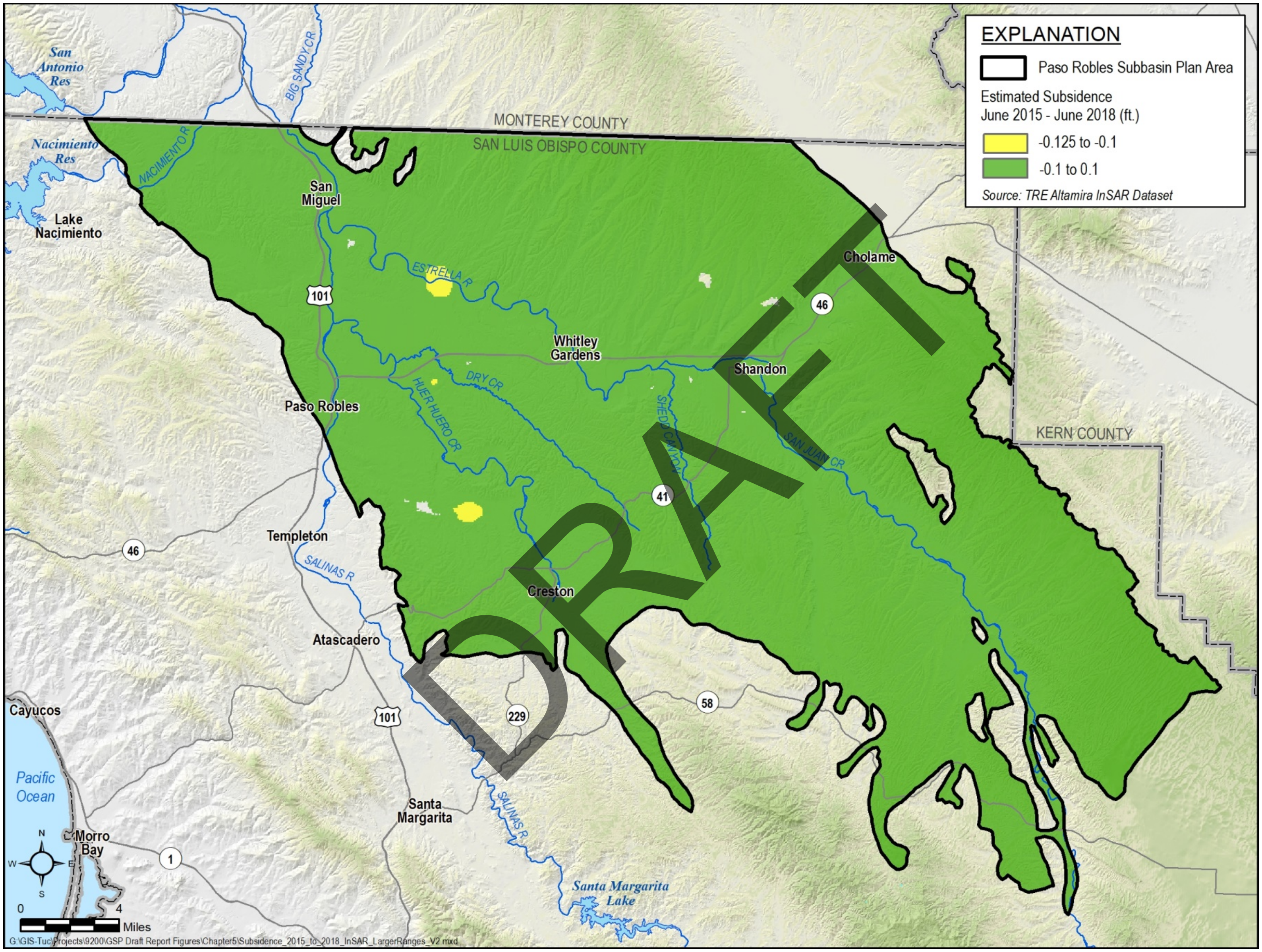

Figure 5-13. Subsidence 2015 to 2018 from InSAR Data

5.5 Interconnected Surface Water

Ephemeral surface water flows in the Subbasin over the last 40 years make it difficult to assess the interconnectivity of surface water and groundwater and to quantify the degree to which surface water depletion has occurred. There are no available data that establish whether or not the groundwater and surface water are connected through a continuous saturated zone in any aquifer. Water elevation contour maps of the Paso Robles Formation wells may suggest that a continuous saturated zone between the surface water and the Paso Robles Formation aquifer does not exist. The potential for interconnected surface water with the alluvial aquifer will be assessed as data are developed and analyzed.

Definitive data delineating any connections between surface water and groundwater or a lack of interconnected surface waters is a data gap that will be addressed during implementation of this GSP.

5.6 Groundwater Quality Distribution and Trends

Although groundwater quality is not a primary focus of SGMA, GSAs cannot degrade groundwater quality as a result of actions or projects undertaken to achieve sustainability. Therefore, the groundwater quality distribution and trends discussed in this section do not identify conditions that must be addressed by the GSP, but rather identify conditions that should not be exacerbated by this GSP.

Groundwater quality samples have been collected and analyzed throughout the Subbasin for various studies and programs. Water quality samples have been collected on a regular basis for compliance with regulatory programs. Additionally, a broad survey of groundwater quality sampling was conducted for the *Paso Robles Groundwater Basin Study, Phase I* (Fugro, 2002), and most recently by the USGS in 2018. Historical groundwater quality data were compiled for use in the SNMP (RMC, 2015).

This GSP focuses only on constituents that might be impacted by groundwater management activities. The constituents of concern are chosen because:

1. The constituent has either a drinking water standard or a known effect on crops
2. Concentrations have been observed above either the drinking water standard or the level that affects crops.

5.6.1 Groundwater Quality Suitability for Drinking Water

Groundwater in the basin is generally suitable for drinking water purposes. The *Paso Robles Groundwater Basin Study, Phase I* (Fugro 2002) reviewed water quality data from public supply wells to identify exceedances of drinking water standards. The drinking water standards

Maximum Contaminant Levels (MCLs) and Secondary MCLs (SMCLs) are established by Federal and State agencies. MCLs are legally enforceable standards, while SMCLs are guidelines established for nonhazardous aesthetic considerations such as taste, odor, and color. The most common water quality standard exceedance in the Subbasin was exceedance of the SMCL for TDS, which exceeded the standard in 14 samples from the 74 samples. Nitrate also exceeded the MCL in four samples. One exceedance of mercury was found in the San Miguel area in a 1990 sample. There have been no recorded exceedances of mercury in any samples collected since that date.

5.6.2 Groundwater Quality Suitability for Agricultural Irrigation

Groundwater in the basin is generally suitable for agricultural purposes. Fugro (2002) evaluated the agricultural suitability of groundwater using three metrics:

1. Salinity as indicated by electrical conductivity
2. Soil structure as indicated by sodium absorption ratio and electrical conductivity
3. Presence of toxic salts as indicated by concentrations of sodium, chloride, and boron

Of the 74 samples evaluated 37 had no restrictions on irrigation use (Fugro, 2002) based on this criteria. This does not mean that half of the groundwater in the basin is unsuitable for irrigation; only that half of the samples had some constituent that may restrict unlimited irrigation use. Most cases of slight to moderate restriction on irrigation use were due to sodium or chloride toxicity. Severe restrictions for 13 samples were generally the result of high sodium, chloride, or boron toxicity.

5.6.3 Distribution and Concentrations of Point Sources of Groundwater Constituents

As noted in the SNMP (RMC, 2015), groundwater constituents of concern derive from point sources such as spill or leaks as well as diffuse sources, including:

- Irrigation water (e.g., potable water, groundwater, and future recycled water);
- Agricultural inputs (e.g., fertilizer and amendments);
- Septic system recharge;
- Infrastructure (e.g., percolation from treated wastewater ponds, leaking pipes); and
- Rainfall infiltration, mountain front recharge, and natural stream losses.

Potential point sources of groundwater quality degradation were identified using the State Water Resources Control Board (SWRCB) Geotracker website. Waste Discharge permits were also reviewed from on-line regional SWRCB websites. Table 5-1 summarizes information from these websites. Figure 5-14 shows the location of potential groundwater contaminant point sources. Based on available information there are no mapped groundwater contamination plumes at these sites, although investigations are ongoing.

Table 5-1. Potential Point Sources of Groundwater Contamination

Site Name	Site Type	Constituents of Concern (COCs)	Status
Former Chevron 9-0750	LUST Cleanup Site	petroleum hydrocarbons	remedial action plan submitted Q2 2018
Kirkpatrick Property (Unocal Portion)	Cleanup Program Site	crude oil	impacted soil; health risk assessment prepared in 2016
Lucy Brown Road Pipeline Site (Former ConocoPhillips Site #3469)	Cleanup Program Site	crude oil, diesel, gasoline	Initial groundwater monitoring data no significant impacts to groundwater.
Estrella Airfield (Paso Robles Municipal Airport)	Military Cleanup Site	unknown	unknown
Camp Roberts Solid Waste Site	Land Disposal Site	metals, cyanide, sulfide, herbicides, volatile organic compounds (VOCs), pesticides, PCBs, phthalate esters, phenols, semi-VOCs	TDS, nitrate and manganese detected in wells at concentrations above regulatory standards.
Camp Roberts South and Closed Landfill	Land Disposal Site	VOCs, chloride, sulfate, nitrate, sodium, manganese, TDS, total organic carbon	carbon tetrachloride detected at concentrations exceeding MCL.
Paso Robles Solid Waste Site	Land Disposal Site	chloride, total alkalinity, manganese, nitrate, sodium, sulfate, temperature, TDS, VOCs, Pesticides, PCBs, organophosphorus compounds, herbicides, semi-VOCs	COCs not detected in groundwater; sulfate and barium locally elevated; no remedial activities.

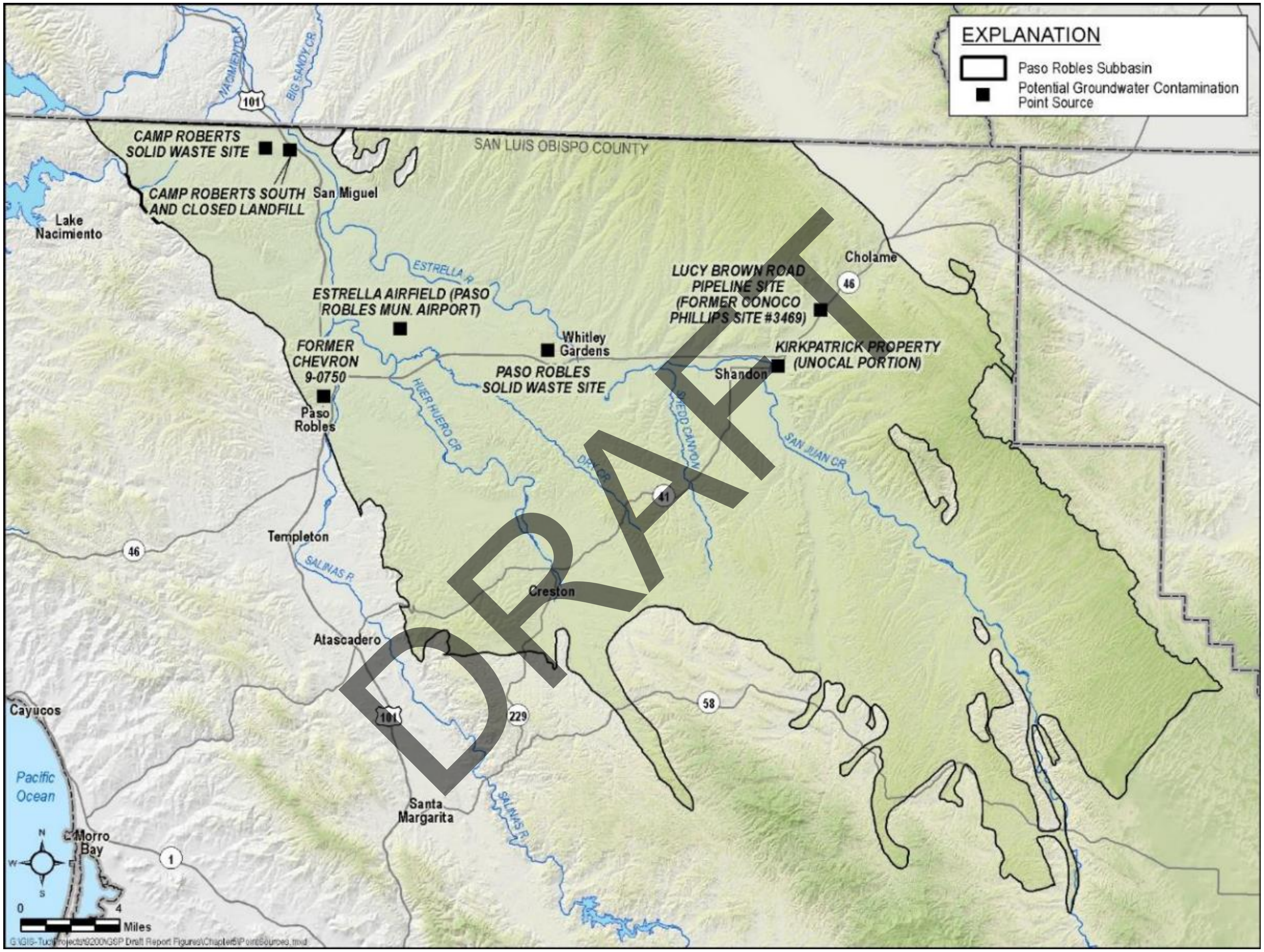

Figure 5-14. Location of Potential Point Sources of Groundwater Contaminants

5.6.4 Distribution and Concentrations of Diffuse or Natural Groundwater Constituents

Fugro (2002) identified a number of constituents of concern that are broadly distributed throughout the Subbasin. The SNMP (RMC, 2015) provides additional data on the distribution of certain constituents. The data from these previous reports are presented in terms of the informal subareas that have been used in previous studies to refer to various regions within the Subbasin. These seven subareas are not part of this GSP; RMC, 2015 shows the approximate location of these areas.

5.6.4.1 Total Dissolved Solids

TDS is a constituent of concern in groundwater because it has been detected at concentrations greater than its SMCL of 500 milligrams per liter (mg/L). Table 5-2 shows the range and average TDS concentrations by subarea as reported in the SNMP (RMC, 2015). This table shows the average TDS concentrations are greater than the SMCL of 500 mg/L in parts of the Subbasin. This table includes data for portions of the Bradley, North Gabilan, and South Gabilan subareas that are outside the Subbasin.

Table 5-2. TDS Concentration Ranges and Averages

Hydrogeologic Subarea	TDS Concentration Range (mg/L)	Average TDS Concentration (mg/L)
Estrella	350 – 1,560	552
Shandon	270 – 3,160	563
Creston	190 – 1,620	388
San Juan	160 – 2,170	425
Bradley	400 – 1,280	751
North Gabilan	370 – 1,320	856
South Gabilan	370 – 1,320	451

Source: RMC, 2015

The distribution and trends of TDS in the Subbasin are shown on Figure 5-15. This figure is from the SNMP (RMC, 2015) and includes portions of the Subbasin north of the Monterey County line which are outside the Subbasin. The study area for the SNMP also did not extend to the southeastern edge of the Subbasin. TDS distribution shown on this figure is not differentiated by aquifer or well depth. Sustainability projects and management actions implemented as part of this GSP are not anticipated to directly cause TDS concentrations in groundwater in a well that would otherwise remain below the SMCL to increase above the SMCL.

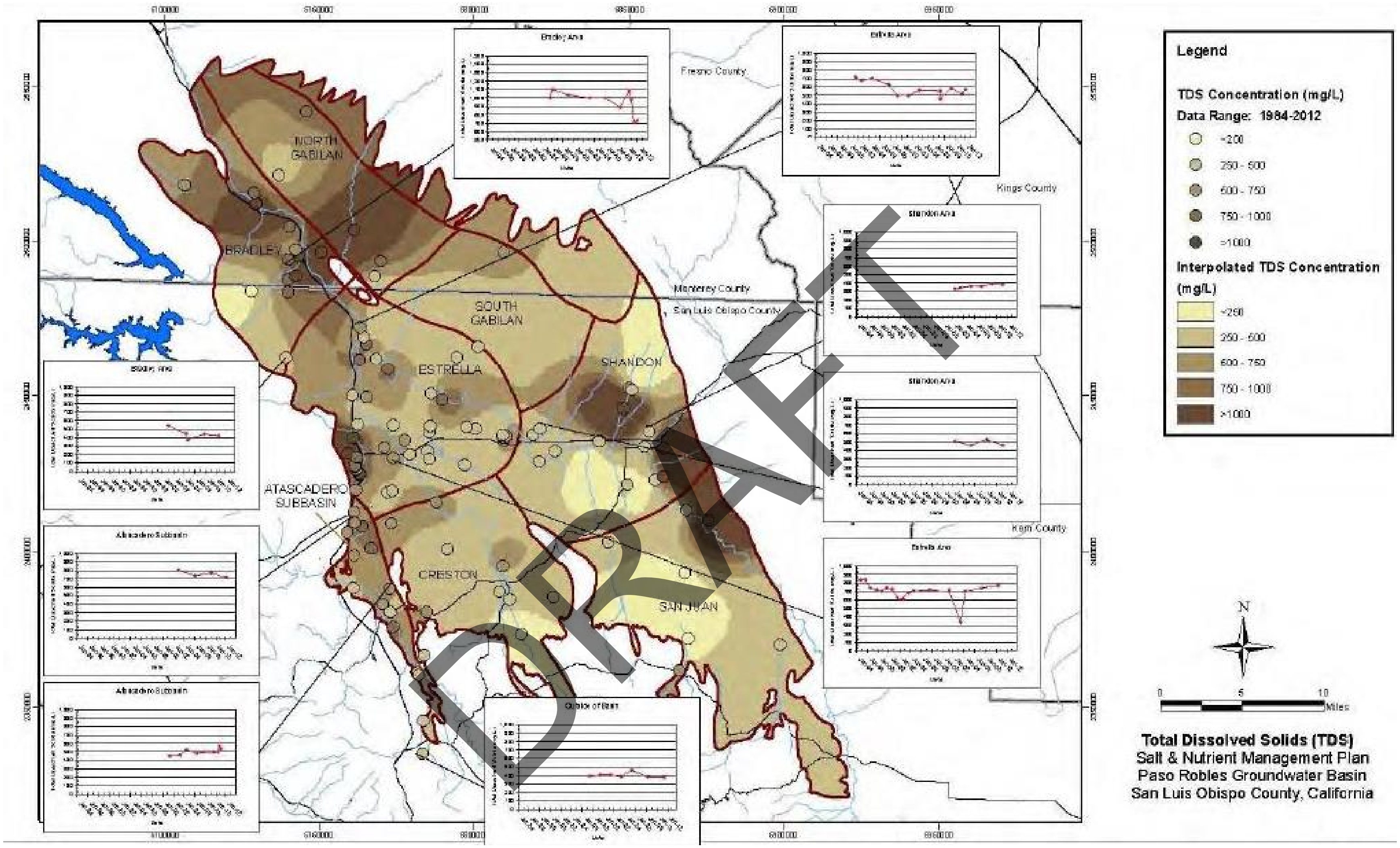

Figure 5-15. TDS Regional Distribution and Trends

Source: RMC, 2015

5.6.4.2 Chloride

Chloride is a constituent of concern in groundwater because it has been detected at concentrations greater than its SMCL of 250 mg/L. Elevated chloride concentrations in groundwater can damage crops and affect plant growth. Fugro (2002) reported that slight to moderate restrictions on irrigating trees and vines may occur when chloride concentrations exceed 100 mg/L. Severe restrictions on irrigating trees and vines may occur when chloride concentrations exceed 350 mg/L.

Table 5-3**,** which was compiled based on various tables and related information in the SNMP (RMC, 2015), shows the range and average chloride concentrations by subarea. This table indicates that average chloride concentrations are less than the SMCL of 250 mg/L throughout Subbasin. This table includes data for areas of the Bradley, North Gabilan, and South Gabilan subareas that are outside the Subbasin.

Table 5-3. Chloride Concentration Ranges and Averages

Hydrogeologic Subarea	Chloride Concentration Range (mg/L)	Average Chloride Concentration (mg/L)
Estrella	32 - 572	94
Shandon	31 - 550	80
Creston	25 - 508	69
San Juan	13 - 699	64
Bradley	40 - 400	84
North Gabilan	35 - 209	113
South Gabilan	35 - 209	37

Source: RMC, 2015

The distribution and trends of chloride in the Subbasin are shown on Figure 5-16. This figure is from the SNMP (RMC, 2015) and includes portions of the Subbasin north of the Monterey County line which are outside the Subbasin. Chloride distribution shown on this figure is not differentiated by aquifer or well depth. Sustainability projects and management actions implemented as part of this GSP are not anticipated to directly cause chloride concentrations in groundwater in a well that would otherwise remain below the SMCL to increase above the SMCL.

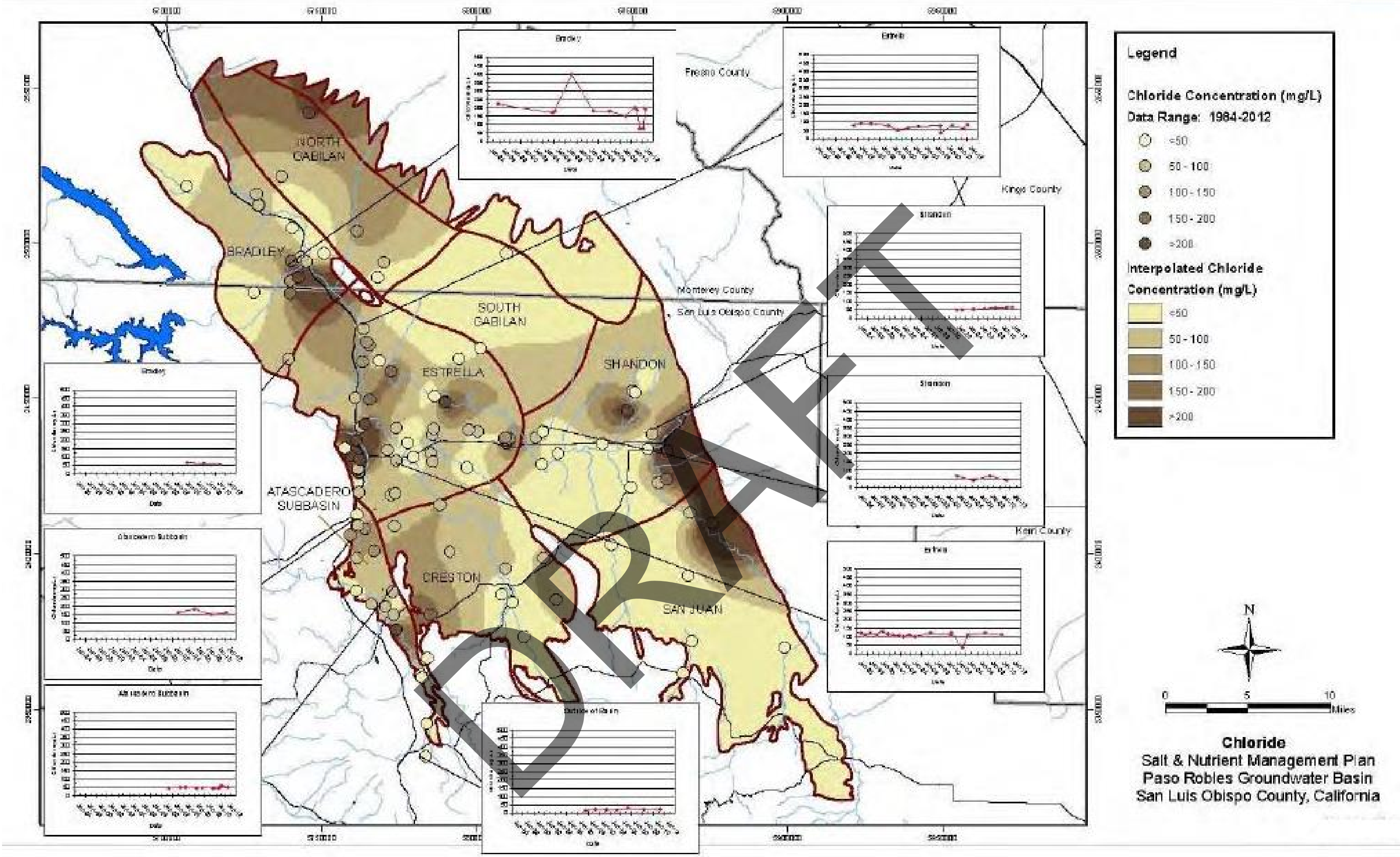

Figure 5-16. Chloride Regional Distribution and Trends

Source: RMC, 2015

5.6.4.3 Sulfate

Sulfate is a constituent of concern in groundwater because it has been observed at concentrations above its SMCL of 250 mg/L. Table 5-4 shows the range and average sulfate concentrations by subarea as reported in the SNMP (RMC, 2015). This table shows the average sulfate concentrations are greater than the SMCL of 250 mg/L in many areas of the Subbasin. This table includes data for areas of the Bradley, North Gabilan, and South Gabilan subareas that are outside the Subbasin.

Table 5-4. Sulfate Concentration Ranges and Averages

Hydrogeologic Subarea	Sulfate Concentration Range (mg/L)	Average Sulfate Concentration (mg/L)
Estrella	11 - 375	129
Shandon	14 – 2,010	360
Creston	7 - 353	67
San Juan	24 - 722	248
Bradley	30 - 704	296
North Gabilan	9 - 648	194
South Gabilan	9 - 648	194

Source: RMC, 2015

Maps of sulfate distribution in the Subbasin were not found in previous studies. Sustainability projects and management actions implemented as part of this GSP are not anticipated to directly cause sulfate concentrations in groundwater in a well that would otherwise remain below the SMCL to increase above the SMCL.

5.6.4.4 Nitrate

Nitrate is a constituent of concern in groundwater because concentrations have been detected greater than its MCL of 10 mg/L (measured as nitrogen). Nitrate concentrations in excess of the MCLs can result in health impacts.

Table 5-5 shows the range and average nitrate concentrations by subarea as reported in the SNMP (RMC, 2015). This table shows the average nitrate concentrations are less than the MCL of 10 mg/L throughout Subbasin. The range of measured nitrate concentrations however exceeds the MCL of 10 mg/L in every subarea. This table includes data for areas of the Bradley, North Gabilan, and South Gabilan subareas that are outside the Subbasin.

Table 5-5. Nitrate Concentration Ranges and Averages

Hydrogeologic Subarea	Nitrate Concentration Range (mg/L)	Average Nitrate Concentration (mg/L)
Estrella	0 – 16.2	2.5
Shandon	1.2 – 12.1	4.6
Creston	0.8 – 9.2	3.2
San Juan	0.1 – 5.8	2.8
Bradley	0.0 – 5.8	2.7
North Gabilan	5.0 – 9.8	8.4
South Gabilan	15.8	6.3

Source: RMC, 2015; the range of nitrate concentration in the South Gabilan subarea is uncertain

The distribution and trends of nitrate in the Subbasin are shown on Figure 5-17. This figure is from the SNMP (RMC, 2015) and includes portions of the Subbasin north of the Monterey County line which are outside the Subbasin. This nitrate distribution shown on this figure is not differentiated by aquifer or well depth. Sustainability projects and management actions implemented as part of this GSP are not anticipated to directly cause nitrate concentrations in groundwater in a well that would otherwise remain below the SMCL to increase above the SMCL.

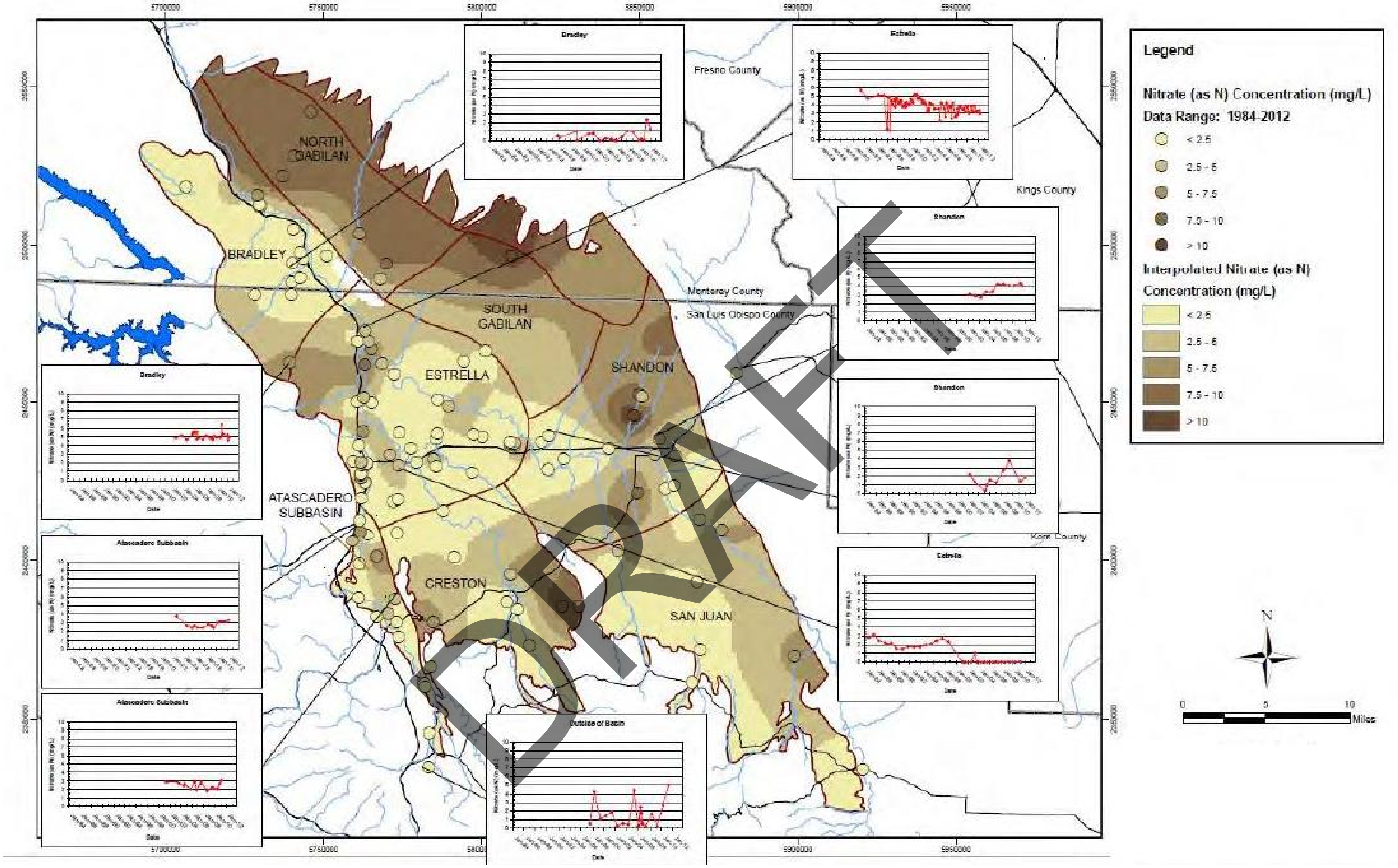

Figure 5-17. Nitrate Regional Distribution and Trends

Source: RMC, 2015

5.6.4.5 Boron

Boron is an unregulated constituent and therefore does not have a regulatory standard. However, boron is a constituent of concern because elevated boron concentrations in water can damage crops and affect plant growth. Fugro (2002) reported that severe restrictions on irrigating trees and vines may occur when boron concentrations exceed 0.5 mg/L.

Table 5-6 shows the range and average boron concentrations by subarea as reported in the SNMP (RMC, 2015). Average boron concentration exceeds the severe irrigation restriction level of 0.5 mg/L in the Estrella, Shandon, and San Juan subareas. The table includes data for areas of the Bradley, North Gabilan, and South Gabilan subareas that are outside the Subbasin.

Table 5-6. Boron Concentration Ranges and Averages

Hydrogeologic Subarea	Boron Concentration Range (mg/L)	Average Boron Concentration (mg/L)
Estrella	0.13 – 5.66	1.8
Shandon	0.08 – 2.97	0.81
Creston	0.06 – 0.31	0.14
San Juan	0.08 – 2.29	0.74
Bradley	0.12 – 0.18	0.15
North Gabilan	0.11 – 0.44	0.24
South Gabilan	0.11 – 0.44	0.24

Source: RMC, 2015

No maps exist of boron distribution in the Subbasin. Sustainability projects and management actions implemented as part of this GSP are not anticipated to directly cause boron concentrations in groundwater in a well that would otherwise remain below the SMCL to increase above the SMCL.

5.6.4.6 Gross Alpha Radiation

Gross alpha radiation is a constituent of concern because it has been detected at concentrations greater than the MCL of 15 picocuries per liter (pCi/L). Fugro (2002) reports that gross alpha radioactivity is present in most areas of the basin. Gross alpha particle count activity in groundwater exceeded the MCL for drinking water in the Estrella and Bradley areas. Gross alpha data included in Fugro's 2002 report are summarized in Table 5-7.

Table 5-7. Gross Alpha Concentration Ranges and Averages

Hydrogeologic Subarea	Gross Alpha Maximum Concentration (pCi/L)	Gross Alpha Average Concentration (pCi/L)
Estrella	31	20
Shandon	3	3
Bradley	23	2

Source: Fugro, 2002

No maps exist of the gross alpha distribution in the Subbasin. Sustainability projects and management actions implemented as part of this GSP are not anticipated to directly cause gross alpha radiation concentrations in groundwater in a well that would otherwise remain below the SMCL to increase above the SMCL.

5.6.5 Groundwater Quality Surrounding the Paso Robles Subbasin

Poor quality groundwater has been documented in wells that screen sediments and rocks below the Paso Formation as well as sediments and rocks surrounding the Subbasin. Based on limited observations, there is a concern that this poor quality groundwater may be drawn into wells in the Subbasin and degrade the groundwater quality if groundwater levels are allowed to fall too low. Groundwater levels must be maintained at elevations that prevent migration of poor quality groundwater from beneath or around the Subbasin.

6 WATER BUDGETS

This chapter summarizes the estimated water budgets for the Paso Robles Subbasin, including information required by the SGMA Regulations and information that is important for developing an effective plan to achieve sustainability. In accordance with the SGMA Regulations §354.18, the GSP should include a water budget for the basin that provides an accounting and assessment of the total annual volume of surface water and groundwater entering and leaving the basin, including historical, current, and projected water budget conditions, and the change in the volume of water stored. Water budgets should be reported in graphical and tabular formats, where applicable.

6.1 Overview of Water Budget Development

This chapter is subdivided into three sections: (1) historical water budgets, (2) current water budgets, and (3) future water budgets. Within each section, a surface water budget and groundwater budget are presented. Water budgets were developed using computer models of the Subbasin hydrogeologic conditions. Before presenting the water budgets, a brief overview of the models is presented. Appendix E provides additional information about the models and compares previously reported water budgets to water budgets developed for the GSP.

The water budgets reported herein are for the Subbasin defined in Section 1.2 and depicted on Figure 1-1. Prior to this GSP, water budgets reported for the Paso Robles groundwater Subbasin were often for a larger area that included area within Monterey County and the Atascadero Subbasin. Because the Subbasin boundary was redefined by DWR in 2019, the area within Monterey County and the Atascadero Subbasin are no longer part of the Subbasin and therefore are not considered in water budgets reported in the GSP. The revised Subbasin area results in water budget inflow components, outflow components, and estimates of sustainable yield that are different from previously reported water budgets.

Sustainable yield is defined in SGMA as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus that can be withdrawn annually from a groundwater supply without causing an undesirable result." Actual sustainable yield will be determined once data show undesirable results have not occurred. Thus, the sustainable yield estimate will be revised in the future as new data become available from monitoring data that evaluate the presence or absence of undesirable results.

In accordance with Section 354.18 of the SGMA Regulations, one integrated groundwater budget was developed for the combined inflows and outflows for the two principal aquifers - Alluvial Aquifer and Paso Robles Formation Aquifer – for each water budget period. Groundwater is pumped from both aquifers for beneficial use. Available groundwater elevation data suggest that most of the historic reduction in groundwater storage has occurred in the Paso Robles Formation Aquifer. Due to limitations in available groundwater elevation data for the

Alluvial Aquifer, water budgets for this aquifer are uncertain. Monitoring of hydrologic conditions in both aquifers will be conducted in the future to ensure that aquifer-specific Sustainable Management Criteria are being achieved and undesirable results are being avoided.

Figure 6-1 presents a general schematic diagram of the hydrologic cycle. The water budgets include the components of the hydrologic cycle.

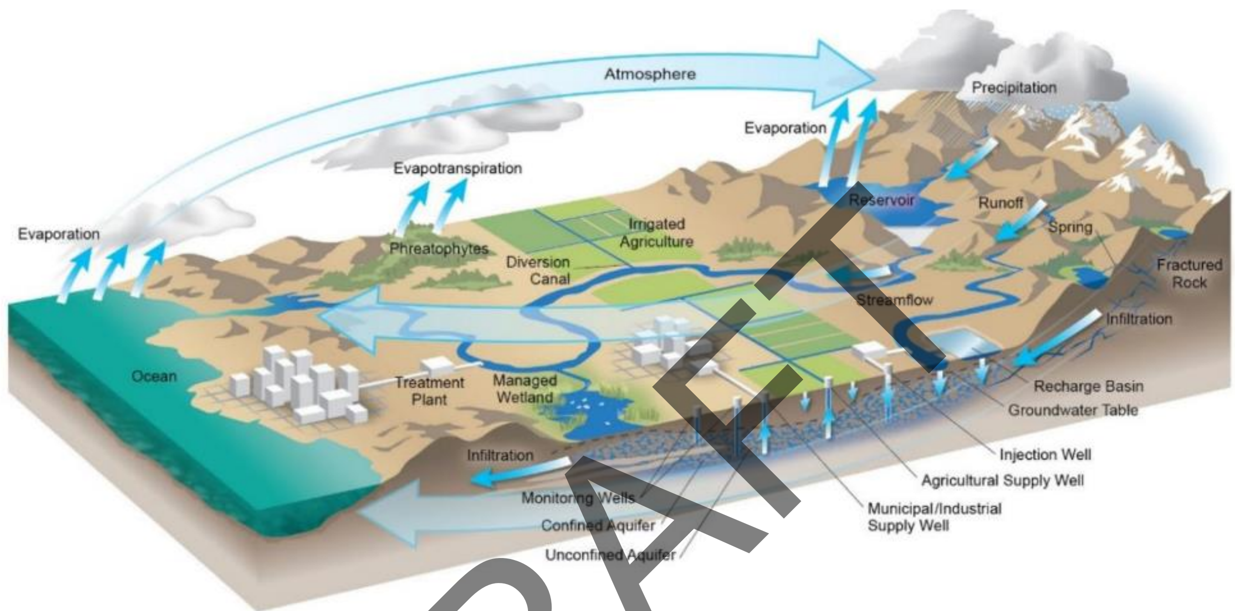

Figure 6-1. Hydrologic Cycle

A few components of the water budget can be measured, like streamflow at a gaging station or groundwater pumping from a metered well. Other components of the water budget are estimated, like recharge from precipitation or unmetered groundwater pumping. The water budget is an inventory of surface water and groundwater inflows (supplies) and outflows (demands) from the Subbasin, including:

Surface Water Inflows:

- Runoff of precipitation and reservoir releases into streams and rivers that enter the Subbasin from the surrounding watershed and that occurs inside the Subbasin
- Groundwater discharge to streams and rivers Surface Water Outflows:
- River flows exiting the Subbasin
- Percolation of streamflow to the groundwater system
- Evaporation (negligible compared to other surface water outflows)

Groundwater Inflows:

- Recharge from precipitation
- Subsurface inflow (including percolation of irrigation return flow, precipitation, and streamflow outside the Subbasin)
- Irrigation return flow (water not consumed by crops)
- Percolation of surface water from streams
- Infiltration of treated wastewater from disposal ponds

Groundwater Outflows:

- Evapotranspiration
- Groundwater pumping
- Discharge to streams and rivers
- Subsurface outflow to the next downgradient groundwater basin

The difference between inflows and outflows is equal to the change in storage.

6.2 Water Budget Data Sources and Basin Model

Water budgets for the Paso Robles Subbasin were estimated using an integrated system of three hydrologic models (collectively designated herein as the "basin model"), including:

1. A watershed model
2. A soil water balance model
3. A groundwater flow model

The groundwater model was originally developed by Fugro (2005). The watershed and soil water balance models were developed and integrated with an updated version of the groundwater model by Geoscience Support Services, Inc. (GSSI) (GSSI, 2014 and 2016). These models were developed for San Luis Obispo Flood Control and Water Conservation District (SLOFCWCD). The original models are documented in the following reports:

- Final Report, Paso Robles Groundwater Basin Study Phase II, Numerical Model Development, Calibration, and Application: Fugro, February 2005
- Paso Robles Groundwater Basin Model Update: Geoscience Support Services, Inc., December 2014

- Refinement of the Paso Robles Groundwater Basin Model and Results of Supplemental Water Supply Options Predictive Analysis: Geoscience Support Services, Inc., December 2016

The 2016 version of the basin model was updated for the GSP. The update included incorporating hydrologic data for the period 2012 through 2016 into the models. Appendix E includes a brief summary of the model update process, including:

- A summary of data sources used for the update (Table E-1)
- A summary of modifications made to the basin model to address computational refinements, data processing issues, and conceptual application of the model codes
- A comparison of the water budgets from the updated model and the original 2016 GSSI model.

The updated versions of the basin models are referred to herein collectively as the "GSP model".

Numerous sources of raw data were used to update the basin models for the GSP. Examples of raw data include reported pumping rates from the City of Paso Robles, precipitation data obtained from weather stations in the Subbasin, and crop acreage from the office of the San Luis Obispo County Agricultural Commissioner, among many others. Data sources are listed in Table E-1. Raw data were compiled, processed, and used to develop model input files. Model results were used to develop estimates of the individual inflow and outflow components of the surface water and groundwater budgets. Thus, all of the estimated flow components herein were extracted from the GSP model.

6.2.1 Model Assumptions and Uncertainty

The GSP model is based on available hydrogeologic and land use data from the past several decades, previous studies of Subbasin hydrogeologic conditions, and earlier versions of the basin models. The GSP model gives insight into how the complex hydrologic processes are operating in the Subbasin. During previous studies, available data and a peer-review process were used to calibrate the basin model to Subbasin hydrogeologic conditions. Results of the previous calibration process demonstrated that the model-simulated groundwater and surface water flow conditions were similar to observed conditions. The GSP model was not recalibrated. However, after updating it for the GSP, calibration of the model was reviewed and found to be similar to the previous model. Therefore, the GSP model was considered appropriate for the GSP.

Projections made with the GSP model have uncertainty due to limitations in available data and limitations from assumptions made to develop the models. Model uncertainty has been considered when developing and using the reported GSP water budgets for developing sustainability management actions and projects (Chapter 9).

During early implementation of the GSP, additional data will be collected to refine Subbasin understanding. These new data will be used to recalibrate the GSP model after the GSP is adopted. New hydrologic data and the calibrated model will be used to adaptively implement sustainability management actions, and possibly projects, to ensure that progress toward the sustainability goal is being achieved.

6.3 Historical Water Budget

The SGMA Regulations require that the historical surface water and groundwater budget be based on at least the most recent 10 years of data. For the Paso Robles Subbasin GSP, the period 1981 to 2011 was selected as the time period for the historical water budget (referred to as the historical base period) because it is long enough to capture typical climate variations, it corresponds to the period simulated in the basin model, and it ends at about the time the recent drought period began. Estimates of the surface water and groundwater inflows and outflows, and changes in storage for the historical base period are provided below.

6.3.1 Historical Surface Water Budget

The SGMA Regulations (§354.18) require development of a surface water budget for the GSP. The surface water budget quantifies important sources of surface water and evaluates their historical and future reliability. The water budget Best Management Practice (BMP) document states that surface water sources should be identified as one of the following (DWR, 2016):

- Central Valley Project
- State Water Project
- Colorado River Project
- Local imported supplies
- Local supplies

The Paso Robles Subbasin relies on two of these surface water source types: local imported supplies and local supplies.

6.3.1.1 Historical Local Imported Supplies

During the historical base period, local imported water supplies were not used in the Subbasin. Use of local imported supplies began in 2014; information about these supplies is presented in Section 6.4 – Current Water Budget.

6.3.1.2 Historical Local Supplies

Local surface water supplies include surface water flows that enter the Subbasin from precipitation runoff within the watershed, Salinas River inflow to the Subbasin (including releases from the Salinas Reservoir), Nacimiento River inflow to the Subbasin (including releases from Nacimiento Reservoir), and discharge of groundwater to streams from the Alluvial Aquifer. Table 6-1 summarizes the annual average, minimum, and maximum values for these inflows.

Table 6-1. Estimated Historical (1981-2011) Annual Surface Water Inflows to Subbasin

Surface Water Inflow Component	Average	Minimum	Maximum
Nacimiento River Inflow to Subbasin	214,400	5,500	734,100
Precipitation Runoff within Watershed	96,900	400	606,900
Salinas River Inflow to Subbasin	41,800	1,600	179,900
Groundwater Discharge to Rivers and Streams from Alluvial Aquifer	7,300	4,300	11,800
Total	360,400		

Note: All values in AF

The estimated annual average total inflow from these sources over the historical base period is about 360,400 AF. The largest component of this average inflow is releases and flow in the Nacimiento River. While average inflows are large from the Nacimiento River, nearly all of this inflow leaves the Subbasin as surface water outflow because the length of the Nacimiento River within the Subbasin is short. The large difference between the minimum and maximum inflows reflects the difference between dry and wet years in the Subbasin.

6.3.1.3 Historical Surface Water Outflows

The estimated annual average total surface water outflow leaving the Subbasin as flow in the Salinas River, flow in the Nacimiento River, and percolation into the groundwater system over the historical base period is summarized in Table 6-2.

Table 6-2. Estimated Historical (1981-2011) Annual Surface Water Outflows from Subbasin

Surface Water Outflow Component	Average	Minimum	Maximum
Salinas River Outflow from Subbasin	119,100	5,300	646,300
Nacimiento River Outflow from Subbasin	214,400	5,500	734,000
Percolation of Surface Water to Groundwater	26,900	2,000	126,000
Total	360,400		

Note: All values in AF

The estimated annual average total outflow from these sources over the historical base period is about 360,400 AF. Of this 360,400 AFY, approximately 26,900 AFY of the outflow is percolation from streams into the groundwater system. Of this 26,900 AFY of percolation, 7,300 AFY returns to streamflow as groundwater discharge.

6.3.1.4 Historical Surface Water Budget

Figure 6-2 summarizes the historical water budget for the Subbasin.

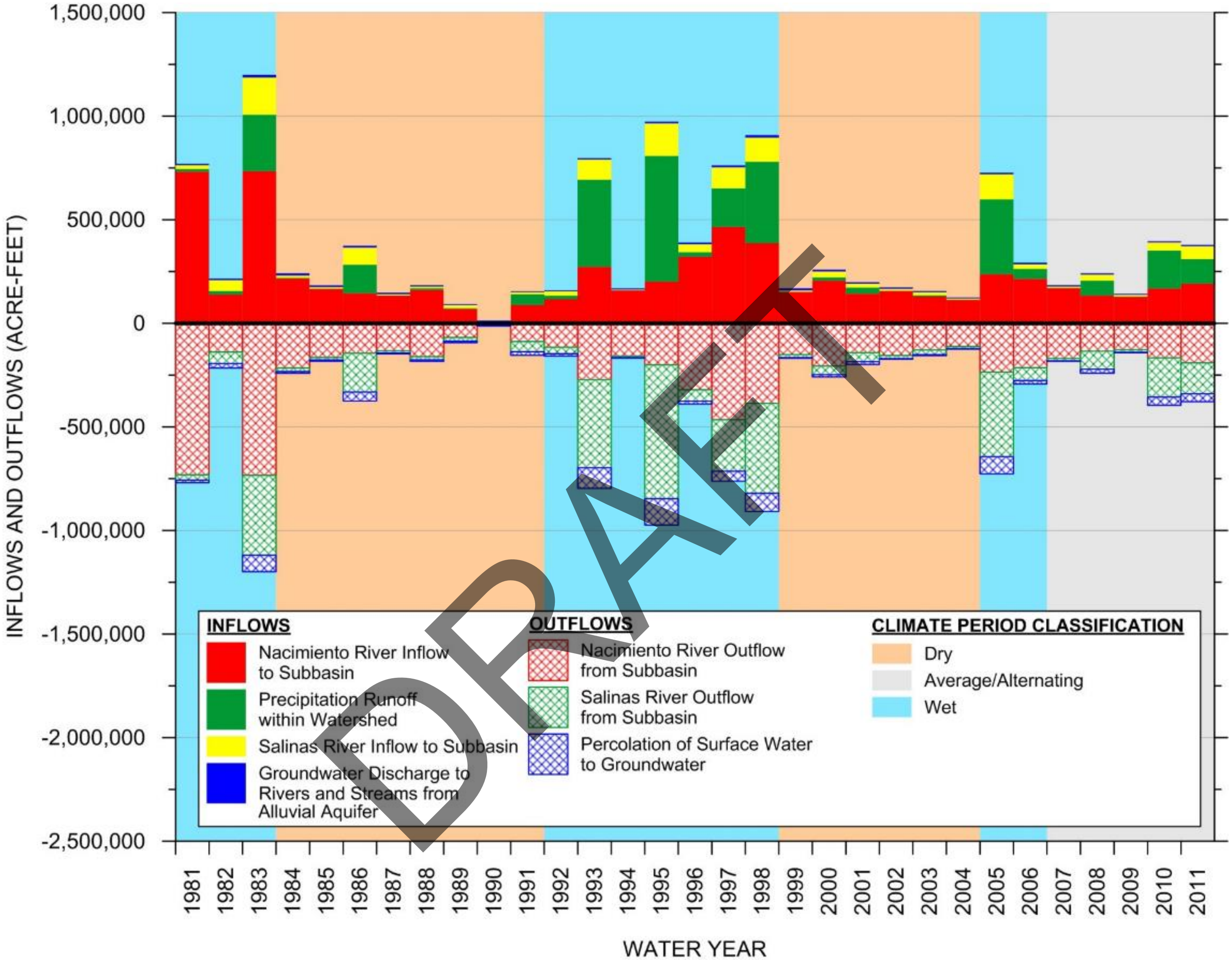

Figure 6-2. Historical (1981-2011) Surface Water Inflows and Outflows

Figure 6-2 shows the strong correlation between precipitation and streamflow in the Subbasin. In wet periods, shown with a blue background, surface water inflows and outflows are large. In contrast, in dry periods, shown with an orange background, surface water inflows and outflows are small. As shown on the graph, several years during the historical base period had total surface water inflows greater than 500,000 AFY. Assuming diversion permits could be obtained, future high flow years may provide opportunities to capture and use excess storm water as a new water supply in the Subbasin. This concept is discussed in more detail in Chapter 9 – Projects and Management Actions.

6.3.2 Historical Groundwater Budget

Groundwater supplied most of the water used in the Subbasin over the historical base period. The historical groundwater budget includes a summary of the estimated groundwater inflows, groundwater outflows, and change in groundwater in storage.

6.3.2.1 Historical Groundwater Inflows

Groundwater inflow components include streamflow percolation, agricultural irrigation return flow, deep percolation of direct precipitation, subsurface inflow into the Subbasin, wastewater pond percolation, and urban irrigation return flow. Estimated annual groundwater inflows for the historical base period are summarized in Table 6-3. Values reported in the table were estimated or derived from the GSP model using data sources reported in Table E-1 in Appendix E.

Table 6-3. Estimated Historical (1981-2011) Annual Groundwater Inflows to Subbasin

Groundwater Inflow Component [1]	Average	Minimum	Maximum
Streamflow Percolation	26,900	2,000	126,000
Agricultural Irrigation Return Flow	17,800	10,700	29,100
Deep Percolation of Direct Precipitation	12,000	300	45,400
Subsurface Inflow into Subbasin	10,100	4,900	14,300
Wastewater Pond Percolation	3,400	2,400	4,400
Urban Irrigation Return Flow	1,200	300	2,200
Total	71,400		

Note: All values in AF

(1) Percolation from septic systems is not directly accounted for because it is subtracted from the total estimated rural-domestic pumping to simulate a net rural-domestic pumping amount.

For the historical base period, estimated total average groundwater inflow ranged from 25,700 AFY to 201,700 AFY, with an average inflow of 71,400 AFY. The largest groundwater inflow component is streamflow percolation, which accounts for approximately 38% of the total annual average inflow. Streamflow percolation, agricultural irrigation return flow, and deep percolation of direct precipitation account for approximately 79% of the estimated total annual average inflow to the Subbasin. The large difference between the minimum and maximum inflows from streamflow percolation and direct precipitation reflect the variations in precipitation over the historical base period.

6.3.2.2 Historical Groundwater Outflows

Groundwater outflow components include total groundwater pumping from all water use sectors, groundwater discharge to streams and rivers from the Alluvial Aquifer, subsurface flow out of the Subbasin, and riparian evapotranspiration. Estimated annual groundwater outflows for the historical base period are summarized in Table 6-4.

Table 6-4. Estimated Historical (1981-2011) Annual Groundwater Outflow from Subbasin

Groundwater Outflow Component	Average	Minimum	Maximum
Total Groundwater Pumping	72,400	48,200	102,900
Groundwater Discharge to Streams and Rivers from Alluvial Aquifer	7,300	4,300	11,800
Subsurface Flow Out of Subbasin	2,600	2,300	3,000
Riparian Evapotranspiration	1,700	1,700	1,700
Total	84,000		

Note: All values in AF

The largest groundwater outflow component from the Subbasin is groundwater pumping. Estimated annual groundwater pumping by water use sector for the historical base period is summarized in Table 6-5.

Table 6-5. Estimated Historical (1981-2011) Annual Groundwater Pumping by Water Use Sector from Subbasin

Water Use Sector	Average	Minimum	Maximum
Agricultural	65,300	40,600	95,800
Municipal	3,200	1,700	6,000
Rural-Domestic [1]	2,500	1,700	3,400
Small Commercial	1,400	1,200	1,700
Total	72,400		

Notes: All values in AF

(1) Assumed to be net amount of pumping based on an analysis conducted by GSSI (2016). Net pumping was computed as total pumping amount minus septic return flow.

Agricultural pumping was the largest component of total groundwater pumping, accounting for about 90% of total pumping over the historical base period. Municipal, rural-domestic, and small commercial pumping account for 4%, 4%, and 2%, respectively, of total average annual pumping over the historical base period.

6.3.2.3 Historical Groundwater Budget and Changes in Groundwater Storage

Groundwater inflows and outflows for the historical base period are summarized on Figure 6-3. This graph shows groundwater inflow and outflow components for every year of the historical period. Inflow components are graphed above the zero line and outflow components are graphed below the zero line. Groundwater outflow by pumping (green bars) includes pumping from all water use sectors (Table 6-5).

Figure 6-4 shows annual and cumulative change in groundwater storage during the historical base period. Annual increases in groundwater storage are graphed above the zero line and annual decreases in groundwater storage are graphed below the zero line. The red line shows the cumulative change in groundwater storage over the historical base period.

The GSP uses the best available information to quantify the water budget for the Subbasin while recognizing the limitations inherent from existing data gaps. The water budget identifies and tracks changing inflows and outflows to the Subbasin and therefore is an important tool for local water resources management. The GSP contains a plan to gather more and better data in the future, which will be used to further refine the water budget. The GSP is designed to adapt to an increasing data set and expanding understanding of Subbasin conditions and water budget.

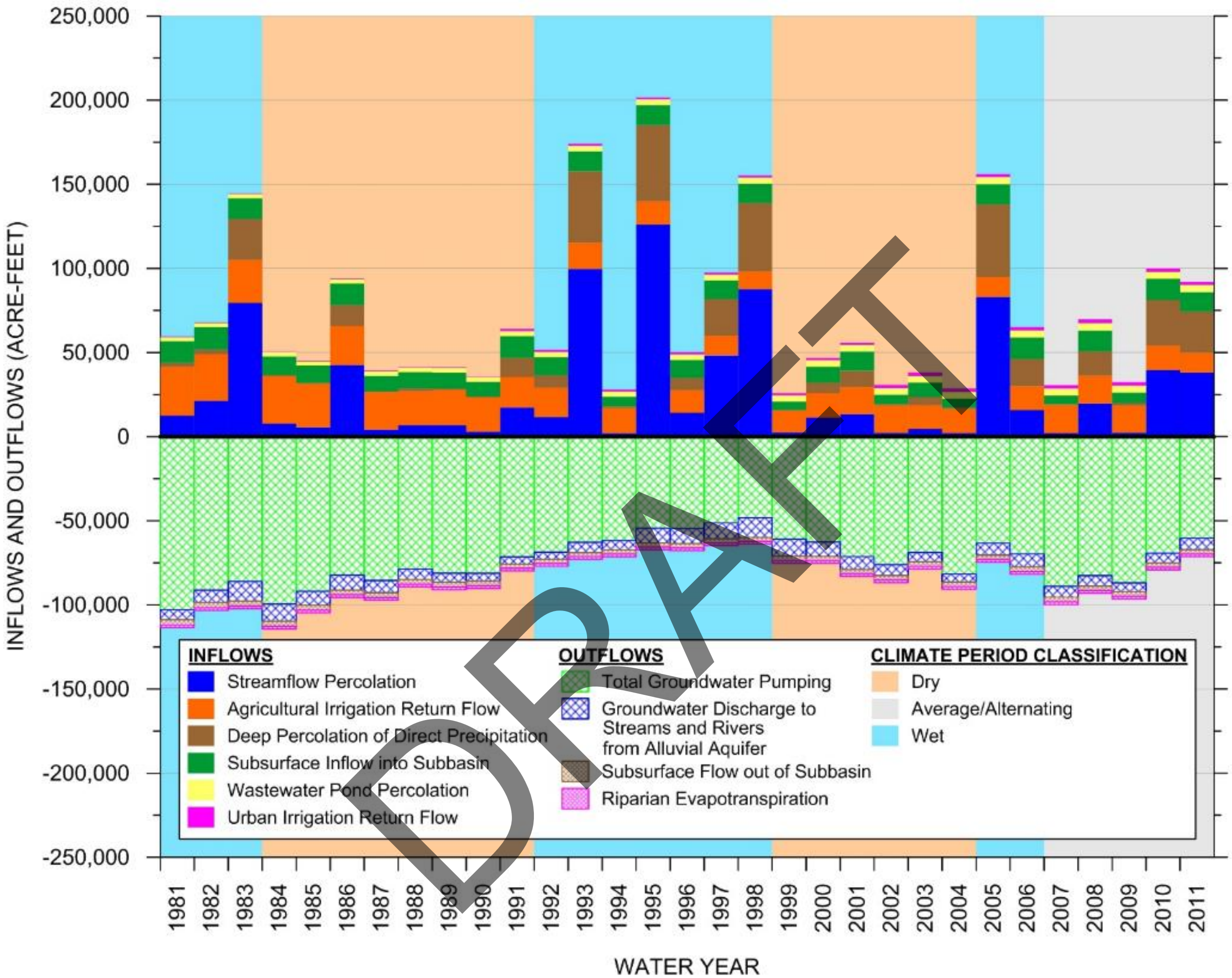

Figure 6-3. Historical (1981-2011) Groundwater Inflows and Outflows

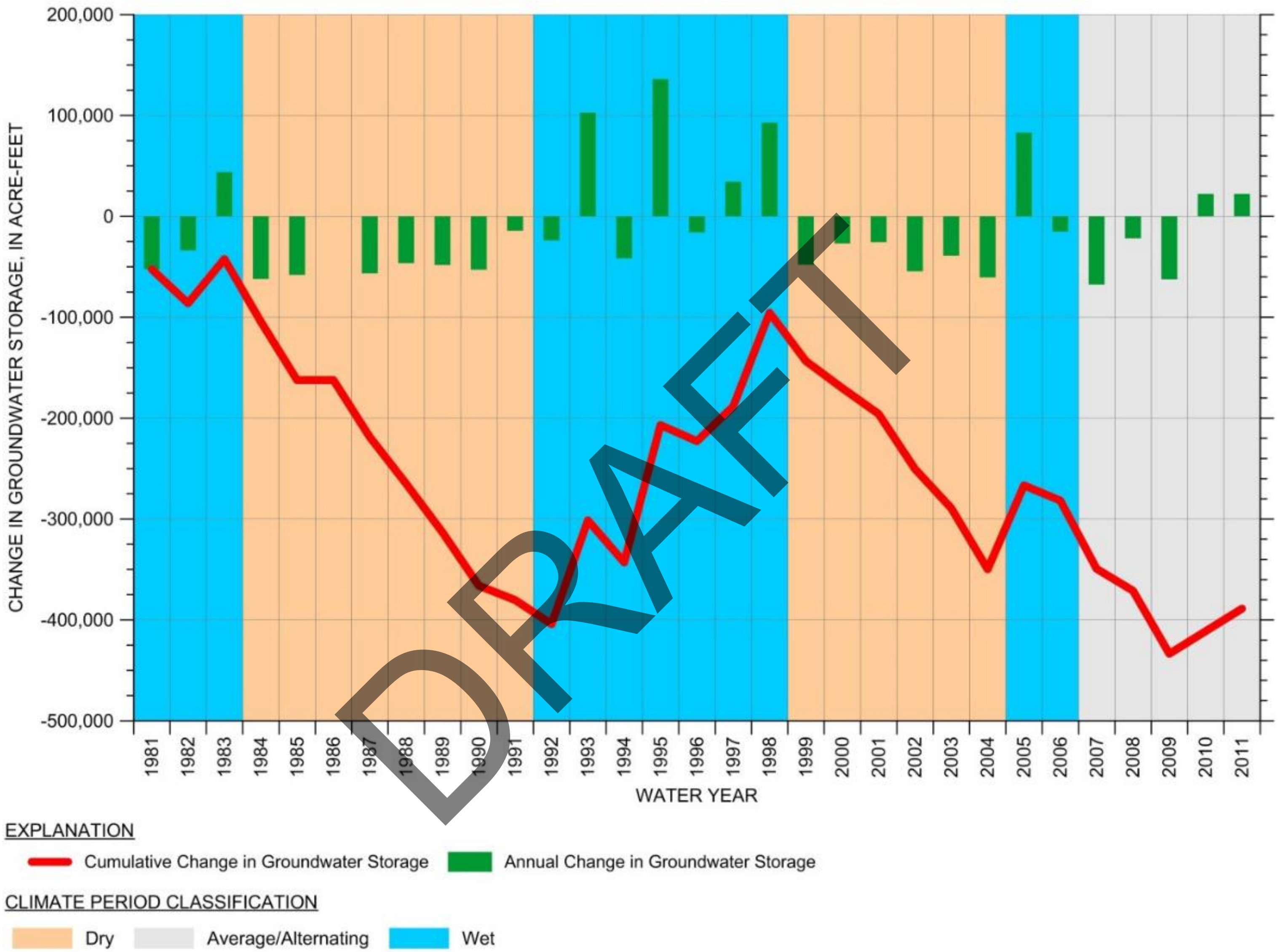

Figure 6-4. Historical (1981-2011) Annual and Cumulative Change in Groundwater Storage

The historical groundwater budget is strongly influenced by the amount of precipitation. During the historical base period, dry conditions prevailed from 1984 through 1991 and 1999 through 2004, as depicted by the orange areas on Figure 6-3 and Figure 6-4. During these dry periods, the amount of recharge and streamflow percolation was relatively low and the amount of pumping was relatively high. The net result was a loss of groundwater from storage. In contrast, wet conditions prevailed in the early 1980s, 1992 through 1998, and 2005 and 2006, as shown by blue areas on Figure 6-3 and Figure 6-4. During these wet periods, the amount of recharge and streamflow percolation was relatively high and the amount of pumping was relatively low. The net result was a gain of groundwater in storage. The period from 2007 through 2011 had generally alternating years of average precipitation. During this period, the amount of recharge and streamflow percolation was average and the amount of groundwater pumping was relatively high. The net result was a loss of groundwater from storage.

The historical groundwater budget is also influenced by the amount of groundwater pumping. Over the historical base period, the total amount of groundwater pumping showed two distinct trends (Figure 6-3). From the early 1980s through the late 1990s, groundwater pumping declined from about 100,000 AFY to about 50,000 AFY. In general, this decline in groundwater pumping corresponded to a period when irrigation of alfalfa and pasture acreage declined and irrigated vineyard acreage increased (Fugro, 2002). The transition from alfalfa and pasture to vineyard resulted in a net decrease in groundwater pumping because the irrigation demand of vineyards is less than alfalfa and pasture. This decrease in pumping contributed to the increase in groundwater in storage during the 1990s. After the late 1990s, groundwater pumping increased to about 100,000 AFY in 2007, largely due to continued expansion of irrigated vineyard acreage. The increase in groundwater pumping during this period contributed to the reductions in groundwater in storage that occurred after the late 1990s.

Over the 31 year historical base period, a net loss of groundwater storage of about 390,000 AF occurred. The annual average groundwater storage loss was approximately 12,600 AF. The average groundwater storage loss of 12,600 AFY is about 18% of the average total groundwater inflow of 71,400 AFY (Table 6-3) and about 15% of the average total groundwater outflow of 84,000 AFY (Table 6-4).

6.3.2.4 Historical Sustainable Yield of the Subbasin

The computed long-term depletion of groundwater in storage indicates that total groundwater outflow exceeded the total inflow in the Subbasin from 1981 through 2011; this depletion is consistent with observed groundwater elevation declines (for example, see groundwater elevation change maps and hydrographs in Chapter 5). As summarized in Table 6-5, total groundwater pumping averaged approximately 72,400 AFY during the historical base period.

In accordance with Section 354.18(b)(7) of the SGMA Regulations, a sustainable yield for the Subbasin for the historical base period was estimated. This estimate was computed by subtracting the average groundwater storage deficit of 12,600 AFY from the total average amount of groundwater pumping. In this case, the historical sustainable yield of the Subbasin for the historical base period is about 59,800 AFY. This estimate of sustainable yield reflects historical climate, hydrologic and water resource conditions and provides insight into the amount of groundwater pumping that could be sustained to maintain a balance between groundwater inflows and outflows. However, it differs from estimates of future sustainable yield, which will be developed for representative average future climate and hydrologic conditions and will be used to plan management actions and projects needed to avoid undesirable results under SGMA.

6.4 Current Water Budget

The SGMA Regulations require that the current surface water and groundwater budget be based on the most recent hydrology, water supply, water demand, and land use information. For the Paso Robles Subbasin GSP, the period 2012 to 2016 was selected as the time period for the current water budget. The current water budget period corresponds to a drought period when the average annual precipitation averaged about 62% of the historical average annual precipitation and the average streamflow percolation was 10% of the historical average percolation. As a result, the current water budget period represents a more extreme condition in the Subbasin and is not appropriate for sustainability planning in the Subbasin. Estimates of the surface water and groundwater inflow and outflow, and changes in storage for the current water budget period are provided below.

6.4.1 Current Surface Water Budget

The current surface water budget quantifies important sources of surface water. Similar to the historical surface water budget, the current surface water budget includes two surface water source types: local imported supplies and local supplies.

6.4.1.1 Current Local Imported Supplies

As reported in the City of Paso Robles' 2016 Urban Water Management Plan, the most significant source of imported surface water in the Paso Robles Subbasin is the City's entitlement for Nacimiento water through a SLOFCWCD contract (Todd Groundwater, 2016). The total Nacimiento entitlement is about 6,500 AFY. Use of the Nacimiento water by the City began in 2014. Recently the Subbasin has begun to receive relatively small deliveries of up to 100 AFY of State Water Project water to Shandon CSA 16 for residential use. Currently, the City can treat up to about 2,700 AFY of Nacimiento water and deliver it for potable use (Todd Groundwater, 2016). Approximately another 270 AFY of Nacimiento water can be discharged to the Salinas River and recovered by a dedicated recovery well. In times of drought, Nacimiento water can be discharged to the Salinas River to improve reliability of the City's river recovery wells.

Only a small portion of the total water demand in the Subbasin during the current water budget period was met by the City's entitlement of imported surface water from Nacimiento Reservoir. According to records provided by the City, the amounts of Nacimiento water used in 2014, 2015, and 2016 were 227, 622, and 799 AF, respectively. The limited use is not an indication of the reliability of Nacimiento water, but rather a choice by the City regarding how to operate its water supply portfolio. Nacimiento water is expected to be a stable water supply given the favorable contractual priority of SLOFCWCD for the reservoir supply (Todd Groundwater, 2016).

Given the limited amount of imported Nacimiento water used compared to the amount of other local surface water supplies, the Nacimiento water supply is not aggregated into the surface water budget discussed below.

6.4.1.2 Current Local Supplies

Local surface water supplies include surface water flows that enter the Subbasin from precipitation runoff within the watershed, Salinas River inflow to the Subbasin (including releases from the Salinas Reservoir), Nacimiento River inflow to the Subbasin (including releases from Nacimiento Reservoir), and discharge of groundwater to streams from the Alluvial Aquifer. Table 6-6 summarizes the annual average, minimum, and maximum values for these inflows.

Table 6-6. Estimated Current (2012-2016) Annual Surface Water Inflows to Subbasin

Surface Water Inflow Component	Average	Minimum	Maximum
Precipitation Runoff	2,900	1,300	7,500
Salinas Reservoir Releases to Salinas River	6,600	5,200	8,500
Nacimiento Reservoir Releases	73,200	29,400	163,600
Groundwater Discharge to Rivers and Streams	4,300	3,000	6,100
Total	87,000		

Note: All values in AF

The estimated average total inflow from both precipitation runoff and reservoir releases over the current water budget period was approximately 87,000 AFY, or 25% of the 360,400 AFY over the historical base period. Approximately 84% of the local surface water supply was from Nacimiento Reservoir releases, most of which flows out of the Subbasin as surface flow. As a result, Nacimiento River flows do not result in appreciable amounts of surface water percolation to groundwater. If Nacimiento releases are not considered in the surface water inflows, surface water inflows during the current water budget period were less than 10% of the surface water inflows for the historical base period. The substantial reduction in surface water inflows reflects the drought conditions that prevailed during the current water budget period.

6.4.1.3 Current Surface Water Outflows

The estimated annual average, minimum, and maximum surface water outflow leaving the Subbasin as flow in the Salinas River, flow in the Nacimiento River, and percolation into the groundwater system over the current base period is summarized in Table 6-7.

Table 6-7. Estimated Current (2012-2016) Annual Surface Water Outflows from Subbasin

Surface Water Outflow Component	Average	Minimum	Maximum
Salinas River Flow	11,100	8,500	14,100
Nacimiento River Flow	73,200	29,400	163,300
Percolation of Surface Water to Groundwater	2,700	2,100	4,100
Total	87,000		

Note: All values in AF

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Reductions in surface water outflow for the current water budget period were similar to those reported above for the surface water inflows.

6.4.1.4 Current Surface Water Budget

Figure 6-5 summarizes the current surface water budget for the Subbasin. Figure 6-5 is on the same scale as Figure 6-2 and shows the effects of the drought conditions that prevailed during the period 2012 through 2016. During this period, precipitation was well below average, which resulted in very little surface water flow.

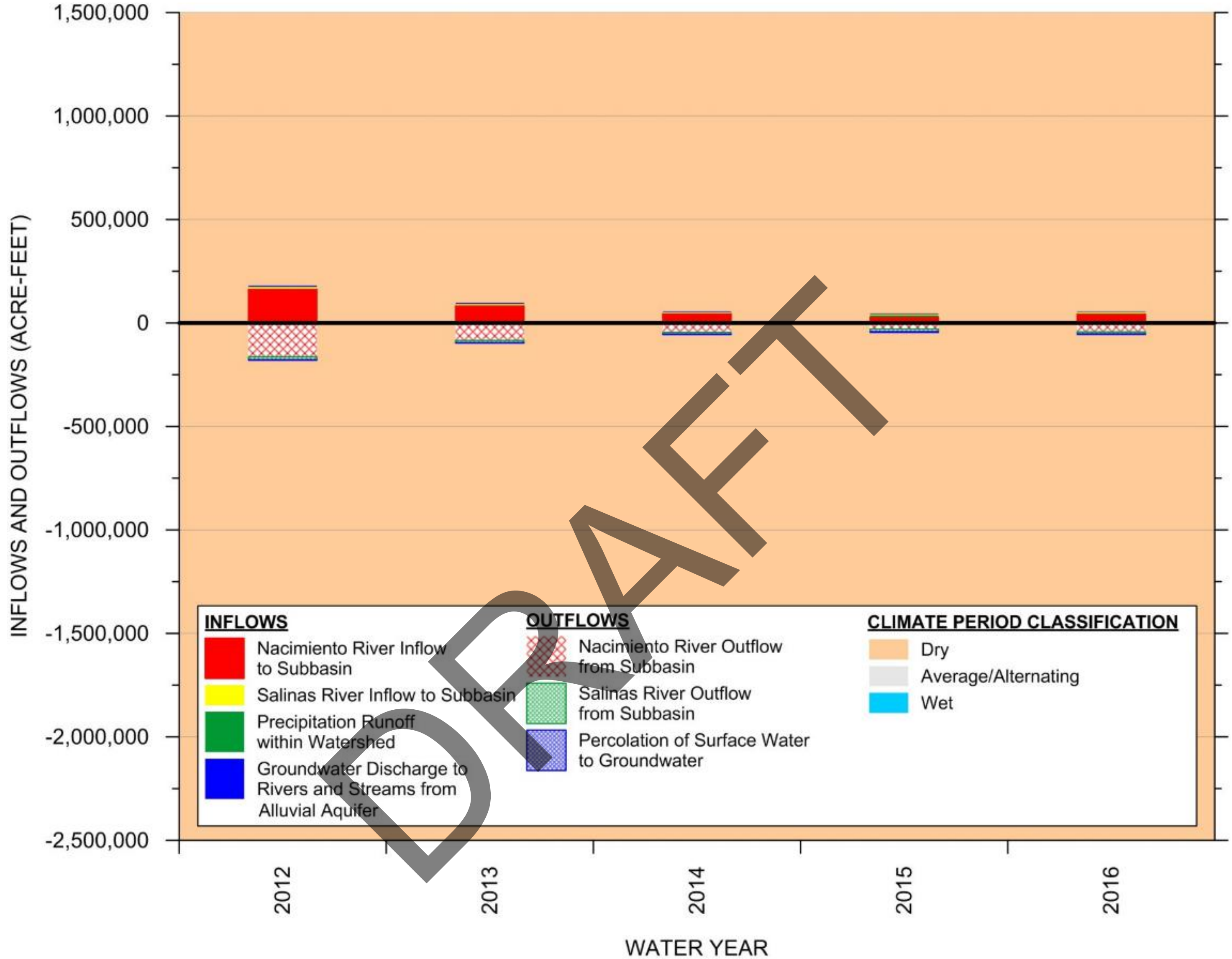

Figure 6-5. Current (2012 – 2016) Surface Water Inflows and Outflows

6.4.2 Current Groundwater Budget

Groundwater supplied most of the water used in the basin during the current water budget period. The current water budget includes a summary of the estimated groundwater inflows, groundwater outflows, and change in groundwater in storage.

6.4.2.1 Current Groundwater Inflows

Groundwater inflow components include streamflow percolation, agricultural irrigation return flows, deep percolation of direct precipitation, subsurface inflow into the Subbasin, wastewater pond percolation, and urban irrigation return flow. Estimated annual groundwater inflows for the current water budget period are summarized in Table 6-8.

Table 6-8. Estimated Current (2012-2016) Annual Groundwater Inflows to Subbasin

Groundwater Inflow Component [1]	Average	Minimum	Maximum
Streamflow Percolation	2,700	2,100	4,100
Agricultural Irrigation Return Flow	13,100	12,400	13,800
Deep Percolation of Direct Precipitation	1,400	500	3,800
Subsurface Inflow into Subbasin	4,900	4,400	6,000
Wastewater Pond Percolation	4,700	4,600	4,900
Urban Irrigation Return Flow	2,100	2,000	2,200
Total	28,900		

Note: All values in AF

(1) – Percolation from septic systems is not directly accounted for because it is subtracted from the total estimated rural-domestic pumping to simulate a net rural-domestic pumping amount.

For the current water budget period, estimated total average groundwater inflow ranged from 27,500 AFY to 33,100 AFY, with an average inflow of 28,900 AFY. Notable observations from the summary of groundwater inflows for the current water budget period included:

- Average total inflow during the current water budget period was about 40% of the historical base period.
- Unlike the historical base period, when the largest inflow component was streamflow percolation, the largest groundwater inflow component for the current water budget is

agricultural irrigation return flow, which accounts for approximately 45% of the total average inflow.

- The relatively small difference between the minimum and maximum inflows reflects the drought condition that prevailed during the current water budget period, when precipitation and runoff were continuously low.
- Total annual average streamflow percolation in the current water budget period was approximately 10% of the streamflow percolation in the historical base period. This reflects the very low streamflows during the drought. The low streamflows had a significant impact on the groundwater basin because streamflow percolation was the most significant source of groundwater recharge during the historical period.
- Total annual average recharge from direct precipitation for the current water budget period was about 12% of the recharge from direct precipitation for the historical base period.

6.4.2.2 Current Groundwater Outflows

Groundwater outflow components include total groundwater pumping from all water use sectors, groundwater discharges to streams and rivers from the Alluvial Aquifer, subsurface flow out of the Subbasin, and riparian evapotranspiration. Estimated annual groundwater outflows for the current water budget period are summarized in Table 6-9.

Table 6-9. Estimated Current (2012-2016) Annual Groundwater Outflow from Subbasin

Groundwater Outflow Component	Average	Minimum	Maximum
Total Groundwater Pumping	85,800	73,900	101,200
Discharge to Streams and Rivers from Alluvial Aquifer	4,300	3,000	6,100
Subsurface Flow Out of Subbasin	2,500	2,300	2,600
Riparian Evapotranspiration	1,700	1,700	1,700
Total	94,300		

Note: All values in AF

For the current water budget period, estimated total average groundwater outflows ranged from 81,200 AFY to 109,300 AFY, with an average annual outflow of 94,300 AF. Notable observations from a comparison of the historical (Table 6-4) and current groundwater outflows include:

- Total annual average groundwater pumping was about 19% higher during the current water budget period.
- Groundwater discharge from the Alluvial Aquifer to streams was about 40% lower during the current water budget period, reflecting lower precipitation and lower groundwater levels.

The largest groundwater outflow component from the Subbasin in the current water budget period is pumping. Estimated annual groundwater pumping by water use sector for the current water budget period is summarized in Table 6-10.

Table 6-10. Estimated Current (2012-2016) Annual Groundwater Pumping by Water Use Sector

Water Use Sector	Average	Minimum	Maximum
Agricultural	77,000	65,600	92,300
Municipal	3,800	3,200	4,300
Rural-Domestic [1]	3,500	3,400	3,600
Small Commercial	1,500	1,500	1,500
Total	85,800		

Note: All values in AF

(1) Assumed to be net amount of pumping based on an analysis conducted by GSSI (2016). Net pumping was computed as total pumping amount minus septic return flow.

For the current water budget period, estimated total average groundwater pumping ranged from 73,900 AFY to 101,200 AFY, with an average pumping of 85,800 AFY. Agricultural pumping was the largest component of total groundwater pumping and accounts for about 90% of total pumping during the current water budget period. Municipal, rural-domestic, and small commercial pumping account for 4%, 4%, and 2%, respectively, of total average pumping during the current water budget period.

Notable observations from a comparison of the historical (Table 6-5) and current total annual average groundwater pumping include:

- Total annual average agricultural groundwater pumping was about 18% higher during the current water budget period when compared to the historical period (increase of 11,700 AFY)

- Total annual average rural-domestic groundwater pumping was about 40% higher during the current water budget period when compared to the historical period (increase of 1,000 AFY)

6.4.2.3 Current Groundwater Budget and Change in Groundwater Storage

Groundwater inflows and outflows for the current base period are summarized on Figure 6-6. This graph shows inflow and outflow components for every year of the current water budget period. Inflow components are graphed above the zero line and outflow components are graphed below the zero line. Groundwater outflow by pumping (green bars) includes pumping from all water use sectors (Table 6-10).

Figure 6-7 shows annual and cumulative change in groundwater storage during the current water budget period. Annual decreases in groundwater storage are graphed below the zero line. The red line shows the cumulative change in groundwater storage over the historical base period.

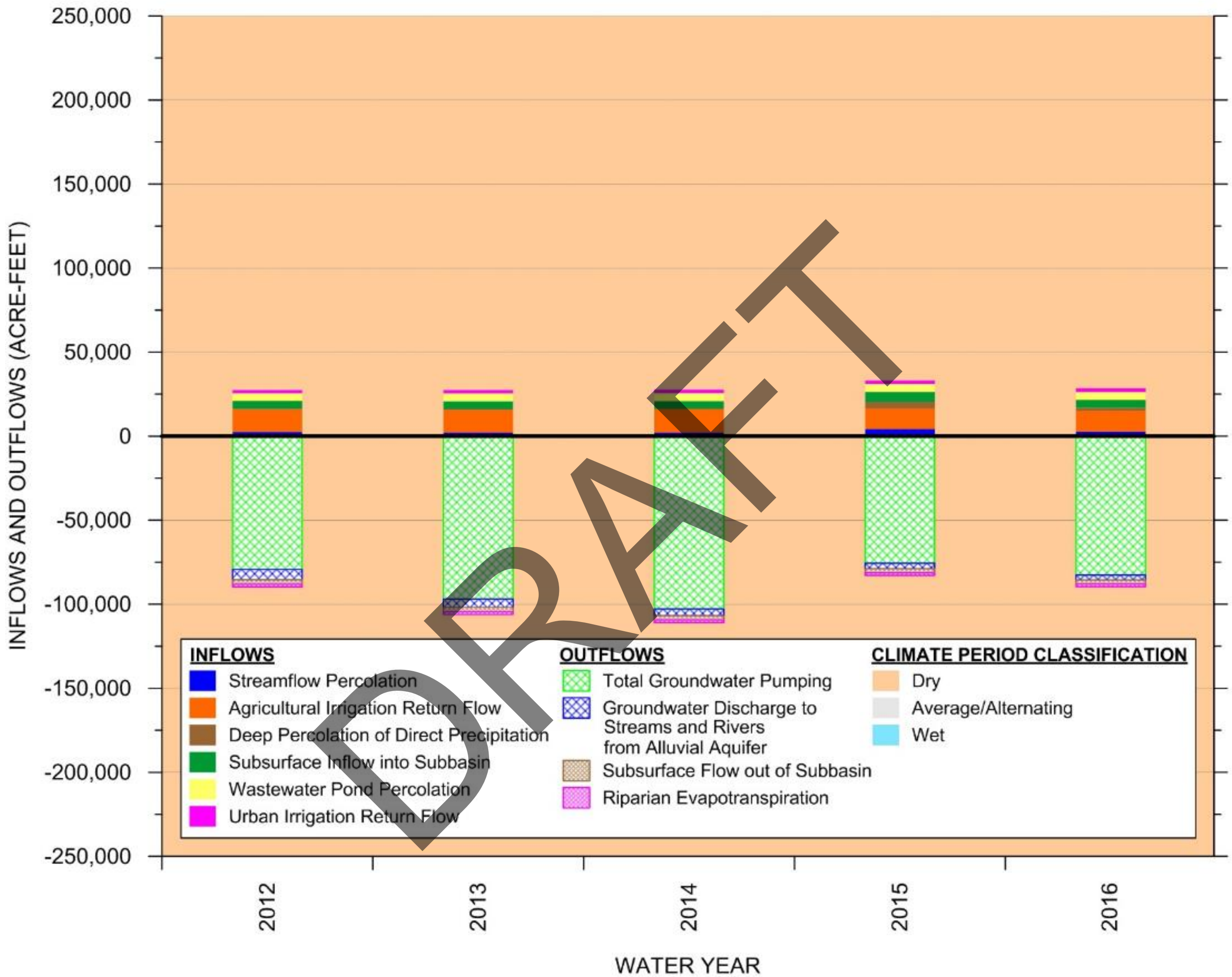

Figure 6-6. Current (2012-2016) Groundwater Inflows and Outflows

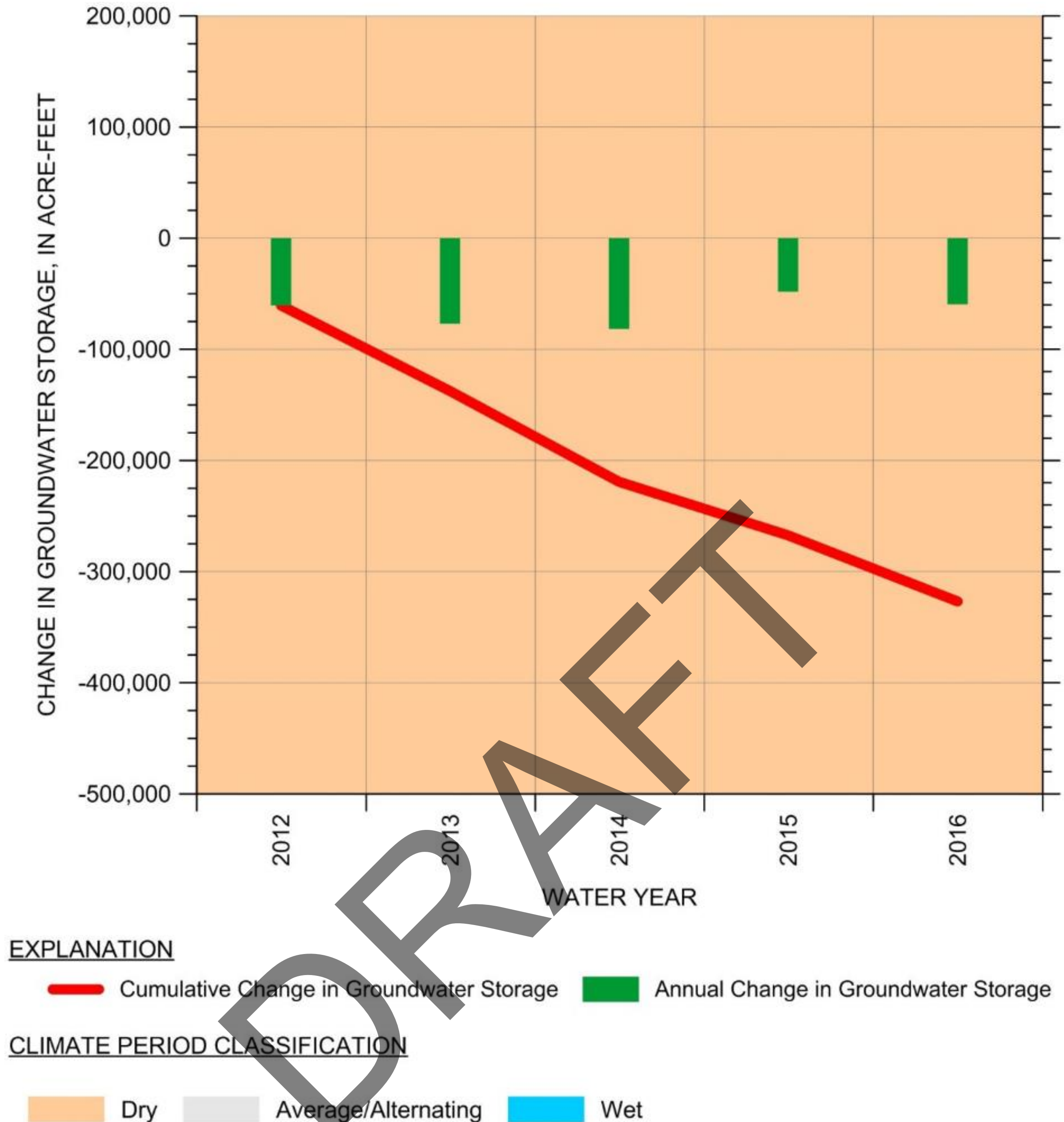

Figure 6-7. Current (2012-2016) Annual and Cumulative Change in Groundwater Storage

The current groundwater budget is strongly influenced by the drought; total groundwater pumping shows no trend over the five years that might be related to any continuing land use change. During the current water budget period, the amounts of recharge and streamflow percolation were very low and the average amount of pumping was slightly greater than the historical water budget period. Over the five-year current water budget period, an estimated net loss of groundwater in storage of about 327,000 AF occurred (Figure 6-7). The annual average groundwater storage loss, or the difference between outflow and inflow to the Subbasin, was approximately 65,400 AF.

6.4.2.4 Current Sustainable Yield

The substantial short-term depletion of groundwater in storage indicates that total groundwater outflows exceeded the total inflows over the current water budget period. As summarized in Table 6-9, total groundwater pumping averaged approximately 85,800 AFY during the current period. The sustainable yield of the Subbasin can be estimated by subtracting the average groundwater storage deficit of 65,400 AFY from the total average amount of groundwater pumping. For the current water budget, the sustainable yield for the Subbasin is about 20,400 AFY. Due to the drought conditions, the estimated groundwater storage loss and low sustainable yield for the current water budget period are not appropriate for long-term sustainability planning.

6.5 Future Water Budget

SGMA Regulations require the development of a future surface water and groundwater budget to estimate future baseline conditions of supply, demand, and aquifer response to GSP implementation. The future water budget provides a baseline against which management actions will be evaluated over the GSP implementation period from 2020 to 2040. Future water budgets were developed using the GSP model.

In accordance with Section 354.18 (c)(3)(A) of the SGMA Regulations, the future water budget should be based on 50 years of historical precipitation, evapotranspiration, and streamflow information. The GSP model includes only 31 years of historical precipitation, evapotranspiration, and streamflow data. Therefore, the future water budget is based on 31 years of historical data rather than 50 years of historical data. It is believed that this time period is representative and is the best available information for groundwater sustainability planning purposes.

6.5.1 Assumptions Used in Future Water Budget Development

Assumptions about future groundwater supplies and demands are described in the following subsections. An overarching assumption is that any future increases in groundwater use within the Subbasin will be offset by equal reductions in groundwater use in other parts of the Subbasin, or in other words, groundwater neutral through implementation of the GSP.

Future water budgets were developed using the GSP model. During the update process for the GSP model, all model components (e.g., groundwater pumping) of the entire original 2016 GSSI model area were updated, including components with Monterey County and the Atascadero Subbasin. However, information provided for the future water budget only pertains to the GSP Subbasin (Figure 1-1), thus do not include areas within Monterey County or the Atascadero Subbasin.

6.5.1.1 Future Non-Agricultural Water Demand Assumptions

Future non-agricultural water demands were estimated for the City of Paso Robles (City) and San Miguel Community Services District (SMCSD) based on the following available planning documents:

- Paso Robles 2015 Urban Water Management Plan (UWMP) (Todd Groundwater, 2016)
- San Miguel Community Services District Water & Wastewater Master Plan Update (Monsoon Consultants, 2017)

Projections of the City's groundwater demand were obtained from the City's UWMP. A portion of the City's future groundwater demand will be offset by imported Nacimiento water. The projected water demand for SMCSD was assumed to be satisfied solely by groundwater. Projections for non-agricultural water demand for entities other than those listed above, such as residential wells and smaller commercial water users, were not available. Water demand for these users was assumed to remain constant into the future to be consistent with the overarching assumption that future growth will be groundwater neutral through the implementation of this GSP.

Total non-agricultural groundwater demand in the Subbasin is projected to increase from about 8,500 AFY in 2020 to about 8,700 AFY in 2040.

6.5.1.2 Future Wastewater Discharge Assumptions

Discharge of treated wastewater to the Salinas River provides a source of recharge to the Alluvial Aquifer. Rates of future wastewater discharge were estimated as a percentage of total water demand. Wastewater discharge as a percentage of water demand was calculated separately for each water provider. Projected annual wastewater discharge for San Miguel CSD is about 200 AFY, and projected annual wastewater discharge for the City of Paso Robles increases from about 2,900 AFY in 2020 to about 3,600 AFY by 2040. If the future wastewater discharge amounts differ from the estimated values cited above the GSP model and future water budgets will be adjusted during implementation to account for these changes.

6.5.1.3 Future Crop Acreage and Irrigation Efficiency Assumptions

In accordance with Section 354.18 (c)(3)(B) of the SGMA Regulations, the most recently available land use (in this case, crop acreage) and crop coefficient information should be used as the baseline condition for estimating future water demand. For the GSP, the 2016 crop acreage data obtained from the office of the San Luis Obispo County Agricultural Commissioner were used. These crop acreage data were the most recently available. To account for irrigation efficiency in the future water budget, the reported crop coefficient information from GSSI (GSSI, 2016) was used.

Projections for agricultural water demand are not available. Agricultural water demand was assumed to remain constant into the future to be consistent with the overarching assumption that future growth will be groundwater neutral through the implementation of this GSP.

6.5.1.4 Future Climate Assumptions

The SGMA Regulations require incorporating future climate estimates into the future water budget. To meet this requirement, DWR developed an approach for incorporating reasonably expected, spatially gridded changes to monthly precipitation and reference ETo (DWR, 2018). The approach for addressing future climate change developed by DWR was used in the future water budget modeling for the Subbasin. The changes are presented as separate monthly change factors for both precipitation and ETo, and are intended to be applied to historical time series within the climatological base period through 2011. Specifically, precipitation and ETo change factors were applied to historical climate data for the period 1981 to 2011 for modeling the future water budget.

DWR provides several sets of change factors representing potential climate conditions in 2030 and 2070. DWR recommends using the 2030 change factors to evaluate conditions over the GSP implementation period (DWR, 2018). Consistent with DWR recommendations, datasets of monthly 2030 change factors for the Paso Robles area were applied to precipitation and ETo data from the historical base period to develop monthly time series of precipitation and ETo, which were then used to simulate future hydrology conditions.

6.5.2 Modifications to Modeling Platform to Simulate Future Conditions

The existing modeling platform was modified to simulate future conditions, and the results of these simulations are used to develop the future water budget.

6.5.2.1 Modification to Soil Water Balance Model

The soil water balance model operates on a daily time scale and tracks daily variations in soil water storage for different agricultural areas in the Paso Robles Subbasin. For consistency with the monthly climate change factors provided by DWR, the daily model was used to develop monthly soil water balance calculations. These calculations compute irrigation demand as the residual crop evapotranspiration demand unsatisfied by effective precipitation.

These calculations use monthly precipitation and ETo, rescaled by the monthly climate change factors provided by DWR, and the same monthly crop coefficients used in the historical water budget analysis. Empirical relationships were developed to account for soil moisture carryover from the winter into the spring based on results from the daily soil water balance model.

Monthly applied irrigation water was determined over the future base period from computed monthly crop demand and the crop-specific irrigation efficiencies. Agricultural irrigation return flow is then computed as the difference between the applied irrigation water and the crop demand. Results were then averaged to provide average monthly rates of applied irrigation water and irrigation return flow that would be expected under future climate conditions.

6.5.2.2 Modifications to the Watershed Model

The watershed model operates on a daily time scale and simulates streamflow and infiltration of direct precipitation. The watershed model was modified to account for climate change by rescaling daily precipitation and ETo with the monthly climate change factors provided by DWR. The watershed model was then re-run using the modified precipitation and ETo values.

Results from the modified historical base period simulation were then averaged to provide average monthly rates of infiltration of direct precipitation and streamflow under future climate conditions.

6.5.2.3 Modifications to the Groundwater Model

The groundwater model operates at a semi-annual time scale, with stress periods representing six-month periods. The groundwater model was extended and modified to simulate the period 2020 to 2040. Starting groundwater levels for the future simulation were set to groundwater levels at the end of Water Year (WY) 2016, extracted from the updated groundwater model.

Future groundwater recharge components were computed using the modified soil water balance model and watershed model, as described above. Future streamflow generated both inside and outside the Subbasin was computed using the modified watershed model.

Future agricultural groundwater pumping was computed based on the modified soil water balance model. Future non-agricultural groundwater pumping was determined based on water demand assumptions described in Section 6.4.1.1.

Future groundwater recharge, streamflow, and agricultural pumping are specified in the groundwater model as repeating average time-series, based on average monthly calculation of applied irrigation water, excess irrigation water, recharge of direct precipitation, and streamflow. This approach was adopted to simplify the future water budget and allow reporting of average future conditions accounting for climate change. Future non-agricultural pumping and wastewater return flows are the only inputs to the groundwater model that exhibit a long-term trend over the implementation period.

6.5.3 Projected Future Water Budget

Future surface water and groundwater budgets were projected.

6.5.3.1 Future Surface Water Budget

The future surface water budget includes average inflows from local imported supplies, average inflows from local supplies, average stream outflows, and average stream percolation to groundwater. Average future local imported supplies are estimated to be approximately 1,400 AFY. Table 6-11 summarizes the average local supply components of projected surface water budget.

Table 6-11. Projected Future Annual Average Surface Water Budget

Surface Water Budget Component	Flow Amount
Inflows	
Nacimiento River Inflow to Subbasin	214,300
Precipitation Runoff within Watershed	84,800
Salinas River Inflow to Subbasin	39,300
Groundwater Discharge to Rivers and Streams	4,600
Total	343,000
Outflows	
Nacimiento River Outflow from Subbasin	214,300
Salinas River Outflow from Subbasin	99,900
Percolation of Surface Water to Groundwater	28,800
Total	343,000

Note: All values in AF

6.5.3.2 Future Groundwater Budget

Projected groundwater budget components are computed using the modified groundwater flow model to simulate average conditions over the implementation period.

Table 6-12 summarizes projected annual groundwater inflows. In contrast to the historical groundwater budget which accounted for month-to-month variability, the projected groundwater budget is based on average monthly inflows. Therefore, variability in simulated groundwater budget components is minor, and minimum and maximum values are not included in Table 6-12.

Table 6-12. Projected Future Annual Groundwater Inflow to Subbasin

Groundwater Inflow Component	Average
Streamflow Percolation	28,800
Agricultural Irrigation Return Flow	14,500
Deep Percolation of Direct Precipitation	12,600
Subsurface Inflow into Subbasin	8,300
Wastewater Pond Leakage	3,500
Urban Irrigation Return Flow	1,800
Total	69,500

Note: All values in AF

The total average annual groundwater inflow is 1,900 AF less during the future period than during the historical base period. Annual agricultural irrigation return flow is the inflow component with the most significant reduction – about 3,300 AF – between the historical base period and future water budget period. Reduction in agricultural irrigation return flow is due partly to changes in historical cropping patterns and partly to improvements in vineyard irrigation efficiency.

Table 6-13 summarizes projected annual groundwater outflows.

Table 6-13. Projected Future Annual Groundwater Outflow from Subbasin

Groundwater Outflow Component	Average
Total Groundwater Pumping	74,800
Discharge to Streams and Rivers from Alluvial Aquifer	4,600
Groundwater Flow Out of Subbasin	2,100
Riparian Evapotranspiration	1,700
Total	83,200

Note: All values in AF

The total average annual groundwater outflow is estimated to be 800 AF less during the future period than during the historical base period. Future total annual groundwater pumping is projected to increase by about 2,400 AF compared to the historical base period. Concurrently, total annual discharge to streams and rivers and total annual groundwater outflow from the Subbasin are projected to decrease by about 2,700 AF and 500 AF, respectively.

6.5.3.3 Future Sustainable Yield

The projected future groundwater budget shows a long-term imbalance between inflows and outflows, with projected groundwater inflows of about 69,500 AFY and projected groundwater outflows of about 83,200 AFY. The projected future imbalance indicates an average annual decrease in groundwater in storage of 13,700 AFY. The projected future sustainable yield of the Subbasin was estimated by subtracting the average groundwater storage deficit of 13,700 AFY from the total projected future average amount of groundwater pumping of 74,800 AFY. In this case, the future sustainable yield for the Subbasin period is estimated to be approximately 61,100 AFY. The estimated future sustainable yield is similar to the estimated sustainable yield for the historic base period. This similarity indicates that potential future changes in climate are not projected to have a substantial impact on the amount of groundwater that can be sustainably used compared to historical conditions. The calculated sustainable yield of the Subbasin is a reasonable estimate of the long-term pumping that can be maintained without producing undesirable results. The definitive sustainable yield can only be determined once data show undesirable results have not occurred. The sustainable yield estimate will be revised in the future as new data become available from monitoring data that evaluate the presence or absence of undesirable results.

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Paso Robles Subbasin Groundwater Sustainability Plan
VOLUME II

Chapter 7 Monitoring Network
Chapter 8 Sustainable Management Criteria
Chapter 9 Management Actions and Projects
Chapter 10 Groundwater Sustainability Plan Implementation
Chapter 11 Notice and Communication
Chapter 12 Memorandum of Agreement

Prepared for:

Paso Robles Subbasin Cooperative Committee and the Groundwater Sustainability Agencies

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ABBREVIATIONS AND ACRONYMS

$/AF	dollar per acre-foot
$/AF-benefit	dollar per acre-foot of basin benefit
Act (or SGMA)	Sustainable Groundwater Management Act
AF	acre-feet
AFY	acre-feet per year
AMWC	Atascadero Mutual Water Company
Basin Plan	Water Quality Control Plan for the Central Coast Basin
BPs	Best Water Use Practices
BMPs	Best Management Practices
C&E	Communications and Engagement
CASGEM	California Statewide Groundwater Elevation Monitoring
CCR	California Code of Regulations
CCRWQCB	Central Coast Regional Water Quality Control Board
CGPS	Continuous GPS
CIMIS	California Irrigation Management Information System
City	City of Paso Robles
Cooperative Committee	Paso Basin Cooperative Committee
County	San Luis Obispo County
CSA16	Community Service Area 16
CSD	Community Services District
CWWCP	Countywide Water Conservation Program
DAIv2	Data Archive Interface
DDW	Division of Drinking Water
DMS	Paso Robles Subbasin Data Management System
DWR	Department of Water Resources
EPA	Environmental Protection Agency
ET (or ETo)	evapotranspiration
ft/day	feet per day
ft2/day	square feet per day
ft msl	feet above mean sea level
GAMA	Groundwater Ambient Monitoring and Assessment
GDE	Groundwater-Dependent Ecosystem
GMP	Groundwater Management Plan
gpd/ft	gallons per day per foot
gpm	gallons per minute
GSA	Groundwater Sustainability Agency
GSI	GSI Water Solutions, Inc.
GSP (or the Plan)	Groundwater Sustainability Plan
GSSI	Geoscience Support Services, Inc.

hp	horsepower
ILRP	Irrigated Lands Regulatory Program
InSAR	Interferometric Synthetic Aperture Radar
IRWMP	Integrated Regional Water Management Program
LID	Low Impact Development
LOS	Level of Severity
LUCE	Land Use and Circulation Element
MCL	Maximum Contaminant Limit (or Maximum Contaminant Levels)
MO	measurable objectives
MOA	Memorandum of Agreement
mg/L	milligram per liter
msl	mean sea level
MT	minimum thresholds
MWR	Master Water Report
NCCAG	Natural Communities Commonly Associated with Groundwater
NDMC	National Drought Mitigation Center
NHD	National Hydrology Dataset
NRCS	USGS National Resources Conservation Service
NWIS	National Water Information System
NWP	Nacimiento Water Project
O&M	operations and maintenance
OSWCR	DWR Online System for Well Completion Reports
pCi/L	picocuries per liter
PWIS	CA Water Boards Public Water Information System
RW	recycled water
SAGBI	Soil Agricultural Groundwater Banking Index
SB	Senate Bill
SGMA (or Act)	Sustainable Groundwater Management Act
SGMA Regulations	CCR Subchapter 2. Groundwater Sustainability Plans
SLO County	San Luis Obispo County
SLOFCWCD	San Luis Obispo County Flood Control and Water Conservation District
SMC	Sustainable Management Criteria
SMCL	Secondary Maximum Contaminant Limit
SMCSD	San Miguel Community Services District
SNMP	Salt and Nutrient Management Plan
SPI	Standardized Precipitation Index
SSURGO	Soil Survey Geographic Database
Subbasin	Paso Robles Area Subbasin of the Salinas Valley Groundwater Basin
SWP	State Water Project
SWRCB	State Water Resources Control Board

SWRP	San Luis Obispo Stormwater Resource Plan
TDS	total dissolved solids
TMDLs	Total Maximum Daily Load
UNAVCO	University NAVSTAR Consorium
USACE	United States Army Corps of Engineers
USGS	United States Geologic Survey
USDA	United States Department of Agriculture
UWMP	Urban Water Management Plan
Water Board	State Water Resources Control Board
WPA	Water Planning Areas
WRAC	Water Resources Advisory Committee
WY	Water Year

REGULATIONS CHECKLIST FOR GSP SUBMITTAL

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354.8(f)	Land Use Elements or Topic Categories of Applicable General Plans	Summary of general plans and other land use plans	3.10
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		Description of how the monitoring network provides adequate coverage of Sustainability Indicators	Chapter 7, including 7.2. through 7.6
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		How the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.	
		Legal authority required	
		Estimated costs and plans to meet those costs	
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357.4	Coordination Agreements - Shall be submitted to the Department together with the GSPs for the basin and, if approved, shall become part of the GSP for each participating Agency.	Coordination Agreements shall describe the following: A point of contact	Not applicable
		Responsibilities of each Agency	
		Procedures for the timely exchange of information between Agencies	
		Procedures for resolving conflicts between Agencies	
		How the Agencies have used the same data and methodologies to coordinate GSPs	
		How the GSPs implemented together satisfy the requirements of SGMA	
		Process for submitting all Plans, Plan amendments, supporting information, all monitoring data and other pertinent information, along with annual reports and periodic evaluations	
		A coordinated data management system for the basin	
		Coordination agreements shall identify adjudicated areas within the basin, and any local agencies that have adopted an Alternative that has been accepted by the Department	

DEFINITIONS

California Water Code

Sec. 10721

Unless the context otherwise requires, the following definitions govern the construction of this part:

(a) Adjudication action means an action filed in the superior or federal district court to determine the rights to extract groundwater from a basin or store water within a basin, including, but not limited to, actions to quiet title respecting rights to extract or store groundwater or an action brought to impose a physical solution on a basin.

(b) Basin means a groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to Chapter 3 (commencing with Section 10722).

(c) Bulletin 118 means the department's report entitled California's Groundwater: Bulletin 118 updated in 2003, as it may be subsequently updated or revised in accordance with Section 12924.

(d) Coordination agreement means a legal agreement adopted between two or more groundwater sustainability agencies that provides the basis for coordinating multiple agencies or groundwater sustainability plans within a basin pursuant to this part.

(e) De minimis extractor means a person who extracts, for domestic purposes, two acre-feet or less per year.

(f) Governing body means the legislative body of a groundwater sustainability agency.

(g) Groundwater means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.

(h) Groundwater extraction facility means a device or method for extracting groundwater from within a basin.

(i) Groundwater recharge or recharge means the augmentation of groundwater, by natural or artificial means.

(j) Groundwater sustainability agency means one or more local agencies that implement the provisions of this part. For purposes of imposing fees pursuant to Chapter 8 (commencing with Section 10730) or taking action to enforce a groundwater sustainability plan, groundwater sustainability agency also means each local agency comprising the groundwater sustainability agency if the plan authorizes separate agency action.

(k) Groundwater sustainability plan or plan means a plan of a groundwater sustainability agency proposed or adopted pursuant to this part.

(l) Groundwater sustainability program means a coordinated and ongoing activity undertaken to benefit a basin, pursuant to a groundwater sustainability plan.

(m) In-lieu use means the use of surface water by persons that could otherwise extract groundwater in order to leave groundwater in the basin.

(n) Local agency means a local public agency that has water supply, water management, or land use responsibilities within a groundwater basin.

(o) Operator means a person operating a groundwater extraction facility. The owner of a groundwater extraction facility shall be conclusively presumed to be the operator unless a satisfactory showing is made to the governing body of the groundwater sustainability agency that the groundwater extraction facility actually is operated by some other person.

(p) Owner means a person owning a groundwater extraction facility or an interest in a groundwater extraction facility other than a lien to secure the payment of a debt or other obligation.

(q) Personal information has the same meaning as defined in Section 1798.3 of the Civil Code.

(r) Planning and implementation horizon means a 50-year time period over which a groundwater sustainability agency determines that plans and measures will be implemented in a basin to ensure that the basin is operated within its sustainable yield.

(s) Public water system has the same meaning as defined in Section 116275 of the Health and Safety Code.

(t) Recharge area means the area that supplies water to an aquifer in a groundwater basin.

(u) Sustainability goal means the existence and implementation of one or more groundwater sustainability plans that achieve sustainable groundwater management by identifying and causing the implementation of measures targeted to ensure that the applicable basin is operated within its sustainable yield.

(v) Sustainable groundwater management means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.

(w) Sustainable yield means the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus that can be withdrawn annually from a groundwater supply without causing an undesirable result.

(x) Undesirable result means one or more of the following effects caused by groundwater conditions occurring throughout the basin:

   (1) Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.

   (2) Significant and unreasonable reduction of groundwater storage.

   (3) Significant and unreasonable seawater intrusion.

   (4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.

   (5) Significant and unreasonable land subsidence that substantially interferes with surface land uses.

   (6) Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

(y) Water budget means an accounting of the total groundwater and surface water entering and leaving a basin including the changes in the amount of water stored.

(z) Watermaster means a watermaster appointed by a court or pursuant to other law.

(aa) Water year means the period from October 1 through the following September 30, inclusive.

(ab) Wellhead protection area means the surface and subsurface area surrounding a water well or well field that supplies a public water system through which contaminants are reasonably likely to migrate toward the water well or well field.

Official California Code of Regulations

Title 23. Waters
Division 2. Department of Water Resources
Chapter 1.5. Groundwater Management
Subchapter 2. Groundwater Sustainability Plans
Article 2. Definitions
23 CCR § 351
§ 351. Definitions.

The definitions in the Sustainable Groundwater Management Act, Bulletin 118, and Subchapter 1 of this Chapter, shall apply to these regulations. In the event of conflicting definitions, the definitions in the Act govern the meanings in this Subchapter. In addition, the following terms used in this Subchapter have the following meanings:

(a) "Agency" refers to a groundwater sustainability agency as defined in the Act.

(b) "Agricultural water management plan" refers to a plan adopted pursuant to the Agricultural Water Management Planning Act as described in Part 2.8 of Division 6 of the Water Code, commencing with Section 10800 et seq.

(c) "Alternative" refers to an alternative to a Plan described in Water Code Section 10733.6.

(d) "Annual report" refers to the report required by Water Code Section 10728.

(e) "Baseline" or "baseline conditions" refer to historic information used to project future conditions for hydrology, water demand, and availability of surface water and to evaluate potential sustainable management practices of a basin.

(f) "Basin" means a groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to Water Code 10722 et seq.

(g) "Basin setting" refers to the information about the physical setting, characteristics, and current conditions of the basin as described by the Agency in the hydrogeologic conceptual model, the groundwater conditions, and the water budget, pursuant to Subarticle 2 of Article 5.

(h) "Best available science" refers to the use of sufficient and credible information and data, specific to the decision being made and the time frame available for making that decision, that is consistent with scientific and engineering professional standards of practice.

(i) "Best management practice" refers to a practice, or combination of practices, that are designed to achieve sustainable groundwater management and have been determined to be technologically and economically effective, practicable, and based on best available science.

(j) "Board" refers to the State Water Resources Control Board.

(k) "CASGEM" refers to the California Statewide Groundwater Elevation Monitoring Program developed by the Department pursuant to Water Code Section 10920 et seq., or as amended.

(l) "Data gap" refers to a lack of information that significantly affects the understanding of the basin setting or evaluation of the efficacy of Plan implementation, and could limit the ability to assess whether a basin is being sustainably managed.

(m) "Groundwater dependent ecosystem" refers to ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface.

(n) "Groundwater flow" refers to the volume and direction of groundwater movement into, out of, or throughout a basin.

(o) "Interconnected surface water" refers to surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted.

(p) "Interested parties" refers to persons and entities on the list of interested persons established by the Agency pursuant to Water Code Section 10723.4.

(q) "Interim milestone" refers to a target value representing measurable groundwater conditions, in increments of five years, set by an Agency as part of a Plan.

(r) "Management area" refers to an area within a basin for which the Plan may identify different minimum thresholds, measurable objectives, monitoring, or projects and management actions based on differences in water use sector, water source type, geology, aquifer characteristics, or other factors.

(s) “Measurable objectives” refer to specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions that have been included in an adopted Plan to achieve the sustainability goal for the basin.

(t) “Minimum threshold” refers to a numeric value for each sustainability indicator used to define undesirable results.

(u) “NAD83” refers to the North American Datum of 1983 computed by the National Geodetic Survey, or as modified.

(v) “NAVD88” refers to the North American Vertical Datum of 1988 computed by the National Geodetic Survey, or as modified.

(w) “Plain language” means language that the intended audience can readily understand and use because that language is concise, well-organized, uses simple vocabulary, avoids excessive acronyms and technical language, and follows other best practices of plain language writing.

(x) “Plan” refers to a groundwater sustainability plan as defined in the Act.

(y) “Plan implementation” refers to an Agency's exercise of the powers and authorities described in the Act, which commences after an Agency adopts and submits a Plan or Alternative to the Department and begins exercising such powers and authorities.

(z) “Plan manager” is an employee or authorized representative of an Agency, or Agencies, appointed through a coordination agreement or other agreement, who has been delegated management authority for submitting the Plan and serving as the point of contact between the Agency and the Department.

(aa) “Principal aquifers” refer to aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems.

(ab) “Reference point” refers to a permanent, stationary and readily identifiable mark or point on a well, such as the top of casing, from which groundwater level measurements are taken, or other monitoring site.

(ac) “Representative monitoring” refers to a monitoring site within a broader network of sites that typifies one or more conditions within the basin or an area of the basin.

(ad) “Seasonal high” refers to the highest annual static groundwater elevation that is typically measured in the Spring and associated with stable aquifer conditions following a period of lowest annual groundwater demand.

(ae) “Seasonal low” refers to the lowest annual static groundwater elevation that is typically measured in the Summer or Fall, and associated with a period of stable aquifer conditions following a period of highest annual groundwater demand.

(af) “Seawater intrusion” refers to the advancement of seawater into a groundwater supply that results in degradation of water quality in the basin, and includes seawater from any source.

(ag) “Statutory deadline” refers to the date by which an Agency must be managing a basin pursuant to an adopted Plan, as described in Water Code Sections 10720.7 or 10722.4.

(ah) “Sustainability indicator” refers to any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results, as described in Water Code Section 10721(x).

(ai) “Uncertainty” refers to a lack of understanding of the basin setting that significantly affects an Agency's ability to develop sustainable management criteria and appropriate projects and management actions in a Plan, or to evaluate the efficacy of Plan implementation, and therefore may limit the ability to assess whether a basin is being sustainably managed.

(aj) “Urban water management plan” refers to a plan adopted pursuant to the Urban Water Management Planning Act as described in Part 2.6 of Division 6 of the Water Code, commencing with Section 10610 et seq.

(ak) “Water source type” represents the source from which water is derived to meet the applied beneficial uses, including groundwater, recycled water, reused water, and surface water sources identified as Central Valley Project, the State Water Project, the Colorado River Project, local supplies, and local imported supplies.

(al) “Water use sector” refers to categories of water demand based on the general land uses to which the water is applied, including urban, industrial, agricultural, managed wetlands, managed recharge, and native vegetation.

(am) “Water year” refers to the period from October 1 through the following September 30, inclusive, as defined in the Act.

(an) “Water year type” refers to the classification provided by the Department to assess the amount of annual precipitation in a basin.

7 MONITORING NETWORKS

This chapter describes the monitoring networks that exist and improvements to the monitoring networks that will be developed in the Subbasin as part of GSP implementation. This chapter is prepared in accordance with the SGMA regulations §354.32 and §354.34 and includes monitoring objectives, monitoring protocols, and data reporting requirements.

The monitoring networks presented in this chapter are based on existing monitoring sites. It will be necessary to expand the existing monitoring networks and identify or install more monitoring sites to fully demonstrate sustainability, refine the hydrogeologic conceptual model, and improve the GSP model. Monitoring networks are described for each of the five applicable sustainability indicators, and data gaps are identified for every monitoring network. These data gaps will be addressed during GSP implementation. Addressing these data gaps and developing more extensive and complete monitoring networks will improve the GSAs' ability to track progress and demonstrate sustainability.

7.1 Monitoring Objectives

The SGMA regulations require monitoring networks be developed to promote the collection of data of sufficient quality, frequency, and spatial distribution to characterize groundwater and related surface water conditions in the Subbasin and to evaluate changing conditions that occur through implementation of the GSP. The monitoring network should accomplish the following:

Demonstrate progress toward achieving measurable objectives described in the GSP.

Monitor impacts to the beneficial uses and users of groundwater.

Monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds.

Quantify annual changes in water budget components.

The minimum thresholds and measurable objectives monitored by the networks are described in Chapter 8 - Sustainable Management Criteria.

7.1.1 Monitoring Networks

Monitoring networks are developed for each of the five sustainability indicators that are relevant to the Subbasin:

Chronic lowering of groundwater levels

Reduction in groundwater storage

- Degraded water quality
- Land subsidence
- Depletion of interconnected surface water

The Subbasin is isolated from the Pacific Ocean and is not threatened by seawater intrusion; therefore, this GSP does not provide monitoring for the seawater intrusion sustainability indicator.

The SGMA regulations allow the GSP to use existing monitoring sites for the monitoring network. Wells used for monitoring, however, are limited by restrictions in §352.4(c) of the SGMA regulations which requires the GSAs to provide various data for any wells used as monitoring wells, including but not limited to: CASGEM well identification number, well location, ground surface elevation, well depth, and perforated intervals. Wells for which these data were not available, or could not be easily inferred, could not be used in the current groundwater monitoring network.

The approach for establishing the monitoring network for this Subbasin is to leverage existing monitoring programs and incorporate additional monitoring locations that have been made available by cooperating entities. The monitoring networks are limited to locations with data that are publicly available and not collected under confidentiality agreements; the availability of well data and restrictions of existing confidentiality agreements results in a monitoring network with relatively few wells. This chapter identifies data gaps in each monitoring network and proposes locations for filling those data gaps.

7.1.2 Management Areas

The SGMA regulations require that if management areas are established, the quantity and density of monitoring sites in those areas shall be sufficient to evaluate conditions of the Subbasin setting and sustainable management criteria specific to that area. At this time, management areas have not been defined for the Subbasin. If management areas are developed in the future, the monitoring networks will be reevaluated to ensure that there is sufficient monitoring to evaluate conditions in each management area.

7.2 Groundwater Level Monitoring Network

The minimum thresholds and measurable objectives for the chronic lowering of groundwater levels sustainability indicator are evaluated by monitoring groundwater levels. The SGMA regulations require a network of monitoring wells sufficient to demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features.

Existing well records and existing groundwater monitoring programs in the Subbasin are described in Chapters 3 and 5, respectively. Groundwater well construction data and water level data were obtained from the following public sources:

San Luis Obispo County Flood Control and Water Conservation District (SLOFCWCD)

USGS National Water Information System (NWIS)

DWR Online System for Well Completion Reports (OSWCR)

DWR SGMA Data Viewer

DWR California Statewide Groundwater Elevation Monitoring (CASGEM)

City of Paso Robles and San Miguel CSD for public drinking water supply wells

These data sources resulted in a dataset of thousands of wells. The dataset was analyzed using the following steps to assess whether individual wells could be included in the initial GSP groundwater level monitoring network:

1. **Include Only Currently Measured Wells**. To reduce the possibility of selecting a well that has not been monitored in many years or that may no longer be accessible, wells were excluded that did not have at least one groundwater level measurement from 2012 or later. All the groundwater level monitoring data available for the Subbasin that met this criterion were provided by SLOFCWCD or the USGS NWIS, which have monitored groundwater levels in approximately 130 wells since 2012.

2. **Remove Confidential Wells**. Most of the data from wells in the SLOFCWCD groundwater level monitoring network are subject to confidentiality agreements. Because monitoring data collected as part of this GSP will be publicly available, data from the wells subject to confidentiality agreements cannot be published and therefore these wells are currently excluded from the GSP monitoring network.

3. **Include Additional Wells Provided by GSAs**. The GSAs provided an additional set of wells after securing permission from well owners to be included in the monitoring network. Only wells that had measurements at least as recent at 2012, were included.

Within the group of wells that met the criteria listed above, there are two well clusters: each consisting of three wells in the same location. The wells in these two clusters are all screened in the Paso Robles Formation Aquifer at various depths. A comparison of hydrographs for each cluster indicates that water levels have been generally similar in the three wells in each cluster, as shown on Figure 7-1. Only one well was selected from each cluster for inclusion in the monitoring network because it is representative of all the wells in that cluster. The two wells selected for monitoring are wells 26S/15E-20B04 and 25S/12E-16K05.

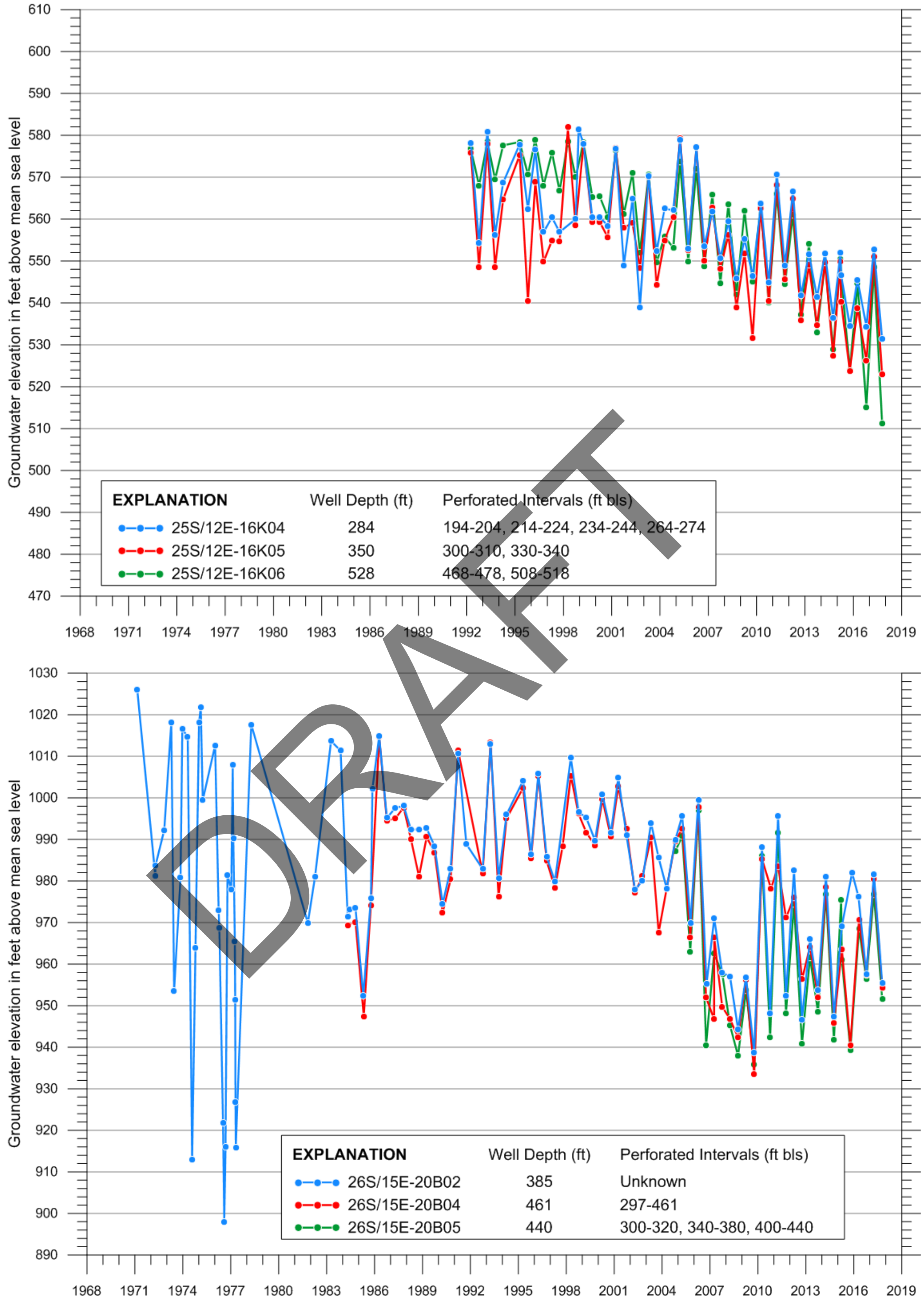

Figure 7-1. Hydrographs of Wells in Well Clusters

There are two principal aquifers in the Subbasin, as described in Chapter 4 – Hydrogeologic Conceptual Model. The Alluvial Aquifer occurs along stream channels and is generally up to about 100 feet thick. The Paso Robles Formation Aquifer occurs in thin discontinuous sand and gravel zones throughout the Subbasin. The wells in the proposed monitoring network are assigned to an aquifer according to these guidelines:

- The well location is compared to the surface geology map, Figure 4-4.
- If the well is located where the Paso Robles Formation is mapped at land surface on the surface geology map, then it is assumed to be monitoring the Paso Robles Formation Aquifer.
- If the well is located in the mapped extent of alluvium, and the screened interval or total well depth is less than 100 feet, then it was assumed to be monitoring the Alluvial Aquifer. If the top of the perforated interval is greater than 100 feet below land surface, then the well was assumed to be monitoring the Paso Robles Formation Aquifer.

The depths of several wells are unknown. Although well completion reports are available online via the State's OSWCR system, the well completion report numbers are unknown for these wells and therefore it is impossible to identify the associated well completion reports. Wells in which depth to water is greater than 100 feet below land surface on average are assumed to be monitoring the Paso Robles Formation Aquifer. Wells with depth to water less than 100 feet below land surface may be monitoring the alluvial aquifer, but their aquifer designations are unknown pending confirmation of screened interval and/or total depth. Wells for which an aquifer could not be assigned are considered potential future monitoring wells, and they will be included in the monitoring system when and if the well completion information and aquifer can be verified during GSP implementation. Likewise, there are also wells within the Alluvial Aquifer that could be included in the monitoring network when and if the data on depth and screened interval are obtained and confidentiality restrictions are lifted.

The wells in the water level monitoring network are listed in Table 7-1 and shown on Figure 7-2. There are currently 23 wells in the network, 22 wells monitor the Paso Robles Formation Aquifer and one well owned by the City of Paso Robles monitors the Alluvial Aquifer. Any of these wells that are missing well completion information will be assessed during GSP implementation to obtain well depth and/or screened interval. There are nine potential future monitoring wells listed on Table 7-2.

All 22 wells monitoring the Paso Robles Formation Aquifer are part of the SLOFCWCD monitoring network. These wells either are not subject to confidentiality agreements or the well data are located in a public database hosted by DWR and therefore are publicly available. The monitoring frequency indicates that water levels are presumably measured twice a year, in accordance with the SLOFCWCD protocol of measuring depths to water in April and October of each year. The most recent available measurement was 2016 or 2017 in all wells.

Table 7-1. Groundwater Level Monitoring Well Network

Well ID (alt ID)	Well Depth (feet)	Screen Interval(s) (feet bls)	Reference Point Elevation (feet AMSL)	First Year of Data	Last Year of Data	Years Measured (years)	Number of Measurements	Aquifer
18MW-0191[1]	50	10-50	672 (LSE)	2018	2018	<1	1	Qa
25S/12E-16K05 (PASO-0345)	350	300-310, 330-340	669.8	1992	2017	25	52	PR
25S/12E-26L01 (PASO-0205)	400	200-400	719.72	1970	2017	47	103	PR
25S/13E-08L02 (PASO-0195)	270	110-270	1,033.81	2012	2017	5	11	PR
26S/12E-14G01 (PASO-0048)	740	---	789.3	1969	2017	48	117	PR
26S/12E-14G02 (PASO-0017)	840	640-840	787	1993	2012	19	27	PR
26S/12E-14H01 (PASO-0184)	1230	180-?	790	1969	2016	47	45	PR
26S/12E-14K01 (PASO-0238)	1100	---	786	1979	2017	38	80	PR
26S/12E-26E07 (PASO-0124)	400	---	835	1958	2017	59	128	PR
26S/13E-08M01 (PASO-0164)	400	260-400	827.92	2013	2017	4	11	PR
26S/13E-16N01 (PASO-0282)	400	200-400	890.17	2012	2017	5	11	PR
26S/15E-19E01 (PASO-0073)	512	223-512	1,020	1987	2017	30	52	PR
26S/15E-20B04 (PASO-0401)	461	297-461	1,036.36	1984	2017	33	66	PR
26S/15E-29N01 (PASO-0226)	350	---	1,135	1958	2017	59	122	PR
26S/15E-29R01 (PASO-0406)	600	180-600	1,109.5	2012	2017	5	9	PR
26S/15E-30J01 (PASO-0393)	605	195-605	1,123.3	1970	2017	47	80	PR
27S/12E-13N01 (PASO-0223)	295	195-295	972.42	2012	2017	5	11	PR
27S/13E-28F01 (PASO-0243)	212	118-212	1,072	1969	2017	48	104	PR
27S/13E-30F01 (PASO-0355)	310	200-310	1,043.2	2012	2017	5	8	PR
27S/13E-30J01 (PASO-0423)	685	225-685	1,095	2012	2015	3	6	PR
27S/13E-30N01 (PASO-0086)	355	215-235, 275-355	1,086.73	2012	2016	4	6	PR
27S/14E-11R01 (PASO-0392)	630	180-630	1,160.5	1974	2017	43	69	PR
28S/13E-01B01 (PASO-0066)	254	154-254	1,099.93	2012	2016	4	9	PR

NOTES: New alluvial monitoring well information provided by City of Paso Robles; well not included in County database.
"—" = unknown; ASML – above mean sea level; PR Paso Robles Formation Aquifer; Qa Alluvial Aquifer

Table 7-2. Potential Future Groundwater Monitoring Well, Aquifer Unknown

Well ID (alt ID)	Well Depth (feet)	Screen Interval(s) (feet bls)	Reference Point Elevation (feet AMSL)	First Year of Data	Last Year of Data	Years Measured (years)	Number of Measurements	Aquifer
25S/12E-20K03 (PASO-0304)	---	---	625	1974	2017	43	82	---
26S/14E-24B01 (PASO-0302)	---	---	1001	1962	2017	55	93	---
26S/15E-33C01 (PASO-0314)	---	---	1095	1973	2017	44	75	---
26S/15E-33Q01 (PASO-0381)	---	---	1102	1973	2017	44	78	---
27S/15E-03E01 (PASO-0277)	---	---	1120.8	1968	2017	49	104	---
27S/14E-24B01 (PASO-0391)	---	---	1180.5	1973	2017	44	69	---
27S/14E-25J01 (PASO-0074)	---	---	1,225.5	1972	2017	45	67	--
27S/14E-29G01 (PASO-0041)	---	---	1201.5	1974	2017	43	73	---
27S/15E-35F01 (PASO-0053)	---	---	1230	1965	2017	52	78	---

NOTES: "—" = unknown

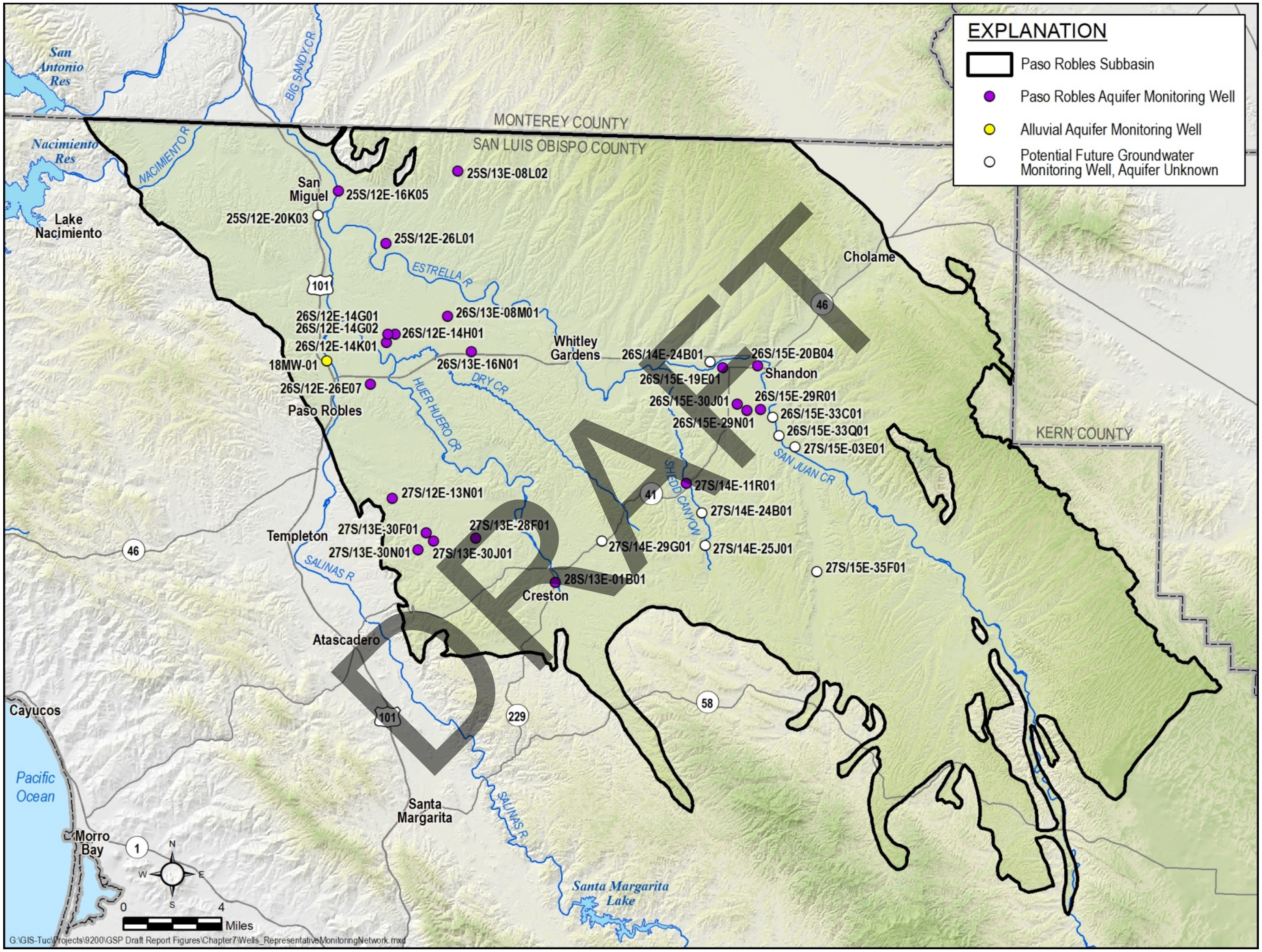

Figure 7-2. Groundwater Level Monitoring Well Network in Paso Robles Formation Aquifer

7.2.1 Groundwater Level Monitoring Network Data Gaps

The GSAs identified data gaps using guidelines in the SGMA regulations and BMPs published by DWR on monitoring networks (DWR, 2016). Table 7-3 summarizes the suggested attributes of a groundwater level monitoring network from the BMPs in comparison to the current network, and identifies data gaps.

The SGMA regulations require a sufficient density of monitoring wells to characterize the groundwater table or potentiometric surface for each principal aquifer. Professional judgement is also used to determine an adequate level of monitoring density in areas of active groundwater pumping.

While there is no definitive rule on well density, the BMP cites a range of 0.2 to 10 wells per 100 square miles, with a median of 5 wells per 100 square miles from various cited studies. The CASGEM monitoring plan includes 10 to 20 wells per 100 square miles (SLOFCWCD, 2014). The Subbasin is 684 square miles, which equates to 34 wells at a median density of 5 wells per 100 square miles. The monitoring network of 22 wells in the Paso Robles Formation Aquifer is within the recommended range cited in the BMP (1 to 68 wells), but the number of monitoring wells may be considered low given the size and complexity of the Subbasin. The single monitoring well in the Alluvial Aquifer is insufficient. This is a data gap that will be addressed during plan implementation.

A program to increase monitoring frequency will be developed to determine seasonal high and low groundwater elevations and also monitor groundwater response to recharge and other activities. One method to increase monitoring frequency is to install continuous dataloggers in existing and new monitoring wells.

Groundwater level data must be sufficient to identify changes in groundwater flow directions and gradients. Groundwater contour maps are presented in Chapter 5 for both aquifers. These maps were prepared using available monitoring data, including data collected from wells subject to confidentiality agreements. To comply with the confidentiality agreements, the data and well locations are not included on the maps. The 23 wells in the proposed Paso Robles Formation Aquifer monitoring network are insufficient to develop representative and sufficiently detailed groundwater contour maps. The lack of publicly available data for both aquifers is identified as a data gap that will be addressed early in GSP implementation.

A recent study by GSI Water Solutions, Inc. (GSI) came to similar conclusions about data gaps in the Paso Robles Formation (GSI, 2018). The data gap areas developed by GSI are shown on Figure 7-3. These are areas where existing wells that can serve as monitoring wells should be identified, or new monitoring wells should be installed in the Paso Robles Formation Aquifer. Figure 7-3 also shows locations of data gaps and potential new well locations for the Alluvial Aquifer.

The data gap areas on Figure 7-3 will be addressed in the future by either identifying an existing well in the area that meets the criteria for a valid monitoring well, or drilling a new well in the area. There are approximately 90 confidential wells in the Subbasin that have been monitored since 2012 that could be used to fill some of these data gaps if the well owners agree to sign amended confidentiality agreements. SLOFCWCD will attempt to secure such amended agreements in areas where data gaps have been identified. The GSI data gap report identifies and targets specific confidential wells for consideration as new monitoring wells in a publicly accessible monitoring system. If an existing well cannot be identified to fill a data gap, it will be necessary to drill a new monitoring well for that data gap area.

Table 7-3. Summary of Best Management Practices, Groundwater Level Monitoring Well Network, and Data Gaps

Best Management Practice (DWR, 2016a)	Current Monitoring Network	Data Gap
Groundwater level data will be collected from each principal aquifer in the basin.	23 wells total. 22 wells are completed in the Paso Robles Formation Aquifer; one well is completed in the Alluvial Aquifer.	Additional wells are needed; well depth, screen interval, well log, and aquifer designation are unknown for candidate monitoring wells; renegotiate to release confidentiality from confidential wells with water level measurement more recent than 2000 in database
Groundwater level data must be sufficient to produce seasonal maps of groundwater elevations throughout the basin that clearly identify changes in groundwater flow direction and gradient (Spatial Density).	Confidential data from 43 wells and non-confidential data from 9 wells were used to create seasonal groundwater elevation maps for the Paso Robles Formation Aquifer (Chapter 5); Confidential data from 7 wells and data from 1 non-confidential well were used to create an annual groundwater elevation map for the Alluvial Aquifer (Chapter 5).	Some data used to prepare groundwater elevation maps in the GSP are confidential; in the future, only publicly available data will be used to develop contour maps. Additional wells are needed to develop representative contour maps.
Groundwater levels will be collected during the middle of October and March for comparative reporting purposes, although more frequent monitoring may be required (Frequency).	The 22 wells in the existing monitoring network that are screened in the Paso Robles Formation have been monitored twice a year, in spring (April) and fall (October), since at least 2012.	Seasonal monitoring is the protocol for SLOFCWCD (Appendix F); more frequent monitoring may be needed to identify actual seasonal high and low groundwater elevations and further characterize groundwater level fluctuations; instrumentation like transducers or other technology may be used in future to monitor groundwater elevations.
Data must be sufficient for mapping groundwater depressions, recharge areas, and along margins of basins where groundwater flow is known to enter or leave a basin.	Current network of 23 wells is insufficient for mapping all of these areas.	Additional monitoring wells are required in groundwater depressions, near recharge features such as rivers and streams, and along Subbasin margins; possibly install instrumentation like transducers or other technology in future monitoring wells.
Well density must be adequate to determine changes in storage.	Current network of 23 wells is insufficient for determining changes in groundwater storage.	Additional monitoring wells are required to adequately cover the Subbasin and determine changes in groundwater storage.
Data must be able to demonstrate the interconnectivity between shallow groundwater and surface water bodies, where appropriate.	One well in the existing monitoring network is confirmed to be completed in the Alluvial Aquifer. There is at least one additional well that may be completed in the Alluvial Aquifer if construction data were known.	Additional wells will be needed in the Alluvial Aquifer near reaches of interconnected surface water to characterize interconnectivity.
Data must be able to map the effects of management actions, i.e., managed aquifer recharge.	Current network of 23 wells is inadequate for mapping the effects of management actions.	Additional monitoring wells are required to map the effectiveness of management actions. This monitoring will be addressed as projects are implemented
Data must be able to demonstrate conditions near basin boundaries; agencies may consider coordinating monitoring efforts with adjacent basins to provide consistent data across basin boundaries. Agencies may consider characterization and continued impacts of internal hydraulic boundary conditions, such as faults, disconformities, or other internal boundary types.	Several wells in the existing monitoring network are used to monitor conditions on the southwestern boundary of the Subbasin.	Additional wells are likely necessary along the northern boundary with the Upper Valley Subbasin of the Salinas Valley. Additional wells may be necessary to map the structure and effect of internal faults.
Data must be able to characterize conditions and monitor adverse impacts to beneficial uses and users identified within the basin.	The current monitoring network characterizes only a portion of the Subbasin and the potential impacts.	Network will be expanded in accordance with the data gaps identified above.

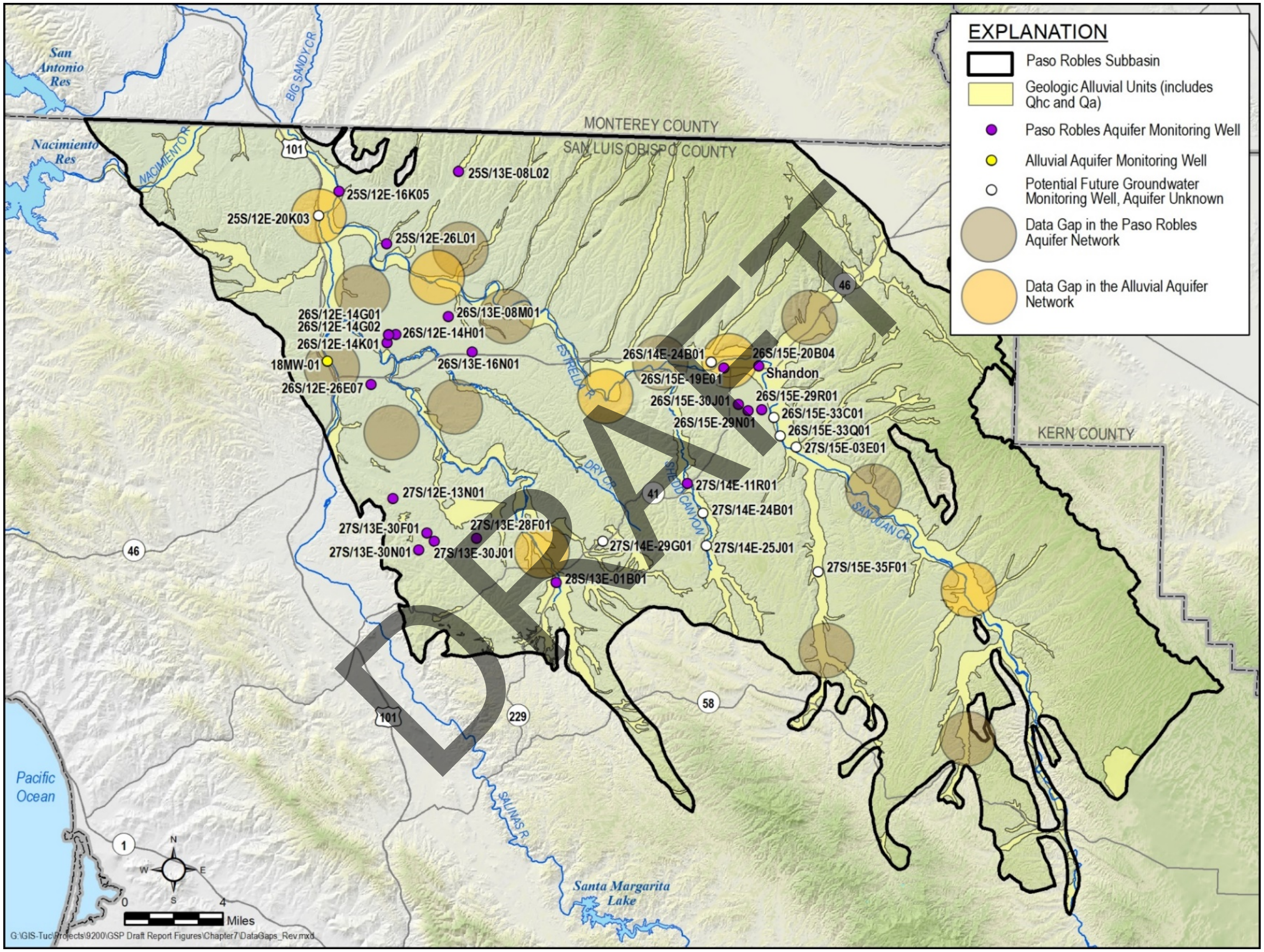

Figure 7-3. Data Gaps in the Groundwater Level Monitoring Well Network

7.2.2 Groundwater Level Monitoring Protocols

The groundwater level monitoring protocols established by SLOFCWCD are adopted by this GSP for manual groundwater level monitoring. The monitoring protocols are included in Appendix F.

There are various automated groundwater level monitoring devices in operation across the Subbasin and the GSP implementation phase will incorporate automated logging of groundwater elevations. Automated water level monitoring is already used in a number of private wells in the basin; these data may be used to supplement the current water level monitoring network in the future. As automated groundwater level monitoring systems are added to the monitoring network, appropriate protocols for each automated system will be incorporated into this GSP.

Automated groundwater level monitoring systems have the advantage of supplying more frequent groundwater levels with no increase in monitoring costs. The groundwater level monitoring BMP recommends more frequent monitoring in certain areas, including shallow, unconfined aquifers, in areas of rapid recharge, in areas of greater withdrawal rates, and in areas of more variable climatic conditions. More frequent monitoring may also be required in specific places where sustainability indicators are a concern or to track impacts of specific management actions and projects. The need for more frequent monitoring will be evaluated, and a program to increase monitoring frequency will be developed during the GSP implementation phase.

7.3 Groundwater Storage Monitoring Network

This GSP adopts groundwater levels as a proxy for assessing change in groundwater storage, as described in Chapter 8, Sustainable Management Criteria. Groundwater level monitoring points that are adequate for collecting the groundwater level data are identified in Section 7.2. Therefore, the network of wells providing groundwater level data for the reduction in groundwater storage sustainability indicator is the same wells shown on Table 7-1.

7.3.1 Groundwater Storage Monitoring Data Gaps

Data gaps in the groundwater storage monitoring network are similar to the data gaps identified for the groundwater level monitoring network discussed in Section 7.2.1. Because change in groundwater storage is predominantly influenced by changes in shallow water table elevations, more shallow wells than those discussed in Section 7.2.1 may be necessary. Additional water table wells may be needed throughout the Paso Robles Formation Aquifer. The number of additional water table wells will not be known until there is an assessment of how many existing wells are screened at or near the existing water table in the Paso Robles Formation Aquifer. This is a data gap that will be addressed during GSP implementation.

7.3.2 Groundwater Storage Monitoring Protocols

The groundwater storage monitoring network is identical to the groundwater level monitoring network. Therefore, the protocols used for gathering water level data to assess changes in groundwater storage are identical to the protocols used for the chronic lowering of groundwater levels sustainability indicator. Protocols for the manual collection of groundwater levels are included in Appendix F. As automated groundwater level collection devices are added to the monitoring network, protocols will be developed for each of these automated systems and incorporated into the GSP.

7.4 Water Quality Monitoring Network

The sustainability indicator for degraded water quality is evaluated by monitoring groundwater quality at a network of existing supply wells. The SGMA regulations require sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators to address known water quality issues.

As described in Chapter 5, there are no known contaminant plumes in the Subbasin, therefore the monitoring network is monitoring only non-point source constituents of concern and naturally occurring water quality impacts.

Existing groundwater quality monitoring programs in the Subbasin are described in Chapter 3 and groundwater quality distribution and trends are described in Chapter 5. Constituents of concern were identified in Chapter 5 based on comparison to drinking water standards and levels that could impact crop production. As described in Chapter 8, separate minimum thresholds are set for agricultural constituents of concern and public supply well constituents of concern. Therefore, although there is a single groundwater quality monitoring network, different wells in the network will be assessed for different constituents. Constituents of concern for drinking water will be assessed at public water supply wells. Constituents of concern for crop health will be assessed at agricultural supply wells.

The public water supply wells included in the monitoring network were identified by reviewing data from the State Water Resources Control Board (SWRCB) Division of Drinking Water. Wells were selected that were sampled for at least one of the constituents of concern during 2015 or more recently. These wells are listed in Table 7-4 and shown on Figure 7-4. For the 41 public supply wells in the groundwater quality monitoring network, an assumed aquifer designation was assigned based on surficial geologic maps (Figure 4-4) and well depths when available. There are 31 wells that are in the Paso Robles Formation Aquifer, seven wells in the Alluvial Aquifer, and three wells where the aquifer could not be estimated. Verifying the aquifer for these three wells is a data gap that will be addressed during plan implementation.

The agricultural supply wells included in the monitoring network were identified by reviewing data from the Irrigated Lands Regulatory Program (ILRP) that are stored in the SWRCB's Geotracker/GAMA database. Wells were selected that had detections of at least one of the agricultural constituents of concern reported from 2015 or more recently (GAMA, 2015). There are 28 ILRP properties with agricultural supply wells in the groundwater quality monitoring network. Since multiple wells of unknown depth are associated with a given IRLP ID, the aquifer monitored by these wells is unknown. These wells are listed in Table 7-4 and shown on Figure 7-4. If an IRLP property has multiple wells, the location of the well is shown at the average of these coordinates.

Table 7-4. Groundwater Quality Monitoring Well Network

Well ID	Type of Well	Well Depth[1] (feet)	Screen Interval (feet bls)	First Measurement Date	Last Measurement Date	Measurement Period (years)	Measurement Count	Assumed Aquifer
W0604000207-001	PWS	440	340-440	2002	2018	16	63	PR
W0604000210-001	PWS	117	87-117	2002	2015	13	9	---
W0604000512-001	PWS	60	30-60	2002	2015	13	13	AA
W0604000554-001	PWS	355	155-355	2002	2016	14	16	PR
W0604000554-003	PWS	237	174-237	2002	2016	14	16	PR
W0604000620-001	PWS	354	120-354	2001	2018	17	36	PR
W0604000620-002	PWS	510	310-510	2002	2018	16	41	PR
W0604000693-002	PWS	40	---	2005	2017	12	9	AA
W0604000708-001	PWS	80	80-80	2002	2018	16	10	AA
W0604000781-001	PWS	792	412-792	2002	2018	16	21	PR
W0604000781-011	PWS	670	380-670	2002	2018	16	21	PR
W0604000788-001	PWS	450	235-450	2002	2018	16	15	PR
W0604000788-005	PWS	920	400-920	2003	2018	15	14	PR
W0604000789-001	PWS	245	125-245	2002	2018	16	17	PR
W0604000790-001	PWS	175	126-175	2002	2018	16	62	---
W0604000803-001	PWS	420	100-420	2004	2018	14	10	PR
W0604000803-002	PWS	420	200-420	2004	2018	14	10	PR
W0604010007-003	PWS	400	200-400	1984	2016	32	36	PR
W0604010007-004	PWS	500	---	1984	2018	34	82	PR
W0604010007-006	PWS	344	---	1987	2018	31	34	PR
W0604010007-007	PWS	80	20-80	1984	2017	33	23	AA
W0604010007-008	PWS	80	20-80	1984	2018	34	24	AA

Well ID	Type of Well	Well Depth[1] (feet)	Screen Interval (feet bls)	First Measurement Date	Last Measurement Date	Measurement Period (years)	Measurement Count	Assumed Aquifer
W0604010007-009	PWS	---	---	1990	2018	28	8	---
W0604010007-010	PWS	600	260-600	1990	2017	27	17	PR
W0604010007-012	PWS	425	---	1984	2018	34	35	PR
W0604010007-013	PWS	317	---	1984	2018	34	34	PR
W0604010007-017	PWS	675	---	1993	2018	25	26	PR
W0604010007-018	PWS	535	---	1993	2016	23	23	PR
W0604010007-019	PWS	220	---	1995	2017	22	25	PR
W0604010007-020	PWS	610	---	1996	2017	21	22	PR
W0604010007-021	PWS	100	---	1998	2018	20	22	AA
W0604010007-038	PWS	1060	300-1060	2003	2018	15	18	PR
W0604010010-004	PWS	300	85-300	1984	2018	34	118	PR
W0604010010-005	PWS	360	162-360	1991	2018	27	105	PR
W0604010010-009	PWS	380	350-380	2007	2018	11	250	PR
W0604010028-002	PWS	342	297-342	1991	2018	27	46	PR
W0604010028-004	PWS	400	300-400	2002	2018	16	31	PR
W0604010831-001	PWS	840	640-840	1989	2016	27	24	PR
W0604010831-002	PWS	446	401-446	1989	2016	27	23	PR
W0604010831-003	PWS	475	410-475	1989	2016	27	24	PR
W0604010900-002	PWS	50	---	1999	2018	19	18	AA
AGL020000646	ILRP	660	---	2012	2017	5	---	---
AGL020000801	ILRP	---	---	2013	2017	4	---	---
AGL020001525	ILRP	---	---	2014	2017	3	---	---
AGL020001534	ILRP	---	---	2013	2017	4	---	---

Well ID	Type of Well	Well Depth[1] (feet)	Screen Interval (feet bls)	First Measurement Date	Last Measurement Date	Measurement Period (years)	Measurement Count	Assumed Aquifer
AGL020001605	ILRP	---	---	2015	2017	2	---	---
AGL020001689	ILRP	---	---	2014	2017	3	---	---
AGL020001800	ILRP	---	---	2015	2015	<1	---	---
AGL020003900	ILRP	---	---	2015	2015	<1	---	---
AGL020004014	ILRP	---	---	2014	2017	3	---	---
AGL020005173	ILRP	---	---	2015	2017	2	---	---
AGL020005268	ILRP	---	---	2015	2015	<1	---	---
AGL020007128	ILRP	---	---	2014	2017	3	---	---
AGL020007471	ILRP	---	---	2015	2015	<1	---	---
AGL020007593	ILRP	---	---	2015	2018	3	---	---
AGL020007721	ILRP	---	---	2017	2017	<1	---	---
AGL020007807	ILRP	---	---	2012	2017	5	---	---
AGL020007815	ILRP	---	---	2012	2017	5	---	---
AGL020007848	ILRP	---	---	2015	2015	<1	---	---
AGL020007872	ILRP	---	---	2015	2018	3	---	---
AGL020009803	ILRP	---	---	2014	2018	4	---	---
AGL020010282	ILRP	---	---	2012	2015	3	---	---
AGL020013814	ILRP	---	---	2015	2018	3	---	---
AGL020015242	ILRP	---	---	2015	2018	3	---	---
AGL020015302	ILRP	---	---	2013	2017	4	---	---
AGL020016382	ILRP	---	---	2015	2018	3	---	---
AGL020024742	ILRP	---	---	2016	2017	1	---	---
AGL020025402	ILRP	---	---	2015	2017	2	---	---

Well ID	Type of Well	Well Depth[1] (feet)	Screen Interval (feet bls)	First Measurement Date	Last Measurement Date	Measurement Period (years)	Measurement Count	Assumed Aquifer
AGL020028348	ILRP	---	---	2017	2017	<1	---	---

Notes
--- = Unknown
(1) = total well depth is assumed to be equivalent to bottom of perforated interval
AA = Alluvial Aquifer; PR = Paso Robles Formation Aquifer
PWS = Public water supply
ILRP = Irrigated Lands Regulatory Program

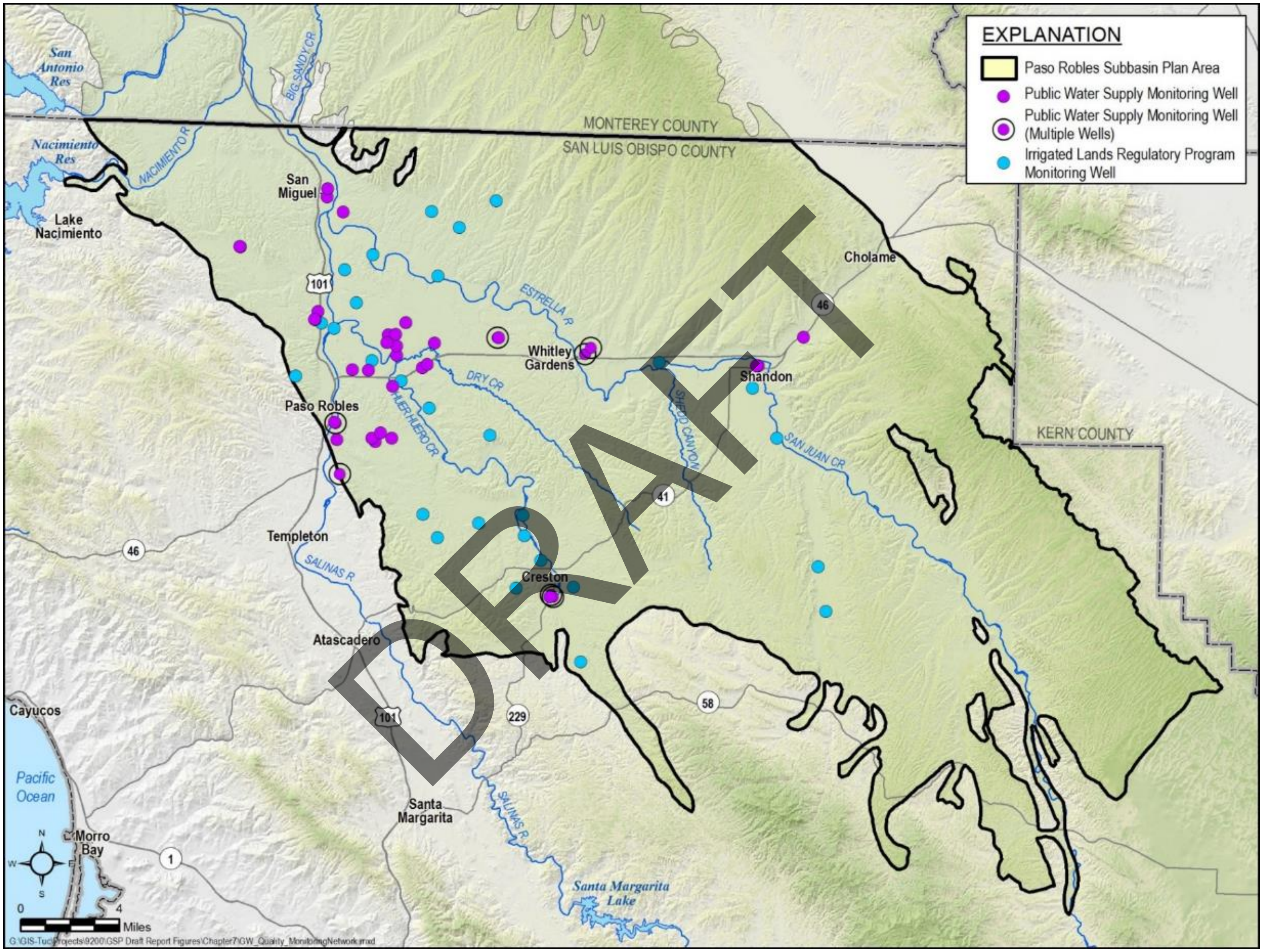

Figure 7-4. Groundwater Quality Monitoring Well Network

7.4.1 Groundwater Quality Monitoring Data Gaps

Because the groundwater quality monitoring network is based on existing supply wells, there are no spatial data gaps in the network. Table 7-5 summarizes the recommendations for groundwater quality monitoring from the BMPs, the current network, and data gaps. There is adequate spatial coverage in the network to assess impacts to beneficial uses and users. The primary data gap is that well construction info for many wells in the monitoring network is unknown. This is a data gap that will be addressed during GSP implementation.

7.4.2 Groundwater Quality Monitoring Protocols

Water quality samples are currently being collected according to SWRCB and ILRP requirements. ILRP data are currently collected under Central Coast RWQCB Ag Order 3.0. ILRP samples are collected under the Tier 1, Tier 2, or Tier 3 monitoring and reporting programs. Copies of these monitoring and reporting programs are included in Appendix F, and incorporated herein as monitoring protocols. These protocols will continue to be followed during GSP implementation for the groundwater quality monitoring.

Table 7-5. Summary of Groundwater Quality Monitoring, Best Management Practices, and Data Gaps

Best Management Practice (DWR, 2016a)	Current Network	Data Gap
Monitor groundwater quality data from each principal aquifer in the basin that is currently, or may be in the future, impacted by degraded water quality. • The spatial distribution must be adequate to map or supplement mapping of known contaminants. • Monitoring should occur based upon professional opinion, but generally correlate to the seasonal high and low groundwater level, or more frequent as appropriate.	There are 41 municipal wells and 28 IRLP wells within the plan area that have been regularly sampled since at least 2015 for groundwater quality.	None; the current monitoring network contains adequate spatial distribution to map water quality in the basin.
Collect groundwater quality data from each principal aquifer in the basin that is currently, or may be in the future, impacted by degraded water quality. • Agencies should use existing water quality monitoring data to the greatest degree possible. For example, these could include ILRP, GAMA, existing RWQCB monitoring and remediation programs, and drinking water source assessment programs.	Public databases provide adequate water quality information for degraded water quality.	Well depth and construction info for some wells in the monitoring network is unknown; however, there seems to be adequate coverage in both principal aquifers
Define the three-dimensional extent of any existing degraded water quality impact.	There are a large number of wells that are actively sampled.	Depth or construction information will need to be obtained to determine the vertical extent of contaminants
Data should be sufficient for mapping movement of degraded water quality.	There are a large number of wells that are actively sampled.	None
Data should be sufficient to assess groundwater quality impacts to beneficial uses and users.	Water quality monitoring program assesses impacts to both agricultural and municipal users.	None
Data should be adequate to evaluate whether management activities are contributing to water quality degradation.	There are a large number of wells that are actively sampled.	Projects and actions are being developed. Water quality network will be evaluated and augmented if necessary.

7.5 Land Subsidence Monitoring Network

The sustainability indicator for land subsidence is evaluated by monitoring land subsidence using InSAR data. As described in Chapter 5, land subsidence is monitored in the Subbasin by measuring ground elevation using microwave satellite imagery. This data is currently provided by DWR, covers the most recent three years of subsidence data (2015 - 2018), and is adequate to identify areas of recent subsidence. One or more GSA may opt to contract with USGS or others with expertise in subsidence to gather any additional datasets and evaluate the cause(s) of any identified subsidence. The GSAs will continue to annually assess subsidence using the DWR provided InSAR data.

7.5.1 Land Subsidence Monitoring Data Gaps

Available data indicate that there is currently no long-term subsidence occurring in the Subbasin that affects infrastructure. There are no data gaps identified with the subsidence network at this time.

7.5.2 Land Subsidence Monitoring Protocols

The BMP notes that no standard procedures exist for collecting subsidence data. The GSAs will continue to monitor data annually as part of GSP implementation. If additional relevant datasets become available, they will be evaluated and incorporated into the monitoring program. If the annual monitoring indicates subsidence is occurring at a rate greater than the minimum thresholds, then additional investigation and monitoring may be warranted. In particular, the GSAs will implement a study to assess if the observed subsidence can be correlated to groundwater elevations, and whether a reasonable causality can be established. The GSAs will also consider subsidence surveys published by the USGS in assessing land subsidence across the Subbasin if they become available.

7.6 Interconnected Surface Water Monitoring Network

As discussed in Chapter 5, there are no available data to establish that groundwater and surface water are connected through a continuous saturated zone in any aquifer in the Subbasin. Therefore, a monitoring network that quantifies surface water depletion from interconnected surface waters cannot be developed at this time. However, studies will be conducted after GSP adoption to verify whether or not there are interconnected surface waters in the Subbasin. The assessment of whether or not there are interconnected surface waters will be evaluated by monitoring surface water and groundwater in areas where interconnected surface water conditions may exist. Shallow monitoring well data will be collected and compared to the surveyed streambed of adjacent streams, rivers, or wetlands. In accordance with the assessment of wells discussed in Section 7.2, only one Alluvial Aquifer well was identified that meets the criteria for inclusion in the monitoring network for monitoring shallow groundwater levels adjacent to streams, rivers, or wetlands.

7.6.1 Interconnected Surface Water Monitoring Data Gaps

There are data gaps in assessing the existence of interconnected surface water bodies in the Subbasin. The initial data gap is the lack of wells that monitor the shallow groundwater table adjacent to streams and rivers. Areas of potential shallow groundwater in the Alluvial Aquifer will be targeted as areas where shallow groundwater wells are needed. In these areas of potential shallow groundwater, either existing shallow monitoring wells must be identified, or new monitoring wells must be installed.

If the shallow monitoring wells indicate interconnected surface water bodies in the Subbasin, additional analysis will be undertaken to quantify the surface water depletion and potentially relate the quantified surface water depletion rates to shallow groundwater elevations. The surface water depletion rates will be quantified with the GSP model or other appropriate means, including incorporating the existing stream gauging programs described in Chapter 3.

If the shallow monitoring wells indicate interconnected surface water bodies in the Subbasin, additional data gaps may be identified to address all of the SGMA regulations including the following:

- Establishing flow conditions including surface water discharge, surface water head, and baseflow contribution.
- Establishing the approximate date and location where ephemeral or intermittent flowing streams and rivers cease to flow, if applicable.
- Establishing temporal change in conditions due to variations in stream discharge and regional groundwater extraction.

7.6.2 Interconnected Surface Water Monitoring Protocols

Stream gauging is currently being conducted by the USGS according to the protocol outlined in the BMP. Water level monitoring will be conducted in accordance the protocols described in the water level monitoring network section of this chapter.

7.7 Representative Monitoring Sites

Representative monitoring sites (RMS) are defined in the SGMA regulations as a subset of monitoring sites that are representative of conditions in the Subbasin. All of the monitoring sites in this chapter are considered RMS.

7.8 Data Management System and Data Reporting

The SGMA regulations provide broad requirements on data management, stating that a GSP must adhere to the following guidelines for a DMS:

> Article 3, Section 352.6: Each Agency shall develop and maintain a data management system that is capable of storing and reporting information relevant to the development or implementation of the GSP and monitoring of the Subbasin.
>
> Article 5, Section 354.40: Monitoring data shall be stored in the data management system developed pursuant to Section 352.6. A copy of the monitoring data shall be included in the Annual Report and submitted electronically on forms provided by the Department.

The Paso Robles Subbasin Data Management System (DMS) will be used for the organization, review, and uploading of data to implement the GSP. All data stored in the DMS have a unique identifier and a quality control check was performed on the data.

The Paso Robles Subbasin DMS was developed in Microsoft Access and contains the following main tables:

Well_Info - General information about a well, including identifiers used by various agencies.

Site_Info - Site information about a well, recharge site, or diversion; including location, elevation, and address information

Well_Constr - Well construction information including depth, diameter, etc.

Well_Constr_Screen- Supplements **Well_Constr** with well screen information. One well can have multiple screens.

Well_Geologic_Aquifer - Information about the aquifer parameters of the well such as pumping test information, confinement, and transmissivity.

Well_Geologic_Lithology - Lithologic information at a well site. Each well may have multiple lithologies at different depths.

Water_Level - Water level measurements for wells

Well_Pumping - Pumping measurements for wells, annual or monthly

SW_Recharge - Recharge measurements for a recharge site, annual or monthly

SW_Diversion - Diversion volume measurements for a diversion site, annual or monthly

Water_Quality - Water quality data for wells or other type of site

Data sources used to populate the Paso Robles DMS are listed on Table 7-6. Categories marked with an X indicate datasets that are publicly accessible.

Table 7-6. Data Sources Used to Populate DMS

Data Sets	Data Category							
	Well and site info	Well construction	Aquifer properties and lithology (data to be added)	Water level	Pumping (data to be added)	Recharge (data to be added)	Diversion (data to be added)	Water quality
DWR (CASGEM)	X	X		X				
San Luis Obispo County	X	X		X				
Geotracker GAMA	X							X

Data were compiled and reviewed to comply with data quality objectives. The review included the following checks:

Identifying outliers that may have been introduced during the original data entry process by others.

Removing or flagging questionable data being uploaded in the DMS. This applies to historic water level data, water quality data, and water level over time.

The data were loaded into the database and checked for errors and missing data. Error tables were developed to identify water level and/or well construction data that were missing. For water level data, another data quality check was completed by plotting well hydrographs to identify and remove anomalous data points.

In the future, well log information will be entered for selected wells and other information will be added as needed to satisfy the requirements of the SGMA regulations. It is anticipated that the DMS will be migrated to a web-based DMS currently being planned and developed by the County of San Luis Obispo.

8 SUSTAINABLE MANAGEMENT CRITERIA

This chapter defines the conditions that constitute sustainable groundwater management, discusses the process by which the four GSAs in the Subbasin will characterize undesirable results, and establishes minimum thresholds and measurable objectives for each sustainability indicator.

This is the fundamental chapter that defines sustainability in the Subbasin, and it addresses significant regulatory requirements. The measurable objectives, minimum thresholds, and undesirable results presented in this chapter define the future sustainable conditions in the Subbasin and commit the GSAs to actions that will achieve these future conditions.

Defining Sustainable Management Criteria requires significant analysis and scrutiny. This chapter presents the data and methods used to develop Sustainable Management Criteria and demonstrate how they influence beneficial uses and users. The Sustainable Management Criteria presented in this chapter are based on currently available data and application of the best available science. As noted in this GSP, data gaps exist in the hydrogeologic conceptual model. Uncertainty caused by these data gaps was considered when developing the Sustainability Management Criteria. Due to uncertainty in the hydrogeologic conceptual model, these Sustainable Management Criteria are considered initial criteria and will be reevaluated and potentially modified in the future as new data become available.

The Sustainable Management Criteria are grouped by sustainability indicator. The following sustainability indicators are applicable in the Subbasin:

- Chronic lowering of groundwater elevations levels
- Reduction in groundwater storage
- Degraded water quality
- Land subsidence
- Depletion of interconnected surface water

The sixth Sustainable Management Criteria, sea water intrusion, is not applicable in the Subbasin.

To retain an organized approach, this chapter follows the same structure for each sustainability indicator. The description of each Sustainable Management Criterion contains all the information required by Section 354.22 *et. seq* of the SGMA regulations and outlined in the Sustainable Management Criteria BMP (DWR, 2017), including:

- How locally defined significant and unreasonable conditions were developed
- How minimum thresholds were developed, including:
  - The information and methodology used to develop minimum thresholds (§354.28 (b)(1))
  - The relationship between minimum thresholds and the relationship of these minimum thresholds to other sustainability indicators (§354.28 (b)(2))
  - The effect of minimum thresholds on neighboring basins (§354.28 (b)(3))
  - The effect of minimum thresholds on beneficial uses and users (§354.28 (b)(4))
  - How minimum thresholds relate to relevant Federal, State, or local standards (§354.28 (b)(5))
  - The method for quantitatively measuring minimum thresholds (§354.28 (b)(6))
- How measurable objectives were developed, including:
  - The methodology for setting measurable objectives (§354.30)
  - Interim milestones (§354.30 (a), §354.30 (e), §354.34 (g)(3))
- How undesirable results were developed, including:
  - The criteria defining when and where the effects of the groundwater conditions cause undesirable results based on a quantitative description of the combination of minimum threshold exceedances (§354.26 (b)(2))
  - The potential causes of undesirable results (§354.26 (b)(1))
  - The effects of these undesirable results on the beneficial users and uses (§354.26 (b)(3))

As noted above, the SGMA regulations address minimum thresholds before measurable objectives. This order was used for all applicable sustainability indicators except Chronic Lowering of Groundwater Levels. For this sustainability indicator, measurable objectives are presented first, followed by the minimum thresholds – the order in which they were developed.

8.1 Definitions

The SGMA legislation and SGMA regulations contain a number of new terms relevant to the Sustainable Management Criteria. These terms are defined below using the definitions included in the SGMA regulations (§ 351, Article 2). Where appropriate, additional explanatory text is added in italics. This explanatory text is not part of the official definitions of these terms. To the extent possible, plain language, including limited use of overly technical terms and acronyms, was used so that a broad audience will understand the development process and implications of the Sustainable Management Criteria.

- **Interconnected surface water** refers to surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water.

Interconnected surface waters are parts of streams, lakes, or wetlands where the groundwater table is at or near the ground surface and there is water in the lakes, streams, or wetlands.

- **Interim milestone** refers to a target value representing measurable groundwater conditions, in increments of five years, set by an Agency as part of a Plan.

Interim milestones are targets such as groundwater elevations that will be achieved every five years to demonstrate progress towards sustainability.

- **Management area** refers to an area within a basin for which the Plan may identify different minimum thresholds, measurable objectives, monitoring, or projects and management actions based on differences in water use sector, water source type, geology, aquifer characteristics, or other factors.
- **Measurable objectives** refer to specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions that have been included in an adopted Plan to achieve the sustainability goal for the basin.

Measurable objectives are goals that the GSP is designed to achieve.

- **Minimum thresholds** refer to numeric values for each sustainability indicator used to define undesirable results.

Minimum thresholds are established at representative monitoring sites. Minimum thresholds are indicators of where an unreasonable condition might occur. For example, current groundwater elevations might be a minimum threshold if lower groundwater elevations would result in significant and unreasonable costs.

- **Representative monitoring** refers to a monitoring site within a broader network of sites that typifies one or more conditions within the basin or an area of the basin.
- **Sustainability indicator** refers to any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results, as described in Water Code Section 10721(x).

The five sustainability indicators relevant to the Subbasin are listed in the introductory section of Chapter 8.

- **Uncertainty** refers to a lack of understanding of the basin setting that significantly affects an Agency's ability to develop sustainable management criteria and appropriate projects and management actions in a Plan, or to evaluate the efficacy of Plan implementation, and therefore may limit the ability to assess whether a basin is being sustainably managed.

- Undesirable Result

There is no formal definition of undesirable result in the definitions section of the SGMA regulations. However, the description of undesirable result in § 354.26 of the SGMA regulations states that it should be "… a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin." An example undesirable result could be when more than a certain % of the measured groundwater levels in an area of the basin fall below the minimum thresholds. Undesirable results should not be confused with significant and unreasonable conditions. Significant and unreasonable conditions are physical conditions to be avoided; an undesirable result is a quantitative assessment based on minimum thresholds.

8.1 Sustainability Goal

Per Section §354.24 of the SGMA regulations, the sustainability goal for the Subbasin has three parts:

- A description of the sustainability goal;
- A discussion of the measures that will be implemented to ensure the Subbasin will be operated within sustainable yield, and;
- An explanation of how the sustainability goal is likely to be achieved.

The goal of this GSP is to sustainably manage the groundwater resources of the Paso Robles Subbasin for long-term community, financial, and environmental benefit of Subbasin users. This GSP outlines the approach to achieve a sustainable groundwater resource free of undesirable results within 20 years, while maintaining the unique cultural, community, and business aspects of the Subbasin. In adopting this GSP, it is the express goal of the GSAs to balance the needs of all groundwater users in the Subbasin, within the sustainable limits of the Subbasin's resources.

A number of management actions and conceptual projects are included in this GSP. Some combination of these management actions and conceptual projects will be implemented to ensure the Subbasin is operated within its sustainable yield and achieves sustainability. These management actions and conceptual projects include:

Management Actions

- Monitoring, reporting and outreach

- Promoting Best Water Use Practices
- Promoting stormwater capture
- Promoting voluntary fallowing of agricultural land
- Mandatory pumping limitations in specific areas

Conceptual Projects

- City Recycled Water Delivery
- San Miguel CSD Recycled Water Delivery
- Nacimiento Water Project (NWP) Delivery at Salinas and Estrella River Confluence
- NWP Delivery North of City of Paso Robles
- NWP Delivery East of City of Paso Robles
- Expansion of Salinas Dam

The management actions and conceptual projects are designed to achieve sustainability within 20 years by one or more of the following means:

- Educating stakeholders and prompting changes in behavior to improve chances of achieving sustainability.
- Increasing awareness of groundwater pumping impacts to promote voluntary reductions in groundwater use through improved water use practices or fallowing crop land.
- Increasing basin recharge by capturing excess stormwater under approved permits.
- Developing new renewable water supplies for use in the Subbasin to offset groundwater pumping

8.2 General Process for Establishing Sustainable Management Criteria

The Sustainable Management Criteria presented in this chapter were developed using information from public input, received in public surveys, public meetings, comment forms; hydrogeologic analysis; and meetings with GSA staff and Cooperative Committee members. The process built on the Paso Robles Basin's long history of interested parties - including rural residents, farmers, local cities, and the County - holding public meetings to work on protecting the groundwater resource.

The general process for establishing Sustainable Management Criteria included:

- Holding a series of public outreach meetings that outlined the GSP development process and introduced stakeholders to Sustainable Management Criteria.

- Surveying the public and gathering input on minimum thresholds and measurable objectives. The survey questions were designed to get public input on all five sustainability indicators applicable to the Subbasin. A summary of the survey results is included in Appendix G.
- Analyzing survey results to assess preferences and trends relevant to Sustainable Management Criteria. Survey results and public comments from outreach meetings were analyzed to assess if different areas in the Subbasin had different preferences for minimum thresholds and measurable objectives.
- Combining survey results, outreach efforts, and hydrogeologic data to set initial conceptual minimum thresholds and measurable objectives.
- Conducting public meetings to present initial conceptual minimum thresholds and measurable objectives and receive additional public input. Three meetings on Sustainable Management Criteria were held in the Subbasin.
- Reviewing public input on preliminary Sustainable Management Criteria with GSAs.

8.3 Chronic Lowering of Groundwater Levels Sustainable Management Criteria

8.3.1 Information and Methodology Used to Establish Measurable Objectives and Minimum Thresholds

The information used for establishing the chronic lowering of groundwater levels measurable objectives and minimum thresholds includes:

- Information about the public definition of significant and unreasonable conditions and preferred current and future groundwater elevations, gathered from the Sustainable Management Criteria survey and public outreach meetings.
- Historical groundwater elevation data from wells monitored by the County of San Luis Obispo
- Depths and locations of existing wells
- Maps of current and historical groundwater elevation data
- Results of modeling of various scenarios of future groundwater level conditions

8.3.2 Locally Defined Significant and Unreasonable Conditions

Significant and unreasonable groundwater levels in the Subbasin are those that:

- Impact the ability of existing domestic wells of average depth to produce adequate water for domestic purposes.
- Cause significant financial burden to those who rely on the groundwater basin
- Interfere with other SGMA sustainability indicators

8.3.3 Measurable Objectives

The measurable objectives for chronic lowering of groundwater levels represent target groundwater elevations that are established to achieve the sustainability goal by at least 2040. Measurable objectives are groundwater levels established at each Representative Monitoring Site (RMS). Measurable objective groundwater levels are higher than minimum threshold groundwater levels. Measurable objectives provide operational flexibility above minimum threshold levels to ensure that the Subbasin can be managed sustainably over a reasonable range of climate and hydrologic variability. Measurable objectives may change after GSP adoption as new information and hydrologic data become available.

8.3.3.1 Methodology for Setting Measurable Objectives

Initial measurable objectives were established based on historical groundwater level data; along with input and preferences on future groundwater levels from domestic groundwater users, agricultural interests, environmental interests, and other Subbasin stakeholders. The input and preferences were used to formulate a range of conceptual measurable objective scenarios. These scenarios were evaluated using the GSP model to project the effect on future Subbasin operation and to select measurable objectives for the GSP.

8.3.3.2 Paso Robles Formation Aquifer Measurable Objectives

Initial measurable objectives for each groundwater level RMS in the Paso Robles Formation Aquifer are summarized in Table 8-1. Initial measurable objectives were set at the approximate 2017 average groundwater levels unless noted differently in the table. The measurable objectives are depicted on hydrographs in Appendix H.

Table 8-1. Chronic Lowering of Groundwater Levels Measurable Objectives for Paso Robles Formation Aquifer

25S/12E-16K05 (PASO-0345)	521
25S/12E-26L01 (PASO-0205)	490
25S/13E-08L02 (PASO-0195)	916
26S/12E-14G01 (PASO-0048)	495
26S/12E-14G02 (PASO-0017)	498
26S/12E-14H01 (PASO-0184)	505
26S/12E-14K01 (PASO-0238)	497
26S/12E-26E07 (PASO-0124)	648
26S/13E-08M01 (PASO-0164)	548
26S/13E-16N01 (PASO-0282)	588
26S/15E-19E01 (PASO-0073)	929
26S/15E-20B04 (PASO-0401)	967
26S/15E-29N01 (PASO-0226)	993
26S/15E-29R01 (PASO-0406)	986
26S/15E-30J01 (PASO-0393)	959
27S/12E-13N01 (PASO-0223)	716
27S/13E-28F01 (PASO-0243)	894
27S/13E-30F01 (PASO-0355)	766
27S/13E-30J01 (PASO-0423)	806
27S/13E-30N01 (PASO-0086)	810
27S/14E-11R01 (PASO-0392)	1,028
28S/13E-01B01 (PASO-0066)	1,040

8.3.3.3 Alluvial Aquifer Measurable Objectives

Only one RMS could be established for the Alluvial Aquifer. This RMS is associated with a new monitoring well (well name 18MW-0191) installed by the City of Paso Robles in June 2018. A measurable objective was not established for this RMS because it does not have sufficient historical groundwater level data. Additional measurable objectives will be established for the Alluvial Aquifer early after GSP adoption when the RMS network is expanded by either location new candidate monitoring wells, modifying confidentiality agreements at known wells so that groundwater level data can be used, or by installing new monitoring wells.

8.3.4 Minimum Thresholds

Section §354.28(c)(1) of the SGMA regulations states that "*The minimum threshold for chronic lowering of groundwater levels shall be the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results.*"

The Sustainable Management Criteria survey (Appendix G) provided general information on stakeholders' preferences for future groundwater levels. Initial minimum thresholds were developed based on the survey and public outreach results, hydrogeologic information including contours of 2017 groundwater levels and evaluation of historical groundwater level variability at the RMS, and information about well construction.

Average 2017 non-pumping groundwater levels have been selected as measurable objectives and minimum thresholds are set below those levels. Specific conditions such as well depths at each RMS were considered when establishing the groundwater level for the initial minimum threshold. Protecting a sustainable groundwater supply for existing wells was a guiding consideration. Initial minimum thresholds were selected to allow sufficient time for the GSAs to develop a broader and publicly accessible dataset that will give clear guidance to establish a reasonable justification for any potential management actions that would be triggered by exceedances minimum thresholds.

8.3.4.1 Paso Robles Formation Aquifer Minimum Thresholds

Minimum thresholds for each groundwater level RMS in the Paso Robles Formation Aquifer are summarized on Table 8-2. Hydrographs for each RMS with well completion information, and minimum thresholds are included in Appendix H. These minimum thresholds were selected to avoid the locally defined significant and unreasonable conditions.

Table 8-2: Chronic Lowering of Groundwater Levels Minimum Thresholds for Paso Robles Formation Aquifer

Well ID (alt ID)	Minimum Threshold (feet NAVD88)
25S/12E-16K05 (PASO-0345)	491
25S/12E-26L01 (PASO-0205)	460
25S/13E-08L02 (PASO-0195)	886
26S/12E-14G01 (PASO-0048)	465
26S/12E-14G02 (PASO-0017)	468
26S/12E-14H01 (PASO-0184)	475
26S/12E-14K01 (PASO-0238)	467
26S/12E-26E07 (PASO-0124)	618
26S/13E-08M01 (PASO-0164)	518
26S/13E-16N01 (PASO-0282)	558
26S/15E-19E01 (PASO-0073)	899

Well ID (alt ID)	Minimum Threshold (feet NAVD88)
26S/15E-20B04 (PASO-0401)	937
26S/15E-29N01 (PASO-0226)	963
26S/15E-29R01 (PASO-0406)	956
26S/15E-30J01 (PASO-0393)	929
27S/12E-13N01 (PASO-0223)	686
27S/13E-28F01 (PASO-0243)	864
27S/13E-30F01 (PASO-0355)	736
27S/13E-30J01 (PASO-0423)	776
27S/13E-30N01 (PASO-0086)	780
27S/14E-11R01 (PASO-0392)	998
28S/13E-01B01 (PASO-0066)	1,010

8.3.4.2 Alluvial Aquifer Minimum Thresholds

Only one RMS could be established for the Alluvial Aquifer. This RMS is associated with a new monitoring well (well name 18MW-0191) installed by the City of Paso Robles in June 2018. A measurable objective was not established for this well; therefore, a minimum threshold is not established. A minimum threshold will be established after additional groundwater level data are available for the well. Additional minimum thresholds will be established for the Alluvial Aquifer early after GSP adoption when an expanded RMS network is developed.

8.3.4.3 Minimum Thresholds Impact on Domestic Wells

Early after GSP adoption and during efforts to expand the monitoring networks, additional analysis of the minimum thresholds for groundwater elevations will be conducted to ensure that they are protective of average domestic well operations in the Subbasin. Minimum thresholds in some areas of the Subbasin may be modified based on the results of this evaluation.

8.3.4.4 Relationship between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators

Section 354.28 of the SGMA regulations requires that the description of all minimum thresholds include a discussion about the relationship between the minimum thresholds for each sustainability indicator. In the SMC BMP (DWR, 2017), DWR has clarified this requirement. First, the GSP must describe the relationship between each sustainability indicator’s minimum threshold; in other words, describe why or how a water level minimum threshold set at a particular RMS is similar to or different to water level thresholds in nearby RMS. Second, the GSP must describe the relationship between the selected minimum threshold and minimum thresholds for other sustainability indicators; in other words, describe how a water level minimum threshold would not trigger an undesirable result for land subsidence.

Groundwater elevation minimum thresholds are derived from the measurable objectives, which are average 2017 groundwater elevations. Because the measurable objectives represent a historical and realistic groundwater elevation map, the minimum thresholds derived from these objectives likely do not conflict with each other.

Groundwater elevation minimum thresholds can influence other sustainability indicators.

- **Change in groundwater storage**. A significant and unreasonable condition for change in groundwater storage is pumping in excess of the sustainable yield for an extended period of years. Pumping at or less than the sustainable yield will maintain or raise average groundwater elevations in the Subbasin. The groundwater elevation minimum thresholds are set to maintain a constant elevation over an extended period of time, consistent with the practice of pumping at or less than the sustainable yield. Therefore, the groundwater elevation minimum thresholds will not result in long term significant or unreasonable change in groundwater storage.
- **Seawater intrusion**. This sustainability indicator is not applicable to this Subbasin
- **Degraded water quality**. Protecting groundwater quality is critically important to all who depend upon the groundwater resource, particularly for drinking water and agricultural uses. A significant and unreasonable condition for degraded water quality is exceeding regulatory limits for constituents of concern in supply wells due to actions proposed in the GSP. Water quality could be affected through two processes:
  1. Low groundwater elevations in an area could cause deeper, poor-quality groundwater to flow upward into existing supply wells. Groundwater elevation minimum thresholds are set below current levels, meaning upward flow of deep, poor-quality groundwater could occur in the future. Should groundwater quality degrade due to lower groundwater elevations, the groundwater elevation minimum thresholds will be raised to avoid this degradation.
  2. Changes in groundwater elevation due to actions implemented to achieve sustainability could change groundwater gradients, which could cause poor quality groundwater to flow towards supply wells that would not have otherwise been impacted. These groundwater gradients, however, are only dependent on differences between groundwater elevations, not on the groundwater elevations themselves. Therefore, the minimum threshold groundwater elevations do not directly lead to a significant and unreasonable degradation of groundwater quality in production wells.
- **Subsidence**. A significant and unreasonable condition for subsidence is any measurable permanent subsidence that damages existing infrastructure. Subsidence is caused by dewatering and compaction of clay-rich sediments in response to lowering groundwater levels. Very small amounts of land surface elevation fluctuations have been reported

across the Basin. The groundwater elevation minimum thresholds are set below existing groundwater elevations, which could induce additional subsidence that has not already started. Should new subsidence be observed due to lower groundwater elevations, the groundwater elevation minimum thresholds will be raised to avoid this subsidence.

- **Depletion of interconnected surface water.** Therefore, there are no current minimum thresholds or undesirable results that could be affected by the groundwater elevation minimum thresholds. Changes in groundwater elevations, however, could reconnect surface waters. If this occurs, minimum thresholds will be established for depletion of interconnected surface waters and the relationship between those new minimum thresholds and all other sustainability indicators will be reassessed.

8.3.4.5 Effect of Minimum Thresholds on Neighboring Basins

One neighboring groundwater basin is required to develop a GSP: the Upper Valley Subbasin of the Salinas Valley Basin. Additionally, the adjoining Atascadero Subbasin is currently developing a GSP under SGMA. The anticipated effect of the groundwater elevation minimum thresholds on each of the two subbasins is addressed below.

Upper Valley Subbasin of the Salinas Valley Basin. The Upper Valley Subbasin is required to develop a GSP by 2022. The Upper Valley Subbasin is hydrogeologically downgradient of the Paso Robles Subbasin: groundwater generally flows from the Paso Robles Subbasin into the Upper Valley Subbasin. Lower groundwater levels in the Paso Robles Subbasin as a result of GSP actions could reduce the amount of groundwater flowing into the Upper Valley Subbasin, affecting that Subbasin's ability to achieve sustainability. The groundwater elevation minimum thresholds are set at constant levels that are below current elevations; therefore, they could reduce groundwater flow into the adjacent Upper Valley Subbasin. If reduced groundwater flow is observed that impacts sustainability in the Upper Valley Subbasin of the Salinas Valley Basin, then minimum thresholds would be adjusted to avoid this impact.

The Paso Robles Subbasin GSAs have developed a cooperative working relationship with the Salinas Valley Basin GSA who will be developing the GSP for the Upper Valley Subbasin. The two GSAs will monitor and work together to ensure that minimum thresholds do not significantly affect each Subbasin's ability to achieve sustainability.

Atascadero Subbasin. The Paso Robles Subbasin is hydrogeologically separated from the Atascadero Subbasin by the Rinconada Fault. The fault acts as a barrier to groundwater flow in the Paso Robles Formation Aquifer as presented in Chapter 4. While minimum thresholds are set at levels below current groundwater levels, these lower levels are not expected to impact sustainability in the Atascadero Subbasin due to the limited groundwater flow between the two Subbasins. The Paso Robles Subbasin GSAs have a cooperative working relationship with the

Agencies managing the Atascadero Subbasin and will continue to work together to ensure that minimum thresholds do not significantly affect each Subbasin's ability to achieve sustainability.

8.3.4.6 Effects on Beneficial Users and Land Uses

The groundwater elevation minimum thresholds may have several effects on beneficial users and land uses in the Subbasin.

Agricultural land uses and users. The groundwater elevation minimum thresholds limit lowering of groundwater levels in the Subbasin. In the absence of other mitigating measures this has the effect of potentially limiting the amount of groundwater pumping in the Subbasin. Limiting the amount of groundwater pumping will limit the amount and type of crops that can be grown in the Subbasin, which could result in a proportional reduction in the economic viability of some properties. The groundwater elevation minimum thresholds could therefore limit expansion of the Subbasin's agricultural economy. This could have various effects on beneficial users and land uses:

- There will be an economic impact to employees and suppliers of production products and materials. Many parts of the local economy rely on a vibrant agricultural industry and they too will be hurt proportional to the losses imparted to agricultural businesses.
- Growth of city, county and state tax rolls could be slowed or reduced due to the limitations imposed on agricultural growth.

Urban land uses and users. The groundwater elevation minimum thresholds effectively limit the amount of groundwater pumping in the Subbasin. This may limit urban growth, or result in urban areas obtaining alternative sources of water. This may result in higher water costs for municipal water users.

Domestic land uses and users. The groundwater elevation minimum thresholds protect most domestic wells. Therefore, the minimum thresholds will likely have an overall beneficial effect on existing domestic land uses by protecting the ability to pump from domestic wells. However, limited water in some of the shallowest domestic wells may require owners to drill deeper wells. Additionally, the groundwater elevation minimum thresholds may limit the increase of non-*de minimis* groundwater use in order to limit future declines in groundwater levels caused by more non *de minimis* domestic pumping. Policies allowing offsets of existing use to allow new construction or bringing in new sources of water can mitigate against this effect.

Ecological land uses and users. Groundwater elevation minimum thresholds effectively protect the groundwater resource including those existing ecological habitats that rely upon it because they are set to avoid long term declines in groundwater levels in a short amount of time. As noted above, groundwater level minimum thresholds may limit increases in non-*de minimis* groundwater use. Ecological land uses and users may benefit by this reduction in non-*de minimis* groundwater use.

8.3.4.7 Relevant Federal, State, or Local Standards

No Federal, State, or local standards exist for chronic lowering of groundwater elevations.

8.3.4.8 Method for Quantitative Measurement of Minimum Thresholds

Groundwater elevation minimum thresholds will be directly measured from existing or new monitoring wells. The groundwater level monitoring will be conducted in accordance with the monitoring plan outlined in Chapter 7. Furthermore, the groundwater level monitoring will meet the requirements of the technical and reporting standards included in the SGMA regulations.

As noted in Chapter 7, the current groundwater monitoring network in the Paso Robles Formation Aquifer currently only includes 24 wells. For the Alluvial Aquifer, only one RMS was established. The GSAs will expand the monitoring network in both aquifers during GSP implementation.

8.3.4.9 Interim Milestones

Initial interim milestones were developed for the 24 RMS established for the Paso Robles Formation Aquifer based on the results of modeling conducted to evaluate management actions and select measurable objectives (Chapter 9). Because measurable objectives have not been established at RMS for the Alluvial Aquifer, interim milestones cannot be developed. Interim milestones will in the future (after GSP adoption) when the RMS network is expanded in the Alluvial Aquifer.

Conceptually, the following actions and groundwater conditions are expected to occur during implementation.

- Monitoring of Subbasin conditions using an expanded monitoring network will provide additional information to refine interim milestones
- Pumping cutbacks in some areas of the Subbasin will begin about five years after adoption of the GSP. During this five year period, current groundwater levels trends would continue to be tracked by the RMS.
- After about 5 years, groundwater levels will begin trending toward measurable objectives as a result of management actions and possibly pumping cutbacks in some area of the Subbasin.

Table 8-3 summarizes the interim milestones for the RMS in the Paso Robles Formation Aquifer.

Table 8-3: Chronic Lowering of Groundwater Levels Interim Milestones for Paso Robles Formation Aquifer

	2025	2030	2035
25S/12E-16K05 (PASO-0345)	521	521	520
25S/12E-26L01 (PASO-0205)	499	496	492
25S/13E-08L02 (PASO-0195)	911	905	901
26S/12E-14G01 (PASO-0048)	526	532	534
26S/12E-14G02 (PASO-0017)	523	531	533
26S/12E-14H01 (PASO-0184)	513	521	524
26S/12E-14K01 (PASO-0238)	527	533	535
26S/12E-26E07 (PASO-0124)	644	644	645
26S/13E-08M01 (PASO-0164)	620	619	617
26S/13E-16N01 (PASO-0282)	595	594	593
26S/15E-19E01 (PASO-0073)	935	937	938
26S/15E-20B04 (PASO-0401)	972	976	978
26S/15E-29N01 (PASO-0226)	1,009	1,012	1,014
26S/15E-29R01 (PASO-0406)	997	1,001	1,003
26S/15E-30J01 (PASO-0393)	972	976	978
27S/12E-13N01 (PASO-0223)	711	710	709
27S/13E-28F01 (PASO-0243)	896	899	900
27S/13E-30F01 (PASO-0355)	770	768	765
27S/13E-30J01 (PASO-0423)	817	815	812
27S/13E-30N01 (PASO-0086)	804	799	794
27S/14E-11R01 (PASO-0392)	1,029	1,030	1,030
28S/13E-01B01 (PASO-0066)	1,052	1,055	1,055

Interim milestones may be revised during implementation as new data and understanding of the hydrogeologic conditions in the Subbasin become available.

8.3.5 Undesirable Results

8.3.5.1 Criteria for Defining Undesirable Results

The chronic lowering of groundwater elevation undesirable result is a quantitative combination of groundwater elevation minimum threshold exceedances. For the Paso Robles Subbasin, the groundwater elevation undesirable result is:

Over the course of two years, no more than two exceedances for the groundwater elevation minimum thresholds within a 5-mile radius or within a defined area of the Basin for any single aquifer. A single monitoring well in exceedance for two consecutive years also represents an *undesirable result for the area of the Basin represented by the monitoring well. Geographically isolated exceedances will require investigation to determine if local or Basin wide actions are required in response.*

Undesirable results provide flexibility in defining sustainability. Increasing the number of allowed minimum threshold exceedances provides more flexibility, but may lead to significant and unreasonable conditions for a number of beneficial users. Reducing the number of allowed minimum threshold exceedances ensures strict adherence to minimum thresholds, but reduces flexibility due to unanticipated hydrogeologic conditions. The undesirable result was set at to balance the interests of beneficial users with the practical aspects of groundwater management under uncertainty.

As the monitoring system is expanded, the number of exceedances allowed may be adjusted. One additional exceedance will be allowed for approximately every seven new monitoring wells. This was considered a reasonable number of exceedances given the hydrogeologic uncertainty of the basin. Close monitoring of groundwater data over the following years will allow actual numbers to be refined based on observable data. Management of the Subbasin will adapt to specific conditions and to a growing understanding of basin conditions and processes to adopt appropriate responses.

8.3.5.2 Potential Causes of Undesirable Results

An undesirable result for chronic lowering of groundwater levels does not currently exist. Conditions that may lead to an undesirable result include the following:

- Localized pumping clusters. Even if regional pumping is maintained within the sustainable yield, clusters of high-capacity wells may cause excessive localized drawdowns that lead to undesirable results in specific areas.
- Expansion of de-minimis pumping. Individual de-minimis pumpers do not have a significant impact on Subbasin-wide groundwater elevations. However, many de-minimis pumpers are often clustered in specific residential areas. Pumping by these de-minimis users is not currently regulated under this GSP. Adding additional domestic de-minimis pumpers in specific areas may result in excessive localized drawdowns and undesirable results.
- Extensive, unanticipated drought. Minimum thresholds were established based on historical groundwater elevations and reasonable estimates of future groundwater elevations. Extensive, unanticipated droughts may lead to excessively low groundwater elevations and undesirable results.

8.3.5.3 Effects on Beneficial Users and Land Uses

The primary detrimental effect on beneficial users from allowing multiple exceedances occurs if more than one exceedance occurs in a small geographic area. Allowing 15% exceedances is reasonable as long as the exceedances are spread out across the Subbasin. If the exceedances are clustered in a small area, it will indicate that significant and unreasonable effects are being born by a localized group of landowners.

8.4 Reduction in Groundwater Storage Sustainable Management Criteria

8.4.1 Locally Defined Significant and Unreasonable Conditions

Locally defined significant and unreasonable conditions were assessed based on the Sustainable Management Criteria survey, public meetings, available data, and discussions with GSA staff. Significant and unreasonable changes in groundwater storage in the Subbasin are those that:

- Lead to long-term reduction in groundwater storage
- Interfere with other sustainability indicators

Responses to the Sustainable Management Criteria survey and public input suggest that most areas of the basin would like to see more groundwater in storage to help with droughts, and some areas of the basin would like to see significantly more groundwater in storage. Public input on which concessions would be acceptable to increase the amount of groundwater in storage revealed two highly ranked concessions:

1. New pumping be offset with new recharge or reduced pumping
2. Pumping be reduced in dry years

However, the concession that agricultural pumping be reduced in all years ranked relatively low. This suggests that, while stakeholders would prefer more groundwater in storage, they also would not prefer to reduce existing agricultural pumping during average years. Stakeholders also prefer that groundwater storage be increased by retaining wet year flows for local recharge and/or importing water.

8.4.2 Minimum Thresholds

Section §354.28(c)(2) of the SGMA regulations states that "*The minimum threshold for reduction of groundwater storage shall be a total volume of groundwater that can be withdrawn from the basin without causing conditions that may lead to undesirable results. Minimum thresholds for reduction of groundwater storage shall be supported by the sustainable yield of the basin, calculated based on historical trends, water year type, and projected water use in the basin.*"

The reduction of groundwater in storage minimum threshold is established for the Subbasin as a whole, not for individual aquifers. Therefore, one minimum threshold for groundwater in storage is established for the entire Subbasin, but any reduction in storage that would cause an undesirable result in only a limited portion of the basin shall be addressed in that area or areas where declining well levels indicate management actions or projects will be effective.

In accordance with the SGMA regulation cited above, the minimum threshold metric is a volume of pumping per year, or an annual pumping rate. Conceptually, the total volume of groundwater that can be pumped annually from the Subbasin without leading to undesirable results is equal to the estimated sustainable yield of the Subbasin. As discussed in Chapter 6, absent the addition of supplemental water, the future estimated long-term sustainable yield of the Subbasin under reasonable climate change assumptions is 61,100 AFY. This estimated sustainable yield will change in the future as additional data become available.

This GSP adopts changes in groundwater level as a proxy for the change in groundwater storage metric. As allowed in §354.36(b)(1) of the SGMA regulations, groundwater elevation data at the RMSs will be reported annually as a proxy to track changes in the amount of groundwater in storage. A quantitative relationship between water level changes and volumetric changes in storage will be developed after the RMS is expanded, new hydrogeologic data are developed, and the model is updated and recalibrated.

Using the proxy approach, the minimum threshold for change in groundwater storage are the minimum thresholds for chronic lowering of groundwater levels minimum threshold. Based on well-established hydrogeologic principles, stable groundwater elevations held above this minimum threshold will limit depletion of groundwater from storage. Therefore, the minimum threshold using groundwater elevations as a proxy is that the groundwater elevation averaged across all the wells in the groundwater level monitoring network will remain stable above the minimum threshold for chronic lowering of groundwater levels minimum threshold.

Exceedances of this minimum threshold, if limited to specific areas of the Basin, shall be addressed by management actions or projects developed where they affect those areas of exceedance. Multiple exceedances appearing across the Basin will require proportional Subbasin-wide responses.

8.4.2.1 Information Used and Methodology for Establishing Reduction in Storage Minimum Thresholds

The monitoring network and protocols used to measure groundwater elevations at the RMS are presented in Chapter 7, Monitoring Networks. These data will be used to monitor groundwater elevations and assess changes in groundwater storage.

8.4.2.2 Relationship between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators

The minimum threshold for reduction in groundwater storage is a single value of average groundwater elevation over the entire Subbasin. Therefore, the concept of potential conflict between minimum thresholds at different locations in the Subbasin is not applicable.

The reduction in groundwater storage minimum threshold could influence other sustainability indicators. The reduction in groundwater storage minimum threshold was selected to avoid undesirable results for other sustainability indicators, as outlined below.

- **Chronic lowering of groundwater levels**. Because groundwater elevations will be used as a proxy for estimating groundwater pumping and changes in groundwater storage, the reduction in groundwater storage would not cause undesirable results for this sustainability indicator.
- **Seawater intrusion**. This sustainability indicator is not applicable to this Subbasin.
- **Degraded water quality**. The minimum threshold proxy of stable groundwater levels will not directly lead to a degradation of groundwater quality.
- **Subsidence**. Because future average groundwater levels will be stable, they will not induce any additional subsidence.
- **Depletion of interconnected surface waters.** Minimum thresholds and undesirable results for interconnected surface water were not developed because there are insufficient data to determine the existence of interconnected surface water at this time in the Subbasin. This is a data gap that will be filled early in GSP implementation. Therefore, the reduction in groundwater storage minimum thresholds is unrelated to interconnected surface water at this time. If surface water interconnection is identified in the future, minimum thresholds will be established for depletion of interconnected surface waters and the relationship between those new minimum thresholds and all other sustainability indicators will be reassessed.

8.4.2.3 Effect of Minimum Thresholds on Neighboring Basins

The anticipated effect of the groundwater storage minimum thresholds on each of the two neighboring subbasins is addressed below.

Upper Valley Subbasin of the Salinas Valley Basin. Removing groundwater from storage in the Paso Robles Subbasin would reduce flow into the Upper Valley Subbasin, potentially affecting the ability of that Subbasin to achieve sustainability. The reduction in storage minimum threshold is set to prevent long-term reduction in storage and therefore maintain flow into the

Upper Valley Subbasin. This minimum threshold will not prevent the Upper Valley Subbasin from achieving sustainability.

Atascadero Subbasin. The Paso Robles Subbasin is hydrogeologically separated from the Atascadero Subbasin by the Rinconada Fault. The fault acts as a partial barrier to groundwater flow as presented in Chapter 4. Removing groundwater from storage in the Paso Robles Subbasin could induce additional groundwater flow from the Atascadero Subbasin into the Paso Robles Subbasin, affecting the ability to achieve sustainability in the Atascadero Subbasin. The reduction in storage minimum threshold is set to prevent long term reduction in storage and will be monitored using groundwater elevation proxies, therefore will not induce lowering of groundwater elevations that could cause additional groundwater flows from the Atascadero Subbasin. The minimum threshold will therefore not prevent the Atascadero Subbasin from achieving sustainability.

8.4.2.4 Effect on Beneficial Uses and Users

The reduction in groundwater storage minimum threshold of maintaining stable average groundwater elevations will potentially require a reduction in the amount of groundwater pumping in the Subbasin. Reducing pumping may impact the beneficial uses and users of groundwater in the Subbasin.

Agricultural land uses and users. Reducing the amount of groundwater pumping may limit or reduce non-*de minimis* production in the Subbasin by reducing the amount of available water. Owners of agricultural lands that are currently not irrigated may be particularly impacted because the additional groundwater pumping needed to irrigate these lands could increase the Subbasin pumping beyond the sustainable yield, violating the minimum threshold.

Urban land uses and users. Reducing the amount of groundwater pumping may increase the cost of water for municipal users in the Subbasin because municipalities may need to find other, more expensive water sources.

Domestic land uses and users. Existing domestic groundwater users may generally benefit from this minimum threshold. Many domestic groundwater users are *de-minimis* users whose pumping may not be restricted by the projects and management actions adopted in this GSP. By restricting the amount of groundwater that is pumped from the Subbasin, the *de-minimis* users would be protected from overdraft that could impact their ability to pump groundwater.

Ecological land uses and users. Groundwater dependent ecosystems would generally benefit from this minimum threshold. Maintaining groundwater levels close to current levels maintains groundwater supplies similar to present levels which will continue to support groundwater dependent ecosystems.

8.4.2.5 Relation to State, Federal, or Local Standards

No federal, state, or local standards exist for reductions in groundwater storage.

8.4.2.6 Methods for Quantitative Measurement of Minimum Threshold

The quantitative metric for assessing compliance with the reduction in groundwater storage minimum threshold is monitoring groundwater elevations. The approach for quantitatively evaluating compliance with the minimum threshold for reduction in groundwater storage will be based on evaluating groundwater elevations annually. All groundwater elevations collected from the groundwater level monitoring network will be analyzed and averaged.

8.4.3 Measurable Objectives

The measurable objective for reduction in groundwater storage is the same as the minimum threshold. The measurable objective, using the groundwater level proxy, is stable average groundwater levels.

8.4.3.1 Method for Setting Measurable Objectives

As discussed in Section 8.5.1, input from stakeholders suggested that they would prefer more groundwater in storage. However, stakeholders also suggested that they would prefer not to attain this increase in groundwater storage by reducing existing pumping during years with average climate conditions. Instead, they prefer to increase groundwater storage through increasing local recharge or importing water for recharge. Therefore, the conservative approach of simply maintaining stable groundwater levels was adopted for the measurable objective.

8.4.3.2 Interim Milestones

Interim milestones for groundwater storage are the same as those established for chronic lowering of groundwater elevations. Achieving the groundwater elevation interim milestones will also eliminate long term reductions in groundwater in storage.

8.4.4 Undesirable Results

8.4.4.1 Criteria for Defining Undesirable Results

The reduction in groundwater storage undesirable result is a quantitative combination of reduction in groundwater storage minimum threshold exceedances. However, there is only one reduction in groundwater storage minimum threshold. Therefore, no minimum threshold exceedances are allowed to occur and the reduction in groundwater storage undesirable result is:

During average hydrogeologic conditions, and as a long-term average over all hydrogeologic conditions, there shall be no exceedances of the groundwater level proxy minimum threshold for change in groundwater storage.

8.4.4.2 Potential Causes of Undesirable Results

Conditions that may lead to an undesirable result for the reduction in groundwater storage sustainability indicator include the following:

- **Expansion of non-*de minimis* pumping.** Additional non-*de minimis* pumping may result in continued decline in groundwater elevations and exceedance of the proxy minimum threshold.
- **Expansion of *de minimis* pumping**. Pumping by *de minimis* users is not regulated under this GSP. Adding domestic *de minimis* pumpers in the Subbasin may result in lower groundwater elevations, and an exceedance of the proxy minimum threshold.
- **Extensive, unanticipated drought**. Minimum thresholds are established based on reasonable anticipated future climatic conditions. Extensive, unanticipated droughts may lead to excessively low groundwater recharge and unanticipated high pumping rates that could cause lower groundwater elevations and an exceedance of the proxy minimum threshold.

8.4.4.3 Effects on Beneficial Users and Land Use

The practical effect of the reduction in groundwater storage undesirable result is that it encourages no net change in groundwater elevations and storage during average hydrologic conditions and over the long-term. Therefore, during average hydrologic conditions and over the long-term, beneficial uses and users will have access to the same amount of groundwater in storage that currently exists, and the undesirable result will not have a negative effect on the beneficial users and uses of groundwater. However, pumping at the long-term sustainable yield during dry years will temporarily lower groundwater elevations and reduce the amount of groundwater in storage. Therefore, if this occurs, there could be short-term impacts from a reduction in groundwater in storage on all beneficial users and uses of groundwater. In particular, groundwater pumpers that rely on water from shallower wells may be temporarily impacted as the amount of groundwater in storage drops and water levels in their wells decline.

8.5 Seawater Intrusion Sustainable Management Criteria

The seawater intrusion sustainability indicator is not applicable to this Subbasin.

8.6 Degraded Water Quality Sustainable Management Criteria

8.6.1 Locally Defined Significant and Unreasonable Conditions

Locally defined significant and unreasonable conditions were assessed based on federal and state mandated drinking water and groundwater quality regulations, the Sustainable Management Criteria survey, public meetings, and discussions with GSA staff. Significant and unreasonable changes in groundwater quality in the Subbasin are increases in a chemical constituent that either:

- Result in groundwater concentrations in a public supply well above an established primary or secondary MCL, or
- Lead to reduced crop production.

8.6.2 Minimum Thresholds

Section §354.28(c)(2)of the SGMA regulations states that "*The minimum threshold shall be based on the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations of constituents determined by the Agency to be of concern for the basin*."

As stated above, the SGMA regulations allow three options for setting degraded water quality minimum thresholds. In the Subbasin, degraded water quality minimum thresholds are based on a number of supply wells that exceed concentrations of constituents determined to be of concern for the Subbasin. The purpose of the minimum thresholds for constituents of concern with a primary or secondary MCL is to avoid furthering the migration of these constituents towards municipal or other drinking water wells. Therefore, the definition of supply wells for constituents of concern that have a primary or secondary MCL are public supply wells.

The purpose of the minimum thresholds for constituents of concern that may reduce crop productivity is to avoid furthering the migration of these constituents towards agricultural supply wells. Therefore, the definition of supply wells for constituents of concern that may lead to reduced crop production are agricultural supply wells.

As noted in Section 354.28 (c)(4) of the SGMA regulations, minimum thresholds are based on a degradation of groundwater quality, not an improvement of groundwater quality. Therefore, this GSP was developed to avoid taking actions that may inadvertently move groundwater constituents that have already been identified in the Subbasin in such a way that they have a significant and unreasonable impact that would not otherwise occur. Constituents of concern must meet two criteria:

3. They must have an established level of concern such as a primary or secondary MCL or a concentration that reduces crop production
4. They must have previously been found in the Subbasin at levels above the level of concern

Based on the review of groundwater quality in Chapter 5, different constituents of concern exist for both agricultural wells and public supply wells. The constituents of concern for agricultural wells are:

- Chloride
- Boron

The constituents of concern for public supply wells are:

- Total Dissolved Solids
- Chloride
- Sulfate
- Nitrate
- Gross Alpha Radiation

As noted in Section 5.6.3, based on available information there are no mapped groundwater contamination plumes in the Subbasin. Therefore, only potential impacts of diffuse or naturally occurring constituents listed above are addressed in this GSP.

The bases for establishing minimum thresholds for each constituent of concern in the Paso Robles Formation Aquifer and Alluvial Aquifer are listed in Table 8-4. This table does not identify the number of supply wells that will exceed the level of concern, but rather identifies how many additional wells will be allowed to exceed the level of concern. Wells that already exceed this limit are not counted against the minimum thresholds.

The UC Cooperative Extension Guidelines state "Unlike most annual crops, tree and vine crops are generally susceptible to boron and chloride toxicity. Tolerances vary among species and rootstocks. Tolerant varieties and rootstocks restrict the uptake and accumulation of boron and chloride in leaf tissue. Boron concentrations in the irrigation water exceeding 0.5 to 0.75 mg/L can reduce plant growth and yield. Climatic effects are also important. In the cool moist coastal climates, irrigation waters with boron concentrations exceeding 1 mg/L are used successfully on tree and vine crops. Chloride moves readily with the soil water and is taken up by the roots. It is then transported to the stems and leaves. Sensitive berries and avocado rootstocks can tolerate only up to 120 ppm of chloride, while grapes can tolerate up to 700 ppm or more."

Current sample size is small (more wells will be added in the future), but known conditions in the Subbasin include these constituents. To reduce crop production to a significant and unreasonable extent would require levels of boron to exceed 0.75 mg/L in 10% more wells of total wells sampled and chloride to exceed 350 mg/L in 10% more wells of total wells sampled.

Table 8-4. Groundwater Quality Minimum Thresholds Bases

Agricultural Wells in Monitoring Program	
	Fewer than 10% of additional agricultural production wells that are in the GSP monitoring program shall exceed 350 milligrams per liter (mg/L).
	Fewer than 10% of additional agricultural production wells that are in the GSP monitoring program shall exceed 0.5 mg/L.
Municipal Wells in Monitoring Program	
	Fewer than 10% of additional municipal or domestic production wells that are in the GSP monitoring program shall exceed the TDS secondary MCL of 500 mg/L.
	Fewer than 10% of additional municipal or domestic production wells that are in the GSP monitoring program shall exceed the chloride secondary MCL of 250 mg/L.
	Fewer than 10% of additional municipal or domestic production wells that are in the GSP monitoring program shall exceed the sulfate secondary MCL of 250 mg/L.
	Fewer than 10% of additional municipal or domestic production wells that are in the GSP monitoring program shall exceed the nitrate MCL of 45 mg/L, measured as nitrate.
	Fewer than 10% of additional municipal or domestic production wells that are in the GSP monitoring program shall exceed the gross alpha radiation MCL of 15 pCi/L.

8.6.2.1 Paso Robles Formation Aquifer

The minimum thresholds for degraded water quality in the Paso Robles Formation Aquifer are based on the goal of fewer than 10% of additional exceedances can occur in the future. However, some exceedances already exist in Paso Robles Formation Aquifer wells, and these exceedances will likely continue into the future. The minimum threshold for the number of allowed exceedances is therefore equal to the current number of exceedances plus 10%. In cases where incorporating the increase of 10% results in a fraction of a well less than one, one additional well exceedance was allowed. Based on the number of agricultural and municipal supply wells in the existing water quality monitoring network that is described in Chapter 7, the number of existing exceedances plus the 10% (or a minimum of one well) for each constituent is shown in Table 8-5. The exceedance numbers in this table are the minimum thresholds. This table additionally includes the percentage of existing wells that exceed the minimum thresholds for each constituent. The percentage defines the upper bound of wells that can exceed the minimum thresholds as additional wells are added to the monitoring program. Existing State, Federal, Public Health or Municipal regulations supersede this. Wells in exceedance of those Regulations will have to comply if they occur. AG Order 4.0 for Central Coast Region is under review and this GSP will comply with its findings.

Table 8-5. Minimum Thresholds for Degraded Groundwater Quality in Paso Robles Formation Aquifer Supply Wells Under the Current Monitoring Network

Agricultural Wells			
	28	4	14%
	28	10	36%
Municipal Wells			
	34	12	35%
	34	2	6%
	34	2	6%
	34	2	6%
	32	0	0%

8.6.2.2 Alluvial Aquifer

The minimum thresholds for degraded water quality in the Alluvial Aquifer are similarly based on the goal of zero additional exceedances shown in Table 8-4. Following the same process as the Paso Robles Formation Aquifer, the minimum thresholds for degraded water quality in the Alluvial Aquifer are shown in Table 8-6. All agricultural supply wells are assumed to pump from the Paso Robles Formation Aquifer, and therefore there are no agricultural well minimum thresholds set in the Alluvial Aquifer. As with the Paso Robles Formation Aquifer, as additional wells are added to the monitoring program, the percentage of wells exceeding the minimum threshold will not increase.

Table 8-6. Minimum Thresholds for Degraded Groundwater Quality in Alluvial Aquifer Supply Wells Under the Current Monitoring Network

Public Supply Wells			
	8	5	63%
	8	3	38%
	8	3	38%
	9	0	0%
	7	0	0%

8.6.2.3 Information Used and Methodology for Establishing Water Quality Minimum Thresholds

The information used for establishing the degraded groundwater quality minimum thresholds included:

- Historical groundwater quality data from production wells in the Subbasin
- Federal and state drinking water quality standards
- Feedback about significant and unreasonable conditions from GSA staff members and the public

The historical groundwater quality data used to establish groundwater quality minimum thresholds are presented in Chapter 5.

Based on the review of historical and current groundwater quality data, federal and state drinking water standards, and irrigation water quality needs, GSAs agreed that these standards are appropriate to define degraded groundwater quality minimum thresholds.

8.6.2.4 Relationship between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators

The groundwater quality minimum thresholds were set for each of six constituents that are currently found in the Subbasin above water quality standards or irrigation guidance levels. These minimum thresholds were derived from existing data measured at individual wells. There are no conflicts between the existing groundwater quality data; and therefore, the minimum thresholds represent a reasonable and realistic distribution of groundwater quality. Because the underlying groundwater quality distribution is reasonable and realistic, there is no conflict that prevents the Subbasin from simultaneously achieving all six minimum thresholds.

Because SGMA regulations do not require projects or actions to improve groundwater quality, there will be no direct actions under the GSP associated with the groundwater quality minimum thresholds. Therefore, there are no actions that directly influence other sustainability indicators. However, preventing migration of poor groundwater quality may limit activities needed to achieve minimum thresholds for other sustainability indicators.

- **Change in groundwater levels.** Groundwater quality minimum thresholds could influence groundwater level minimum thresholds by limiting the types of water that can be used for recharge to raise groundwater levels. Water used for recharge cannot exceed any of the groundwater quality minimum thresholds.
- **Change in groundwater storage**. Nothing in the groundwater quality minimum thresholds promotes pumping in excess of the sustainable yield. Therefore, the groundwater quality minimum thresholds will not result in an exceedance of the groundwater storage minimum threshold.
- **Seawater intrusion**. This sustainability indicator is not applicable to this Subbasin
- **Subsidence**. Nothing in the groundwater quality minimum thresholds promotes a condition that will lead to additional subsidence and therefore, the groundwater quality minimum thresholds will not result in a significant or unreasonable level of subsidence.
- **Depletion of interconnected surface waters.** Nothing in the groundwater quality minimum thresholds promotes additional pumping or lower groundwater elevations in areas where interconnected surface waters may exist. At this time, there are insufficient data to determine the existence in interconnected surface water in the Subbasin. This is a data gap that will be filled early in GSP implementation. Therefore, the groundwater quality minimum thresholds will not result in a significant or unreasonable depletion of interconnected surface waters.

8.6.2.5 Effect of Minimum Thresholds on Neighboring Basins

The anticipated effect of the degraded groundwater quality minimum thresholds on each of the two neighboring subbasins is addressed below.

Upper Valley Subbasin of the Salinas Valley Basin. The Upper Valley Subbasin is hydrogeologically down gradient of the Paso Robles Subbasin, thus groundwater generally flows from the Paso Robles Subbasin into the Upper Valley Subbasin. Poor groundwater quality in the Paso Robles Subbasin could flow into the Upper Valley Subbasin, affecting the ability to achieve sustainability in that Subbasin. The degraded groundwater quality minimum threshold is set to prevent unreasonable movement of poor-quality groundwater that could impact overall beneficial uses of groundwater. Therefore, it is unlikely that the groundwater quality minimum thresholds established for the Paso Robles Subbasin will prevent the Upper Valley Subbasin from achieving sustainability.

Atascadero Subbasin. Groundwater generally flows from the Atascadero Subbasin into the Paso Robles Subbasin. Therefore, poor quality groundwater in the Paso Robles Subbasin is not expected flow into the Atascadero Subbasin in the future, thus the Paso Robles Subbasin groundwater quality minimum thresholds will not likely prevent the Atascadero Subbasin from achieving sustainability.

8.6.2.6 Effect on Beneficial Uses and Users

Agricultural land uses and users. The degraded groundwater quality minimum thresholds generally benefit the agricultural water users in the Subbasin. For example, limiting the number of additional agricultural supply wells that could exceed constituent of concern concentrations that could reduce crop production ensures that a supply of usable groundwater will exist for beneficial agricultural use.

Urban land uses and users. The degraded groundwater quality minimum thresholds generally benefit the urban water users in the Subbasin. Limiting the number of additional wells where constituents of concern could exceed primary or secondary MCLs ensures an adequate supply of groundwater for municipal use.

Domestic land uses and users. The degraded groundwater quality minimum thresholds generally benefit the domestic water users in the Subbasin.

Ecological land uses and users. Although the groundwater quality minimum thresholds do not directly benefit ecological uses, it can be inferred that the degraded groundwater quality minimum thresholds generally benefit the ecological water uses in the Subbasin. Preventing constituents of concern from migrating will prevent unwanted contaminants from impacting ecological groundwater supply.

8.6.2.7 Relation to State, Federal, or Local Standards

The degraded groundwater quality minimum thresholds specifically incorporate federal and state drinking water standards.

8.6.2.8 Method for Quantitative Measurement of Minimum Thresholds

Degraded groundwater quality minimum thresholds will be directly measured from existing or new municipal or agricultural supply wells. Groundwater quality will initially be measured using existing monitoring programs.

- Exceedances of primary or secondary MCLs will be monitored by reviewing annual water quality reports submitted to the California Division of Drinking water by municipalities and small water systems.

- Exceedances of crop production minimum thresholds will be monitored as part of the ILRP as presented in Chapter 7.

8.6.3 Measurable Objectives

The measurable objectives for degraded groundwater quality represent target groundwater quality distributions in the Subbasin. Because improving groundwater quality is not a goal under SGMA, the measurable objectives were set to identical to the minimum thresholds.

8.6.3.1 Paso Robles Formation Aquifer

Based on the existing monitoring network, the measurable objectives for degraded groundwater quality in the Paso Robles Formation Aquifer are shown in Table 8-7.

Table 8-7. Measurable Objectives for Degraded Groundwater Quality in Paso Robles Formation Aquifer Supply Wells Under the Current Monitoring Network

Agricultural Wells			
	28	4	14%
	28	10	36%
Municipal Wells			
	34	12	35%
	34	2	6%
	34	2	6%
	34	2	6%
	32	0	0%

8.6.3.2 Alluvial Aquifer

Based on the existing monitoring network, the measurable objectives for degraded groundwater quality in the Paso Robles Formation Aquifer are shown in Table 8-8.

Table 8-8. Measurable Objectives for Degraded Groundwater Quality in Alluvial Aquifer Supply Wells Under the Current Monitoring Network

	8	5	63%
	8	3	38%
	8	3	38%
	9	0	0%
	7	0	0%

8.6.3.3 Method for Setting Measurable Objectives

Because improving groundwater quality is not a goal under SGMA, the measurable objectives were set to identical to the minimum thresholds.

8.6.3.4 Interim Milestones

Interim milestones show how the GSAs anticipate moving from current conditions to meeting the measurable objectives. Interim milestones are set for each five-year interval following GSP adoption.

The measurable objectives for degraded groundwater quality were set at current conditions at five years after GSP adoption and the measurable objectives for 10 and 15 years after GSP adoption. The interim milestones for the constituents in the Paso Robles Formation Aquifer are shown in Table 8-9.

Table 8-9. Interim Milestone Groundwater Quality Exceedances in Paso Robles Formation Aquifer Supply Wells Under the Current Monitoring Network

Agricultural Supply Wells			
	3	4	4
	9	10	10
Public supply wells			
	11	12	12
	1	2	2
	1	2	2
	1	2	2
	0	0	0

The interim milestones for the constituents in the Alluvial Aquifer are shown in Table 8-10.

Table 8-10. Interim Milestone Groundwater Quality Exceedances in Alluvial Aquifer Supply Wells Under the Current Monitoring Network

Public supply wells			
	4	5	5
	2	3	3
	2	3	3
	0	0	0
	0	0	0

8.6.4 Undesirable Results

8.6.4.1 Criteria for Defining Undesirable Results

By SGMA regulations, the degraded groundwater quality undesirable result is a quantitative combination of groundwater quality minimum threshold exceedances. For the Subbasin, groundwater quality degradation is unacceptable only as a direct result of actions taken as part of GSP implementation. Therefore, the degraded groundwater quality undesirable result is:

On average during any one year, no groundwater quality minimum threshold shall be exceeded in any aquifer as a direct result of projects or management actions taken as part of GSP implementation.

8.6.4.2 Potential Causes of Undesirable Results

Conditions that may lead to an undesirable result include the following:

- **Required Changes to Subbasin Pumping**. If the location and rates of groundwater pumping change as a result of projects implemented under the GSP, these changes could cause movement of one of the constituents of concern towards a supply well at concentrations that exceed relevant water quality standards.
- **Groundwater Recharge.** Active recharge of imported water or captured runoff could cause movement of one of the constituents of concern towards a supply well in concentrations that exceed relevant water quality standards.
- **Recharge of Poor-Quality Water.** Recharging the Subbasin with water that exceeds a primary or secondary MCL or concentration that reduces crop production will lead to an undesirable result.

8.6.4.3 Effects on Beneficial Users and Land Use

The practical effect of the degraded groundwater quality undesirable result is that it deters any significant changes to groundwater quality. Therefore, the undesirable result will not impact the use of groundwater and will not have a negative effect on the beneficial users and uses of groundwater.

8.7 Land Subsidence Sustainable Management Criteria

8.7.1 Locally Defined Significant and Unreasonable Conditions

Locally defined significant and unreasonable conditions for land subsidence were assessed based on public meetings and discussions with GSA staff. Significant and unreasonable rates of land subsidence in the Subbasin are those that lead to a permanent subsidence of land surface elevations that impact infrastructure. For clarity, this Sustainable Management Criterion adopts two related concepts:

- **Land Subsidence** is a gradual settling of the land surface caused by compaction of subsurface materials due to lowering of groundwater elevations from groundwater pumping. Land subsidence in an inelastic process, and the decline in land surface is permanent.
- **Land Surface Fluctuation** is the periodic or annual measurement of the ground surface elevation. Land surface may rise or fall in any one year. Declining land surface fluctuation may or may not indicate long-term permanent subsidence.

Currently, InSAR data provided by DWR shows that meaningful land subsidence did not occur during the period between June 2015 and June 2018 in the Paso Robles Subbasin.

8.7.2 Minimum Thresholds

Section 354.28(c)(5) of the SGMA regulations states that "*The minimum threshold for land subsidence shall be the rate and extent of subsidence that substantially interferes with surface land uses and may lead to undesirable results.*" Because it is difficult to assess a-priori where subsidence may interfere with surface land uses and where it may not, a single minimum threshold is set for the entire Subbasin.

Based on an analysis of potential errors in the InSAR data, as discussed in the following section, the subsidence minimum threshold is:

The InSAR measured subsidence between June of one year and June of the subsequent year shall be no more than 0.1 foot, resulting in zero long-term subsidence.

8.7.2.1 Information Used and Methodology for Establishing Subsidence Minimum Thresholds

Minimum thresholds were established using InSAR data available from DWR. The general minimum threshold is the absence of long-term land subsidence in the Subbasin. The InSAR data provided by DWR, however, are subject to measurement error. DWR has stated that, on a statewide level, for the total vertical displacement measurements between June 2015 and June 2018, the errors are as follows (Benjamin Brezing, personal communication,):

1. The error between InSAR data and continuous GPS data is 16 mm (0.052 feet) with a 95% confidence level

2. The measurement accuracy when converting from the raw InSAR data to the maps provided by DWR is 0.048 feet with 95% confidence level.

By simply adding errors 1 and 2, we arrive at a combined error of 0.1 foot. While this is not a robust statistical analysis, it does provide an estimate of the potential error in the InSAR maps provided by DWR. A land surface change of less than 0.1 feet is therefore within the noise of the data, and is equivalent to no subsidence in this GSP.

Additionally, the InSAR data provided by DWR reflects both elastic and inelastic subsidence. While it is difficult to compensate for elastic subsidence, visual inspection of monthly changes in ground elevations suggest that elastic subsidence is largely seasonal. Figure 8-1 shows the ground level changes at a randomly selected point in the area where InSAR data are available. This figure demonstrates the general seasonality of the elastic subsidence. To minimize the influence of elastic subsidence on our assessment of long-term, permanent subsidence, changes in ground level will only be measured annually from June of one year to June of the following year.

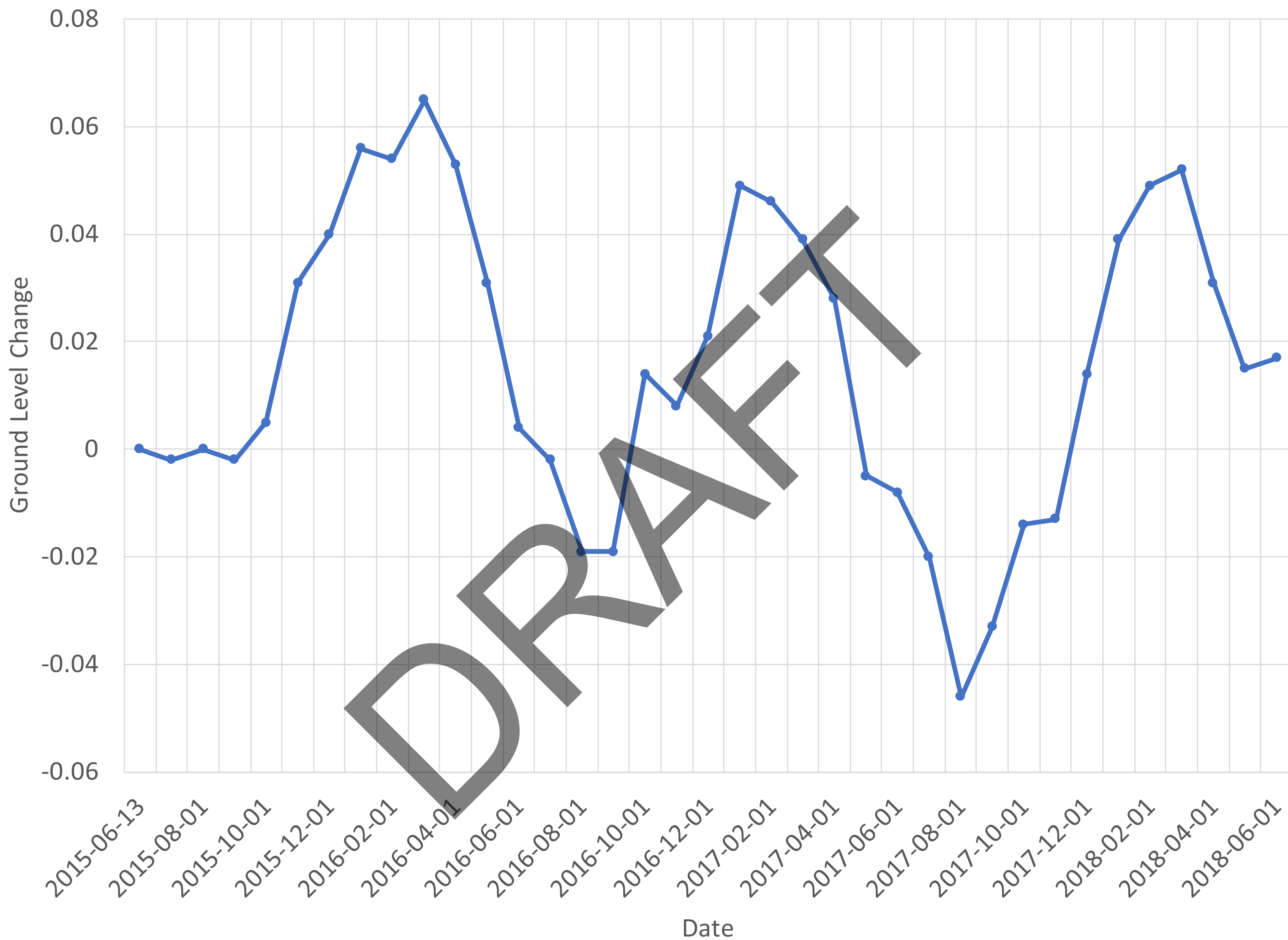

Figure 8-1: Example Seasonal Ground Surface Change

8.7.2.2 Relationship between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators

Subsidence minimum thresholds have little or no impact on other minimum thresholds, as described below.

- **Chronic lowering of groundwater elevations.** Subsidence minimum thresholds will not result in significant or unreasonable groundwater elevations.
- **Change in groundwater storage**. The subsidence minimum thresholds will not change the amount of pumping, and will not result in a significant or unreasonable change in groundwater storage.
- **Seawater intrusion**. This sustainability indicator is not applicable in the Paso Robles Subbasin.
- **Degraded water quality**. The subsidence minimum thresholds will not change the groundwater flow directions or rates, and therefore and will not result in a significant or unreasonable change in groundwater quality.
- **Depletion of interconnected surface waters.** The ground level subsidence minimum thresholds will not change the amount or location of pumping and will not result in a significant or unreasonable depletion of interconnected surface waters.

8.7.2.3 Effect of Minimum Thresholds on Neighboring Basins

The anticipated effect of the subsidence minimum thresholds on each of the two neighboring subbasins is addressed below.

- **Upper Valley Subbasin of the Salinas Valley Basin**. The ground surface subsidence minimum thresholds are set to prevent any long-term subsidence that could harm infrastructure. Therefore, the subsidence minimum thresholds will not prevent the Upper Valley Subbasin from achieving sustainability.
- **Atascadero Subbasin**. The subsidence minimum thresholds are set to prevent any long-term subsidence that could harm infrastructure. Therefore, the subsidence minimum thresholds will not prevent the Atascadero Subbasin from achieving sustainability.

8.7.2.4 Effects on Beneficial Uses and Users

The subsidence minimum thresholds are set to prevent subsidence that could harm infrastructure. Available data indicate that there is currently no subsidence occurring in the Subbasin that affects infrastructure, and reductions in pumping are already required by the reduction in groundwater storage sustainability indicator. Therefore, the subsidence minimum thresholds do not require any additional reductions in pumping and there is no negative impact on any beneficial user.

8.7.2.5 Relation to State, Federal, or Local Standards

There are no federal, state, or local regulations related to subsidence.

8.7.2.6 Method for Quantitative Measurement of Minimum Threshold

Minimum thresholds will be assessed using DWR supplied InSAR data.

8.7.3 Measurable Objectives

The measurable objectives for subsidence represent target subsidence rates in the Subbasin. Because the minimum thresholds of less than 0.1 foot net long-term subsidence are the best achievable outcome, the measurable objectives are identical to the minimum thresholds.

8.7.3.1 Method for Setting Measurable Objectives

The measurable objectives are set based on DWR-supplied InSAR data.

8.7.3.2 Interim Milestones

Interim milestones show how the GSAs anticipate moving from current conditions to meeting the measurable objectives. Interim milestones are set for each five-year interval following GSP adoption.

Subsidence measurable objectives are set at current conditions of no long-term subsidence. Therefore, there is no change between current conditions and sustainable conditions. Therefore, the interim milestones are identical to the minimum thresholds and measurable objectives.

8.7.4 Undesirable Results

8.7.4.1 Criteria for Defining Undesirable Results

By regulation, the ground surface subsidence undesirable result is a quantitative combination of subsidence minimum threshold exceedances. For the Subbasin, no long-term subsidence that impacts infrastructure is acceptable. Therefore, the ground surface subsided undesirable result is:

In any one year, there will be zero exceedances of the minimum thresholds for subsidence.

Should potential subsidence be observed, the GSAs will first assess whether the subsidence may be due to elastic subsidence. If the subsidence is not elastic, the GSAs will undertake a program to correlate the observed subsidence with measured groundwater levels.

8.7.4.2 Potential Causes of Undesirable Results

Conditions that may lead to an undesirable result include a shift in pumping locations, which could lead to a substantial decline in groundwater levels. Shifting a significant amount of pumping and causing groundwater levels to fall in an area that is susceptible to subsidence could trigger subsidence in excess of the minimum thresholds.

8.7.4.3 Effects on Beneficial Users and Land Use

The undesirable result for subsidence does not allow any subsidence to occur in the Subbasin. If groundwater levels drop below historic lows and subsequent subsidence is measured, then localized subsidence could impact beneficial users by impacting infrastructure.

8.8 Depletion of Interconnected Surface Water SMC

8.8.1 Locally Defined Significant and Unreasonable Conditions

As described in Chapter 4, Hydrogeologic Conceptual Model and Chapter 5, Groundwater Conditions, there are insufficient data to determine whether surface water and groundwater are interconnected in the Subbasin. As described in Chapter 7, Monitoring Networks, a more expansive monitoring network will be developed during GSP implementation to improve understanding of interconnection between surface water and groundwater in the Subbasin. If in the future, data indicate that surface water and groundwater are interconnected, locally defined significant and unreasonable conditions will be assessed for those interconnected areas.

8.8.2 Minimum Thresholds

Section 354.28(c)(6) of the SGMA regulations states that "*The minimum threshold for depletions of interconnected surface water shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results*."

Data are insufficient to determine the existence of interconnected surface water and groundwater. Therefore, minimum thresholds were not developed for the GSP. If in the future, data from a more comprehensive monitoring program indicate that surface water and groundwater are interconnected, minimum thresholds will be developed for areas of interconnection. Since minimum thresholds were not developed for the GSP, information about the methods used to develop minimum thresholds, the quantitative metrics to track compliance with minimum thresholds, and their impact on other sustainability indicators, other Subbasins, and beneficial use and users of groundwater is not presented in this section like it was for the other sustainability indicators.

8.8.3 Measurable Objectives

Similar to minimum thresholds, measurable objectives were not developed for the GSP. If in the future, data from a more comprehensive monitoring program indicate that surface water and groundwater are interconnected, measurable objectives will be developed for areas of interconnection. Since measurable objectives were not developed for the GSP, information about the methods used to develop measurable objectives and interim milestones is not presented in this section like it was for the other sustainability indicators.

8.8.4 Undesirable Results

Because there are insufficient data to determine if there is an interconnection between surface water and groundwater in the Subbasin at this time, undesirable results, including impacts to beneficial uses and users of groundwater, related to interconnected surface water and groundwater are not expected to occur. If in the future, data from a more comprehensive monitoring program indicate that surface water and groundwater are interconnected, undesirable results related to interconnected surface water and groundwater will be assessed.

8.9 Management Areas

Management areas have not been established in the Subbasin. For planning purposes, the concepts for future management areas are provided below.

8.9.1 Future Management Area Concept

Management areas may be developed in the future based on the existence of a geologic and geographic divide in the Subbasin. The Subbasin is dominated by two main watersheds and many smaller watersheds that drain into and recharge the Subbasin. The western portion of the Subbasin is fed by the Salinas watershed, including the Huer Huero watershed. The eastern portion of the Subbasin is fed by the Estrella River watershed, including Cholame Creek and San Juan Creek watersheds. These two watersheds have different geologic and climatic conditions. Both watersheds drain to the confluence of the Estrella and Salinas Rivers near San Miguel in the northern end of the Subbasin. A distinct geologic ridge divides the Huer Huero portion of the Salinas River watershed from the Shed Canyon portion of the Estrella River watershed. This uplifted ridge bisects the Subbasin and the Estrella River cuts through this ridge near Whitley Gardens. The Subbasin may be divided into western and eastern management areas along the uplifted ridge in the future.

The nature of this divide and the underlying geology within the Subbasin needs to be better understood before the GSAs can delineate and justify any management area. The GSAs will initiate and support electromagnetic resonance surveys to help delineate local geology. Reports from well owners throughout the Subbasin suggest that some areas of the Subbasin are distinctly isolated from neighboring areas. Analysis of static groundwater levels from as many wells as possible will help to define areas where groundwater conditions appear to be hydrologically connected and areas where these conditions seem to be hydrologically isolated. This will help form the basis of defining the management area. This effort will also assist in defining where future monitoring wells should be located. The GSAs in the proposed management areas may undertake distinct management approaches which would be appropriately designed to protect the local groundwater resource without adversely impacting other areas of the Subbasin or neighboring Subbasins.

Each area of the Subbasin will be managed in conjunction with all other areas using the same set of undesirable results and minimum thresholds, tied to specific RMSs as described in this chapter. The Subbasin wide monitoring networks will be used to assure compliance with the GSP. Using management areas to assure long-term sustainability protects all beneficial uses and users in all parts of the Subbasin.

8.9.2 Minimum Thresholds and Measurable Objectives

The minimum thresholds that will be established in potential management areas will use the same process and criteria described above in this chapter. The minimum thresholds and measurable objectives will be developed to ensure groundwater levels remain above historical water levels in each management area, and to maintain historical groundwater flow conditions to downstream portions of the Subbasin and other downstream basins. By managing groundwater sustainably in each management area, the groundwater resource remains available for beneficial uses and users. Groundwater quality will not be degraded due to poor quality water moving into productive aquifers.

8.9.3 Monitoring

Because of the large size and distinctly separate drainages of the watersheds draining into each of management area, there is a need for a robust network of monitoring wells that provide data representative of specific portions of each management area. Initially, existing wells with known depths and known perforated intervals will be selected and used. Where needed, dedicated new monitoring wells may be added to improve the monitoring network.

8.9.4 How Management Areas Will Avoid Undesirable Results

The undesirable results described in the sections above are applicable in each management area. As long as minimum thresholds and measurable objectives continue to be met within each management area, beneficial uses and users of the groundwater resource will be assured of continued access to a sustainable groundwater resource. The projects and management actions in each management area will be proportional to the need to maintain those minimum thresholds and measurable objectives.

8.9.5 Management

The establishment and implementation of Management Areas would follow the agreement among the four GSAs (see GSP Chapter 12).

9 MANAGEMENT ACTIONS AND PROJECTS

9.1 Introduction

This chapter describes the management actions that will be developed and implemented in the Subbasin to attain sustainability in accordance with §354.42 and §354.44 of the SGMA regulations. Management actions described herein are non-structural programs or policies that are intended to reduce or optimize local groundwater use. Consistent with SGMA regulations §354.44, this chapter also describes projects in process and conceptual projects involving new or improved infrastructure to make new water supplies available to the Subbasin that may be implemented by willing project participants to offset pumping and lessen the degree to which the management actions would be needed. The concept projects referenced are based on previous publicly vetted feasibility studies[1]. The need for management actions (and projects if implemented) is based on the following Subbasin conditions that were described in previous chapters.

- Groundwater levels are declining in many parts of the Subbasin, indicating that the amount of groundwater pumping is more than the natural recharge (Chapter 5)
- Water budgets (Chapter 6) indicate that amount of groundwater in storage will continue to decline in the future at an estimated rate of nearly 14,000 acre-feet per year (AFY), which assumes no net increase in pumping demand on the basin. If there is a net increase in demand due to e.g. the development of currently undeveloped properties in a way that requires the use of additional groundwater, the deficit would be greater.

To stop persistent declines in groundwater levels, achieve the sustainability goal before 2040, and avoid undesirable results as required by SMGA regulations, groundwater pumping limitations will be needed. A reduction in groundwater pumping will occur as a result of management actions, except where a new water supply becomes available and is used in lieu of pumping groundwater.

SGMA regulations §354.44 require that each management action and conceptual project described in the GSP include a discussion about:

- Relevant measurable objectives it would address
- The expected benefits of the action
- The circumstances under which management actions or projects will be implemented
- How the public will be noticed

[1] Paso Robles Groundwater Basin Supplemental Supply Options Feasibility Study, January 2017

- Relevant regulatory and permitting considerations
- Implementation schedules
- Legal authority required to take the actions
- Estimated costs

The groundwater management actions are intended to stabilize groundwater elevations, meet the estimated groundwater storage deficit described in Chapter 6, and address all other sustainability indicators described in Chapter 8. Management actions to directly reduce groundwater pumping will be implemented where necessary. If groundwater levels are stabilized and/or sustained, many of the associated undesirable results described in Chapter 8 will be avoided.

The management actions (and projects if implemented) identified in this GSP will achieve groundwater sustainability by avoiding Subbasin-specific undesirable results.

***De Minimis* Groundwater Users**

While the number of *de minimis* groundwater users in the basin is significant, they are not currently regulated under this GSP. Growth of *de minimis* groundwater extractors could warrant regulated use in this GSP in the future. Growth will be monitored and reevaluated periodically.

9.2 Implementation Approach and Criteria for Management Actions

Using authorities outlined in Sections 10725 to 10726.9 of the California Water Code, the GSAs would ensure the maximum degree of local control and flexibility consistent with this GSP to commence management actions. Because the amount of groundwater pumping in the Subbasin is more than the estimated sustainable yield of about 61,000 AFY (see Chapter 6) and groundwater levels are persistently declining in certain areas, the GSAs will begin to implement management actions as early as possible after GSP adoption. The effect of the management actions will be reviewed annually, and additional management actions will be implemented as necessary to avoid undesirable results. Management actions fall into two categories, basin-wide and area specific, as described in more detail in the subsequent sections. Appendix L describes other programs that individual GSAs, pumpers and/or other entities may choose to fund and implement if they have the authority to do so.

In general, basin-wide management actions will apply to all Subbasin areas and reflect basic GSP implementation requirements such as monitoring, reporting and outreach, including necessary studies and early planning work, monitoring and filling data gaps with additional monitoring sites, annual reports and GSP updates, and promoting voluntary limitations in groundwater pumping aimed at both keeping groundwater levels stable and avoiding undesirable results.

Area specific management actions will also be implemented in areas experiencing persistent declines after the development of an appropriate regulation. Because developing and adopting the regulation will require substantial negotiations between the GSAs, public hearings, environmental review (CEQA) and legal risks that need to be addressed, efforts to define and gain approvals for the scope and detail associated with a regulation for area specific management actions will begin soon after GSP adoption. There is a strong need for adequate information to justify area specific management actions and considering that information will be a critical part of initial GSP implementation. Regulations adopted by GSAs related to identifying the specific areas for pumping limitations would need to be substantially identical to assure a consistent methodology for identifying those areas across the Subbasin. Individual pumpers in those areas will then need to choose how to comply with the necessary pumping limitations in those areas.

Figure 9-1 shows a flowchart of the conceptual GSP implementation approach. Public meetings and hearings will be held during the process of determining when and where in the Subbasin management actions are needed. A proportional and equitable approach to funding implementation of the GSP and any optional actions will be developed in accordance with all State laws and applicable public process requirements. During these meetings and hearings, input from the public, interested stakeholders, and groundwater pumpers will be considered and incorporated into the decision-making process.

At a time in the future when the effects of management actions have stabilized groundwater levels, the GSAs will reassess the need for continuing these actions. At a minimum, the reassessment process would be done as part of the 5-year review and report to the regulatory agencies.

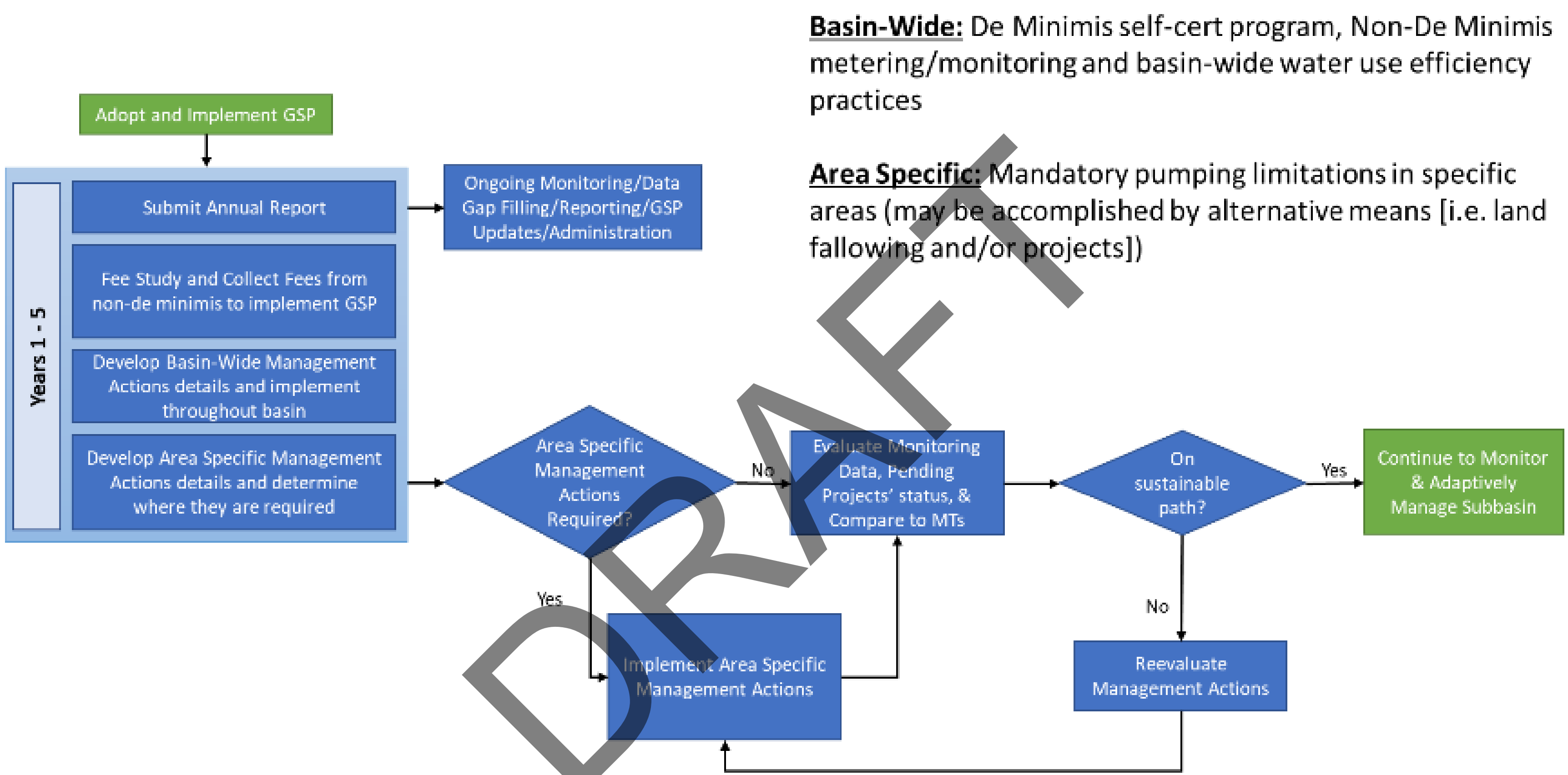

Figure 9-1: Conceptual Implementation Approach for Management Actions and Projects

9.3 Basin-Wide Management Actions

The following subsections outline the various basin-wide management actions. Basin-wide management actions will be implemented using input from stakeholders and in a data-driven process.

Basin-wide management actions include:

- Monitoring, reporting and outreach
- Promoting best water use practices
- Promoting stormwater capture
- Promoting voluntary fallowing of irrigated crop land

Sections required by SGMA regulations §354.44 follow the description of each management action below.

9.3.1 Monitoring, Reporting and Outreach

Monitoring, reporting and outreach reflects the core functions that the GSAs need to provide to comply with SGMA regulations. The GSAs will direct the monitoring programs outlined in Chapter 7 to track Subbasin conditions related to the five applicable sustainability indicators. Data from the monitoring programs will be routinely evaluated to ensure progress is being made toward sustainability or to identify whether undesirable results are occurring. Data will be maintained in the Data Management System (DMS). Data from the monitoring program will be used by the GSAs to guide decisions on management actions and to prepare annual reports to Subbasin stakeholders and DWR and by individual entities to guide decisions on projects. SGMA regulations require that the reports comply with DWR forms and submittal requirements that will be published by DWR, and that all transmittals are signed by an authorized party. Data will be organized and available to the public to document Subbasin conditions relative to Sustainability Management Criteria (Chapter 8).

9.3.1.1 De Minimis Self Certification

A system for De Minimis basin extractors to self-certify that they extract, for domestic purposes, two acre-feet or less per year will be developed in order to differentiate extractors for the purposes of implementing the GSP.

9.3.1.2 Non-De Minimis Metering and Reporting Program

This GSP calls for a program that will require all non-*de minimis* extractors to report extractions annually and use a water-measuring method satisfactory to the GSAs in accordance with Water Code Section 10725.8. It is anticipated that the GSAs will develop and adopt a regulation to implement this program, which is expected to include a system for reporting and accounting for land fallowing, stormwater capture projects, or other activities that individual pumpers implement. The information collected will be used to account for pumping that would have otherwise occurred, for analyzing projected Subbasin conditions and completing annual reports and five-year GSP assessment reports.

9.3.1.3 Annual Reports (SGMA Regulation §356.2)

Annual reports will be submitted to DWR starting on April 1, 2020. The purpose of the report is to provide monitoring and total groundwater use data to DWR, compare monitoring data to the sustainable management criteria, to report on management actions and projects implemented to achieve sustainability, and to promote best water use practices, stormwater capture and voluntary irrigated land fallowing. Annual reports will be available to Subbasin stakeholders.

9.3.1.4 5-Year GSP Updates and Amendments (SGMA Regulation §356.2)

In accordance with SGMA regulatory requirements (§356.4), five-year GSP assessment reports will be provided to DWR starting in 2025. The GSAs shall evaluate the GSP at least every five years to assess whether it is achieving the sustainability goal in the Subbasin. The assessment will include a description of significant new information that has been made available since GSP adoption or amendment and whether the new information or understanding warrants changes to any aspect of the plan.

Although not required by SGMA regulations, the GSAs anticipate that an amendment to the GSP will be prepared within the first five years to integrate new information. Updates may include incorporating additional monitoring data, updating the sustainable management criteria, documenting any projects that are being implemented and facilitating adaptive management of management actions.

9.3.1.5 Data Gaps

SGMA regulations require identification of data gaps and a plan for filling them (§ 354.38). Monitoring data will be collected and reported for each of the five sustainability indicators that are relevant to the Subbasin: chronic lowering of groundwater levels, reduction in groundwater storage, degraded water quality, land subsidence, and depletion of interconnected surface water. As noted in Chapter 7, the approach for establishing the monitoring networks was to leverage existing monitoring programs and, where data gaps existed, incorporate additional monitoring locations that have been made available by cooperating entities or that have been established by the GSAs. Appendix L identifies the plan for addressing data gaps in each monitoring network and the computer model of the Subbasin.

9.3.1.6 Relevant Measurable Objectives

Monitoring, Reporting, and Outreach would benefit all measurable objectives by keeping basin users informed about Subbasin conditions and the need to avoid undesirable results.

9.3.1.7 Expected Benefits and Evaluation of Benefits

The primary benefit from Monitoring, Reporting and Outreach is public education and associated changes in behavior that would improve the chances of achieving sustainability. Because it is unknown how much behavior will change as a result of Monitoring, Reporting and Outreach, it is difficult to quantify the expected benefits at this time.

Reductions in groundwater pumping will be measured directly through the metering and reporting program and recorded in the Data Management System (DMS). Changes in groundwater elevation will be measured with the groundwater level monitoring program. Subsidence will be measured with the InSAR network. Changes in groundwater storage will be estimated using the groundwater level proxy. Information about the monitoring programs is provided in Chapter 7. Isolating the effect of Monitoring, Reporting and Outreach on groundwater levels will be challenging because they are only one of several management actions that may be implemented concurrently in the Subbasin.

9.3.1.8 Circumstances for Implementation

Monitoring, Reporting and Outreach will begin upon adoption of the GSP. No other triggers are necessary or required.

9.3.1.9 Public Noticing

Public meetings will be held to inform the groundwater pumpers and other stakeholders about Subbasin conditions and the need for behavior changes. Groundwater pumpers and interested stakeholders will have the opportunity at these meetings to provide input and comments on how the Monitoring, Reporting and Outreach are being implemented in the Subbasin. Information on Monitoring, Reporting and Outreach will also be provided through annual GSP reports and links to relevant information on GSA websites.

9.3.1.10 Permitting and Regulatory Process

It is anticipated that the GSAs will adopt a regulation governing the metering and reporting program.

9.3.1.11 Implementation Schedule

Monitoring, Reporting and Outreach efforts will begin upon GSP adoption.

9.3.1.12 Legal Authority

The legal authority to conduct Monitoring, Reporting and Outreach is included in SGMA. For example, Water Code § 10725.8 authorizes GSAs to require through their GSPs that the use of every groundwater extraction facility (except those operated by *de minimis* extractors) be measured.

9.3.1.13 Estimated Cost

The total estimated cost for Monitoring, Reporting, and Outreach is $1,150,000.

9.3.2 Promoting Best Water Use Practices

This GSP calls for the GSAs to encourage pumpers to implement the most effective water use efficiency methods applicable, often referred to as Best Management Practices (BMPs). Effective BMPs could result in:

- Efficient irrigation practices.
- A better accounting of annual precipitation and its contribution to soil moisture in all irrigation decisions and delay commencing irrigation until soil moisture levels require replenishment.
- Optimization of irrigation needs for frost control if sprinklers are used.
- More optimal irrigation practices by monitoring crop water use with soil and plant monitoring devices and tie monitoring data to evapotranspiration (ET) estimates.
- Conversion from high water demand crops to lower water demand crops.

Many growers already use BMPs, but improvements can be made. A goal of promoting BMPs is to broaden their use to more growers in the Subbasin. *De minimis* groundwater users will be encouraged to use BMPs as well. Promoting BMPs will include broad outreach to groundwater pumpers in the Subbasin to emphasize the importance of utilizing BMPs and understanding their positive benefits for mitigating declining groundwater levels and forestalling mandated limitations in groundwater extraction on their property.

9.3.2.1 Relevant Measurable Objectives

BMPs would benefit the groundwater elevation, groundwater storage, and land subsidence measurable objectives.

9.3.2.2 Expected Benefits and Evaluation of Benefits

The primary benefit from initiating BMPs is reduced Subbasin pumping. A connected secondary benefit is mitigating the decline, or raising, groundwater elevations. An ancillary benefit from stable or rising groundwater levels may include avoiding pumping induced subsidence. Because it is unknown how much pumping will be reduced from promoting BMPs, it is difficult to quantify the expected benefits at this time.

Reductions in groundwater pumping will be measured directly through the metering and reporting program and recorded in the Data Management System (DMS). Changes in groundwater elevation will be measured with the groundwater level monitoring program. Subsidence will be measured with the InSAR network. Changes in groundwater storage will be estimated using the groundwater level proxy. Information about the monitoring programs is provided in Chapter 7. Isolating the effect of BMPs on groundwater levels will be challenging because they are only one of several management actions that may be implemented concurrently in the Subbasin.

9.3.2.3 Circumstances for Implementation

BMPs and related outreach will be promoted soon after adoption of the GSP. No other triggers are necessary or required.

9.3.2.4 Public Noticing

Public meetings will be held to inform the groundwater pumpers and other stakeholders about Subbasin conditions and the need for BMPs. Groundwater pumpers and interested stakeholders will have the opportunity at these meetings to provide input and comments on how the BMPs are being implemented in the Subbasin. The BMPs will also be promoted through annual GSP reports and links to relevant information on GSA websites.

9.3.2.5 Permitting and Regulatory Process

No permitting or regulatory process is needed for promoting BMPs.

9.3.2.6 Implementation Schedule

The GSAs envision that BMPs will be promoted within a year of GSP adoption.

9.3.2.7 Legal Authority

No legal authority is needed to promote BMPs.

9.3.2.8 Estimated Cost

The estimated cost for promoting BMPs and understanding the extent to which they are being implemented in the Subbasin is included in the cost of the metering and reporting program and developing annual reports.

9.3.3 Promote Stormwater Capture

Stormwater and dry weather runoff capture projects, including Low Impact Development (LID) standards for new or retrofitted construction, will be promoted as priority projects to be implemented as described in the San Luis Obispo County Stormwater Resource Plan (SWRP). The SWRP outlines an implementation strategy to ensure valuable, high-priority projects with multiple benefits. While the benefits are not easily quantified, the State is very supportive of such efforts. Stormwater capture projects in several areas of the Basin, including reaches of the Huer Huero, San Juan and Estrella drainages are likely to be pursued.

This management action covers two types of stormwater capture activities. The first stormwater capture activity involves retaining and recharging onsite runoff. Examples of this type of activity include LID and on-farm recharge of local runoff. The second stormwater capture activity involves recharge of unallocated storm flows. These actions require temporary diversions of storm flows from streams, and transport of those flows to recharge locations.

9.3.3.1 Relevant Measurable Objectives

Stormwater capture would benefit the groundwater elevation, groundwater storage, and land subsidence measurable objectives.

9.3.3.2 Expected Benefits and Evaluation of Benefits

The primary benefit from promoting stormwater capture is to mitigate the decline of, or possibly raise, groundwater elevations through additional recharge. An ancillary benefit from stable or rising groundwater elevations may include avoiding pumping induced subsidence. Because the amount of recharge that could be accomplished from the program is unknown at this time, it is difficult to quantify the expected benefits.

Changes in groundwater elevation will be measured with the groundwater level monitoring program. Subsidence will be measured with the InSAR network. Changes in groundwater storage will be estimated using the groundwater level proxy. Information about the monitoring programs is provided in Chapter 7. Isolating the effect of the stormwater capture on groundwater levels will be challenging because it will be only one of several management actions that may be implemented concurrently in the Subbasin.

9.3.3.3 Circumstances for Implementation

Stormwater capture will be promoted as soon as possible after adoption of the GSP.

9.3.3.4 Public Noticing

Public meetings will be held to inform the groundwater pumpers and other stakeholders about Subbasin conditions and the need for stormwater capture. Groundwater pumpers and interested stakeholders will have the opportunity at these meetings to provide input and comments on how stormwater capture projects are being implemented in the Subbasin. Stormwater capture will also be promoted through annual GSP reports and links to relevant information on GSA websites.

9.3.3.5 Permitting and Regulatory Process

Recharge of stormwater by retaining and recharging onsite runoff does not require permits. Recharge of unallocated storm flows is currently subject to the SWRCB's existing temporary permit for groundwater recharge program. The SWRCB is currently developing five-year permits for capturing high flow events. Recharge of unallocated storm flows will be subject to the terms of these five-year permits if and when they are enacted. Stormwater capture may also be subject to CEQA permitting. A regulation will need to be adopted by the GSAs to account for projects that recharge unallocated storm flows as a part of the metering and reporting program. Regulations are subject to CEQA.

9.3.3.6 Implementation Schedule

The GSAs envision that stormwater capture will be promoted within two years of GSP adoption.

9.3.3.7 Legal Authority

Other than acquiring required permits and the right to divert stormwater, there are no other legal authorities required to implement stormwater capture.

9.3.3.8 Estimated Cost

The estimated cost for promoting stormwater capture and understanding the extent to which it is being implemented in the Subbasin is included in the cost of the metering and reporting program and developing annual reports.

9.3.4 Promote Voluntary Fallowing of Agricultural Land

This GSP calls for the GSAs to promote voluntary fallowing of crop land to reduce overall groundwater demand. For example, the GSAs could develop a Subbasin-wide accounting system that tracks landowners who decide to voluntarily fallow their land and cease groundwater pumping or otherwise refrain from using groundwater. If given the opportunity to create a "place holder" for their ability to pump under regulations adopted by the GSAs, some property owners currently irrigating crops or that might want to irrigate in the future may choose to forego the expense of farming and extracting water if those rights can be accounted for and protected. A regulation would need to be adopted by the GSAs for the metering and reporting program, and the program could include provisions related to land fallowing.

9.3.4.1 Relevant Measurable Objectives

The voluntary fallowing of irrigated land would benefit the groundwater elevation, groundwater storage, and land subsidence measurable objectives.

9.3.4.2 Expected Benefits and Evaluation of Benefits

The primary benefit of voluntary fallowing would be reduced Subbasin pumping. A connected secondary benefit is mitigating the decline of, or raising, groundwater elevations from the reduced pumping. An ancillary benefit from stable or rising groundwater elevations may include avoiding pumping induced subsidence. Because it is unknown how many landowners will willingly fallow their land, it is difficult to quantify the expected benefits at this time.

Reductions in groundwater pumping will be measured directly through the metering and reporting program and recorded in the DMS. Changes in groundwater elevation will be measured with the groundwater level monitoring program. Subsidence will be measured with the InSAR network. Changes in groundwater storage will be estimated using the groundwater level proxy. Information about the monitoring programs is provided in Chapter 7. Isolating the effect of voluntary fallowing on sustainability metrics will be challenging because it will be only one of several management actions that may be implemented concurrently in the Subbasin.

9.3.4.3 Circumstances for Implementation

The GSAs envision that voluntary fallowing of land will be promoted as soon as possible after GSP adoption.

9.3.4.4 Public Noticing

Public meetings will be held to inform the groundwater pumpers and other stakeholders about Subbasin conditions and the need for voluntary fallowing. Landowners, groundwater pumpers and interested stakeholders will have the opportunity at these meetings to provide input and comments on how voluntary fallowing is being implemented in the Subbasin. Voluntary fallowing will also be promoted through annual GSP reports and links to relevant information on GSA websites.

9.3.4.5 Permitting and Regulatory Process

Regulations are subject to CEQA.

9.3.4.6 Implementation Schedule

The GSAs envision that voluntary fallowing will be promoted within two years of GSP adoption.

9.3.4.7 Legal Authority

California Water Code §10726.3(c) provides GSAs the authorities to provide for a program of voluntary land fallowing.

9.3.4.8 Estimated Cost

The estimated cost for promoting and accounting for land fallowing is included in the cost of the metering and reporting program and developing annual reports.

9.4 Area Specific Management Actions

Implementation of area specific management actions may be necessary to address areas of persistent groundwater level decline (Figure 9-1). Through a regulatory program, GSAs will conduct extensive data analysis to delineate where pumping needs to be limited to stabilize levels. With this information, affected pumpers will need to decide how to achieve these limitations. This may include land fallowing/retirement or paying for projects and/or programs that can be effectively implemented proportional to the recognized volume of groundwater necessary to avoid undesirable results in each area of the basin. Sections required by SGMA regulations §354.44 follow the description of each management action below.

9.4.1 Mandatory pumping limitations in specific areas

The GSAs will establish a regulatory program to identify and enforce required pumping limitation as necessary to arrest persistent groundwater level declines in specific areas. The amount of mandatory pumping limitations is uncertain, and will depend on the effectiveness and timeliness of voluntary actions by pumpers to limit pumping as well as the extent of the specific areas identified for mandatory limitations. The water budget presented in Chapter 6 suggests that a reduction in total pumping across the Subbasin of approximately 18%[2] will be needed to reduce pumping to the sustainable yield. Larger pumping reductions will likely be necessary in specific areas to arrest groundwater level declines. The actual pumping limitations mandated by the GSAs will be determined after assessing groundwater level trend and pumping data, and identifying specific areas for pumping limitations. After GSP adoption, developing the program would likely require the following steps:

1. Establishing a methodology for determining baseline pumping in specific areas considering:
    a. Groundwater level trends in areas of decline and estimated yield in that area
    b. Land uses and corresponding irrigation requirements
2. Establishing a methodology to determine whose use must be limited and by how much considering, though not limited to, water rights and evaluation of anticipated benefits from projects bringing in supplemental water or other relevant actions individual pumpers take.
3. A timeline for limitations on pumping ("ramp down") in specific areas as required to avoid undesirable results
4. Approving a formal regulation to enact the program

Determination of baseline pumping in specific areas will need to be established and guidance developed by DWR in response to legislative directives for consistent implementation of the Water Conservation Act of 2009, as is used in Urban Water Management Plans, may be helpful. Baseline pumping would be ramped down to meet water use targets in specific areas until it is projected that levels will stabilize. Analyses will be updated periodically as new data are developed. The ramp down schedule would be developed during program development; the rate of ramp down would depend on when the program starts and projections of how long lower pumping rates are required in specific areas in order to avoid undesirable results. The specific ramp down amounts and timing would be reassessed periodically by the GSAs as needed to achieve sustainability. These adjustments would occur when additional data and analyses are available.

[2] (Pumping – Sustainable Yield)/Pumping = 18%

9.4.1.1 Relevant Measurable Objectives

Mandatory limitations to groundwater pumping in specific areas would benefit the groundwater elevation, groundwater storage, and land subsidence measurable objectives in those areas.

9.4.1.2 Expected Benefits and Evaluation of Benefits

The primary benefit from the mandatory pumping limitations is mitigating the decline through reduced overall pumping. An ancillary benefit from stable or increasing groundwater elevations may include avoiding pumping induced subsidence. The program is designed to ramp down overall pumping to the sustainable yield; therefore, the quantifiable benefit is to maintain pumping within the sustainable yield.

Limitations on groundwater pumping will be measured directly through the metering and reporting program and recorded in the DMS. Changes in groundwater elevation are an important metric for the mandatory pumping limitation program and will be measured with the groundwater level monitoring program. Subsidence will be measured with the InSAR network. Changes in groundwater storage will be estimated using the groundwater level proxy. Information about the monitoring programs is provided in Chapter 7. Isolating the effect of the mandatory pumping limitation program on sustainability metrics will be challenging because it will be only one of several management actions that may be implemented concurrently in the Subbasin. However, as the pumping ramp down is initiated, the correlation between reduced pumping and higher groundwater levels may become more apparent.

9.4.1.3 Circumstances for Implementation

Because there are areas where groundwater levels are persistently declining, the mandatory pumping limitation program will be implemented after the GSAs adopt the regulation governing the program.

9.4.1.4 Public Noticing

Public meetings will be held to inform groundwater pumpers and other stakeholders that the mandatory pumping limitation program is being developed. The mandatory pumping limitation program will be developed in an open and transparent process. Landowners, groundwater pumpers and other stakeholders will have the opportunity at these meetings to provide input and comments on the process and the program elements.

9.4.1.5 Permitting and Regulatory Process

The mandatory pumping limitation program is subject to CEQA. The mandatory pumping limitation program would be developed in accordance with all applicable groundwater laws and respect all groundwater rights.

9.4.1.6 Implementation Schedule

Developing the mandatory pumping limitation program and adopting the regulation would likely take up to five years. Once the regulation is adopted, the program will be implemented.

9.4.1.7 Legal Authority

California Water Code §10726.4 (a)(2) provides GSAs the authorities to control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate.

9.4.1.8 Estimated Cost

The cost to develop and implement the mandatory pumping limitation program is estimated to be $350,000. This does not include the cost of the CEQA permitting or any ongoing program oversight.

9.5 Projects

Projects involve new or improved infrastructure to make new water supplies available to the Subbasin. Several potential projects are described in this GSP that may be implemented by willing entities to offset pumping and lessen the degree to which the management actions would be needed. The implementation of projects depends on willing participants and/or successful funding votes.

There are six potential sources of water for projects:

1. Tertiary treated wastewater supplied and sold by City of Paso Robles and the San Miguel CSD to private groundwater extractors to use in lieu of groundwater. This water is commonly referred to as recycled water (RW).
2. State Water Project (SWP) water
3. Nacimiento Water Project (NWP) water
4. Salinas Dam/Santa Margarita Reservoir water
5. Local recycled water

6. Flood flows/stormwater from local rivers and streams

These six water sources are described in more detail in Appendix I. Of these six sources, only RW, SWP, NWP, and Salinas Dam currently have sufficiently reliable volumes of unused water to justify the expense of new infrastructure to be used on a regular basis for supplementing water supplies in the Subbasin. Since there are uncertainties associated with securing agreements to utilize SWP and related infrastructure, descriptions of concept projects associated with the use of this water supply are included in Appendix L. Capturing flood flows/stormwater from streams in permitted projects will be pursued, but because they provide an unknown volume of new supplies on an intermittent basis, the use of Salinas Dam to capture flood flows/stormwater is the only concept project included. In summary, the initial focus of new supply is on developing RW, NWP, and Salinas Dam projects in the Subbasin.

9.5.1 General Project Provisions

Many of the priority projects listed below are subject to similar requirements. These general provisions that are applicable to all projects include certain permitting and regulatory requirements, public notice requirements, and the legal authority to initiate and complete the projects. This section assumes the development of projects are led by one or more GSAs in order to complete the sections below that are required by SGMA regulations §354.44.

9.5.1.1 Summary of Permitting and Regulatory Processes

Projects of this magnitude will require an environmental review process via CEQA. Projects will require either an Environmental Impact Report, and Negative Declaration, or a Mitigated Negative Declaration.

There will be a number of local, county and state permits, right of ways, and easements required depending on pipeline alignments, stream crossings, and project type.

Projects must adhere to the Salt/Nutrient Management Plan for the Paso Robles Groundwater Basin (RMC 2015).

9.5.1.2 Public Noticing

All projects are subject to the public noticing requirements per CEQA.

9.5.1.3 Legal Authority Required for Projects and Basis for That Authority within the Agency

California Water Code §10726.2 provides GSAs the authority to purchase, among other things, land, water rights, and privileges. Additionally, an assessment of the legal rights to acquire and use various water sources is included in Appendix I.

9.5.2 Conceptual Projects

Six projects are included in this GSP as conceptual projects and have been identified after extensive public meetings and studies over the last decade and are currently being developed. All six specific design scenarios for the projects will not necessarily be implemented, but they represent six reasonable scenarios that could help achieve sustainability throughout the Subbasin. Conceptual projects were developed throughout different regions in the basin to address localized declines in groundwater elevations. Projects were sized based on the locations of available supplies and pumping demands in different areas of the Paso Robles Basin. Actual projects will be highly dependent on the ability of the GSAs and/or individual entities to negotiate with water suppliers and purchase the surface waters described in Appendix I and with landowners. Four other conceptual projects that are not being developed currently are included in Appendix L for future consideration.

Table 9-1. Conceptual Projects

Project Name	Water Supply	Project Type	Approximate Location	Average Volume (AFY)
City Recycled Water Delivery	RW	Direct Delivery	Near City of Paso Robles	2,200
San Miguel Recycled Water Delivery	RW	Direct Delivery	Near San Miguel	200 [a]
NWP Delivery at Salinas and Estrella River Confluence	NWP	Direct Delivery	Near the confluence of the Salinas and Estrella Rivers	2,800
NWP Delivery North of City of Paso Robles	NWP	Direct Delivery	North of Huer Huero Creek, due west of the airport	1,000
NWP Delivery East of City of Paso Robles	NWP	Direct Delivery	East of the City of Paso Robles	2,000
Expansion of Salinas Dam	Salinas River	River Recharge	Along the Salinas River	1,000

Notes: (a) Average volume amounts may be updated in final GSA based on more recent information
(b) Approximate locations are assumed to establish the benefit calculations required by SGMA

Short descriptions of each concept project are included below, along with a map showing general project locations. Sections required by SGMA regulations §354.44 follow the description of each project. Generalized costs are also included for planning purposes. Components of these projects including facility locations, pipeline routes, recharge mechanisms, and other details may change in future analyses. Therefore, each of the projects listed below should be treated as a generalized project that represents a number of potential detailed projects.

9.5.2.1 Assumptions Used in Developing Projects

Assumptions that were used to develop projects and cost estimates are provided in Appendix J. Assumptions and issues for each project need to be carefully reviewed and revised during the pre-design phase of each project. Project designs, and therefore costs, could change considerably as more information is gathered.

The cost estimates included below are class 5, order of magnitude estimates. These estimates were made with little to no detailed engineering data. The expected accuracy range for such an estimate is within +50 percent or –30 percent. The cost estimates are based on the engineering assessment of current conditions at the project location. They reflect a professional opinion of costs at this time and are subject to change as project designs mature.

Capital costs include major infrastructure including pipelines, pump stations, customer connections, turnouts and storage tanks. Capital costs also include 30% contingency for plumbing appurtenances, 15% increase for general conditions, 15% for contractor overhead and profit, and 8% for sales tax. Engineering, legal, administrative, and project contingencies was assumed as 30% of the total construction cost and included within the capital cost. Land acquisition at $30,000/acre was also included within capital costs.

Annual operations and maintenance (O&M) fees include the costs to operate and maintain new project infrastructure. O&M costs also include any pumping costs associated with new infrastructure. O&M costs do not include O&M or pumping costs associated with existing infrastructure, such as existing NWP O&M costs because these are assumed to be part of water purchase costs. Water purchase costs were assumed to include repayment of loans for existing infrastructure; however, these purchase costs will need to be negotiated. The terms of such a negotiation could vary widely.

Capital costs were annualized over thirty years and added with annual O&M costs and water purchase costs to determine an annualized dollar per acre-foot ($/AF) cost for each project. This $/AF value might not always represent the $/AF of basin benefit ($/AF-benefit).

9.5.2.2 Preferred Project 1: City Recycled Water Delivery

This project will use up to 2,200 AFY of disinfected tertiary effluent for in-lieu recharge in the central portion of the basin near and inside the City of Paso Robles. Water that is not used for recycled water purposes will be discharged to Huer Huero Creek with the potential for additional recharge benefits. The general layout of this project and relevant monitoring wells are shown on Figure 9-2. Infrastructure includes upgraded wastewater treatment plant and pump station, 5.8 miles of pipeline, a storage tank, numerous turnouts, and a discharge to Huer Huero Creek. Additional length of pipeline will also be constructed as part of this project – a private pipeline to the north of the main line which will deliver recycled water to a larger geographical area. The private pipeline is not shown on Figure 9-2 and is not included in the cost estimate. The cost to upgrade the wastewater treatment plant is also not included in the cost estimate, since the upgrades were required per the NPDES permit regardless of use for recycled water. Since this project is already in the predesign phase, the predesign project cost estimate is provided for this GSP.

9.5.2.2.1 Relevant Measurable Objectives

The measurable objectives benefiting from this groundwater project include:

- Groundwater elevation measurable objectives in the central portion of the Subbasin
- The groundwater storage measurable objective
- Land subsidence measurable objectives in the central portion of the Subbasin

9.5.2.2.2 Expected Benefits and Evaluation of Benefits

The primary benefit from the Paso Robles RW project is higher groundwater elevations in the Central portion of the Subbasin due to in-lieu recharge from the direct use of the RW and recharge through Huer Huero Creek. Ancillary benefits of shallower groundwater elevations may include an increase in groundwater storage, improved groundwater quality from recharge of high-quality water, and avoiding pumping induced subsidence. The GSP model was used to quantify the expected benefit from this project. Figure 9-3 shows the expected groundwater level benefit predicted by the GSP model after 10 years of project operation. Figure 9-3 expresses the benefit as feet of groundwater. The groundwater level benefit shown on Figure 9-3 is a measure of how much higher groundwater elevations are expected to be with the project rather than without the project.

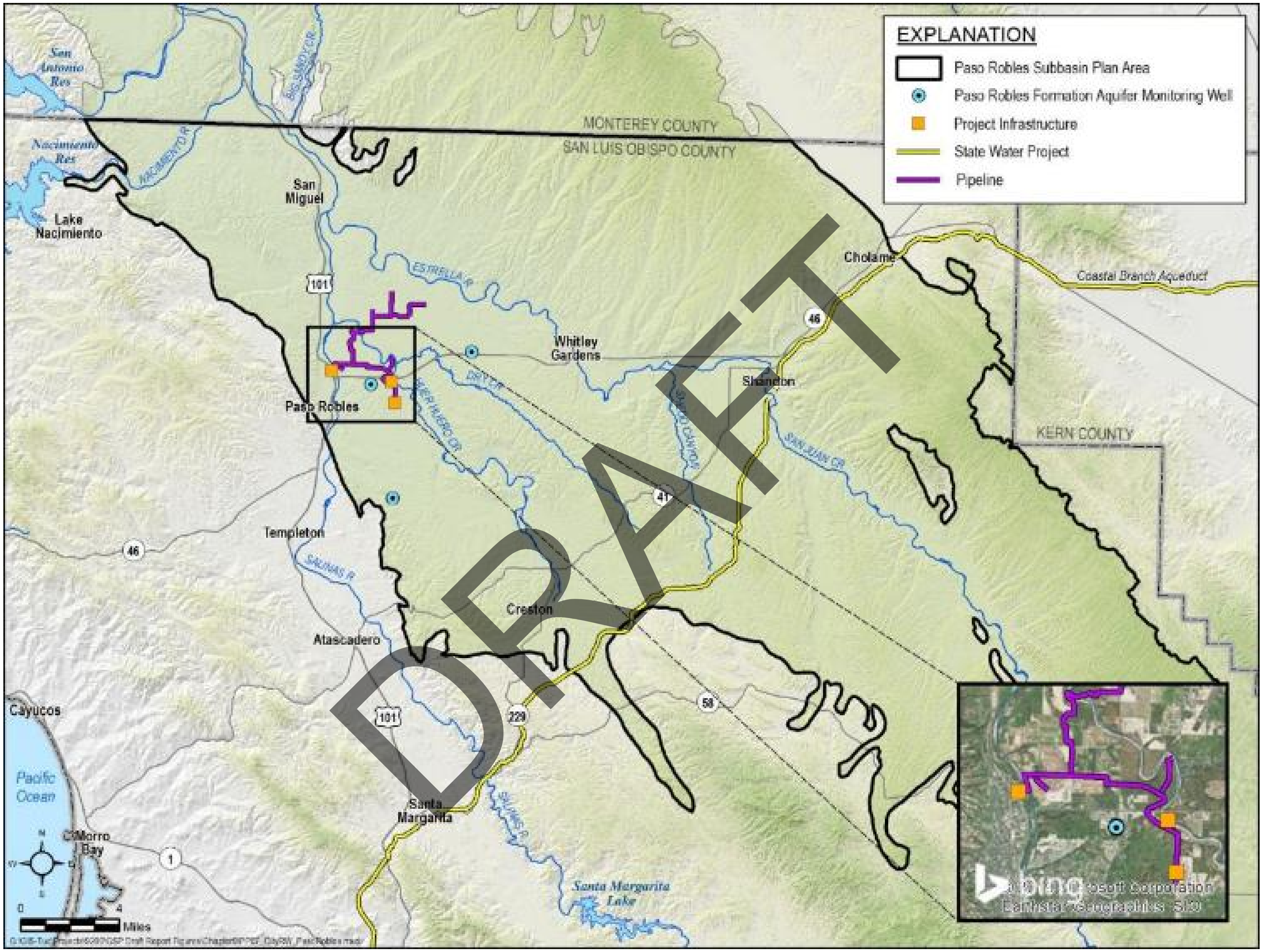

Figure 9-2. Paso Robles RW Project Layout

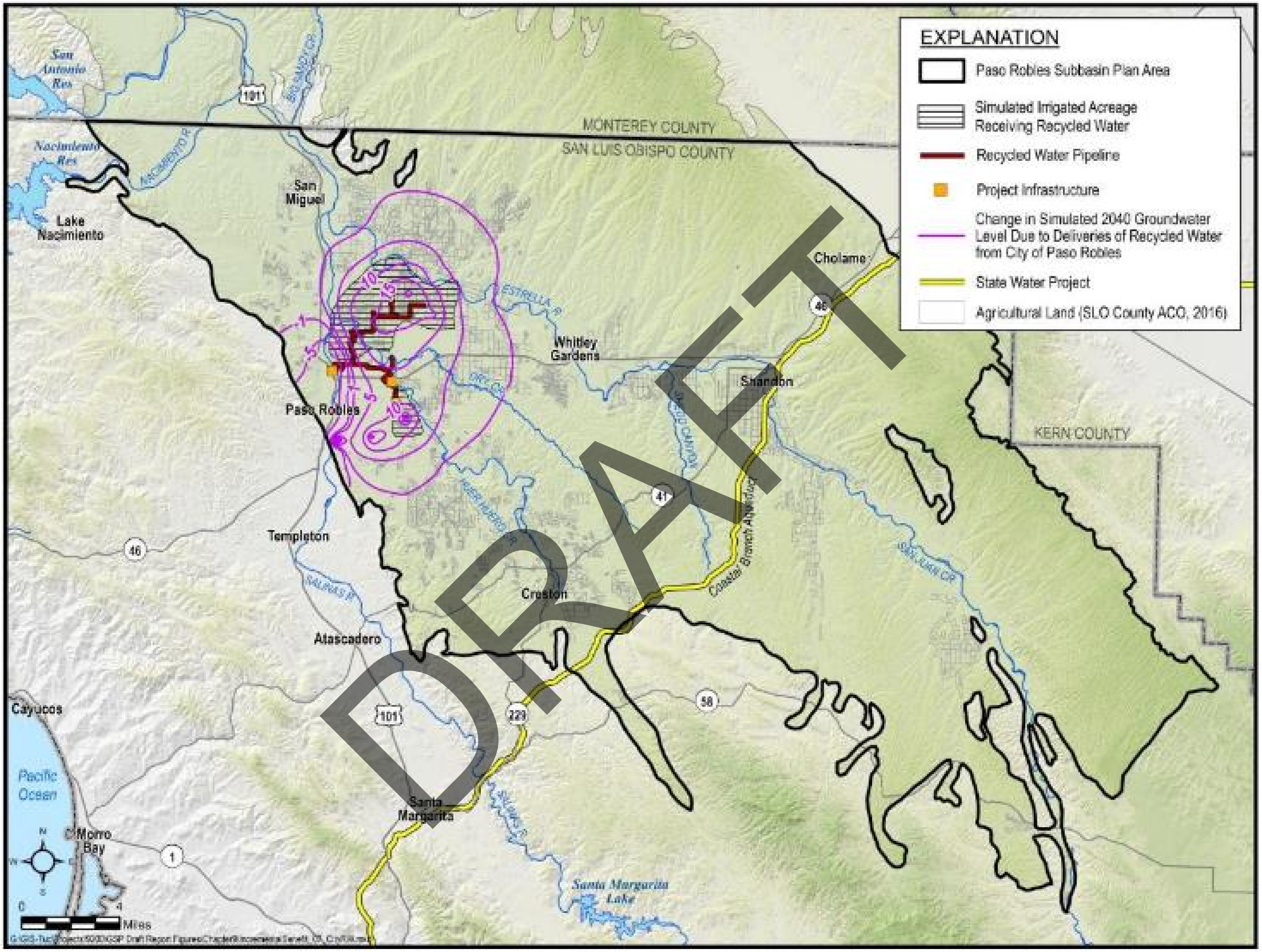

Figure 9-3. Groundwater Level Benefit of Paso Robles RW Project in Central Subbasin

Changes in groundwater elevation will be measured with the groundwater level monitoring program detailed in Chapter 7. Subsidence will be measured with the InSAR network detailed in Chapter 7. A direct correlation between the Paso Robles RW project and changes in groundwater levels may not be possible because this is only one among many management actions and projects that might be implemented in the Subbasin.

9.5.2.2.3 Circumstances for Implementation

This project is already being implemented by the City of Paso Robles. The monitoring wells 26S/12E-26E07, 26S/13E-16N01, and 27S/12E-13N01 will likely be positively impacted by this project.

9.5.2.2.4 Implementation Schedule

The project is underway. The phase design is expected to be complete by 2019 and construction complete by 2021. The implementation schedule is presented on Figure 9-4.

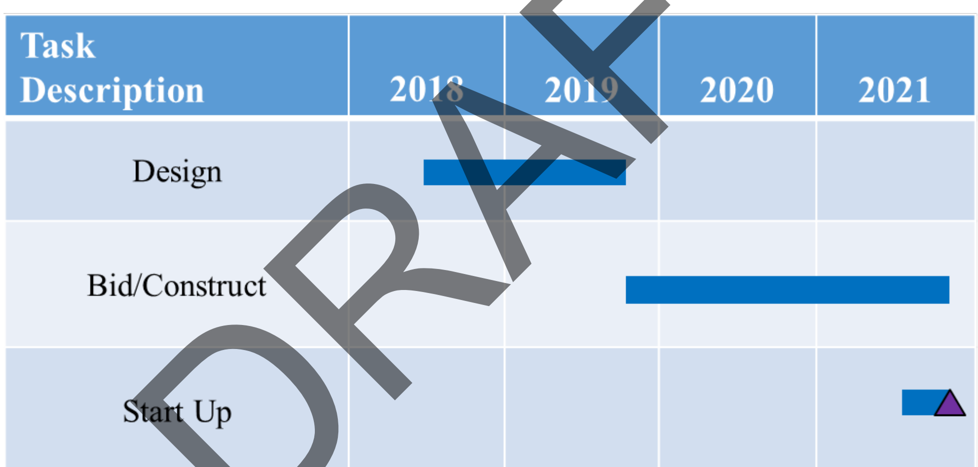

Figure 9-4. Implementation Schedule for Paso Robles RW in Central Subbasin

9.5.2.2.5 Estimated Cost

The estimated total project cost for this project is $22M. The cost and financing for the project is being determined by the City of Paso Robles. Annual O&M costs are not provided in this GSP. The cost ($/AF) of this water will be set by the City of Paso Robles and is not included in this GSP.

9.5.2.3 Preferred Project 2: San Miguel CSD Recycled Water Delivery

The San Miguel RW project is currently in the planning phases; therefore, the project concepts presented herein are preliminary.

This project is a planned project that involves the upgrade of San Miguel Community Services District (CSD) wastewater treatment plant to meet California Code of Regulations (CCR) Title 22 criteria for disinfected secondary recycled water for irrigation use by vineyards. Potential customers include one on the east side of the Salinas River, and a group of customers northwest of the wastewater treatment plant. The project might include the utilization of process discharge from a nearby processing facility for additional water recycling. The project could provide between 200 and 450 AFY of additional water supplies. The general layout of this project and relevant monitoring wells are shown on Figure 9-5. The infrastructure shown here includes a treatment plant upgrade, and two pipelines delivering water to customers. The actual project size and infrastructure will be determined based on project feasibility and negotiations with suppliers and customers. For more information on technical assumptions and cost assumptions, refer to Appendix J.

9.5.2.3.1 Relevant Measurable Objectives

The measurable objectives benefiting from this groundwater project include:

- Groundwater elevation measurable objectives in the northern portion of the Subbasin
- The groundwater storage measurable objective
- Land subsidence measurable objectives in the northern portion of the Subbasin

9.5.2.3.2 Expected Benefits and Evaluation of Benefits

The primary benefit from RW use for irrigation is higher groundwater elevations in the northern portion of the Subbasin due to in-lieu recharge from the direct use of the RW. Ancillary benefits may include an increase in groundwater storage and avoiding pumping induced subsidence. The GSP model was used to quantify the expected benefit from this project. Figure 9-6 shows the expected groundwater level benefit predicted by the GSP model after 10 years of project operation. Figure 9-6 expresses the benefit as feet of groundwater. The groundwater level benefit shown on Figure 9-6 is a measure of how much higher groundwater elevations are expected to be with the project rather than without the project.

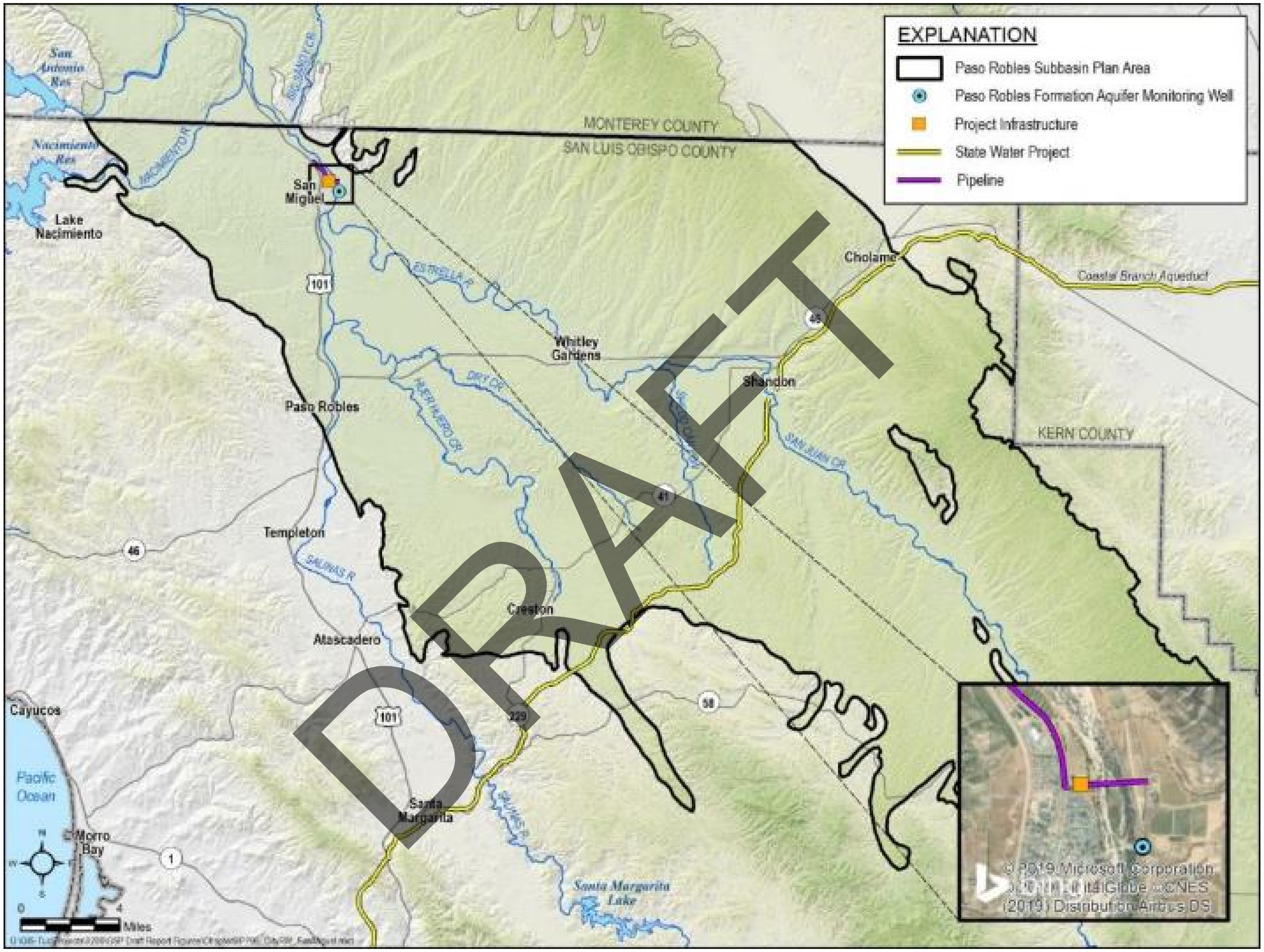

Figure 9-5. Conceptual San Miguel CSD RW Project Layout

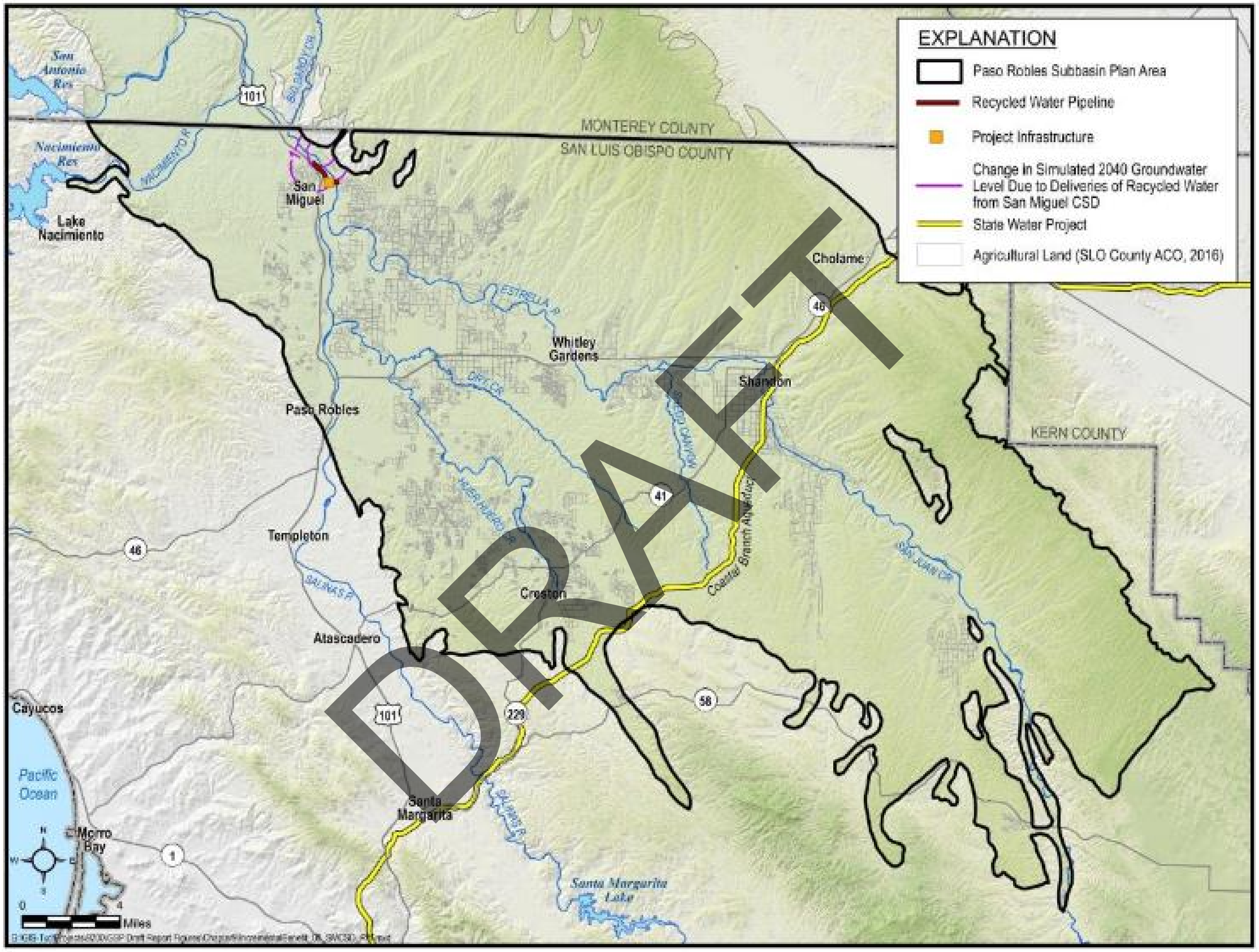

Figure 9-6. Groundwater Level Benefit of San Miguel CSD RW Project

Changes in groundwater elevation will be measured with the groundwater level monitoring program detailed in Chapter 7. Subsidence will be measured with the InSAR network detailed in Chapter 7. A direct correlation between the San Miguel CSD RW Project and changes in groundwater levels may not be possible because this is only one among many management actions and projects that might be implemented in the Subbasin.

9.5.2.3.3 Circumstances for Implementation

Most projects are implemented on an as-needed basis. The primary approach to attaining sustainability relies on pumping reductions in response to management actions. If pumping reductions are inadequate for achieving sustainability, funds raised by a water charge framework will be used to initiate projects throughout the Subbasin. The San Miguel CSD RW Project will be initiated if, after five years, groundwater levels in the northern portion of the monitoring network continue to decline at unsustainable rates. In particular, continued unsustainable groundwater level declines in monitoring well 25S/12E-16K05 will trigger implementation of this project. Additional triggers will be added as the monitoring well network expands.

This project is a planned project being undertaken by San Miguel CSD and may be implemented regardless of the triggered implementation scheme presented herein.

9.5.2.3.4 Implementation Schedule

The implementation schedule is presented on Figure 9-7. The project will take 4 to 6 years to implement. The actual project start date is to be determined on an as-needed basis or by San Miguel CSD.

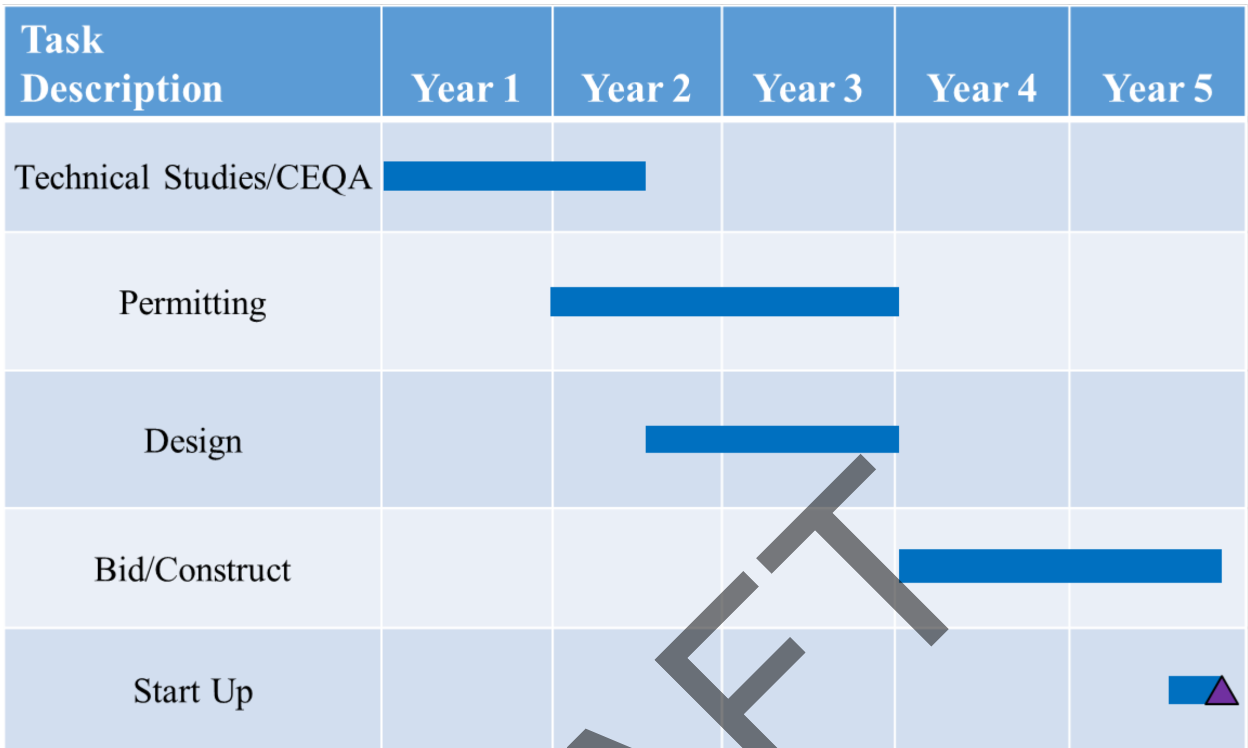

Figure 9-7. Implementation Schedule for San Miguel RW

9.5.2.3.5 *Estimated Cost*

This project is currently in the planning phases, and the San Miguel RW project presented herein might not accurately reflect the most current design concept. The cost of the potential project that is described herein was estimated for the purposes of the GSP. The estimated total project cost for this project is $15M, not including wastewater treatment plant upgrades. Cost can be covered by the bonding capacity developed through the groundwater conservation program. Annual O&M costs are estimated at $340,000. O&M costs would be covered by the overproduction surcharges. Based on a 30-year loan at a 5% interest rate, the cost of water for this project would be approximately $2,900/AF. Additional details regarding how costs were developed are included in Appendix J.

9.5.2.4 Preferred Project 3: NWP Delivery at Salinas and Estrella River Confluence

This project directly delivers up to 3,500 AFY of NWP water to agricultural water users near the confluence of the Salinas and Estrella Rivers, and an area north of the Estrella River. On average, this project will provide 2,800 AFY of water for use in lieu of groundwater pumping in the region.

The general layout of this project and relevant monitoring wells are shown on Figure 9-8. Infrastructure includes a new NWP turnout, 13 miles of pipeline, a 700 horsepower (hp) pump station, and two river crossings: one crossing of the Salinas River and one crossing of the Estrella River. For more information on technical assumptions and cost assumptions, refer to Appendix J.

9.5.2.4.1 Relevant Measurable Objectives

The measurable objectives benefiting from this project include:

- Groundwater elevation measurable objectives in the central portion of the Subbasin
- The groundwater storage measurable objective
- Land subsidence measurable objectives in the central portion of the Subbasin

9.5.2.4.2 Expected Benefits and Evaluation of Benefits

The primary benefit from in-lieu recharge using NWP water is higher groundwater elevations in the central portion of the Subbasin. Ancillary benefits of shallower groundwater elevations may include an increase in groundwater storage and avoiding pumping induced subsidence. The GSP model was used to quantify the expected benefit from this project. Figure 9-9 shows the expected groundwater level benefit predicted by the GSP model after 10 years of project operation. Figure 9-9 expresses the benefit as feet of groundwater. The groundwater level benefit shown on Figure 9-9 is a measure of how much higher groundwater elevations are expected to be with the project rather than without the project.

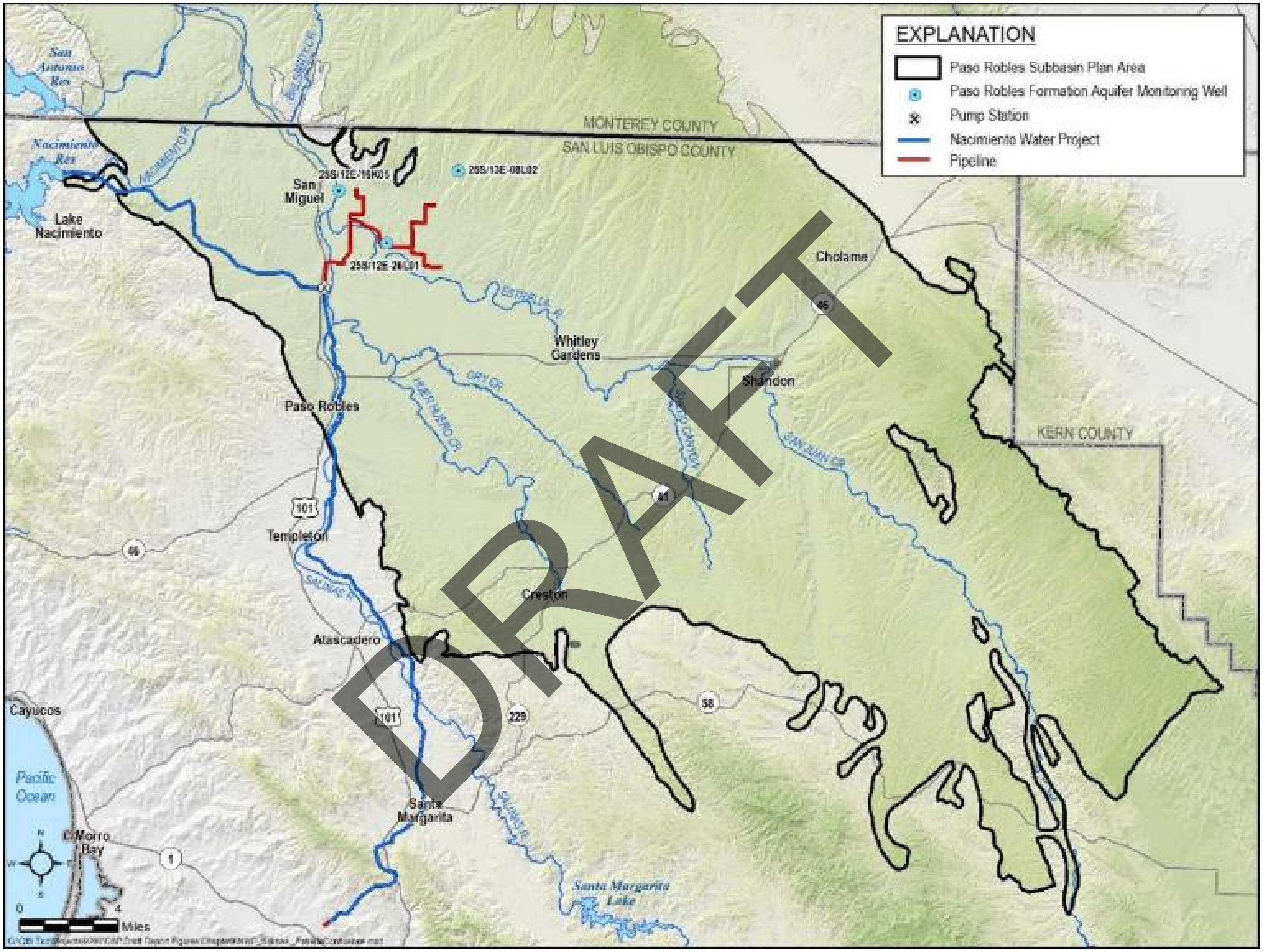

Figure 9-8. Conceptual NWP Delivery at Salinas and Estrella River Confluence Project Layout

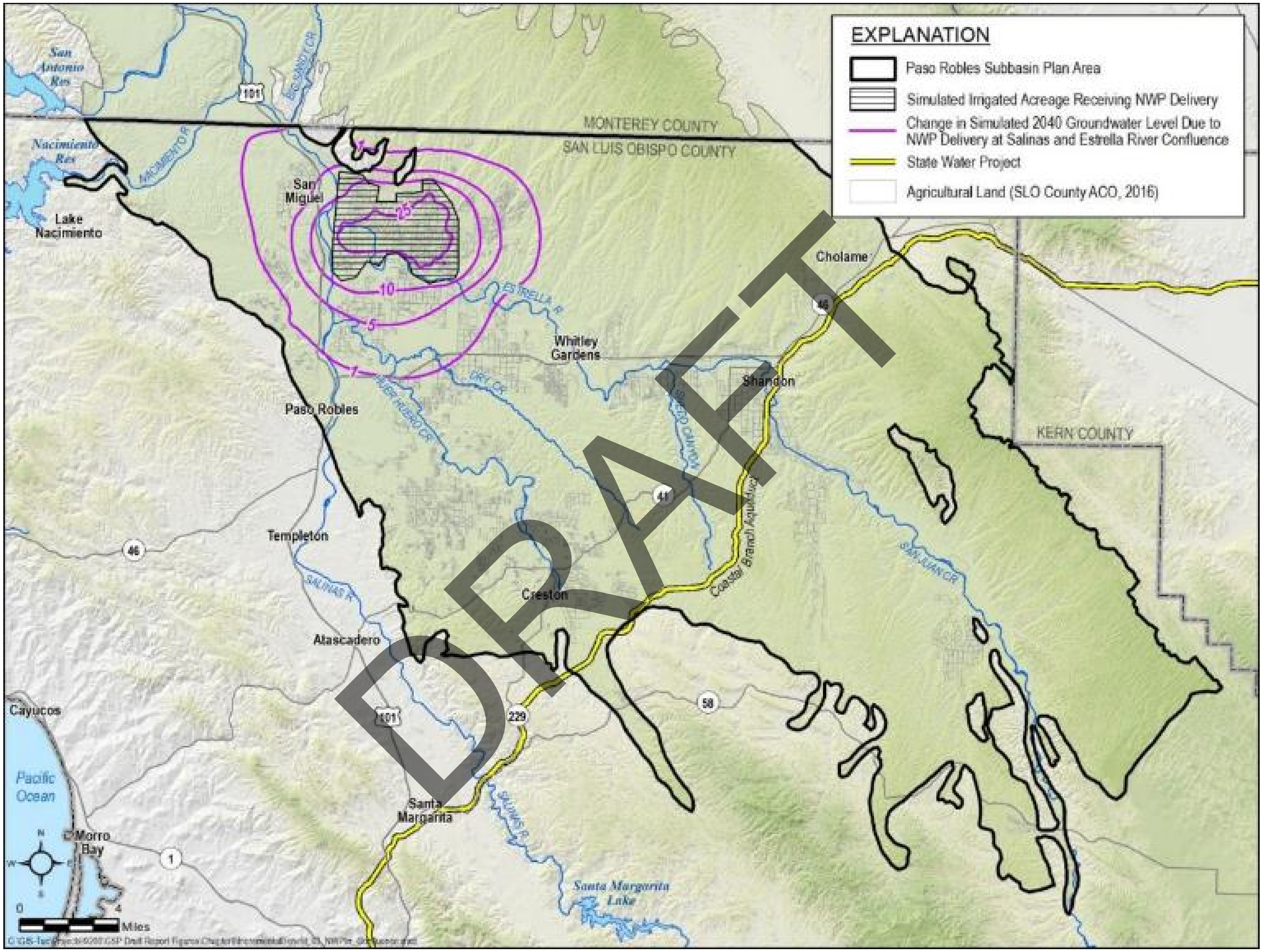

Figure 9-9. Groundwater Level Benefit of NWP Delivery at Salinas and Estrella River Confluence

Changes in groundwater elevation will be measured with the groundwater level monitoring program detailed in Chapter 7. Subsidence will be measured with the InSAR network detailed in Chapter 7. A direct correlation between in-lieu recharge and changes in groundwater levels may not be possible because this is only one among many management actions and projects that may be implemented in the Subbasin.

9.5.2.4.3 Circumstances for Implementation

All projects are implemented on an as-needed basis. The primary approach to attaining sustainability relies on pumping limitations in response to the water charges framework. If pumping limitations are inadequate for achieving sustainability, the funds raised by the water charge framework will be used to initiate projects throughout the Subbasin. The project to deliver water for in-lieu recharge near the Salinas and Estrella confluence will be initiated if, after five years, groundwater levels in the northern portion of the monitoring network continue to decline at unsustainable rates. In particular, continued unsustainable groundwater level declines in monitoring wells 25S/12E-16K05, 25S/12E-26L01, and 25S/13E-08L02 will trigger implementation of this project. Additional triggers will be added as the monitoring well network expands.

9.5.2.4.4 Implementation Schedule

The implementation schedule is presented on Figure 9-10. The project will take 4 to 6 years to implement depending on the time required to negotiate procurement of NWP water.

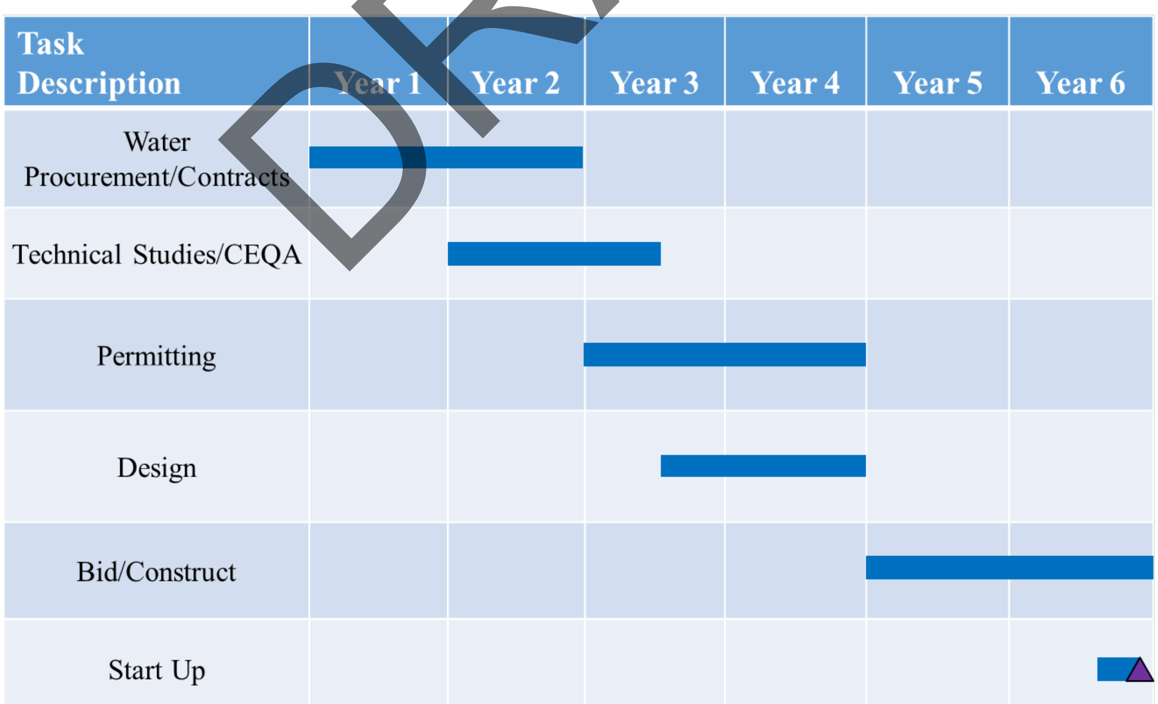

Figure 9-8. Implementation Schedule for NWP Delivery at Salinas and Estrella River Confluence

9.5.2.4.5 Estimated Cost

The estimated total project cost for this project is $50M. The project cost will be covered by the bonding capacity developed through the water charges framework. Annual O&M costs are estimated at $740,000. The average annual cost of NWP purchased water is estimated at $2.4M based on an average year delivery of 2,800 AFY. However, the unit price would need to be negotiated, and the actual amount of water available will vary year to year thereby affecting the actual annual purchase cost. O&M and water purchase costs would be covered by the overproduction surcharges. Based on a 30-year loan at a 5% interest rate, the cost of water for this project would be approximately $3,200/AF. Additional details regarding how costs were developed are included in Appendix J.

9.5.2.5 Preferred Project 4: NWP Delivery North of City of Paso Robles

This project provides up to 1,250 AFY of NWP water for direct delivery to agricultural water users north of the Paso Robles airport. On average, this project will provide 1,000 AFY of water for use in lieu of groundwater pumping in the region.

The general layout of this project and relevant monitoring wells are shown on Figure 9-11. Infrastructure includes a new NWP turnout, 5.6 miles of pipeline, a 130 hp pump station, and one river crossing for the Salinas River. For more information on technical assumptions and cost assumptions, refer to Appendix J.

9.5.2.5.1 Relevant Measurable Objectives

The measurable objectives benefiting from this project include:

- Groundwater elevation measurable objectives in the central portion of the Subbasin
- The groundwater storage measurable objective
- Land subsidence measurable objectives in the central portion of the Subbasin

9.5.2.5.2 Expected Benefits and Evaluation of Benefits

The primary benefit from in-lieu recharge using NWP water is higher groundwater elevations in the central portion of the Subbasin. Ancillary benefits of shallower groundwater elevations may include an increase in groundwater storage and avoiding pumping induced subsidence. The GSP model was used to quantify the expected benefit from this project. Figure 9-12 shows the expected groundwater level benefit predicted by the GSP model after 10 years of project operation. Figure 9-12 expresses the benefit as feet of groundwater. The groundwater level benefit shown on Figure 9-12 is a measure of how much higher groundwater elevations are expected to be with the project rather than without the project.

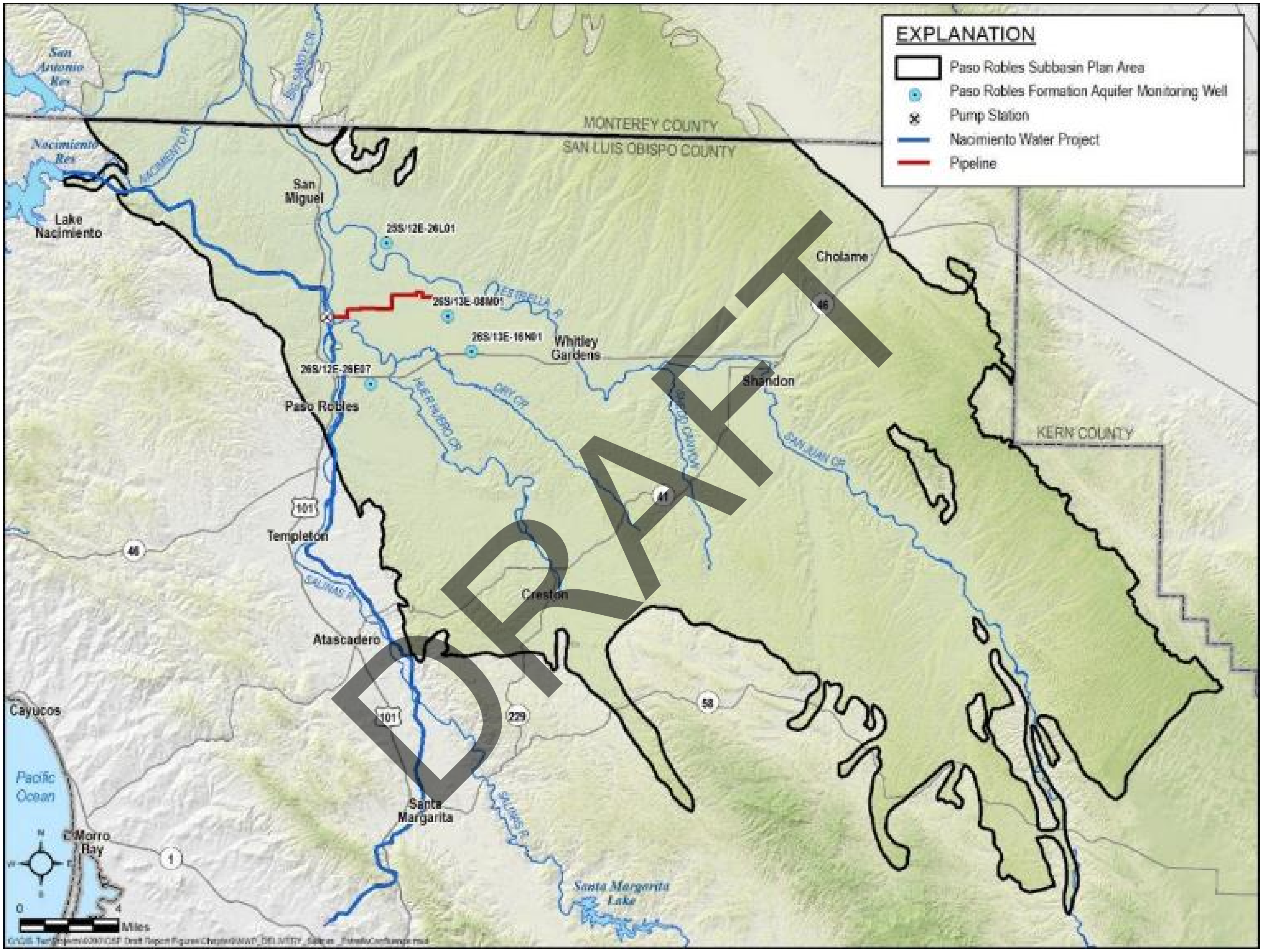

Figure 9-9. Conceptual NWP Delivery North of City of Paso Robles Project Layout

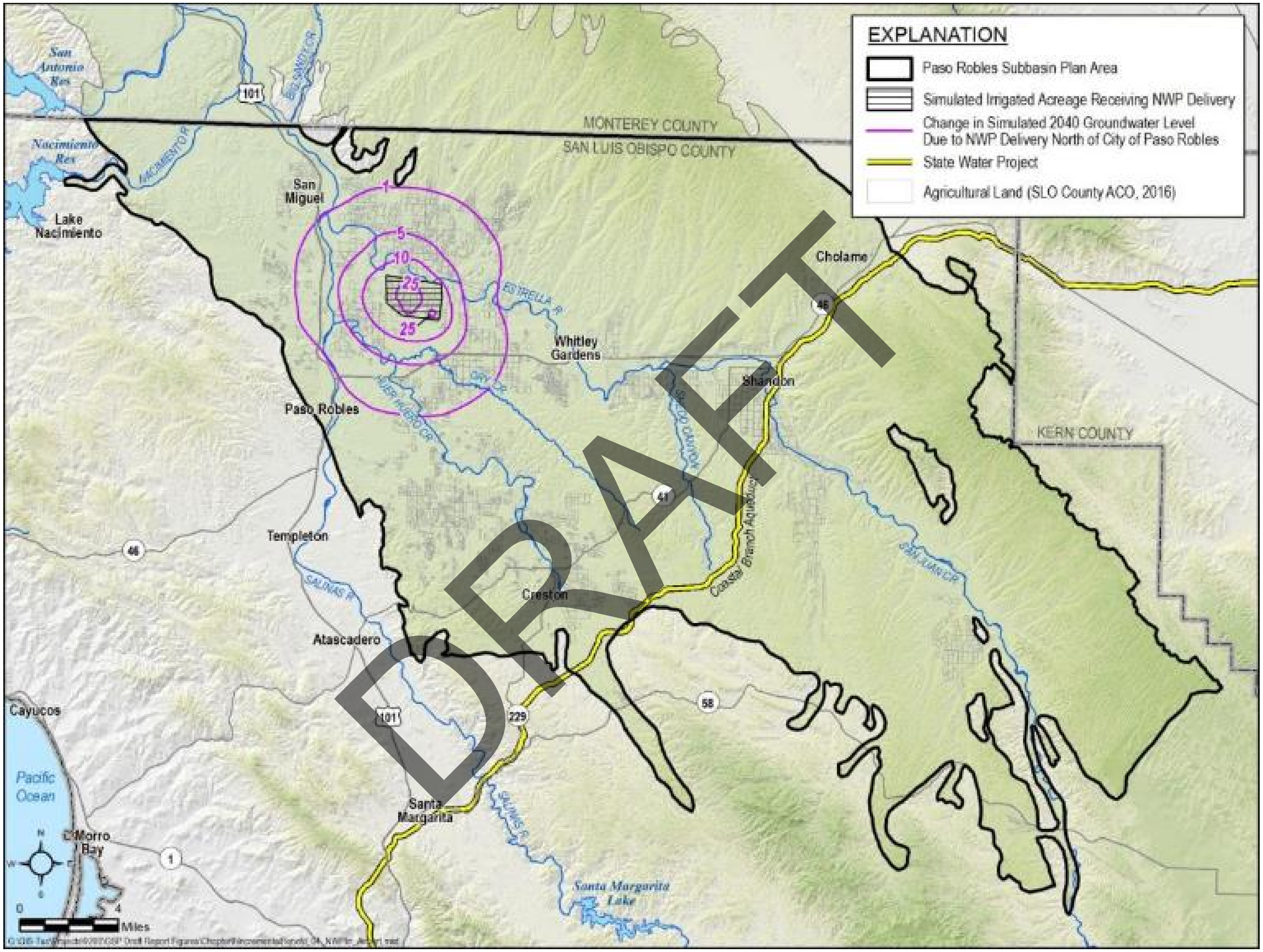

Figure 9-10. Groundwater Level Benefit from NWP Delivery North of City of Paso Robles

Changes in groundwater elevation will be measured with the groundwater level monitoring program detailed in Chapter 7. Subsidence will be measured with the InSAR network detailed in Chapter 7. A direct correlation between in-lieu recharge and changes in groundwater levels may not be possible because this is only one among many management actions and projects that may be implemented in the Subbasin.

9.5.2.5.3 Circumstances for Implementation

All projects are implemented on an as-needed basis. The primary approach to attaining sustainability relies on pumping reductions in response to management actions. If pumping reductions are inadequate for achieving sustainability, funds raised by a water charge framework will be used to initiate projects throughout the Subbasin. The project to deliver water for in-lieu recharge north of the airport will be initiated if, after five years, groundwater levels in the northern portion of the monitoring network continue to decline at unsustainable rates. In particular, continued unsustainable groundwater level declines in monitoring wells 26S/13E-08M01, 26S/13E-16N01, 25S/12E-26L01, and 26S/12E-26E07 will trigger implementation of this project. Additional triggers will be added as the monitoring well network expands.

9.5.2.5.4 Implementation Schedule

The implementation schedule is presented on Figure 9-13. The project will take 4 to 6 years to implement depending on the time required to negotiate procurement of NWP water.

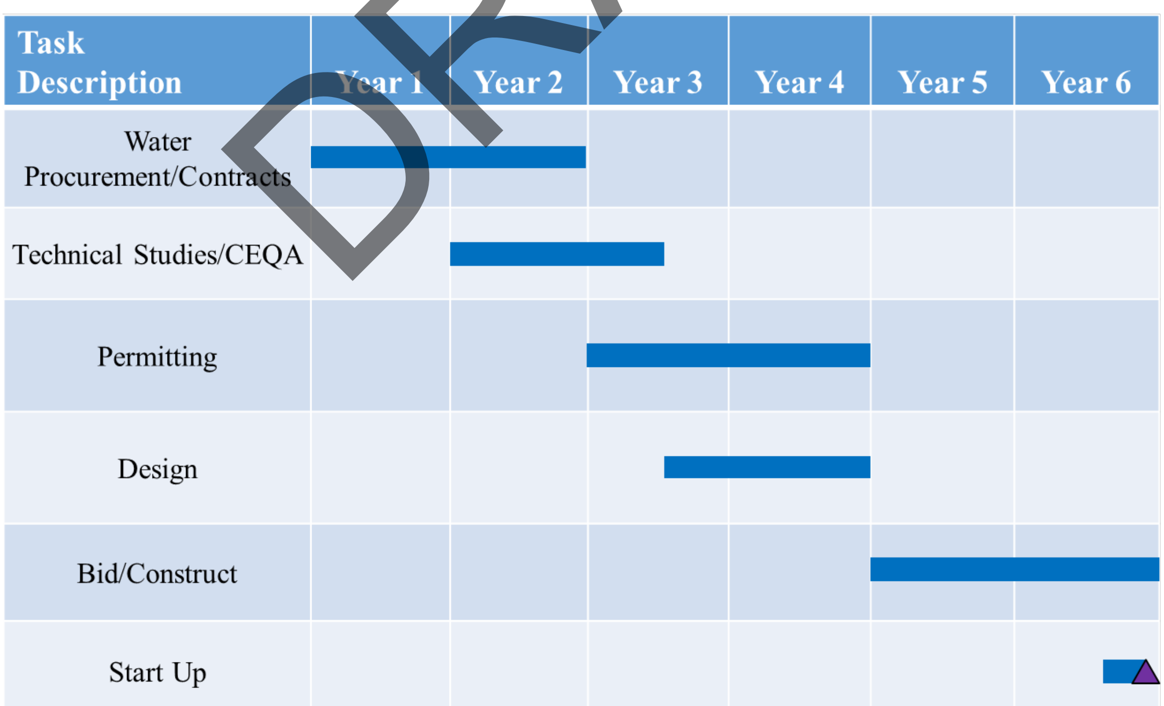

Figure 9-11. Implementation Schedule for NWP Delivery North of City of Paso Robles

9.5.2.5.5 Estimated Cost

The estimated total project cost for this project is $22M. The project cost will be covered by the bonding capacity developed through the water charges framework. Annual O&M costs are estimated at $150,000. The average annual cost of NWP purchased water is estimated at $1.2M based on an average year delivery of 1,000 AFY. However, the unit price would need to be negotiated, and the actual amount of water available will vary year to year thereby affecting the actual annual purchase cost. O&M and water purchase costs would be covered by the overproduction surcharges. Based on a 30-year loan at a 5% interest rate, the cost of water for this project would be approximately $2,800/AF. Additional details regarding how costs were developed are included in Appendix J.

9.5.2.6 Preferred Project 5: NWP Delivery East of City of Paso Robles

This project provides up to 2,500 AFY of NWP water to for direct delivery to agricultural water users east of the City of Paso Robles. On average, this project will provide 2,000 AFY of water for use in lieu of groundwater pumping in the region.

The general layout of this project and relevant monitoring wells are shown on Figure 9-14. Infrastructure includes a new NWP turnout, 5.6 miles of pipeline, a 130 hp pump station, and two river crossings one crossing of the Estrella River and one crossing of a tributary to the Estrella River. For more information on technical assumptions and cost assumptions, refer to Appendix J.

9.5.2.6.1 Relevant Measurable Objectives

The measurable objectives benefiting from this project include:

- Groundwater elevation measurable objectives in the central portion of the Subbasin
- The groundwater storage measurable objective
- Land subsidence measurable objectives in the central portion of the Subbasin

9.5.2.6.2 Expected Benefits and Evaluation of Benefits

The primary benefit from in-lieu recharge using NWP water is higher groundwater elevations in the central portion of the Subbasin. Ancillary benefits of shallower groundwater elevations may include an increase in groundwater storage and avoiding pumping induced subsidence. The GSP model was used to quantify the expected benefit from this project. Figure 9-15 shows the expected groundwater level benefit predicted by the GSP model after 10 years of project operation. Figure 9-15 expresses the benefit as feet of groundwater. The groundwater level benefit shown on Figure 9-15 is a measure of how much higher groundwater elevations are expected to be with the project rather than without the project.

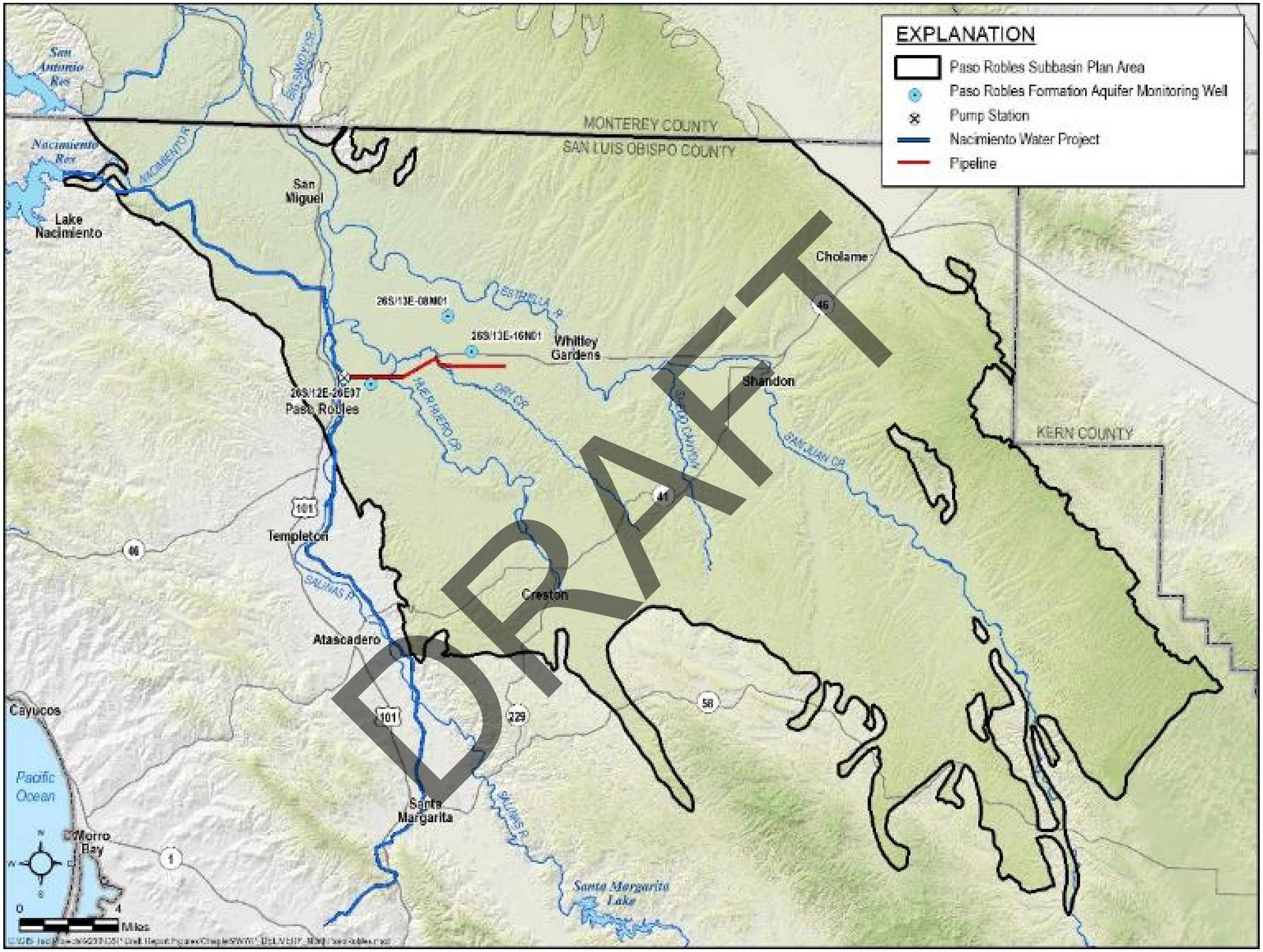

Figure 9-14. Conceptual NWP Delivery East of City of Paso Robles Project Layout

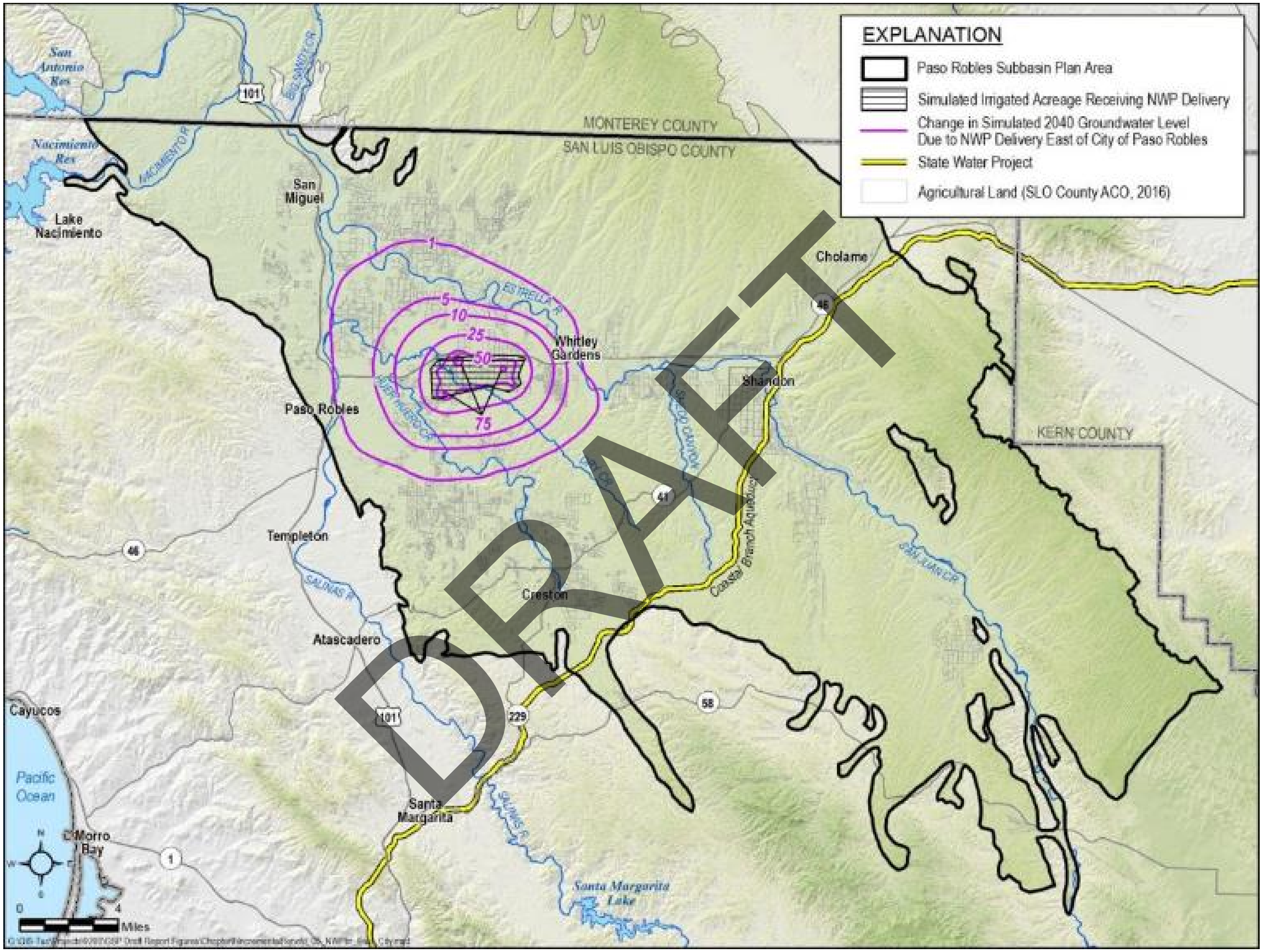

Figure 9-15. Groundwater Level Benefit from NWP Delivery East of City of Paso Robles

Changes in groundwater elevation will be measured with the groundwater level monitoring program detailed in Chapter 7. Subsidence will be measured with the InSAR network detailed in Chapter 7. A direct correlation between in-lieu recharge and changes in groundwater levels may not be possible because this is only one among many management actions and projects that may be implemented in the Subbasin.

9.5.2.6.3 Circumstances for Implementation

All projects are implemented on an as-needed basis. The primary approach to attaining sustainability relies on pumping limitations in response to the water charges framework. If pumping limitations are inadequate for achieving sustainability, the funds raised by the water charge framework will be used to initiate projects throughout the Subbasin. The project to deliver water for in-lieu recharge east of the City of Paso Robles will be initiated if, after five years, groundwater levels in the central portion of the monitoring network continue to decline at unsustainable rates. In particular, continued unsustainable groundwater level declines in monitoring wells 26S/13E-16N01, 26S/13E-08M01 and 26S/12E-26E07 will trigger implementation of this project. Additional triggers will be added as the monitoring well network expands.

9.5.2.6.4 Implementation Schedule

The implementation schedule is presented on Figure 9-16. The project will take 4 to 6 years to implement depending on the time required to negotiate procurement of NWP water.

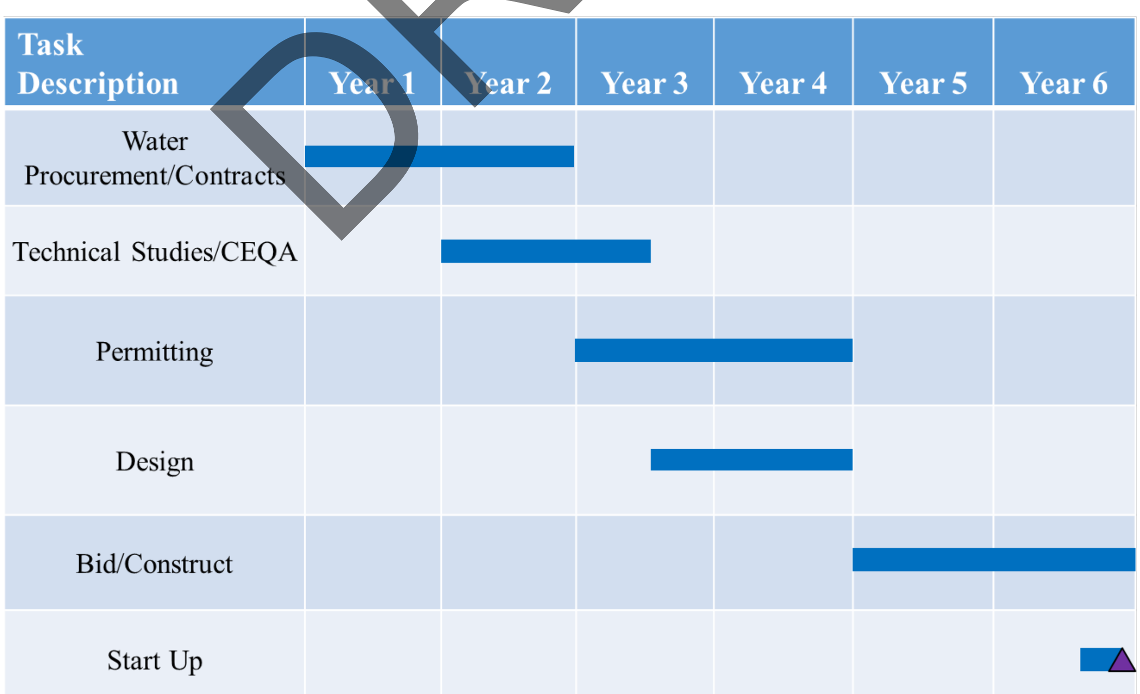

Figure 9-16. Implementation Schedule for NWP Delivery East of City of Paso Robles

9.5.2.6.5 Estimated Cost

The estimated total project cost for this project is $32M. The project cost will be covered by the bonding capacity developed through the water charges framework. Annual O&M costs are estimated at $380,000. The average annual cost of NWP purchased water is estimated at $2.4M based on an average year delivery of 2,000 AFY. However, the unit price would need to be negotiated, and the actual amount of water available will vary year to year thereby affecting the actual annual purchase cost. O&M and water purchase costs would be covered by the overproduction surcharges. Based on a 30-year loan at a 5% interest rate, the cost of water for this project would be approximately $2,400/AF. Additional details regarding how costs were developed are included in Appendix J.

9.5.2.7 Preferred Project 6: Expansion of Salinas Dam

SLOCFCWCD operates the Salinas Dam to provide water to the City of San Luis Obispo. The storage capacity of the lake is 23,843 AF; however, the City has existing water rights of 45,000 AF of storage. It is anticipated that funding would be sought to help the cost of retrofitting the dam and expanding the storage capacity by installing gates along the spillway in order to retain flood flow/stormwater for beneficial use. A risk assessment for the Dam is scheduled for the summer of 2019.

There may be opportunities to use the water from the expanded reservoir storage to benefit the Subbasin. One possibility would be to schedule summer releases from the storage to the Salinas River, which would benefit the Subbasin by recharging the basin through the Salinas River. Another way this project might indirectly benefit the Subbasin is if the City of San Luis Obispo were to use more of their Salinas River water allocation, thereby freeing up the NWP water for purchase by the GSAs.

9.5.2.7.1 Relevant Measurable Objectives

The measurable objectives benefiting from this project include:

- Groundwater elevation measurable objectives in the central portion of the Subbasin
- The groundwater storage measurable objective
- Land subsidence measurable objectives in the central portion of the Subbasin

9.5.2.7.2 Expected Benefits and Evaluation of Benefits

The primary benefit from releasing additional water to the Salinas River during the summer is higher groundwater elevations along the Salinas River. Ancillary benefits of shallower groundwater elevations may include an increase in groundwater storage and avoiding pumping induced subsidence. The GSP model was used to quantify the expected benefit from this project.

Figure 9-17 shows the expected groundwater level benefit predicted by the GSP model after 10 years of project operation. Figure 9-17 expresses the benefit as feet of groundwater. The groundwater level benefit shown on Figure 9-17 is a measure of how much higher groundwater elevations are expected to be with the project rather than without the project.

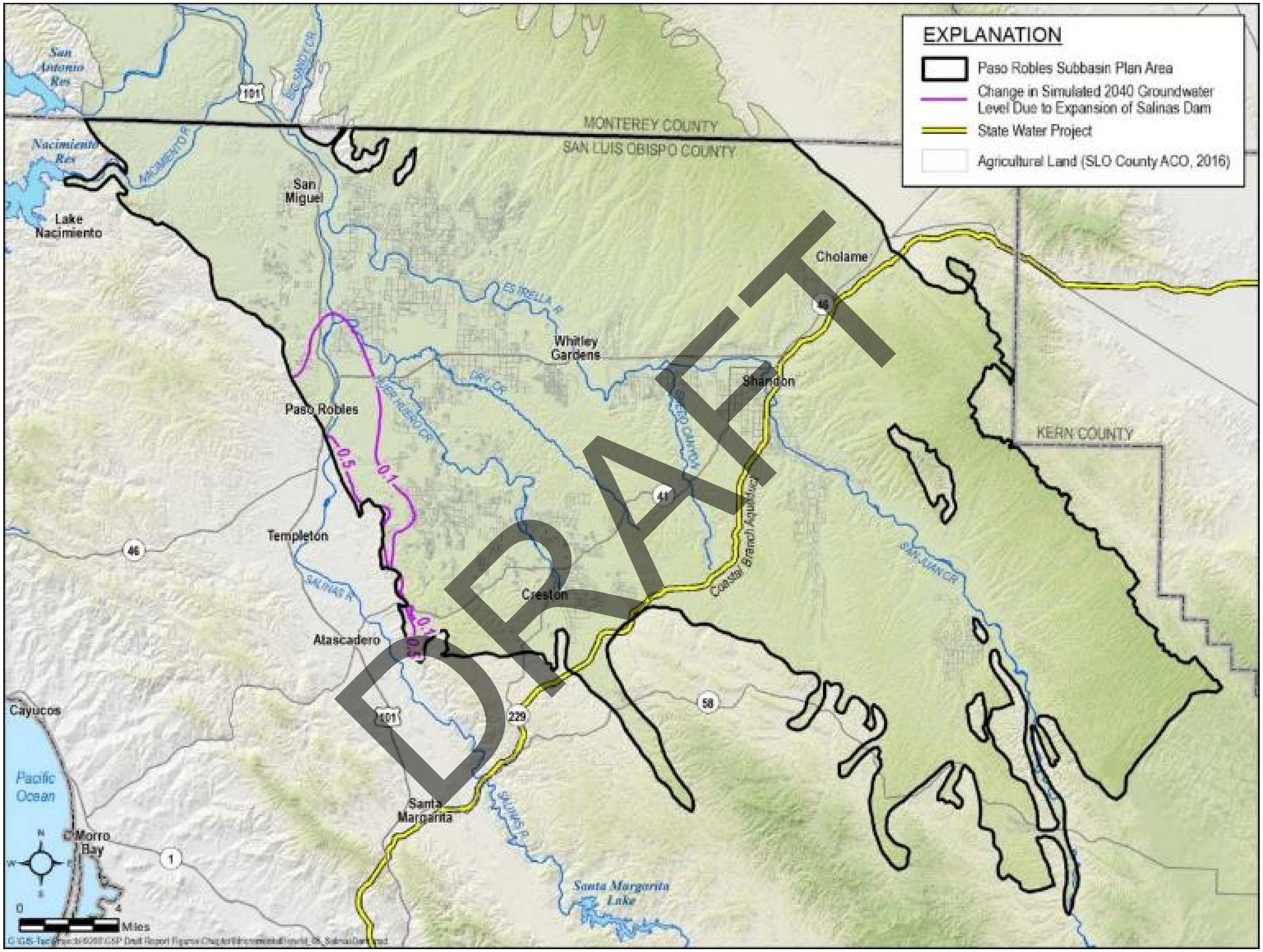

Figure 9-17. Groundwater Level Benefit from Salinas River Summer Releases

9.5.2.7.3 Circumstances for Implementation

All projects are implemented on an as-needed basis. The project to release Salinas River water during the summer will be initiated if, after two years, groundwater levels near the Salinas River continue to decline at unsustainable rates. In particular, continued unsustainable groundwater level declines in monitoring wells 25S/12E-16K05, 26S/13E-16N01, 27S/12E-13N01 and 27S/13E-30N01 will trigger implementation of this project. Additional triggers will be added as the monitoring well network expands.

9.5.2.7.4 Implementation Schedule

The implementation schedule is presented on Figure 9-18. The project will take 4 to 5 years to implement.

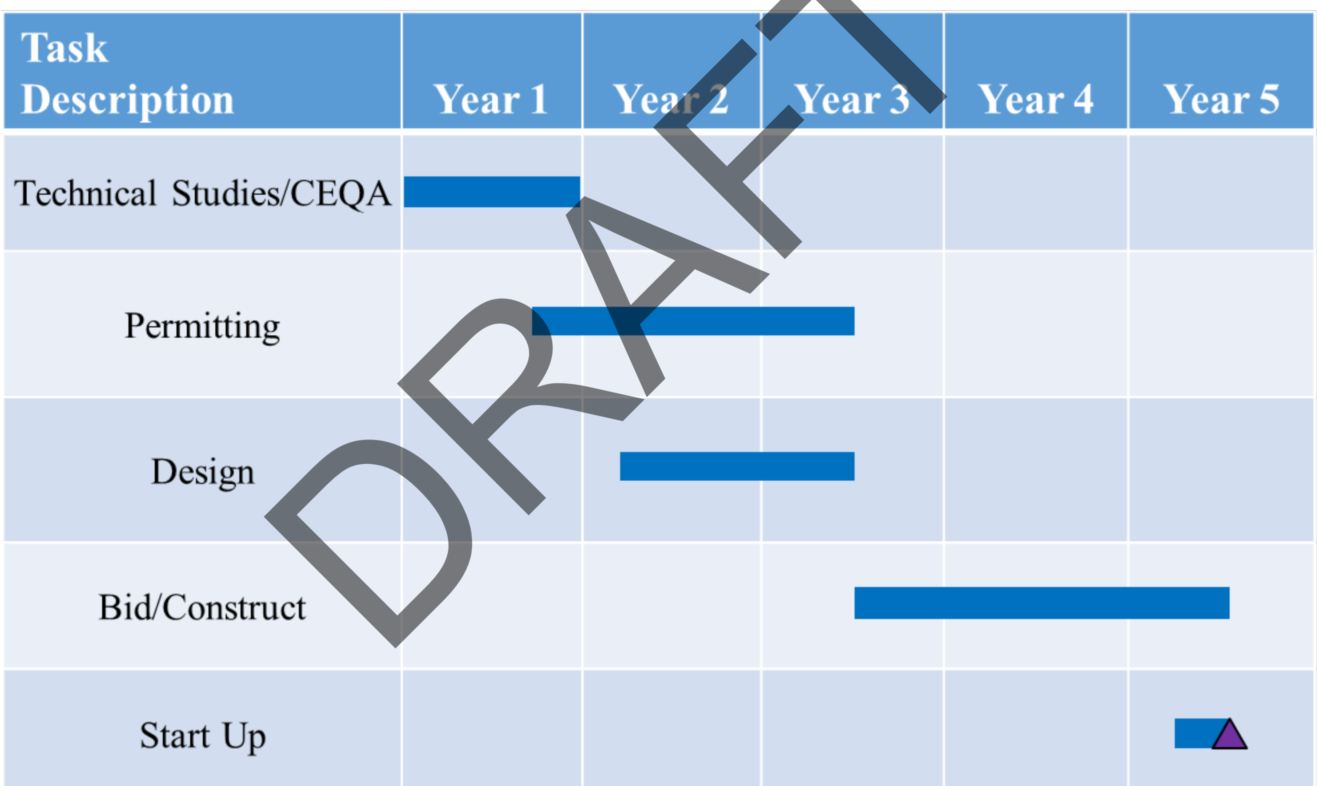

Figure 9-18. Implementation Schedule for Expansion of Salinas Dam

9.5.2.7.5 Estimated Cost

The cost to increase the storage capacity behind the Salinas Dam has been estimated at between $30M and $50M. O&M costs have not been estimated at this time. Some of these costs may be available from federal sources. No additional capital cost would be required to release water to the Salinas River for recharge during the summer months.

9.6 Other Groundwater Management Activities

Although not specifically funded or managed as part of implementing this GSP, a number of associated groundwater management activities will be promoted and encouraged by the GSAs as part of general good groundwater management practices.

9.6.1 Continue Urban and Rural Residential Conservation

Existing water conservation measures should be continued, and new water conservation measures promoted for residential users. Conservation measures may include the use of low flow toilet fixtures, or laundry-to-landscape greywater reuse systems. Conservation projects can reduce demand for groundwater pumping, thereby acting as in-lieu recharge.

9.6.2 Watershed Protection and Management

Watershed restoration and management can reduce stormwater runoff and improving stormwater recharge into the groundwater basin. While not easily quantified and therefore not included as projects in this document, watershed management activities may be worthwhile and benefit the basin.

9.6.3 Retain and Enforce the Existing Water Export Ordinance

This GSP recommends that San Luis Obispo County's existing groundwater export ordinance should be enforced and retained. With limited exception, the ordinance requires a permit for the movement of groundwater across the county or Subbasin line. To obtain a permit, the movement of groundwater cannot negatively impact a nearby overlier, result in seawater intrusion, or result in a cone of depression greater than the landowner's property line. This ordinance will continue to protect the county's water supplies.

9.7 Demonstrated Ability to Attain Sustainability

To demonstrate the ability to attain sustainability, a groundwater management scenario that included both projects and management actions was modeled. The scenario included all of the conceptual projects listed in Section 9.5.3. In addition to the conceptual projects, pumping was reduced to bring groundwater elevations to the measurable objectives before 2040 and maintain the same groundwater elevations through 2070.

The GSP model was adapted to simulate the scenario described above over the GSP implementation period from 2020 through 2040. The ability to achieve sustainability was quantified by comparing 2040 simulated groundwater levels under each of the two scenarios against the Measurable Objective surface – as described in Chapter 8 – for both the Paso Robles formation aquifer and the Alluvial aquifer.

Individual hydrographs comparing the predicted groundwater elevations to the measurable objectives at each representative monitoring site are included in Appendix K.

9.8 Management of Groundwater Extractions and Recharge and Mitigation of Overdraft

This GSP is specifically designed to mitigate the decline in groundwater storage and persistent groundwater level declines in certain areas with a combined program of management actions designed to promote voluntary reductions in pumping and provide authority for mandatory pumping limitations where necessary. Individual GSAs are also proceeding on projects designed to use recycled water, any available Nacimiento Project water and flood flow/stormwater in the Salinas River to use in lieu of pumping groundwater and/or to supplement groundwater supplies.

10 GROUNDWATER SUSTAINABILITY PLAN IMPLEMENTATION

This chapter is intended to serve as a conceptual roadmap for efforts to start implementing the GSP over the first five years and discusses implementation effects in accordance with SGMA regulations sections 354.8(f)(2) and (3). A general schedule showing the major tasks and estimated timeline is provided in Figure 1. Specific regulations guiding the content of this chapter were not developed by DWR.

The implementation plan provided in this chapter is based on current understanding of Subbasin conditions and anticipated administrative considerations that affect the management actions described in Chapter 9. Understanding of Subbasin conditions and administrative considerations will evolve over time based on future refinement of the hydrogeologic setting, groundwater flow conditions, and input from Subbasin stakeholders.

Implementation of the GSP requires robust administrative and financing structures, with adequate staff and funding to ensure compliance with SGMA. The GSP calls for GSAs to routinely provide information to the public about GSP implementation and progress towards sustainability and the need to use groundwater efficiently. The GSP calls for a website to be maintained as a communication tool for posting data, reports and meeting information. The website may also include forms for on-line reporting of information needed by the GSAs (e.g., annual pumping amounts) and an interactive mapping function for viewing Subbasin features and monitoring information.

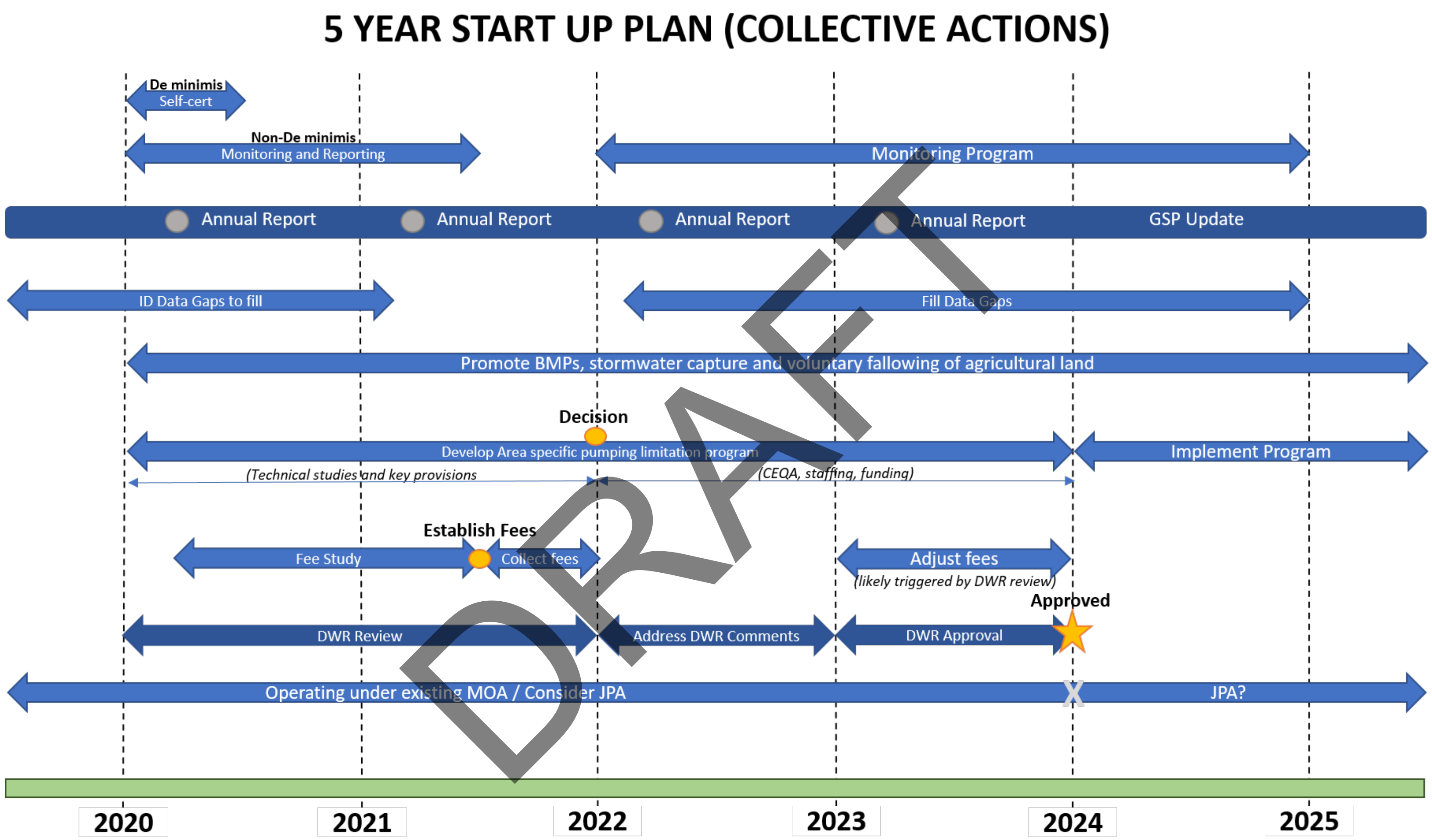

Figure 10-1. General Schedule of 5-Year Start-Up Plan

10.1 Administrative Approach

GSAs will likely either individually hire consultant(s) or hire staff to implement the GSP after deciding which GSA will lead each task. If consultants are hired, it is anticipated that qualified professionals will be identified and hired through a competitive selection process. It is also anticipated that the lead GSA for a particular task will keep the other GSAs informed via periodic updates to the Cooperative Committee and the public. As needed, the GSAs would likely coordinate on the specific studies and analyses necessary to improve understanding of Subbasin conditions. The GSAs would likely then use new information on Subbasin conditions and projects to identify, evaluate, and/or improve management actions to achieve sustainability. This GSP calls for actions considered by the GSAs to be vetted through a public outreach process whereby groundwater pumpers and other stakeholders will have opportunities to provide input to the decision-making process.

10.2 Funding GSP Implementation

As summarized in Table 10-1, a conceptual planning-level cost of about $7,800,000 was estimated for planned activities during the first five years of implementation, or an estimated cost of $1,560,000 per year. This cost estimate reflects routine administrative operations, public outreach, and the basin wide and area specific management actions outlined in Chapter 9.

The GSP calls for implementation to be covered under the terms of the existing MOA (see Chapter 12) between the four GSAs until DWR approves the GSP and a new or renewed GSA cooperative agreement is established. Consistent with current practice under the MOA, it is anticipated that an annual operating budget will be established that is considered for approval by each GSA. This budget information and management action details would be used to conduct a fee study for purposes of developing a groundwater pumping fee to cover the costs of implementing the regulatory program described in the GSP including, but not limited to, costs related to monitoring and reporting, hydrogeologic studies, pumping reduction enforcement where necessary, and public outreach.

The GSAs plan to conduct focused public outreach and hold meetings to educate and solicit input on the proposed fee structure and plan to begin developing the fee structure as soon as administratively feasible after GSP adoption. . Establishing a funding structure is estimated to cost $250,000.

California Water Code Sections 10730 and 10730.2 provide GSAs with the authority to impose certain fees, including fees on groundwater pumping. Any imposition of fees, taxes or other charges would need to follow the applicable protocols outlined in the above sections and all applicable Constitutional requirements based on the nature of the fee.. Such protocols would likely include public outreach, notification of all property owners, and at least one public hearing where the opinions and concerns of all parties are heard and considered before the GSAs make a determination to proceed with a fee or other charge. It is assumed that any fee structure adopted by the individual GSAs would be adopted by resolution or ordinance and would be identical in all material respects, i.e. with respect to levels and classes of uses. As part of or in conjunction with the feasibility study and in order to reduce the risk of a legal challenge, the GSAs plan to obtain the legal advice necessary to ensure that the proposed fee is consistent with all applicable legal requirements and rights.

With respect to those pumpers that are not anticipated to be subject to the fee, the GSAs plan to develop a program pursuant to which such pumpers will be required to self-certify that they only pump for domestic purposes and use less than 2 AFY.

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Table 10-1. Estimated Planning-Level Costs for First Five Years of Implementation

GSP Implementation Activity	Description	Estimated Costs	Cost Unit	Anticipated Timeframe	Estimated Costs During Startup (2020-2025)
Administration and Finance					
Administration development	Update agreements; hire staff (GSP manager and staff); update website; conduct public outreach and meeting protocols	$ 100,000	lump sum	Quarters 1-2, 2020	$ 100,000
Ongoing GSP implementation administration	Routine operating costs (salaries, office space, equipment, etc.)	$ 500,000	annual	Starting in 2020	$ 2,500,000
Fee study for GSP implementation	Study to develop and justify funding mechanism for GSP implementation	$ 250,000	lump Sum	Quarter 2, 2020 through Quarter 2, 2021	$ 250,000
Basin-wide Management Actions					
Monitoring, reporting & outreach					
De minimis self certification	Evaluate existing programs; develop new program for GSP	$ 30,000	lump sum	Quarters 1-2, 2020	$ 30,000
Non-de minimis metering & reporting program	Develop new metering and reporting program, land fallowing/project accounting	$ 100,000	lump sum	Quarters 1-2, 2020	$ 100,000
Annual reports	Collect and analyze groundwater level data; apply groundwater lelvel - storage proxy, evaluate water quality data, download and evaluate land subsidence data; update data management system (DMS); maintain monitoring network infrastructure; prepare and submit annual report to DWR	$ 250,000	annual	Starting in 2020	$ 1,250,000
Data gaps					
Supplemental hydrogeologic study	Refine hydrologeologic conceptual model; address data gaps	$ 300,000	lump sum	2020 to 2024	$ 300,000
Monitoring networks - groundwater levels					
Verify network	Verify proposed network	$ 30,000	lump sum	Quarters 1-2, 2020	$ 30,000
Expand network - add existing wells	Identify/inspect wells, video-logging, access agreements	$ 100,000	lump sum	Quarters 1-2, 2020	$ 100,000
Expand network - drill new wells	Add new wells in key data gap areas	$ 100,000	per well	Quarters 1-2, 2020	$ 500,000
Monitoring networks - groundwater storage					
Develop groundwater level - storage proxy	Quantiative relationship between changes in groundwater level, changes in storage, and amount of groundwater pumping	$ 50,000	lump sum	Quarters 3-4, 2020	$ 50,000
Monitoring networks - water quality					
Verify network	Verify proposed network	$ 20,000	lump sum	2020 to 2024	$ 20,000
Monitoring networks - land subsidence					
Verify network	Verify proposed network	$ 20,000	lump sum	2020 to 2024	$ 20,000
Monitoring networks - interconnected surface water					
Conduct surface water/groundwater investigation	Focused surface and groundwater investigations in areas of ptentailly interconnectivity; conduct monitoring; cost depends on avaailabiltiy of existing wells and number of new wells needed; cost assumes 5 new wells needed	$ 400,000	lump sum	2020 to 2024	$ 400,000
5-year GSP updates & amendments					
GSP assessment and reporting	Prepare report/amend GSP	$ 300,000	lump sum	2023 to 2024	$ 300,000
Groundwater modeling	Refine, update, and recalibrate groundwater model	$ 250,000	lump sum	2023	$ 250,000
Promoting					
Best water use practices	Costs included in monitoring, reporting and outreach for ongoing GSP implementation				
Stormwater capture					
Voluntary fallowing of agricultural land					
Area Specific Management Actions					
Mandatory pumping limitations in specific areas					
Baseline pumping determination	Develop structure; public outreach; meetings; legal fees	$ 350,000	lump sum	2020 to 2022	$ 350,000
Pumping limitations determination					
Timeline established for pumping limitations					
Pumping limitations regulations approval process					
Regulation implementation	Oversight and enforcement	$ 250,000	annual	Starting in 2020	$ 1,250,000
				Total Estimated Costs during Startup (2020-2025)	**$ 7,800,000**
				Average Annual Estimated Costs during Startup (2020-2025)	**$ 1,560,000**

10.3 Plan Implementation Effects on Existing Land Use

Given that implementation of the GSP will likely result in the adoption of regulations limiting or suspending extractions pursuant to the authority granted by SGMA, implementation of the GSP is likely to have an impact on land uses. However, all such regulations will need to be consistent with the applicable statutory constraints, including those described in Water Code Section 10726.4(a)(2) which provides that such regulations shall be consistent with the applicable elements of the city or county general plan, unless there is insufficient sustainable yield in the basin to serve a land use designated in the city or county general plan and Water Code Section 10726.8(f) which states that nothing contained in SGMA or in a GSP shall be interpreted as superseding the land use authority of cities and counties.

10.4 Plan Implementation Effects on Water Supply

Plan implementation will not significantly alter the existing water supply of the Subbasin. If entities opt to develop optional water supply projects as outlined in Chapter 9, the Subbasin's water supply could increase.

10.5 Plan Implementation Effects on Local and Regional Economy

Plan implementation will potentially limit economic growth due to pumping reductions outlined in Chapter 9. Pumping reductions could limit or reduce agricultural output, thereby reducing regional income.

11 NOTICE AND COMMUNICATION

This chapter and the Communications and Engagement (C&E) Plan in Appendix M describe the notification and communication with interested parties and stakeholders in the Subbasin regarding the GSP. The information presented is prepared in accordance with the SGMA Regulations §354.10 to provide a description of beneficial uses, a list of public meetings, and comments and a summary of responses. It also contains a communication section with an explanation of the decision-making process, identification of opportunities for public engagement, a description of outreach to diverse populations, and the method for keeping the public updated about the plan and related activities. These requirements are met by the Communications and Engagement (C&E) Plan that is included in Appendix M. Public comments received and provided by the GSAs are listed in Appendix N. Table 11-1 lists the specific regulatory and statutory requirements for notice and communication and refers to sections of the C&E Plan.

The plan was written early in the process of GSP development as a stand-alone document to guide notice and communication throughout GSP development. The C&E Plan was presented to and accepted as "receive and file" by the Cooperative Committee on July 25, 2018. Table 11-2 lists public meetings that were held after July 2018.

Table 11-1. Requirements of Statutes and Regulations Pertaining to Notice and Communications

Legislative / Regulatory Requirement	Legislative / Regulatory Section Reference	C&E Plan Section
Publish public notices and conduct public meetings when establishing a GSA, adopting or amending a GSP, or imposing or increasing a fee.	SGMA Sections 10723(b), 10728.4, and 10730(b)(1).	**7.0**
Maintain a list of, and communicate directly with, interested parties.	SGMA Sections 10723.4, 10730(b)(2), and 10723.8(a)	**4.0**
Consider the interests of all beneficial uses and users of groundwater.	SGMA Section 10723.2	**4.0**
Provide a written statement describing how interested parties may participate in plan [GSP] development and implementation, as well as a list of interested parties, at the time of GSA formation.	SGMA Sections 10723.8(a) and 10727.8(a)	**4.0**
Encourage active involvement of diverse social, cultural, and economic elements of the population within the groundwater basin.	SGMA Section 10727.8(a)	**7.0**
Understand that any federally recognized Indian Tribe may voluntarily agree to participate in the planning, financing, and management of groundwater basins – refer to DWR's Engagement with Tribal Governments Guidance Document for Tribal recommended communication procedures.	SGMA 10720.3(c)	**7.0**
Description of beneficial uses and users of groundwater in the basin	GSP Regulations §354.10	**3.0**
List of public meetings at which the Plan [GSP] was discussed or considered	GSP Regulations §354.10	**Table 11-2**
Comments regarding the Plan [GSP] received by the Agency and a summary of responses	GSP Regulations §354.10	**N/A at time of publication**
A communication section that includes the following:	GSP Regulations §354.10	
Explanation of the Agency's decision-making process	GSP Regulations §354.10	**4.0**
Identification of opportunities for public engagement and discussion of how public input and response will be used	GSP Regulations §354.10	**7.0**
Description of how the Agency encourages active involvement of diverse social, cultural, and economic elements of the population within the basin	GSP Regulations §354.10	**7.0**
The method the Agency will follow to inform the public about progress implementing the Plan [GSP], including the status of projects and actions	**GSP Regulations §354.10**	**7.0**

Table 11-2. Public Meetings Held After July 2018 at Which the GSP Was Discussed

Type of Meeting	Location	Date
Cooperative Committee Special Meeting	Paso Robles City Hall	**Sept. 12, 2018**
Public Workshop: Sustainable Management Criteria	Kermit King Elementary School	**Oct. 4, 2018**
Public Workshop: Sustainable Management Criteria	Creston Elementary School	**Oct. 8, 2018**
Cooperative Committee Regular Meeting	Paso Robles City Hall	**Oct. 17, 2018**
Cooperative Committee Special Meeting	Paso Robles City Hall	**Mar. 6, 2019**
Cooperative Committee Regular Meeting	Paso Robles City Hall	**Apr. 24, 2019**
Cooperative Committee Special Meeting	Paso Robles City Hall	**May 22, 2019**
Cooperative Committee Regular Meeting	**Paso Robles City Hall**	**July 24, 2019**

12 MEMORANDUM OF AGREEMENT

The GSAs will operate under the existing MOA until DWR approves the GSP. The existing MOA is included in Appendix A. During DWR's review process, the GSAs will consider developing a refined governance structure to implement the GSP. The governance structure would be established in a new agreement between the GSAs. The agreement would outline details and responsibilities for GSP administration among the participating entities, and may include provisions to establish a new governing body to oversee GSP implementation.

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August 14, 2019

Paso Robles Subbasin Groundwater Sustainability Plan APPENDICES

Appendix A

Groundwater Sustainability Agency Resolutions and Memorandum of Agreement

BEFORE THE BOARD OF SUPERVISORS

of the

COUNTY OF SAN LUIS OBISPO

Tuesday, May 16, 2017

PRESENT: Supervisors Bruce S. Gibson, Adam Hill, Lynn Compton, Debbie Arnold, and Chairperson John Peschong

ABSENT: None

RESOLUTION NO. 2017-134

RESOLUTION FORMING THE PASO BASIN – COUNTY OF SAN LUIS OBISPO GROUNDWATER SUSTAINABILITY AGENCY AND FINDING THAT THE PROJECT IS EXEMPT FROM SECTION 21000 *ET SEQ.* OF THE CALIFORNIA PUBLIC RESOURCES CODE (CEQA)

The following Resolution is hereby offered and read:

WHEREAS, in 2014, the California Legislature adopted, and the Governor signed into law, three bills (SB 1168, AB 1739, and SB 1319) collectively referred to as the Sustainable Groundwater Management Act (SGMA) (Water Code §§ 10720 *et seq.*), that became effective on January 1, 2015, and that have been subsequently amended; and

WHEREAS, the intent of SGMA, as set forth in Water Code section 10720.1, is to provide for the sustainable management of groundwater basins at a local level by providing local groundwater agencies with the authority, and technical and financial assistance necessary, to sustainably manage groundwater; and

WHEREAS, SGMA requires the formation of a groundwater sustainability agency (GSA) or agencies for all basins designated by the California Department of Water Resources (DWR) as high or medium priority on or before June 30, 2017; and

WHEREAS, SGMA further requires the adoption of a groundwater sustainability plan (GSP) for all basins designated by DWR as high or medium priority and subject to critical conditions of overdraft on or before January 31, 2020; and

WHEREAS, the Paso Robles Area Groundwater Subbasin (Basin No. 3-004.06) (Basin) has been designated by DWR as a high priority basin subject to critical conditions of overdraft; and

WHEREAS, the County of San Luis Obispo is a "local agency" within the Basin as defined in Water Code Section 10721(n) and thus is eligible to form a GSA in the Basin; and

WHEREAS, the Salinas Valley Basin Groundwater Sustainability Agency, City of El Paso de Robles, San Miguel Community Services District, Heritage Ranch Community Services District, and Shandon-San Juan Water District are also local agencies within the Basin, and it is anticipated that they will each become the GSA for their respective service areas within the Basin; and

WHEREAS, on April 6, 2017, the San Luis Obispo Local Agency Formation Commission (LAFCO) conditionally approved the formation of the Estrella-El Pomar-Creston Water District (EPCWD) for the purpose of serving as (or part of) a GSA and which could be formed as early as Fall 2017; and

WHEREAS, although it is anticipated that the EPCWD will desire to become the GSA for its service area consistent with LAFCO's conditional approval, this decision cannot be made or effectuated until the EPCWD is formed, the Board of Directors are seated and the Board of Directors holds the necessary public hearing; and

WHEREAS, the County of San Luis Obispo's SGMA Strategy specifically acknowledges the possibility that a new eligible local agency may be formed shortly after the June 30, 2017 deadline and permits the County of San Luis Obispo to include the potential future service area of the EPCWD in its initial boundary submittal to DWR and then permits them through future action by the Board of Supervisors to subsequently withdraw from serving as the GSA within said area; and

WHEREAS, the County of San Luis Obispo desires to form a GSA to cover all areas within the Basin within the County of San Luis Obispo that will not otherwise be covered by a GSA as of the June 30, 2017 deadline; and

WHEREAS, the County of San Luis Obispo published a notice of public hearing consistent with the requirements contained within Water Code Section 10723(b); and

WHEREAS, the Board of Supervisors conducted such a public hearing on May 16, 2017; and

WHEREAS, the County of San Luis Obispo is committed to the sustainable management of groundwater within the Paso Basin and intends to coordinate with the other GSAs and affected parties, and to consider the interests of all beneficial users and uses of groundwater within the Paso Basin through a memorandum of agreement with the other GSAs.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED by the Board of Supervisors of the County of San Luis Obispo, State of California, that:

Section 1: The foregoing recitals are true and correct and are incorporated herein by reference.

Section 2: The County of San Luis Obispo hereby decides to become the GSA for, and undertake sustainable groundwater management within, the portions of the Basin within the County of San Luis Obispo, with the exception of the portions of the Basin located within the boundaries of the City of El Paso de Robles, the San Miguel Community Services District, the Heritage Ranch Community Services District, and the Shandon-San Juan Water District ("GSA Boundary"). A map of the GSA Boundary is attached hereto as Exhibit A and incorporated herein.

Section 3: The Director of Public Works of the County of San Luis Obispo, or designee, is hereby authorized and directed to submit notice of adoption of this Resolution in addition to all other information required by SGMA, including but not limited to, all information required by Water Code Section 10723.8, to DWR, and to support the development and maintenance of an interested persons list as described in Water Code Section 10723.4 and a list of interested parties as described in Water Code Section 10723.8(a)(4).

Section 4: The Director of Public Works of the County of San Luis Obispo, or designee, is hereby authorized to take such other and further actions as may be necessary to effectuate the purposes of this Resolution.

Section 5: The Board of Supervisors finds that the adoption of this Resolution is exempt from the requirements of the California Environmental Quality Act (Public Resources Code §§ 21000 et seq.) (CEQA) pursuant to Section 15061(b)(3) of the CEQA Guidelines.

Section 6: The Environmental Coordinator of the County of San Luis Obispo is hereby directed to file a Notice of Exemption in accordance with the provisions of CEQA.

Upon motion of Supervisor Arnold, seconded by Chairperson Peschong, and on the following roll call vote, to wit:

AYES: Supervisors Arnold, Chairperson Peschong, Gibson, Hill and Compton

NOES: None

ABSENT: None

ABSTAINING: None

the foregoing resolution is hereby adopted on the 16th day of May, 2017.

John Peschong
Chairperson of the Board of Supervisors

ATTEST:

TOMMY GONG
Clerk of the Board of Supervisors

By: Annette Ramirez
Deputy Clerk

[SEAL]

APPROVED AS TO FORM AND LEGAL EFFECT:

RITA L. NEAL
County Counsel

By: /s/ Erica Stuckey
Deputy County Counsel

Dated: May 4, 2017

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STATE OF CALIFORNIA,)
) **ss.**
COUNTY OF SAN LUIS OBISPO)

I, Tommy Gong, County Clerk and ex-officio Clerk of the Board of Supervisors, in and for the County of San Luis Obispo, State of California, do hereby certify the foregoing to be a full, true and correct copy of an order made by the Board of Supervisors, as the same appears spread upon their minute book.

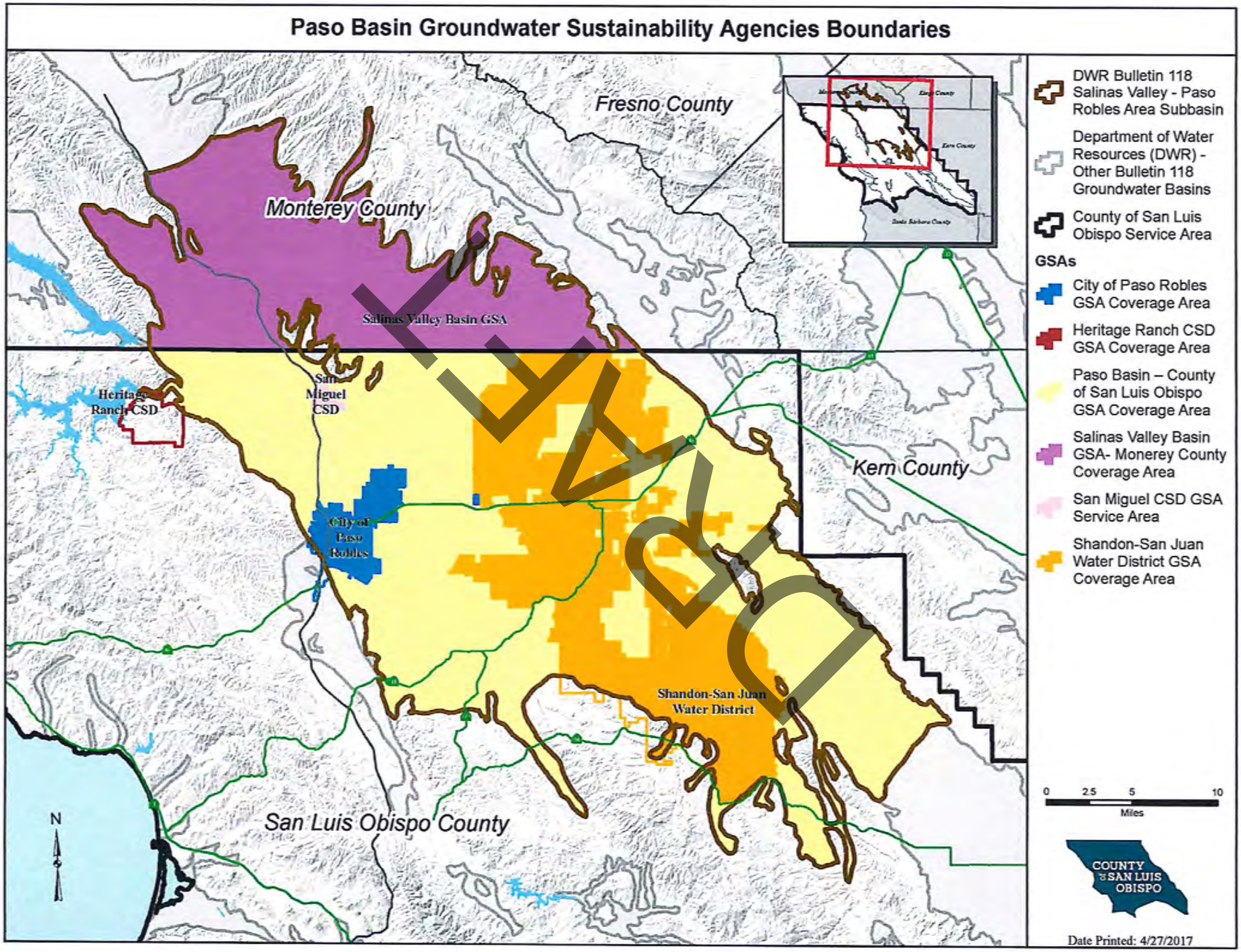
WITNESS my hand and the seal of said Board of Supervisors, affixed this 16th day of May, 2017.

Tommy Gong
County Clerk and Ex-Officio Clerk
of the Board of Supervisors

(SEAL)

By: [signature]
Deputy Clerk

EXHIBIT A



Paso Basin Groundwater Sustainability Agencies Boundaries
Fresno County
Monterey County
Salinas Valley Basin GSA
Heritage Ranch CSD
San Miguel CSD
City of Paso Robles
Kern County
Shandon-San Juan Water District
San Luis Obispo County
DRAFT
N
DWR Bulletin 118 Salinas Valley - Paso Robles Area Subbasin
Department of Water Resources (DWR) - Other Bulletin 118 Groundwater Basins
County of San Luis Obispo Service Area
GSAs
City of Paso Robles GSA Coverage Area
Heritage Ranch CSD GSA Coverage Area
Paso Basin – County of San Luis Obispo GSA Coverage Area
Salinas Valley Basin GSA- Monerey County Coverage Area
San Miguel CSD GSA Service Area
Shandon-San Juan Water District GSA Coverage Area
0 2.5 5 10
Miles
COUNTY of SAN LUIS OBISPO
Date Printed: 4/27/2017

CITY OF EL PASO DE ROBLES
"The Pass of the Oaks"

January 26, 2017

Sent via U.S. Postal Service & Electronic Mail to MarkNordberg@water.ca.gov

Mr. Mark Nordberg, GSA Project Manager
Senior Engineering Geologist
Department of Water Resources
901 P Street, Room 213A
P.O. Box 942836
Sacramento, CA 94236
Mark.Nordberg@water.ca.gov

Subject: Notice of Election to Become a Groundwater Sustainability Agency for a Portion of the Paso Robles Sub-Basin of the Salinas Basin

Dear Mr. Nordberg:

Pursuant to California Water Code Section 10723.8, the City of Paso Robles (City), a political subdivision of the State of California, gives notice to the California Department of Water Resources (DWR) of the City's decision to become a Groundwater Sustainability Agency (GSA) and to undertake sustainable groundwater management in the Paso Robles Sub-Basin (DWR Basin No. 3-4.06) (Basin) in accordance with the Sustainable Groundwater Management Act (SGMA). The GSA will be known as the Paso Robles City GSA. The City overlies the Basin and the proposed service area of the GSA lies entirely within the City's jurisdictional boundaries.

In accordance with section 10723(b) of the Water Code and section 6066 of the Government Code, a notice of public hearing was published in a newspaper of general circulation in the City of Paso Robles and San Luis Obispo County regarding the City's intent to consider forming a GSA. Copies of the proof of publication and published notices are included as Enclosure 1.

On January 17, 2017, the Paso Robles City Council (Council) held a public hearing regarding its decision to form a GSA in accordance with California Water Code Section 10723(b). No written comments were received before the public hearing and no negative comments or objections were made during the hearing.

After holding the public hearing, the Council approved Resolution 17-009 (Enclosure 2), electing to become a GSA over the portion of the Basin within the jurisdiction of the City, as further depicted in Exhibit A to the Resolution and in shape files included herein as Enclosure 3. No new bylaws, ordinances, or authorities for the governance of the GSA have been adopted by the City at this time.

The City is coordinating with other local agencies that overlie the Basin and intends to work cooperatively with these agencies to jointly manage groundwater in the Basin.

The Council has authorized the City's Public Works Director, Dick McKinley, to negotiate inter-agency agreements with local public agencies overlying the Basin, as necessary, for the purposes of implementing a cooperative and coordinated governance structure to sustainably manage the Basin.

To date, the San Miguel Community Services District has provided notice to DWR of its intent to form a GSA over the Basin, but not over the area proposed for the City GSA. To the City's knowledge, no other entities within the City's proposed GSA service area have provided notice to DWR to become a GSA.

Pursuant to California Water Code Section 10723.2, the City will consider the interests of all beneficial uses and users of groundwater, as well as those responsible for implementing a Groundwater Sustainability Plan (GSP). An initial list of stakeholders and interested parties is described below:

a. Holders of overlying groundwater rights – the majority of individuals and entities exercising groundwater rights within that portion of the Basin located within the jurisdiction of the City have a County well permit, or a City permit, and compliance with the County or City ordinances. Those entities include agricultural users, domestic users, other overlying users, and public or private landowners. The list of those private parties pumping groundwater within the City of Paso Robles City limits is included as Enclosure 4.
b. Municipal well operators – the City.
c. Public water systems – the City.
d. Local land use planning agencies – the City.
e. Environmental users of groundwater - None
f. Surface water users, if there is a hydrologic connection between surface and groundwater basins - None
g. California Native American tribes – None.
h. Disadvantaged communities, including but not limited to, those served by private domestic wells or small community water systems or ratepayers and domestic well owners - None.
i. Entities listed in Section 10927 that are monitoring and reporting groundwater elevations in all or part of a groundwater basin managed by the GSA – the City of Paso Robles files, contributes, and/or maintain California Statewide Groundwater Elevation Monitoring (CASGEM) monitoring data with the DWR through San Luis Obispo County.
j. It is anticipated that other entities may form a GSA over part of the Paso Robles sub-basin, including San Luis Obispo County, San Miguel CSD, a future Shandon-San Juan Water District (which is in the LAFCO process), a future Estrella-El Pomar-Creston Water District (which is in the LAFCO process), and several different groups in Monterey County.

The City intends to engage in an open, collaborative and inclusive process to work cooperatively with stakeholders to develop and implement a GSP or multiple GSPs for the Basin and will maintain a list of interested parties to be included in the formation of the GSP(s). An initial list of those interested parties is included in Enclosure 5. The City intends to work with San Luis Obispo County, San Miguel CSD, and the two Water Districts which are currently being formed to work with several interested parties, holding regular meetings, and considering comments, to prepare a GSP that would serve all of the GSAs in San Luis Obispo County overlying the Paso Robles sub-basin, and would be fully coordinated with the GSPs prepared in Monterey County.

The following information is included in this notice and transmittal pursuant to California Water Code Section 10723.8 (a):

1. Notice of Public Hearing pursuant to Government Code Section 6066
2. City Resolution No. 17-009 (with Exhibit A – Paso Robles Sub-basin Maps)
3. City of Paso Robles Boundary shape files

If you have any questions, or require additional information, please contact the City Public Works Director, Dick McKinley, at (805) 237-3861 or via email at dmckinley@prcity.com.

Sincerely,

Thomas Frutchey
City Manager

Enclosures: No. 1: Notice of Public Hearing pursuant to Government Code Section 6066
No. 2: City of Paso Robles Resolution No. 17-009 (with Exhibit A – Paso Robles Sub-basin Maps)
No. 3: City of Paso Robles Boundary shape files (electronic files only)
No. 4: List of private parties who pump from the groundwater basin within the City limits of the City of Paso Robles
No. 5: List of interested parties who would be advised and encouraged to participate in the process of preparing the GSP.

C: Mike McKenzie, DWR - South Central Region
Senior Engineering Geologist
3374 East Shields Avenue
Fresno, CA 93726
Charles.McKenzie@water.ca.gov

Dick McKinley, City Public Works Director
Wade Horton, County of San Luis Obispo Public Works Director
Warren Frace, City Community Development Director
Christopher Alakel, City Water Resource Manager

Append a list of interested parties who receive a copy of this notice (See Enclosure 5)

ENCLOSURE NO. 1

NOTICE OF PUBLIC HEARING

NOTICE OF PASO ROBLES CITY COUNCIL

PUBLIC HEARING

DATE OF MEETING: **TUESDAY, JANUARY 17, 2017**

TIME OF MEETING: **6:30 PM**

PLACE OF MEETING: **COUNCIL CHAMBER, 1ST FLOOR, CITY HALL, 1000 SPRING STREET, PASO ROBLES, CALIFORNIA, 93446**

PROJECT NAME: **RESOLUTION REQUEST AUTHORIZING THE CITY OF EL PASO DE ROBLES TO BECOME A GROUNDWATER SUSTAINABILITY AGENCY OVER THE PASO ROBLES SUB-BASIN UNDER THE CITY LIMITS OF THE CITY OF EL PASO DE ROBLES**

APPLICANT: **CITY OF EL PASO DE ROBLES**

FOR ADDITIONAL INFORMATION PLEASE CONTACT CITY PUBLIC WORKS DIRECTOR: Dick McKinley at (805) 237-3861 or at: dmckinley@prcity.com

PLEASE ACCEPT THIS AS A NOTICE TO INFORM YOU, as a property owner, tenant or interested citizen, that the City Council of the City of El Paso de Robles, California will conduct a public hearing, as part of a scheduled City Council meeting, on the following project:

Notice is hereby given that the City Council of the City of El Paso de Robles will consider authorizing the City to become a Groundwater Sustainability Agency (GSA) over that portion of the Paso Robles Sub-basin that lies under the City limits of the City of El Paso de Robles, per California Water Code Sections 10723 to 10727. In 2014, the California Legislature and the Governor passed into law the Sustainable Groundwater Management Act (SGMA), which provides a new framework for best management of resources in California. Implementation of SGMA is achieved through formation of GSAs and through preparation and implementation of Groundwater Sustainability Plans (GSPs). The City has a groundwater basin that is governed by SGMA legislation, the Paso Robles Sub-basin of the Salinas Basin. This groundwater sub-basin is designated by the State as a high priority basin and must comply with SGMA requirements.

Once the GSA is formed, the City will then be required to develop and implement a GSP that provides a roadmap for managing the basin on a sustainable basis. The City believes it is essential for the City to be a GSA. SGMA provides GSAs with access to various powers and authorities to ensure sustainable management. Becoming a GSA will confirm the City's role as the local groundwater management agency, ensure access to SGMA authorities, and preserve access to grant funding or other opportunities that may be limited to GSAs.

The decision of the City Council is final.

COMMUNICATIONS

This item may begin at any time after the time specified. Any interested person may address the City Council to express support or opposition to this issue. Time allotted to each speaker is determined by the Chair and, in general, is limited to three (3) minutes.

Those unable to attend the hearing may write a letter to the Mayor and City Council, Attention: City Clerk, City Hall, 1000 Spring Street, Paso Robles, CA 93446, OR, you can reach us by email at cityclerk@prcity.com OR FAX at (805) 237-4032. All communications will be forwarded to the Mayor and City Council.

If you wish to challenge the Council's actions on the above proceedings in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence to the City Council at or prior to the public hearing. All correspondence should be delivered to the City Clerk (at the above address) to be included in the record of the proceedings, at or prior to the time of the public hearing. Correspondence must be received no later than 5:00 pm on January 17, 2017.

This material is available in alternative formats upon request. To order information in an alternative format, or to arrange for a sign language or oral interpreter for the meeting, please call the City Clerk's office at least 5 working days prior to the meeting at (805) 237-3960 (voice) or visit the City of Paso Robles website at www.prcity.com.

Dick McKinley
Public Works Director
1/3/2017

THE TRIBUNE Newspaper of the Central Coast

3825 South Higuera • Post Office Box 112 • San Luis Obispo, California 93406-0112 • (805) 781-7800

In The Superior Court of The State of California
In and for the County of San Luis Obispo
AFFIDAVIT OF PUBLICATION

AD # 2855235
CITY OF PASO ROBLES
PUBLIC WORKS

STATE OF CALIFORNIA
ss.
County of San Luis Obispo

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen and not interested in the above entitled matter; I am now, and at all times embraced in the publication herein mentioned was, the principal clerk of the printers and publishers of THE TRIBUNE, a newspaper of general Circulation, printed and published daily at the City of San Luis Obispo in the above named county and state; that notice at which the annexed clippings is a true copy, was published in the above-named newspaper and not in any supplement thereof – on the following dates to wit; JANUARY 3, 10, 2017 that said newspaper was duly and regularly ascertained and established a newspaper of general circulation by Decree entered in the Superior Court of San Luis Obispo County, State of California, on June 9, 1952, Case #19139 under the Government Code of the State of California.

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Marlena Haugl

(Signature of Principal Clerk)
DATED: JANUARY 10, 2017
AD COST: $750.20

NOTICE OF PASO ROBLES CITY COUNCIL PUBLIC HEARING

DATE OF MEETING: TUESDAY, JANUARY 17, 2017

TIME OF MEETING: 6:30 PM

PLACE OF MEETING: COUNCIL CHAMBER, 1ST FLOOR, CITY HALL, 1000 SPRING STREET, PASO ROBLES, CALIFORNIA, 93446

PROJECT NAME: RESOLUTION REQUEST AUTHORIZING THE CITY OF EL PASO DE ROBLES TO BECOME A GROUNDWATER SUSTAINABILITY AGENCY OVER THE PASO ROBLES SUB-BASIN UNDER THE CITY LIMITS OF THE CITY OF EL PASO DE ROBLES

APPLICANT: CITY OF EL PASO DE ROBLES

FOR ADDITIONAL INFORMATION PLEASE CONTACT CITY PUBLIC WORKS DIRECTOR: Dick McKinley at (805) 237-3861 or at: dmckinley@prcity.com

PLEASE ACCEPT THIS AS A NOTICE TO INFORM YOU, as a property owner, tenant or interested citizen, that the City Council of the City of El Paso de Robles, California will conduct a public hearing, as part of a scheduled City Council meeting, on the following project:

Notice is hereby given that the City Council of the City of El Paso de Robles will consider authorizing the City to become a Groundwater Sustainability Agency (GSA) over that portion of the Paso Robles Sub-basin that lies under the City limits of the City of El Paso de Robles, per California Water Code Sections 10723 to 10727. In 2014, the California Legislature and the Governor passed into law the Sustainable Groundwater Management Act (SGMA), which provides a new framework for best management of resources in California. Implementation of SGMA is achieved through formation of GSAs and through preparation and implementation of Groundwater Sustainability Plans (GSPs). The City has a groundwater basin that is governed by SGMA legislation, the Paso Robles Sub-basin of the Salinas Basin. This groundwater sub-basin is designated by the State as a high priority basin and must comply with SGMA requirements.

Once the GSA is formed, the City will then be required to develop and implement a GSP that provides a roadmap for managing the basin on a sustainable basis. The City believes it is essential for the City to be a GSA. SGMA provides GSAs with access to various powers and authorities to ensure sustainable management. Becoming a GSA will confirm the City's role as the local groundwater management agency, ensure access to SGMA authorities, and preserve access to grant funding or other opportunities that may be limited to GSAs.

The decision of the City Council is final.
COMMUNICATIONS

This item may begin at any time after the time specified. Any interested person may address the City Council to express support or opposition to this issue. Time allotted to each speaker is determined by the Chair and, in general, is limited to three (3) minutes.

Those unable to attend the hearing may write a letter to the Mayor and City Council, Attention: City Clerk, City Hall, 1000 Spring Street, Paso Robles, CA 93446, OR, you can reach us by email at cityclerk@prcity.com OR FAX at (805) 237-4032. All communications will be forwarded to the Mayor and City Council.

If you wish to challenge the Council's actions on the above proceedings in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence to the City Council at or prior to the public hearing. All correspondence should be delivered to the City Clerk (at the above address) to be included in the record of the proceedings, at or prior to the time of the public hearing. Correspondence must be received no later than 5:00 pm on January 17, 2017.

This material is available in alternative formats upon request. To order information in an alternative format, or to arrange for a sign language or oral interpreter for the meeting, please call the City Clerk's office at least 5 working days prior to the meeting at (805) 237-3960 (voice) or visit the City of Paso Robles website at www.prcity.com.

Dick McKinley
Public Works Director
1/3/2017
Jan. 3, 10, 2017 2855235

http://www.prcity.com/press/index.asp

City of Paso Robles: Press R... ×

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PASO ROBLES

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DEPARTMENTS CITY COUNCIL ADVISORY BODIES PLANNING COMMISSION

CITY GOVERNMENT

Address
City of Paso Robles
1000 Spring Street
Paso Robles, CA 93446
Map
Phone
(805) 227-PASO
(7276)
FAX
(805) 237-6565
Hours
Mon-Fri 8am to 5pm
E-mail
info@prcity.com

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PRESS RELEASES & PUBLIC NOTICES

City Manager's Task Force on Medical Marijuana - Meeting Reminder
Posted: January 23, 2017

Public Notice: City Council Workshop - Review of Draft Short-Term Rental Ordinance
Posted: January 19, 2017

Free Tax Assistance at the Library
Posted: January 13, 2017

Sierra Backpacking Adventure Presentation at the Library
Posted: January 13, 2017

Paso Robles to Honor Martin Luther King Jr.
Posted: January 10, 2017

Residential Structure Fire - 3126 Spring Street #3
Posted: January 9, 2017

Notice of Public Hearing: Resolution Request Authorizing the City of Paso Robles to become a Groundwater Sustainability Agency Over the Paso Robles Sub-Basin Under the City Limits of the City of Paso Robles
Posted: January 3, 2017

Attempted Bank Robbery
Posted: January 3, 2017

Residential Structure Fire - 14th Street
Posted: January 3, 2017

Volunteers Wanted: Housing Authority Board of Commissioners
Posted: December 27, 2016

Volunteers Wanted: Planning Commission
Posted: December 27, 2016

Residential Structure Fire
Posted: December 23, 2016

Mayor Martin and Supervisor-Elect Peschong Confer
Posted: December 19, 2016

Seeking Musical Performers for 2017 Summer Concert Series
Posted: December 15, 2016

HOT TOPICS

Level 2 Watering Restrictions are In Effect!

Water ... Use it Wisely

Local Hazard Mitigation Plan (2016)

Supplemental Sales Tax Information
and Road Repair Plans

Adopted Ordinances

- 1038 N.S.
  2016 CA Building Code
- 1037 N.S.
  Airport Commission
- 1036 N.S.
  Marijuana Regulation

City Council/
Advisory Committees:
Find An Agenda

List of City Officials

Public Records Requests

Senate Bill 272
(Enterprise System Catalog)

City Projects
Capital OUT TO BID
Request for Proposals

Municipal Code
Online Database

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DRAFT

6/26/2019

ENCLOSURE NO. 2

CITY OF PASO ROBLES RESOLUTION NO. 17-009

RESOLUTION NO. 17-009

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EL PASO DE ROBLES AUTHORIZING THE CITY TO BECOME A GROUNDWATER SUSTAINABILITY AGENCY FOR THE PASO ROBLES SUB-BASIN OF THE SALINAS BASIN FOR THE AREA THAT LIES BENEATH AND WITHIN THE JURISDICTIONAL BOUNDARIES OF THE CITY OF EL PASO DE ROBLES

WHEREAS, in 2014 the California Legislature and the Governor passed into law the Sustainable Groundwater Management Act (SGMA) for local management of groundwater resources in California through the formation of Groundwater Sustainability Agencies (GSAs) and through preparation and implementation of Groundwater Sustainability Plans (GSPs); and

WHEREAS, the City overlies a portion of the Paso Robles Sub-basin of the Salinas Groundwater Basin, which is subject to SGMA, and thus one or more GSAs must be formed for the Sub-basin by June 30, 2017, or the Sub-basin may be subject to regulation by the State Water Resources Control Board; and

WHEREAS, the City is a "local agency" as that term is defined by SGMA, and as such is authorized to form a GSA to manage groundwater resources in the Sub-basin and within the City's jurisdictional boundaries in accordance with SGMA and other applicable laws and authorities; and

WHEREAS, the City desires to form a GSA to manage groundwater resources in the Sub-basin beneath and within the City's jurisdictional boundaries (and excluding that portion of the City's boundaries that overlie the Atascadero Sub-basin as designated by the Department of Water Resources); and

WHEREAS, the City intends that its GSA will work cooperatively with the other GSAs that have formed or will be formed in the Paso Robles Sub-basin to prepare one or more GSPs by January 2020, so that groundwater resources in the Sub-basin will be properly managed and sustainable in accordance with the provisions of SGMA; and

WHEREAS, it is essential that the City form this GSA because SGMA grants GSAs substantial additional powers and authorities to ensure sustainable groundwater management. Acting as the GSA within the City's jurisdictional boundaries will, among other things, confirm the City's role as the local groundwater management agency, ensure access to SGMA authorities, and preserve access to grant funding and other opportunities that may be available to GSAs; and

WHEREAS, pursuant to the requirements of SGMA, the City held a public hearing on this date after publication of notice pursuant to California Government Code section 6066 to consider adoption of this Resolution.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF EL PASO DE ROBLES DOES HEREBY RESOLVE AS FOLLOWS:

<u>Section 1</u>. All of the above recitals are true and correct and incorporated herein by reference.

<u>Section 2.</u> The Mayor is authorized to sign a resolution for the City of El Paso de Robles to become a Groundwater Sustainability Agency in accordance with the Sustainable Groundwater Management Act over the portion of the Paso Robles Sub-basin which lies under and within the jurisdictional boundaries of the City of Paso Robles (and excluding that portion of the City's boundaries that overlie the Atascadero Sub-basin as designated by the Department of Water Resources).

Section 3. The City Manager is authorized and directed to submit a notice of this Resolution along with all other required information to the California Department of Water Resources in accordance with the Sustainable Groundwater Management Act.

Section 4. The City Groundwater Sustainability Agency shall consider the interests of all beneficial uses and users of groundwater within the jurisdictional boundaries of the City and will develop an outreach program for all such stakeholders.

Section 5. The City Groundwater Sustainability Agency shall establish and maintain a list of persons interested in receiving notices regarding the City's involvement in the preparation of one or more Groundwater Sustainability Plans in the Paso Robles Sub-basin, where any person may request in writing to be placed on the City's list of interested persons.

APPROVED this 17TH day of January, 2017, by the following vote:

AYES: Gregory, Hamon, Strong, Reed, Martin
NOES:
ABSENT:
ABSTAIN:

Steven W. Martin, Mayor

ATTEST:

Kristen L. Buxkemper, Deputy City Clerk

DRAFT

I hereby certify that the foregoing is a full, true and correct copy of Resolution 17-009 Authorizing the City to become a Groundwater Sustainability Agency for the PR Sub-Basin. on file in the Office of the City Clerk.
In witness hereof, my hand and official seal:

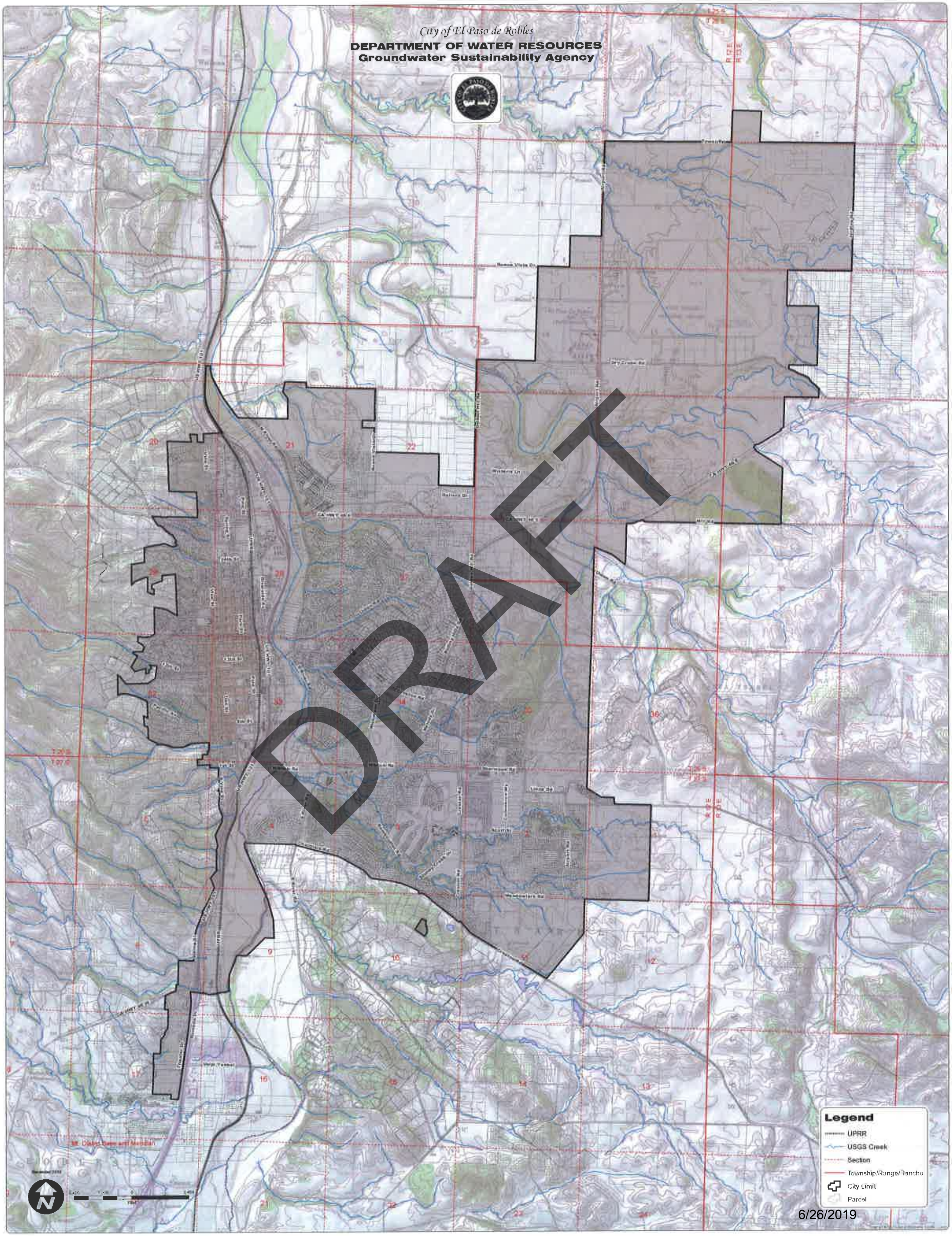
1/23/17
Date

Deputy City Clerk

82481.00000\29454130.2

ENCLOSURE NO. 3

CITY OF PASO ROBLES BOUNDARY MAP
(SHAPE FILES ARE ELECTRONIC ONLY)


City of El Paso de Robles
DEPARTMENT OF WATER RESOURCES
Groundwater Sustainability Agency
DRAFT
Legend
UPRR
USGS Creek
Section
Township/Range/Rancho
City Limit
Parcel
6/26/2019

ENCLOSURE NO. 4

LIST OF PRIVATE PARTIES

APN_1	Owner	Assessee	Address1	City	State	Zip
008022001	SALMANZADEH FAMILY TRUST	SALMANZADEH JULIE TRE ETAL	3700 SPRING ST	PASO ROBLES	CA	93446
009461049	R & H GOLF LP A CA LP	R & H GOLF LP A CA LP	1460 SPANISH CAMP RD	PASO ROBLES	CA	93446
009751022	PEREZ EDDIE F & ELAYNE L	PEREZ EDDIE F & ELAYNE L	2464 CRESTON RD	PASO ROBLES	CA	93446
009795001	OLSEN INVESTMENTS LLC	OLSEN INVESTMENTS LLC	3161 LINNE RD	PASO ROBLES	CA	93446
009795002	OLSEN INVESTMENTS LLC A CA LLC	OLSEN INVESTMENTS LLC A CA LLC	3161 LINNE RD	PASO ROBLES	CA	93446
009795005	GOULART LOIS D REVOCABLE LIVING TRUST	GOULART LOIS D TRE	255 HANSON RD	PASO ROBLES	CA	93446
009796004	CONDICT WINFIELD S FAMILY TRUST	CONDICT WAYNE A TRE ETAL	1 CHATTANOOGA ST	IRVINE	CA	92620
009796006	CONDICT PRESTON F	VANKLEY F & J ETAL	1556 SENTIMENTAL LN	OUR TOWN	CA	93446
009796009	CONDICT GREGORY R	CONDICT GREGORY R HEIRS OF ETAL	PO BOX 3889	PASO ROBLES	CA	93447
009796010	CONDICT RANDALL C	TOSCH AJ & M ETAL	560 AAROE DR	OUR TOWN	CA	93446
009796017	CONDICT KEVIN C	BUETTNER LILLIAN M TRE ETAL	9416 CUMMINGS RD	DURHAM	CA	95938
009796018	CONDICT WAYNE A	CONDICT WAYNE A	1557 SENTIMENTAL LN	OUR TOWN	CA	93446
009796020	CONDICT WINFIELD S FAMILY TRUST	CONDICT WAYNE A TRE ETAL	1 CHATTANOOGA ST	IRVINE	CA	92620
009821002	ESTRADA SILAS & TERESA TRUST	ESTRADA SILAS TRE ETAL	220 S VINE ST	PASO ROBLES	CA	93446
009821007	COOK JOHN & KATHLEEN LIVING TRUST	COOK JOHN H TRE ETAL	1466 LA CIMA RD	SANTA BARBARA	CA	93101
009851012	CGLPT ENTERPRISES GEN PTP	CGLPT ENTERPRISES GEN PTP	4490 BUENA VISTA DR	PASO ROBLES	CA	93446
009863006	GAVIN TODD	GAVIN TODD	2550 CATTLEMAN WAY	PASO ROBLES	CA	93446
009863007	HARROD PASO LP A CA LP	HARROD PASO LP	PO BOX 3200	SALINAS	CA	93912
009863009	HARROD PASO LP A CA LP	HARROD PASO LP	PO BOX 3200	SALINAS	CA	93912
025011026	WOODRUM CHAD	WOODRUM CHAD & MELISSA	805 RED CLOUD RD	PASO ROBLES	CA	93446
025011027	WEBER MICHAEL E	WEBER MICHAEL E	1640 LYLE LN	PASO ROBLES	CA	93446
025011028	COLLINS JULIA	COLLINS JULIA & RODNEY	1690 LYLE LN	PASO ROBLES	CA	93446
025011029	DREA MELISSA L	DREA MELISSA L	17 GILBERT HILL	BERMUDA	FR	99999
025011031	GONZALES CRISTINA S	SIMOES MATILDE L ETAL	1575 LYLE LN	PASO ROBLES	CA	93446
025011032	CRUME ALFRED G	CRUME ALFRED G & MARY R	1555 LYLE LN	PASO ROBLES	CA	93446
025362001	WHITE BRUCE	WHITE BRUCE	PO BOX 539	PASO ROBLES	CA	93447
025362004	BLAKE DANIEL A & JANICE A LIVING TRUST	BLAKE DANIEL A TRE ETAL	4374 UNION RD	PASO ROBLES	CA	93446
025362009	GRAF TRUST	GRAF FRANCES A TRE	2902 ARDMORE RD	PASO ROBLES	CA	93446
025362011	GOLDSTEIN FAMILY LLC A CA LLC	GOLDSTEIN FAMILY LLC	1355 HIGHWAY 46 WEST	PASO ROBLES	CA	93446
025362012	VIEIRA RICHARD A & KATHLEEN M 2009 REVOCABLE TRUST	VIEIRA KATHLEEN M TRE ETAL	2910 ARDMORE RD	PASO ROBLES	CA	93446
025362013	HONZEL CHARLES R	HONZEL CHARLES R & PL	PO BOX 1332	PASO ROBLES	CA	93446
025362036	EHRKE JAMES T	EHRKE JAMES T	9926 SAGE HILL WY	ESCONDIDO	CA	92026
025371017	RAK FRANK R JR REVOCABLE LIVING TRUST	RAK FRANK R JR TRE	PO BOX 3212	PASO ROBLES	CA	93447
025371021	HAYLEY JULIET E	HAYLEY MICHAEL S & JULIET E	3189 E HWY 46	PASO ROBLES	CA	93446
025371024	OBRIEN DAVID P	OBRIEN DAVID P & LIESL A	2785 CLARK VALLEY RD	LOS OSOS	CA	93402
025381008	WILCOX RANCH LP A CA LP	WILCOX RANCH LP	67225 SARGENTS RD	SAN ARDO	CA	93450
025390004	GREGORY CHARLES S & DAWN P 2009 REVOCABLE TRUST	GREGORY CHARLES S TRE ETAL	PO BOX 4068	PASO ROBLES	CA	93447
025390009	RIVER OAKS II LLC A DE LLC	RIVER OAKS II LLC	PO BOX 4280	PASO ROBLES	CA	93447
025410005	BAER DEREK A	BAER DEREK A & SONJIA M	1711 EXPERIMENTAL STATON RD	PASO ROBLES	CA	93446
025410007	MOE MARILYN R 2009 REVOCABLE TRUST	MOE MARILYN R TRE	1631 EXPERIMENTAL STATION	PASO ROBLES	CA	93446
025410008	DOBROTH ERIC	DOBROTH ERIC & SARA	1700 EXPERIMENTAL STATION RD	PASO ROBLES	CA	93446
025410009	CVT TRUST (TR 1)	TSUI CHERYL V TRE ETAL	1520 EXPERIMENTAL STATION RD	PASO ROBLES	CA	93446
025410010	LAPOINTE PAUL & JOYCE LIVING TRUST	LAPOINTE PAUL E TRE ETAL	1412 EXPERIMENTAL STATION RD	PASO ROBLES	CA	93446
025411004	SIMPSON ANDREA	SIMPSON ANDREA	2935 WATSON CT E	CONCORD	CA	94518
025411013	HARDWICK TRUST OF 1999	HARDWICK THOMAS K TRE ETAL	908 WALNUT DR	PASO ROBLES	CA	93446
025422013	JOHNSTON PETER F & JOCELYN W FAMILY TRUST	JOHNSTON PETER F TRE ETAL	1815 EXPERIMENTAL STATION RD	PASO ROBLES	CA	93446
025434006	DIAMOND STERLING & JUDY REVOCABLE TRUST	DIAMOND STERLING N TRE ETAL	5920 BUENA VISTA DR	PASO ROBLES	CA	93446
025434007	BUTTERFIELD JACOB B	BUTTERFIELD JACOB B & LAURIE A	200 CRESTMONT	SLO	CA	93401
025435008	PASO ROBLES HORSE PARK A CA LLC	PASO ROBLES HORSE PARK A CA LLC	2279 WILLOW CREEK RD	PASO ROBLES	CA	93446
025435010	SMITH GARY D	SMITH GARY D ETAL	8105 SAN DIEGO RD	ATASCADERO	CA	93422
025436013	PASO ROBLES CITY OF	CITY OF PASO ROBLES (955)	1000 SPRING ST	PASO ROBLES	CA	93446
025436015	BOATMAN GARY P	HOFFMAN GWYNN H TRE ETAL	1511 PARK ST	PASO ROBLES	CA	93446
025436018	WILSON RUSSELL R INTER VIVOS TRUST	WILSON RUSSELL R TRE	3580 AIRPORT RD	PASO ROBLES	CA	93446
025436019	DIDONNA ANTHONY & MAXINE TRUST	DIDONNA ANTHONY R TRE ETAL	3490 AIRPORT RD	PASO ROBLES	CA	93446
025436029	HANDLEY JERRY L	HANDLEY JERRY L & KATHERINE A	PO BOX 1011	PASO ROBLES	CA	93447
025436039	EBERLE WINERY LTD A LTD PTP	EBERLE WINERY LTD	PO BOX 2459	PASO ROBLES	CA	93447
025441001	PR11 LLC A CA LTD LIABILITY COMPANY	PR11 LLC A CA LTD LIABILITY COMPANY	2021 THE ALAMEDA #145	SAN JOSE	CA	95126
025441002	PR11 LLC A CA LTD LIABILITY COMPANY	PR11 LLC A CA LTD LIABILITY COMPANY	2021 THE ALAMEDA #145	SAN JOSE	CA	95126
025441004	RUTZ FAMILY INC A CA CORP	RUTZ FAMILY INC	PO BOX 2030	PASO ROBLES	CA	93447
025442003	PASO ROBLES VINEYARDS INC A CALIFORNIA CORPORATION	PASO ROBLES VINEYARDS INC A CA CORI	PO BOX 2030	PASO ROBLES	CA	93447
025442005	GEARHART KELLY V	MILLER JAMES H JR ETAL	PO BOX 4725	PASO ROBLES	CA	93447
025442006	PASO ROBLES VINEYARD INC A CALIF CORP	PASO ROBLES VINEYARD INC A CAL CORI	PO BOX 2030	PASO ROBLES	CA	93447
025442007	PASO ROBLES VINEYARDS INC A CALIFORNIA CORPORATION	PASO ROBLES VINEYARDS INC A CA CORI	PO BOX 2030	PASO ROBLES	CA	93447
025442008	PASO ROBLES VINEYARDS INC A CALIFORNIA CORPORATION	PASO ROBLES VINEYARDS INC A CA CORI	PO BOX 2030	PASO ROBLES	CA	93447
025442009	PASO ROBLES VINEYARDS INC A CALIFORNIA CORPORATION	PASO ROBLES VINEYARDS INC A CA CORI	PO BOX 2030	PASO ROBLES	CA	93447
025442010	BALDWIN MARIETTE	BALDWIN MARIETTE	PO BOX 182	PASO ROBLES	CA	93447
025442011	PASO ROBLES VINEYARDS INC A CALIFORNIA CORPORATION	PASO ROBLES VINEYARDS INC A CA CORI	PO BOX 2030	PASO ROBLES	CA	93447
025442012	PASO ROBLES VINEYARDS INC A CALIFORNIA CORPORATION	PASO ROBLES VINEYARDS INC A CA CORI	PO BOX 2030	PASO ROBLES	CA	93447
025442013	PASO ROBLES VINEYARDS INC A CALIFORNIA CORPORATION	PASO ROBLES VINEYARDS INC A CA CORI	PO BOX 2030	PASO ROBLES	CA	93447
025442014	PASO ROBLES VINEYARDS INC A CALIFORNIA CORPORATION	PASO ROBLES VINEYARDS INC A CA CORI	PO BOX 2030	PASO ROBLES	CA	93447
025442015	PASO ROBLES VINEYARDS INC A CALIFORNIA CORPORATION	PASO ROBLES VINEYARDS INC A CA CORI	PO BOX 2030	PASO ROBLES	CA	93447
025442017	PASO ROBLES VINEYARDS INC A CALIFORNIA CORPORATION	PASO ROBLES VINEYARDS INC A CA CORI	PO BOX 2030	PASO ROBLES	CA	93447
025442018	PASO ROBLES VINEYARDS INC A CALIFORNIA CORPORATION	PASO ROBLES VINEYARDS INC A CA CORI	PO BOX 2030	PASO ROBLES	CA	93447
025442020	GEARHART KELLY V	MILLER JAMES H JR ETAL	PO BOX 4725	PASO ROBLES	CA	93447
025442021	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025442022	VINA VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025442023	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025443002	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025443013	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025443015	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025443016	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025443017	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025443018	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025443019	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025444001	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025444004	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025444006	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025444008	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025444009	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025444010	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025444011	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025444012	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025444013	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447
025444014	VINO VISTA LLC A CA LLC	VINO VISTA LLC	PO BOX 510	PASO ROBLES	CA	93447

ENCLOSURE NO. 5

LIST OF INTERESTED PARTIES

City of Paso Robles GSA

Interested Parties List

John Neil	AMWC	jneil@amwc.us
Willy Cunha	Shandon-San Juan Water District	wcunha@sunviewvineyards.com
Nick DeBar	City of Atascadero	ndebar@atascadero.org
Tom Moss	Monterey County	mosst@co.monterey.ca.us
Rob Johnson	Monterey County Water Resources Agency	johnsonr@co.monterey.ca.us
Steve Sinton	Shandon-San Juan Water District	sjsinton@earthlink.net
Patricia Wilmore	Paso Robles Wine Country Alliance	pwilmore@pasowine.com
Darrell Gentry	San Miguel CSD	darrell.gentry@sanmiguelcsd.org
Paul Clark	SLO County Farm Bureau	paul@paulclarklaw.com
Jeff Briltz	Templeton CSD	jbriltz@templetoncsd.org
Dana Merrill	Estrella-El Pomar-Creston Water District	info@mesavineyard.com
Jerry Reaugh	Estrella-El Pomar-Creston Water District	jerry@reaughj.com
Sue Harvey	Environmental - North County Watch	susan@ifsusan.com
Randy Diffenbaugh	Rancho Salinas Mutual Benefit Water Company	rdiff@yahoo.com
Sue Luft	Rural Residential	luftsue@gmail.com
Larry Werner	Engineering	lwerner@northcoastengineering.com
Courtney Howard	SLO County	choward@co.slo.ca.us
Carolyn Berg	SLO County	cberg@co.slo.ca.us
Angela Ruberto	SLO County	aruberto@co.slo.ca.us
John Wallace	Engineering	johnw@wallacegroup.us
John Dornellas	Heritage Ranch CSD	john@heritageranchcsd.org
John Hollenbeck	Engineering	johnhollenbeckpe@gmail.com
Steve Baker	Rural Residential	sbaker1440@gmail.com
Mladen Bandov	SLO County	mbandov@co.slo.ca.us
Kari Wagner	Engineering	kariw@wallacegroup.us
Rachelle Rickard	City of Atascadero	rrickard@atascadero.org
Iris Priestaf	Engineering	IPriestaf@toddgroundwater.com
Kevin Peck	Shandon-San Juan Water District	kp538349@gmail.com
Susan Hayes	Farm Supply	shayes@farmsupplycompany.com
Craig Thomas	Spanish Lakes Mutual Water Company	cncthomas@charter.net
Jim Hagen	Spanish Lakes Mutual Water Company	jdhagen44@hotmail.com
Mark Gabler	Walnut Hills Mutual Water Company	mark.gabler@att.net
Dan Lloyd	Santa Ysabel Ranch Mutual Water Company	danrlloyd@yahoo.com
Karen Capadona	Green River Mutual Water Company	kncapadona@gmail.com
Greg Powell	Mustang Springs Mutual Water Company	greg@make-it.com
Susan Howard	Shandon CSA 16	susan@shilohtax.com

DRAFT

SHANDON-SAN JUAN WATER DISTRICT

RESOLUTION 17-003
RESOLUTION FORMING THE SHANDON-SAN JUAN GROUNDWATER SUSTAINABILITY AGENCY

The following Resolution is hereby offered and read:

WHEREAS, in 2014, the California Legislature adopted, and the Governor signed into law, three bills (SB 1168, AB 1739, and SB 1319) collectively referred to as the Sustainable Groundwater Management Act (SGMA) (Water Code §§ 10720 *et seq.*), that became effective on January 1, 2015, and that have been subsequently amended; and

WHEREAS, the intent of SGMA, as set forth in Water Code section 10720.1, is to provide for the sustainable management of groundwater basins at a local level by providing local groundwater agencies with the authority, and technical and financial assistance necessary, to sustainably manage groundwater; and

WHEREAS, SGMA requires the formation of a groundwater sustainability agency (GSA) or agencies for all basins designated by the California Department of Water Resources (DWR) as high or medium priority on or before June 30, 2017; and

WHEREAS, SGMA further requires the adoption of a groundwater sustainability plan (GSP) for all basins designated by DWR as high or medium priority and subject to critical conditions of overdraft on or before January 31, 2020; and

WHEREAS, the Paso Robles Area Groundwater Subbasin (Basin No. 3-004.06) (Basin) has been designated by DWR as a high priority basin subject to critical conditions of overdraft; and

WHEREAS, the Shandon-San Juan Water District is a "local agency" within the Basin as defined in Water Code Section 10721(n) and thus is eligible to form a GSA in the Basin; and

WHEREAS, the Salinas Valley Basin Groundwater Sustainability Agency, City of El Paso de Robles, San Miguel Community Services District, Heritage Ranch Community Services District, and the County of San Luis Obispo are also local agencies within the Basin, and it is anticipated that they will each become the GSA for their respective service areas within the Basin; and

WHEREAS, adoption of a GSA is exempt from the requirements of the California Environmental Quality Act (Public Resources Code §§ 21000 et seq.) (CEQA) pursuant to Section 15061(b)(3) of the CEQA Guidelines; and

WHEREAS, on April 6, 2017, the San Luis Obispo Local Agency Formation Commission (LAFCO) conditionally approved the formation of the Estrella-El Pomar-Creston Water District (EPCWD) for the purpose of serving as (or part of) a GSA for its portion of the Basin and which could be formed as early as Fall 2017; and

WHEREAS, the Shandon-San Juan Water District desires to form a GSA to cover all areas within the boundaries of the Shandon-San Juan Water District as of the June 30, 2017 deadline; and

WHEREAS, the Shandon-San Juan Water District has published a notice of public hearing consistent with the requirements contained within Water Code Section 10723(b); and

WHEREAS, the Shandon-San Juan Water District conducted such a public hearing on June 8, 2017; and

WHEREAS, the Shandon-San Juan Water District is committed to the sustainable management of groundwater within the Paso Basin in the manner required by SGMA and intends to coordinate with the other GSAs and affected parties, and to consider the interests of all beneficial users and uses of groundwater within the Paso Basin through a memorandum of agreement with the other GSAs.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED by the Board of the Shandon-San Juan Water District, that:

Section 1: The foregoing recitals are true and correct and are incorporated herein by reference.

Section 2: The Shandon-San Juan Water District hereby decides to become the GSA for, and undertake sustainable groundwater management within the boundaries of the Shandon-San Juan Water District, and A map of the GSA Boundary is attached hereto as Exhibit A and incorporated herein.

Section 3: The President of the Board of the Shandon-San Juan Water District, or designee, is hereby authorized and directed to submit notice of adoption of this Resolution in addition to all other information required by SGMA, including but not limited to, all information required by Water Code Section 10723.8, to DWR, and to support the development and maintenance of an interested persons list as described in Water Code Section 10723.4 and a list of interested parties as described in Water Code Section 10723.8(a)(4).

Section 4: The President of the Board of the Shandon-San Juan Water District, or designee, is hereby authorized to take such other and further actions as may be necessary to effectuate the purposes of this Resolution.

Upon motion of Director Turrentine, seconded by Director Sinton,

and on the following roll call vote, to wit:

AYES: 5

NOES: 0

ABSENT: 0

ABSTAINING: 0

the foregoing resolution is hereby adopted on the 8th day of June, 2017.

Willy Cunha,
President of the Board of Directors

ATTEST:

Stephanie Bertoux,
Secretary of the Board of Directors

Dated: June 8, 2017

NOTICE OF EXEMPTION

SHANDON-SAN JUAN WATER DISTRICT

365 TRUESDALE RD. • PO BOX 150 • SHANDON • CALIFORNIA 93461 • (805) 239-0555

Forming Shandon-San Juan Ground Sustainability Agency

Project Location (Specific address):
Paso Robles Groundwater Base
Project Location (County):
San Luis Obispo

Project Applicant & Phone No.:
Shandon-San Juan Water District (805) 239-0555
Applicant Address (specific):
365 Truesdale RD. PO Box 150
Shandon, CA 93461

Description of Nature, Purpose and Beneficiaries of Project

Form a Groundwater Sustainability Agency (GSA) for the District portion of the Paso Robles Groundwater Basin. To cooperate with the other Basin GSA's to write a single Groundwater Sustainability Plan (GSP).

Name of Public Agency Approving Project: Shandon-San Juan Water District

Exempt Status:

Statutory Exemption {Sec. 15262 }

Reasons why project is exempt: The activity is statutorily exempt from CEQA because it is a planning study that collects inventories groundwater data and studies & uses that data to create a GSP. The GSP will include water budgets, strategies, and potential actions projects and programs. Future implementation of any identified actions, projects or programs would be subject to CEQA review.

Willy Cunha President Board of Director
Shandon- San Juan Water District (805) 239-0555

Lead Agency Contact Person **Telephone**

Signature [signature]

Date 06/05/17

Name (Print) Willy Cunha

Title President of the Board of Directors

Board of Directors

President
John Green

Vice President
Larry Reuck

Members
Travis Dawes
Anthony Kalvans
Gib Buckman

General Manager
Darrell W. Gentry

Fire Chief
Rob Roberson

Mission Statement

Committed to serving the community with effectiveness, efficiency, and care to support the economic and social quality of life in San Miguel

Proudly serving San Miguel:

Fire Protection

Street Lighting

Water

Wastewater

Solid Waste

P.O. Box 180
1150 Mission Street
San Miguel, CA 93451

Tel. 805-467-3388
Fax 805-467-9212

www.sanmiguelcsd.org

November 22, 2016

Mark Nordberg, GSA Project Manager
Sustainable Groundwater Management Program
California Department of Water Resources
901 P Street, Room 213A
P.O. Box 942836
Sacramento, CA 94236

Re: San Miguel Community Services District Notice of Intent to become a Groundwater Sustainability Agency for Portions of the Paso Robles Groundwater Basin

Dear Mr. Nordberg:

Pursuant to California Water Code section 10723.8 of the Sustainable Groundwater Management Act of 2014 ("SGMA"), the San Miguel Community Services District ("SMCSD") hereby provides this notice of its decision to become a Groundwater Sustainability Agency ("GSA") for those portions of the Paso Robles Groundwater Sub-basin ("PR Basin"), Department of Water Resources ("DWR"), Bulletin 118, Sub-basin No. 3-04.06 within SMCSD's service area and sphere of influence. SMCSD's service area and sphere of influence overlie a portion of the PR Basin as depicted in Exhibit 1.

As mandated under SGMA, DWR has identified the PR Basin as a high priority basin. Accordingly, the PR Basin must be managed sustainably by one or more GSAs in accordance with the timelines established in SGMA. SMCSD is a local public agency of the State of California organized and operating under the Community Services District Law ("CSD Law"), Government Code §61000 *et seq*. Per Government Code §61100(a) & (b) of the CSD Law, SMCSD has activated powers to "supply water for any beneficial uses, in the same manner as a municipal water district, formed pursuant to the Municipal Water District Law of 1911, Division 20 (commencing with Section 71000) of the Water Code" and to "collect, treat, or dispose of sewage, wastewater, recycled water, and storm water" within its service area in "the same manner as a sanitary district, formed pursuant to the Sanitary District Act of 1923, Division 6 (commencing with Section 6400) of the Health and Safety Code." Pursuant to Government Code §61100(a) & (b), SMCSD exercises water supply and management responsibilities throughout its service area.

SMCSD's water management responsibilities in the PR Basin include operation and maintenance of a wastewater treatment plant, management and infiltration of treated wastewater into the PR Basin via SMCSD owned infiltration ponds, and supplying customers with water for beneficial use by pumping groundwater from the PR Basin. Becoming a GSA will support SMCSD's existing efforts to eliminate overdraft in the SMCSD's portion of the PR Basin while protecting water quality and ensuring future water supply sustainability in the San Miguel area (in cooperation with the County of San Luis Obispo and other water supply agencies in the PR Basin).

In accordance with Section 10723(b) of the Water Code, and Section 6066 of the Government Code, SMCSD published a notice of public hearing regarding SMCSD' s potential decision to become a GSA. The notice of public hearing was published in a newspaper of general circulation in northern San Luis Obispo County, the Paso Robles Press and San Luis Obispo Tribune, thereby notifying interested parties and the public of SMCSD's intent to consider becoming a GSA in portions of the PR Basin.

The notice and proof of publication is enclosed herewith as Exhibit 2. On October 27, 2016, the SMCSD Board of Directors, at a properly noticed special board meeting, held a public hearing to consider whether SMCSD should file a notice of intent to become a GSA for a portion of the PR Basin. No written comments were received prior to the public hearing, and the SMCSD heard and considered the verbal comments of the members of the public who provided comments at the October 27, 2016 public hearing.

Following closure of the public hearing, SMCSD's Board of Directors adopted Resolution No. 2016-34, enclosed herewith as Exhibit 3, wherein SMCSD's governing body determined to become a GSA for all of those portions of the PR Basin within SMCSD's service area and sphere of influence. SMCSD is not proposing any new bylaws, ordinances, or other new authorities associated with this GSA formation, but it will continue to work collaboratively with the County of San Luis Obispo and other water supply agencies, as well as other neighboring local agencies, to ensure all of the groundwater in the PR Basin is managed in accordance with the requirements of SGMA.

To the best of SMCSD's knowledge, other entities considering formation of a GSA near SMCSD's service area and sphere of influence in the PR Basin may include:

- County of San Luis Obispo
- City of Paso Robles
- City of Atascadero
- Templeton Community Services District, and
- Atascadero Mutual Water District.

The SMCSD Board of Directors in Resolution No. 2016-34 authorized the Board President and District General Manager and District General Counsel to negotiate MOUs, or other appropriate agreement(s), with other public agencies and/or entities that utilize or manage water in the PR Basin, as may be necessary for the purpose of implementing a cooperative, coordinated governance structure for the management of the PR Basin.

SMCSD has begun discussions with the agencies listed above, stakeholders, and interested parties overlying portions of the PR Basin near SMCSD's service area and sphere of influence, and is working cooperatively with these parties to establish basin-wide coordination and governance for groundwater management (while reducing, to the maximum extent practical, duplication of effort, overlap of jurisdiction, and inter-agency conflict).

As required by Water Code Section 10723.8(a)(4), SMCSD established and is maintaining a list of interested parties that will continue to be amended as necessary during the GSA formation and Groundwater Sustainability Plan ("GSP") development process. As required by SGMA, SMCSD will consider all classes of beneficial uses and users of groundwater within the PR Basin, as well as the interests of those entities responsible for developing GSPs.

An initial list of interested parties is enclosed herewith as Exhibit 4. The interested persons list will be used by SMCSD to ensure that, pursuant to California Water Code Section 10723.2, SMCSD considers the interests of all beneficial uses and users of groundwater in the PR Basin, as well as those responsible for implementing a GSP or GSPs in the PR Basin. SMCSD will update the interested parties list as new information becomes available and negotiations with other public agencies progress.

It is my understanding, based on opinion of SMCSD's legal counsel, that all applicable and required information listed in Water Code §10723.8(a) has been provided to DWR in this correspondence and supporting exhibits. SMCSD's GSA formation notification to DWR complies with all of the requirements of SGMA (as amended). However, to the extent that DWR requires additional information to complete the GSA formation notification process, SMCSD will promptly provide such information.

If you have any questions, or require further information, please contact Darrell Gentry, SMCSD General Manager at (805) 467-3388.

Sincerely,

Darrell Gentry

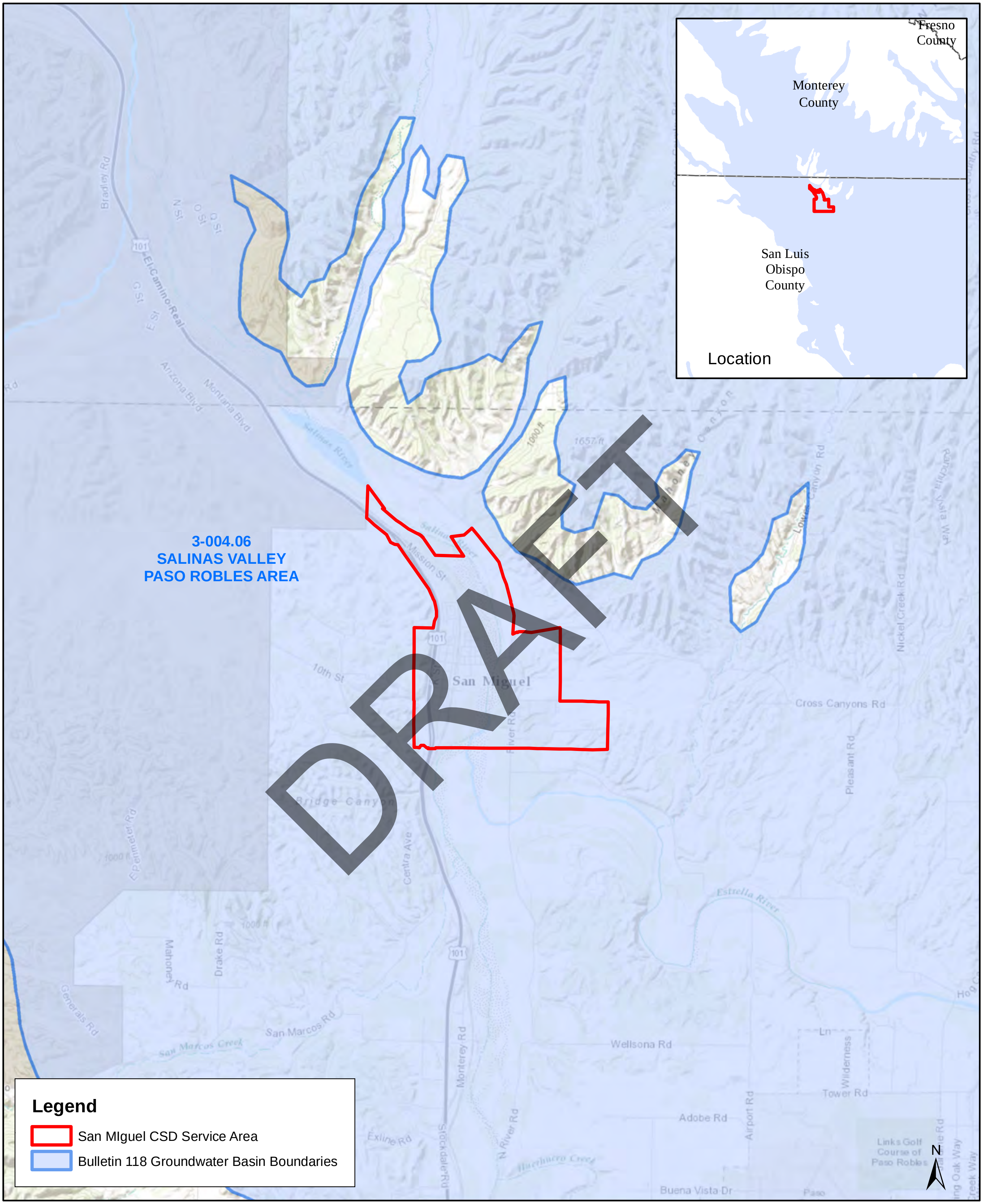
Darrell Gentry,
District General Manager
San Miguel Community Services District

Attachments: Exhibits 1-4

EXHIBIT 1

(PR BASIN AREA MAP/ESTRELLA SUB-BASIN MAP)

San Miguel Community Services District
Service Area & Sphere of Influence
Recommendation



San Miguel Community Services District
GSA Submittal

6/26/2019

For a map of all the GSA's submitted, see: http://www.water.ca.gov/groundwater/sgm/gsa_map.cfm

Date: 12/16/2016

EXHIBIT 2

(NOTICE OF PUBLIC HEARING

PROOF OF PUBLICATION)

SAN MIGUEL COMMUNITY SERVICES DISTRICT

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN THAT THE San Miguel Community Services District Board of Directors will hold a public hearing on:

Thursday, October 27, 2016, 7:00 P.M., 1150 Mission Street to consider the following:

1. Adopting **Resolution No 2016-33**, To Form a Groundwater Sustainability Agency (GSA) pursuant to California Water Code section 10723.8 of the Sustainable Groundwater Management Act of 2014 for all properties within the District water service and sphere of influence boundaries.

Description:

2. To consider approving the enacting resolution to form and establish a GSA for purpose of managing water resources within the jurisdictional and sphere of influence boundaries of the San Miguel Community Services District that establishes the following objectives:

> A consistent and minimum reliable water supply is essential to the public health, safety and welfare of the people and community of San Miguel, and
>
> Will enact rules, regulations and standards for water reuse, recycling, conservation, and
>
> Work collaboratively with others to eliminate or reduce overdraft conditions that may exist in the SMCSD's portion of the PR Basin, while protecting water quality and ensuring future water supply sustainability in the San Miguel area (in cooperation with the County of San Luis Obispo and other water supply agencies in the PR Basin), and to assure that the San Miguel Area portion of the Basin is managed in accordance with the requirements of SGMA

The GSA will be comprised of the SMCSD Board of Directors who may enact voluntary and mandatory measures to achieve these specified objectives.

Proposed Environmental Determination:

Categorical Exemption, Class 7, Regulatory Action Taken to Protect Natural Resource.

A copy of the Categorical Exemption form is available at District office and available upon request or at the District website. District contact information is: www.sanmiguelcsd.org or phone – (805) 467-3388.

Interested persons are invited to be present at the public hearing and will be given an opportunity to speak in favor or in opposition to the above-proposed ordinance. Written comments are also acceptable, if submitted or delivered to the District office prior to the public hearing.

Information regarding the proposed ordinance is on file at the District office or may be found on the District's website, www.sanmiguelcsd.org.

BY ORDER OF THE SAN MIGUEL COMMUNITY SERVICES DISTRICT BOARD OF DIRECTORS.

DARRELL W. GENTRY, GENERAL MANAGER AND SECRETARY TO THE BOARD

Date: September 28, 2016

Published Once on Friday, October 7, 2016

and Once on Friday, October 14, 2016

ROBLES CA 93446
If Corporation or LLC-Print State of Incorporation/Organization

I declare that all information in this statement is true and correct. (A registrant who declares as true information which he or she knows is false is guilty of a crime.)

/S/DEBRA LINDBERG

This statement was filed with the County Clerk of San Luis Obispo County on 09/21/2016

TRANSACTING BUSINESS DATE: NOT APPLICABLE

CERTIFICATION

I hereby certify that this copy is a correct copy of THE TOTAL AMOUNT DUE. Trustor(s): JAMES M. DIMAURO AND NINA M. DIMAURO Recorded: 11/4/2005 as Instrument No. 2005093503 of Official Records in the office of the Recorder of SAN LUIS OBISPO County, California; Date of Sale: 10/31/2016 at 11:00AM Place of Sale: In the breezeway adjacent to the County General Services Building located at 1087 Santa Rosa Street San Luis Obispo, California 93401 Amount of unpaid balance and other charges: $117,345.15 The purported property address is: 2290 HERITAGE LOOP RD, PASO ROBLES, CA 93446 Assessor's Parcel No.: 012-190-029

NOTICE TO POTENTIAL any incorrectness of the property address or other common designation, if any, shown herein. If no street address or other common designation is shown, directions to the location of the property may be obtained by sending a written request to the beneficiary within 10 days of the date of first publication of this Notice of Sale. If the sale is set aside for any reason, including if the Trustee is unable to convey title, the Purchaser at the sale shall be entitled only to a return o f the monies paid to the Trustee. This shall be the Purchaser's sole and exclusive remedy. The purchaser shall have no further recourse against the Trustor, the Trustee, the Beneficiary, the Beneficiary's Agent,

SAN MIGUEL COMMUNITY SERVICES DISTRICT
NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN THAT THE San Miguel Community Services District Board of Directors will hold a public hearing on:
Thursday, October 27, 2016, 7:00 P.M., 1150 Mission Street to consider the following:
1. Adopting Resolution No 2016-33, To Form a Groundwater Sustainability Agency (GSA) pursuant to California Water Code section 10723.8 of the Sustainable Groundwater Management Act of 2014 for all properties within the District water service and sphere of influence boundaries.
Description:
2. To consider approving the enacting resolution to form and establish a GSA for purpose of managing water resources within the jurisdictional and sphere of influence boundaries of the San Miguel Community Services District that establishes the following objectives:
A consistent and minimum reliable water supply is essential to the public health, safety and welfare of the people and community of San Miguel, and
Will enact rules, regulations and standards for water reuse, recycling, conservation, and
Work collaboratively with others to eliminate or reduce overdraft conditions that may exist in the SMCSD's portion of the PR Basin, while protecting water quality and ensuring future water supply sustainability in the San Miguel area (in cooperation with the County of San Luis Obispo and other water supply agencies in the PR Basin), and to assure that the San Miguel Area portion of the Basin is managed in accordance with the requirements of SGMA

The GSA will be comprised of the SMCSD Board of Directors who may enact voluntary and mandatory measures to achieve these specified objectives.
Proposed Environmental Determination:
Categorical Exemption, Class 7, Regulatory Action Taken to Protect Natural Resource.
A copy of the Categorical Exemption form is available at District office and available upon request or at the District website. District contact information is: www.sanmiguelcsd.org or phone – (805) 467-3388.
Interested persons are invited to be present at the public hearing and will be given an opportunity to speak in favor or in opposition to the above-proposed ordinance. Written comments are also acceptable, if submitted or delivered to the District office prior to the public hearing.
Information regarding the proposed ordinance is on file at the District office or may be found on the District's website, www.sanmiguelcsd.org.
BY ORDER OF THE SAN MIGUEL COMMUNITY SERVICES DISTRICT BOARD OF DIRECTORS.
DARRELL W. GENTRY, GENERAL MANAGER AND SECRETARY TO THE BOARD
Date: September 28, 2016 Published Once on Friday, October 7, 2016
and Once on Friday, October 14, 2016

TOMMY GONG,
County Clerk
By ABAUTISTA, Deputy

New Fictitious Business Name Statement, Expires 09/20/2021

PUB: 9-30, 10-7, 10-14, 10-21-2016 LEGAL #5451

NOTICE OF TRUSTEE'S SALE

T.S. No.: 2016-CA006964 Loan No.: XXXXX Order No.: 5822494 APN: 048-071-020,018,014,012, 010, 048-071-008,004, & 085-171-008

YOU ARE IN DEFAULT UNDER A DEED OF TRUST DATED 9/13/2007. UNLESS YOU TAKE ACTION TO PROTECT YOUR PROPERTY, IT MAY BE SOLD AT A PUBLIC SALE. IF YOU NEED AN EXPLANATION OF THE NATURE OF THE PROCEEDING AGAINST YOU, YOU SHOULD CONTACT A LAWYER.
A public auction sale to the highest bidder for cash, cashier's check drawn on a state or national bank, a check drawn by a state or federal credit union, or a check drawn by a state or federal savings and loan association, or savings association, or savings bank specified in section 5102 of the Financial Code and authorized to do business in this state. Sale will be held by the duly appointed trustee as shown below, of all right, title, and interest conveyed to and now held by the trustee in the hereinafter described property under and pursuant to a Deed of Trust described below. The sale will be made, but without covenant or warranty, expressed or implied, regarding title, possession, or encumbrances, to pay the remaining principal sum of the note(s) secured by the Deed of Trust, with interest and late charges thereon, as provided in the note(s), advances, under the terms of the Deed of Trust, interest thereon, fees, charges and expenses of the Trustee for the total amount (at the time of the initial publication of the Notice of Sale) reasonably estimated to be set forth below. The amount may be greater on the day of sale.

BENEFICIARY MAY ELECT TO BID LESS THAN THE TOTAL

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NOTICE TO PRO
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6/26/2019

EXHIBIT 3

(DISTRICT ADOPTING RESOLUTION)

ORIGINAL

RESOLUTION NO. 2016- 34

RESOLUTION OF THE BOARD OF DIRECTORS OF SAN MIGUEL COMMUNITY SERVICES DISTRICT TO BECOME A GROUNDWATER SUSTAINABILITY AGENCY FOR A PORTION OF THE PASO ROBLES GROUNDWATER BASIN WITHIN THE BOUNDARIES AND SPHERE OF INFLUENCE FOR SAN MIGUEL COMMUNITY SERVICES DISTRICT

WHEREAS in September 2014, the Sustainable Groundwater Management Act SGMA was signed into law with an effective date of January 1, 2015 and codified at California Water Code Section 10720 et seq., and

WHEREAS the legislative intent of SGMA is to among other goals: provide sustainable management of alluvial groundwater basins and sub-basins AS defined by the California Department of Water Resources (DWR); to enhance local management of groundwater; to establish minimum standards for sustainable groundwater management and to provide specified local agencies authority and the technical and financial assistance necessary to sustainably manage groundwater, and

WHEREAS the Water Code, Section 10723a authorizes a local agency with water supply water management or local land use responsibilities or a combination of local agencies with such responsibilities overlying a groundwater basin to decide to become a Groundwater Sustainability Agency GSA under SGMA, and

WHEREAS San Miguel Community Services District (SMCSD) is a local agency with water management responsibilities exercised per Government Code 61100 b within SMCSD's service area including management and infiltration of treated wastewater throughout the SMCSD service area, and

WHEREAS sustainable groundwater management of high priority basins as designated by DWR is required by SGMA, and

WHEREAS the service area of SMCSD overlies portions of the Estrella sub-basin of a portion of the Paso Robles Groundwater Basin DWR Bulletin 118 Basin No. 9-7 hereinafter the SLR Basin which is designated by DWR as a high priority basin, and

WHEREAS California Water Code Section 10723.8 requires that a local agency deciding to serve as a GSA notify DWR within 30 days of the local agency's decision to become a GSA authorized to undertake sustainable groundwater management within a basin and

WHEREAS California Water Code Section 10723.8 mandates that 90 days following the posting by DWR of the local agency's decision to become a GSA that entity shall be presumed to be the exclusive GSA for the designated area within the basin the agency is managing as described in the notice provided that no other GSA formation notice covering the same area has been submitted to DWR, and

WHEREAS SMCSD intends to pursue a memorandum of understanding or other Agreement(s) with one or more local agencies in the PR Basin that will achieve the common purpose of creating a governance structure for the entire PR Basin that ensures all of the PR Basin is sustainably managed in a transparent and effective manner under one or more groundwater sustainability plans GSPs, and

WHEREAS in accordance with Section 10723b of the California Water Code and Section 6066 of the California Government Code, a notice of public hearing was published in a general circulation newspaper in San Luis Obispo County regarding SMCSDs intent to consider becoming a GSA for a portion of the PR Basin, and

WHEREAS becoming a GSA supports the SMCSD's ongoing efforts to maintain and replenish the PR Basin, while working to eliminate over-drafting and ensure water supply sustainability within its service area boundaries in cooperation with the state recognized GSA's located within the Paso Robles Basin.

NOW THEREFORE THE SMCSD BOARD OF DIRECTORS HEREBY FINDS DETERMINES RESOLVES AND ORDERS AS FOLLOWS:

Section 1. The above recitals and each of them are true and correct.

Section 2. The SMCSD Board of Directors hereby decides and determines that SMCSD shall become the GSA for all of those portions of the PR Basin underlying or within the jurisdictional boundaries/sphere of influence of SMCSD.

Section 3. SMCSD Staff is directed to submit to DWR within thirty 30 days of the approval of this Resolution all documentation and information required by Water Code Section 10723.8 to support SMCSD's formation of a GSA.

Section 4. The Board President of SMCSD is authorized to execute memorandum(s) of understanding that memorializes the synergistic manner in which SMCSD maintains and/or replenishes its portion of the PR Basin with treated wastewater and otherwise cooperates in the management of the PR Basin in accordance with developed groundwater model(s) and groundwater management plan(s) that protects basin water quality in the Estrella portion of the PR Basin, while ensuring groundwater levels do not drop below specified levels.

Section 5. Board President and District General Manager are further authorized to pursue and negotiate with other local agencies and interested parties in the Estrella portion of the PR Basin such other agreements associated with SGMA compliance as may be deemed prudent by the Board President and/or General Manager. Such agreements-which shall generally be for the purpose of developing and implementing a cooperative and coordinated governance structure for future management of groundwater in some or the entire PR Basin-shall be submitted by the President to the SMCSD Board for consideration and possible approval.

ORIGINAL

Section 6. The approval of this Resolution and the actions described herein are exempt from the requirements of the California Environmental Quality Act CEQA since:

1) they are not a project for purposes of CEQA Guidelines 14 Cal. Code Regs. 15378 b5 because the approval will not result in direct or indirect physical changes in the environment, and

2) it can be seen with certainty that there is no possibility that the approval in question may have a significant effect on the environment. CEQA Guidelines 14 Cal. Code Regs. 15061b3. Staff is directed to file and post within five 5 business days a Notice of Exemption associated with this approval with the Clerk of the Board of Supervisors of San Luis Obispo County.

Section 7. The Secretary to the Board does hereby certifies the adoption of this resolution.

PASSED APPROVED AND ADOPTED this 27th day of October 2016 by the following Vote:

AYES BUCKMAN, DAWES, GREEN, KALVANS, REUCK

NOES

ABSENT

John Green, Board President
San Miguel Community Services District

ATTEST:

Darrell W. Gentry, General Manager and
Secretary to the Board of Directors

APPROVED AS TO FORM:

Doug White, District General Counsel

EXHIBIT 4

(LIST OF INTERESTED PARTIES)

4-H Clubs- Paso Robles
807 Sycamore canyon
Paso Robles, CA 93446

4-H Clubs- San Luis Obispo
2156 Sierra Way #C
San Luis Obispo, CA 93422

Agricultural Liaison Advisory Board (ALAB)

Almira Water Association
P.O. Box 752
Paso Robles, CA 93447

Arciero Winery
5011 CA-46
Paso Robles, CA 93446

Atascadero Mutual Water Company
5005 El Camino Real
Atascadero, CA 93422

Atascadero State Hospital
10333 El Camino Real
Atascadero, CA 93422

Cal Trans Shandon Rest Stop
1120 N Street MS 49 Ca-46
Sacramento, CA 95814

Camp Roberts
billeting office, bldg 6037
Camp Roberts, CA 93451

Central Coast Salmon Enhancement
229 Stanley Ave.
Arroyo Grande, CA 93420

Central Coast Vineyard Team
5915 El Camino Real
Atascadero, CA 93422

Central Coast Wine Grape Growers Association

Chumash Casino Resort
3400 E. Hwy 246
Santa Ynez, CA 93460

City of Atascadero
6500 Palma Ave.
Atascadero, CA 93422

City of Atascadero
6500 Palma Ave.
Atascadero, CA 93422

City of Paso Robles
1000 Spring Street
Paso Robles, CA 93446

City of Paso Robles
1000 Spring Street
Paso Robles, CA 93446

County of Monterey
168 West Alisal Street 3rd fl
Salinas, CA 93901

County of Monterey
140 Church St
alinas, CA 93901

County of San Luis Obispo
1055 Monterey Street
San Luis Obispo, CA 93408

County of San Luis Obispo Planning Department & Planning Commission
976 Osos Street #200
San Luis Obispo, CA 93408

Courtside Cellars
425 Mission Street
an Miguel, CA 93451

Creston Country Store
6330 Webster Rd.
Creston, CA 93432

Creston Elementary School
5105 O'donovan Rd.
Creston, CA 93432

Department of Water Resources
416 9th Street
acramento, CA 95814

El Paso De Robles Youth Correction Facility
4545 Airport Road
Paso Robles, CA 93446

Garden Farms Community Water District
17005 Walnut Ave.
Atascadero, CA 93422

Green River Mutual Water Company
5 Grace Dr.
aso Robles, CA 93446

Grower-Shipper Association
512 Pajaro Street
Salinas, CA 93901

Heritage Ranch CSD
4870 Heritage Road
Paso Robles, CA 93446

Heritage Ranch CSD
4870 Heritage Road
Paso Robles, CA 93446

Huerhuero Ranch
9620 Huer Huero Road
Creston, CA 93432

Hunter Ranch Golf Course
4041 CA-46
Paso Robles, CA 93446

Independent Grape Growers of Paso Robles
P.O. Box 599
Paso Robles, CA 93447

Jack Ranch Cafe
19215 CA-46
Shandon, CA 93461

Land Conservancy of San Luis Obispo
1137 Pacific Street #A
San Luis Obispo, CA 93401

Las Posas Tablas Resource Conservation District
65 S. Main Street #107
Templeton, CA 93465

Loading Chute
6350 Webster Road
Creston, CA 93432

Local Chapter California Certified Organic Farms
P.O. Box 838
Paso Robles, CA 93447

Longbranch Saloon
6258 Webster Road
Creston, CA 93432

Los Robles Mobile Estates
3165 Theatre Dr.
Paso Robles, CA 93446

Meridian Vineyard
7000 Hwy 46
Paso Robles, CA 93446

Monterey County Parks Department
168 West Alisal Street 2rd fl
Salinas, CA 93901

Monterey County Water Resources Agency
893 Blanco Circle
Salinas, CA 93901

Mustang Springs Mutual Water Company
1606 Spring Street
Paso Robles, CA 93446

Native American Heritage Commission
915 Capital Mall #364
Sacramento, CA 95814

North County Farmers Market Association
P.O. Box 1783
Paso Robles, CA 93447

Paso Robles Chamber of Commerce
1225 Park Street
Paso Robles, CA 93446

Paso Robles RV Ranch
398 Exline Road
Paso Robles, CA 93446

Paso Robles Truck Plaza (San Paso)
81 Wellsona Rd.
Paso Robles, CA 93446

Paso Robles Vintners and Growers Association
30 10th Street
Paso Robles, CA 93446

Paso Robles Wine Country Alliance
1446 Spring Street #103
Paso Robles, CA 93446

Pete Johnston GM
2485 Theater Drive
Paso Robles, CA 93446

Pleasant Valley Elementary
025 Ranchita Canyon Road
San Miguel , CA 93451

Rancho Salinas Mutual Benefit Water Company
3563 Empleo Street
San Luis Obispo, CA 93408

Regional Water Quality Control Board
320 West Fourth St #200
Los Angeles, CA 90013

Salinan Nation Cultural Association
P.O. Box 56
Lockwood, CA 93932

San Luis Obispo Council of Government (SLO COG)
919 Palm Street #T
San Luis Obispo, CA 93401

San Luis Obispo County Flood Control
& Water Conservation
976 Osos Street #206
San Luis Obispo, CA 93408

San Miguel Advisory Council
P.O. Box 822
San Miguel , CA 93451

San Miguel Catholic Church—
Monterey Diocese
P.O. Box 69
San Miguel , CA 93451

San Miguel Cemetery District
P.O. Box 237
San Miguel, CA 93451

San Miguel Chamber of Commerce
P.O. Box 385
San Miguel, CA 93451

San Miguel CSD
P.O. Box 180
San Miguel, CA 93451

San Miguel School District
.601 L Street
ian Miguel, CA 93451

Santa Ynez Band of Mission Indians
P.O. Box 517
Santa Ynez, CA 93460

Santa Ysabel Ranch Mutual Water
Company
P.O. Box 1988
Atascadero, CA 93422

SATCOM- Camp Roberts
illeting office, bldg 6037
Camp Roberts, CA 93451

SLO County Cattlemen
P.O. Box 302
Paso Robles, CA 93447

SLO County Cattlewomen
9765 Carrisa Hwy
Santa Margarita, CA 93453

SLO County Farm Supply
450 Ramada Dr.
aso Robles, CA 93446

SLO County Visitors & Conference
Bureau
1334 Marsh Street
San Luis Obispo, CA 93401

SLO Farm Bureau
4875 Morabito Place
San Luis Obispo, CA 93401

Spanish Lakes Mutual Water Company
330 Morro Road
tascadero, CA 93422

Templeton CSD
420 Crocker St.
Templeton, CA 93465

Templeton CSD
420 Crocker St.
Templeton, CA 93465

The Nature Conservancy
9 Pacific St
Monterey, CA 93940

The Nature Conservancy
895 Napa Ave
Morro Bay, CA 93442

U.S. Fish & Wildlife
1849 C Street NW
Washington, DC 20240

JC Cooperative Extension
49 San Benito Street #115
ollister, CA 95023

Upper Salinas-Las Tablas Resource
Conservation District
65 S. Main St. #107
Templeton , CA 93465

USDA Conservation Service
21001 Elliot Road
Lockeford, CA 95237

JSDA Farm Service Agency
30 Campus Drive
andford, CA 93230

Walnut Hills Mutual Water Company
245 Nutwood Circle
Paso Robles, CA 93446

MEMORANDUM OF AGREEMENT REGARDING PREPARATION OF A GROUNDWATER SUSTAINABILITY PLAN FOR THE PASO ROBLES GROUNDWATER BASIN

This Memorandum of Agreement regarding Preparation of a Groundwater Sustainability Plan for the Paso Robles Groundwater Basin ("MOA") is entered into by and between the City of El Paso de Robles ("City"), the San Miguel Community Services District ("SMCSD"), the Heritage Ranch Community Services District ("HRCSD"), the County of San Luis Obispo ("County") and the Shandon-San Juan Water District ("SSJWD") (each referred to individually as a "Party" and collectively as the "Parties") for purposes of preparing a groundwater sustainability plan for the Paso Robles Area Subbasin.

Recitals

WHEREAS, on September 16, 2014, Governor Jerry Brown signed into law Senate Bills 1168 and 1319 and Assembly Bill 1739, known collectively as the Sustainable Groundwater Management Act (Water Code §§ 10720 *et seq.*) ("SGMA"), which became effective on January 1, 2015 and which have been and may continue to be amended from time to time; and

WHEREAS, SGMA requires the establishment of a groundwater sustainability agency ("GSA") or agencies for all basins designated as medium or high priority by the California Department of Water Resources ("DWR") on or before June 30, 2017; and

WHEREAS, SGMA further requires the adoption of a groundwater sustainability plan ("GSP") or coordinated GSPs for all basins designated by DWR as high or medium priority and subject to critical conditions of overdraft on or before January 31, 2020; and

WHEREAS, DWR has designated the Paso Robles Area Subbasin (Basin No. 3-004.06) ("Basin") as a high priority basin subject to critical conditions of overdraft; and

WHEREAS, each of the Parties has decided to become the GSA within its respective service area overlying the Basin and has informed DWR of its decision and intent to undertake sustainable groundwater management therein; and

WHEREAS, each of the Parties desires to collectively develop and implement a single GSP to sustainably manage the portions of the Basin underlying their combined service areas (*i.e.* all portions of the Basin located within the County of San Luis Obispo); and

WHEREAS, the Parties share the common goal of cost effective, sustainable groundwater management that considers the interests and concerns of all beneficial uses and users of groundwater within the Basin; and

WHEREAS, on April 6, 2017, the San Luis Obispo Local Agency Formation Commission conditionally approved the formation of the Estrella-El Pomar-Creston Water District ("EPCWD"), subject to, among other things, a successful vote on the formation pursuant to Water Code Section 34500, for purposes of serving as a GSA within its service area; and

WHEREAS, the EPCWD, if formed, will not be formed until after the June 30, 2017 deadline, and the County included the potential service area of the EPCWD within the Paso Basin – County of San Luis Obispo Groundwater Sustainability Agency that the County formed on May 16, 2017 by Resolution 2017-134; and

WHEREAS, the Parties acknowledge the cooperative efforts of the working group, including representatives of each Party and the applicant and several petitioners desiring to form the EPCWD, that commenced meeting in August 2016 and that culminated in this MOA; and

WHEREAS, this MOA provides for the future addition of EPCWD as a Party to this MOA provided that certain conditions are satisfied, including, but not limited to, a successful vote on the formation of the EPCWD pursuant to Water Code Section 34500 and the County Board of Supervisors decides to withdraw from serving as the GSA for the EPCWD service area; and

WHEREAS, the active involvement and cooperation of all users of groundwater within the Basin is highly valued by the Parties and their continued willing cooperation in SGMA implementation is deemed critical for successful sustainable management of the Basin.

NOW, THEREFORE, it is mutually understood and agreed as follows:

Section 1
Purpose

The purpose of this MOA is to establish a committee to develop a single GSP that will be considered for adoption by each individual Party and subsequently submitted to DWR for approval. This MOA may also serve as the basis for continued cooperation among the Parties in the management of the Basin during the period between adoption of the GSP by each Party and approval of the GSP by DWR. As more specifically set forth in Section 12.2 below, this MOA shall automatically terminate upon DWR's approval of the GSP for the Basin.

Section 2
Term

This MOA shall become effective on the date that the last of the five (5) Parties signs ("Effective Date") and shall remain in effect until terminated in accordance with Section 9.2 or Section 12.2 below.

Section 3
EPCWD

If and only if the EPCWD is formed and its Board of Directors decides to become the GSA within its service area and the County Board of Supervisors decides to withdraw from serving as the GSA within said area, the EPCWD may become a Party to this Agreement by signing the Addition of Party to Memorandum of Agreement regarding Preparation of a Groundwater Sustainability Plan for the Paso Robles Groundwater Basin in the form attached hereto as Exhibit A ("Addition") provided that the County Board of Supervisors has accepted the Addition as part of its decision to withdraw.

Section 4
Paso Basin Cooperative Committee

4.1 The Parties hereby establish the Paso Basin Cooperative Committee ("Cooperative Committee") which shall be composed of a member and alternate member from each of the five (5) Parties.

4.2 The governing body of each Party shall promptly appoint a member and alternate member to the Cooperative Committee. Each Cooperative Committee member and alternate member shall serve at the pleasure of the appointing Party, and may be removed from the Cooperative Committee by the appointing Party at any time. Each Cooperative Committee member's compensation, if any, for his or her service on the Cooperative Committee shall be the responsibility of the appointing Party.

4.3 If and only if the EPCWD becomes a Party to this MOA in accordance with Section 3 of this MOA, the Cooperative Committee shall also include a member and alternate member from the EPCWD appointed by the EPCWD.

4.4 The Cooperative Committee shall conduct activities related to GSP development and SGMA implementation at the pleasure and under the guidance of the Parties, including, but not limited to:

- A. Development of a GSP that achieves the goals and objectives outlined in SGMA;
- B. Review and participation in the selection of consultants related to Cooperative Committee efforts, as more specifically set forth in Section 6 below;
- C. Development of recommended annual budgets and additional funding needs for consideration and approval of the Parties and development of a record of expenditures, in accordance with and subject to Section 5 below. Consistent with Section 7 below, it is expected that each of the Parties will contribute in-kind staff support; therefore, recommended annual budgets

shall generally not include the staff or overhead costs of any Party associated with participation in this MOA;

D. Development of a plan that describes the anticipated tasks to be performed under this MOA and a schedule for performing said tasks;

E. Implementation of the actions and/or policies undertaken pursuant to this MOA and resolution of any issues related to these actions and/or policies;

F. Development of measures that may be implemented in the event insufficient or unsatisfactory progress is being made in development of the GSP;

G. Development of a stakeholder participation plan that includes public outreach and education programs and workshops as appropriate and that involves the interested stakeholders in developing and implementing the GSP (*e.g.* workshops at key milestones); if determined necessary by the Cooperative Committee and supported by the Parties, the Cooperative Committee may lead implementation of the stakeholder participation plan or other stakeholder engagement activities;

H. Establishment from time to time of one or more standing or *ad hoc* committees to assist in carrying out the purposes and objectives of the Cooperative Committee as may be necessary;

I. Recommendation that each individual Party adopt the GSP developed under this MOA;

J. Resolution of differences among the Parties;

K. Coordination with neighboring GSAs in the Salinas Valley Groundwater Basin and with neighboring GSPs as may be required and/or to ensure no adverse effects.

4.5 The Cooperative Committee shall meet at least quarterly to carry out the activities described above. The Cooperative Committee shall prepare and maintain minutes of its meetings, and all meetings of the Cooperative Committee shall be conducted in accordance with the Ralph M. Brown Act (Government Code §§ 54950 *et seq.*). A majority of the members of the Cooperative Committee shall constitute a quorum for purposes of transacting business, except that less than a quorum may vote to adjourn the meeting. Attendance at all Cooperative Committee meetings may be augmented to include Parties' staff or consultants to ensure that the appropriate expertise is available.

4.6 Subject to Section 4.7 below, on all matters considered by the Cooperative Committee, the vote of each member shall be weighted in accordance with the following percentages:

City Member	15%
SMCSD Member	3%
HRCSD Member	1%

SSJWD Member	20%
County Member	61%

4.7 If and only if the EPCWD becomes a Party to this MOA in accordance with Section 3 of this MOA, the voting percentages set forth in Section 4.6 shall be modified as follows:

City Member	15%
SMCSD Member	3%
HRCSD Member	1%
SSJWD Member	20%
County Member	32%
EPCWD Member	29%

4.8 Any action or recommendation considered by the Cooperative Committee shall require the affirmative vote of 67 percent based on the percentages set forth in Section 4.6 or 4.7 above, as applicable. Notwithstanding the foregoing, the following shall require the affirmative vote of 100 percent based on the percentages set forth in Section 4.6 or 4.7 above, as applicable: (A) a recommendation that each of the Parties adopt the GSP or adopt any amendment thereto prepared in response to comments from DWR and (B) a recommendation that the Parties amend this MOA. For purposes of determining whether the requisite voting threshold has been met, the voting percentage of each member must be included in the calculation with the following limited exception: in the event that a member recuses himself or herself (A) said member's voting percentage shall be allocated *pro rata* to the other members for purposes of determining whether the 67 percent threshold has been met and (B) said members' affirmative vote shall not be required to reach the 100 percent threshold (i.e. all members who have not recused themselves must vote in the affirmative). Without limiting the foregoing, an absence by any member(s) shall not result in any *pro rata* distribution for purposes of determining whether the 67 percent threshold has been met or result in elimination of the requirement that said member vote in the affirmative for purposes of determining whether the 100 percent threshold has been met.

4.9 The creation of the Cooperative Committee shall not be construed as a delegation of any powers or authorities, and all powers and authorities of each individual Party shall reside with that Party.

Section 5
Funding

5.1 The Fiscal Year of the Cooperative Committee shall be July 1 through June 30.

5.2 For Fiscal Years 2017 – 2018, 2018 – 2019 and 2019 – 2020, the Cooperative Committee shall develop a recommended budget for consideration by each Party. Subject to each Party's approval of the budget for the relevant Fiscal Year, each Party shall be responsible for funding a portion of said budgeted costs in accordance with the percentages set forth in Section 4.6 or Section 4.7 above, as applicable. Neither the Cooperative Committee nor any Party on behalf of the Cooperative Committee shall make any financial expenditures or incur any financial obligations or liabilities pursuant to this MOA for Fiscal Years 2017 – 2018, 2018 – 2019 or 2019 – 2020 prior to approval of the budget for the relevant Fiscal Year by each Party.

5.3 For Fiscal Year 2020 – 2021 and following, the Cooperative Committee shall develop a recommended budget and recommended contribution percentages for consideration by each Party. Subject to each Party's approval of the budget and its contribution percentage, each Party shall be responsible for funding a portion of said budgeted costs in accordance with the percentages approved by each Party. Neither the Cooperative Committee nor any Party on behalf of the Cooperative Committee shall make any financial expenditures or incur any financial obligations or liabilities pursuant to this MOA for Fiscal Year 2020 – 2021 and following prior to approval of the budget and contribution percentages for the relevant Fiscal Year by each Party.

5.4 It is anticipated that the vast majority of budgeted costs will involve costs for consultant services. Consequently, most contributions shall be paid to the City in the manner described in Section 6.6 below. For budgeted costs that do not involve consultant services (if any), the Cooperative Committee shall determine the manner in which such contributions shall be paid consistent with Section 5.2 and Section 5.3 above.

5.5 The Cooperative Committee shall make recommendations related to any additional non-budgeted funding needs, but shall have no authority to require any Party to contribute funds over and above those included in the budgets approved by each Party.

5.6 On an annual basis, the Cooperative Committee and/or contracting agent shall provide the Parties with a record of expenditures from the previous Fiscal Year related to this MOA.

Section 6
Engagement of Consultants

6.1 It is anticipated that the Cooperative Committee will desire to retain the services of one or more consultants in conducting the activities identified in Section 4.4 above, including, but not necessarily limited to, its development of the GSP.

6.2 The City agrees to act as the contracting agent on behalf of the Cooperative Committee and shall follow its own procurement policies in the engagement of such consultant(s) subject to Section 6.3 below.

6.3 The City agrees that the Parties and the Cooperative Committee shall be included in the selection of any consultant retained by the City on behalf of the Cooperative Committee.

More specifically, staff representatives from each of the Parties shall be given an opportunity to review and approve all requests for proposals prior to their release and to participate in the various stages of the selection process, including, but not limited to, review of proposals and participation on interview panels. In addition, the City shall not issue a notice to proceed to any selected consultant until the Cooperative Committee has confirmed the consultant and related contract.

6.4 The Cooperative Committee may request that the City terminate a consultant contract entered into on behalf of the Cooperative Committee subject to and in accordance with the terms specified in the contract.

6.5 All consultant contracts entered into by the City on behalf of the Cooperative Committee shall include the following: (A) a provision that the consultant shall not commence work until a notice to proceed is issued and acknowledgement that a notice to proceed will not be issued until the Cooperative Committee confirms the consultant and contract; (B) a provision requiring that the consultant name each Party, its employees, officers and agents as an additional insured; and (C) an expected spend plan estimating the amount of the not to exceed contract amount that the consultant expects to invoice the City each month.

6.6 Upon receipt of each invoice from a consultant retained on behalf of the Cooperative Committee, the City shall calculate each Party's payment obligation based on the percentages set forth in Section 4.6 or Section 4.7, as applicable, or on the percentages approved by each Party as set forth in Section 5.3, depending on the Fiscal Year. The City shall submit an invoice to each Party showing the foregoing calculation, and each Party shall remit payment to the City within thirty (30) days.

Section 7
Roles and Responsibilities of the Parties

In addition to performance of the roles and responsibilities set forth above related to, among other things, appointment of members and alternate members to the Cooperative Committee, consideration of annual budgets and cost contributions and participation in the selection of consultants, the Parties shall:

A. Work to jointly to meet the objectives of this MOA through, among other things, coordination of all activities related to fulfillment of said objectives;

B. Internally or jointly designate a staff person(s) to provide expertise and existing information in a timely manner and to participate in the development of the GSP and/or related technical studies and/or other materials or actions being considered by the Cooperative Committee;

C. Upon recommendation of the Cooperative Committee, consider adoption of the GSP and, as defined in the GSP once approved, implement the GSP within its respective GSA service area. Notwithstanding the foregoing, nothing contained in this MOA shall be construed as obligating any Party to adopt the GSP developed under this MOA, or as preventing any Party from adopting the GSP developed under this MOA in the event that the Cooperative Committee fails to recommend approval or another Party (or Parties) elects not to adopt the GSP developed under this MOA;

D. Bring any dispute over any of the activities discussed in this MOA to the Cooperative Committee in order to provide the Cooperative Committee with an opportunity to resolve the dispute.

Section 8
Interagency Communication and Providing Proper Notice

8.1 In order to provide for consistent and effective communication among the Parties, each Party agrees to designate a representative as its central point of contact on all matters relating to this MOA and the GSP. Additional representatives from the community or staff may be appointed to serve as points of contact on specific actions or issues.

8.2 All notices, statements or payments related to implementing the objectives of this MOA shall be deemed to have been duly given if given in writing and delivered electronically, personally or mailed by first-class, registered, or certified mail to the Parties at the addresses set forth in Exhibit B. Notwithstanding any other provision of this MOA, the Parties may update Exhibit B from time to time without formally amending this MOA.

Section 9
Withdrawal and Termination

9.1 Any Party may unilaterally withdraw from this MOA without causing or requiring termination of this MOA. Withdrawal shall become effective upon thirty (30) days written notice to the remaining Parties' designated addresses as listed in Exhibit B. Nothing contained in this Section 9 shall be construed as prohibiting a Party that has withdrawn from this MOA from developing its own GSP for its service area within the Basin. A Party that has withdrawn from this MOA shall remain obligated to pay its percentage cost share of expenses and obligations as outlined in the current budget incurred, accrued or encumbered up to the date the Party provided notice of withdrawal, including, but not limited to, its cost share obligation under any existing consultant contract for which the City has issued a notice to proceed. If a Party withdraws, the Cooperative Committee shall reassess the contributions of each remaining Party to fund the current budget and determine if the Cooperative Committee needs to request the contribution of additional funding from the governing board of each Party.

9.2 This MOA may be terminated upon unanimous written consent of all current Parties.

Section 10
Amendments

This MOA may be amended only by unanimous written consent of all current Parties. Approval from a Party is valid only after that Party's governing body approves the amendment at a public meeting. Neither individual Cooperative Committee members nor individual members of the Parties' governing boards have the authority, express or implied, to amend, modify, waive or in any way alter this MOA or the terms and conditions hereof.

Section 11
Indemnification

No Party, nor any officer or employee of a Party, shall be responsible for any damage or liability occurring by reason of anything done or omitted to be done by another Party under or in connection with this MOA. The Parties further agree, pursuant to Government Code Section 895.4, that each Party shall fully indemnify and hold harmless each other Party and its agents, officers, employees and contractors from and against all claims, damages, losses, judgments, liabilities, expenses and other costs, including litigation costs and attorney fees, arising out of, resulting from, or in connection with any work delegated to or action taken or omitted to be taken by such Party under this MOA.

Section 12
Miscellaneous

12.1 Execution in Counterparts. This MOA may be executed in counterparts.

12.2 Automatic Termination of MOA. This MOA shall automatically terminate upon DWR's approval of the adopted GSP. Depending on the content of the GSP, the Parties may decide to enter into a new agreement to coordinate GSP implementation.

12.3 Choice of Law. This MOA is made in the State of California, under the Constitution and laws of said State and is to be so construed.

12.4 Severability. If any provision of this MOA is determined to be invalid or unenforceable, the remaining provisions shall remain in force and unaffected to the fullest extent permitted by law and regulation.

12.5 Entire Agreement. This MOA constitutes the sole, entire, integrated and exclusive agreement between the Parties regarding the contents herein. Any other contracts, agreements, terms, understandings, promises, representations not expressly set forth or referenced in this writing are null and void and of no force and effect.

12.6 Construction and Interpretation. The Parties agree and acknowledge that this MOA has been developed through negotiation, and that each Party has had a full and fair

opportunity to revise the terms of this MOA. Consequently, the normal rule of construction that any ambiguities are to be resolved against the drafting party shall not apply in construing or interpreting this MOA.

IN WITNESS WHEREOF, the Parties have executed this MOA on the dates shown below.

CITY OF EL PASO DE ROBLES

By: ______________________
Tom Frutchey

Its: City Manager

Date: ______________________

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ______________________

Its: ______________________

Date: ______________________

SHANDON SAN JUAN WATER DISTRICT

By: ______________________
Willy Cunha

Its: President, Board of Directors

Date: ______________________

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ______________________

Its: ______________________

Date: ______________________

COUNTY OF SAN LUIS OBISPO

By: ______________________
John Peschong

Its: Chair, Board of Supervisors

Date: 8/22/2017

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ______________________

Its: deputy county counsel

Date: AUG 29, 2017

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

By: ______________________
Scott Duffield

Its: General Manager

Date: ______________________

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ______________________

Its: ______________________

Date: ______________________

ATTEST:

Tommy Gong, County Clerk-Recorder and
Ex-Officio Clerk of the Board of Supervisors

By, ______________________
Deputy Clerk

opportunity to revise the terms of this MOA. Consequently, the normal rule of construction that any ambiguities are to be resolved against the drafting party shall not apply in construing or interpreting this MOA.

IN WITNESS WHEREOF, the Parties have executed this MOA on the dates shown below.

CITY OF EL PASO DE ROBLES

By: Thomas Frutchey
Tom Frutchey

Its: City Manager

Date: 9-20-17

APPROVED AS TO FORM AND LEGAL EFFECT:

By: Iris P. Yang

Its: City Attorney

Date: 9/20/17

COUNTY OF SAN LUIS OBISPO

By: ______________________
John Peschong

Its: Chair, Board of Supervisors

Date: ______________________

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ______________________

Its: ______________________

Date: ______________________

SHANDON SAN JUAN WATER DISTRICT

By: ______________________
Willy Cunha

Its: President, Board of Directors

Date: ______________________

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ______________________

Its: ______________________

Date: ______________________

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

By: ______________________
Scott Duffield

Its: General Manager

Date: ______________________

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ______________________

Its: ______________________

Date: ______________________

opportunity to revise the terms of this MOA. Consequently, the normal rule of construction that any ambiguities are to be resolved against the drafting party shall not apply in construing or interpreting this MOA.

IN WITNESS WHEREOF, the Parties have executed this MOA on the dates shown below.

CITY OF EL PASO DE ROBLES

By: ____________________
Tom Frutchey

Its: City Manager

Date: ____________________

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ____________________

Its: ____________________

Date: ____________________

SHANDON SAN JUAN WATER DISTRICT

By: ____________________
Willy Cunha

Its: President, Board of Directors

Date: 7-26-2017

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ____________________ of Young Wooldridge, LLP

Its: District Counsel

Date: 7/26/17

COUNTY OF SAN LUIS OBISPO

By: ____________________
John Peschong

Its: Chair, Board of Supervisors

Date: ____________________

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ____________________

Its: ____________________

Date: ____________________

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

By: ____________________
Scott Duffield

Its: General Manager

Date: ____________________

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ____________________

Its: ____________________

Date: ____________________

opportunity to revise the terms of this MOA. Consequently, the normal rule of construction that any ambiguities are to be resolved against the drafting party shall not apply in construing or interpreting this MOA.

IN WITNESS WHEREOF, the Parties have executed this MOA on the dates shown below.

CITY OF EL PASO DE ROBLES

By: ______________________
Tom Frutchey

Its: City Manager

Date: ______________________

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ______________________

Its: ______________________

Date: ______________________

COUNTY OF SAN LUIS OBISPO

By: ______________________
John Peschong

Its: Chair, Board of Supervisors

Date: ______________________

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ______________________

Its: ______________________

Date: ______________________

SHANDON SAN JUAN WATER DISTRICT

By: ______________________
Willy Cunha

Its: President, Board of Directors

Date: ______________________

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ______________________

Its: ______________________

Date: ______________________

HERITAGE RANCH COMMUNITY SERVICES DISTRICT

By: Scott Duffield
Scott Duffield

Its: General Manager

Date: 07/31/2017

APPROVED AS TO FORM AND LEGAL EFFECT:

By: [signature]

Its: District Counsel

Date: 7/26/17

SAN MIGUEL COMMUNITY
SERVICES DISTRICT

By: ______________________
Rob Roberson

Its: Interim General Manager

Date: 8/29/2017

APPROVED AS TO FORM AND
LEGAL EFFECT:

By: ______________________

Its: Douglas White

Date: 9/6/17

DRAFT

EXHIBIT A

Addition of Party to Memorandum of Agreement regarding Preparation of a Groundwater Sustainability Plan for the Paso Robles Groundwater Basin

WHEREAS, certain local agencies that each decided to become the groundwater sustainability agency within their respective service areas overlying the Paso Robles Area Subbasin (Basin No. 3-004.06) have entered into an agreement entitled "Memorandum of Agreement regarding Preparation of a Groundwater Sustainability Plan for the Paso Robles Groundwater Basin" ("Agreement"); and

WHEREAS, the Estrella-El Pomar-Creston Water District ("EPCWD") could not be an original signatory to the Agreement, because it had not yet been formed; and

WHEREAS, Section 3 of the Agreement sets forth the process by which the EPCWD can become a party to the Agreement provided that certain conditions are met; and

WHEREAS, the EPCWD has received and reviewed a copy of the Agreement; and

WHEREAS, on ____________, the EPCWD Board of Directors held a public hearing and by Resolution __________decided to become the groundwater sustainability agency within its service area and a signatory to the Agreement; and

WHEREAS, on ____________, the County of San Luis Obispo Board of Supervisors held a public hearing and by Resolution _________decided to withdraw from serving as the groundwater sustainability agency within the EPCWD's service area and to accept the signature below.

NOW, THEREFORE, acknowledging that the recitals above are correct and are part of this agreement, the EPCWD, upon acceptance by signature below by the County of San Luis Obispo Board of Supervisors, shall become a party to the Agreement effective immediately. The EPCWD shall bear the benefits and enjoy the burdens of the Agreement as though the EPCWD had originally executed said Agreement as it now exists or may be amended in the future, and for so long as the Agreement remains in effect or for so long as the EPCWD is a party to the Agreement.

ACCEPTED AND APPROVED BY THE ESTRELLA-EL POMAR-CRESTON WATER DISTRICT BOARD OF DIRECTORS:

By: __________________________ Date: ________________________

Its: __________________________

DRAFT

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ______________________________ Date: ____________________________

Its: ______________________________

Address for purposes of Exhibit B to the Agreement:

Estrella-El Pomar-Creston Water District

____

____

Attention: ________________

ACCEPTED AND APPROVED BY
THE COUNTY OF SAN LUIS OBISPO
BOARD OF SUPERVISORS IN ACCORDANCE WITH
THE AGREEMENT:

By: ______________________________ Date: ____________________________

Its: ______________________________

APPROVED AS TO FORM AND LEGAL EFFECT:

By: ______________________________ Date: ____________________________

Its: ______________________________

EXHIBIT B
PARTY ADDRESS LIST

County of San Luis Obispo
976 Osos Street, Room 206
San Luis Obispo, CA 93408
Attention: Wade Horton, Public Works Director

City of El Paso de Robles
1000 Spring Street
Paso Robles, CA 93451
Attention: Dick McKinley, Public Works Director

San Miguel Community Services District
1150 Mission Street
San Miguel, CA 93451
Attention: Rob Roberson, Interim General Manager

Heritage Ranch Community Services District
4870 Heritage Road
Paso Robles, CA 93446
Attention: Scott Duffield, General Manager

Shandon San Juan Water District
365 Truesdale Road PO Box 150
Shandon, CA 93461
Attention: Willy Cunha, President, Board of Directors

Appendix B

Additional Well Logs Used to Supplement Cross Sections

'The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0188056

Page 1 of 2

Owner's Well Number SVW3

Date Work Began 07/24/2013 Date Work Ended 7/26/2013

Local Permit Agency San Luis Obispo County Environmental Health Services

Permit Number 2013-116 Permit Date 7/3/13

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ⦿ Vertical ○ Horizontal ○ Angle Specify

Drilling Method Direct Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
0	30	Conductor
0	600	Brown Clay Streaks w/Sand, Course and Fine
600	645	Cemented Course Sands w/Brown Clay
645	750	Course Sand w/Brown Clay
750	940	Brown Clay w/Course Sand
940	1,090	Fine Sand w/Brown Clay

Total Depth of Boring 1090 Feet

Total Depth of Completed Well 790 Feet

Well Owner

Well Location

Address 3385 Truesdale Road

City Shandon County San Luis Obispo

Latitude 35 Deg 36 Min 1776 Sec. N Longitude 120 Deg 22 Min 1767 Sec. W

Datum ____ Dec. Lat. 35.60477 Dec. Long. 120.37158

APN Book ____ Page ____ Parcel ____

Township 27S Range 15E Section 4 M

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

SEE

ATTACHED MAP

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

⦿ New Well

○ Modification/Repair

○ Deepen

○ Other

○ Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

⦿ Water Supply

☐ Domestic ☐ Public

☑ Irrigation ☐ Industrial

○ Cathodic Protection

○ Dewatering

○ Heat Exchange

○ Injection

○ Monitoring

○ Remediation

○ Sparging

○ Test Well

○ Vapor Extraction

○ Other

Water Level and Yield of Completed Well

Depth to first water 194 (Feet below surface)

Depth to Static Water Level 194 (Feet) Date Measured 09/25/2013

Estimated Yield * 3,000 (GPM) Test Type Step-Drawndown

Test Length 6.8 (Hours) Total Drawdown 243 (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	30	36	Conductor	Low Carbon Steel	1/4	30		
0	330	26	Blank	Mild Steel	5/16	16.5		
330	640	26	Screen	HSLA Ful Flo	5/16	16.5	Louver	0.080
640	655	26	Blank	HSLA	5/16	16.5		
655	665	26	Screen	HSLA Ful Flo	5/16	16.5	Louver	0.080
665	680	26	Blank	HSLA	5/16	16.5		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	60	Cement	6 Sack Slurry
60	800	Filter Pack	80-1/4x10, 20-8x16
800	1,090	Fill	Cuttings

Attachments

☐ Geologic Log

☐ Well Construction Diagram

☐ Geophysical Log(s)

☐ Soil/Water Chemical Analyses

☐ Other

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Tyson R. Davis, Pacific Coast Well Drilling, Inc.
(Person, Firm or Corporation)

P.O. Box 184 (Address) Templeton (City) CA (State) 93465 (Zip)

Signed [signature] (C-57 Licensed Water Well Contractor) 10/25/2013 (Date Signed) 927400 (C-57 License Number)

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

6/26/2019

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File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0188056

Page 2 of 2

Owner's Well Number SVW3

Date Work Began 07/24/2013 Date Work Ended 7/26/2013

Local Permit Agency San Luis Obispo County Environmental Health Services

Permit Number 2013-116 Permit Date 7/3/13

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ⦿ Vertical ○ Horizontal ○ Angle Specify

Drilling Method Direct Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)

Total Depth of Boring 1090 Feet

Total Depth of Completed Well 790 Feet

Well Owner

Well Location

Address 3385 Truesdale Road

City Shandon County San Luis Obispo

Latitude 35 Deg. 36 Min. 1776 Sec. N Longitude 120 Deg. 22 Min. 1767 Sec. W

Datum Dec. Lat. 35.60477 Dec. Long. 120.37158

APN Book Page Parcel

Township 27S Range 15E Section 4

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

DRAFT

Activity

⦿ New Well
○ Modification/Repair
○ Deepen
○ Other
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

⦿ Water Supply
☐ Domestic ☐ Public
☑ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other

Water Level and Yield of Completed Well

Depth to first water (Feet below surface)

Depth to Static Water Level (Feet) Date Measured

Estimated Yield * (GPM) Test Type

Test Length (Hours) Total Drawdown (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
680	700	26	Screen	HSLA Ful Flo	5/16	16.5	Louver	0.080
700	730	26	Blank	HSLA	5/16	16.5		
730	750	26	Screen	HSLA Ful Flo	5/16	16.5	Louver	0.080
750	790	26	Blank	Mild Steel	5/16	16.5		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Tyson R. Davis, Pacific Coast Well Drilling, Inc.
Person, Firm or Corporation

P.O. Box 184 (Address) Templeton (City) CA (State) 93465 (Zip)

Signed [signature] C-57 Licensed Water Well Contractor

1025/2013 Date Signed

927400 C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

6/26/2019

e0188056

WELL PERMIT PLOT PLAN

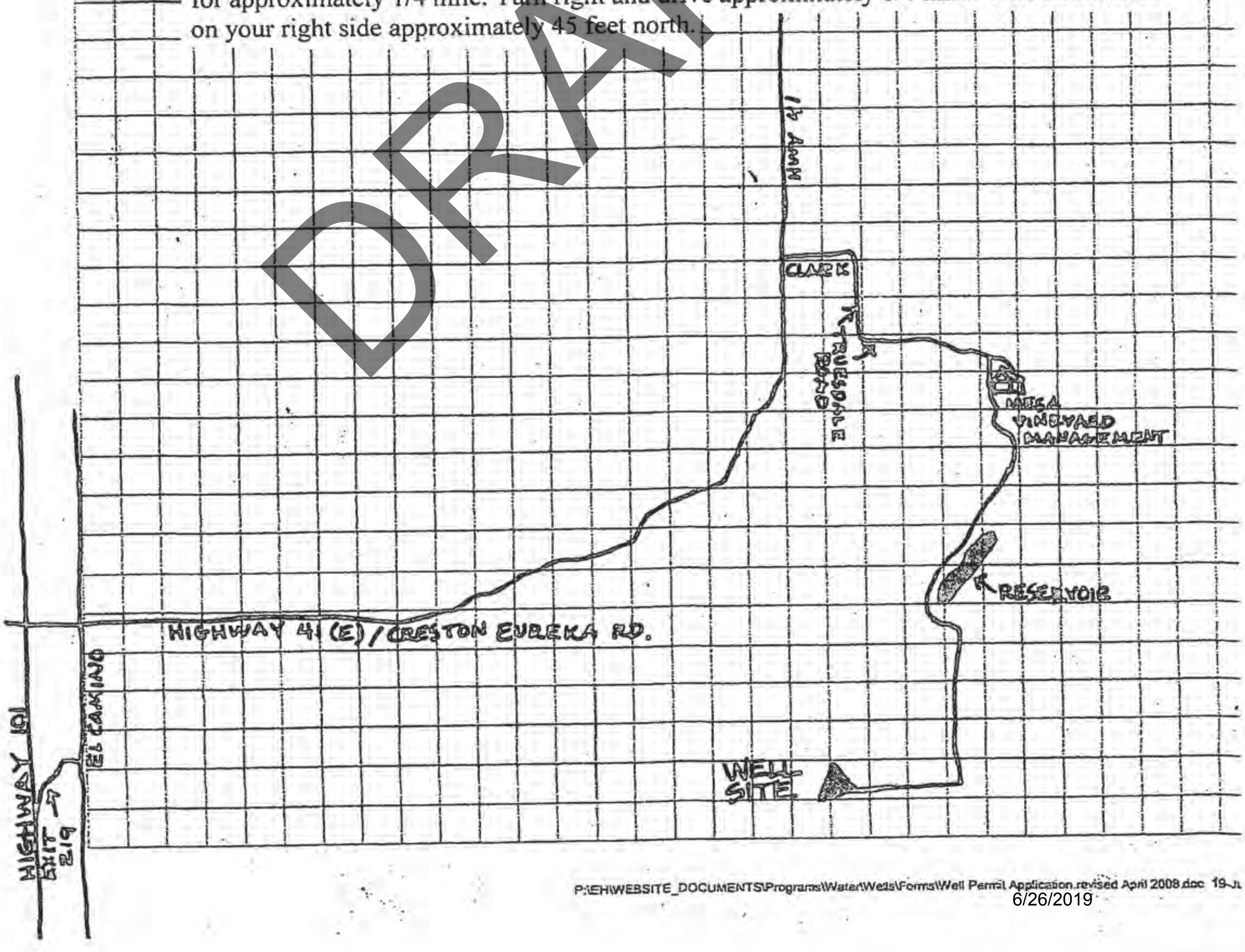
SAN LUIS OBISPO COUNTY ENVIRONMENTAL HEALTH SERVICES
2156 Sierra Way
San Luis Obispo, California 93401
Telephone: 805-781-5544

SCALE: ¼ inch = 25 feet

INDICATE BELOW THE **EXACT LOCATION** OF PROPOSED WELL WITH RESPECT TO THE FOLLOWING ITEMS: PROPERTY LINES, WATER BODIES OR WATER COURSES, DRAINAGE PATTERN, ROADS, EXISTING WELLS, SEWERS AND PRIVATE SEWAGE DISPOSAL SYSTEMS, ANIMAL ENCLOSURES AND ANY OTHER CONCENTRATED SOURCES OF POLLUTION. **INCLUDE DIMENSIONS.** ALL PROPOSED WELL SITES SHALL BE DESIGNATED WITH A FLAGGED SURVEYOR'S STAKE LABELED "WELL SITE." DRILLING SHALL NOT COMMENCE UNTI THIS APPLICATION IS APPROVED.

Assessor's Parcel Number-

Take Highway 101 (N) and take Exit #219 toward Morro Road/Highway 41. Turn left onto El Camino Real at the stop light. Drive to the next stop light, approximately 500 feet. Turn right onto CA-41/Creston Eureka Road and drive for approximately 18 miles. Turn right onto Clark Road and drive for approximately 1/2 mile. Turn right onto Truesdale Road and drive for approximately 1 mile. Truesdale turns to the left. Continue on Truesdale for approximately another 1 mile. 3385 Truesdale Road is on your right. There will be a sign that says "Mesa Vineyard Management" Turn right and drive approximately 400 feet. Turn right before building and drive approximately 100 feet. Turn left along side the building and drive approximately 250 feet. Turn right and drive approximately 1/4 mile. There will be a reservoir on your left. Drive along side of the reservoir and round to the left. Turn right and drive along side vineyards (to your right) for approximately 1/4 mile. Turn right and drive approximately 1/4 mile. Well site will be on your right side approximately 45 feet north.



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File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0188061

Page 1 of 2

Owner's Well Number SJW4

Date Work Began 07/31/2013 Date Work Ended 8/2/2013

Local Permit Agency San Luis Obispo County Environmental Health Department

Permit Number 2013-117 Permit Date 7/3/13

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ⦿ Vertical ○ Horizontal ○ Angle Specify

Drilling Method Direct Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
0	30	Conductor
0	465	Fine Brown Sand w/Streaks of Brown Clay
465	502	Gravel (Rough Drilling)
502	745	Course Sand w/Streaks of Brown Clay
745	815	Small Gravel (Rough Drilling)
815	975	Fine Sand
975	1,050	Course Sand w/Less Brown Clay

Total Depth of Boring 1050 Feet

Total Depth of Completed Well 1040 Feet

Well Owner

Well Location

Address 2575 San Juan Road

City Shandon County San Luis Obispo

Latitude 35 Deg. 37 Min. 4814 Sec. N Longitude 120 Deg. 22 Min. 257 Sec. W

Datum Dec. Lat. 35.62997 Dec. Long. 120.36792

APN Book Page Parcel

Township 26S Range 15E Section 33 C

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

SEE

ATTACHED MAP

West East South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

⦿ New Well
○ Modification/Repair
○ Deepen
○ Other
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

⦿ Water Supply
☐ Domestic ☐ Public
☑ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other

Water Level and Yield of Completed Well

Depth to first water 140 (Feet below surface)

Depth to Static Water Level 140 (Feet) Date Measured 08/02/2013

Estimated Yield * 1,000 (GPM) Test Type Air Lift

Test Length 6.0 (Hours) Total Drawdown (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	30	36	Conductor	Low Carbon Steel	1/4	30		
0	200	26	Blank	Mild Steel	5/16	16.5		
200	410	26	Screen	HSLA	5/16	16.5	Louver	0.070
410	470	26	Blank	Mild Steel	5/16	16.5		
470	500	26	Screen	HSLA	5/16	16.5	Louver	0.070
500	590	26	Blank	Mild Steel	5/16	16.5		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	60	Cement	6 Sack Slurry
60	850	Filter Pack	80-1/4*10&20-8*16
850	1,050	Fill	Cuttings

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Tyson R. Davis, Pacific Coast Well Drilling, Inc.
Person, Firm or Corporation

P.O. Box 184 Templeton CA 93465
Address City State Zip

Signed [signature] 11-1-13 927400
C-57 Licensed Water Well Contractor Date Signed C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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NOV 19 2013

DRAFT

6/26/2019

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State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0188061

Page 2 of 2

Owner's Well Number SJW4

Date Work Began 07/31/2013 Date Work Ended 8/2/2013

Local Permit Agency San Luis Obispo County Environmental Health Department

Permit Number 2013-117 Permit Date 7/3/13

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ⊙ Vertical ○ Horizontal ○ Angle Specify

Drilling Method Direct Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
0	30	Conductor
0	465	Fine Brown Sand w/Streaks of Brown Clay
465	502	Gravel (Rough Drilling)
502	745	Course Sand w/Streaks of Brown Clay
745	815	Small Gravel (Rough Drilling)
815	975	Fine Sand
975	1,050	Course Sand w/Less Brown Clay

Total Depth of Boring 1050 Feet

Total Depth of Completed Well 1040 Feet

Well Owner

Well Location

Address 2575 San Juan Road

City Shandon County San Luis Obispo

Latitude 35 Deg. 37 Min. 4814 Sec. N Longitude 120 Deg. 22 Min. 257 Sec. W

Datum Dec. Lat. 35.62997 Dec. Long. 120.36792

APN Book Page Parcel

Township 26S Range 15E Section 33

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

⊙ New Well
○ Modification/Repair
○ Deepen
○ Other
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

⊙ Water Supply
☐ Domestic ☐ Public
☑ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other

Water Level and Yield of Completed Well

Depth to first water (Feet below surface)

Depth to Static Water Level (Feet) Date Measured

Estimated Yield * (GPM) Test Type

Test Length (Hours) Total Drawdown (Feet)

*May not be representative of a well's long term yield.

DRAFT

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
590	630	26	Screen	HSLA	5/16	16.5	Louver	0.070
630	700	26	Blank	Mild Steel	5/16	16.5		
700	730	26	Screen	HSLA	5/16	16.5	Louver	0.070
730	750	26	Blank	Mild Steel	5/16	16.5		
750	810	26	Screen	HSLA	5/16	16.5	Louver	0.070
810	840	26	Blank	Mild Steel	5/16	16.5		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Tyson R. Davis, Pacific Coast Well Drilling, Inc.
Person, Firm or Corporation

P.O. Box 184 (Address) Templeton (City) CA (State) 93465 (Zip)

Signed [signature] C-57 Licensed Water Well Contractor

Date Signed 11-1-13

C-57 License Number 927400

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

6/26/2019

e0188061

WELL PERMIT PLOT PLAN

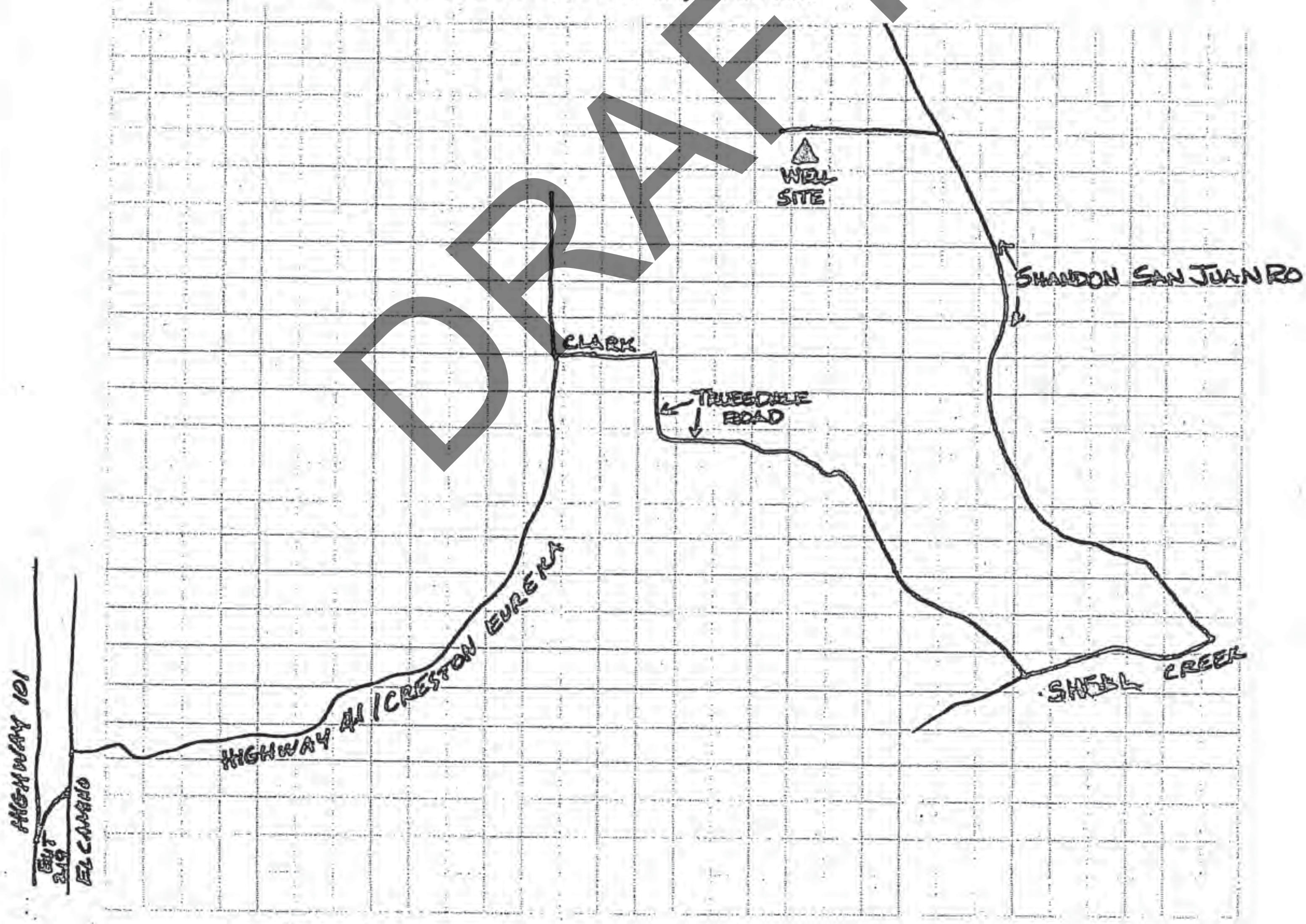
SAN LUIS OBISPO COUNTY ENVIRONMENTAL HEALTH SERVICES
2156 Sierra Way
San Luis Obispo, California 93401
Telephone: 805-781-5544

SCALE: ¼ inch = 25 feet

INDICATE BELOW THE **EXACT LOCATION** OF PROPOSED WELL WITH RESPECT TO THE FOLLOWING ITEMS: PROPERTY LINES, WATER BODIES OR WATER COURSES, DRAINAGE PATTERN, ROADS, EXISTING WELLS, SEWERS AND PRIVATE SEWAGE DISPOSAL SYSTEMS, ANIMAL ENCLOSURES AND ANY OTHER CONCENTRATED SOURCES OF POLLUTION. **INCLUDE DIMENSIONS.** ALL PROPOSED WELL SITES SHALL BE DESIGNATED WITH A FLAGGED SURVEYOR'S STAKE LABELED "WELL SITE." DRILLING SHALL NOT COMMENCE UNTIL THIS APPLICATION IS APPROVED.

Assessor's Parcel Number-

Take Highway 101 (N) and take Exit #219 toward Morro Road/Highway 41. Turn left onto El Camino Real at the stop light. Drive to the next stop light, approximately 500 feet. Turn right onto CA-41/Creston Eureka Road and drive for approximately 18 miles. Turn right onto Clark Road and drive for approximately 1/2 mile. Turn right onto Truesdale Road and drive for approximately 4 miles. Turn left on Shell Creek Road and drive for approximately 3/4 mile. Turn left onto Shandon San Juan Road and drive for approximately 2.9 miles and turn left onto dirt road. Drive a little over 1/4 mile and the Well Site is on your left approximately 50-55 feet.



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File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0162372

Page 1 of 2

Owner's Well Number Continental Vineyards

Date Work Began 08/01/2012 Date Work Ended 8/10/2012

Local Permit Agency County of San Luis Obispo Public Health

Permit Number 2012-149 Permit Date 7/30/12

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ⦿ Vertical ○ Horizontal ○ Angle Specify

Drilling Method Reverse Circulation Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
0	40	Clay
40	55	Gravel
55	65	Clay
65	150	Gravel
150	160	Clay
160	165	Gravel
165	180	Clay
180	200	Gravel
200	230	Clay
230	280	Gravel
280	318	Clay
318	320	Sand
320	336	Clay
336	340	Gravel
340	355	Clay
355	360	Gravel
360	370	Clay
370	390	Gravel
390	400	Clay
400	435	Gravel
435	480	Clay
480	530	Gravel
530	560	Clay
560	605	Gravel
605	620	Clay
620	635	Gravel
635	650	Clay
650	730	Clay
730	810	Clay
810	830	Gravel

Total Depth of Boring 1,110 Feet

Total Depth of Completed Well 1,100 Feet

Well Owner

Well Location

Address 11000 Hwy. 46E

City Paso Robles County San Luis Obispo

Latitude 35 Deg. 67 Min. 95 Sec. N Longitude 120 Deg. 48 Min. 19 Sec. W

Datum ____ Decimal Lat. ____ Decimal Long. ____

APN Book ____ Page ____ Parcel 019.121.013

Township 26S Range 14E Section 8

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West SEE ATTACHED East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

⦿ New Well
○ Modification/Repair
○ Deepen
○ Other
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

⦿ Water Supply
☐ Domestic ☐ Public
☑ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other

Water Level and Yield of Completed Well

Depth to first water 205 (Feet below surface)

Depth to Static Water Level 205 (Feet) Date Measured 09/04/2012

Estimated Yield * 1,900 (GPM) Test Type Constant Rate

Test Length 12.0 (Hours) Total Drawdown 89 (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size If Any (Inches)
0	320	24	Blank	Low Carbon Steel	.250	14		
320	560	24	Screen	Low Carbon Steel	.250	14	Louver	0.080
560	600	24	Blank	Low Carbon Steel	.250	14		
600	650	24	Screen	Low Carbon Steel	.250	14	Louver	0.080
650	720	24	Blank	Low Carbon Steel	.250	14		
720	760	24	Screen	Low Carbon Steel	.250	14	Louver	0.080

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	50	Cement	6 Sac Slurry
50	1,110	Filter Pack	1/4 * 10

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Pacific Coast Well Drilling, Inc.
Person, Firm or Corporation

P.O. Box 184 Templeton CA 93465
Address City State Zip

Signed [signature] 8-25-12 927400
C-57 Licensed Water Well Contractor Date Signed C-57 License Number

DWR 188 REV. 1/2006

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IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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6/26/2019

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File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0162372

Page 2 of 2

Owner's Well Number Continental Vineyards

Date Work Began 08/01/2012 Date Work Ended 8/10/2012

Local Permit Agency County of San Luis Obispo Public Health

Permit Number 2012-149 Permit Date 7/30/12

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ⦿ Vertical O Horizontal O Angle Specify

Drilling Method Reverse Circulation Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
830	860	Clay
860	920	Gravel
920	990	Clay
990	1,030	Gravel
1030	1,040	Clay
1040	1,080	Gravel
1080	1,110	Clay

Total Depth of Boring 1,110 Feet

Total Depth of Completed Well 1,100 Feet

Well Owner

Well Location

Address 11000 Hwy. 46E

City Paso Robles County San Luis Obispo

Latitude 35 Deg. 67 Min. 95 Sec. N Longitude 120 Deg. 48 Min. 19 Sec. W

Datum ___ Decimal Lat. ___ Decimal Long. ___

APN Book ___ Page ___ Parcel 019.121.013

Township 26S Range 14E Section 8

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

⦿ New Well
O Modification/Repair
O Deepen
O Other
O Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

⦿ Water Supply
☐ Domestic ☐ Public
☑ Irrigation ☐ Industrial
O Cathodic Protection
O Dewatering
O Heat Exchange
O Injection
O Monitoring
O Remediation
O Sparging
O Test Well
O Vapor Extraction
O Other

Water Level and Yield of Completed Well

Depth to first water ___ (Feet below surface)

Depth to Static Water Level ___ (Feet) Date Measured ___

Estimated Yield * ___ (GPM) Test Type ___

Test Length ___ (Hours) Total Drawdown ___ (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
760	800	24	Blank	Low Carbon Steel	.250	14		
800	1,080	24	Screen	Low Carbon Steel	.250	14	Louver	0.080
1,080	1,100	24	Blank	Low Carbon Steel	.250	14		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other

Attach additional information, if it exists.

Certification Statement

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Person, Firm or Corporation

P.O. Box 184 (Address) Templeton (City) CA (State) 93465 (Zip)

Signed [signature] C-57 Licensed Water Well Contractor 8-25-12 Date Signed 927400 C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

6/26/2019

e0162372

WELL PERMIT PLOT PLAN

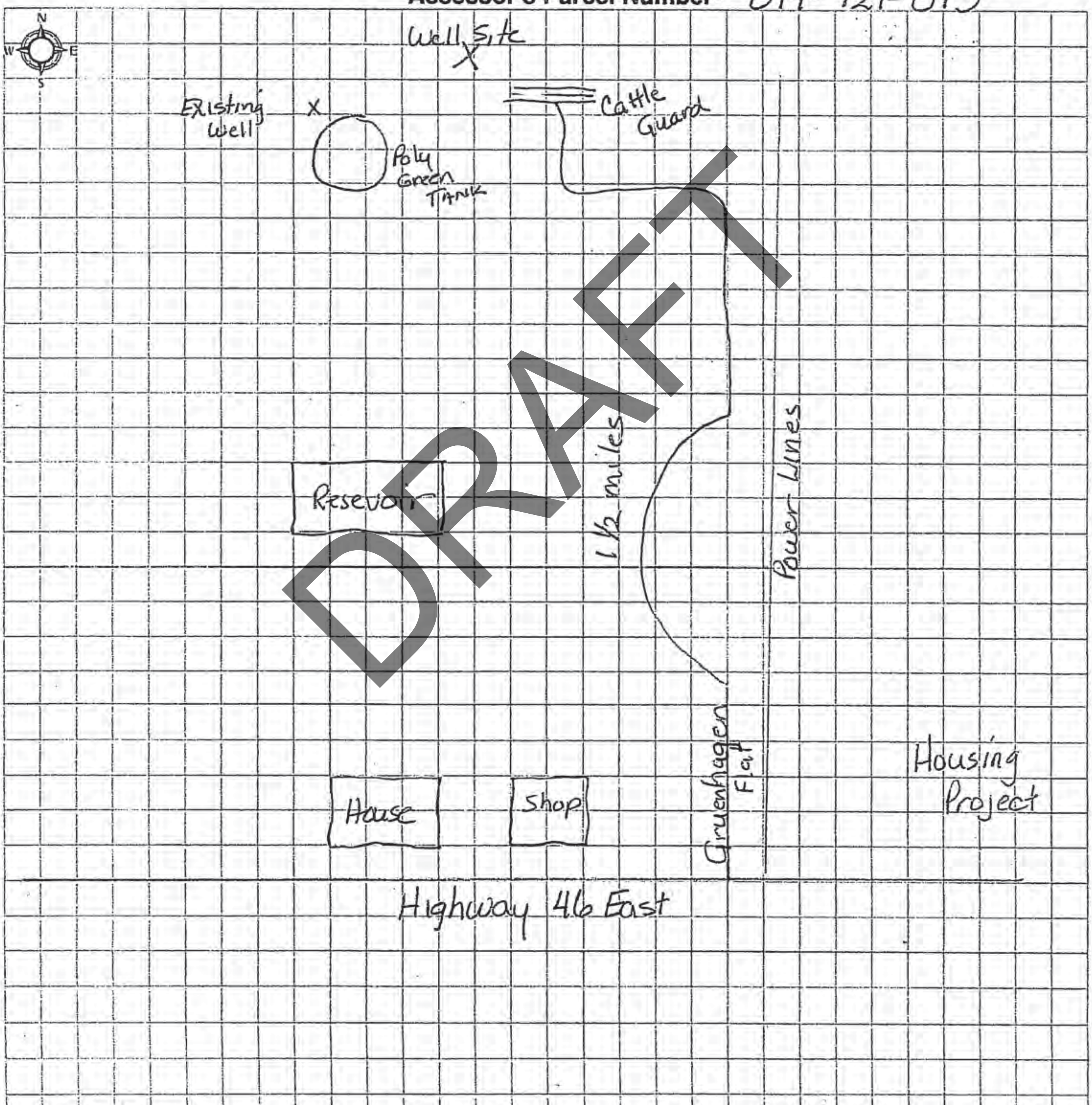
SAN LUIS OBISPO COUNTY ENVIRONMENTAL HEALTH SERVICES
2156 Sierra Way
San Luis Obispo, California 93401
Telephone: 805-781-5544

SCALE: ¼" = 25"

Indeck Paso Robles, LLC

INDICATE BELOW THE **EXACT LOCATION** OF PROPOSED WELL WITH RESPECT TO THE FOLLOWING ITEMS: PROPERTY LINES, WATER BODIES OR WATER COURSES, DRAINAGE PATTERN, ROADS, EXISTING WELLS, SEWERS AND PRIVATE SEWAGE DISPOSAL SYSTEMS, ANIMAL ENCLOSURES AND ANY OTHER CONCENTRATED SOURCES OF POLLUTION. **INCLUDE DIMENSIONS.** ALL PROPOSED WELL SITES SHALL BE DESIGNATED WITH A FLAGGED SURVEYOR'S STAKE LABELED "WELL SITE." DRILLING SHALL NOT COMMENCE UNTIL THIS APPLICATION IS APPROVED.

Assessor's Parcel Number- 019-121-013



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State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0164974

DWR Use Only – Do Not Fill In	
State Well Number/Site Number	
Latitude N	Longitude W
APN/TRS/Other	

Page 1 of 4

Owner's Well Number John Hancock Well #1

Date Work Began 11/01/2012 Date Work Ended 2/26/2013

Local Permit Agency San Luis Obispo County Environmental Health Services

Permit Number 2012-229 Permit Date 10/15/12

Geologic Log

Orientation ⦿ Vertical ○ Horizontal ○ Angle Specify ____

Drilling Method Reverse Circulation Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc.)
0	40	Conductor
40	80	Clay
80	90	Gravel
90	100	Clay
100	110	Clay
110	120	Gravel
120	150	Course Sand
150	165	Gravel w/Clay
165	205	Gravel
205	210	Clay
210	220	Gravel
220	230	Gravel
230	240	Gravel
240	250	Clay
250	260	Clay
260	270	Clay
270	290	Clay
290	300	Clay
300	310	Clay
310	320	Gravel
320	330	Gravel
330	340	Clay
340	350	Clay
350	360	Clay
360	370	Clay
370	380	Gravel
380	390	Gravel
390	400	Clay
400	410	Clay
410	420	Clay

Total Depth of Boring 1393 Feet

Total Depth of Completed Well 870 Feet

Well Owner

Well Location

Address Exit 241, San Miguel

City San Miguel County San Luis Obispo

Latitude 35 Deg. 76 Min. 464 Sec. N Longitude 120 Deg. 72 Min. 51 Sec. W

Datum ____ Decimal Lat. ____ Decimal Long. ____

APN Book ____ Page ____ Parcel 027,011,036

Township ____ Range ____ Section ____

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

DRAFT

Activity

⦿ New Well
○ Modification/Repair
○ Deepen
○ Other ____
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

⦿ Water Supply
☐ Domestic ☐ Public
☑ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other ____

Water Level and Yield of Completed Well

Depth to first water ____ (Feet below surface)

Depth to Static Water Level ____ (Feet) Date Measured ____

Estimated Yield * ____ (GPM) Test Type ____

Test Length ____ (Hours) Total Drawdown ____ (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	40	36	Conductor	Mild Steel	5/16	30		
0	195	24	Blank	Mild Steel	5/16	14.5		
195	210	24	Screen	Mild Steel	5/16	14.5	Louver	0.070
210	220	24	Blank	Mild Steel	5/16	14.5		
220	270	24	Screen	Copper Bearing	5/16	14.5	Louver	0.070
270	290	24	Blank	Copper Bearing	5/16	14.5		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	50	Cement	6 Sak
50	1,388	Filter Pack	75% SRI #6
			25% SRI #8

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other ____

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Pacific Coast Well Drilling, Inc.
Person, Firm or Corporation

P.O. Box 184 (Address) Templeton (City) CA (State) 93465-0184 (Zip)

Signed [signature] C-57 Licensed Water Well Contractor Date Signed 1/17/13 C-57 License Number 927400

DWR 188 REV. 1/2006

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State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0164974

Page 2 of 4

Owner's Well Number John Hancock Well #1

Date Work Began 11/01/2012 Date Work Ended 2/26/2013

Local Permit Agency San Luis Obispo County Environmental Health Services

Permit Number 2012-229 Permit Date 10/15/12

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ⦿ Vertical ○ Horizontal ○ Angle Specify

Drilling Method Reverse Circulation Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
420	430	Clay
430	440	Clay
440	450	Clay
450	460	Clay
460	470	Clay
470	480	Clay
480	490	Clay
490	500	Clay
500	510	Clay
510	520	Gravel/Clay
520	530	Clay
530	540	Clay
540	550	Slurry/Clay
550	560	Clay
560	570	Clay
570	575	Gravel
575	580	Clay
580	625	Gravel
625	660	Course Sand
660	755	Clay w/Sand
755	805	Rough Drilling
805	910	Sand/Gravel, Brown, Sandy Clay
910	930	Sand/Gravel, Brown, Sandy Clay
930	940	Clay
940	950	Clay/Sandy
950	960	Clay/Sandy
960	970	Clay/Sandy
970	980	Clay/Sandy
980	990	Gravel
990	1,000	Gravel

Total Depth of Boring 1393 Feet

Total Depth of Completed Well 870 Feet

Well Owner

Well Location

Address Exit 241, San Miguel

City San Miguel County San Luis Obispo

Latitude 35 Deg. 76 Min. 464 Sec. N Longitude 120 Deg. 72 Min. 51 Sec. W

Datum Decimal Lat. Decimal Long.

APN Book Page Parcel 027,011,036

Township Range Section

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

⦿ New Well

○ Modification/Repair

○ Deepen

○ Other

○ Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

⦿ Water Supply

☐ Domestic ☐ Public

☑ Irrigation ☐ Industrial

○ Cathodic Protection

○ Dewatering

○ Heat Exchange

○ Injection

○ Monitoring

○ Remediation

○ Sparging

○ Test Well

○ Vapor Extraction

○ Other

Water Level and Yield of Completed Well

Depth to first water (Feet below surface)

Depth to Static Water Level (Feet) Date Measured

Estimated Yield * (GPM) Test Type

Test Length (Hours) Total Drawdown (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
290	350	24	Screen	Copper Bearing	5/16	14.5	Louver	0.070
350	370	24	Blank	Copper Bearing	5/16	14.5		
370	410	24	Screen	Copper Bearing	5/16	14.5	Louver	0.070
410	450	24	Blank	Copper Bearing	5/16	14.5		
450	530	24	Screen	Copper Bearing	5/16	14.5	Louver	0.070
530	580	24	Blank	Copper Bearing	5/16	14.5		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description

Attachments

☐ Geologic Log

☐ Well Construction Diagram

☐ Geophysical Log(s)

☐ Soil/Water Chemical Analyses

☐ Other

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Pacific Coast Well Drilling, Inc.
Person, Firm or Corporation

P.O. Box 184 Templeton CA 93465-0184
Address City State Zip

Signed [signature] 1/17/13 927400
C-57 Licensed Water Well Contractor Date Signed C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0164974

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Owner's Well Number John Hancock Well #1

Date Work Began 11/01/2012 Date Work Ended 2/26/2013

Local Permit Agency San Luis Obispo County Environmental Health Services

Permit Number 2012-229 Permit Date 10/15/12

Geologic Log

Orientation ⦿ Vertical ○ Horizontal ○ Angle Specify

Drilling Method Reverse Circulation Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
1,000	1,010	Sandy Clay
1,010	1,020	Sandy Clay
1020	1,030	Gravel
1030	1,040	Sandy Clay
1040	1,050	Clay
1050	1,060	Sandy Clay
1060	1,070	Sandy Clay
1070	1,080	Sandy Clay
1080	1,090	Gravel
1090	1,100	Gravel
1100	1,110	Gravel
1110	1,120	Sandy Clay
1120	1,130	Sandy Clay
1130	1,140	Sandy Clay
1140	1,150	Sandy Clay
1150	1,160	Clay
1160	1,170	Clay
1170	1,180	Clay
1180	1,190	Sandy Clay
1190	1,200	Clay Brown
1200	1,220	Small Gravel, Sandy Clay
1220	1,240	Brown Clay
1240	1,255	Rough Drilling Gravel
1255	1,295	Brown Clay
1295	1,305	Gravel
1305	1,335	Clay
1335	1,356	Course Sand
1356	1,363	Gravel/Course Sand
1363	1,366	Clay
1366	1,368	Gravel/Course Sand

Total Depth of Boring 1393 Feet

Total Depth of Completed Well 870 Feet

Well Owner

Well Location

Address Exit 241, San Miguel

City San Miguel County San Luis Obispo

Latitude 35 Deg. 76 Min. 464 Sec. N Longitude 120 Deg. 72 Min. 51 Sec. W

Datum ____ Decimal Lat. ____ Decimal Long. ____

APN Book ____ Page ____ Parcel 027 011 036

Township ____ Range ____ Section ____

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North / West / East / South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

⦿ New Well
○ Modification/Repair
○ Deepen
○ Other ____
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

⦿ Water Supply
☐ Domestic ☐ Public
☑ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other ____

Water Level and Yield of Completed Well

Depth to first water ____ (Feet below surface)

Depth to Static Water Level ____ (Feet) Date Measured ____

Estimated Yield * ____ (GPM) Test Type ____

Test Length ____ (Hours) Total Drawdown ____ (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
580	600	24	Screen	Copper Bearing	5/16	14.5	Louver	0.070
600	660	24	Blank	Copper Bearing	5/16	14.5		
660	700	24	Screen	Copper Bearing	5/16	14.5	Louver	0.070
700	740	24	Blank	Copper Bearing	5/16	14.5		
740	790	24	Screen	Copper Bearing	5/16	14.5	Louver	0.070
790	810	24	Blank	Copper Bearing	5/16	14.5		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other ____

Attach additional information, if it exists.

Certification Statement

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DWR 188 REV. 1/2006

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State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0164974

Page 4 of 4

Owner's Well Number John Hancock Well #1

Date Work Began 11/01/2012 Date Work Ended 2/26/2013

Local Permit Agency San Luis Obispo County Environmental Health Services

Permit Number 2012-229 Permit Date 10/15/12

DWR Use Only – Do Not Fill In

State Well Number/Site Number

N Latitude W Longitude

APN/TRS/Other

Geologic Log

Orientation ⦿ Vertical ○ Horizontal ○ Angle Specify

Drilling Method Reverse Circulation Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
1,368	1,375	Clay
1,375	1,385	Rough Drilling Sand
1385	1,393	Clay/Silt

Total Depth of Boring 1393 Feet

Total Depth of Completed Well 870 Feet

Well Owner

Well Location

Address Exit 241, San Miguel

City San Miguel County San Luis Obispo

Latitude 35 Deg. 76 Min. 464 Sec. N Longitude 120 Deg. 72 Min. 51 Sec. W

Datum Decimal Lat. Decimal Long.

APN Book Page Parcel 027,011,036

Township Range Section

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

⦿ New Well
○ Modification/Repair
○ Deepen
○ Other
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

⦿ Water Supply
☐ Domestic ☐ Public
☑ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other

Water Level and Yield of Completed Well

Depth to first water (Feet below surface)

Depth to Static Water Level (Feet) Date Measured

Estimated Yield * (GPM) Test Type

Test Length (Hours) Total Drawdown (Feet)

*May not be representative of a well's long term yield.

DRAFT

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
810	830	24	Screen	Copper Bearing	5/16	14.5	Louver	0.070
830	870	24	Blank	Copper Bearing	5/16	14.5		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other

Attach additional information, if it exists.

Certification Statement

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Person, Firm or Corporation

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Signed [signature] C-57 Licensed Water Well Contractor 1/17/13 Date Signed 927400 C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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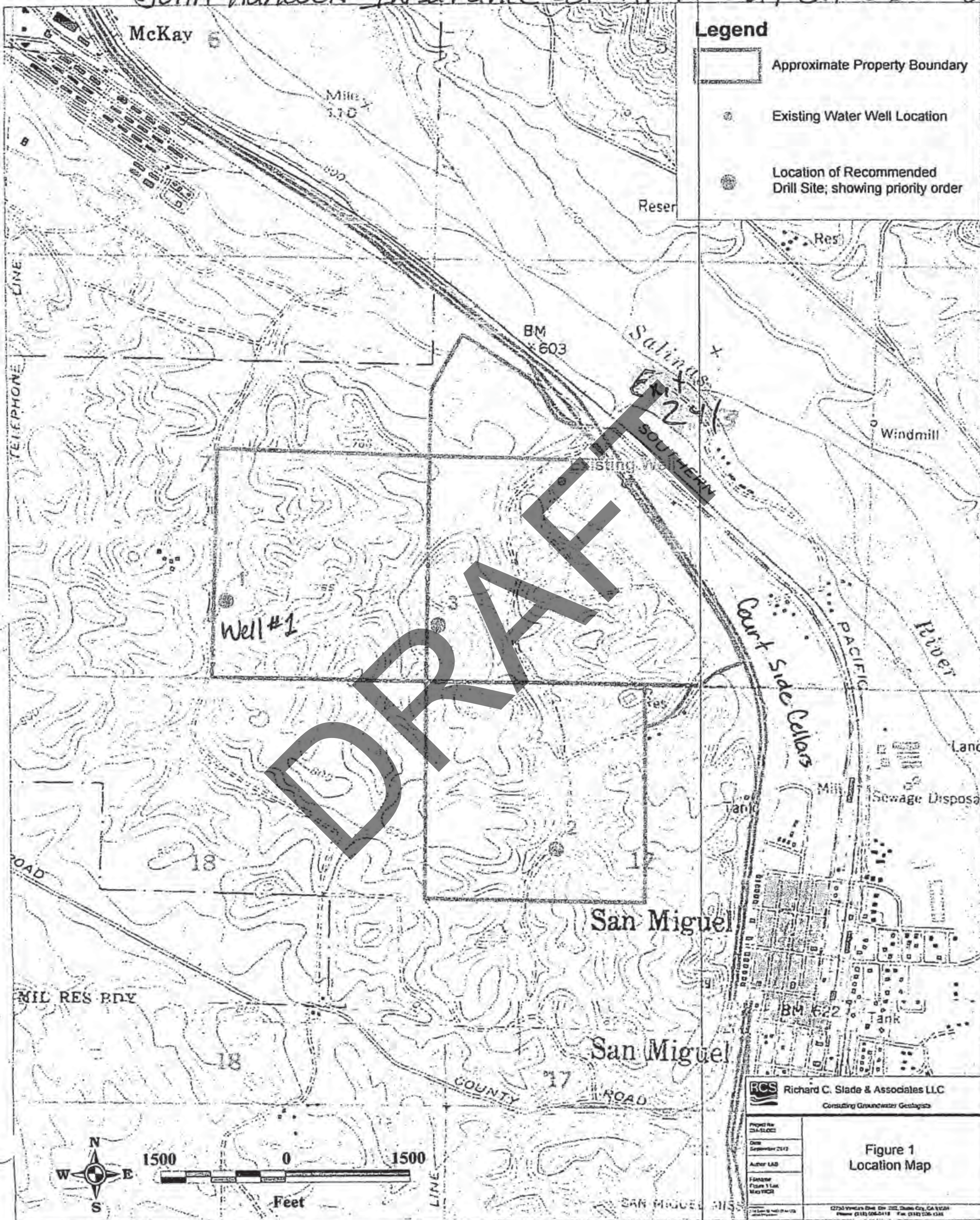
John Hancock Insurance Co. APN: 027-011-036 Well#1



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Page 1 of 1

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. e016462

DWR USE ONLY — DO NOT FILL IN

24S/13E-36

STATE WELL NO./STATION NO.

LATITUDE | LONGITUDE

APN/TRS/OTHER

Owner's Well No. ____

Date Work Began 9-16-04, Ended 9-22-04

Local Permit Agency Monterey County Health Dept

Permit No. 04-07838 Permit Date 7-26-04

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD Rotary FLUID Bentonite

DEPTH FROM SURFACE Ft. to	Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	2	Top soil
2	5	Brown clay
5	7	Sand & gravel
7	65	Lite green clay
65	75	Sand & gravel
75	140	Lite brown clay
140	150	Shale gravel
150	160	Brown clay
160	175	Coarse sand & gravel
175	180	Brown clay
180	250	Brown clay with gravel
250	260	Sand & gravel
260	280	Brown clay
280	295	Shale gravel
295	400	Brown clay
400	425	Shale gravel
425	430	Brown clay
430	465	Shale gravel-layers brown clay
465	520	Brown clay
520	535	Shale gravel
535	560	Lite blue clay
560	585	Shale gravel
585	620	Lite blue clay
620	690	Shale gravel some lite brown shale
690	700	Blue clay

NOTE: ANY PERSON REMOVING THE CAP FROM THIS WELL OTHER THAN MILLER DRILLING CO OR AUTHORIZED CONTRACTOR APPROVED BY US WILL VOID ALL STRUCTURAL WARRANTIES.

TOTAL DEPTH OF BORING 700 (Feet)

TOTAL DEPTH OF COMPLETED WELL 695 (Feet)

WELL OWNER

WELL LOCATION

Address 77509 Hog Cyn

City San Miguel

County Monterey County

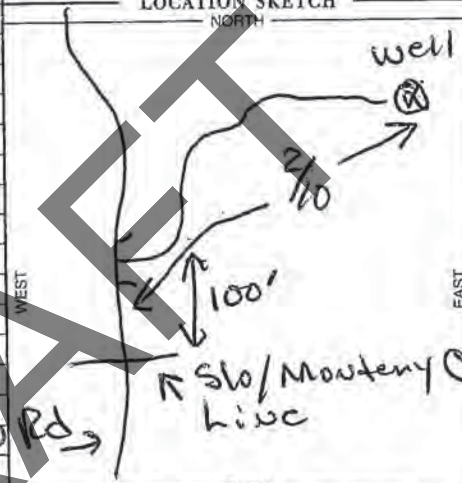
APN Book 424 Page 151 Parcel 027

Township 24S Range 13E Section 36

Latitude 35 47 30.9 NORTH (DEG. MIN. SEC.) Longitude 120 32 18.1 WEST (DEG. MIN. SEC.)

LOCATION SKETCH

NORTH



WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (*Describe Procedures and Materials Under "GEOLOGIC LOG"*)

PLANNED USES (✓)

WATER SUPPLY
X Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 520 (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 410 (Ft.) & DATE MEASURED 9-22-04

ESTIMATED YIELD * 14@500 (GPM) & TEST TYPE Blow test

TEST LENGTH 75@680 (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to	Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	520	9 7/8	X				F480 PVC	5	.265	
520	540	9 7/8		X			F480 PVC	5	.265	.040 P
540	560	9 7/8	X				F480 PVC	5	.265	
560	600	9 7/8		X			F480 PVC	5	.265	.040 P
600	620	9 7/8	X				F480 PVC	5	.265	
620	695	9 7/8		X			F480 PVC	5	.265	.040 P

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to	Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	61	X			
61	695				Bye

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Miller Drilling Company
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 301 North Main Street CITY Templeton STATE Calif. ZIP 93465

Signed [signature] WELL DRILLER/AUTHORIZED REPRESENTATIVE

DATE SIGNED 9-23-04 C-57 LICENSE NUMBER 324634 AA

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

6/26/2019

ORIGINAL
File with DWR

Page 1 of 1

Owner's Well No. ____

Date Work Began 09-29-05, Ended 10-5-05

Local Permit Agency Monterey County Health Dept

Permit No. 05-10531 Permit Date 7-05

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. e030073

DWR USE ONLY — DO NOT FILL IN

24S/13E-33

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD Rotary FLUID Bentonite

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	5	Top soil
5	30	Sand & gravel
30	60	Brown clay
60	90	Sand & gravel
90	110	Brown clay
110	115	Sand & gravel
115	160	Brown clay
160	220	Sand & gravel
220	330	Brown clay with gravel cemented
330	350	Sand & gravel
350	360	Brown clay with gravel
360	390	Sand & gravel
390	470	Brown clay with gravel, tight
470	485	Shale gravel
485	500	Brown clay with gravel, tight
500	510	Shale gravel
510	650	Brown claywith gravel, tight
650	680	Blue clay

NOTE:
ANY PERSON REMOVING THE CAP FROM THIS WELL OTHER THAN MILLER DRILLING CO OR AUTHORIZED CONTRACTOR APPROVED BY US WILL VOID ALL STRUCTURAL WARRANTIES.

TOTAL DEPTH OF BORING 680 (Feet)

TOTAL DEPTH OF COMPLETED WELL 650 (Feet)

WELL LOCATION

Address Ranchita Cyn LOT 2 Tract 3A South 1/2

City San Miguel

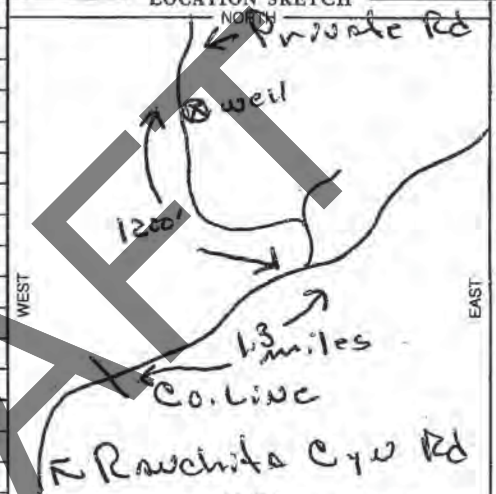
County Monterey

APN Book 424 Page 405 Parcel 058

Township 24S Range 13E Section 33

Latitude 35 48.126 NORTH (DEG. MIN. SEC.) Longitude 120 34.064 WEST (DEG. MIN. SEC.)

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
X Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 470 (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 332 (Ft.) & DATE MEASURED 10-5-05

ESTIMATED YIELD* 20@440 75@640 (GPM) & TEST TYPE Blow test

TEST LENGTH ____ (Hrs.) TOTAL DRAWDOWN ____ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	470	9 7/8	X				F480 PVC	5	.265	
470	550	9 7/8		X			F480 PVC	5	.265	.040 P
550	570	9 7/8	X				F480 PVC	5	.265	
570	590	9 7/8		X			F480 PVC	5	.265	.040 P
590	610	9 7/8	X				F480 PVC	5	.265	
610	650	9 7/8		X			F480 PVC	5	.265	.040 P

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	60	X			
60	650				Lapis3 mix

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ____

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Miller Drilling Company
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 301 North Main Street CITY Templeton STATE Calif. ZIP 93465

Signed [signature] WELL DRILLER/AUTHORIZED REPRESENTATIVE

DATE SIGNED 10-19-05 C-57 LICENSE NUMBER 324634 AA

DWR 188 REV. 11-97 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

6/26/2019

Appendix C

Methodology for Identifying Potential Groundwater Dependent Ecosystems

INTRODUCTION

Groundwater dependent ecosystems (GDEs) within the Paso Robles Subbasin are identified in accordance with §354.16(g) of the Groundwater Sustainability Plan regulations. The procedure for identifying GDEs follows guidance developed by

The Nature Conservancy (TNC) and detailed in the *Groundwater Dependent Ecosystems under the Sustainable Groundwater Management Act: Guidance for Preparing Groundwater Sustainability Plans* report (Rohde et al., 2018). This process differentiates between indicators of Groundwater Dependent Ecosystems (iGDEs), potential Groundwater Dependent Ecosystems, and true Groundwater Dependent Ecosystems.

- iGDEs were developed by The Nature Conservancy in partnership with the California Department of Fish and Wildlife (DFW) and DWR using the best available statewide data. The iGDEs are identified using locations of springs and seeps, wetlands, and vegetation known to use groundwater. The Nature Conservancy also uses the term "Natural Communities Commonly Associated with Groundwater" to refer to these iGDEs.

- Potential GDE are iGDEs that, through mapping analyses, may be connected to shallow groundwater and therefore be supported by shallow groundwater.

- True GDEs are potential GDE's that have been field verified to establish that they are supported by groundwater. The methodology described herein does not identify true GDEs.

The procedure consists of the following steps:

- Review geospatial data from TNC that showing indicators of groundwater dependent ecosystems (iGDEs) within the Subbasin

- Assess the connection to groundwater for indicators of groundwater dependent ecosystems

- Identify potential GDEs. Potential GDEs are iGDEs that might be connected to groundwater. Potential GDEs should be field verified before they are established as true GDEs.

Geospatial data showing iGDEs were downloaded from TNC's website for Natural Communities Commonly Associated with Groundwater

(NCCAG; https://gis.water.ca.gov/app/NCDatasetViewer). The iGDEs present in the Paso Robles Subbasin include potential GDEs identified as Wetlands or GDE Vegetation. All iGDEs in the Subbasin, as identified by TNC, are shown on Figure C-1.

Datasets used to assess the potential connection of the iGDEs to groundwater include the San Luis Obispo (SLO) County surface geologic map (County of San Luis Obispo, 2007), measured groundwater levels in the San Luis Obispo County groundwater monitoring network, geospatial data included in the National Hydrographic Dataset (NHD) provided by the U.S. Geological Survey showing the location of mapped springs and seeps, and the updated numerical groundwater flow model of the Paso Robles Subbasin.

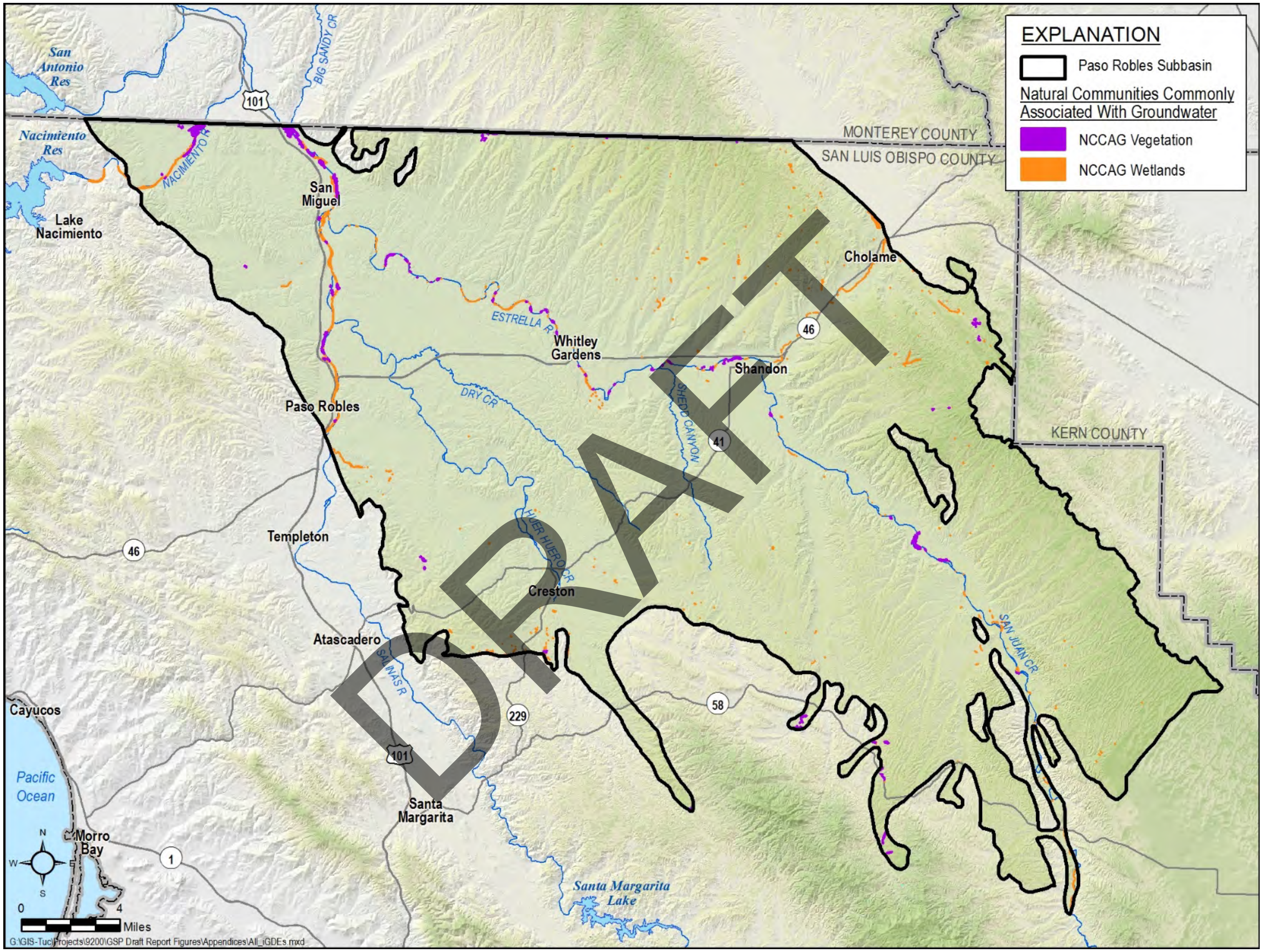


Figure C-1: Areas with Indicators of Groundwater Dependent Ecosystems (iGDEs) (*from TNC*)

CRITERIA FOR CONNECTION TO GROUNDWATER

The iGDEs identified by TNC data can only be potential GDEs if they are connected to a groundwater source that supports the vegetation or wetlands. Potential iGDEs that are supported by streamflows, soil moisture, or shallow perched aquifers, rather than by a regional groundwater aquifer, are not considered GDEs for this report. The report by Rohde et al. (2018) provides a general list of questions, or criteria, applicable to all iGDEs for assessing connection to groundwater. These general questions are:

- Is the iGDE underlain by a shallow unconfined or perched aquifer that has been delineated as being part of a Bulletin 118 principal aquifer in the Subbasin?
- Is the depth to groundwater under the iGDE less than 30 feet?
- Is the iGDE located in an area known to discharge groundwater (e.g. springs/seeps)?

The datasets described above are used to assess the potential connection of iGDEs to groundwater based on the three criteria listed above. To be considered a potential GDE, the iGDEs must satisfy at least one of the three criteria described above; or the landforms around the iGDE must suggest the area could support potential GDEs. Following the suggestions in Rhode (2018), example landforms that could support potential GDEs might be mapped springs, seeps, or a break in the slope of the ground. In the absence of more formal field reconnaissance, the results of this screening level analysis only identify potential GDEs in the Subbasin. Additional field verification is necessary to definitively determine the true GDEs in the Paso Robles Subbasin.

Question 1: Is the iGDE underlain by a shallow unconfined or perched aquifer that has been delineated as being part of a Bulletin 118 principal aquifer in the Subbasin?

Bulletin 118 (DWR, 2003) identifies two primary water-bearing formations in the Subbasin: Quaternary alluvium (Qa) and the Plio-Pleistocene-age Paso Robles formation (QTp). The Qa's thickness ranges from 30 to 130 feet and is highly permeable relative to the QTp. Groundwater in the Qa occurs under unconfined, or water-table conditions. The Qa extent shown on Figure C-2 was determined based on the surficial geologic map of San Luis Obispo County (San Luis Obispo County, 2007). This analysis assumes that all iGDEs that overlie the Quaternary alluvial unit are connected to shallow groundwater Qa sediments, and are therefore classified as potential GDEs as recommended by Rohde and others (2018). The Qa's extent and coincident potential GDEs are shown on Figure C-2. Most iGDEs within the Subbasin fall within the Qa extent.

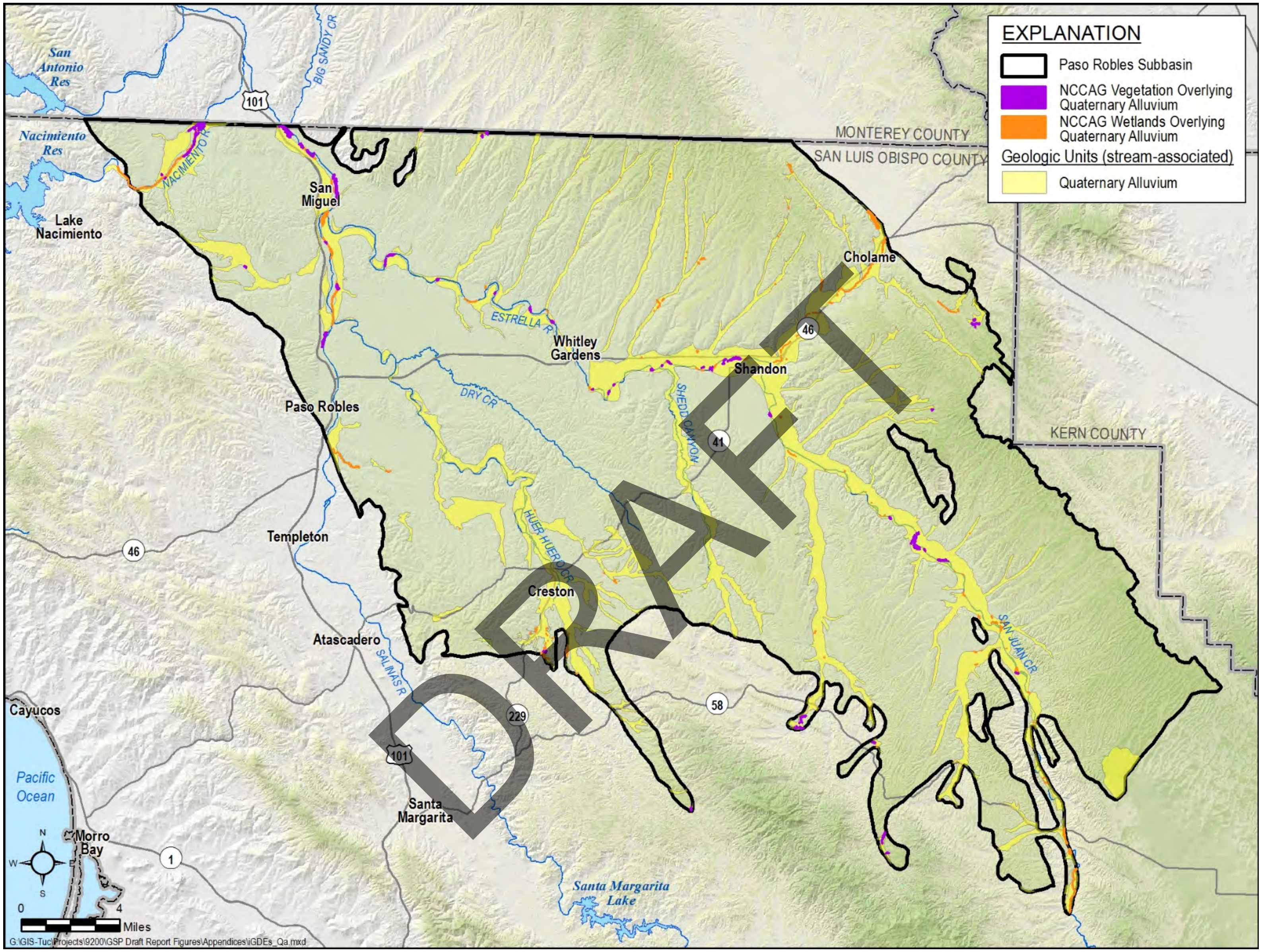


Figure C-2: iGDEs Associated with the Shallow, Unconfined Quaternary Alluvial (Qa) Aquifer

This criterion clearly has the potential to overestimate the number of potential GDEs in the Subbasin. The subjective assessment of what constitutes a shallow unconfined aquifer may result in identifying potential GDEs in areas that do not have the underlying groundwater to support the GDE. This emphasizes the need for field verification of the potential GDEs identified in this GSP.

Question 2: Is depth to groundwater under the iGDE less than 30 feet?

Depth to water is routinely measured by San Luis Obispo County staff within a network of monitoring wells. Figure C-3 shows the locations of San Luis Obispo County monitoring wells completed in the Qa. This analysis uses spring 2017 depth to water data where available. A representative value for spring depth to water was used based on review of historical groundwater levels to establish depth to water for wells at which spring 2017 data were unavailable. Wells where depth to water is less than 30 feet are shown in blue on Figure C-3. Wells where depth to water is greater than 30 feet are shown in yellow. Results from the groundwater model were used to supplement the measured groundwater level data. The simulated spring 2016 groundwater elevations were analyzed to further identify areas where depth to water is less than 30 feet. Based on the measured groundwater level data and model results, iGDEs overlying areas where estimated depth to groundwater is less than 30 feet are shown on Figure C-3.

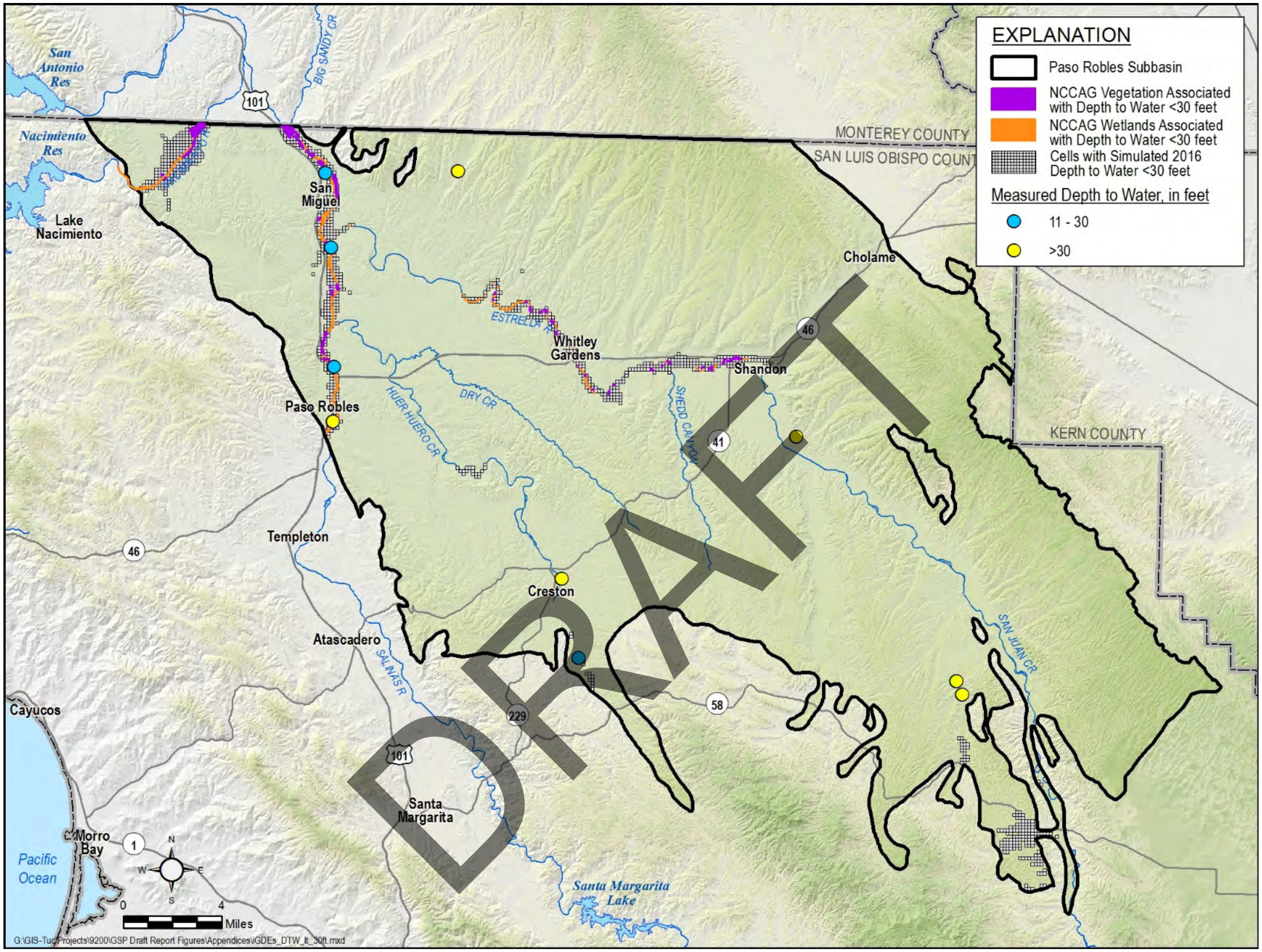


Figure C-3: Qa monitoring wells, Model Cells with Depth to Water Less than 30 Feet, and Potential GDEs based on Depth to Groundwater Less than 30 Feet

Is the iGDE located in an area known to discharge groundwater (e.g., springs/seeps)?

Springs and seeps in the Subbasin identified in National Hydrography Dataset (NHD) tend to be located in the foothills of the Santa Lucia and Temblor mountain ranges, which bound the Subbasin to the west and east, respectively.

Figure C-4 shows the location of NHD seeps and springs. iGDEs within 0.5 miles of a seep/spring point are classified as potential GDEs.

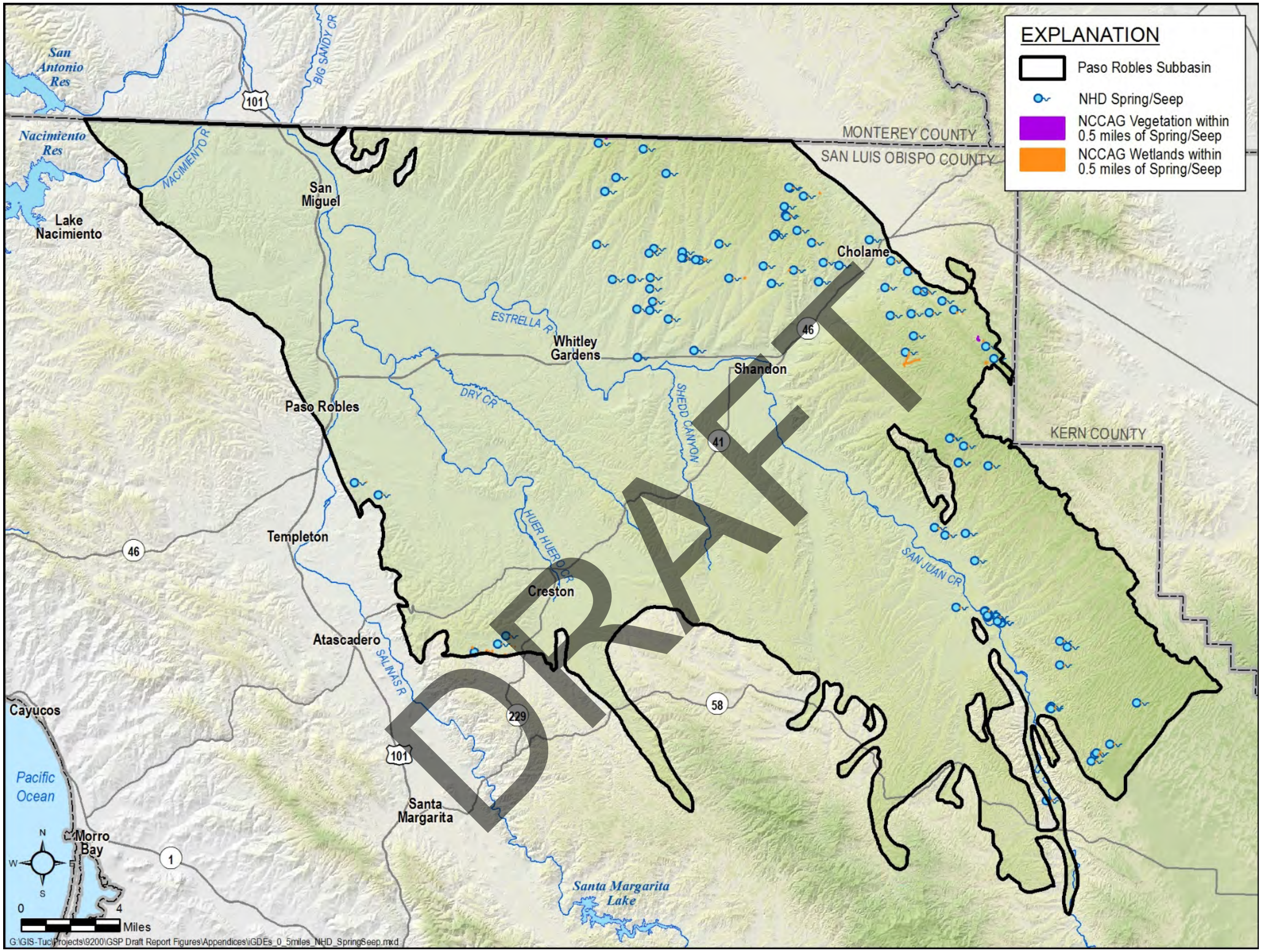


Figure C-4: NHD Springs and Seeps and iGDEs Within 0.5 Miles of a Spring or Seep

FINAL DELINEATION OF POTENTIAL GROUNDWATER DEPENDENT ECOSYSTEMS

After evaluating the three criteria listed above for connection to groundwater, additional iGDEs were identified that should be classified as potential GDEs based on landforms that suggest potential GDEs, effectively loosening the criteria for association with either the shallow alluvial aquifer or springs and seeps. The purpose for this task was to ensure that the extent of potential GDEs would err on the side of estimating maximum GDE extent. Specifically:

1. iGDEs within 0.5 miles of the mapped Qa outcrop are assumed to be hydraulically connected to the shallow alluvial aquifer. Furthermore, iGDEs that appear to be physically connected with other identified potential GDEs in the Qa were manually identified and added to the extent of potential GDEs. Figure C-5 shows all potential GDEs resulting from this analysis.
2. Remaining iGDEs were evaluated to determine their relationship to areas where seeps and springs might occur. These include areas near mapped clusters of seeps and springs such as the northeast mountainous region of the Subbasin shown on Figure C-6; or areas with breaks in the slope of the land surface that may cause "groundwater to emerge or vegetation to congregate on the surface" (Rohde and others, 2018). Figure C-6 shows all potential GDEs associated with known springs or seeps or located in areas that potentially host springs or seeps.

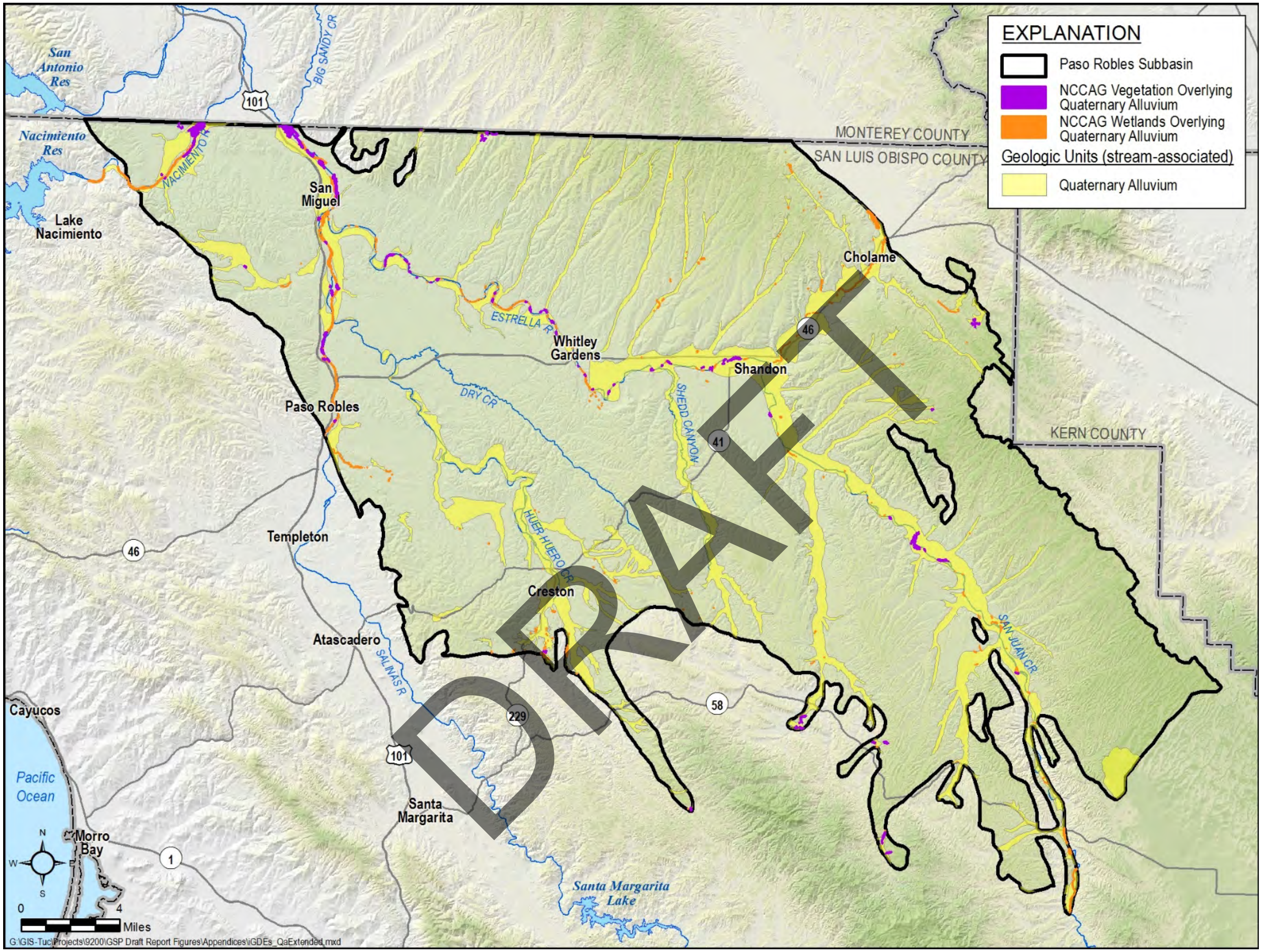


Figure C-5: iGDEs Associated with Quaternary Alluvium (Overlying, Within 0.5 miles, or Manually Selected)

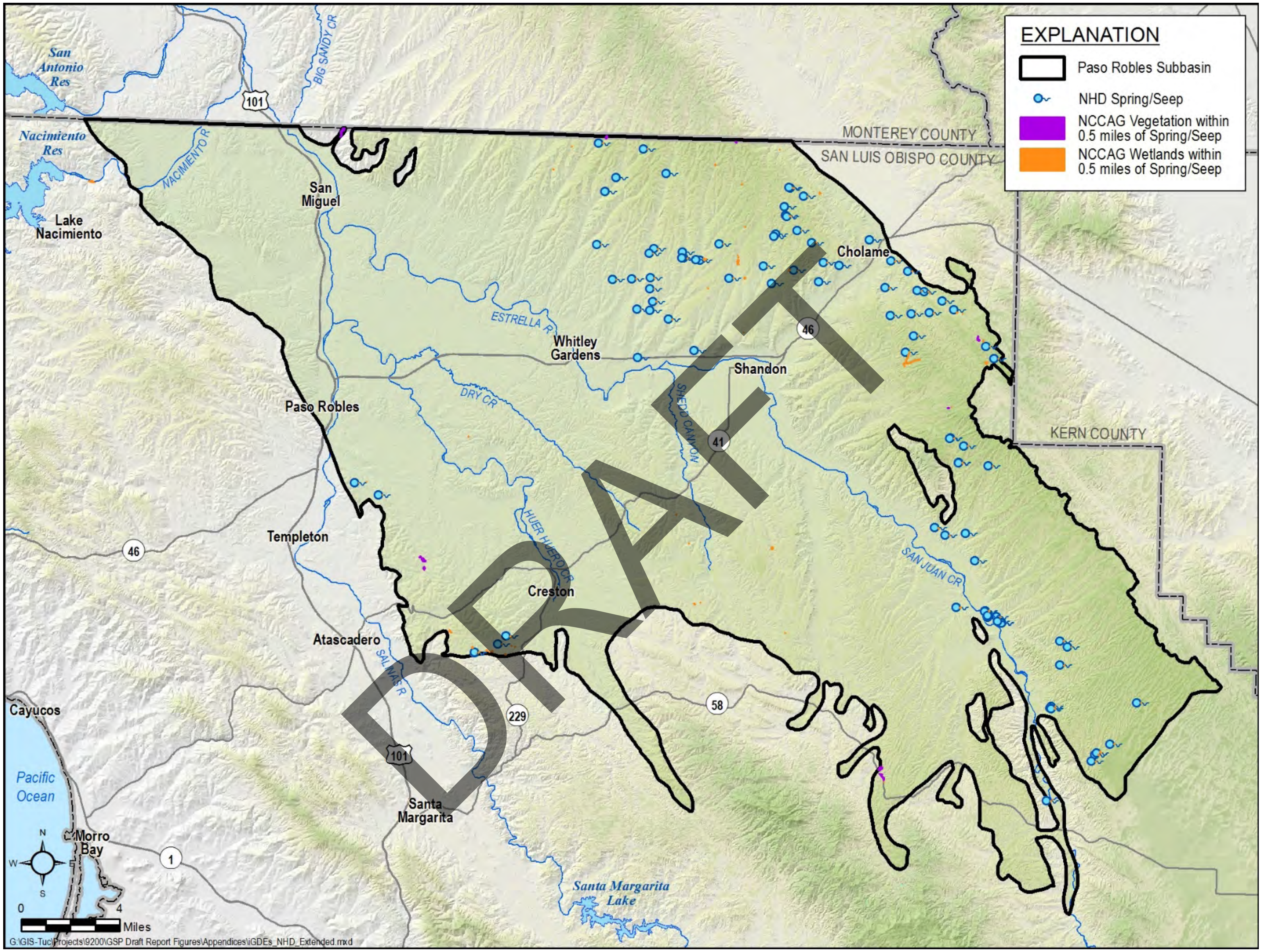


Figure C-6: iGDEs Associated with Springs or Seeps or Located in an Area with Potential Springs or Seeps

Measured groundwater levels within SLO County do not suggest additional areas where groundwater is close enough to the surface to be a significant source for natural communities. The report by Rhode et al. (2018) lists additional spatial data that could be considered for identifying GDS including Critical Habitat for Threatened and Endangered Species, California Protected Areas, and Areas of Conservation Emphasis. None of these datasets show additional potential GDEs in the Subbasin. No additional potential GDEs were identified based on a review of local water and environmental management reports.

The final set of potential GDEs in the Subbasin are shown in Figure C-7. Field verification is necessary to assess whether these potential GDEs are true GDEs.

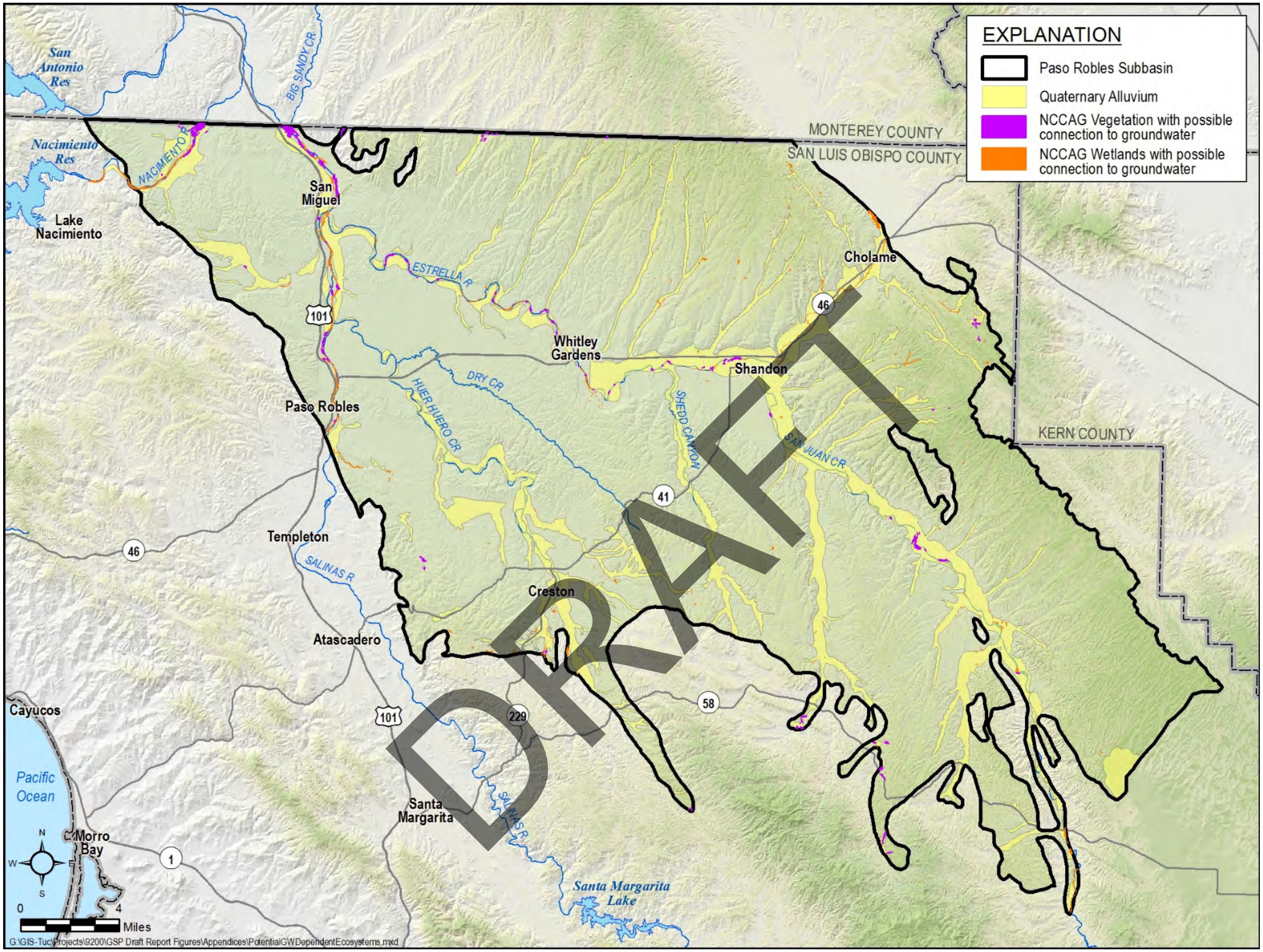


Figure C-7: Extent of Potential GDEs

REFERENCES

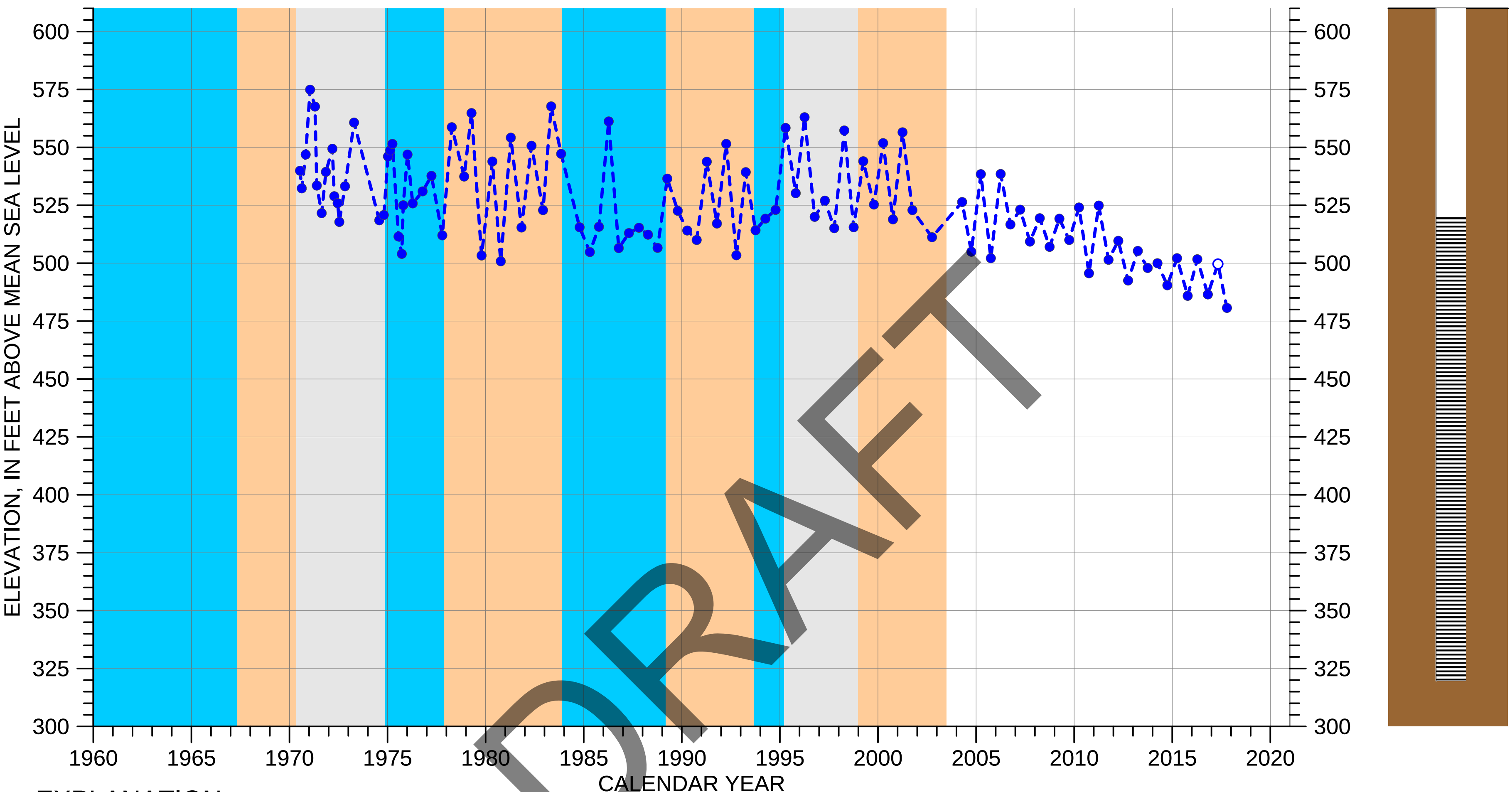
Rohde, M. M., S. Matsumoto, J. Howard, S. Liu, L. Riege, and E.J. Remson, 2018, Groundwater Dependent Ecosystems under the Sustainable Groundwater Management Act: Guidance for Preparing Groundwater Sustainability Plans: The Nature Conservancy, San Francisco, California.

California Department of Water Resources (DWR), 2003, Bulletin 118 Basin Descriptions: Salinas Valley Groundwater Basin, Paso Robles Area Subbasin, accessed at https://water.ca.gov/Programs/Groundwater-Management/ Bulletin-118

County of San Luis Obispo, Planning and Building Department, 2007, Surface geology map, accessed at https://lib.calpoly.edu/gis/browse.jsp?by=e&e=2

Appendix D

Hydrographs



EXPLANATION

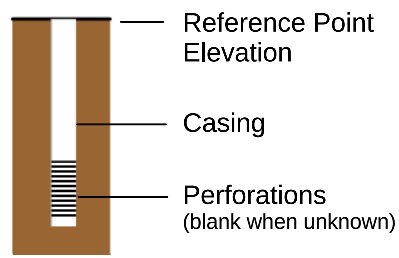
GROUNDWATER ELEVATION

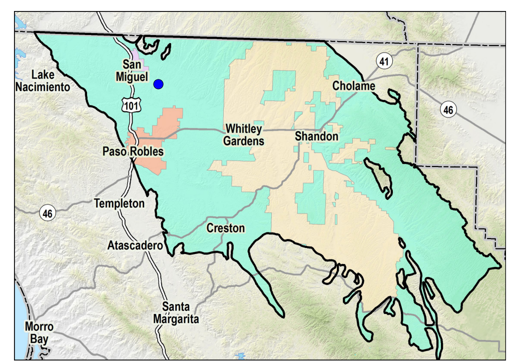
MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 400 feet
Screened Interval: 200-400 feet below ground surface
Reference Point Elevation: 719.7 feet above mean sea level
* Measurement reported as not static





MEASURED WATER LEVELS FOR 25S/12E-26L01

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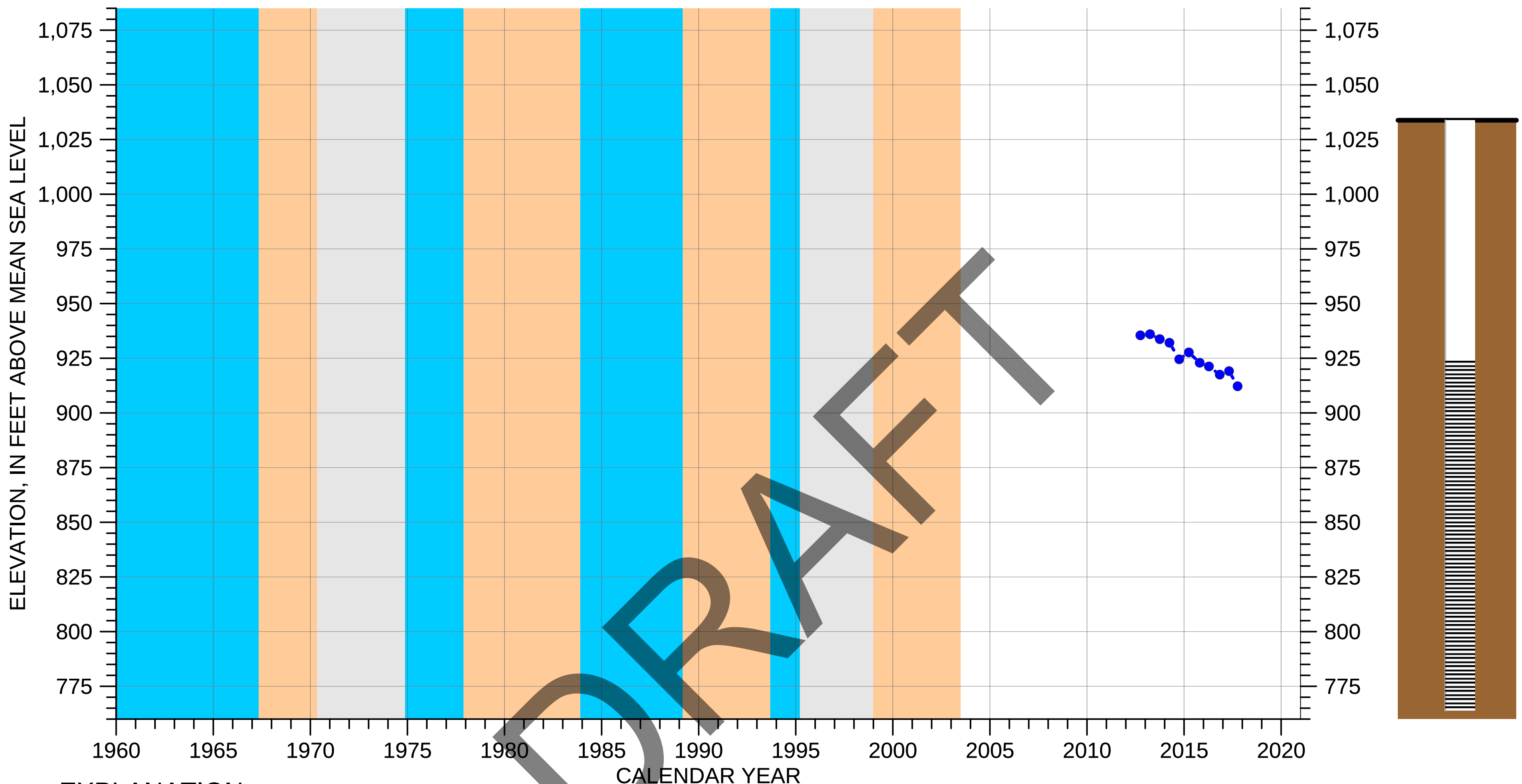


EXPLANATION

GROUNDWATER ELEVATION

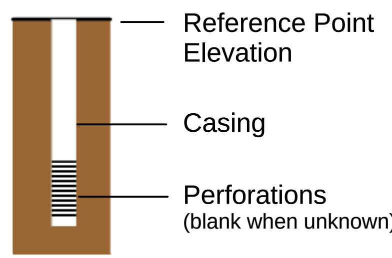
MEASUREMENT NOT VERIFIED*

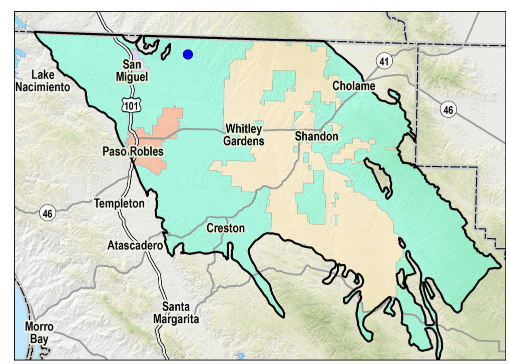
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 270 feet
Screened Interval: 110-270 feet below ground surface
Reference Point Elevation: 1033.8 feet above mean sea level

* Measurement reported as not static





MEASURED WATER LEVELS FOR 25S/13E-08L02

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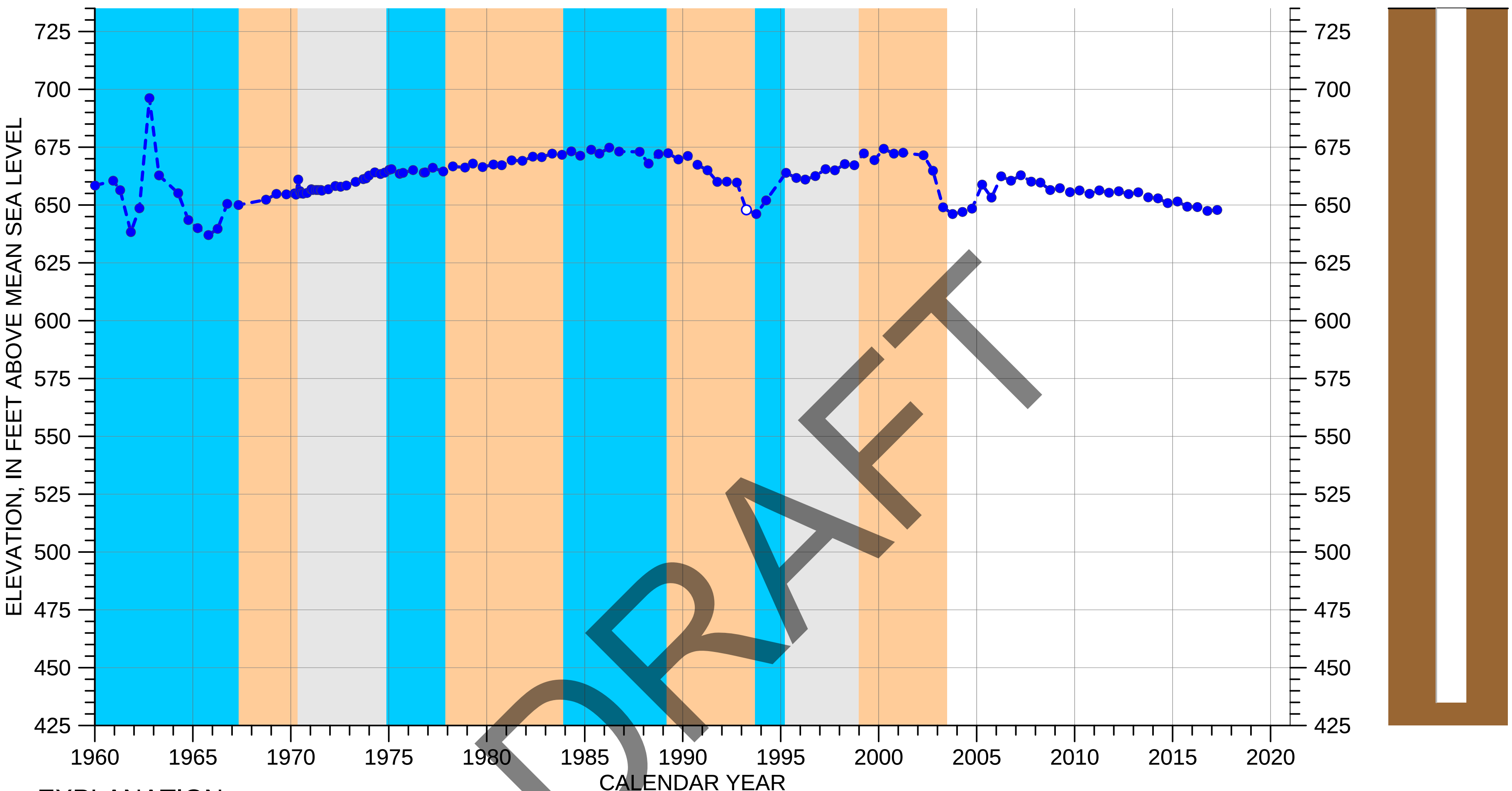


EXPLANATION

GROUNDWATER ELEVATION

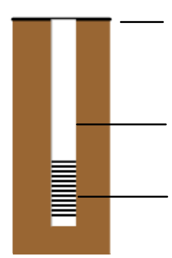
MEASUREMENT NOT VERIFIED*

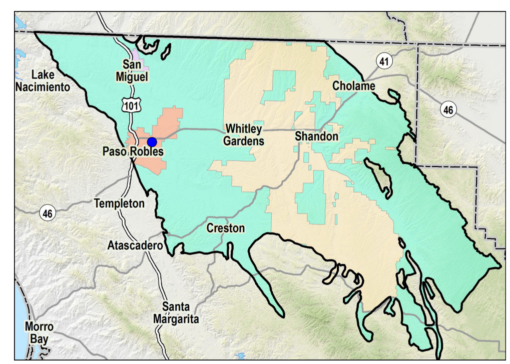
CLIMATE PERIOD CLASSIFICATION

DRY   AVERAGE/ALTERNATING   WET

Well Depth: 400 feet
Screened Interval: unknown
Reference Point Elevation: 835 feet above mean sea level

* Measurement reported as not static





MEASURED WATER LEVELS FOR 26S/12E-26E07

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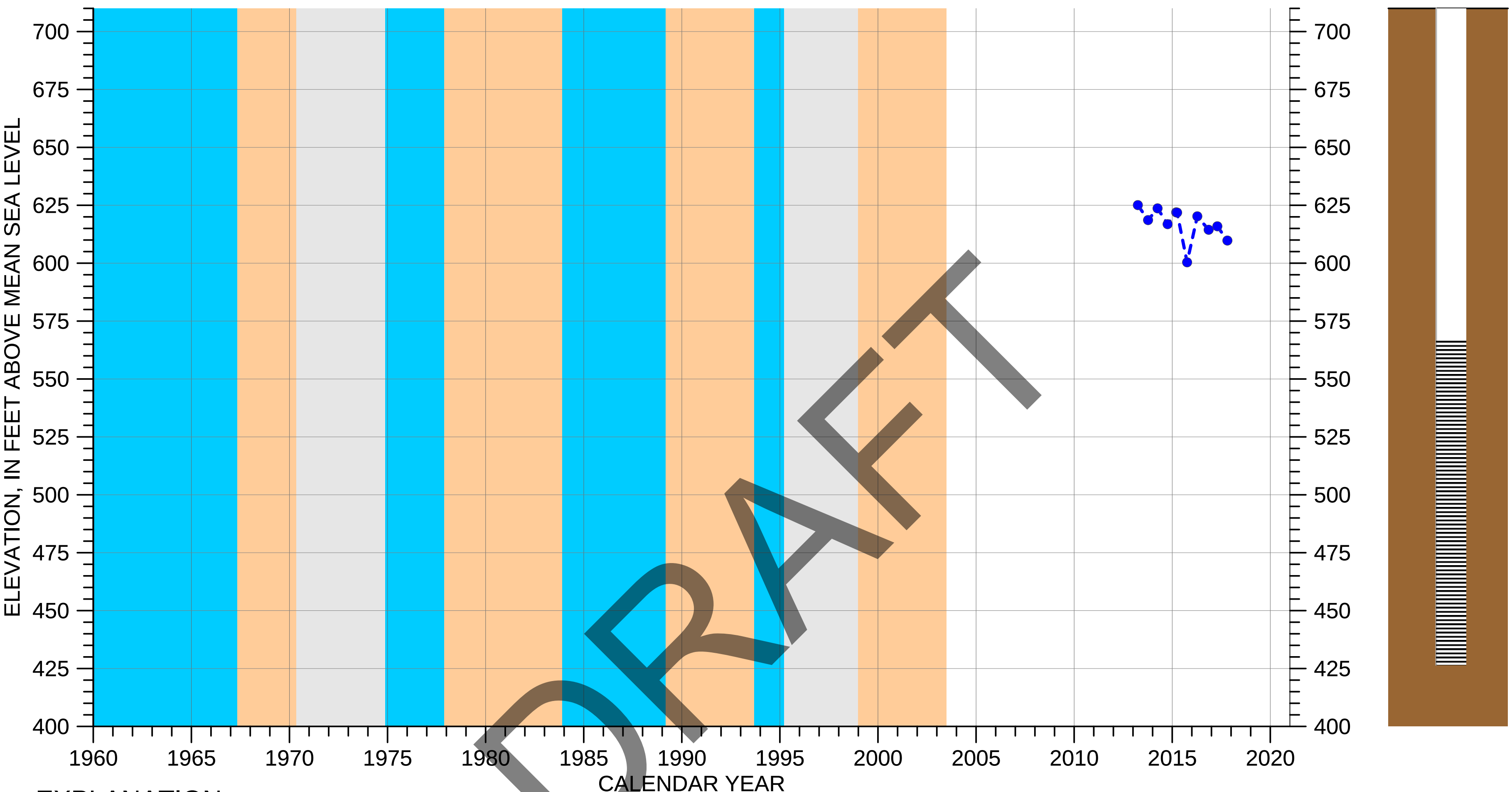


EXPLANATION

GROUNDWATER ELEVATION

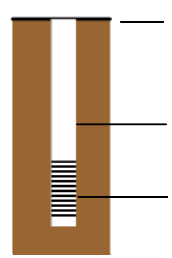
MEASUREMENT NOT VERIFIED*

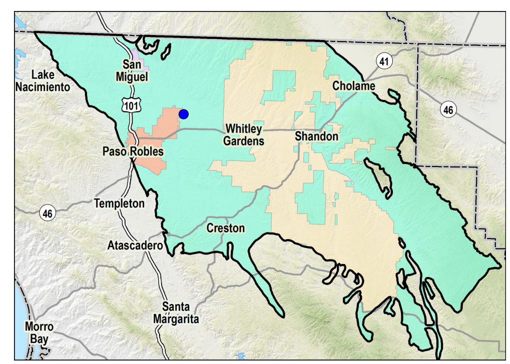
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 400 feet
Screened Interval: 260-400 feet below ground surface
Reference Point Elevation: 827.9 feet above mean sea level

* Measurement reported as not static





MEASURED WATER LEVELS FOR 26S/13E-08M01

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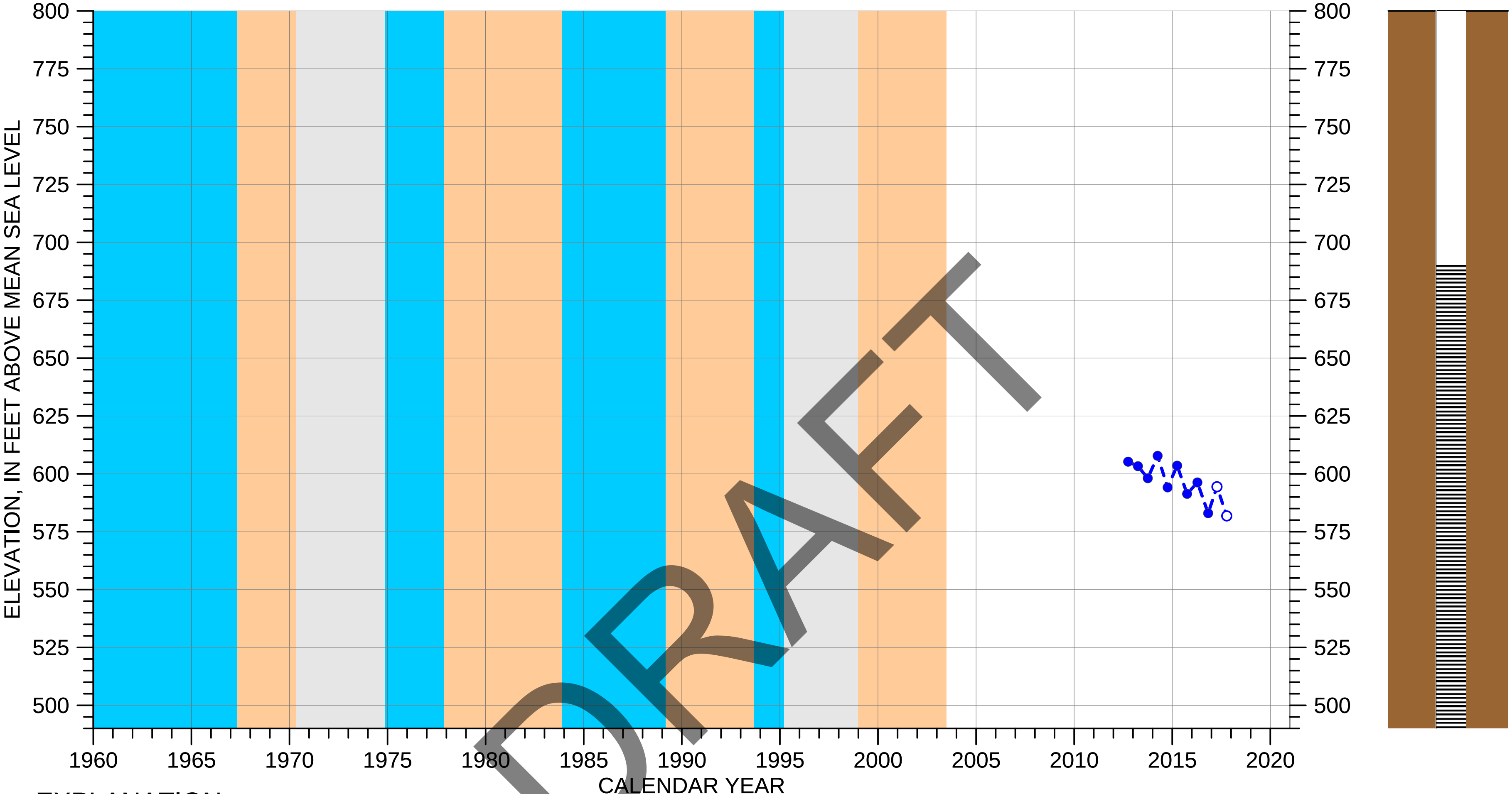


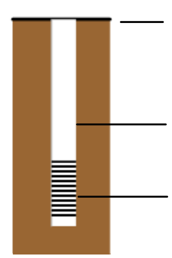
EXPLANATION

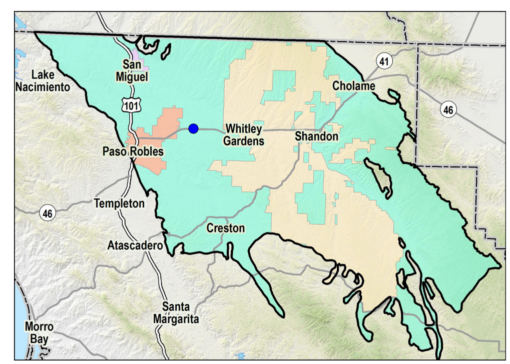
GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET



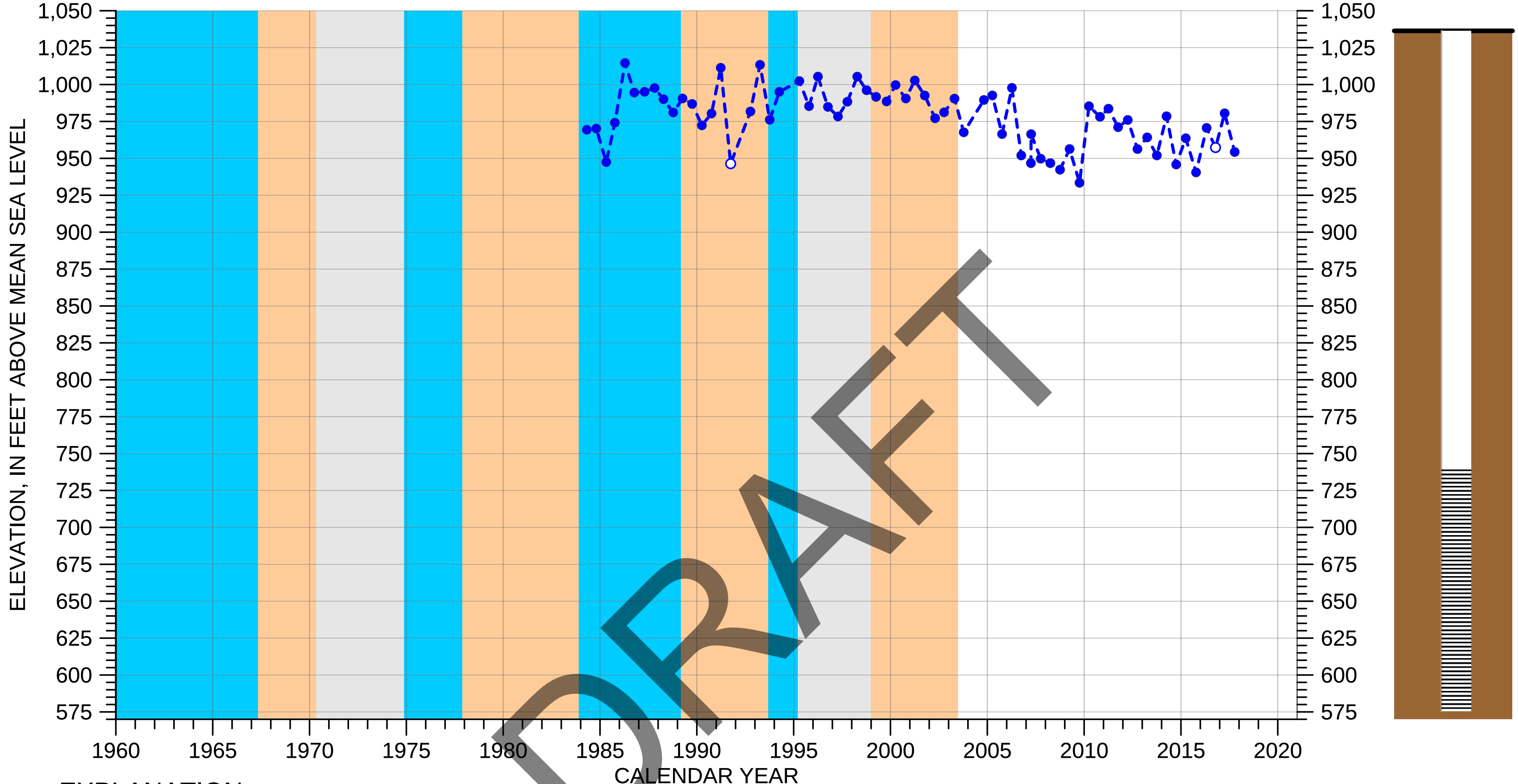


Well Depth: 400 feet
Screened Interval: 200-400 feet below ground surface
Reference Point Elevation: 890.2 feet above mean sea level

* Measurement reported as not static

MEASURED WATER LEVELS FOR 26S/13E-16N01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig06_26S_13E-16N01.grf



EXPLANATION

GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

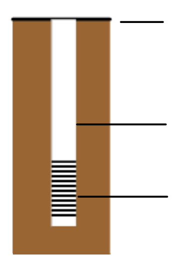
DRY

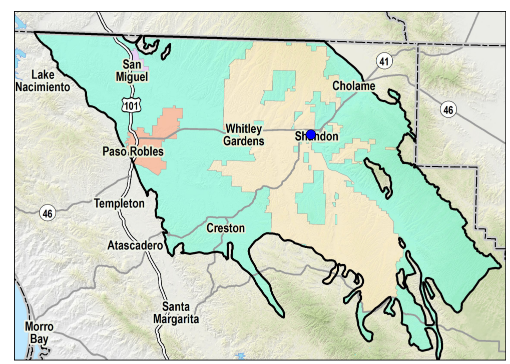
AVERAGE/ALTERNATING

WET

Well Depth: 461 feet
Screened Interval: 297-461 feet below ground surface
Reference Point Elevation: 1036.36 feet above mean sea level

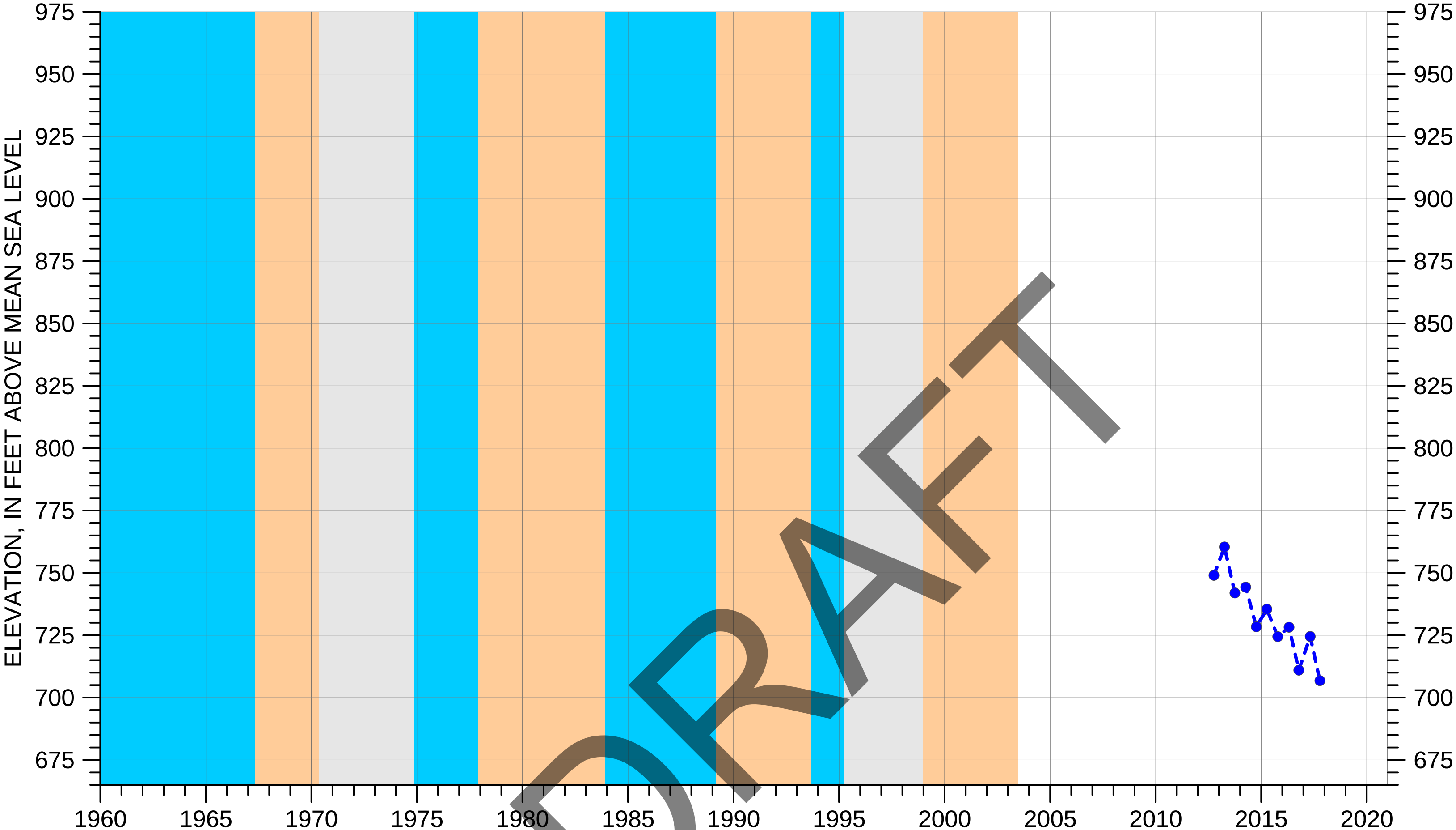
* Measurement reported as not static

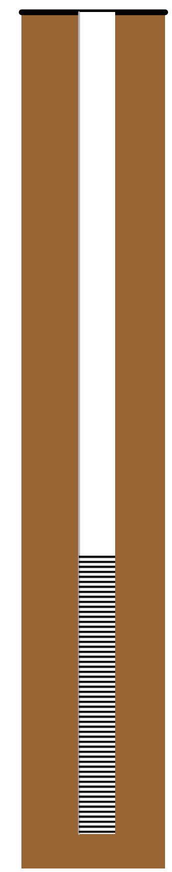




MEASURED WATER LEVELS FOR 26S/15E-20B04

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig07_26S_15E-20B04.grf





EXPLANATION

GROUNDWATER ELEVATION

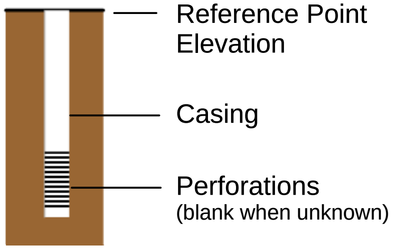
MEASUREMENT NOT VERIFIED*

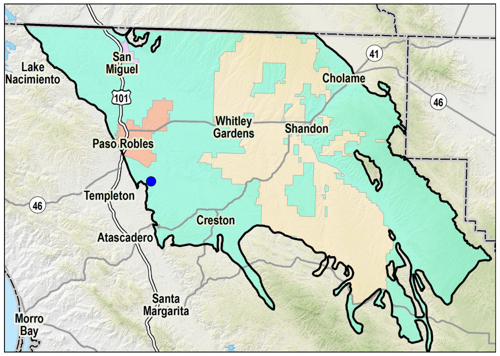
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 295 feet
Screened Interval: 195-295 feet below ground surface
Reference Point Elevation: 972.4 feet above mean sea level

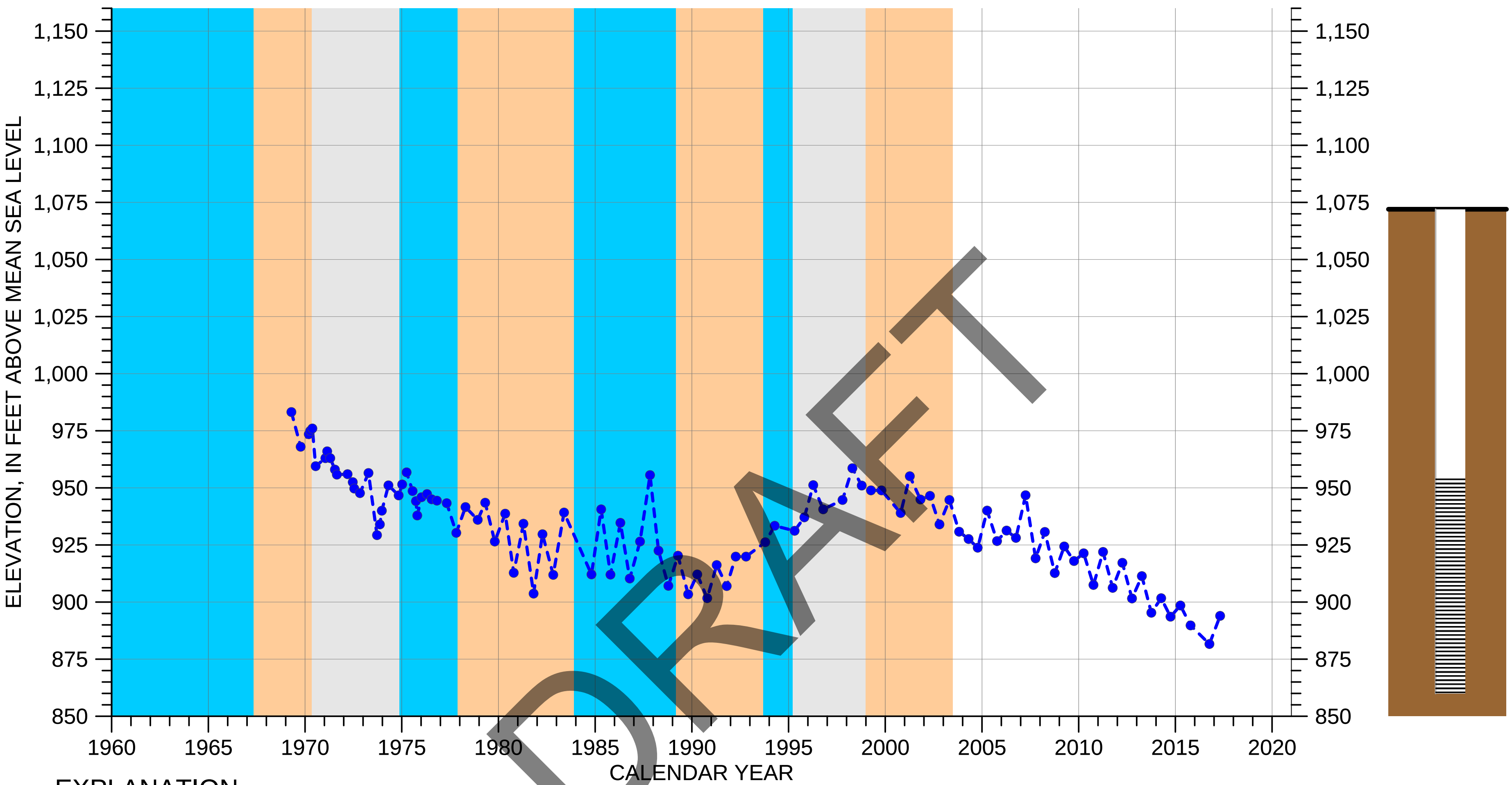
* Measurement reported as not static





MEASURED WATER LEVELS FOR 27S/12E-13N01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig08_27S_12E-13N01.grf



EXPLANATION

GROUNDWATER ELEVATION

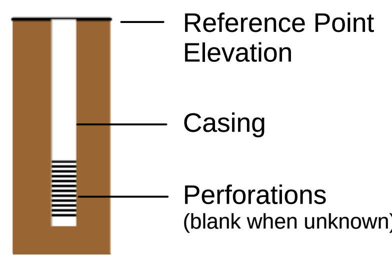
MEASUREMENT NOT VERIFIED*

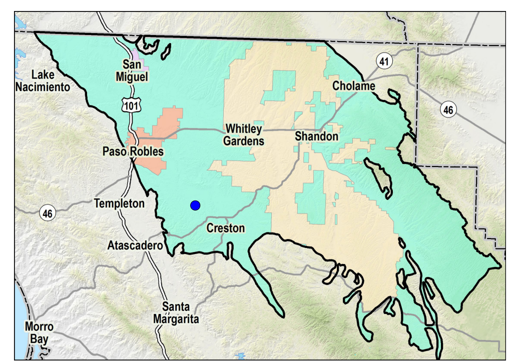
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 212 feet
Screened Interval: 118-212 feet below ground surface
Reference Point Elevation: 1072 feet above mean sea level

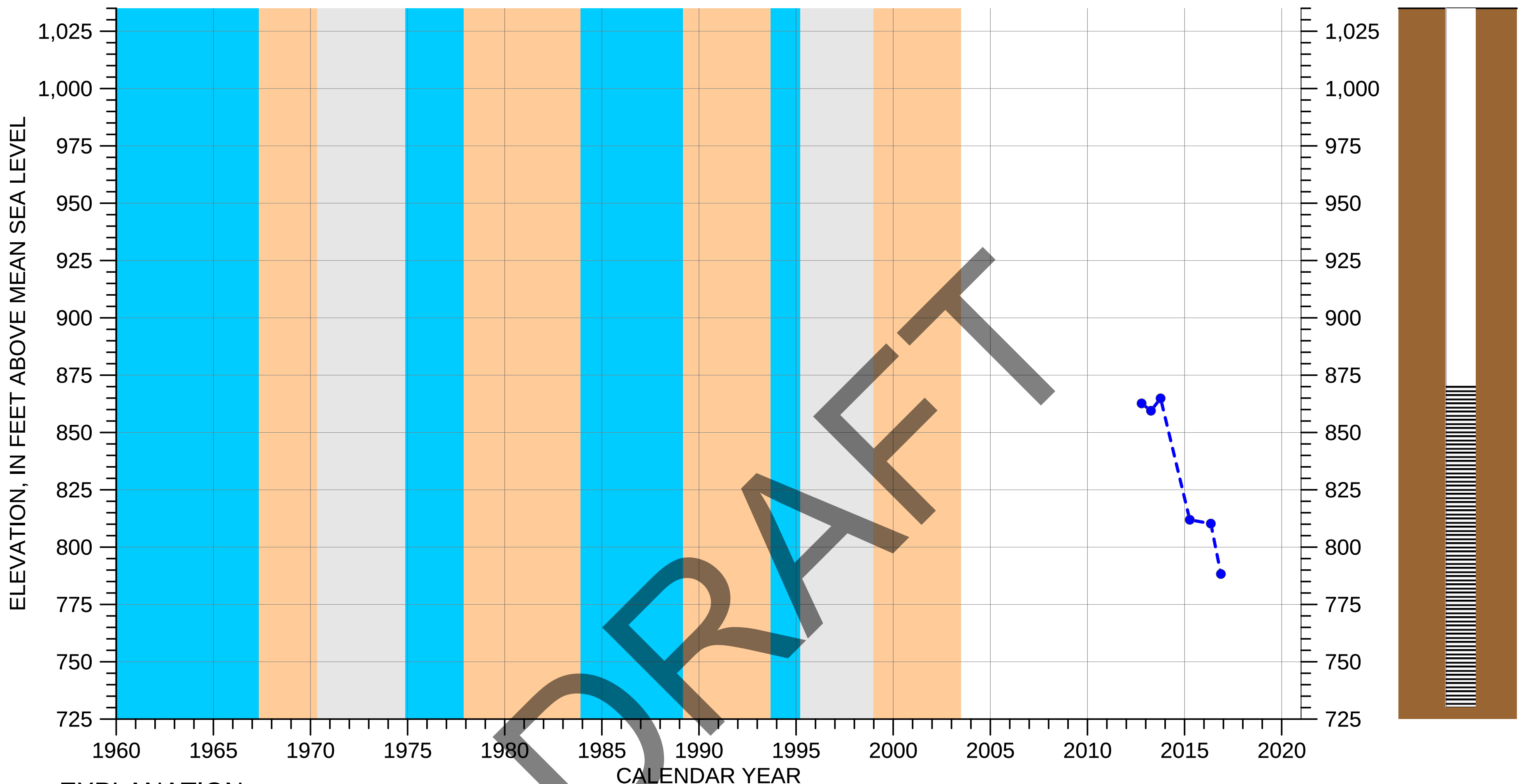
* Measurement reported as not static





MEASURED WATER LEVELS FOR 27S/13E-28F01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig09_27S_13E-28F01.grf



EXPLANATION

GROUNDWATER ELEVATION

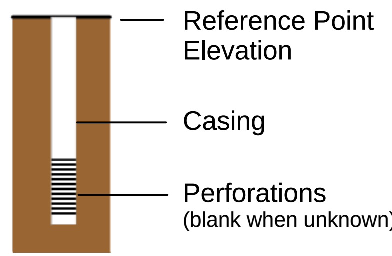
MEASUREMENT NOT VERIFIED*

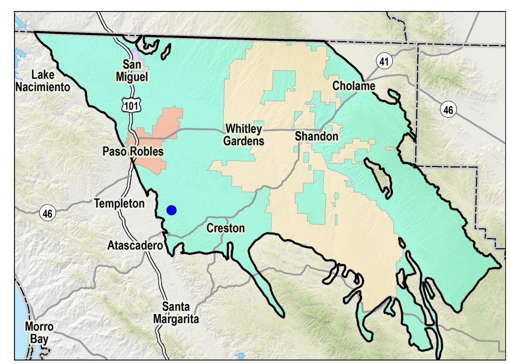
CLIMATE PERIOD CLASSIFICATION

DRY | AVERAGE/ALTERNATING | WET

Well Depth: 355 feet
Screened Interval: 215-235, 275-355 feet below ground surface
Reference Point Elevation: 1086.7 feet above mean sea level

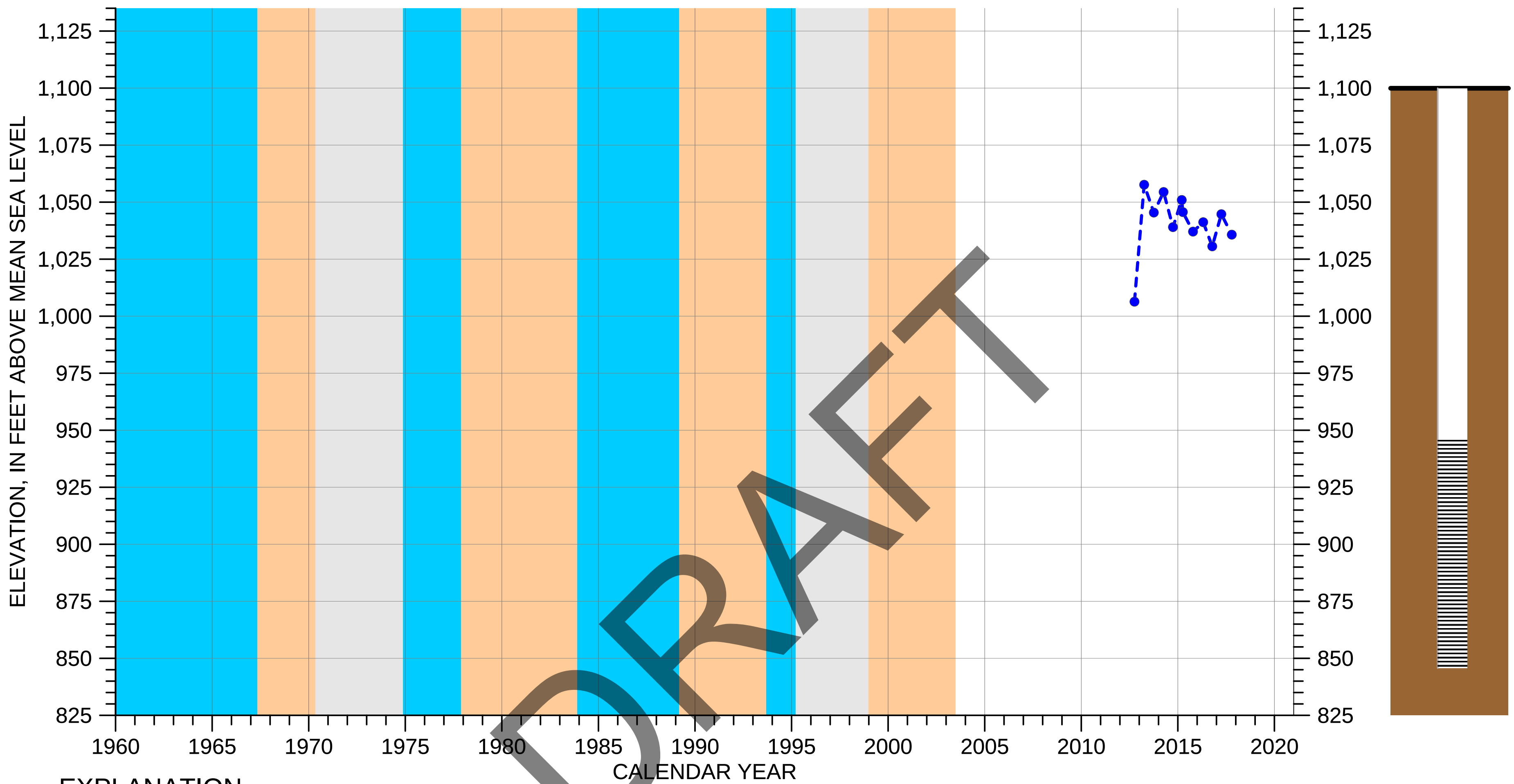
* Measurement reported as not static





MEASURED WATER LEVELS FOR 27S/13E-30N01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig10_27S_13E-30N01.grf



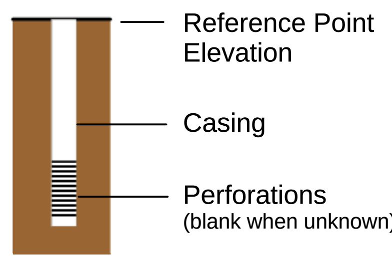
EXPLANATION

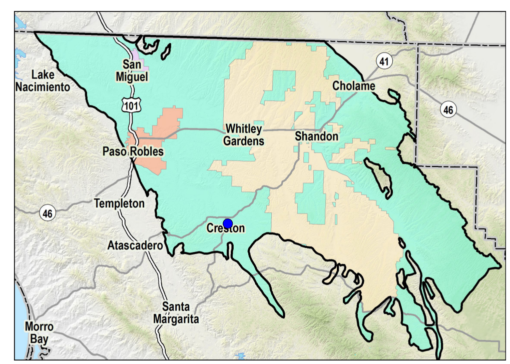
GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET



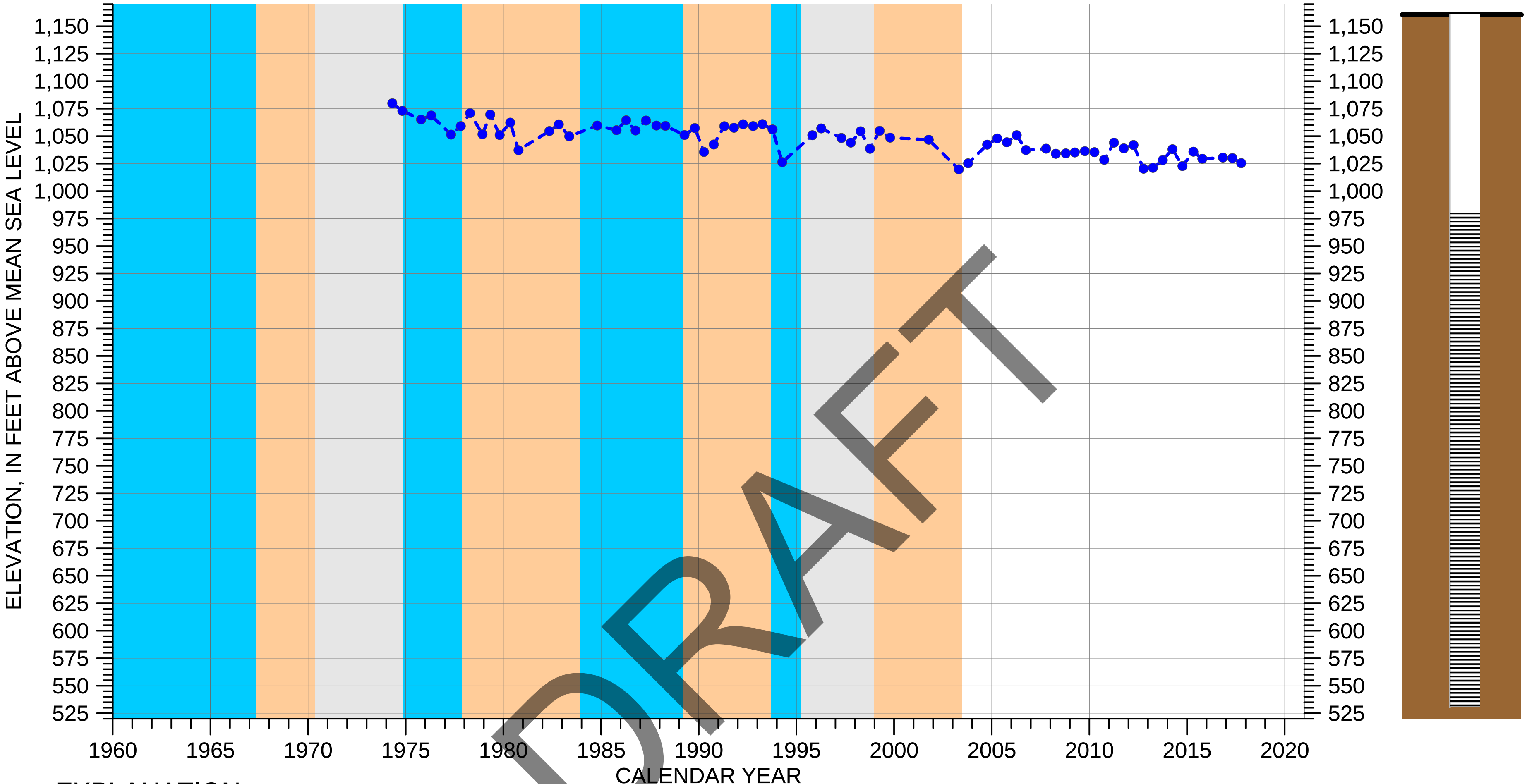


Well Depth: 254 feet
Screened Interval: 154-254 feet below ground surface
Reference Point Elevation: 1099.9 feet above mean sea level

* Measurement reported as not static

MEASURED WATER LEVELS FOR 28S/13E-01B01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig11_28S_13E-01B01.grf



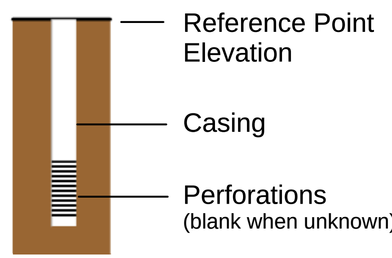
EXPLANATION

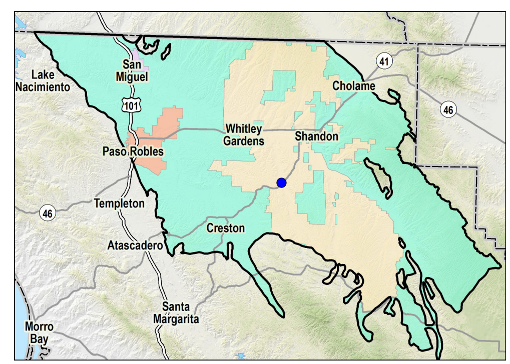
GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY | AVERAGE/ALTERNATING | WET



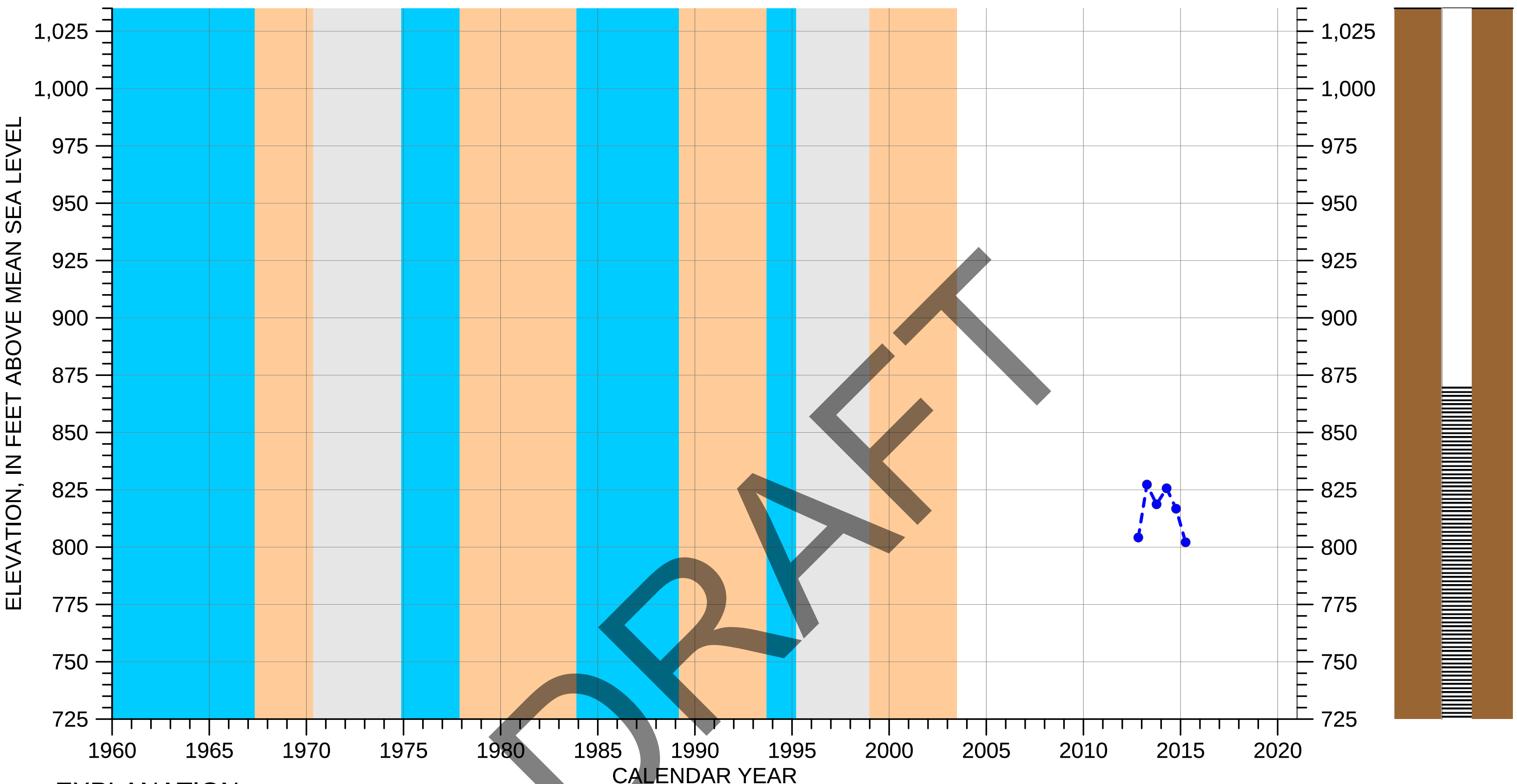


Well Depth: 630
Screened Interval: 180-630 feet below ground surface
Reference Point Elevation: 1160.5 feet above mean sea level

* Measurement reported as not static

MEASURED WATER LEVELS FOR 27S/14E-11R01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig12_27S_14E-11R01.grf



EXPLANATION

GROUNDWATER ELEVATION

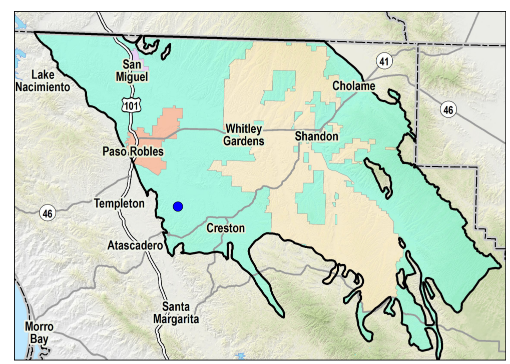
MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

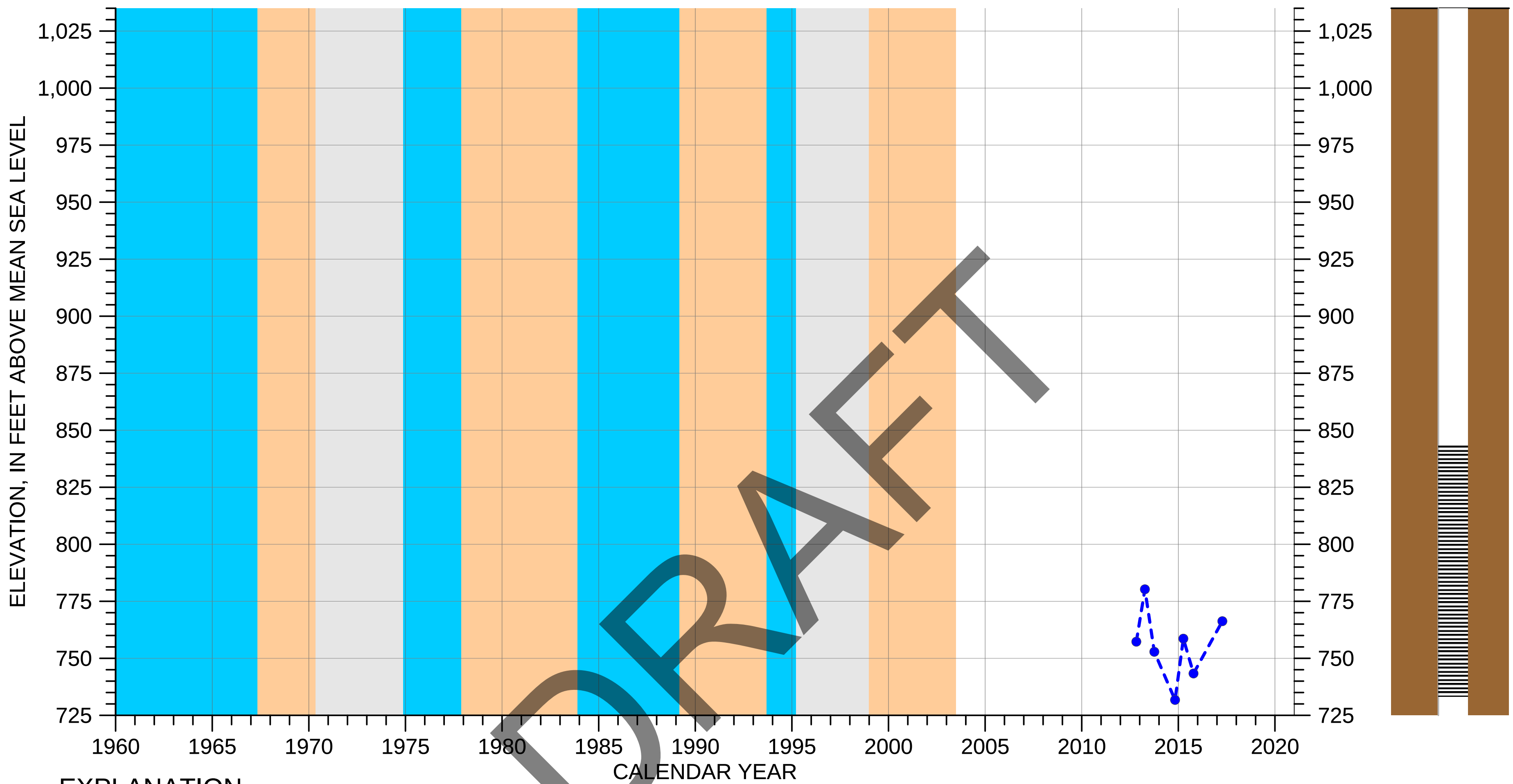
Well Depth: 685
Screened Interval: 225-685 feet below ground surface
Reference Point Elevation: 1095 feet above mean sea level

* Measurement reported as not static



MEASURED WATER LEVELS FOR 27S/13E-30J01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig13_27S_13E-30J01.grf



EXPLANATION

GROUNDWATER ELEVATION

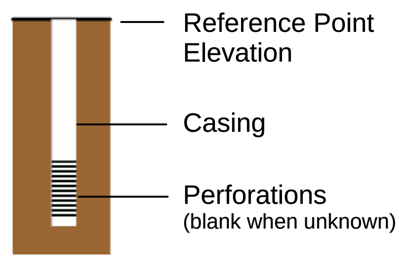
MEASUREMENT NOT VERIFIED*

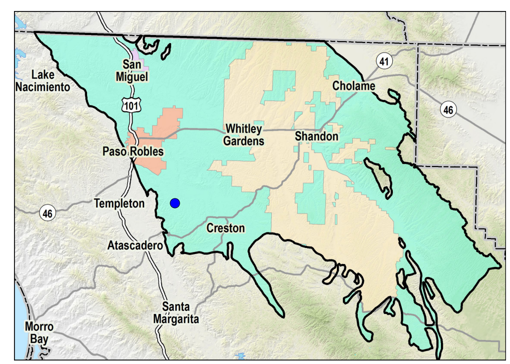
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 310
Screened Interval: 200-310 feet below ground surface
Reference Point Elevation: 1043.2 feet above mean sea level

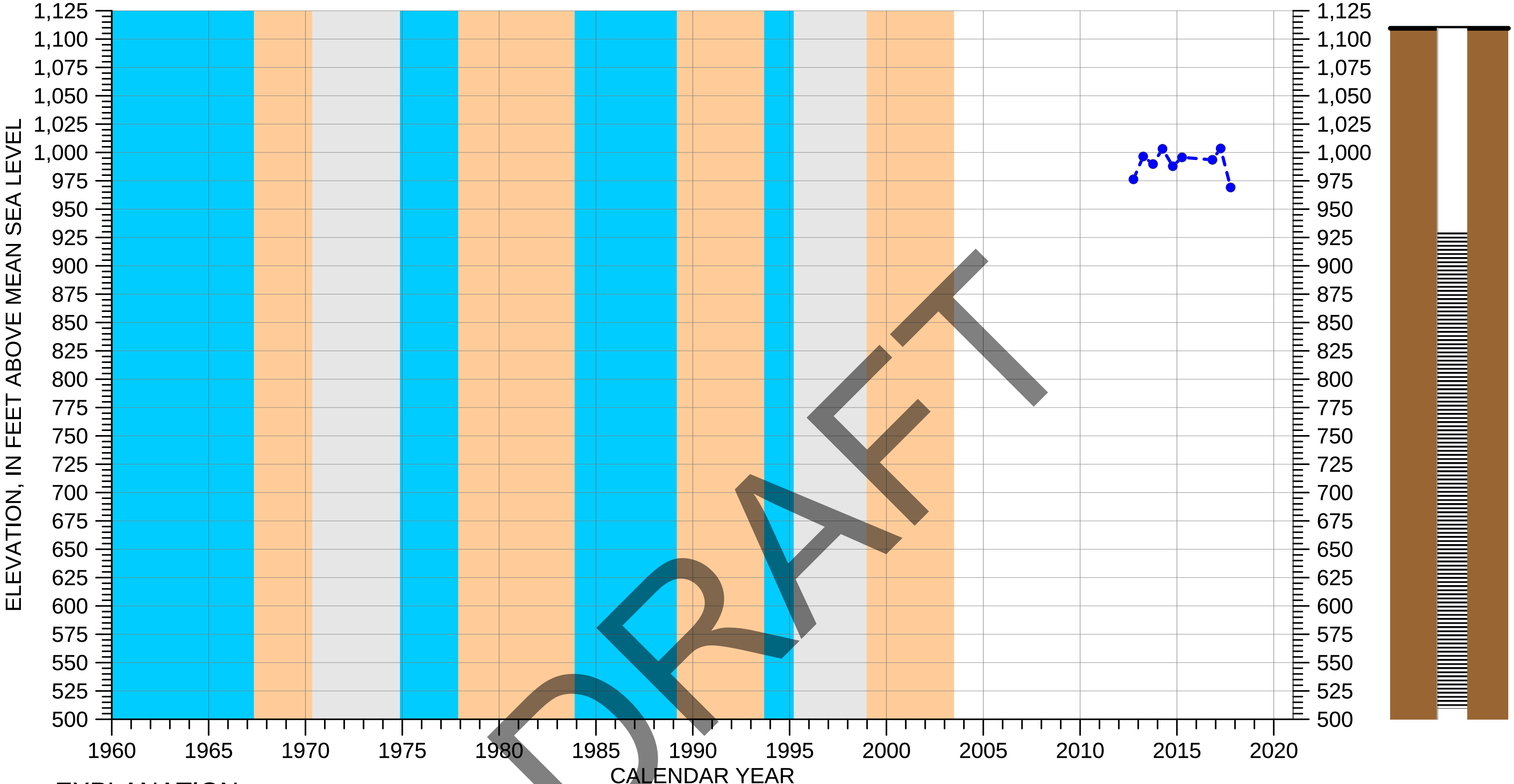
* Measurement reported as not static





MEASURED WATER LEVELS FOR 27S/13E-30F01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig14_27S_13E-30F01.grf



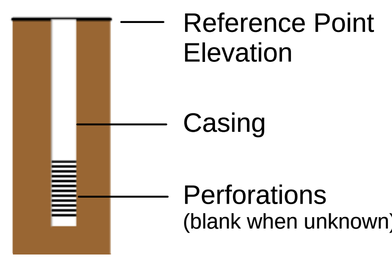
EXPLANATION

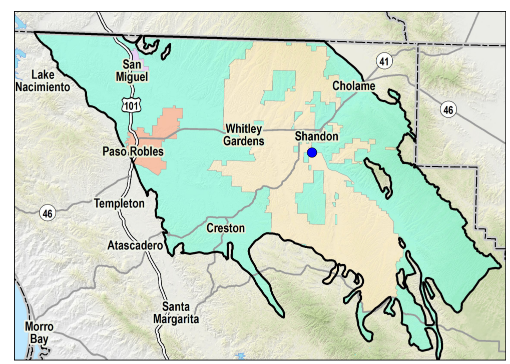
GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET



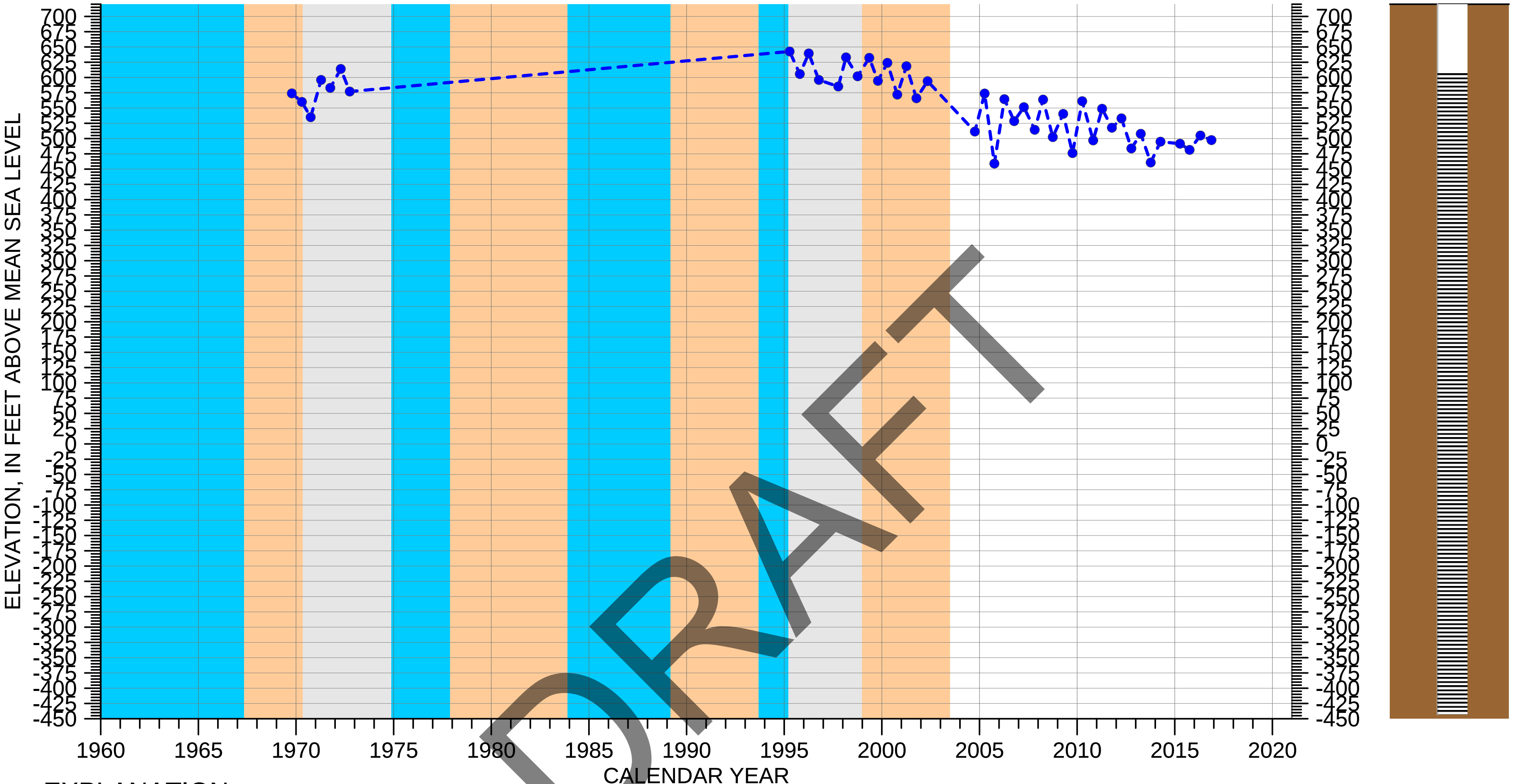


Well Depth: 600
Screened Interval: 180-600 feet below ground surface
Reference Point Elevation: 1109.5 feet above mean sea level

* Measurement reported as not static

MEASURED WATER LEVELS FOR 26S/15E-29R01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig15_26S_15E-29R01.grf



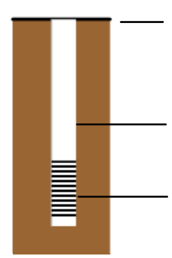
EXPLANATION

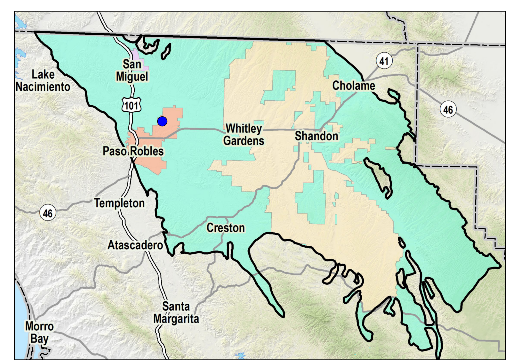
GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET



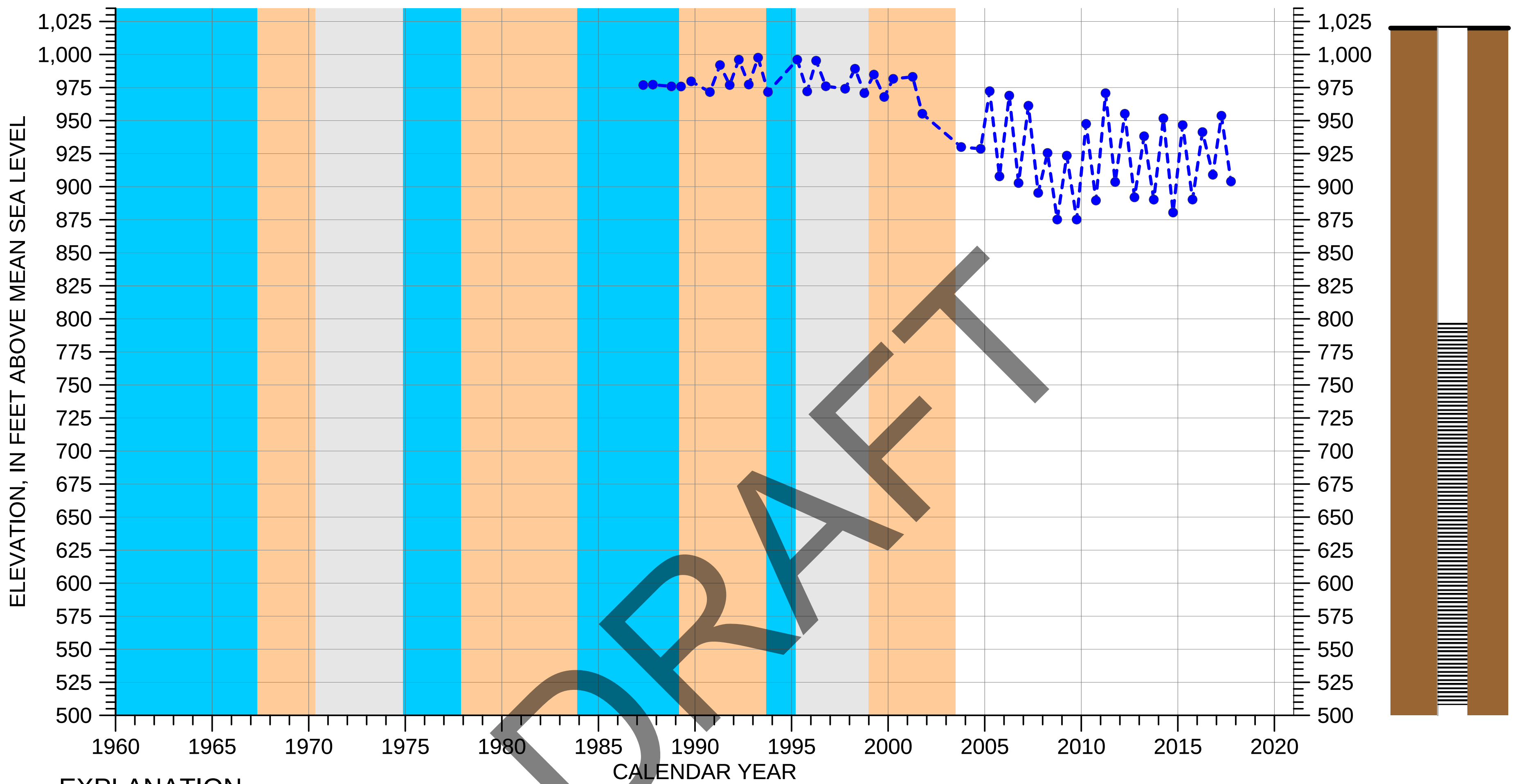


Well Depth: 1230
Screened Interval: 180-~1230 feet below ground surface
Reference Point Elevation: 790 feet above mean sea level

* Measurement reported as not static

MEASURED WATER LEVELS FOR 26S/12E-14H01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig16_26S_12E-14H01.grf



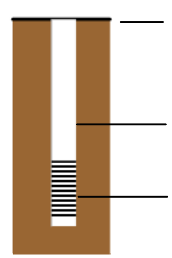
EXPLANATION

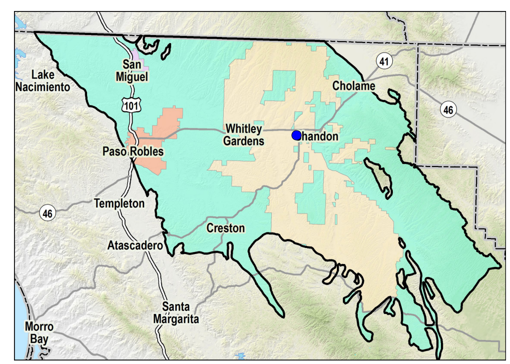
GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY | AVERAGE/ALTERNATING | WET



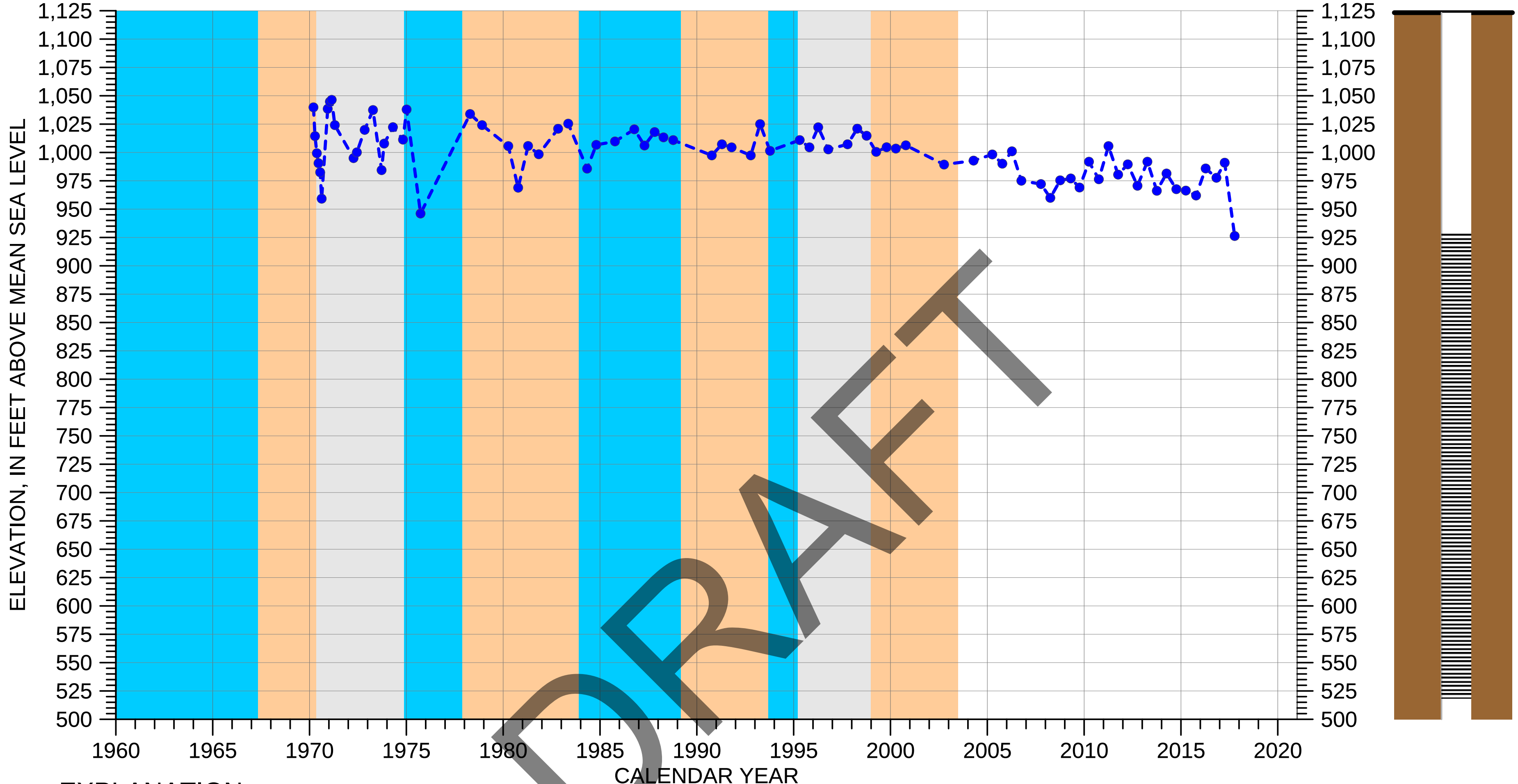


Well Depth: 512
Screened Interval: 223-512 feet below ground surface
Reference Point Elevation: 1020 feet above mean sea level

* Measurement reported as not static

MEASURED WATER LEVELS FOR 26S/15E-19E01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig17_26S_15E-19E01.grf



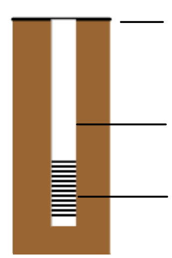
EXPLANATION

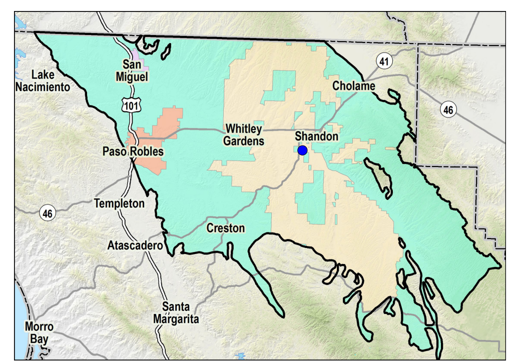
GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET



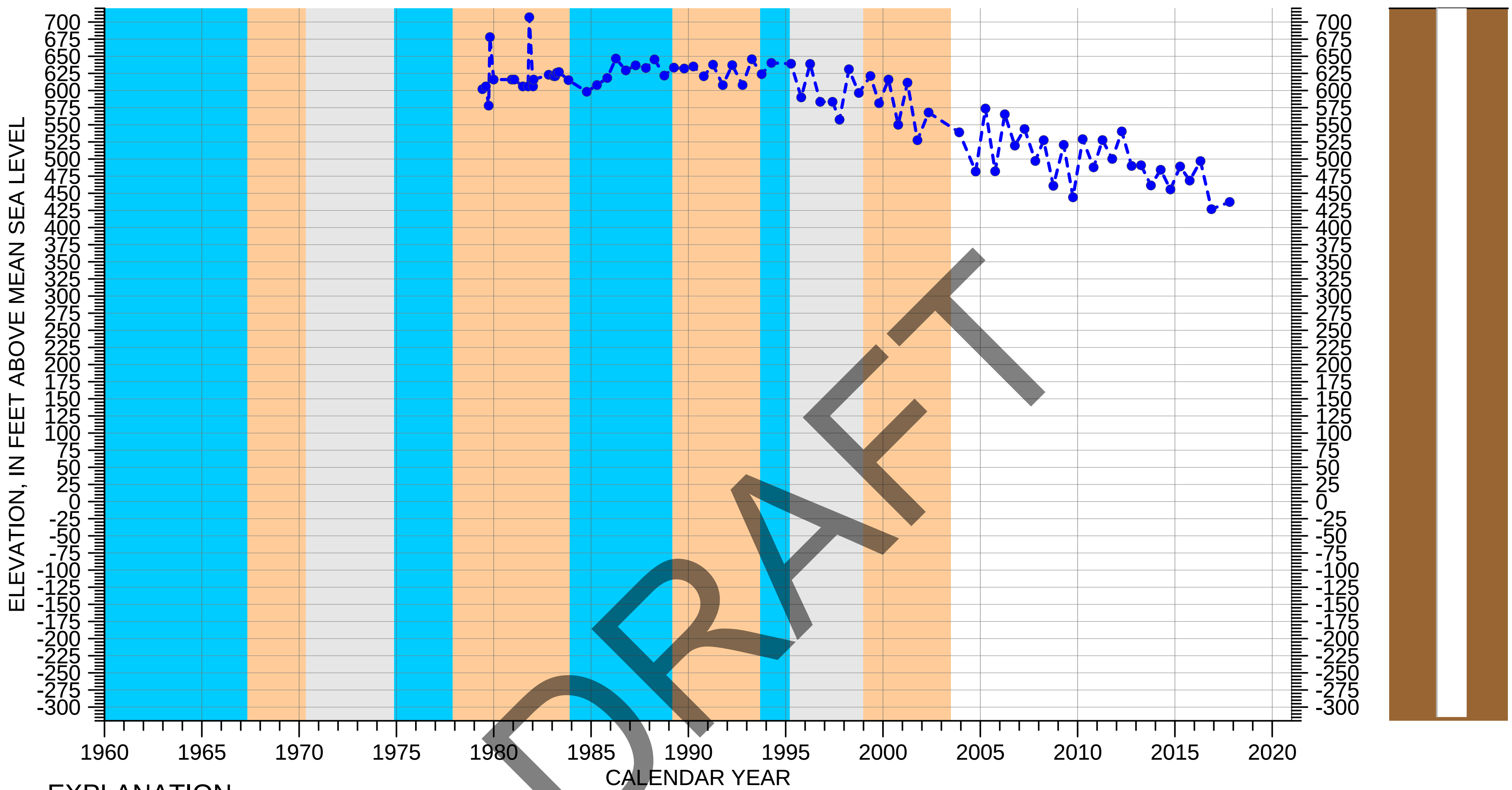


Well Depth: 605
Screened Interval: 195-605 feet below ground surface
Reference Point Elevation: 1123.3 feet above mean sea level

* Measurement reported as not static

MEASURED WATER LEVELS FOR 26S/15E-30J01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig18_26S_15E-30J01.grf



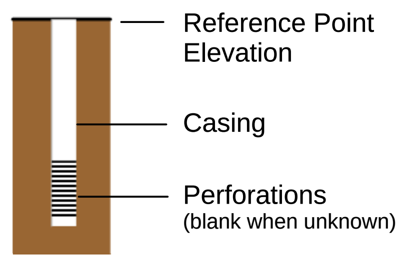
EXPLANATION

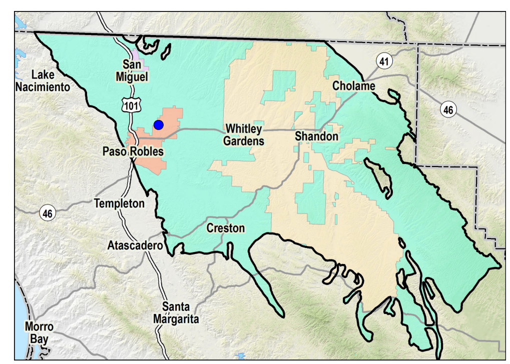
GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET



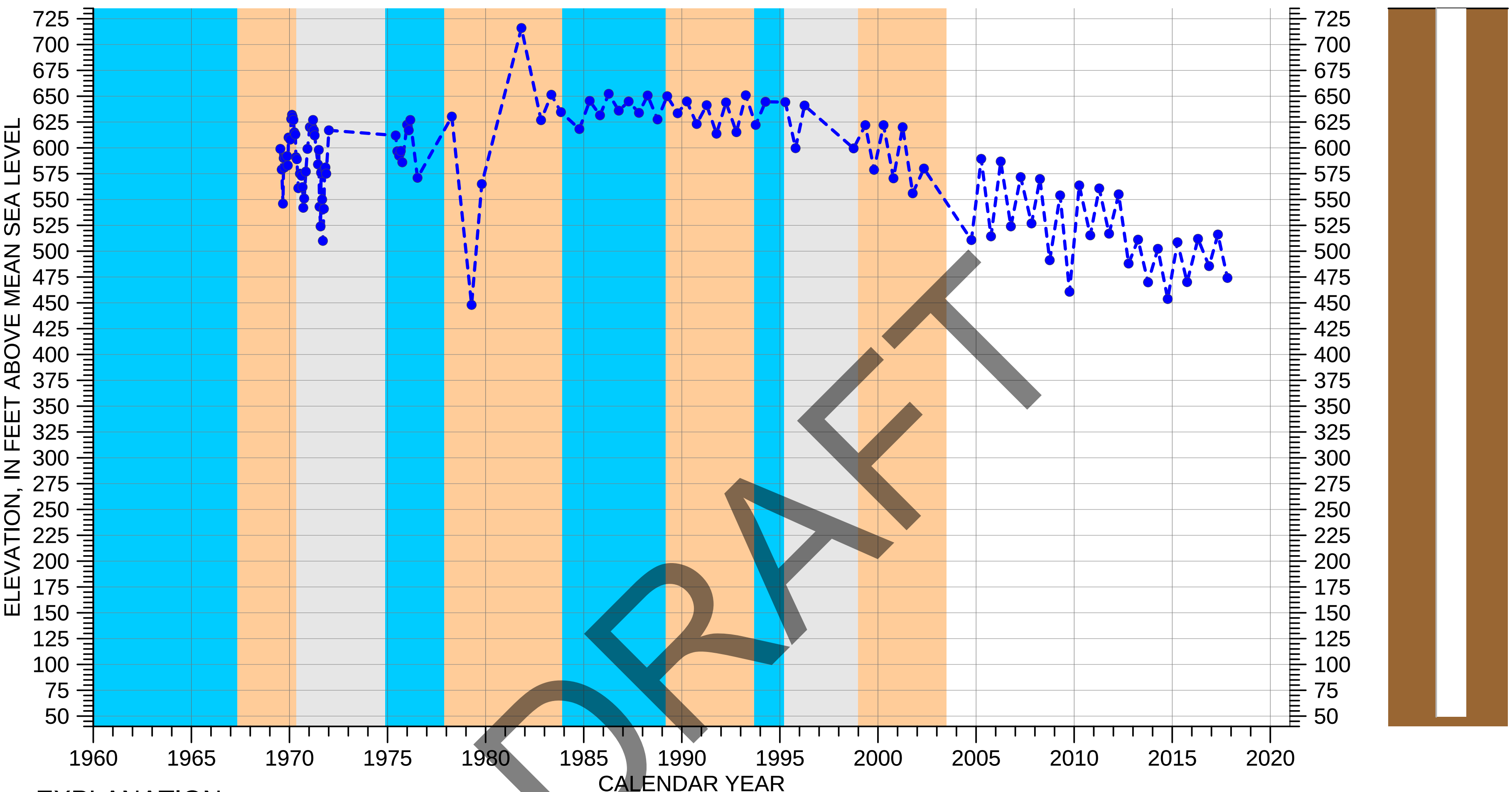


Well Depth: 1100
Screened Interval: unknown
Reference Point Elevation: 786 feet above mean sea level

* Measurement reported as not static

MEASURED WATER LEVELS FOR 26S/12E-14K01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig19_26S_12E-14K01.grf



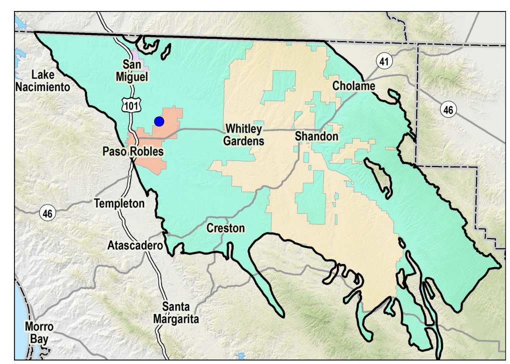
EXPLANATION

GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY | AVERAGE/ALTERNATING | WET

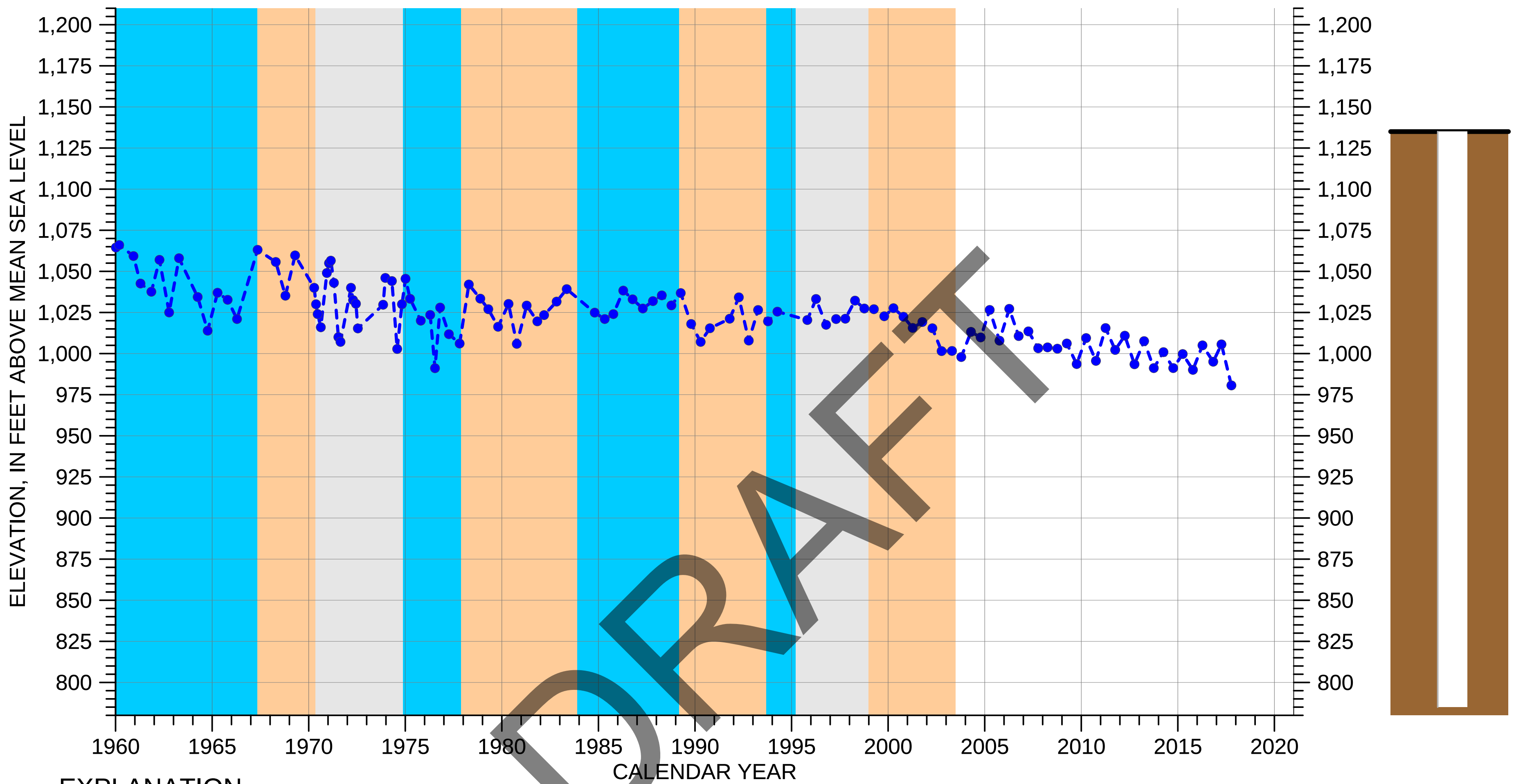


Well Depth: 740
Screened Interval: unknown
Reference Point Elevation: 789.3 feet above mean sea level

* Measurement reported as not static

MEASURED WATER LEVELS FOR 26S/12E-14G01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig20_26S_12E-14G01.grf



EXPLANATION

GROUNDWATER ELEVATION

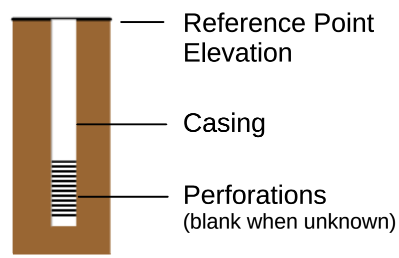
MEASUREMENT NOT VERIFIED*

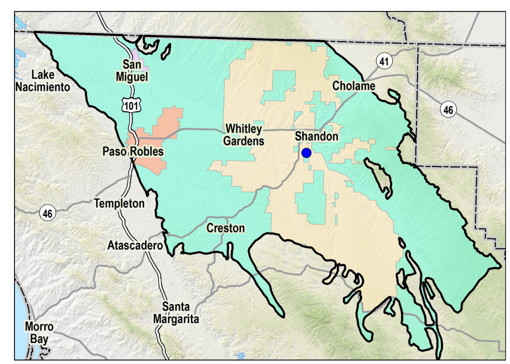
CLIMATE PERIOD CLASSIFICATION

DRY | AVERAGE/ALTERNATING | WET

Well Depth: 350
Screened Interval: unknown
Reference Point Elevation: 1135 feet above mean sea level

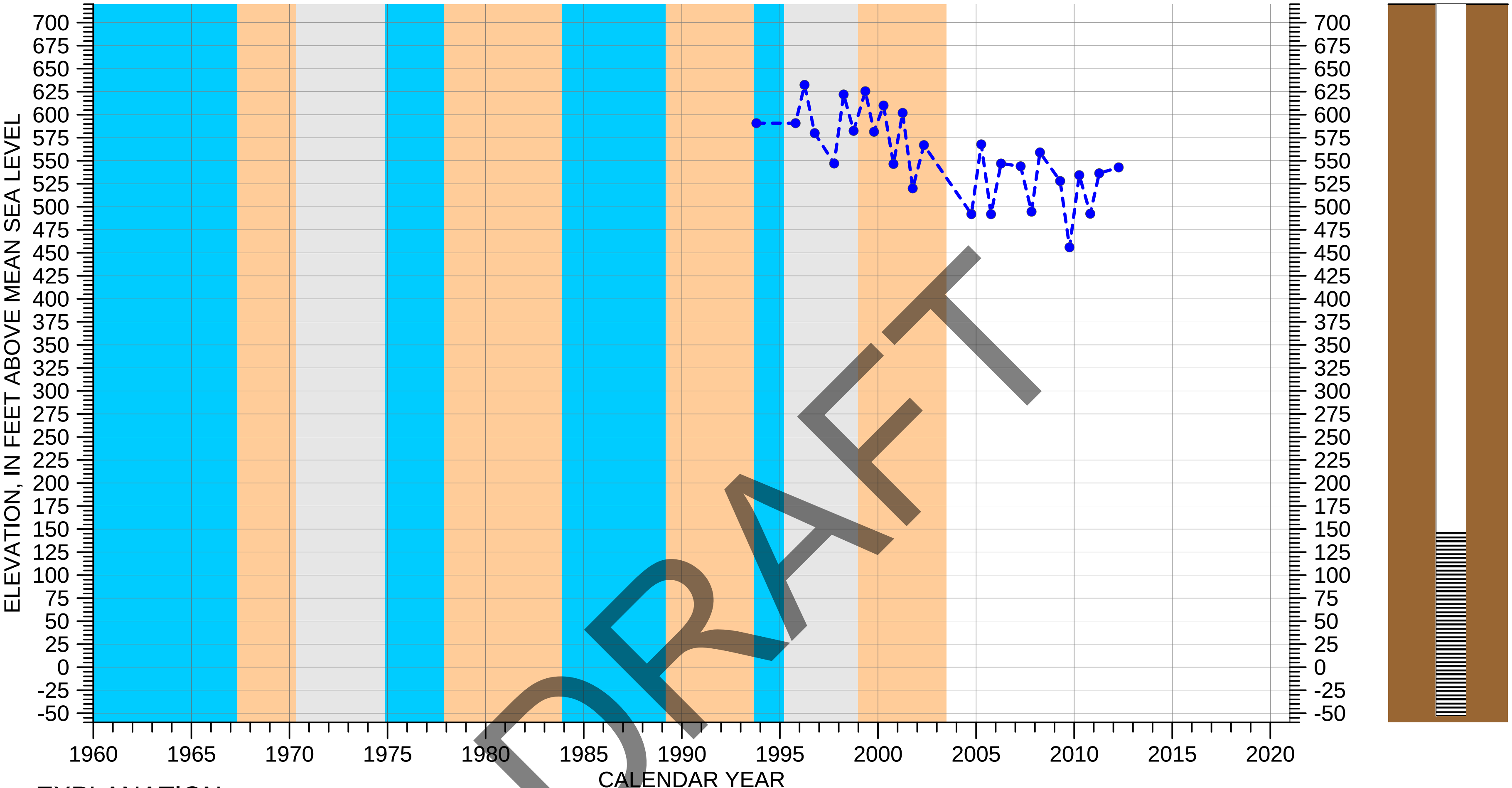
* Measurement reported as not static





MEASURED WATER LEVELS FOR 26S/15E-29N01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig21_26S_15E-29N01.grf



EXPLANATION

GROUNDWATER ELEVATION

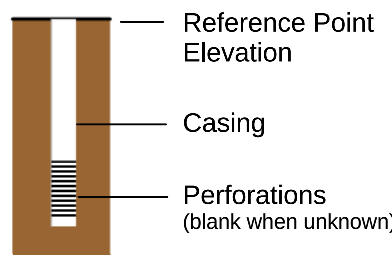
MEASUREMENT NOT VERIFIED*

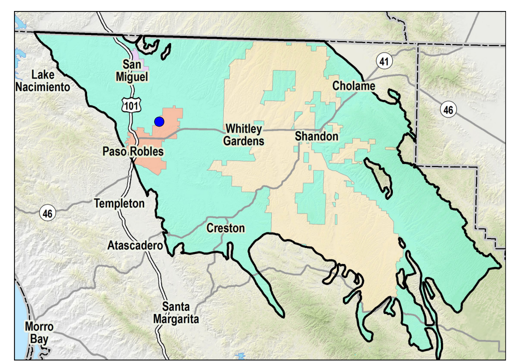
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 840
Screened Interval: 640- ~840 feet below ground surface
Reference Point Elevation: 787 feet above mean sea level

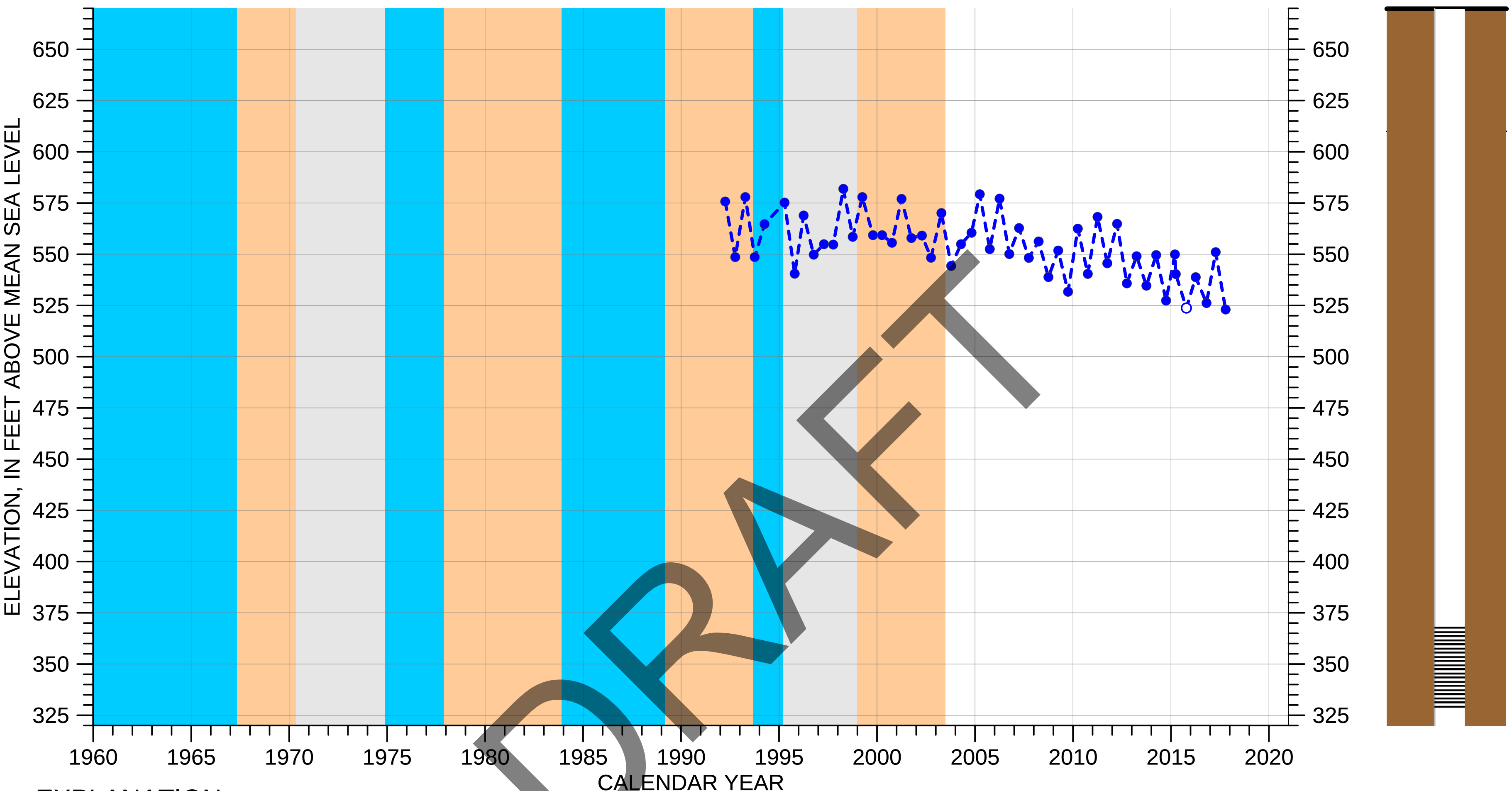
* Measurement reported as not static





MEASURED WATER LEVELS FOR 26S/12E-14G02

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only_noSMC\Fig22_26S_12E-14G02.grf



EXPLANATION

GROUNDWATER ELEVATION

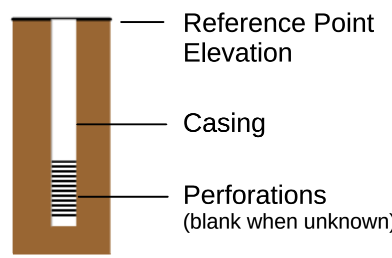
MEASUREMENT NOT VERIFIED*

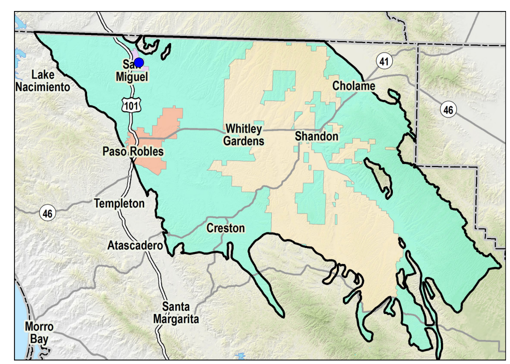
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 350 feet
Screened Interval: 300-310, 330-340 feet below ground surface
Reference Point Elevation: 669.8 feet above mean sea level

* Measurement reported as not static





MEASURED WATER LEVELS FOR 25S/12E-16K05

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Appendix E

Summary of Model Update and Modifications

Appendix E. Summary of Model Update and Modifications

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E1 INTRODUCTION

This appendix briefly summarizes modeling work done for the GSP. A hydrologic modeling platform was developed for the Paso Robles Subbasin during the period from 2005 through 2016. This modeling platform was adapted for the GSP. Modeling work conducted for the GSP included the following activities:

- Updating the platform with recent hydrologic information
- Modifying certain components of the platform to address computational issues identified during the update process
- Adapting the water budgeting process to be consistent with the new boundary of the Paso Robles Subbasin[1]. Figure E-1 of the GSP shows the new Subbasin Boundary (in green); the GSP only applies to the new Subbasin area, thus, water budgets reported in the GSP do not include areas within the former Subbasin boundary that lie north of the San Luis Obispo County Line and do not include the Atascadero Subbasin. Therefore, groundwater budgets reported in the GSP are not directly comparable to previously reported groundwater budgets.

[1] The Subbasin boundary was formally modified by the California Department of Water Resources on February 11, 2019. Information on the modified boundary can be found at https://water.ca.gov/Programs/Groundwater-Management/Basin-Boundary-Modifications.

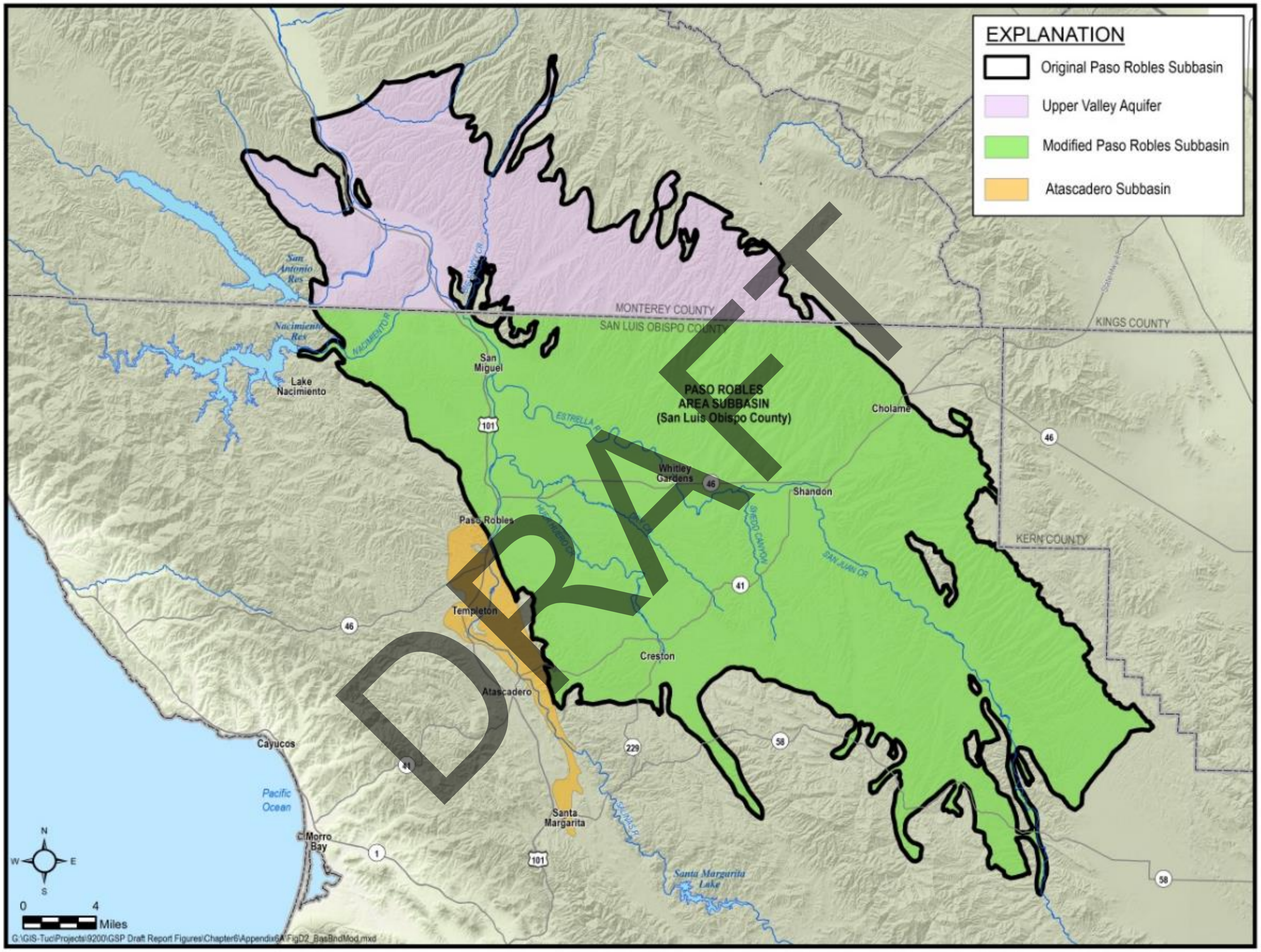


Figure E-1. Map Showing Paso Robles Subbasin Boundary

This appendix summarizes the model update process and effects of changes to the modeling platform and the change in Subbasin boundary on computed groundwater budgets, and presents a comparison between previously reported groundwater budgets and the computed groundwater budget for the GSP.

The appendix is subdivided into the following sections.

- Description of GSP Model
- Model Update
- Model Modifications
- Comparison of Groundwater Budgets

The hydrologic modeling platform includes a numerical groundwater flow model and two additional models that are used to compute groundwater model input data for streamflow, recharge, and groundwater pumping [Geoscience Support Services, Inc. (GSSI), 2014 and 2016]. The two additional models consist of a Soil Water Balance (SWB) spreadsheet model and a surface water model. The interrelationship between the groundwater model, SWB model, and surface water model are shown on Figure E-2. Hereafter in this appendix, the original hydrologic modeling platform developed by GSSI is referred to as "the GSSI model."

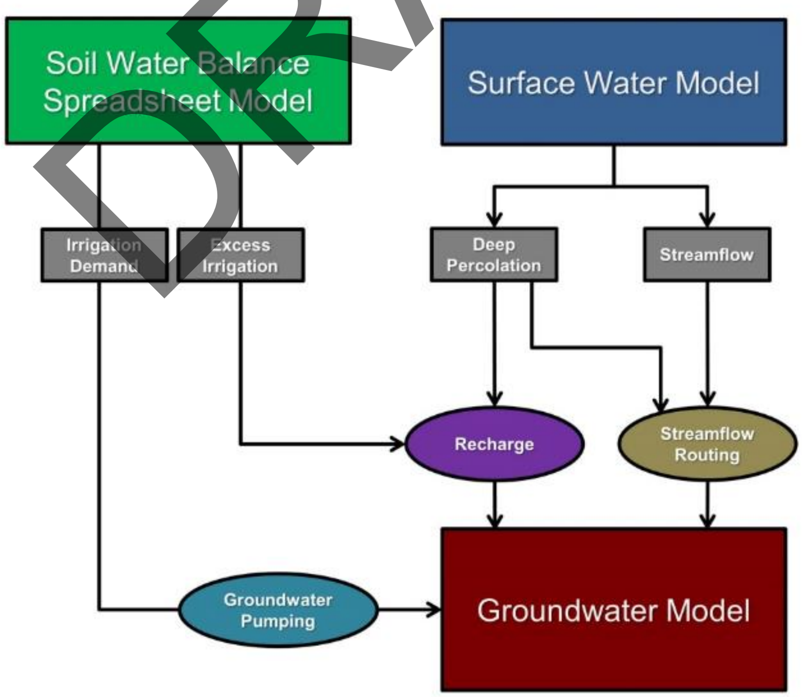


Figure E-2. Schematic for Modeling Platform

The GSSI model was updated for the GSP. The model update process included compiling hydrologic data and preparing model input files to extend the simulation time period from 2012 through 2016. Model modifications included changes to model structure, input/output processing routines, and model assumptions. Modifications were made to address issues that had a potentially significant impact on the computed water budget and groundwater storage deficit. These modifications were made to develop an updated estimate of the groundwater storage deficit that must be addressed during implementation of the GSP.

As was planned from the outset of GSP development, and to meet critical deadlines, the GSP model was not recalibrated. In lieu of recalibration, a focused comparison of model-projected and observed groundwater elevations at wells and stream flows at selected stream gages was conducted. Results of this comparison indicated that the calibration of the GSP model was similar to the GSSI model, thus, the model was considered appropriate for use on the GSP. The GSP model will be recalibrated in the future when additional hydrogeologic data are available.

E1.1 Overview of Differences in Computed Sustainable Yield

Previous and current estimates of sustainable yield of the Subbasin were computed using the modeling platform. Both the model modifications and the change in Subbasin boundary influence the computed sustainable yield. Over the historical base period from 1981 through 2011, the computed sustainable yield from the 2016 GSSI model is about 89,700 acre-feet per year (AFY). This estimate of sustainable yield pertains to the original Subbasin boundary and the Atascadero Subbasin. By comparison, the computed sustainable yield for the modified Subbasin boundary from the updated GSP model is about 59,800 AFY. The difference between these two values is nearly 30,000 AFY. About 80% of this difference is due to changes in the Subbasin boundary. The remaining difference is the result of modifications made to the model components.

E2 DESCRIPTION OF GSP MODEL

E2.1 Soil Water Balance Spreadsheet Model

The SWB model uses rainfall, evapotranspiration, soil, and crop data to estimate groundwater irrigation demand for crops in the Subbasin. Irrigated crops in the Paso Robles Subbasin are assigned to seven crop categories (Carollo and others, 2012), including alfalfa, nursery, pasture, citrus, deciduous, vegetables, and vineyard. For the GSP model, geospatial crop datasets compiled by the Agricultural Commissioner's Office of San Luis Obispo County were intersected with different climate zones and soil types in both the Paso Robles Subbasin and surrounding watershed. For each of the seven crop categories, existing discrete SWB models were extended in time for each unique intersection of crop acreage, climate zone, and soil type to cover the current period (2012-2016).

The underlying structure and data requirements are identical for all of the SWB spreadsheet models, except vineyards. All of the SWB models operate on a daily time step, and require daily precipitation and reference evapotranspiration rates as input. SWB models developed for vineyards also require daily minimum temperature data to estimate frost prevention groundwater pumping during March and April.

The SWB model computes daily irrigation demand rates in inches. Groundwater pumping to satisfy the irrigation demand is higher than the actual crop demand due to excess irrigation losses, which depend on assumed irrigation efficiency. The study documented by GSSI (2014) defined irrigation efficiency for each of the seven crop categories, and those efficiency values were also used in this study. The difference between groundwater pumping and crop irrigation demand is assumed to percolate past the base of the root zone, ultimately becoming groundwater recharge. This recharge is referred to as irrigation return flow in Chapter 6.

E2.2 Surface Water Model

A surface water model was developed by GSSI (2014) for the watershed contributing to the Paso Robles Subbasin. The surface water model was developed using the Hydrologic Simulation Program – Fortran (HSPF) code. The model simulates land surface processes and surface water flow at the subwatershed scale (Bicknell and others, 2001). The surface water model simulates daily time steps, and requires daily precipitation, reference evapotranspiration, and reservoir releases as input. Historical watershed simulations developed by GSSI (2014) used land use data for 1985, 1997, and 2011 in the surface water model. The 2011 land use data were used to update the GSP model.

The surface water model simulates deep percolation of precipitation past the base of the root zone and streamflow leaving the outlet of each subwatershed. The amount of deep percolation of precipitation computed by the surface water model was included in the recharge assigned to the groundwater model, and simulated streamflow at the subwatershed outlet was used to compute surface flow rates for stream segments simulated in the groundwater model.

E2.3 Groundwater Model

The groundwater flow model for the Paso Robles Subbasin uses the MODFLOW-2005 code (GSSI, 2014 and 2016). The extent and structure of the GSSI model are based on an earlier version of the groundwater flow model developed by Fugro (2005). Groundwater inflows simulated in the model include areal recharge, subsurface inflow at the model boundaries, and streambed percolation. Areal recharge includes both recharge from precipitation and irrigation return flow. Groundwater outflows simulated in the model include subsurface flow out of the Subbasin, groundwater pumping, and riparian evapotranspiration.

Areal recharge and subsurface inflow are computed based on excess irrigation from the SWB model and deep percolation of precipitation from the surface water model. Streambed percolation depends on both simulated water table elevation and simulated streamflow, which in turn is based on simulated streamflow from the surface water model. Agricultural groundwater pumping is specified based on irrigation demand computed in the SWB model.

E3 MODEL UPDATE

SGMA regulations require estimation of surface water and groundwater budgets for both a historical base period and current period. For the Subbasin, the historical base period covers Water Years (WY) 1981 through 2011 and the current period covers WY 2012 through 2016. The existing model covers only the historical base period (GSSI, 2014; GSSI, 2016). To comply with SGMA regulations for developing a current water budget, it was necessary to update the 2016 version of the GSSI model to include hydrologic data from 2012 through 2016.

Each of the three components of the modeling platform was updated to include the current period. Table E-1 lists datasets used for the model update, along with the source for each dataset.

Table E-1. Data Sources for Model Update

Dataset	Responsible Agency or Entity	Type of Data	Data Source
Meteorological Data			
Paso Robles Station (46730); Santa Margarita Booster Station (47933)	NOAA[1]	Daily precipitation	https://www.ncdc.noaa.gov/cdo-web/datatools/findstation
San Miguel Wolf Ranch (47867)	NOAA[1]	Daily precipitation	ftp://ftp.ncdc.noaa.gov/pub/data/hpd/auto/v2/beta/
Oak Shores WWTP (201)	San Luis Obispo County	Daily precipitation	Electronic transmittal from SLO County
Paso Robles	WWG[2]	Daily reference evapotranspiration	Electronic transmittal
Atascadero (163)	CIMIS[3]	Daily reference evapotranspiration	https://cimis.water.ca.gov/WSNReportCriteria.aspx
Hydrologic Data			
Nacimiento Reservoir	Monterey County Water Resources Agency	Daily reservoir releases	http://www.co.monterey.ca.us/government/government-links/water-resources-agency/projects-facilities/historical-data#wra
San Antonio Reservoir	Monterey County Water Resources Agency	Daily reservoir releases	http://www.co.monterey.ca.us/government/government-links/water-resources-agency/projects-facilities/historical-data#wra
Salinas Dam	San Luis Obispo County	Daily reservoir releases	https://wr.slocountywater.org/site.php?site_id=25&site=2d50a617-2e23-4efc-a9be-e3a2c4a7100b
Water Use Data			
San Miguel CSD	San Miguel CSD	Monthly groundwater pumping	Excel file (Paso_Water_Use_Tables_v7.xlsx) received from GEI Consultants on 14 June 2018; data provided to GEI by San Miguel CSD
City of Paso Robles	City of Paso Robles	Monthly groundwater pumping	Excel file (Paso_Water_Use_Tables_v7.xlsx) received from GEI Consultants on 14 June 2018; data provided to GEI by City

			of Paso Robles
Templeton CSD	Templeton CSD	Annual groundwater pumping	Water Supply Buffer Update, January 31, 2018
Atascadero MWC	Atascadero MWC	Annual groundwater pumping	Atascadero MWC Urban Water Management Plan
Small commercial pumping	N/A	Annual groundwater pumping	For pumping that started before 2010, projected based on historic use in 2016 model (linear regression trend). For water use that began in 2010; assume 1% annual increase through 2016.
Domestic pumping	N/A	Annual groundwater pumping	Projected based on historic use in 2016 model (linear regression trend).
Agricultural pumping	N/A	Annual groundwater pumping	Pumping based on groundwater demand from soil water-balance spreadsheets
Wastewater Recharge			
Wastewater recharge (all utilities)	N/A	Annual recharge to groundwater from wastewater	Projected based on rates in 2016 model (linear regression trend).
Crop Data			
San Luis Obispo County, 2013-2016	San Luis Obispo County	Geospatial data attributed with acreage and crop group	Electronic transmittal from SLO County
State of California, 2014	CA DWR[4]	Geospatial data attributed with acreage and crop group	https://gis.water.ca.gov/app/CADWRLandUseViewer/

(1) National Oceanic and Atmospheric Administration

(2) Western Weather Group

(3) California Irrigation Management Information System

(4) California Department of Water Resources

E4 MODEL MODIFICATIONS

E4.1 Modifications to Model Components

Groundwater budgets for the Subbasin were derived from the groundwater flow model, which depends on the SWB models and surface water model for key input data. During the model update process for the GSP model, several modifications were made to the individual models to improve two computational aspects of the model.

E4.1.1 Modifications to Agricultural Irrigation Routing

In the model input files developed by GSSI and provided to the GSAs by the County of San Luis Obispo, irrigation return flow was routed to the surface water model. This irrigation return flow was treated as an external lateral surface inflow to the land surface. The surface water model combines this water with all direct precipitation that was not intercepted by the crop canopy. Some of the water accumulating at the land surface becomes streamflow. The remaining water enters the soil root zone. In the GSSI model, excess irrigation return flow water accumulating in the upper and lower soil root zones was subject to evapotranspiration. However, excess irrigation return flow represents water that has moved past the root zone, and should not be subject to evapotranspiration. Thus, irrigation return flow was inadvertently subjected to soil evaporation twice. The net effect of double-counting soil evaporation was to underestimate the quantity of water that ended up as deep percolation to groundwater.

The models were modified so that irrigation return flow calculated in the SWB models was routed to groundwater recharge in the groundwater flow model instead of routed to the surface water model. As a result, areal recharge specified in the GSP model is greater than areal recharge specified in the GSSI model.

E4.1.2 Modifications to Streamflow Routing Outside the Paso Robles Subbasin

In the GSSI model, subsurface inflow was computed as the sum of irrigation return flow, deep percolation of direct precipitation, and streambed percolation occurring outside the Subbasin boundaries. Streambed percolation was computed by HSPF as an outflow from each stream reach. The streambed percolation was computed using reference information from the HSPF Best Management Practices toolkit developed by the U.S. Environmental Protection Agency (GSSI, 2014).

Modifications were made to the process described above to ensure consistency in the simulated water balance. In HSPF, stream outflows and streambed percolation are routed to the next downstream stream reach. Consequently, when a stream enters the margin of the Paso Robles

Subbasin, HSPF routes all of the streamflow and streambed percolation into the stream network within the Subbasin. However, in the GSSI model, the streambed percolation water was also being added to the groundwater model as subsurface inflow. This means percolating water through streambeds in the watershed outside of the Subbasin was being double counted: as both stream inflow and subsurface inflow.

To avoid double counting the inflow, M&A modified the groundwater model input files so that subsurface inflow no longer included HSPF model-computed streambed percolation outside the Paso Robles, Atascadero, and Upper Valley Subbasins. The primary effect of this change was a reduction in subsurface inflow into the groundwater model. A secondary effect of this change was a reduction in inflow to streams inside the Subbasin boundary due to excess subsurface inflow.

Reduction in stream inflows as a result of modifications described above is due to an input processing procedure developed by GSSI (2016). Specifically, the 2016 version of the GSSI model included an empirical procedure for re-assigning computed subsurface inflow above a threshold value as surface water inflow to streams inside the Subbasin boundaries. The GSP model uses the same procedure; however, streambed percolation is no longer double counted, thus computed subsurface inflow in excess of the threshold is lower in the GSP model than compared to the GSSI (2016) model.

E4.1.3 Summary of Effects of Model Modifications

The net effect of correcting excess agricultural irrigation routing was to increase areal recharge within the Paso Robles Subbasin. The net effect of removing streambed percolation computed by the surface water model from subsurface inflow to the groundwater model was to reduce both subsurface inflow and surface water inflow to streams in the groundwater flow model. The combined effect of these two modifications was to reduce the amount of water recharging the groundwater system in the Subbasin.

E4.2 Change in Subbasin Boundary

The boundary of the Paso Robles Subbasin changed between completion of the 2016 GSSI model and the GSP model update.

In 2018, the California Department of Water Resources (DWR) redefined the Paso Robles Subbasin boundary in response to two basin boundary modification requests. As a result of this modification, the Atascadero Subbasin, and all land north of the Monterey County line are no longer included in the Paso Robles Subbasin (Figure E-1). The modified Subbasin area (in green) is addressed in the GSP. Groundwater budgets for the GSP are reported for the smaller Subbasin area. Previous groundwater budgets using the 2016 GSSI model were reported for the entire original Paso Robles Groundwater Subbasin, including the Atascadero Subbasin (GSSI, 2016).

Therefore, the GSP groundwater budgets are not directly comparable to the previous groundwater budgets.

E5 COMPARISON OF GROUNDWATER BUDGETS

Differences between previously published groundwater budgets and the groundwater budget published in the GSP are caused by:

- Modifications made to the modeling platform components
- Changes in the Subbasin boundary

These changes have a direct effect on the computed water budget, long-term groundwater storage deficit and sustainable yield in the Subbasin.

The effect of modifying the modeling platform on groundwater storage deficit and sustainable yield can be quantified by comparing the computed water budgets from 2016 GSSI and GSP models for the same Subbasin boundary. The effect of changing the Subbasin boundary on groundwater storage deficit and sustainable yield can be quantified by comparing the computed groundwater budget of the original Paso Robles Subbasin boundary to the groundwater budget of the modified Paso Robles Subbasin boundary using either the 2016 GSSI or GSP model.

E5.1 Effect of Model Modifications on Water Budgets

This section summarizes changes in water budget components, groundwater storage deficit, and sustainable yield that result from modifications made to the individual models of the modeling platform. Table E-2 compares annual average groundwater pumping rates by water use sector for the historical base period (1981 to 2011) specified for the original Paso Robles Subbasin boundary in the GSSI (2016) and GSP models.

Table E-2. Simulated Groundwater Pumping

	Original Subbasin Boundary	
Water Use Sector	GSSI (2016)	GSP model
Agricultural	75,900	75,800
Municipal	12,000	12,000
Rural-Domestic	2,800	2,800
Small Commercial	2,200	2,200
Total	92,900	92,800

Note: All values in AFY

Annual average groundwater pumping rates are nearly identical between the two models. The small increase of 100 AFY in annual average agricultural pumping in the GSP model is the result of minor modifications made to the model data processing spreadsheets.

Table E-3 compares simulated annual average inflow and outflow components of the groundwater budget for the original Paso Robles Subbasin boundary for the historical base period for the GSSI (2016) and GSP models.

Table E-3. Comparison of Annual Average Inflow and Outflow Components

	Original Subbasin Boundary	
	GSSI (2016)	GSP model
Inflow		
Streamflow Percolation	53,000	39,500
Total Recharge[1]	50,500	51,600
Treated Wastewater Leakage	5,600	5,600
Total Inflow	109,100	96,700
Outflow		
Groundwater Pumping	92,900	92,800
Discharge to Streams and Rivers	14,300	13,200
Riparian Evapotranspiration	3,500	3,500
Subsurface Outflow [2]	1,600	1,600
Total Outflow	112,300	111,100

Notes: All values in AFY

(1) Includes areal recharge and subsurface inflow from the surrounding watershed

(2) Includes subsurface outflow in the Salinas Alluvium and Paso Robles Formation at the northern boundary of the original Paso Robles Subbasin

Total inflow in the GSP model is about 12,400 AFY lower than the GSSI (2016) model for the original Subbasin boundary. The reduction in total inflow reflects the net change in inflow caused by a reduction of 13,500 AFY in streambed percolation and an increase of 1,100 AFY in total recharge. The changes in streamflow and recharge are described in Section D-E4.1.

Table E-4 compares the computed annual average groundwater storage deficit and sustainable yield from the GSSI (2016) and GSP models, for the original Subbasin boundary and historical base period of 1981 through 2011.

Table E-4. Annual Average Groundwater Storage Deficit and Sustainable Yield

	Original Subbasin Boundary	
	GSSI (2016)	GSP model
Storage Deficit	3,200	14,400
Sustainable Yield	89,700	78,400

Note: All values in AFY

The computed annual average storage deficit for the original Subbasin boundary for the GSP model is about 11,200 AFY greater than the GSSI (2016) model. The increase in the computed storage deficit is due almost entirely to the reduction in total groundwater inflows, as shown in Table E-3. The reduction in total inflow is the result of the reduction in streamflow that resulted from modifying the model components. Consequently, the annual average sustainable yield of the original Subbasin boundary estimated using the GSP model is about 11,300 AFY lower than that computed by the GSSI model.

E5.2 Effect of Changes in Subbasin Boundary on Water Budgets

This section summarizes changes in water budget components, groundwater storage deficit, and sustainable yield that result from the change in Subbasin boundary. The 2016 GSSI model was used for this evaluation because it does not included the effect of modifications made to the model components discussed in Section D-E5.1. Table E-5 compares annual average groundwater pumping rates by water use sector specified for both the original and modified Subbasin boundaries, for the historical base period, and for the 2016 GSSI model.

Table E-5. Simulated Groundwater Pumping

	GSSI (2016) model	
Water Use Sector	Original Subbasin Boundary	Modified Subbasin Boundary
Agricultural	75,900	65,400
Municipal	12,000	3,100
Rural-Domestic	2,800	2,500
Small Commercial	2,200	1,400
Total	92,900	72,400

Note: All values in AFY

Simulated annual average total pumping rate is about 20,500 AFY lower for the modified Subbasin boundary compared to the original Subbasin boundary. The total amount of groundwater pumping is lower because pumping in the Atascadero Subbasin and the portion of the original Paso Robles Subbasin located in Monterey County is no longer accounted for in the modified Subbasin. Thus, the reduction in pumping is equivalent to the amount of groundwater pumping in the Atascadero Subbasin and in the portion of the original Paso Robles Subbasin located in Monterey County.

Table E-6 compares simulated annual average inflow and outflow components of the groundwater budget for the original and modified Subbasin boundaries, the historical base period, and the 2016 GSSI model.

Table E-6. Comparison of Simulated Inflow and Outflow

	GSSI (2016) model	
	Original Subbasin Boundary	Modified Subbasin Boundary
Inflow		
Streamflow Percolation	53,000	36,700
Total Recharge	50,500	34,000
Wastewater Pond Leakage	5,600	3,400
Subsurface Inflow [1]	0	3,600
Total Inflow	109,100	77,700
Outflow		
Groundwater Pumping	92,900	72,400
Discharge to Streams and Rivers	14,300	8,100
Riparian Evapotranspiration	3,500	1,700
Subsurface Outflow [2]	1,600	2,500
Total Outflow	112,300	84,700

Note: All values in AFY

(1) Subsurface inflow from the Atascadero Subbasin

(2) Subsurface outflow from the Paso Robles Subbasin to the Upper Valley Subbasin.

E5.2.1 Differences in Simulated Inflows

Total simulated annual average groundwater inflow is about 31,400 AFY lower for the modified Subbasin than the original Subbasin. The reduction reflects the net change in streamflow percolation, recharge, wastewater pond leakage, and subsurface inflow, as described further below.

- Simulated annual average streamflow percolation for the modified Subbasin boundary is about 16,300 AFY lower compared to the original Subbasin boundary. The lower streamflow percolation is due to reductions in the number and length of stream channels present within the modified Subbasin boundary compared to the original Subbasin boundary.
- Simulated annual average recharge for the modified Subbasin boundary is about 16,500 AFY lower compared to the original Subbasin boundary. The lower recharge is due to:
  - Smaller area within the modified Subbasin, resulting in less areal recharge from direct precipitation
  - Smaller area of irrigated fields within the modified Subbasin, resulting in less recharge from irrigation return flow

- Reduced length of contact between Subbasin and surrounding watershed, resulting in less subsurface inflow

- Simulated annual average wastewater pond leakage for the modified Subbasin boundary is about 2,200 AFY lower compared to the original Subbasin boundary. Wastewater pond leakage is lower because it does not include wastewater pond leakage within the Atascadero Subbasin.
- Simulated annual average subsurface inflow for the modified Subbasin boundary is about 3,600 AFY higher compared to the original Subbasin boundary. Subsurface inflow to the modified Subbasin includes groundwater flow from the Atascadero Subbasin into the Paso Robles Subbasin. When modeling the original Subbasin boundary, which includes both the Atascadero Subbasin and Paso Robles Subbasin, the flow between the Subbasins was an internal flow within the model and not an inflow crossing the boundary of the model.

E5.2.2 Differences in Simulated Outflows

Total simulated annual average outflow for the modified Subbasin boundary is about 27,600 AFY lower compared to the original Subbasin boundary. The reduction in total simulated outflow is due to changes in simulated discharge to rivers and streams, riparian evapotranspiration, and subsurface outflow, as described further below.

- Simulated annual average total groundwater pumping for the modified Subbasin is about 20,500 AFY lower than that of original Subbasin. The amount of groundwater pumping is lower because the modified Subbasin boundary does not include pumping from the Atascadero Subbasin or the portion of the original Paso Robles Subbasin in Monterey County.
- Simulated annual average discharge to streams and rivers for the modified Subbasin boundary is about 6,200 AFY lower compared to the original Subbasin boundary. The lower discharge to rivers and streams is due to exclusion of channel segments that receive groundwater discharge in the Atascadero Subbasin and portion of the original Paso Robles Subbasin in Monterey County.
- Simulated annual average riparian evapotranspiration for the modified Subbasin boundary is about 1,800 AFY lower compared to the original Subbasin boundary. The amount of riparian evapotranspiration is lower because the number and length of stream channels along which riparian vegetation are lower in the modified Subbasin compared to the original Subbasin.
- Simulated annual average subsurface outflow for the modified Subbasin boundary is about 900 AFY higher compared to the original Subbasin boundary. Similar to subsurface inflow, the higher subsurface outflow occurs because this flow crosses a

boundary (the Monterey County line) when modeling the modified Subbasin boundary, whereas, this flow is internally accounted for when modeling the original Subbasin boundary.

E5.2.3 Differences in Simulated Sustainable Yield

Table E-7 compares the computed average annual groundwater storage deficit and sustainable yield for the original and modified Subbasin boundaries, the historical base period, and using the 2016 GSSI model.

Table E-7. Average Annual Groundwater Storage Deficit and Sustainable Yield

	2016 GSSI Model	
	Original Subbasin	Modified Subbasin
Storage Deficit	3,200	7,000
Sustainable Yield	89,700	65,400

Note: All values in AFY

The computed annual average storage deficit from the 2016 GSSI model is about 3,200 AFY for the original Subbasin. Groundwater storage deficits similar to this value have been commonly reported in the Paso Robles Subbasin in the past. For the modified Subbasin, the computed annual average storage deficit from the 2016 GSSI model is about 7,000 AFY. Therefore, the computed annual average groundwater storage deficit for the modified Subbasin is about 3,800 AFY higher compared to the original Subbasin. The increase in computed annual average groundwater storage deficit is the result of differences in the magnitude of reductions in total inflow and total outflow.

Figure E-3 shows a map of computed sustainable yields from the 2016 GSSI model. The area of the original Paso Robles Subbasin outside of the modified Subbasin (green area) has been divided into the Atascadero Subbasin and the Upper Valley Aquifer Subbasin for illustration purposes. The sustainable yield of the Upper Valley Aquifer, Paso Robles, and Atascadero Subbasins shown on Figure E-3 sum to the sustainable yield of the original Subbasin as listed in Table E-7.

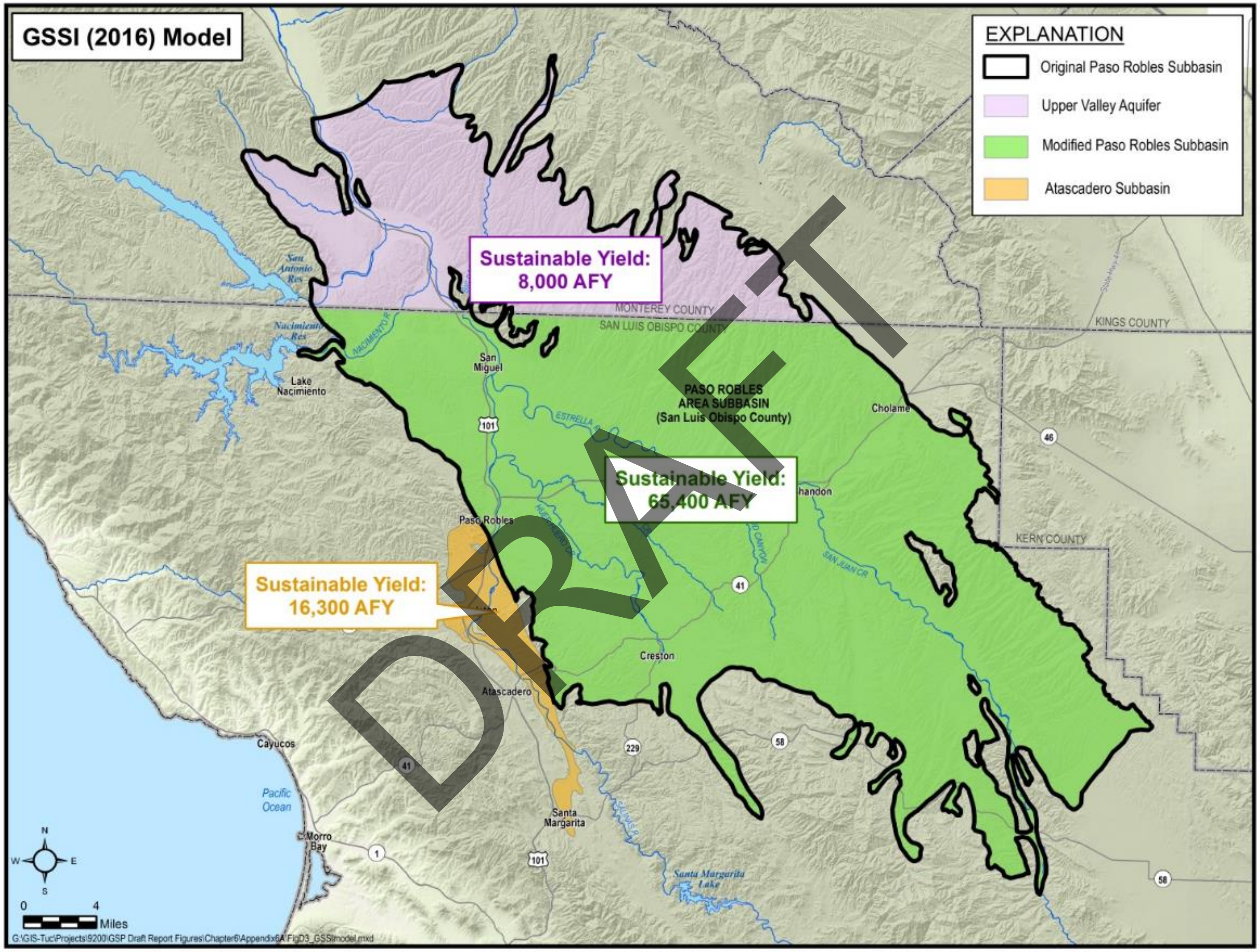


Figure E-3. Sustainable Yield Computed by GSSI (2016) Model

E5.3 Combined Effect of Model Modifications and Changes in Subbasin Boundary on Water Budgets

This section summarizes changes in water budget components, groundwater storage deficit, and sustainable yield that result from both modifications made to model components and the change the Subbasin boundary. For this evaluation, the GSP model was used because it includes both types of changes. Table E-8 compares annual average groundwater pumping rates by water use sector specified for both the original and modified Subbasin boundaries, for the historical base period, using the GSP model.

Table E-8. Simulated Groundwater Pumping for GSP Model

	GSP Model	
Water Use Sector	Original Subbasin	Modified Subbasin
Agricultural	75,800	65,400
Municipal	12,000	3,100
Rural-Domestic	2,800	2,500
Small Commercial	2,200	1,400
Total	92,800	72,400

Note: All values in AFY

Table E-9 compares simulated annual average inflow and outflow components of the groundwater budget for the original and modified Subbasin boundaries, for the historical base period, using the GSP model.

Table E-9. Comparison of Simulated Inflow and Outflow for GSP Model

	GSP model	
	Original Subbasin	Modified Subbasin
Inflow		
Streamflow Percolation	39,500	26,900
Total Recharge	51,600	38,000
Wastewater Pond Leakage	5,600	3,400
Subsurface Inflow[1]	--	3,100 [1]
Total Inflow	96,700	71,400
Outflow		
Groundwater Pumping	92,800	72,400
Discharge to Streams and Rivers	13,200	7,300
Riparian Evapotranspiration	3,500	1,700
Subsurface Outflow	1,600 [2]	2,600 [3]
Total Outflow	111,100	84,000

Note: All values in AFY

(1) Subsurface inflow from the Atascadero Subbasin

(2) Includes subsurface outflow in the Salinas Alluvium and Paso Robles Formation at the northern boundary of the original Paso Robles Subbasin

(3) Subsurface outflow from the Paso Robles Subbasin to the Upper Valley Subbasin.

E5.3.1 Differences in Simulated Inflows

Total simulated annual average groundwater inflow is about 25,300 AFY lower for the modified Subbasin than the original Subbasin. The reduction reflects the net change in streamflow percolation, recharge, wastewater pond leakage, and subsurface inflow, as described further below.

- Simulated annual average streamflow percolation for the modified Subbasin boundary is about 12,600 AFY lower compared to the original Subbasin boundary. The lower streamflow percolation is due to reductions in the number and length of stream channels present within the modified Subbasin boundary compared to the same for original Subbasin boundary.
- Simulated annual average recharge for the modified Subbasin boundary is about 13,600 AFY lower compared to the original Subbasin boundary. The lower recharge is due to:
    - Smaller area within the modified Subbasin, resulting in less recharge from direct precipitation
    - Smaller area of irrigated fields in the modified Subbasin, resulting in less recharge from irrigation return flow
    - Reduced length of contact between Subbasin and surrounding watershed, resulting in less subsurface inflow
- Simulated annual average wastewater pond leakage for the modified Subbasin boundary is about 2,200 AFY lower compared to the original Subbasin boundary. The amount of wastewater pond leakage is lower because the modified Subbasin does not include wastewater pond leakage within the Atascadero Subbasin.
- Simulated annual average subsurface inflow for the modified Subbasin boundary about 3,100 AFY higher compared to the original Subbasin boundary. Subsurface inflow to the modified Subbasin includes groundwater flow from the Atascadero Subbasin into the Paso Robles Subbasin. When modeling the original Subbasin boundary, which includes both the Atascadero Subbasin and Paso Robles Subbasin, the flow between the Subbasins is an internal flow within the model and not an inflow crossing the boundary of the modified Subbasin.

E5.3.2 Differences in Simulated Outflows

Total simulated annual average outflow for the modified Subbasin boundary is about 27,100 AFY lower compared to the original Subbasin boundary. The reduction in total simulated outflow is due to changes in simulated discharge to rivers and streams, riparian evapotranspiration, and subsurface outflow, as described further below.

- Simulated annual average total groundwater pumping for the modified Subbasin is reduced by about 20,400 AFY compared to the original Subbasin. The amount of groundwater pumping is lower because the modified Subbasin does not include pumping from the Atascadero Subbasin or the portion of the original Paso Robles Subbasin in Monterey County.
- Simulated annual average discharge to streams and rivers for the modified Subbasin boundary is about 5,900 AFY compared to the original Subbasin boundary. The amount of discharge to rivers and streams is lower because the modified Subbasin does not include channel segments that receive groundwater discharge in the Atascadero Subbasin and portion of the original Paso Robles Subbasin in Monterey County.
- Simulated annual average riparian evapotranspiration for the modified Subbasin boundary is about 1,800 AFY lower compared to the original Subbasin boundary. The amount of riparian evapotranspiration is lower because the modified Subbasin has fewer stream channels and shorter stream channel lengths along which riparian vegetation is present than the original Subbasin.
- Simulated annual average subsurface outflow for the modified Subbasin boundary is about 1,000 AFY higher compared to the original Subbasin boundary. Similar to subsurface inflow, the higher subsurface outflow occurs because this flow crosses a boundary (the Monterey County line) when modeling the modified Subbasin, whereas, this flow is internally accounted for when modeling the original Subbasin.

E5.3.3 Differences in Computed Sustainable Yield

Table E-10 compares the computed average annual groundwater storage deficit and sustainable yield for the original and modified Subbasin boundaries, the historical base period, and for the GSP model.

Table E-10. Average Annual Groundwater Storage Deficit and Sustainable Yield

	GSP Model	
	Original Subbasin	Modified Subbasin
Storage Deficit	14,400	12,600
Sustainable Yield	78,400	59,800

Note: All values in AFY

The computed annual average storage deficit from the GSP model is about 14,400 AFY for the original Subbasin boundary. For the modified Subbasin, the computed annual average storage deficit from the GSP model is about 12,600 AFY. Therefore, the computed annual average groundwater storage deficit for the modified Subbasin boundary is about 1,800 AFY lower compared to the original Subbasin boundary. The decrease in computed annual average groundwater storage deficit is the result of differences in the magnitude of reductions in total inflow and total outflow.

Figure E-4 shows a map of computed sustainable yields from the GSP model. The area of the original Paso Robles Subbasin outside of the modified Subbasin (green area) has been divided into the Atascadero Subbasin and the Upper Valley Aquifer Subbasin for illustration purposes. The sustainable yield of the Upper Valley Aquifer, Paso Robles, and Atascadero Subbasins shown on Figure E-4 sum to the sustainable yield of the original Subbasin as listed in Table E-10.

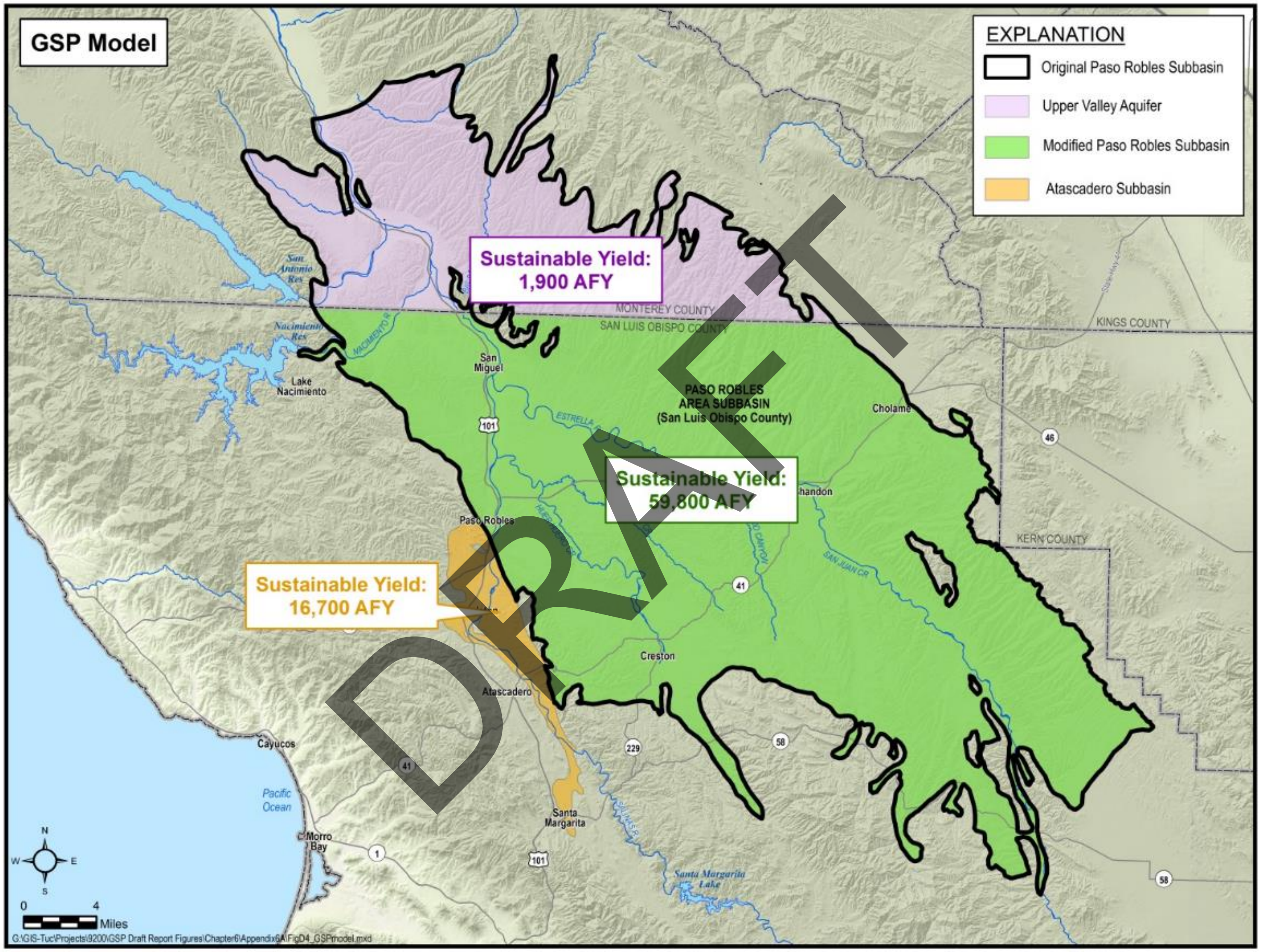


Figure E-4. Sustainable Yield as Computed by GSP Model

E6 CONCLUSIONS

Both the model modifications and the change in Subbasin boundary influence the computed sustainable yield. Over the historical base period, the computed sustainable yield for the original Subbasin boundary from the 2016 GSSI model is about 89,700 AFY. By comparison, the computed sustainable yield for the modified Subbasin boundary from the updated GSP model is about 59,800 AFY. The difference between these two values is nearly 30,000 AFY. Most of this difference is due to changes in the Subbasin boundary. The computed sustainable yield from 2016 GSSI model for the modified Subbasin boundary is 65,400 AFY; a reduction of about 24,300 AFY from the sustainable yield of the original Subbasin. The change in Subbasin boundary accounts for about 80% of the reduction in reported sustainable yields. The remaining difference is the result of modifications made to the model components.

Appendix F

Monitoring Protocols

County of San Luis Obispo Procedures for Measuring Depth to Water in Groundwater Wells

The following procedures must be followed when conducting depth to water measurements for the County of San Luis Obispo and the San Luis Obispo County Flood Control and Water Conservation District's groundwater monitoring program. These procedures are adapted from the USGS publication "Groundwater Technical Procedures of the U.S. Geological Survey" compiled by William L. Cunningham and Charles W. Schalk in 2011 and "Best Management Practices for the Sustainable Management of Groundwater – Monitoring Protocols, Standards and Sites" published by the California Department of Water Resources in December 2016.

Key Terms

1. RP (Reference Point): Total distance from the measuring point (typically the top of casing) to the surface of the water
2. WS: Length of wetted chalk on steel tape.
3. FT ABOVE: Distance from measuring point reference to land surface.
4. DIST to WATER: The distance from the measuring point to the water surface. RP – WS – FT ABOVE = DIST to Water.
5. OBS INIT: In the well book, note the initials of the person performing the measuring in this column. Determined by the login user on the iPad.
6. REMARKS or COMMENTS: Note any special remarks regarding the measurement of each well, including, any significant factors potentially affecting the well level, pumping or temporary blocked access, changes in RP, etc.
7. PUMPING: Fill the pumping column according to the Pumping Key Legend
   a. D = Dry
   b. E = Estimated
   c. F = Flowing
   d. N = Nearby pumping
   e. R = Recently pumped
   f. S = See well book
   g. T = Temporarily no access

Preparation

1. Groundwater elevation data, which will form the basis of basin-wide water table and piezometric maps, should approximate conditions at a discrete period in time. Therefore, all groundwater levels in a basin should be collected within as short a time as possible, preferably within a **1 to 2-week period**.
2. Check well log books for notifications about **one week** before you begin performing the bi-annual well measuring.
   a. Go through all the well data log books to check which wells have a special note of notifying owner. Make sure you contact the owners in accordance with the instructions.
   b. This information is also listed by well data book here: G:\WR\Tech Unit\x Groundwater\Well Information Resources\Well Books\Well Number Lists.
3. Verify the description of the well using the field iPad GIS program.

   a. You must ensure that you are measuring the correct well by comparing it to the iPad GIS and well book as well as any other description of the well.
   b. There should be a picture of every well in each of the data books and iPad database.

Reference Point

1. Verify the Reference Point (RP) by using the field iPad GIS program.
   a. Depth to groundwater must be measured relative to an established RP on the well casing. The RP can be identified with a permanent marker, paint spot, or a notch in the lip of the well casing. By convention in open casing monitoring wells, the RP is located on the north side of the well casing.
   b. In the well book and in the well database, there are pictures and descriptions of the RP to be used for each well. Always ask questions if you are uncertain about the location of the RP.
2. Make sure the measured RP is equal to the one listed on the first well card for each well. Note if there is a difference.
3. If no RP is apparent, measure the depth to groundwater from the north side of the top of the well casing, and note it in the comments.
4. If an access becomes blocked or a RP changes for any reason, this must be noted in the Comments, the new RP elevation must be surveyed, and the new value of RP feet above or below ground surface must be measured and recorded. New photographs to identify the new RP must also be taken and put into the iPad well database. All measurements are to be made in US Survey feet.

Measurement

1. After locating the RP, remove any cap, lid, or plug that covers the monitoring access point, listening for pressure release. If a release is observed, wait and allow the water level to equilibrate. Note in the Comments that a pressure release was observed and whether the pressure was causing air to flow out of or into the casing.
2. Never measure a well while it is pumping. Instead, record a P in the Pumping column and include any relevant notes in the Comments. If possible, visit the well later in the day or on a different day to obtain a static water level measurement.
3. If the well is rebounding or drawing down, record the appropriate code in the Pumping Key. Make a note of the distance that the water moved (up or down) and the time between measurements in the Comments. If possible, visit the well later in the day or on a different day to try and obtain a static water level measurement.
4. **Depth to groundwater must be measured to an accuracy of 0.01 feet.**
   a. This is true when using both the steel tape and the electronic sounding tape. The steel tape should be used in wells that have a history of oil on the surface of the water.
   b. Also use the steel tape if there are obstructions or tight spaces in the casing in which the electronic sounding tape could get stuck. Otherwise, use the electronic sounding tape.

   c. Repeat measurement after 15 minutes to verify that the static levels are not rebounding. Repeat until measurements are consistent. Typically, this should not be repeated over 3 times. But this process is left to the discretion of the technician. If consistency is not achieve, add note in the Comments.

5. See **Appendix A** for measurement and recording procedures using the steel tape.
6. See **Appendix B** for measurement and recording procedures using the sounder and electronic sounding tape.
7. Complete the well card and electronic water level measurement field form in accordance with the recording procedures.
   a. Assess the area around the well to determine any significant factors potentially affecting the well level and note any factors that may influence the depth to water readings, such as weather, nearby irrigation, flooding, tidal influence, and well condition.
   b. If there is a questionable measurement or the measurement could not be obtained, note it in the in the Pumping column and in the Comments.

Special Cases

1. If you find a well that has not been monitored during the past three monitoring periods and this information has been documented in the Comments (e.g. could not find, no access to old RP, well removed, etc.), make a special note and mark this well page in the book. Inform the Technical Unit Supervisor, so that the well can be removed from the well books.
2. If you are unable to measure a well, due to pumping or temporary blocked access for example, note the reason in the Comments.
3. In some wells, a layer of oil may float on the water surface.
   a. If the oil layer is a foot or less thick, use the steel tape. See **Appendix A** for the procedure for using the steel tape. Read the steel tape at the top of the oil mark and use this value for the water-level measurement instead of the wetted chalk mark. The measurement will differ slightly from the water level that would be measured were the oil not present. If there is oil in the well, it must be noted in the Comments and an E for estimated must be entered in the Pumping column of the electronic water level measurement field form.
   b. If several feet of oil are present in the well, or if it is necessary to know the thickness of the oil layer, a commercially available water-detector paste can be used that will detect the presence of water in the oil. The paste is applied to the lower end of the tape and will show the top of the oil as a wet line, and the top of the water will show as a distinct color change. Because oil density is about three-quarters that of water, the water level can be estimated by adding the thickness of the oil layer times its density to the oil- water interface elevation.

Decontamination

1. Do not decontaminate the tape between measurements at the same well. Only decontaminate the tape after completing the well measurement and before moving on to the next well.
2. To decontaminate the electronic sounding tape or steel tape, use a bleach water solution of 50 mg/liter (0.005 percent) to avoid any cross-contamination between wells.

3. If there is oil on the tape, use a non-toxic degreaser and remove all traces of oil before you use the bleach solution.

Appendix A: Procedure for Steel Tape

Materials and Instruments

1. A steel tape graduated in feet, tenths, and hundredths of feet
2. Blue carpenters' chalk
3. Well book
4. Pencil and eraser
5. iPad and electronic water level measurement field form
6. Wrenches with adjustable jaws and other tools to remove well cap

Data Accuracy and Limitations

1. A graduated steel tape is commonly accurate to 0.01 feet.
2. The water level should be within 500 feet of the land surface for steel tapes.
3. If the well casing is not plumb, the depth to water will have to be corrected.
4. When measuring deep water levels, tape expansion and stretch is an additional consideration.

Instructions

1. Chalk the lower 20 to 40 feet of the tape by pulling the tape across a piece of blue carpenter's chalk. The wetted chalk mark will identify that part of the tape that was submerged.
2. Lower the weight and tape into the well until the lower end of the tape is submerged below the water. The weight and tape should be lowered into the water slowly to prevent splashing. Continue to lower the end of the tape into the well until the next graduation (a whole-foot mark) is opposite the measuring RP, record this number in the RP column of the electronic water level measurement field form. The length of tape needed to reach the water surface can be estimated from previous water-level measurements. Otherwise, the length of tape needed to reach the water surface will have to be found by trial and error.
3. Rapidly bring the tape to the surface before the wetted chalk mark dries and becomes difficult to read.

Recording

1. Record the number of the wetted chalk mark in the WS column of the well book card.
2. Subtract the wetted chalk mark number (WS) from to the measuring RP. Record this number in the FT ABOVE column of the well book card.

3. Apply the RP correction to get the depth to water below (or above) the land-surface. If the RP is above land surface, the distance between the RP and land surface datum is subtracted from the depth to water from the RP to obtain the depth to water below land surface. If the RP is below land surface precede the RP correction value with a minus (-) sign and subtract the distance between the RP and land surface datum from the depth to water from the RP to obtain the depth to water below land surface. Record this number in the DIST TO WATER column of the well book card.
4. Record initials of the in the OBS. INT. column.
5. Once you have calculated and recorded the measurement in the well book, open the WELLS app on the iPad. Select the well you are measuring by clicking the blue "i" symbol. This should bring up all previous information on that specific well. If you wish to add a picture of the well to the information, select the camera icon next to "Add Data."
6. Click "Add Data" and select "Tape" for "Tool Used." Input your measurement into the "Tape Reading" section of the electronic water level measurement field form. Click "Update." You have successfully measured the well level.

Maintenance

1. Maintain the tape in good working condition by periodically physically checking the tape for rust, breaks, kinks, and possible stretch due to the suspended weight of the tape and the tape weight.
2. Our steel tapes are sent to USGS for calibration every two years.

Appendix B: Procedure for Electronic Sounding Tape

Materials and Instruments

1. Sounder and electric sounding tape
2. iPad and electronic water level measurement field form
3. Wrenches with adjustable jaws and other tools to remove well cap

Data Accuracy and Limitations

1. Oil, ice, or other debris may interfere with the water level measurement
2. Corrections to the measurements are necessary if the well casing is angled, and when measuring deep water levels because of tape expansion and stretch

Instructions

1. When using the sounder to measure depth to groundwater, it is generally good practice to use the least sensitive setting. Using a more sensitive setting will sometimes give false positives due to a wet or leaking casing. If you suspect that the casing has a hole, mention it in the Comments column on the electronic water level measurement field form. Do your best to ascertain the approximate depth of the hole relative to the reference point.
2. Approach the well with the sounder in hand. Then, place the sounder level on the ground or another surface near the opening of the well. Turn on the sounder device by turning the dial with "SENSITIVITY" written in bold letters above it to the least sensitive setting possible. Press the test button located on the same side as the knob. If you successfully turned on the sounder, a ringing noise will be clearly produced, and the red light above the test button will remain solid until you let go of the button. If there is no sound, start over.
3. Once the sounder is on, pull out the silver end of the tape and prepare to lower it into the well. Loosen the wheel knob on the other side of the sounder, opposite of both the test button and the "SENSITIVITY" knob. Once this knob is loosened, place the silver end of the tape into the entrance of the well. If the silver end does not begin to descend on its own, you may need to feed it into the entrance until there is enough weight for it to draw down by itself.
4. **Do not let go of the sounder.** If the well opening is big enough, the sounder may fall in. At that point, it will be lost. This equipment is expensive, and there are only so many in the County's possession. If the sounder becomes stuck, report its location to the Technical Unit Supervisor.

5. As you feed the silver end of the tape into the well or as it draws down under its own weight, belay the tape with your hand so that the tape is not damaged by the entrance of the well. Keep the descent as smooth as possible and avoid letting the silver end descend too quickly. If the well happens to be dry and the silver end hits the ground too hard, it may damage the equipment.
6. Once the same ringing noise from the test button sounds, pull the tape back until the noise is no longer heard. Then, slowly let the silver end descend again without belaying the line with your hand, as this may lead to an inaccurate measurement. Once you hear the ringing noise again, place your index finger at the point that the tape enters the well. Turn the tape over, and read the tape for the depth to groundwater measurement.
7. **You may now turn off the sounder; the ringing that it produces will be quite loud.**

Recording

1. When reading the tape, **ensure you record the full measurement.** Often, the depth to groundwater will not be an exact number (e.g. 100.00 ft). Numbers between 1 and 9 are tenths (0.10s) of a foot. Therefore, if your finger is on a number between 1 and 9, you must backtrack on the tape until you reach the next whole number. For example, if the number was six and the next whole number was 145, the full measurement would be 145.6 ft.
2. Once you have double-checked the measurement, open the WELLS app on the iPad. Select the well you are measuring by clicking the blue "i" symbol. This should bring up all previous information on that specific well. If you wish to add a picture of the well to the information, select the camera icon next to "Add Data."
3. Click "Add Data" and select the "Sounder" for "Tool Used."
4. The reference elevation should already be calculated. If the reference elevation is missing, determine your current altitude. (This can be done by searching "what is my altitude" on Google.)
5. For "Tape Reading (RP)," input your measurement in both the left and right field.
6. Continue to "Feet Above." "Feet Above" is the height of the well entrance from the ground. This simple measurement can be determined using a measuring tape or a ruler. If the measurement is already in the form, do not change it.
7. Once you have inputted all the information, click "Update." You have successfully measured the well level.

Calibration:

Our sounders are sent to USGS for calibration every two years.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

MONITORING AND REPORTING PROGRAM
ORDER NO. R3-2017-0002-01

TIER 1

DISCHARGERS ENROLLED UNDER
CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR
DISCHARGES FROM IRRIGATED LANDS

This Monitoring and Reporting Program Order No. R3-2017-0002-01 (MRP) is issued pursuant to California Water Code (Water Code) sections 13267 and 13269, which authorize the California Regional Water Quality Control Board, Central Coast Region (hereafter Central Coast Water Board) to require preparation and submittal of technical and monitoring reports. Water Code section 13269 requires a waiver of waste discharge requirements to include as a condition the performance of monitoring and the public availability of monitoring results. *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands*, Order No. R3-2017-0002 (Order) includes criteria and requirements for three tiers. This MRP sets forth monitoring and reporting requirements for **Tier 1 Dischargers** enrolled under the Order. A summary of the requirements is shown below.

SUMMARY OF MONITORING AND REPORTING REQUIREMENTS FOR TIER 1:

Part 1: Surface Receiving Water Monitoring and Reporting *(cooperative or individual)*
Part 2: Groundwater Monitoring and Reporting *(cooperative or individual)*

Pursuant to Water Code section 13269(a)(2), monitoring requirements must be designed to support the development and implementation of the waiver program, including, but not limited to, verifying the adequacy and effectiveness of the waiver's conditions. The monitoring and reports required by this MRP are to evaluate effects of discharges of waste from irrigated agricultural operations and individual farms/ranches on waters of the state and to determine compliance with the Order.

MONITORING AND REPORTING BASED ON TIERS

The Order and MRP include criteria and requirements for three tiers, based upon those characteristics of individual farms/ranches at the operation that present the highest level of waste discharge or greatest risk to water quality. Dischargers must meet conditions of the Order and MRP for the appropriate tier that applies to their land and/or the individual farm/ranch. Within a tier, Dischargers comply with requirements based on the specific level of discharge and threat to water quality from individual farms/ranches. The lowest tier, Tier 1, applies to dischargers who discharge the lowest level of waste (amount or concentration) or pose the lowest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. The highest tier, Tier 3, applies to dischargers who discharge the highest level of waste or pose the greatest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. Tier 2 applies to dischargers whose discharge has a moderate threat to water quality. Water quality is defined in terms of regional, state, or federal numeric or narrative water quality standards. Per the Order, Dischargers may submit a request to the Executive Officer to approve transfer to a lower tier. If the Executive Officer approves a transfer to a lower tier, any interested person may request that the Central Coast Water Board conduct a review of the Executive Officer's determination.

PART 1. SURFACE RECEIVING WATER MONITORING AND REPORTING REQUIREMENTS

The surface receiving water monitoring and reporting requirements described herein are generally a continuation of the surface receiving water monitoring and reporting requirements of Monitoring and Reporting Program Order No. 2012-0011-01, as revised August 22, 2016, with the intent of uninterrupted regular monitoring and reporting during the transition from Order No. R3-2012-0011-01 to Order No. R3-2017-0002-01.

Monitoring and reporting requirements for surface receiving water identified in Part 1.A. and Part 1.B. apply to Tier 1 Dischargers. Surface receiving water refers to water flowing in creeks and other surface waters of the State. Surface receiving water monitoring may be conducted through a cooperative monitoring program on behalf of Dischargers, or Dischargers may choose to conduct surface receiving water monitoring and reporting individually. Key monitoring and reporting requirements for surface receiving water are shown in Tables 1 and 2.

A. Surface Receiving Water Quality Monitoring

1. Dischargers must elect a surface receiving water monitoring option (cooperative monitoring program or individual receiving water monitoring) to comply with surface receiving water quality monitoring requirements, and identify the option selected on the Notice of Intent (NOI).

2. Dischargers are encouraged to choose participation in a cooperative monitoring program (e.g., the existing Cooperative Monitoring Program or a similar program) to comply with receiving water quality monitoring requirements. Dischargers not participating in a cooperative monitoring program must conduct surface receiving water quality monitoring individually that achieves the same purpose.

3. Dischargers (individually or as part of a cooperative monitoring program) must conduct surface receiving water quality monitoring to a) assess the impacts of their waste discharges from irrigated lands to receiving water, b) assess the status of receiving water quality and beneficial use protection in impaired waterbodies dominated by irrigated agricultural activity, c) evaluate status, short term patterns and long term trends (five to ten years or more) in receiving water quality, d) evaluate water quality impacts resulting from agricultural discharges (including but not limited to tile drain discharges), e) evaluate stormwater quality, f) evaluate condition of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat, including degradation resulting from erosion or agricultural discharges of waste, and g) assist in the identification of specific sources of water quality problems.

Surface Receiving Water Quality Sampling and Analysis Plan

4. **By March 1, 2018, or as directed by the Executive Officer**, Dischargers (individually or as part of a cooperative monitoring program) must submit a surface receiving water quality Sampling and Analysis Plan (SAAP) and Quality Assurance Project Plan (QAPP); this requirement is satisfied if an approved SAAP and QAPP addressing all surface receiving water quality monitoring requirements described in this Order has been submitted pursuant to Order No. R3-2012-0011 and associated Monitoring and Reporting Programs. Dischargers (or a third party cooperative monitoring program) must develop the Sampling and Analysis Plan to describe how the proposed monitoring will achieve the objectives of the MRP and evaluate compliance with the Order. The Sampling and Analysis Plan may propose alternative monitoring site locations, adjusted monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water. The Executive Officer must approve the Sampling and Analysis Plan and QAPP.

5. The Sampling and Analysis Plan must include the following minimum required components:
    a. Monitoring strategy to achieve objectives of the Order and MRP;
    b. Map of monitoring sites with GIS coordinates;
    c. Identification of known water quality impairments and impaired waterbodies per the 2010 Clean Water Act 303(d) List of Impaired Waterbodies (List of Impaired Waterbodies);
    d. Identification of beneficial uses and applicable water quality standards;
    e. Identification of applicable Total Maximum Daily Loads;
    f. Monitoring parameters;
    g. Monitoring schedule, including description and frequencies of monitoring events;

h. Description of data analysis methods;

6. The QAPP must include receiving water and site-specific information, project organization and responsibilities, and quality assurance components of the MRP. The QAPP must also include the laboratory and field requirements to be used for analyses and data evaluation. The QAPP must contain adequate detail for project and Water Board staff to identify and assess the technical and quality objectives, measurement and data acquisition methods, and limitations of the data generated under the surface receiving water quality monitoring. All sampling and laboratory methodologies and QAPP content must be consistent with U.S. EPA methods, State Water Board's Surface Water Ambient Monitoring Program (SWAMP) protocols and the Central Coast Water Board's Central Coast Ambient Monitoring Program (CCAMP). Following U.S. EPA guidelines[1] and SWAMP templates[2], the receiving water quality monitoring QAPP must include the following minimum required components:
   a. Project Management. This component addresses basic project management, including the project history and objectives, roles and responsibilities of the participants, and other aspects.
   b. Data Generation and Acquisition. This component addresses all aspects of project design and implementation. Implementation of these elements ensures that appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, and quality control activities are employed and are properly documented. Quality control requirements are applicable to all the constituents sampled as part of the MRP, as described in the appropriate method.
   c. Assessment and Oversight. This component addresses the activities for assessing the effectiveness of the implementation of the project and associated QA and QC activities. The purpose of the assessment is to provide project oversight that will ensure that the QA Project Plan is implemented as prescribed.
   d. Data Validation and Usability. This component addresses the quality assurance activities that occur after the data collection, laboratory analysis and data generation phase of the project is completed. Implementation of these elements ensures that the data conform to the specified criteria, thus achieving the MRP objectives.

[1] USEPA. 2001 (2006) USEPA Requirements for Quality Assurance Project Plans (QA/R-5) Office of Environmental Information, Washington, D.C. USEPA QA/R-5
[2] http://waterboards.ca.gov/water_issues/programs/swamp/tools.shtml#qa

7. The Central Coast Water Board may conduct an audit of contracted laboratories at any time in order to evaluate compliance with the QAPP.

8. The Sampling and Analysis Plan and QAPP, and any proposed revisions are subject to approval by the Executive Officer. The Executive Officer may also revise the Sampling and Analysis Plan, including adding, removing, or changing monitoring site locations, changing monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water.

Surface Receiving Water Quality Monitoring Sites

9. The Sampling and Analysis Plan must, at a minimum, include monitoring sites to evaluate waterbodies identified in Table 1, unless otherwise approved by the Executive Officer. The Sampling and Analysis Plan must include sites to evaluate receiving water quality impacts most directly resulting from areas of agricultural discharge (including areas receiving tile drain discharges). Site selection must take into consideration the existence of any long term monitoring sites included in related monitoring programs (e.g. CCAMP and the existing CMP). Sites may be added or modified, subject to prior approval by the Executive Officer, to better assess the pollutant loading from individual sources or the impacts to receiving waters caused by individual discharges. Any modifications must consider sampling consistency for purposes of trend evaluation.

Surface Receiving Water Quality Monitoring Parameters

10. The Sampling and Analysis Plan must, at a minimum, include the following types of monitoring and evaluation parameters listed below and identified in Table 2:

    a. Flow Monitoring;
    b. Water Quality (physical parameters, metals, nutrients, pesticides);
    c. Toxicity (water and sediment);
    d. Assessment of Benthic Invertebrates.

11. All analyses must be conducted at a laboratory certified for such analyses by the State Department of Public Health (CDPH) or at laboratories approved by the Executive Officer. Unless otherwise noted, all sampling, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, U.S. EPA, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link: http://www.cdph.ca.gov/certlic/labs/Documents/ELAPLablist.xls

12. Water quality and flow monitoring is used to assess the sources, concentrations, and loads of waste discharges from individual farms/ranches and groups of Dischargers to surface waters, to evaluate impacts to water quality and beneficial uses, and to evaluate the short term patterns and long term trends in receiving water quality. Monitoring data must be compared to existing numeric and narrative water quality objectives.

13. Toxicity testing is to evaluate water quality relative to the narrative toxicity objective. Water column toxicity analyses must be conducted on 100% (undiluted) sample. At sites where persistent unresolved toxicity is found, the Executive Officer may require concurrent toxicity and chemical analyses and a Toxicity Identification Evaluation (TIE) to identify the individual discharges causing the toxicity.

Surface Receiving Water Quality Monitoring Frequency and Schedule

14. The Sampling and Analysis Plan must include a schedule for sampling. Timing, duration, and frequency of monitoring must be based on the land use, complexity, hydrology, and size of the waterbody. Table 2 includes minimum monitoring frequency and parameter lists. Agricultural parameters that are less common may be monitored less frequently. Modifications to the receiving water quality monitoring parameters, frequency, and schedule may be submitted for Executive Officer consideration and approval. At a minimum, the Sampling and Analysis Plan schedule must consist of monthly monitoring of common agricultural parameters in major agricultural areas, including two major storm events during the wet season (October 1 – April 30).

15. Storm event monitoring must be conducted within 18 hours of storm events, preferably including the first flush run-off event that results in significant increase in stream flow. For purposes of this MRP, a storm event is defined as precipitation producing onsite runoff (surface water flow) capable of creating significant ponding, erosion or other water quality problem. A significant storm event will generally result in greater than 1-inch of rain within a 24-hour period.

16. Dischargers (individually or as part of a cooperative monitoring program) must perform receiving water quality monitoring per the Sampling and Analysis Plan and QAPP approved by the Executive Officer.

B. Surface Receiving Water Quality Reporting

Surface Receiving Water Quality Data Submittal

1. Dischargers (individually or as part of a cooperative monitoring program) must submit water quality monitoring data to the Central Coast Water Board electronically, in a format specified by the Executive Officer and compatible with SWAMP/CCAMP electronic submittal guidelines, each January 1, April 1, July 1, and October 1.

<u>Surface Receiving Water Quality Monitoring Annual Report</u>

2. **By July 1, 2017,** and every July 1 annually thereafter, Dischargers (individually or as part of a cooperative monitoring program) must submit an Annual Report, electronically, in a format specified by the Executive Officer including the following minimum elements:

a. Signed Transmittal Letter;
b. Title Page;
c. Table of Contents;
d. Executive Summary;
e. Summary of Exceedance Reports submitted during the reporting period;
f. Monitoring objectives and design;
g. Monitoring site descriptions and rainfall records for the time period covered;
h. Location of monitoring sites and map(s);
i. Tabulated results of all analyses arranged in tabular form so that the required information is readily discernible;
j. Summary of water quality data for any sites monitored as part of related monitoring programs, and used to evaluate receiving water as described in the Sampling and Analysis Plan.
k. Discussion of data to clearly illustrate compliance with the Order and water quality standards;
l. Discussion of short term patterns and long term trends in receiving water quality and beneficial use protection;
m. Evaluation of pesticide and toxicity analyses results, and recommendation of candidate sites for Toxicity Identification Evaluations (TIEs);
n. Identification of the location of any agricultural discharges observed discharging directly to surface receiving water;
o. Laboratory data submitted electronically in a SWAMP/CCAMP comparable format;
p. Sampling and analytical methods used;
q. Copy of chain-of-custody forms;
r. Field data sheets, signed laboratory reports, laboratory raw data;
s. Associated laboratory and field quality control samples results;
t. Summary of Quality Assurance Evaluation results;

u. Specify the method used to obtain flow at each monitoring site during each monitoring event;
v. Electronic or hard copies of photos obtained from all monitoring sites, clearly labeled with site ID and date;
w. Conclusions.

PART 2. GROUNDWATER MONITORING AND REPORTING REQUIREMENTS

Groundwater monitoring may be conducted through a cooperative monitoring and reporting program on behalf of growers, or Dischargers may choose to conduct groundwater monitoring and reporting individually. Qualifying cooperative groundwater monitoring and reporting programs must implement the groundwater monitoring and reporting requirements described in this Order, unless otherwise approved by the Executive Officer. An interested person may seek review by the Central Coast Water Board of the Executive Officer's approval or denial of a cooperative groundwater monitoring and reporting program.

Key monitoring and reporting requirements for groundwater are shown in Table 3.

A. Groundwater Monitoring

1. Dischargers must sample private domestic wells and the primary irrigation well on their farm/ranch to evaluate groundwater conditions in agricultural areas, identify areas at greatest risk for nitrogen loading and exceedance of drinking water standards, and identify priority areas for follow up actions.

2. Dischargers must sample at least one groundwater well for each farm/ranch on their operation, including groundwater wells that are located within the property boundary of the enrolled county assessor parcel numbers (APNs). For farms/ranches with multiple groundwater wells, Dischargers must sample all domestic wells and the primary irrigation well. For the purposes of this MRP, a "domestic well" is any well that is used or may be used for domestic use purposes, including any groundwater well that is connected to a residence, workshop, or place of business that may be used for human consumption, cooking, or sanitary purposes. Groundwater monitoring parameters must include well screen interval depths (if available), general chemical parameters, and general cations and anions listed in Table 3.

3. Dischargers must conduct two rounds of monitoring of required groundwater wells during calendar year 2017; one sample collected during spring (**March - June)** and one sample collected during fall **(September - December)**.

4. Groundwater samples must be collected by a qualified third party (e.g., consultant, technician, person conducting cooperative monitoring) using proper sampling methods, chain-of-custody, and quality assurance/quality

control protocols. Groundwater samples must be collected at or near the well head before the pressure tank and prior to any well head treatment. In cases where this is not possible, the water sample must be collected from a sampling point as close to the pressure tank as possible, or from a cold-water spigot located before any filters or water treatment systems.

5. Laboratory analyses for groundwater samples must be conducted by a State certified laboratory according to U.S. EPA approved methods; unless otherwise noted, all monitoring, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, United States Environmental Protection Agency, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link below: http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/resources4growers/2016_04_11_labs.pdf

6. If a discharger determines that water in any domestic well exceeds 10 mg/L of nitrate as N, the discharger or third party must provide notice to the Central Coast Water Board within 24 hours of learning of the exceedance. For domestic wells on a Discharger's farm/ranch that exceed 10 mg/L nitrate as N, the Discharger must provide written notification to the users within 10 days of learning of the exceedance and provide written confirmation of the notification to the Central Coast Water Board.

   The drinking water notification must include the statement that the water poses a human health risk due to elevated nitrate concentration, and include a warning against the use of the water for drinking or cooking. In addition, Dischargers must also provide prompt written notification to any new well users (e.g. tenants and employees with access to the affected well), whenever there is a change in occupancy.

   For all other domestic wells not on a Discharger's farm/ranch but that may be impacted by nitrate, the Central Coast Water Board will notify the users promptly.

   The drinking water notification and confirmation letters required by this Order are available to the public.

B. Groundwater Reporting

1. **Within 60 days of sample collection,** Dischargers must coordinate with the laboratory to submit the following groundwater monitoring results and information, electronically, using the Water Board's GeoTracker electronic deliverable format (EDF):
   a. GeoTracker Ranch Global Identification Number

b. Field point name (Well Name)
c. Field Point Class (Well Type)
d. Latitude
e. Longitude
f. Sample collection date
g. Analytical results
h. Well construction information (e.g., total depth, screened intervals, depth to water), as available

2. Dischargers must submit groundwater well information required in the electronic Notice of Intent (eNOI) for each farm/ranch and update the eNOI to reflect changes in the farm/ranch information within 30 days of the change. Groundwater well information reported on the eNOI includes, but is not limited to:

a. Number of groundwater wells present at each farm/ranch
b. Identification of any groundwater wells abandoned or destroyed (including method destroyed) in compliance with the Order
c. Use for fertigation or chemigation
d. Presence of back flow prevention devices
e. Number of groundwater wells used for agricultural purposes
f. Number of groundwater wells used for or may be used for domestic use purposes (domestic wells).

PART 3. GENERAL MONITORING AND REPORTING REQUIREMENTS

A. Submittal of Technical Reports

1. Dischargers must submit reports in a format specified by the Executive Officer. A transmittal letter must accompany each report, containing the following penalty of perjury statement signed by the Discharger or the Discharger's authorized agent:

   "In compliance with Water Code §*13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision following a system designed to assure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment".*

2. If the Discharger asserts that all or a portion of a report submitted pursuant to this Order is subject to an exemption from public disclosure (e.g. trade secrets or secret processes), the Discharger must provide an explanation of how those portions of the reports are exempt from public disclosure. The

Discharger must clearly indicate on the cover of the report (typically an electronic submittal) that the Discharger asserts that all or a portion of the report is exempt from public disclosure, submit a complete report with those portions that are asserted to be exempt in redacted form, submit separately (in a separate electronic file) unredacted pages (to be maintained separately by staff). The Central Coast Water Board staff will determine whether any such report or portion of a report qualifies for an exemption from public disclosure. If the Central Coast Water Board staff disagrees with the asserted exemption from public disclosure, the Central Coast Water Board staff will notify the Discharger prior to making such report or portions of such report available for public inspection.

B. Central Coast Water Board Authority

1. Monitoring reports are required pursuant to section 13267 of the California Water Code. Pursuant to section 13268 of the Water Code, a violation of a request made pursuant to section 13267 may subject you to civil liability of up to $1000 per day.

2. The Water Board needs the required information to determine compliance with Order No.R3-2017-0002. The evidence supporting these requirements is included in the findings of Order No.R3-2017-0002.

John M. Robertson
Executive Officer

March 8, 2017
Date

Table 1. Major Waterbodies in Agricultural Areas[1]

Hydrologic SubArea	Waterbody Name	Hydrologic SubArea	Waterbody Name
30510	Pajaro River	30920	Quail Creek
30510	Salsipuedes Creek	30920	Salinas Reclamation Canal
30510	Watsonville Slough	31022	Chorro Creek
30510	Watsonville Creek[2]	31023	Los Osos Creek
30510	Beach Road Ditch[2]	31023	Warden Creek
30530	Carnadero Creek	31024	San Luis Obispo Creek
30530	Furlong Creek[2]	31024	Prefumo Creek
30530	Llagas Creek	31031	Arroyo Grande Creek
30530	Miller’s Canal	31031	Los Berros Creek
30530	San Juan Creek	31210	Bradley Canyon Creek
30530	Tesquisquita Slough	31210	Bradley Channel
30600	Moro Cojo Slough	31210	Green Valley Creek
30910	Alisal Slough	31210	Main Street Canal
30910	Blanco Drain	31210	Orcutt Solomon Creek
30910	Old Salinas River	31210	Oso Flaco Creek
30910	Salinas River (below Gonzales Rd.)	31210	Little Oso Flaco Creek
30920	Salinas River (above Gonzales Rd. and below Nacimiento R.)	31210	Santa Maria River
30910	Santa Rita Creek[2]	31310	San Antonio Creek[2]
30910	Tembladero Slough	31410	Santa Ynez River
30920	Alisal Creek	31531	Bell Creek
30920	Chualar Creek	31531	Glenn Annie Creek
30920	Espinosa Slough	31531	Los Carneros Creek[2]
30920	Gabilan Creek	31534	Arroyo Paredon Creek
30920	Natividad Creek	31534	Franklin Creek

[1] At a minimum, monitoring sites must be included for these waterbodies in agricultural areas, unless otherwise approved by the Executive Officer. Monitoring sites may be proposed for addition or modification to better assess the impacts of waste discharges from irrigated lands to surface water. Dischargers choosing to comply with surface receiving water quality monitoring, individually (not part of a cooperative monitoring program) must only monitor sites for waterbodies receiving the discharge.
[2] These creeks are included because they are newly listed waterbodies on the 2010 303(d) list of Impaired Waters that are associated with areas of agricultural discharge.

Table 2. Surface Receiving Water Quality Monitoring Parameters

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Photo Monitoring		
Upstream and downstream photographs at monitoring location		With every monitoring event
WATER COLUMN SAMPLING		
Physical Parameters and General Chemistry		
Flow (field measure) (CFS) following SWAMP field SOP[9]	.25	Monthly, including 2 stormwater events
pH (field measure)	0.1	”
Electrical Conductivity (field measure) (µS/cm)	2.5	”
Dissolved Oxygen (field measure) (mg/L)	0.1	”
Temperature (field measure) (^{o}C)	0.1	”
Turbidity (NTU)	0.5	”
Total Dissolved Solids (mg/L)	10	”
Total Suspended Solids (mg/L)	0.5	”
Nutrients		
Total Nitrogen (mg/L)	0.5	Monthly, including 2 stormwater events
Nitrate + Nitrite (as N) (mg/L)	0.1	”
Total Ammonia (mg/L)	0.1	”
Unionized Ammonia (calculated value, mg/L))		”
Total Phosphorus (as P) (mg/L)	0.02	
Soluble Orthophosphate (mg/L)	0.01	”
Water column chlorophyll a (µg/L)	1.0	“
Algae cover, Floating Mats, % coverage	-	“
Algae cover, Attached, % coverage	-	“
Water Column Toxicity Test		
Algae - *Selenastrum capricornutum (*96-hour chronic; Method1003.0 in EPA/821/R-02/013)	-	4 times each year, twice in dry season, twice in wet season
Water Flea – *Ceriodaphnia dubia* (7-day chronic; Method 1002.0 in EPA/821/R-02/013)	-	”
Midge - *Chironomus spp.* (96-hour acute; Alternate test species in EPA 821-R-02-012)	-	“

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Toxicity Identification Evaluation (TIE)	-	As directed by Executive Officer
Pesticides[2] /Herbicides (µg/L)		
Organophosphate Pesticides		
Azinphos-methyl	0.02	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Chlorpyrifos	0.005	”
Diazinon	0.005	”
Dichlorvos	0.01	”
Dimethoate	0.01	”
Dimeton-s	0.005	”
Disulfoton (Disyton)	0.005	”
Malathion	0.005	”
Methamidophos	0.02	”
Methidathion	0.02	“
Parathion-methyl	0.02	“
Phorate	0.01	“
Phosmet	0.02	“
Neonicotinoids		
Thiamethoxam	.002	“
Imidacloprid	.002	“
Thiacloprid	.002	“
Dinotefuran	.006	“
Acetamiprid	.01	“
Clothianidin	.02	“
Herbicides		
Atrazine	0.05	“
Cyanazine	0.20	“
Diuron	0.05	“
Glyphosate	2.0	“
Linuron	0.1	“
Paraquat	0.20	“
Simazine	0.05	“
Trifluralin	0.05	“
Metals (µg/L)		
Arsenic (total) [5,7]	0.3	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Boron (total) [6,7]	10	“
Cadmium (total & dissolved) [4.5,7]	0.01	“

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Copper (total and dissolved) [4,7]	0.01	"
Lead (total and dissolved) [4,7]	0.01	"
Nickel (total and dissolved) [4,7]	0.02	"
Molybdenum (total) [7]	1	"
Selenium (total)[7]	0.30	"
Zinc (total and dissolved) [4.5,7]	0.10	"
Other (µg/L)		
Total Phenolic Compounds[8]	5	2 times in 2017, once in spring (April-May) and once in fall (August-September)
Hardness (mg/L as CaCO3)	1	"
Total Organic Carbon (ug/L)	0.6	"
SEDIMENT SAMPLING		
Sediment Toxicity - *Hyalella azteca* 10-day static renewal (EPA, 2000)		2 times each year, once in spring (April-May) and once in fall (August-September)
Pyrethroid Pesticides in Sediment (µg/kg)		
Gamma-cyhalothrin	2	2 times in both 2017 and 2018, once in spring (April-May) and once in fall (August-September) of each year, concurrent with sediment toxicity sampling
Lambda-cyhalothrin	2	"
Bifenthrin	2	"
Beta-cyfluthrin	2	"
Cyfluthrin	2	"
Esfenvalerate	2	"
Permethrin	2	"
Cypermethrin	2	"
Danitol	2	"
Fenvalerate	2	"
Fluvalinate	2	"
Other Monitoring in Sediment		
Chlorpyrifos (µg/kg)	2	"
Total Organic Carbon	0.01%	"
		"
Sediment Grain Size Analysis	1%	"

[1]Monitoring frequency may be used as a guide for developing alternative Sampling and Analysis Plans implemented by individual growers.
[2]Pesticide list may be modified based on specific pesticide use in Central Coast Region. Analytes on this list must be reported, at a minimum.
[3] Reporting Limit, taken from SWAMP where applicable.
[4] Holmgren, Meyer, Cheney and Daniels. 1993. Cadmium, Lead, Zinc, Copper and Nickel in Agricultural Soils of the United States. J. of Environ. Quality 22:335-348.

[5]Sax and Lewis, ed. 1987. Hawley's Condensed Chemical Dictionary. 11th ed. New York: Van Nostrand Reinhold Co., 1987. Zinc arsenate is an insecticide.
[6]Http://www.coastalagro.com/products/labels/9%25BORON.pdf; Boron is applied directly or as a component of fertilizers as a plant nutrient.
[7]Madramootoo, Johnston, Willardson, eds. 1997. Management of Agricultural Drainage Water Quality. International Commission on Irrigation and Drainage. U.N. FAO. SBN 92-6-104058.3.
[8]http://cat.inist.fr/?aModele=afficheN&cpsidt=14074525; Phenols are breakdown products of herbicides and pesticides. Phenols can be directly toxic and cause endocrine disruption.
[9]See SWAMP field measures SOP, p. 17
mg/L – milligrams per liter; ug/L – micrograms per liter; ug/kg – micrograms per kilogram;
NTU – Nephelometric Turbidity Units; CFS – cubic feet per second.

Table 3. Groundwater Sampling Parameters

Parameter	RL	Analytical Method[3]	Units
pH	0.1	Field or Laboratory Measurement EPA General Methods	pH Units
Specific Conductance	2.5		µS/cm
Total Dissolved Solids	10		mg/L
Total Alkalinity as $CaCO_3$		EPA Method 310.1 or 310.2	
Calcium	0.05	General Cations[1] EPA 200.7, 200.8, 200.9	
Magnesium	0.02		
Sodium	0.1		
Potassium	0.1		
Sulfate (SO4)	1.0	General Anions EPA Method 300 or EPA Method 353.2	
Chloride	0.1		
Nitrate + Nitrite (as N)[2] or Nitrate as N	0.1		

[1]General chemistry parameters (major cations and anions) represent geochemistry of water bearing zone and assist in evaluating quality assurance/quality control of groundwater monitoring and laboratory analysis.
[2]The MRP allows analysis of "nitrate plus nitrite" to represent nitrate concentrations (as N). The "nitrate plus nitrite" analysis allows for extended laboratory holding times and relieves the Discharger of meeting the short holding time required for nitrate.
[3]Dischargers may use alternative analytical methods approved by EPA.
RL – Reporting Limit; µS/cm – micro siemens per centimeter

Table 4. Tier 1 - Time Schedule for Key Monitoring and Reporting Requirements (MRPs)

REQUIREMENT	TIME SCHEDULE[1]
Submit Sampling And Analysis Plan and Quality Assurance Project Plan (SAAP/QAPP) for Surface Receiving Water Quality Monitoring *(individually or through cooperative monitoring program)*	By March 1, 2018, or as directed by the Executive Officer; satisfied if an approved SAAP/QAPP has been submitted pursuant to Order No. R3-2012-0011 and associated MRPs
Initiate surface receiving water quality monitoring *(individually or through cooperative monitoring program)*	Per an approved SAAP and QAPP
Submit surface receiving water quality monitoring data *(individually or through cooperative monitoring program)*	Each January 1, April 1, July 1, and October 1

Submit surface receiving water quality Annual Monitoring Report *(individually or through cooperative monitoring program)*	By July 1 2017; annually thereafter by July 1
Initiate monitoring of groundwater wells	First sample from March-June 2017, second sample from September-December 2017
Submit groundwater monitoring results	Within 60 days of the sample collection

[1] Dates are relative to adoption of this Order, unless otherwise specified.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

MONITORING AND REPORTING PROGRAM
ORDER NO. R3-2017-0002-02

TIER 2

DISCHARGERS ENROLLED UNDER
THE CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM IRRIGATED LANDS

This Monitoring and Reporting Program Order No. R3-2017-0002-02 (MRP) is issued pursuant to California Water Code (Water Code) sections 13267 and 13269, which authorize the California Regional Water Quality Control Board, Central Coast Region (hereafter Central Coast Water Board) to require preparation and submittal of technical and monitoring reports. Water Code section 13269 requires a waiver of waste discharge requirements to include as a condition the performance of monitoring and the public availability of monitoring results. *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands*, Order No. R3-2017-0002 (Order) includes criteria and requirements for three tiers. This MRP sets forth monitoring and reporting requirements for **Tier 2 Dischargers** enrolled under the Order. A summary of the requirements is shown below.

SUMMARY OF MONITORING AND REPORTING REQUIREMENTS FOR TIER 2:

Part 1: Surface Receiving Water Monitoring and Reporting *(cooperative or individual)*
Part 2: Groundwater Monitoring and Reporting *(cooperative or individual)*
Total Nitrogen Applied Reporting *(required for subset of Tier 2 Dischargers if farm/ranch growing any crop with high nitrate loading risk to groundwater);*
Part 3: Annual Compliance Form

Pursuant to Water Code section 13269(a)(2), monitoring requirements must be designed to support the development and implementation of the waiver program, including, but not limited to, verifying the adequacy and effectiveness of the waiver's conditions. The monitoring and reports required by this MRP are to evaluate effects of discharges of waste from irrigated agricultural operations and individual farms/ranches on waters of the state and to determine compliance with the Order.

MONITORING AND REPORTING BASED ON TIERS

The Order and MRP include criteria and requirements for three tiers, based upon those characteristics of the individual farms/ranches at the operation that present the highest level of waste discharge or greatest risk to water quality. Dischargers must meet conditions of the Order and MRP for the appropriate tier that applies to their land and/or the individual farm/ranch. Within a tier, Dischargers comply with requirements based on the specific level of discharge and threat to water quality from individual farms/ranches. The lowest tier, Tier 1, applies to dischargers who discharge the lowest level of waste (amount or concentration) or pose the lowest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. The highest tier, Tier 3, applies to dischargers who discharge the highest level of waste or pose the greatest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. Tier 2 applies to dischargers whose discharge has a moderate threat to water quality. Water quality is defined in terms of regional, state, or federal numeric or narrative water quality standards. Per the Order, Dischargers may submit a request to the Executive Officer to approve transfer to a lower tier. If the Executive Officer approves a transfer to a lower tier, any interested person may request that the Central Coast Water Board conduct a review of the Executive Officer's determination.

PART 1. SURFACE RECEIVING WATER MONITORING AND REPORTING REQUIREMENTS

The surface receiving water monitoring and reporting requirements described herein are generally a continuation of the surface receiving water monitoring and reporting requirements of Monitoring and Reporting Program Order No. 2012-0011-02, as revised August 22, 2016, with the intent of uninterrupted regular monitoring and reporting during the transition from Order No. R3-2012-0011-02 to Order No. R3-2017-0002-02.

Monitoring and reporting requirements for surface receiving water identified in Part 1.A. and Part 1.B. apply to Tier 2 Dischargers. Surface receiving water refers to water flowing in creeks and other surface waters of the State. Surface receiving water monitoring may be conducted through a cooperative monitoring program on behalf of Dischargers, or Dischargers may choose to conduct surface receiving water monitoring and reporting individually. Key monitoring and reporting requirements for surface receiving water are shown in Tables 1 and 2. Time schedules are shown in Table4.

A. Surface Receiving Water Quality Monitoring

1. Dischargers must elect a surface receiving water monitoring option (cooperative monitoring program or individual receiving water monitoring) to comply with surface receiving water quality monitoring requirements, and identify the option selected on the Notice of Intent (NOI).

2. Dischargers are encouraged to choose participation in a cooperative monitoring program (e.g., the existing Cooperative Monitoring Program or a similar program) to comply with receiving water quality monitoring requirements. Dischargers not participating in a cooperative monitoring program must conduct surface receiving water quality monitoring individually that achieves the same purpose.

3. Dischargers (individually or as part of a cooperative monitoring program) must conduct surface receiving water quality monitoring to a) assess the impacts of their waste discharges from irrigated lands to receiving water, b) assess the status of receiving water quality and beneficial use protection in impaired waterbodies dominated by irrigated agricultural activity, c) evaluate status, short term patterns and long term trends (five to ten years or more) in receiving water quality, d) evaluate water quality impacts resulting from agricultural discharges (including but not limited to tile drain discharges), e) evaluate stormwater quality, f) evaluate condition of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat, including degradation resulting from erosion or agricultural discharges of waste, and g) assist in the identification of specific sources of water quality problems.

<u>Surface Receiving Water Quality Sampling and Analysis Plan</u>

4. **By March 1, 2018, or as directed by the Executive Officer**, Dischargers (individually or as part of a cooperative monitoring program) must submit a surface receiving water quality Sampling and Analysis Plan (SAAP) and Quality Assurance Project Plan (QAPP); this requirement is satisfied if an approved SAAP and QAPP addressing all surface receiving water quality monitoring requirements described in this Order has been submitted pursuant to Order No.R3-2012-0011 and associated Monitoring and Reporting Programs. Dischargers (or a third party cooperative monitoring program) must develop the Sampling and Analysis Plan to describe how the proposed monitoring will achieve the objectives of the MRP and evaluate compliance with the Order. The Sampling and Analysis Plan may propose alternative monitoring site locations, adjusted monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water. The Executive Officer must approve the Sampling and Analysis Plan and QAPP.

5. The Sampling and Analysis Plan must include the following minimum required components:
    a. Monitoring strategy to achieve objectives of the Order and MRP;
    b. Map of monitoring sites with GIS coordinates;

c. Identification of known water quality impairments and impaired waterbodies per the 2010 Clean Water Act 303(d) List of Impaired Waterbodies (List of Impaired Waterbodies);
d. Identification of beneficial uses and applicable water quality standards;
e. Identification of applicable Total Maximum Daily Loads;
f. Monitoring parameters;
g. Monitoring schedule, including description and frequencies of monitoring events;
h. Description of data analysis methods;

6. The QAPP must include receiving water and site-specific information, project organization and responsibilities, and quality assurance components of the MRP. The QAPP must also include the laboratory and field requirements to be used for analyses and data evaluation. The QAPP must contain adequate detail for project and Water Board staff to identify and assess the technical and quality objectives, measurement and data acquisition methods, and limitations of the data generated under the surface receiving water quality monitoring. All sampling and laboratory methodologies and QAPP content must be consistent with U.S. EPA methods, State Water Board's Surface Water Ambient Monitoring Program (SWAMP) protocols and the Central Coast Water Board's Central Coast Ambient Monitoring Program (CCAMP). Following U.S. EPA guidelines[1] and SWAMP templates[2], the receiving water quality monitoring QAPP must include the following minimum required components:
   a. Project Management. This component addresses basic project management, including the project history and objectives, roles and responsibilities of the participants, and other aspects.
   b. Data Generation and Acquisition. This component addresses all aspects of project design and implementation. Implementation of these elements ensures that appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, and quality control activities are employed and are properly documented. Quality control requirements are applicable to all the constituents sampled as part of the MRP, as described in the appropriate method.
   c. Assessment and Oversight. This component addresses the activities for assessing the effectiveness of the implementation of the project and associated QA and QC activities. The purpose of the assessment is to provide project oversight that

[1] USEPA 2001 (2006) USEPA requirements for Quality Assurance Project Plans (QA/R-5) Office of Environmental Information, Washington, D.C. USEPA QA/R-5
[2] http://waterboards.ca.gov/water_issues/programs/swamp/tools.shtml#qa

will ensure that the QA Project Plan is implemented as prescribed.

d. Data Validation and Usability. This component addresses the quality assurance activities that occur after the data collection, laboratory analysis and data generation phase of the project is completed. Implementation of these elements ensures that the data conform to the specified criteria, thus achieving the MRP objectives.

7. The Central Coast Water Board may conduct an audit of contracted laboratories at any time in order to evaluate compliance with the QAPP.

8. The Sampling and Analysis Plan and QAPP, and any proposed revisions are subject to approval by the Executive Officer. The Executive Officer may also revise the Sampling and Analysis Plan, including adding, removing, or changing monitoring site locations, changing monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water.

Surface Receiving Water Quality Monitoring Sites

9. The Sampling and Analysis Plan must, at a minimum, include monitoring sites to evaluate waterbodies identified in Table 1, unless otherwise approved by the Executive Officer. The Sampling and Analysis Plan must include sites to evaluate receiving water quality impacts most directly resulting from areas of agricultural discharge (including areas receiving tile drain discharges). Site selection must take into consideration the existence of any long term monitoring sites included in related monitoring programs (e.g. CCAMP and the existing CMP). Sites may be added or modified, subject to prior approval by the Executive Officer, to better assess the pollutant loading from individual sources or the impacts to receiving waters caused by individual discharges. Any modifications must consider sampling consistency for purposes of trend evaluation.

Surface Receiving Water Quality Monitoring Parameters

10. The Sampling and Analysis Plan must, at a minimum, include the following types of monitoring and evaluation parameters listed below and identified in Table 2:

   a. Flow Monitoring;
   b. Water Quality (physical parameters, metals, nutrients, pesticides);
   c. Toxicity (water and sediment);
   d. Assessment of Benthic Invertebrates.

11. All analyses must be conducted at a laboratory certified for such analyses by the State Department of Public Health (CDPH) or at laboratories approved by the Executive Officer. Unless otherwise noted, all sampling, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, U.S. EPA, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link: http://www.cdph.ca.gov/certlic/labs/Documents/ELAPLablist.xls

12. Water quality and flow monitoring is used to assess the sources, concentrations, and loads of waste discharges from individual farms/ranches and groups of Dischargers to surface waters, to evaluate impacts to water quality and beneficial uses, and to evaluate the short term patterns and long term trends in receiving water quality. Monitoring data must be compared to existing numeric and narrative water quality objectives.

13. Toxicity testing is to evaluate water quality relative to the narrative toxicity objective. Water column toxicity analyses must be conducted on 100% (undiluted) sample. At sites where persistent unresolved toxicity is found, the Executive Officer may require concurrent toxicity and chemical analyses and a Toxicity Identification Evaluation (TIE) to identify the individual discharges causing the toxicity.

Surface Receiving Water Quality Monitoring Frequency and Schedule

14. The Sampling and Analysis Plan must include a schedule for sampling. Timing, duration, and frequency of monitoring must be based on the land use, complexity, hydrology, and size of the waterbody. Table 2 includes minimum monitoring frequency and parameter lists. Agricultural parameters that are less common may be monitored less frequently. Modifications to the receiving water quality monitoring parameters, frequency, and schedule may be submitted for Executive Officer consideration and approval. At a minimum, the Sampling and Analysis Plan schedule must consist of monthly monitoring of common agricultural parameters in major agricultural areas, including two major storm events during the wet season (October 1 – April 30).

15. Storm event monitoring must be conducted within 18 hours of storm events, preferably including the first flush run-off event that results in significant increase in stream flow. For purposes of this MRP, a storm event is defined as precipitation producing onsite runoff (surface water flow) capable of creating significant ponding, erosion or other water quality problem. A

significant storm event will generally result in greater than 1-inch of rain within a 24-hour period.

16. Dischargers (individually or as part of a cooperative monitoring program) must perform receiving water quality monitoring per the Sampling and Analysis Plan and QAPP approved by the Executive Officer.

B. Surface Receiving Water Quality Reporting

Surface Receiving Water Quality Data Submittal

1. Dischargers (individually or as part of a cooperative monitoring program) must submit water quality monitoring data to the Central Coast Water Board electronically, in a format specified by the Executive Officer and compatible with SWAMP/CCAMP electronic submittal guidelines, each January 1, April 1, July 1, and October 1.

Surface Receiving Water Quality Monitoring Annual Report

2. **By July 1, 2017,** and every July 1 annually thereafter, Dischargers (individually or as part of a cooperative monitoring program) must submit an Annual Report, electronically, in a format specified by the Executive Officer including the following minimum elements:
   a. Signed Transmittal Letter;
   b. Title Page;
   c. Table of Contents;
   d. Executive Summary;
   e. Summary of Exceedance Reports submitted during the reporting period;
   f. Monitoring objectives and design;
   g. Monitoring site descriptions and rainfall records for the time period covered;
   h. Location of monitoring sites and map(s);
   i. Tabulated results of all analyses arranged in tabular form so that the required information is readily discernible;
   j. Summary of water quality data for any sites monitored as part of related monitoring programs, and used to evaluate receiving water as described in the Sampling and Analysis Plan.
   k. Discussion of data to clearly illustrate compliance with the Order and water quality standards;
   l. Discussion of short term patterns and long term trends in receiving water quality and beneficial use protection;
   m. Evaluation of pesticide and toxicity analyses results, and recommendation of candidate sites for Toxicity Identification Evaluations (TIEs);

n. Identification of the location of any agricultural discharges observed discharging directly to surface receiving water;
o. Laboratory data submitted electronically in a SWAMP/CCAMP comparable format;
p. Sampling and analytical methods used;
q. Copy of chain-of-custody forms;
r. Field data sheets, signed laboratory reports, laboratory raw data;
s. Associated laboratory and field quality control samples results;
t. Summary of Quality Assurance Evaluation results;
u. Specify the method used to obtain flow at each monitoring site during each monitoring event;
v. Electronic or hard copies of photos obtained from all monitoring sites, clearly labeled with site ID and date;
w. Conclusions.

PART 2. GROUNDWATER MONITORING AND REPORTING REQUIREMENTS

Groundwater monitoring may be conducted through a cooperative monitoring and reporting program on behalf of growers, or Dischargers may choose to conduct groundwater monitoring and reporting individually. Qualifying cooperative groundwater monitoring and reporting programs must implement the groundwater monitoring and reporting requirements described in this Order, unless otherwise approved by the Executive Officer. An interested person may seek review by the Central Coast Water Board of the Executive Officer's approval or denial of a cooperative groundwater monitoring and reporting program.

Key monitoring and reporting requirements for groundwater are shown in Table 3.

A. Groundwater Monitoring

1. Dischargers must sample private domestic wells and the primary irrigation well on their farm/ranch to evaluate groundwater conditions in agricultural areas, identify areas at greatest risk for nitrogen loading and exceedance of drinking water standards, and identify priority areas for follow up actions.

2. Dischargers must sample at least one groundwater well for each farm/ranch on their operation, including groundwater wells that are located within the property boundary of the enrolled county assessor parcel numbers (APNs). For farms/ranches with multiple groundwater wells, Dischargers must sample all domestic wells and the primary irrigation well. For the purposes of this MRP, a "domestic well" is any well that is used or may be used for domestic use purposes, including any groundwater well that is connected to a residence, workshop, or place of business that may be used for human consumption, cooking, or sanitary purposes. Groundwater monitoring

parameters must include well screen interval depths (if available), general chemical parameters, and general cations and anions listed in Table 3.

3. Dischargers must conduct two rounds of monitoring of required groundwater wells during calendar year 2017; one sample collected during spring (**March - June)** and one sample collected during fall **(September - December)**.

4. Groundwater samples must be collected by a qualified third party (e.g., consultant, technician, person conducting cooperative monitoring) using proper sampling methods, chain-of-custody, and quality assurance/quality control protocols. Groundwater samples must be collected at or near the well head before the pressure tank and prior to any well head treatment. In cases where this is not possible, the water sample must be collected from a sampling point as close to the pressure tank as possible, or from a cold-water spigot located before any filters or water treatment systems.

5. Laboratory analyses for groundwater samples must be conducted by a State certified laboratory according to U.S. EPA approved methods; unless otherwise noted, all monitoring, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, United States Environmental Protection Agency, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link below: http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/resources4growers/2016_04_11_labs.pdf

6. If a discharger determines that water in any domestic well exceeds 10 mg/L of nitrate as N, the discharger or third party must provide notice to the Central Coast Water Board within 24 hours of learning of the exceedance. For domestic wells on a Discharger's farm/ranch, that exceed 10 mg/L of nitrate as N, the Discharger must provide written notification to the users within 10 days of learning of the exceedance and provide written confirmation of the notification to the Central Coast Water Board.

   The drinking water notification must include the statement that the water poses a human health risk due to elevated nitrate concentration, and include a warning against the use of the water for drinking or cooking. In addition, Dischargers must also provide prompt written notification to any new well users (e.g. tenants and employees with access to the affected well), whenever there is a change in occupancy.

   For all other domestic wells not on a Discharger's farm/ranch but that may be impacted by nitrate, the Central Coast Water Board will notify the users promptly.

The drinking water notification and confirmation letters required by this Order are available to the public.

B. Groundwater Reporting

1. **Within 60 days of sample collection,** Dischargers must coordinate with the laboratory to submit the following groundwater monitoring results and information, electronically, using the Water Board's GeoTracker electronic deliverable format (EDF):
    a. GeoTracker Ranch Global Identification Number
    b. Field point name (Well Name)
    c. Field Point Class (Well Type)
    d. Latitude
    e. Longitude
    f. Sample collection date
    g. Analytical results
    h. Well construction information (e.g., total depth, screened intervals, depth to water), as available

2. Dischargers must submit groundwater well information required in the electronic Notice of Intent (eNOI) for each farm/ranch and update the eNOI to reflect changes in the farm/ranch information within 30 days of the change. Groundwater well information reported on the eNOI includes, but is not limited to:
    a. Number of groundwater wells present at each farm/ranch
    b. Identification of any groundwater wells abandoned or destroyed (including method destroyed) in compliance with the Order
    c. Use for fertigation or chemigation
    d. Presence of back flow prevention devices
    e. Number of groundwater wells used for agricultural purposes
    f. Number of groundwater wells used for or may be used for domestic use purposes (domestic wells).

C. Total Nitrogen Applied Reporting

1. By March 1, 2018, and by March 1 annually thereafter, Tier 2 Dischargers growing any crop with a high potential to discharge nitrogen to groundwater must record and report total nitrogen applied for each specific crop that was irrigated and grown for commercial purposes on that farm/ranch during the preceding calendar year (January through December).

   Crops with a high potential to discharge nitrogen to groundwater are: beet, broccoli, cabbage, cauliflower, celery, Chinese cabbage (napa), collard, endive, kale, leek, lettuce (leaf and head), mustard, onion (dry and green), spinach, strawberry, pepper (fruiting), and parsley.

Total nitrogen applied must be reported on the Total Nitrogen Applied Report form as described in the Total Nitrogen Applied Report form instructions.

Total nitrogen applied includes any product containing any form or concentration of nitrogen including, but not limited to, organic and inorganic fertilizers, slow release products, compost, compost teas, manure, and extracts.

2. The Total Nitrogen Applied Report form includes the following information:
    a. General ranch information such as GeoTracker file numbers, name, location, acres.
    b. Nitrogen concentration of irrigation water
    c. Nitrogen applied in pounds per acre with irrigation water
    d. Nitrogen present in the soil
    e. Nitrogen applied with compost and amendments
    f. Specific crops grown
    g. Nitrogen applied in pounds per acre with fertilizers and other materials to each specific crop grown
    h. Crop acres of each specific crop grown
    i. Whether each specific crop was grown organically or conventionally
    j. Basis for the nitrogen applied
    k. Explanation and comments section
    l. Certification statement with penalty of perjury declaration
    m. Additional information regarding whether each specific crop was grown in a nursery, greenhouse, hydroponically, in containers, and similar variables.

PART 3. ANNUAL COMPLIANCE FORM

Tier 2 Dischargers must submit annual compliance information, electronically, on the Annual Compliance Form. The purpose of the electronic Annual Compliance Form is to provide information to the Central Coast Water Board to assist in the evaluation of threat to water quality from individual agricultural discharges of waste and measure progress towards water quality improvement and verify compliance with the Order and MRP. Time schedules are shown in Table 4.

A. Annual Compliance Form

1. **By March 1, 2018, and updated annually thereafter by March 1**, Tier 2 Dischargers must submit an Annual Compliance Form electronically, in a

format specified by the Executive Officer. The electronic Annual Compliance Form includes, but is not limited to the following minimum requirements[1]:

a. Question regarding consistency between the Annual Compliance Form and the electronic Notice of Intent (eNOI);
b. Information regarding type and characteristics of discharge (e.g., number of discharge points, estimated flow/volume, number of tailwater days);
c. Identification of any direct agricultural discharges to a stream, lake, estuary, bay, or ocean;
d. Identification of specific farm water quality management practices completed, in progress, and planned to address water quality impacts caused by discharges of waste including irrigation management, pesticide management, nutrient management, salinity management, stormwater management, and sediment and erosion control to achieve compliance with this Order; and identification of specific methods used, and described in the Farm Plan consistent with Order Provision 44.g., for the purposes of assessing the effectiveness of management practices implemented and the outcomes of such assessments;
e. Proprietary information question and justification;
f. Authorization and certification statement and declaration of penalty of perjury.

PART 5. GENERAL MONITORING AND REPORTING REQUIREMENTS

A. Submittal of Technical Reports

1. Dischargers must submit reports in a format specified by the Executive Officer. A transmittal letter must accompany each report, containing the following penalty of perjury statement signed by the Discharger or the Discharger's authorized agent:

   "In compliance with Water Code §*13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision following a system designed to assure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment".*

[1] Items reported in the Annual Compliance Form are due by March 1, 2018, and annually thereafter, unless otherwise specified.

2. If the Discharger asserts that all or a portion of a report submitted pursuant to this Order is subject to an exemption from public disclosure (e.g. trade secrets or secret processes), the Discharger must provide an explanation of how those portions of the reports are exempt from public disclosure. The Discharger must clearly indicate on the cover of the report (typically an electronic submittal) that the Discharger asserts that all or a portion of the report is exempt from public disclosure, submit a complete report with those portions that are asserted to be exempt in redacted form, submit separately (in a separate electronic file) unredacted pages (to be maintained separately by staff). The Central Coast Water Board staff will determine whether any such report or portion of a report qualifies for an exemption from public disclosure. If the Central Coast Water Board staff disagrees with the asserted exemption from public disclosure, the Central Coast Water Board staff will notify the Discharger prior to making such report or portions of such report available for public inspection.

B. Central Coast Water Board Authority

1. Monitoring reports are required pursuant to section 13267 of the California Water Code. Pursuant to section 13268 of the Water Code, a violation of a request made pursuant to section 13267 may subject you to civil liability of up to $1000 per day.

2. The Water Board needs the required information to determine compliance with Order No. R3-2017-0002. The evidence supporting these requirements is included in the findings of Order No. R3-2017-0002.

John M. Robertson
Executive Officer

March 8, 2017
Date

Table 1. Major Waterbodies in Agricultural Areas[1]

Hydrologic SubArea	Waterbody Name	Hydrologic SubArea	Waterbody Name
30510	Pajaro River	30920	Quail Creek
30510	Salsipuedes Creek	30920	Salinas Reclamation Canal
30510	Watsonville Slough	31022	Chorro Creek
30510	Watsonville Creek[2]	31023	Los Osos Creek
30510	Beach Road Ditch[2]	31023	Warden Creek
30530	Carnadero Creek	31024	San Luis Obispo Creek
30530	Furlong Creek[2]	31024	Prefumo Creek
30530	Llagas Creek	31031	Arroyo Grande Creek
30530	Miller's Canal	31031	Los Berros Creek
30530	San Juan Creek	31210	Bradley Canyon Creek
30530	Tesquisquita Slough	31210	Bradley Channel
30600	Moro Cojo Slough	31210	Green Valley Creek
30910	Alisal Slough	31210	Main Street Canal
30910	Blanco Drain	31210	Orcutt Solomon Creek
30910	Old Salinas River	31210	Oso Flaco Creek
30910	Salinas River (below Gonzales Rd.)	31210	Little Oso Flaco Creek
30920	Salinas River above Gonzales Rd. and below Nacimiento R.)	31210	Santa Maria River
30910	Santa Rita Creek[2]	31310	San Antonio Creek[2]
30910	Tembladero Slough	31410	Santa Ynez River
30920	Alisal Creek	31531	Bell Creek
30920	Chualar Creek	31531	Glenn Annie Creek
30920	Espinosa Slough	31531	Los Carneros Creek[2]
30920	Gabilan Creek	31534	Arroyo Paredon Creek
30920	Natividad Creek	31534	Franklin Creek

[1] At a minimum, monitoring sites must be included for these waterbodies in agricultural areas, unless otherwise approved by the Executive Officer. Monitoring sites may be proposed for addition or modification to better assess the impacts of waste discharges from irrigated lands to surface water. Dischargers choosing to comply with surface receiving water quality monitoring, individually (not part of a cooperative monitoring program) must only monitor sites for waterbodies receiving the discharge.

[2] These creeks are included because they are newly listed waterbodies on the 2010 303(d) list of Impaired Waters that are associated with areas of agricultural discharge.

Table 2. Surface Receiving Water Quality Monitoring Parameters

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Photo Monitoring		
Upstream and downstream photographs at monitoring location		With every monitoring event
WATER COLUMN SAMPLING **Physical Parameters and General Chemistry**		
Flow (field measure) (CFS) following SWAMP field SOP[9]	.25	Monthly, including 2 stormwater events
pH (field measure)	0.1	”
Electrical Conductivity (field measure) (µS/cm)	2.5	”
Dissolved Oxygen (field measure) (mg/L)	0.1	”
Temperature (field measure) (^{o}C)	0.1	”
Turbidity (NTU)	0.5	”
Total Dissolved Solids (mg/L)	10	”
Total Suspended Solids (mg/L)	0.5	”
Nutrients		
Total Nitrogen (mg/L)	0.5	Monthly, including 2 stormwater events
Nitrate + Nitrite (as N) (mg/L)	0.1	”
Total Ammonia (mg/L)	0.1	”
Unionized Ammonia (calculated value, mg/L))		”
Total Phosphorus (as P) (mg/L)	0.02	
Soluble Orthophosphate (mg/L)	0.01	”
Water column chlorophyll a (µg/L)	1.0	“
Algae cover, Floating Mats, % coverage	-	“
Algae cover, Attached, % coverage	-	“
Water Column Toxicity Test		
Algae - *Selenastrum capricornutum (*96-hour chronic; Method1003.0 in EPA/821/R-02/013)	-	4 times each year, twice in dry season, twice in wet season
Water Flea – *Ceriodaphnia dubia* (7-day chronic; Method 1002.0 in EPA/821/R-02/013)	-	”
Midge - *Chironomus spp.* (96-hour acute; Alternate test species in EPA 821-R-02-012)	-	“

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Toxicity Identification Evaluation (TIE)	-	As directed by Executive Officer
Pesticides[2] /Herbicides (µg/L)		
Organophosphate Pesticides		
Azinphos-methyl	0.02	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Chlorpyrifos	0.005	”
Diazinon	0.005	”
Dichlorvos	0.01	”
Dimethoate	0.01	”
Dimeton-s	0.005	”
Disulfoton (Disyton)	0.005	”
Malathion	0.005	”
Methamidophos	0.02	”
Methidathion	0.02	“
Parathion-methyl	0.02	“
Phorate	0.01	“
Phosmet	0.02	“
Neonicotinoids		
Thiamethoxam	.002	“
Imidacloprid	.002	“
Thiacloprid	.002	“
Dinotefuran	.006	“
Acetamiprid	.01	“
Clothianidin	.02	
Herbicides		
Atrazine	0.05	“
Cyanazine	0.20	“
Diuron	0.05	“
Glyphosate	2.0	“
Linuron	0.1	“
Paraquat	0.20	“
Simazine	0.05	“
Trifluralin	0.05	“
Metals (µg/L)		
Arsenic (total) [5,7]	0.3	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Boron (total) [6,7]	10	“

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Cadmium (total & dissolved) [4,5,7]	0.01	“
Copper (total and dissolved) [4,7]	0.01	“
Lead (total and dissolved) [4,7]	0.01	“
Nickel (total and dissolved) [4,7]	0.02	“
Molybdenum (total) [7]	1	“
Selenium (total)[7]	0.30	“
Zinc (total and dissolved) [4,5,7]	0.10	“
Other (µg/L)		
Total Phenolic Compounds[8]	5	2 times in 2017, once in spring (April-May) and once in fall (August-September)
Hardness (mg/L as CaCO3)	1	“
Total Organic Carbon (ug/L)	0.6	“
SEDIMENT SAMPLING		
Sediment Toxicity - *Hyalella azteca* 10-day static renewal (EPA, 2000)		2 times each year, once in spring (April-May) and once in fall (August-September)
Pyrethroid Pesticides in Sediment (µg/kg)		
Gamma-cyhalothrin	2	2 times in both 2017 and 2018, once in spring (April-May) and once in fall (August-September) of each year, concurrent with sediment toxicity sampling
Lambda-cyhalothrin	2	“
Bifenthrin	2	“
Beta-cyfluthrin	2	“
Cyfluthrin	2	“
Esfenvalerate	2	“
Permethrin	2	“
Cypermethrin	2	“
Danitol	2	“
Fenvalerate	2	“
Fluvalinate	2	“
Other Monitoring in Sediment		
Chlorpyrifos (µg/kg)	2	“
Total Organic Carbon	0.01%	“
		“
Sediment Grain Size Analysis	1%	“

[1]Monitoring is ongoing through all five years of the Order, unless otherwise specified. Monitoring frequency may be used as a guide for developing alternative Sampling and Analysis Plan.
[2]Pesticide list may be modified based on specific pesticide use in Central Coast Region. Analytes on this list must be reported, at a minimum.

[3] Reporting Limit, taken from SWAMP where applicable.
[4] Holmgren, Meyer, Cheney and Daniels. 1993. Cadmium, Lead, Zinc, Copper and Nickel in Agricultural Soils of the United States. J. of Environ. Quality 22:335-348.
[5] Sax and Lewis, ed. 1987. Hawley's Condensed Chemical Dictionary. 11th ed. New York: Van Nostrand Reinhold Co., 1987. Zinc arsenate is an insecticide.
[6] Http://www.coastalagro.com/products/labels/9%25BORON.pdf; Boron is applied directly or as a component of fertilizers as a plant nutrient.
[7] Madramootoo, Johnston, Willardson, eds. 1997. Management of Agricultural Drainage Water Quality. International Commission on Irrigation and Drainage. U.N. FAO. SBN 92-6-104058.3.
[8] http://cat.inist.fr/?aModele=afficheN&cpsidt=14074525; Phenols are breakdown products of herbicides and pesticides. Phenols can be directly toxic and cause endocrine disruption.
[9] See SWAMP field measures SOP, p. 17
mg/L – milligrams per liter; ug/L – micrograms per liter; ug/kg – micrograms per kilogram;
NTU – Nephelometric Turbidity Units; CFS – cubic feet per second;

Table 3. Groundwater Monitoring Parameters

Parameter	RL	Analytical Method[3]	Units
pH	0.1	Field or Laboratory Measurement EPA General Methods	pH Units
Specific Conductance	2.5		µS/cm
Total Dissolved Solids	10		mg/L
Total Alkalinity as CaCO3	1	EPA Method 310.1 or 310.2	
Calcium	0.05	General Cations[1] EPA 200.7, 200.8, 200.9	
Magnesium	0.02		
Sodium	0.1		
Potassium	0.1		
Sulfate (SO4)	1.0	General Anions EPA Method 300 or EPA Method 353.2	
Chloride	0.1		
Nitrate + Nitrite (as N)[2] or Nitrate as N	0.1		

[1] General chemistry parameters (major cations and anions) represent geochemistry of water bearing zone and assist in evaluating quality assurance/quality control of groundwater sampling and laboratory analysis.
[2] The MRP allows analysis of "nitrate plus nitrite" to represent nitrate concentrations (as N). The "nitrate plus nitrite" analysis allows for extended laboratory holding times and relieves the Discharger of meeting the short holding time required for nitrate.
[3] Dischargers may use alternative analytical methods approved by EPA.
RL – Reporting Limit; µS/cm – micro siemens per centimeter

Table4. Tier 2 - Time Schedule for Key Monitoring and Reporting Requirements (MRPs)

REQUIREMENT	TIME SCHEDULE[1]
Submit Sampling And Analysis Plan and Quality Assurance Project Plan (SAAP/QAPP) for Surface Receiving Water Quality Monitoring (*individually or through cooperative monitoring program*)	By March 1, 2018, or as directed by the Executive Officer; satisfied if an approved SAAP/QAPP has been submitted pursuant to Order No. R3-2012-0011 and associated MRPs
Initiate surface receiving water quality monitoring (*individually or through cooperative monitoring program*)	Per an approved SAAP and QAPP
Submit surface receiving water quality monitoring data (*individually or through cooperative monitoring program*)	Each January 1, April 1, July 1, and October 1
Submit surface receiving water quality Annual Monitoring Report *(individually or through cooperative monitoring program*)	By July 12017; annually thereafter by July 1
Initiate monitoring of groundwater wells	First sample from March-June 2017, second sample from September-December 2017
Submit electronic Annual Compliance Form	March 1, 2018 and every March 1 annually thereafter
Submit groundwater monitoring results	Within 60 days of the sample collection
Tier 2 Dischargers with farms/ranches growing high risk crops: Report total nitrogen applied on the Total Nitrogen Applied form	March 1, 2018 and every March 1annually thereafter

[1] Dates are relative to adoption of this Order or enrollment date for Dischargers enrolled after the adoption of this Order, unless otherwise specified.

California Regional Water Quality Control Board
Central Coast Region

Monitoring and Reporting Program
Order No. R3-2017-0002-03

TIER 3

Dischargers Enrolled Under
Conditional Waiver of Waste Discharge Requirements For
Discharges from Irrigated Lands

This Monitoring and Reporting Program Order No. R3-2017-0002-03 (MRP) is issued pursuant to California Water Code (Water Code) sections 13267 and 13269, which authorize the California Regional Water Quality Control Board, Central Coast Region (hereafter Central Coast Water Board) to require preparation and submittal of technical and monitoring reports. Water Code section 13269 requires a waiver of waste discharge requirements to include as a condition, the performance of monitoring and the public availability of monitoring results. *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands,* Order No. R3-2017-0002 (Order), includes criteria and requirements for three tiers. This MRP sets forth monitoring and reporting requirements for **Tier 3 Dischargers** enrolled under the Order. A summary of the requirements is shown below.

SUMMARY OF MONITORING AND REPORTING REQUIREMENTS FOR TIER 3:

Part 1: Surface Receiving Water Monitoring and Reporting *(cooperative or individual)*
Part 2: Groundwater Monitoring and Reporting *(cooperative or individual)*
Total Nitrogen Applied Reporting *(required for subset of Tier 3 Dischargers if farm/ranch growing any crop with high nitrate loading risk to groundwater);*
Part 3: Annual Compliance Form
Part 5: Individual Surface Water Discharge Monitoring and Reporting
Part 6: Irrigation and Nutrient Management Plan *(required for subset of Tier 3 Dischargers if farm/ranch has High Nitrate Loading Risk)*
Part 7: Water Quality Buffer Plan *(required for subset of Tier 3 Dischargers if farm/ranch contains or is adjacent to a waterbody impaired for temperature, turbidity or sediment)*

Pursuant to Water Code section 13269(a)(2), monitoring requirements must be designed to support the development and implementation of the waiver program, including, but not limited to, verifying the adequacy and effectiveness of the waiver's conditions. The monitoring and reports required by this MRP are to evaluate effects of discharges of waste from irrigated agricultural operations and individual farms/ranches on waters of the state and to determine compliance with the Order.

MONITORING AND REPORTING BASED ON TIERS

The Order and MRP includes criteria and requirements for three tiers, based upon those characteristics of the individual farms/ranches at the operation that present the highest level of waste discharge or greatest risk to water quality. Dischargers must meet conditions of the Order and MRP for the appropriate tier that applies to their land and/or the individual farm/ranch. Within a tier, Dischargers comply with requirements based on the specific level of discharge and threat to water quality from individual farms/ranches. The lowest tier, Tier 1, applies to dischargers who discharge the lowest level of waste (amount or concentration) or pose the lowest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. The highest tier, Tier 3, applies to dischargers who discharge the highest level of waste or pose the greatest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. Tier 2 applies to dischargers whose discharge has a moderate threat to water quality. Water quality is defined in terms of regional, state, or federal numeric or narrative water quality standards. Per the Order, Dischargers may submit a request to the Executive Officer to approve transfer to a lower tier. If the Executive Officer approves a transfer to a lower tier, any interested person may request that the Central Coast Water Board conduct a review of the Executive Officer’s determination.

PART 1. SURFACE RECEIVING WATER MONITORING AND REPORTING REQUIREMENTS

The surface receiving water monitoring and reporting requirements described herein are generally a continuation of the surface receiving water monitoring and reporting requirements of Monitoring and Reporting Program Order No. 2012-0011-03, as revised August 22, 2016, with the intent of uninterrupted regular monitoring and reporting during the transition from Order No. R3-2012-0011-03 to Order No. R3-2017-0002-03.

Monitoring and reporting requirements for surface receiving water identified in Part 1.A. and Part 1.B. apply to Tier 3 Dischargers. Surface receiving water refers to water flowing in creeks and other surface waters of the State. Surface receiving water monitoring may be conducted through a cooperative monitoring program on behalf of Dischargers, or Dischargers may choose to conduct surface receiving water monitoring and reporting individually. Key monitoring and reporting requirements for surface receiving water are shown in Tables 1 and 2. Time schedules are shown in Table 5.

A. Surface Receiving Water Quality Monitoring

1. Dischargers must elect a surface receiving water monitoring option (cooperative monitoring program or individual receiving water monitoring) to comply with surface receiving water quality monitoring requirements, and identify the option selected on the Notice of Intent (NOI).

2. Dischargers are encouraged to choose participation in a cooperative monitoring program (e.g., the existing Cooperative Monitoring Program or a similar program) to comply with receiving water quality monitoring requirements. Dischargers not participating in a cooperative monitoring program must conduct surface receiving water quality monitoring individually that achieves the same purpose.

3. Dischargers (individually or as part of a cooperative monitoring program) must conduct surface receiving water quality monitoring to a) assess the impacts of their waste discharges from irrigated lands to receiving water, b) assess the status of receiving water quality and beneficial use protection in impaired waterbodies dominated by irrigated agricultural activity, c) evaluate status, short term patterns and long term trends (five to ten years or more) in receiving water quality, d) evaluate water quality impacts resulting from agricultural discharges (including but not limited to tile drain discharges), e) evaluate stormwater quality, f) evaluate condition of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat, including degradation resulting from erosion or agricultural discharges of waste, and g) assist in the identification of specific sources of water quality problems.

<u>Surface Receiving Water Quality Sampling and Analysis Plan</u>

4. **By March 1, 2018, or as directed by the Executive Officer**, Dischargers (individually or as part of a cooperative monitoring program) must submit a surface receiving water quality Sampling and Analysis Plan (SAAP) and Quality Assurance Project Plan (QAPP); this requirement is satisfied if an approved SAAP and QAPP addressing all surface receiving water quality monitoring requirements described in this Order has been submitted pursuant to Order No.R3-2012-0011 and associated Monitoring and Reporting Programs. Dischargers (or a third party cooperative monitoring program) must develop the Sampling and Analysis Plan to describe how the proposed monitoring will achieve the objectives of the MRP and evaluate compliance with the Order. The Sampling and Analysis Plan may propose alternative monitoring site locations, adjusted monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water. The Executive Officer must approve the Sampling and Analysis Plan and QAPP.

5. The Sampling and Analysis Plan must include the following minimum required components:
    a. Monitoring strategy to achieve objectives of the Order and MRP;
    b. Map of monitoring sites with GIS coordinates;

c. Identification of known water quality impairments and impaired waterbodies per the 2010 Clean Water Act 303(d) List of Impaired Waterbodies (List of Impaired Waterbodies);
d. Identification of beneficial uses and applicable water quality standards;
e. Identification of applicable Total Maximum Daily Loads;
f. Monitoring parameters;
g. Monitoring schedule, including description and frequencies of monitoring events;
h. Description of data analysis methods;

6. The QAPP must include receiving water and site-specific information, project organization and responsibilities, and quality assurance components of the MRP. The QAPP must also include the laboratory and field requirements to be used for analyses and data evaluation. The QAPP must contain adequate detail for project and Water Board staff to identify and assess the technical and quality objectives, measurement and data acquisition methods, and limitations of the data generated under the surface receiving water quality monitoring. All sampling and laboratory methodologies and QAPP content must be consistent with U.S. EPA methods, State Water Board's Surface Water Ambient Monitoring Program (SWAMP) protocols and the Central Coast Water Board's Central Coast Ambient Monitoring Program (CCAMP). Following U.S. EPA guidelines[1] and SWAMP templates[2], the receiving water quality monitoring QAPP must include the following minimum required components:
   a. Project Management. This component addresses basic project management, including the project history and objectives, roles and responsibilities of the participants, and other aspects.
   b. Data Generation and Acquisition. This component addresses all aspects of project design and implementation. Implementation of these elements ensures that appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, and quality control activities are employed and are properly documented. Quality control requirements are applicable to all the constituents sampled as part of the MRP, as described in the appropriate method.
   c. Assessment and Oversight. This component addresses the activities for assessing the effectiveness of the implementation of the project and associated QA and QC activities. The purpose of the assessment is to provide project oversight that

[1] USEPA. 2001 (2006) USEPA Requirements for Quality Assurance Project Plans (QA/R-5) Office of Environmental Information, Washington, D.C. USEPA QA/R-5
[2] http://waterboards.ca.gov/water_issues/programs/swamp/tools.shtml#qa

will ensure that the QA Project Plan is implemented as prescribed.

d. Data Validation and Usability. This component addresses the quality assurance activities that occur after the data collection, laboratory analysis and data generation phase of the project is completed. Implementation of these elements ensures that the data conform to the specified criteria, thus achieving the MRP objectives.

7. The Central Coast Water Board may conduct an audit of contracted laboratories at any time in order to evaluate compliance with the QAPP.

8. The Sampling and Analysis Plan and QAPP, and any proposed revisions are subject to approval by the Executive Officer. The Executive Officer may also revise the Sampling and Analysis Plan, including adding, removing, or changing monitoring site locations, changing monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water.

Surface Receiving Water Quality Monitoring Sites

9. The Sampling and Analysis Plan must, at a minimum, include monitoring sites to evaluate waterbodies identified in Table 1, unless otherwise approved by the Executive Officer. The Sampling and Analysis Plan must include sites to evaluate receiving water quality impacts most directly resulting from areas of agricultural discharge (including areas receiving tile drain discharges). Site selection must take into consideration the existence of any long term monitoring sites included in related monitoring programs (e.g. CCAMP and the existing CMP). Sites may be added or modified, subject to prior approval by the Executive Officer, to better assess the pollutant loading from individual sources or the impacts to receiving waters caused by individual discharges. Any modifications must consider sampling consistency for purposes of trend evaluation.

Surface Receiving Water Quality Monitoring Parameters

10. The Sampling and Analysis Plan must, at a minimum, include the following types of monitoring and evaluation parameters listed below and identified in Table 2:

a. Flow Monitoring;
b. Water Quality (physical parameters, metals, nutrients, pesticides);
c. Toxicity (water and sediment);
d. Assessment of Benthic Invertebrates.

11. All analyses must be conducted at a laboratory certified for such analyses by the State Department of Public Health (CDPH) or at laboratories approved by the Executive Officer. Unless otherwise noted, all sampling, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, U.S. EPA, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link: http://www.cdph.ca.gov/certlic/labs/Documents/ELAPLablist.xls

12. Water quality and flow monitoring is used to assess the sources, concentrations, and loads of waste discharges from individual farms/ranches and groups of Dischargers to surface waters, to evaluate impacts to water quality and beneficial uses, and to evaluate the short term patterns and long term trends in receiving water quality. Monitoring data must be compared to existing numeric and narrative water quality objectives.

13. Toxicity testing is to evaluate water quality relative to the narrative toxicity objective. Water column toxicity analyses must be conducted on 100% (undiluted) sample. At sites where persistent unresolved toxicity is found, the Executive Officer may require concurrent toxicity and chemical analyses and a Toxicity Identification Evaluation (TIE) to identify the individual discharges causing the toxicity.

Surface Receiving Water Quality Monitoring Frequency and Schedule

14. The Sampling and Analysis Plan must include a schedule for sampling. Timing, duration, and frequency of monitoring must be based on the land use, complexity, hydrology, and size of the waterbody. Table 2 includes minimum monitoring frequency and parameter lists. Agricultural parameters that are less common may be monitored less frequently. Modifications to the receiving water quality monitoring parameters, frequency, and schedule may be submitted for Executive Officer consideration and approval. At a minimum, the Sampling and Analysis Plan schedule must consist of monthly monitoring of common agricultural parameters in major agricultural areas, including two major storm events during the wet season (October 1 – April 30).

15. Storm event monitoring must be conducted within 18 hours of storm events, preferably including the first flush run-off event that results in significant increase in stream flow. For purposes of this MRP, a storm event is defined as precipitation producing onsite runoff (surface water flow) capable of creating significant ponding, erosion or other water quality problem. A

significant storm event will generally result in greater than 1-inch of rain within a 24-hour period.

16. Dischargers (individually or as part of a cooperative monitoring program) must perform receiving water quality monitoring per the Sampling and Analysis Plan and QAPP approved by the Executive Officer.

B. Surface Receiving Water Quality Reporting

Surface Receiving Water Quality Data Submittal

1. Dischargers (individually or as part of a cooperative monitoring program) must submit water quality monitoring data to the Central Coast Water Board electronically, in a format specified by the Executive Officer and compatible with SWAMP/CCAMP electronic submittal guidelines, each January 1, April 1, July 1, and October 1.

Surface Receiving Water Quality Monitoring Annual Report

2. **By July 1, 2017,** and every July 1 annually thereafter, Dischargers (individually or as part of a cooperative monitoring program) must submit an Annual Report, electronically, in a format specified by the Executive Officer including the following minimum elements:

a. Signed Transmittal Letter;
b. Title Page;
c. Table of Contents;
d. Executive Summary;
e. Summary of Exceedance Reports submitted during the reporting period;
f. Monitoring objectives and design;
g. Monitoring site descriptions and rainfall records for the time period covered;
h. Location of monitoring sites and map(s);
i. Tabulated results of all analyses arranged in tabular form so that the required information is readily discernible;
j. Summary of water quality data for any sites monitored as part of related monitoring programs, and used to evaluate receiving water as described in the Sampling and Analysis Plan.
k. Discussion of data to clearly illustrate compliance with the Order and water quality standards;
l. Discussion of short term patterns and long term trends in receiving water quality and beneficial use protection;

m. Evaluation of pesticide and toxicity analyses results, and recommendation of candidate sites for Toxicity Identification Evaluations (TIEs);
n. Identification of the location of any agricultural discharges observed discharging directly to surface receiving water;
o. Laboratory data submitted electronically in a SWAMP/CCAMP comparable format;
p. Sampling and analytical methods used;
q. Copy of chain-of-custody forms;
r. Field data sheets, signed laboratory reports, laboratory raw data;
s. Associated laboratory and field quality control samples results;
t. Summary of Quality Assurance Evaluation results;
u. Specify the method used to obtain flow at each monitoring site during each monitoring event;
v. Electronic or hard copies of photos obtained from all monitoring sites, clearly labeled with site ID and date;
w. Conclusions.

PART 2. GROUNDWATER MONITORING AND REPORTING REQUIREMENTS

Groundwater monitoring may be conducted through a cooperative monitoring and reporting program on behalf of growers, or Dischargers may choose to conduct groundwater monitoring and reporting individually. Qualifying cooperative groundwater monitoring and reporting programs must implement the groundwater monitoring and reporting requirements described in this Order, unless otherwise approved by the Executive Officer. An interested person may seek review by the Central Coast Water Board of the Executive Officer's approval or denial of a cooperative groundwater monitoring and reporting program.

Key monitoring and reporting requirements for groundwater are shown in Table 3.

A. Groundwater Monitoring

1. Dischargers must sample private domestic wells and the primary irrigation well on their farm/ranch to evaluate groundwater conditions in agricultural areas, identify areas at greatest risk for nitrogen loading and exceedance of drinking water standards, and identify priority areas for follow up actions.

2. Dischargers must sample at least one groundwater well for each farm/ranch on their operation, including groundwater wells that are located within the property boundary of the enrolled county assessor parcel numbers (APNs). For farms/ranches with multiple groundwater wells, Dischargers must sample all domestic wells and the primary irrigation well. For the purposes of this MRP, a "domestic well" is any well that is used or may be used for domestic

use purposes, including any groundwater well that is connected to a residence, workshop, or place of business that may be used for human consumption, cooking, or sanitary purposes. Groundwater monitoring parameters must include well screen interval depths (if available), general chemical parameters, and general cations and anions listed in Table 3.

3. Dischargers must conduct two rounds of monitoring of required groundwater wells during calendar year 2017; one sample collected during spring (**March - June)** and one sample collected during fall **(September - December)**.

4. Groundwater samples must be collected by a qualified third party (e.g., consultant, technician, person conducting cooperative monitoring) using proper sampling methods, chain-of-custody, and quality assurance/quality control protocols. Groundwater samples must be collected at or near the well head before the pressure tank and prior to any well head treatment. In cases where this is not possible, the water sample must be collected from a sampling point as close to the pressure tank as possible, or from a cold-water spigot located before any filters or water treatment systems.

5. Laboratory analyses for groundwater samples must be conducted by a State certified laboratory according to U.S. EPA approved methods; unless otherwise noted, all monitoring, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, United States Environmental Protection Agency, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link below: http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/resources4growers/2016_04_11_labs.pdf

6. If a discharger determines that water in any domestic well exceeds 10 mg/L of nitrate as N, the discharger or third party must provide notice to the Central Coast Water Board within 24 hours of learning of the exceedance. For domestic wells on a Discharger's farm/ranch that exceed 10 mg/L nitrate as N, the Discharger must provide written notification to the users within 10 days of learning of the exceedance and provide written confirmation of the notification to the Central Coast Water Board.

   The drinking water notification must include the statement that the water poses a human health risk due to elevated nitrate concentration, and include a warning against the use of the water for drinking or cooking. In addition, Dischargers must also provide prompt written notification to any new well users (e.g. tenants and employees with access to the affected well), whenever there is a change in occupancy.

For all other domestic wells not on a Discharger's property, the Central Coast Water Board will notify the users promptly.

The drinking water notification and confirmation letters required by this Order are available to the public.

B. Groundwater Reporting

1. **Within 60 days of sample collection,** Dischargers must coordinate with the laboratory to submit the following groundwater monitoring results and information, electronically, using the Water Board's GeoTracker electronic deliverable format (EDF):
   a. GeoTracker Ranch Global Identification Number
   b. Field point name (Well Name)
   c. Field Point Class (Well Type)
   d. Latitude
   e. Longitude
   f. Sample collection date
   g. Analytical results
   h. Well construction information (e.g., total depth, screened intervals, depth to water), as available

2. Dischargers must submit groundwater well information required in the electronic Notice of Intent (eNOI) for each farm/ranch and update the eNOI to reflect changes in the farm/ranch information within 30 days of the change. Groundwater well information reported on the eNOI includes, but is not limited to:
   a. Number of groundwater wells present at each farm/ranch
   b. Identification of any groundwater wells abandoned or destroyed (including method destroyed) in compliance with the Order
   c. Use for fertigation or chemigation
   d. Presence of back flow prevention devices
   e. Number of groundwater wells used for agricultural purposes
   f. Number of groundwater wells used for or may be used for domestic use purposes (domestic wells)

C. Total Nitrogen Applied Reporting

1. By March 1, 2018, and by March 1 annually thereafter, Tier 3 Dischargers growing any crop with a high potential to discharge nitrogen to groundwater must record and report total nitrogen applied for each specific crop that was irrigated and grown for commercial purposes on that farm/ranch during the preceding calendar year (January through December).

   Crops with a high potential to discharge nitrogen to groundwater are: beet, broccoli, cabbage, cauliflower, celery, Chinese cabbage (napa), collard, endive, kale, leek, lettuce (leaf and head), mustard, onion (dry and green), spinach, strawberry, pepper (fruiting), and parsley.

Total nitrogen applied must be reported on the Total Nitrogen Applied Report form as described in the Total Nitrogen Applied Report form instructions.

Total nitrogen applied includes any product containing any form or concentration of nitrogen including, but not limited to, organic and inorganic fertilizers, slow release products, compost, compost teas, manure, and extracts.

2. The Total Nitrogen Applied Report form includes the following information:
    a. General ranch information such as GeoTracker file numbers, name, location, acres.
    b. Nitrogen concentration of irrigation water
    c. Nitrogen applied in pounds per acre with irrigation water
    d. Nitrogen present in the soil
    e. Nitrogen applied with compost and amendments
    f. Specific crops grown
    g. Nitrogen applied in pounds per acre with fertilizers and other materials to each specific crop grown
    h. Crop acres of each specific crop grown
    i. Whether each specific crop was grown organically or conventionally
    j. Basis for the nitrogen applied
    k. Explanation and comments section
    l. Certification statement with penalty of perjury declaration
    m. Additional information regarding whether each specific crop was grown in a nursery, greenhouse, hydroponically, in containers, and similar variables.

PART 3. ANNUAL COMPLIANCE FORM

Tier 3 Dischargers must submit annual compliance information, electronically, on the Annual Compliance Form. The purpose of the electronic Annual Compliance Form is to provide information to the Central Coast Water Board to assist in the evaluation of threat to water quality from individual agricultural discharges of waste and measure progress towards water quality improvement and verify compliance with the Order and MRP. Time schedules are shown in Table 5.

A. Annual Compliance Form

1. **By March 1, 2018, and updated annually thereafter by March 1**, Tier 3 Dischargers must submit an Annual Compliance Form electronically, in a format specified by the Executive Officer. The electronic Annual Compliance Form includes, but is not limited to the following minimum requirements[1]:
    a. Question regarding consistency between the Annual Compliance Form and the electronic Notice of Intent (eNOI);
    b. Information regarding type and characteristics of discharge (e.g., number of discharge points, estimated flow/volume, number of tailwater days);
    c. Identification of any direct agricultural discharges to a stream, lake, estuary, bay, or ocean;
    d. Identification of specific farm water quality management practices completed, in progress, and planned to address water quality impacts caused by discharges of waste including irrigation management, pesticide management, nutrient management, salinity management, stormwater management, and sediment and erosion control to achieve compliance with this Order; and identification of specific methods used, and described in the Farm Plan consistent with Order Provision 44.g., for the purposes of assessing the effectiveness of management practices implemented and the outcomes of such assessments:
    e. Proprietary information question and justification;
    f. Authorization and certification statement and declaration of penalty of perjury.

PART 5. INDIVIDUAL SURFACE WATER DISCHARGE MONITORING AND REPORTING REQUIREMENTS

Monitoring and reporting requirements for individual surface water discharge identified in Part 5.A. and Part 5.B. apply to Tier 3 Dischargers with irrigation water or stormwater discharges to surface water from an outfall. Outfalls are locations where irrigation water and stormwater exit a farm/ranch, or otherwise leave the control of the discharger, after being conveyed by pipes, ditches, constructed swales, tile drains, containment structures, or other discrete structures or features that transport the water. Discharges that have commingled with discharges from another farm/ranch are considered to have left the control of the discharger. Key monitoring and reporting requirements for individual surface water discharge are shown in Tables 4A and 4B. Time schedules are shown in Table 5.

[1] Items reported in the Annual Compliance Form are due by March 1 2018, and annually thereafter, unless otherwise specified.

A. Individual Surface Water Discharge Monitoring

1. Tier 3 Dischargers must conduct individual surface water discharge monitoring to a) evaluate the quality of individual waste discharges, including concentration and load of waste (in kilograms per day) for appropriate parameters, b) evaluate effects of waste discharge on water quality and beneficial uses, and c) evaluate progress towards compliance with water quality improvement milestones in the Order.

<u>Individual Sampling and Analysis Plan</u>

2. **By March 1, 2018, or as directed by the Executive Officer**, Tier 3 Dischargers must submit an individual surface water discharge Sampling and Analysis Plan (SAAP) and QAPP to monitor individual discharges of irrigation water and stormwater that leaves their farm/ranch from an outfall. The Sampling and Analysis Plan and QAPP must be submitted to the Executive Officer; this requirement is satisfied if an approved SAAP and QAPP addressing all individual surface water discharge monitoring requirements described in this Order has been submitted pursuant to Order No.R3-2012-0011 and associated Monitoring and Reporting Programs.

3. The Sampling and Analysis Plan must include the following minimum required components to monitor irrigation water and stormwater discharges:
    a. Number and location of outfalls (identified with latitude and longitude or on a scaled map);
    b. Number and location of monitoring points;
    c. Description of typical irrigation runoff patterns;
    d. Map of discharge and monitoring points;
    e. Sample collection methods;
    f. Monitoring parameters;
    g. Monitoring schedule and frequency of monitoring events;

4. The QAPP must include appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, quality control activities, and documentation.

5. The Sampling and Analysis Plan and QAPP, and any proposed revisions are subject to approval by the Executive Officer. The Executive Officer may require modifications to the Sampling and Analysis Plan or Tier 3 Dischargers may propose Sampling and Analysis Plan modifications for Executive Officer approval, when modifications are justified to accomplish the objectives of the MRP.

Individual Surface Water Discharge Monitoring Points

6. Tier 3 Dischargers must select monitoring points to characterize at least 80% of the estimated maximum irrigation run-off discharge volume from each farm/ranch based on that farm's/ranch's typical discharge patterns[1], including tailwater discharges and discharges from tile drains. Sample must be taken when irrigation activity is causing maximal run-off. Load estimates will be generated by multiplying flow volume of discharge by concentration of contaminants. Tier 3 Dischargers must include at least one monitoring point from each farm/ranch which drains areas where chlorpyrifos or diazinon are applied, and monitoring of runoff or tailwater must be conducted within one week of chemical application. If discharge is not routinely present, Discharger may characterize typical run-off patterns in the Annual Report. See Table 4A for additional details.

7. Tier 3 Dischargers must also monitor storage ponds and other terminal surface water containment structures that collect irrigation and stormwater runoff, unless the structure is (1) part of a tail-water return system where a major portion of the water in such structure is reapplied as irrigation water, or (2) the structure is primarily a sedimentation pond by design with a short hydraulic residence time (96 hours or less) and a discharge to surface water when functioning. If multiple ponds are present, sampling must cover at least those structures that would account for 80% of the maximum storage volume of the containment features. See Table 4B for additional details. Where water is reapplied as irrigation water. Dischargers shall document reuse in the Farm Plan.

Individual Surface Water Discharge Monitoring Parameters, Frequency, and Schedule

8. Tier 3 Dischargers must conduct monitoring for parameters, laboratory analytical methods, frequency and schedule described in Tables 4A and 4B. Dischargers may utilize in-field water testing instruments/equipment as a substitute for laboratory analytical methods if the method is approved by U.S. EPA, meets reporting limits (RL) and practical quantitation limits (PQL) specifications in the MRP, and appropriate sampling methodology and quality assurance checks can be applied to ensure that QAPP standards are met to ensure accuracy of the test.

[1] The requirement to select monitoring points to characterize at least 80% of the estimated maximum irrigation run-off based on typical discharge patterns is for the purposes of attempting to collect samples that represent a majority of the volume of irrigation run-off discharged; however the Board recognizes that predetermining these locations is not always possible and that sampling results may vary. The MRP does not specify the number or location of monitoring points to provide maximum flexibility for growers to determine how many sites necessary and exact locations are given the anticipated site-specific conditions.

9. Tier 3 Dischargers must initiate individual surface water discharge monitoring per an approved Sampling and Analysis Plan and QAPP, unless otherwise directed by the Executive Officer.

B. Individual Surface Water Discharge Reporting

Individual Surface Water Discharge Monitoring Data Submittal

By March 1, 2018, and annually thereafter by March 1, Tier 3 Dischargers must submit individual surface water discharge monitoring data and information to the Central Coast Water Board electronically, in a pdf format, containing at least the following items, or as otherwise approved by the Executive Officer:

a. Electronic laboratory data
- All reports of results must contain Ranch name and Global ID, site name(s), project contact, and date.
- Electronic laboratory data reports of chemical results shall include analytical results, as well as associated quality assurance data including method detection limits, reporting limits, matrix spikes, matrix spike duplicates, laboratory blanks, and other quality assurance results required by the analysis method.
- Electronic laboratory data reports of toxicity results shall include summary results comparable to those required in a CEDEN file delivery, including test and control results. For each test result, the mean, associated control performance, calculated percent of control, statistical test results and determination of toxicity, must be included. Test results must specify the control ID used to calculate statistical outcomes.
- Field data results, including temperature, pH, conductivity, turbidity and flow measurements, any field duplicates or blanks, and field observations.
- Calculations of un-ionized ammonia concentrations
- Calculations of total flow and pollutant loading (for nitrate, pesticides if sampled, total ammonia, and turbidity) (include formulas);

b. Narrative description of typical irrigation runoff patterns;
c. Location of sampling sites and map(s);
d. Sampling and analytical methods used;
e. Specify the method used to obtain flow at each monitoring site during each monitoring event;
f. Photos obtained from all monitoring sites, clearly labeled with location and date;
g. Sample chain-of-custody forms do not need to be submitted but must be made available to Central Coast Water Board staff, upon request.

PART 6. IRRIGATION AND NUTRIENT MANAGEMENT PLAN

Monitoring and reporting requirements related to the Irrigation and Nutrient Management Plan (INMP) identified in Part 6.A., and 6.B, apply to Tier 3 Dischargers identified by the Executive Officer that are newly enrolled in Order No. R3-2017-0002, and Tier 3 Dischargers that were subject to Irrigation and Nutrient Management Plan Requirements in Order R3-2012-0011 per MRP Order No. R3-2012-0011-03 Time schedules are shown in Table 5.

A. Irrigation and Nutrient Management Plan Monitoring

1. Tier 3 Dischargers required in Order No. R3-2012-0011 to develop and initiate implementation of an Irrigation and Nutrient Management Plan (INMP) certified by a Professional Soil Scientist, Professional Agronomist, or Crop Advisor certified by the American Society of Agronomy, or similarly qualified professional, are required to update (as necessary) and implement their INMP throughout the term of this Order.

2. The Executive Officer will assess whether an INMP is required for new Tier 3 Dischargers that enroll in Order No. R3-2017-0002 during the term of the Order. The Executive Officer will use the criteria established in Order No. R3-2012-0011 to make this assessment. If a Tier 3 Discharger is required to develop an INMP, the Tier 3 discharger must develop and initiate implementation of an Irrigation and Nutrient Management Plan (INMP) certified by a Professional Soil Scientist, Professional Agronomist, or Crop Advisor certified by the American Society of Agronomy, or similarly qualified professional, **within 18 months** of the Executive Officer's assessment of the INMP requirement.
3. The purpose of the INMP is to budget and manage the nutrients applied to each farm/ranch considering all sources of nutrients, crop requirements, soil types, climate, and local conditions in order to minimize nitrate loading to surface water and groundwater in compliance with this Order. The professional certification of the INMP must indicate that the relevant expert has reviewed all necessary documentation and testing results, evaluated total nitrogen applied relative to typical crop nitrogen uptake and nitrogen removed at harvest, with consideration to potential nitrate loading to groundwater, and conducted field verification to ensure accuracy of reporting.
4. Tier 3 Dischargers required to develop and initiate implementation an (INMP) must include the following elements in the INMP. The INMP is not submitted to the Central Coast Water Board, with the exception of the INMP Effectiveness Report:
    a. Proof of INMP certification;
    b. Map locating each farm/ranch;
    c. Identification of crop nitrogen uptake values for use in nutrient balance calculations;

d. Record keeping annually by either Method 1 or Method 2:

e. To meet the requirement to record total nitrogen in the soil,dischargers may take a nitrogen soil sample (e.g. laboratory analysis or nitrate quick test) or use an alternative method to evaluate nitrogen content in soil, prior to planting or seeding the field or prior to the time of pre-sidedressing, or at an alternative time when it is most effective to determine nitrogen present in the soil that is available for the next crop and to minimize nitrate leaching to groundwater. The amount of nitrogen remaining in the soil must be accounted for as a source of nitrogen when budgeting, and the soil sample or alternative method results must be maintained in the INMP.

f. Identification of irrigation and nutrient management practices in progress (identify start date), completed (identify completion date), and planned (identify anticipated start date) to reduce nitrate loading to groundwater to achieve compliance with this Order.

g. Description of methods Discharger will use to verify overall effectiveness of the INMP.

5. Tier 3 Dischargers must evaluate the effectiveness of the INMP. Irrigation and Nutrient Management Plan effectiveness monitoring must evaluate reduction in new nitrogen[1] loading potential based on minimized fertilizer use and improved irrigation and nutrient management practices in order to minimize new nitrogen loading to surface water and groundwater. Evaluation methods used may include, but are not limited to analysis of groundwater well monitoring data or soil sample data, or analysis of trends in new nitrogen application data.

B. Irrigation and Nutrient Management Plan Reporting

1. **By March 1, 2019**, Tier 3 Dischargers required to develop and initiate implementation of an INMP must submit an INMP Effectiveness Report to evaluate reductions in nitrate loading to surface water and groundwater based on the implementation of irrigation and nutrient management practices in a format specified by the Executive Officer. Dischargers in the same groundwater basin or subbasin may choose to comply with this requirement as a group by submitting a single report that evaluates the overall effectiveness of the broad scale implementation of irrigation and nutrient management practices identified in individual INMPs to protect groundwater. Group efforts must use data from each farm/ranch (e.g., data from individual groundwater wells, soil samples, or nitrogen application). The INMP

[1] New nitrogen is nitrogen from fertilizers, amendments, and other nitrogen sources applied other than nitrogen present in groundwater.

Effectiveness Report must include a description of the methodology used to evaluate and verify effectiveness of the INMP.

PART 7. WATER QUALITY BUFFER PLAN

Monitoring and reporting requirements related to the Water Quality Buffer Plan identified in Part 7.A. and Part 7.B. apply to Tier 3 Dischargers that have farms/ranches *that contain or are adjacent to waterbody identified on the List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment).* Time schedules are shown in Table 5.

A. **Water Quality Buffer Plan**

1. **By 18 months following enrollment in Order No. R3-2017-0002 of a Tier 3 farm/ranch**, Tier 3 Dischargers adjacent to or containing a waterbody identified on the List of Impaired Waterbodies as impaired for temperature, turbidity or sediment must submit a Water Quality Buffer Plan (WQBP) to the Executive Officer that protects the listed waterbody and its associated perennial and intermittent tributaries. The purpose of the Water Quality Buffer Plan is to prevent waste discharge, comply with water quality standards (e.g., temperature, turbidity, sediment), and protect beneficial uses in compliance with this Order and the following Basin Plan requirement:

   Basin Plan (Chapter 5, p. V-13, Section V.G.4 – Erosion and Sedimentation, *"A filter strip of appropriate width, and consisting of undisturbed soil and riparian vegetation or its equivalent, must be maintained, wherever possible, between significant land disturbance activities and watercourses, lakes, bays, estuaries, marshes, and other water bodies. For construction activities, minimum width of the filter strip must be thirty feet, wherever possible…."*

2. The Water Quality Buffer Plan must include the following or the functional equivalent, to address discharges of waste and associated water quality impairments:

   a. A minimum 30 foot buffer (as measured horizontally from the top of bank on either side of the waterway, or from the high water mark of a lake and mean high tide of an estuary);
   b. Any necessary increases in buffer width to adequately prevent the discharge of waste that may cause or contribute to any excursion above or outside the acceptable range for any Regional, State, or Federal numeric or narrative water quality standard (e.g., temperature, turbidity);

c. Any buffer less than 30 feet must provide equivalent water quality protection and be justified based on an analysis of site-specific conditions and be approved by the Executive Officer;
d. Identification of any alternatives implemented to comply with this requirement, that are functionally equivalent to described buffer;
e. Schedule for implementation;
f. Maintenance provisions to ensure water quality protection;
g. Annual photo monitoring;

2. The WQPB must be submitted using the Water Quality Buffer Plan form, or, if an alternative to the WQBP is submitted, in a format approved by the Executive Officer.

3. **By March 1, 2019**, Tier 3 Dischargers that submitted a WQBP pursuant to Order No. R3-2012-0011 or Order No. R3-2017-0002, are required to update (as necessary) and implement their WQBP, and annually submit a WQBP Status Report of their WQBP implementation using the Water Quality Buffer Plan form, or, if an alternative to the WQBP was submitted, an Alternative to WQBP Status Report, electronically, in a format approved by the Executive Officer.

PART 8. GENERAL MONITORING AND REPORTING REQUIREMENTS

A. Submittal of Technical Reports

1. Dischargers must submit reports in a format specified by the Executive Officer (reports will be submitted electronically, unless otherwise specified by the Executive Officer). A transmittal letter must accompany each report, containing the following penalty of perjury statement signed by the Discharger or the Discharger's authorized agent:

   "In compliance with Water Code §13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision following a system designed to assure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment".

2. If the Discharger asserts that all or a portion of a report submitted pursuant to this Order is subject to an exemption from public disclosure (e.g. trade secrets or secret processes), the Discharger must provide an explanation of how those portions of the reports are exempt from public disclosure. The

Discharger must clearly indicate on the cover of the report (typically an electronic submittal) that the Discharger asserts that all or a portion of the report is exempt from public disclosure, submit a complete report with those portions that are asserted to be exempt in redacted form, submit separately (in a separate electronic file) unredacted pages (to be maintained separately by staff). The Central Coast Water Board staff will determine whether any such report or portion of a report qualifies for an exemption from public disclosure. If the Central Coast Water Board staff disagrees with the asserted exemption from public disclosure, the Central Coast Water Board staff will notify the Discharger prior to making such report or portions of such report available for public inspection.

B. Central Coast Water Board Authority

1. Monitoring reports are required pursuant to section 13267 of the California Water Code. Pursuant to section 13268 of the Water Code, a violation of a request made pursuant to section 13267 may subject you to civil liability of up to $1000 per day.

2. The Water Board needs the required information to determine compliance with Order No.R3-2017-0002. The evidence supporting these requirements is included in the findings of Order No.R3-2017-0002.

John M. Robertson
Executive Officer

Date

Table 1. Major Waterbodies in Agricultural Areas[1]

Hydrologic SubArea	Waterbody Name	Hydrologic SubArea	Waterbody Name
30510	Pajaro River	30920	Quail Creek
30510	Salsipuedes Creek	30920	Salinas Reclamation Canal
30510	Watsonville Slough	31022	Chorro Creek
30510	Watsonville Creek[2]	31023	Los Osos Creek
30510	Beach Road Ditch[2]	31023	Warden Creek
30530	Carnadero Creek	31024	San Luis Obispo Creek
30530	Furlong Creek[2]	31024	Prefumo Creek
30530	Llagas Creek	31031	Arroyo Grande Creek
30530	Miller's Canal	31031	Los Berros Creek
30530	San Juan Creek	31210	Bradley Canyon Creek
30530	Tesquisquita Slough	31210	Bradley Channel
30600	Moro Cojo Slough	31210	Green Valley Creek
30910	Alisal Slough	31210	Main Street Canal
30910	Blanco Drain	31210	Orcutt Solomon Creek
30910	Old Salinas River	31210	Oso Flaco Creek
30910	Salinas River (below Gonzales Rd.)	31210	Little Oso Flaco Creek
30920	Salinas River (above Gonzales Rd. and below Nacimiento R.)	31210	Santa Maria River
30910	Santa Rita Creek[2]	31310	San Antonio Creek[2]
30910	Tembladero Slough	31410	Santa Ynez River
30920	Alisal Creek	31531	Bell Creek
30920	Chualar Creek	31531	Glenn Annie Creek
30920	Espinosa Slough	31531	Los Carneros Creek[2]
30920	Gabilan Creek	31534	Arroyo Paredon Creek
30920	Natividad Creek	31534	Franklin Creek

[1] At a minimum, monitoring sites must be included for these waterbodies in agricultural areas, unless otherwise approved by the Executive Officer. Monitoring sites may be proposed for addition or modification to better assess the impacts of waste discharges from irrigated lands to surface water. Dischargers choosing to comply with surface receiving water quality monitoring, individually (not part of a cooperative monitoring program) must only monitor sites for waterbodies receiving the discharge.

[2] These creeks are included because they are newly listed waterbodies on the 2010 303(d) list of Impaired Waters that are associated with areas of agricultural discharge.

Table 2. Surface Receiving Water Quality Monitoring Parameters

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Photo Monitoring		
Upstream and downstream photographs at monitoring location		With every monitoring event
WATER COLUMN SAMPLING **Physical Parameters and General Chemistry**		
Flow (field measure) (CFS) following SWAMP field SOP[9]	.25	Monthly, including 2 stormwater events
pH (field measure)	0.1	”
Electrical Conductivity (field measure) (µS/cm)	2.5	”
Dissolved Oxygen (field measure) (mg/L)	0.1	”
Temperature (field measure) (°C)	0.1	”
Turbidity (NTU)	0.5	”
Total Dissolved Solids (mg/L)	10	”
Total Suspended Solids (mg/L)	0.5	”
Nutrients		
Total Nitrogen (mg/L)	0.5	Monthly, including 2 stormwater events
Nitrate + Nitrite (as N) (mg/L)	0.1	”
Total Ammonia (mg/L)	0.1	”
Unionized Ammonia (calculated value, mg/L))		”
Total Phosphorus (as P) (mg/L)	0.02	
Soluble Orthophosphate (mg/L)	0.01	”
Water column chlorophyll a (µg/L)	1.0	“
Algae cover, Floating Mats, % coverage	-	“
Algae cover, Attached, % coverage	-	“
Water Column Toxicity Test		
Algae - *Selenastrum capricornutum (*96-hour chronic; Method1003.0 in EPA/821/R-02/013)	-	4 times each year, twice in dry season, twice in wet season
Water Flea – *Ceriodaphnia dubia* (7-day chronic; Method 1002.0 in EPA/821/R-02/013)	-	”
Midge - *Chironomus spp.* (96-hour acute; Alternate test species in EPA 821-R-02-012)	-	“

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Toxicity Identification Evaluation (TIE)	-	As directed by Executive Officer
Pesticides[2] /Herbicides (µg/L)		
Organophosphate Pesticides		
Azinphos-methyl	0.02	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Chlorpyrifos	0.005	”
Diazinon	0.005	”
Dichlorvos	0.01	”
Dimethoate	0.01	”
Dimeton-s	0.005	”
Disulfoton (Disyton)	0.005	”
Malathion	0.005	”
Methamidophos	0.02	”
Methidathion	0.02	“
Parathion-methyl	0.02	“
Phorate	0.01	“
Phosmet	0.02	“
Neonicotinoids		
Thiamethoxam	.002	“
Imidacloprid	.002	“
Thiacloprid	.002	“
Dinotefuran	.006	“
Acetamiprid	.01	“
Clothianidin	.02	
Herbicides		
Atrazine	0.05	“
Cyanazine	0.20	“
Diuron	0.05	“
Glyphosate	2.0	“
Linuron	0.1	“
Paraquat	0.20	“
Simazine	0.05	“
Trifluralin	0.05	“
Metals (µg/L)		
Arsenic (total) [5,7]	0.3	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Boron (total) [6,7]	10	“
Cadmium (total & dissolved) [4.5,7]	0.01	“

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Copper (total and dissolved) [4,7]	0.01	“
Lead (total and dissolved) [4,7]	0.01	“
Nickel (total and dissolved) [4,7]	0.02	“
Molybdenum (total) [7]	1	“
Selenium (total)[7]	0.30	“
Zinc (total and dissolved) [4.5,7]	0.10	“
Other (µg/L)		
Total Phenolic Compounds[8]	5	2 times in 2017, once in spring (April-May) and once in fall (August-September)
Hardness (mg/L as CaCO3)	1	“
Total Organic Carbon (ug/L)	0.6	“
SEDIMENT SAMPLING		
Sediment Toxicity - *Hyalella azteca* 10-day static renewal (EPA, 2000)		2 times each year, once in spring (April-May) and once in fall (August-September)
Pyrethroid Pesticides in Sediment (µg/kg)		
Gamma-cyhalothrin	2	2 times in both 2017 and 2018, once in spring (April-May) and once in fall (August-September) of each year, concurrent with sediment toxicity sampling
Lambda-cyhalothrin	2	“
Bifenthrin	2	“
Beta-cyfluthrin	2	“
Cyfluthrin	2	“
Esfenvalerate	2	“
Permethrin	2	“
Cypermethrin	2	“
Danitol	2	“
Fenvalerate	2	“
Fluvalinate	2	“
Other Monitoring in Sediment		
Chlorpyrifos (µg/kg)	2	“
Total Organic Carbon	0.01%	“
		“
Sediment Grain Size Analysis	1%	“

[1]Monitoring is ongoing through all five years of the Order, unless otherwise specified. Monitoring frequency may be used as a guide for developing alternative Sampling and Analysis Plan.
[2]Pesticide list may be modified based on specific pesticide use in Central Coast Region. Analytes on this list must be reported, at a minimum.
[3] Reporting Limit, taken from SWAMP where applicable.

[4] Holmgren, Meyer, Cheney and Daniels. 1993. Cadmium, Lead, Zinc, Copper and Nickel in Agricultural Soils of the United States. J. of Environ. Quality 22:335-348.
[5] Sax and Lewis, ed. 1987. Hawley's Condensed Chemical Dictionary. 11th ed. New York: Van Nostrand Reinhold Co., 1987. Zinc arsenate is an insecticide.
[6] Http://www.coastalagro.com/products/labels/9%25BORON.pdf; Boron is applied directly or as a component of fertilizers as a plant nutrient.
[7] Madramootoo, Johnston, Willardson, eds. 1997. Management of Agricultural Drainage Water Quality. International Commission on Irrigation and Drainage. U.N. FAO. SBN 92-6-104058.3.
[8] http://cat.inist.fr/?aModele=afficheN&cpsidt=14074525; Phenols are breakdown products of herbicides and pesticides. Phenols can be directly toxic and cause endocrine disruption.
[9] See SWAMP field measures SOP, p. 17
mg/L – milligrams per liter; ug/L – micrograms per liter; ug/kg – micrograms per kilogram;
NTU – Nephelometric Turbidity Units; CFS – cubic feet per second;

Table 3. Groundwater Monitoring Parameters

Parameter	RL	Analytical Method[3]	Units
pH	0.1	Field or Laboratory Measurement EPA General Methods	pH Units
Specific Conductance	2.5		µS/cm
Total Dissolved Solids	10		mg/L
Total Alkalinity as $CaCO_3$	1	EPA Method 310.1 or 310.2	
Calcium	0.05	General Cations[1] EPA 200.7, 200.8, 200.9	
Magnesium	0.02		
Sodium	0.1		
Potassium	0.1		
Sulfate (SO_4)	1.0	General Anions EPA Method 300 or EPA Method 353.2	
Chloride	0.1		
Nitrate + Nitrite (as N)[2] *or* Nitrate as N	0.1		

[1] General chemistry parameters (major cations and anions) represent geochemistry of water bearing zone and assist in evaluating quality assurance/quality control of groundwater monitoring and laboratory analysis.
[2] The MRP allows analysis of "nitrate plus nitrite" to represent nitrate concentrations (as N). The "nitrate plus nitrite" analysis allows for extended laboratory holding times and relieves the Discharger of meeting the short holding time required for nitrate.
[3] Dischargers may use alternative analytical methods approved by EPA.
RL – Reporting Limit; µS/cm – micro siemens per centimeter

Table 4A. Individual Discharge Monitoring for Tailwater, Tile drain, and Stormwater Discharges

Parameter	Analytical Method[1]	Maximum PQL	Units	Min Monitoring Frequency
Discharge Flow or Volume	Field Measure	---	CFS	(a) (d)
Approximate Duration of Flow	Calculation	---	hours/month	
Temperature (water)	Field Measure	0.1	°Celsius	
pH	Field Measure	0.1	pH units	

Electrical Conductivity	Field Measure	100	µS/cm	
Turbidity	SM 2130B, EPA 180.1	1	NTUs	
Nitrate + Nitrite (as N)	EPA 300.1, EPA 353.2	0.1	mg/L	
Ammonia	SM 4500 NH3, EPA 350.3	0.1	mg/L	
Chlorpyrifos[2]	EPA 8141A, EPA 614	0.02	ug/L	(b) (c) (d)
Diazinon[2]				
Ceriodaphnia Toxicity (96-hr acute)	EPA-821-R-02-012	NA	% Survival	
Hyalella Toxicity in Water (96-hr acute)	EPA-821-R-02-012	NA	% Survival	

[1] In-field water testing instruments/equipment as a substitute for laboratory analysis if the method is approved by EPA, meets RL/PQL specifications in the MRP, and appropriate sampling methodology and quality assurance checks can be applied to ensure that QAPP standards are met to ensure accuracy of the test.
[2]If chlorpyrifos or diazinon is used at the farm/ranch, otherwise does not apply. The Executive Officer may require monitoring of other pesticides based on results of downstream receiving water monitoring.
(a) Two times per year during primary irrigation season for farms/ranches less than or equal to 500 acres, and four times per year during primary irrigation season for farms/ranches greater than 500 acres. Executive Officer may reduce sampling frequency based on water quality improvements.
(b) Once per year during primary irrigation season for farms/ranches less than or equal to 500 acres, and two times per year during primary irrigation season for farms/ranches greater than 500 acres.
(c) Sample must be collected within one week of chemical application, if chemical is applied on farm/ranch;
(d) Once per year during wet season (October – March) for farms/ranches less than or equal to 500 acres, and two times per year during wet season for farms/ranches greater than 500 acres, within 18 hours of major storm events;
CFS – Cubic feet per second; NTU – Nephelometric turbidity unit; PQL – Practical Quantitation Limit;
NA – Not applicable

Table 4B. Individual Discharge Monitoring for Tailwater Ponds and other Surface Containment Features

Parameter	Analytical Method[1]	Maximum PQL	Units	Minimum Monitoring Frequency
Volume of Pond	Field Measure	1	Gallons	(a) (d)
Nitrate + Nitrite (as N)	EPA 300.1, EPA 353.2	50	mg/L	

[1] In-field water testing instruments/equipment as a substitute for laboratory analysis if the method is approved by EPA, meets RL/PQL specifications in the MRP, and appropriate sampling methodology and quality assurance checks can be applied to ensure that QAPP standards are met to ensure accuracy of the test.
(a) Four times per year during primary irrigation season; Executive Officer may reduce monitoring frequency based on water quality improvements.
(d) Two times per year during wet season (October – March, within 18 hours of major storm events)

Table 5. Tier 3 - Time Schedule for Key Monitoring and Reporting Requirements (MRPs)

REQUIREMENT	TIME SCHEDULE[1]
Submit Sampling And Analysis Plan and Quality Assurance Project Plan (SAAP/QAPP) for Surface Receiving Water Quality Monitoring (*individually or*	By March 1, 2018, or as directed by the Executive Officer; satisfied if an approved SAAP/QAPP has been submitted pursuant

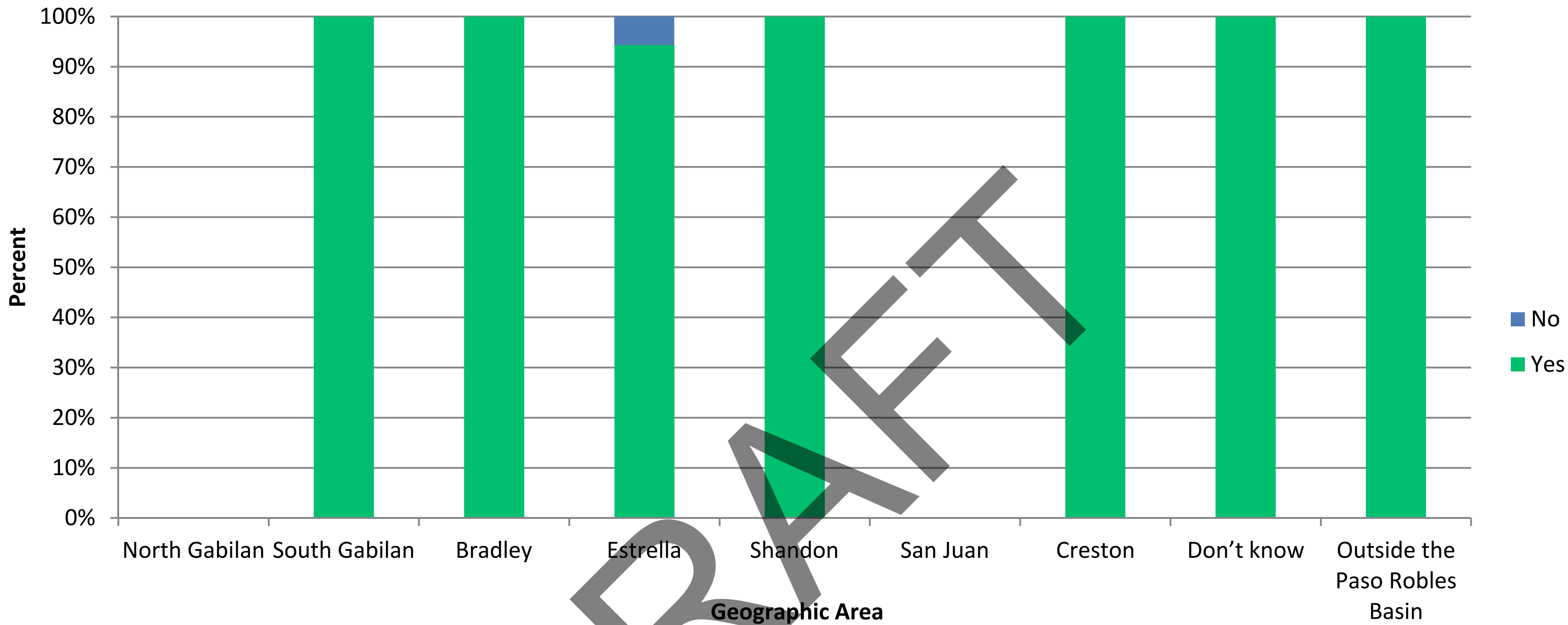
through cooperative monitoring program)	to Order No. R3-2012-0011 and associated MRPs
Initiate surface receiving water quality monitoring (*individually or through cooperative monitoring program*)	Per an approved SAAP and QAPP
Submit surface receiving water quality monitoring data (*individually or through cooperative monitoring program*)	Each January 1, April 1, July 1, and October 1
Submit surface receiving water quality Annual Monitoring Report (*individually or through cooperative monitoring program*)	By July 1 2017; annually thereafter by July 1
Initiate monitoring of groundwater wells	First sample from March-June 2017, second sample from September-December 2017
Submit individual surface water discharge SAAP and QAPP	By March 1, 2018 or as directed by the Executive Officer; waived if an approved SAAP and QAPP has been submitted and being implemented pursuant to Order No. R3-2012-0011.
Initiate individual surface water discharge monitoring	As described in an approved SAAP and QAPP
Submit individual surface water discharge monitoring data	March 1, 2018, and every March 1 annually thereafter
Submit electronic Annual Compliance Form	March 1, 2018 and every March 1 annually thereafter
Submit groundwater monitoring results	Within 60 days of the sample collection
Submit Water Quality Buffer Plan or alternative	Within 18 months of enrolling new Tier 3 farm/ranch in Order
Submit Status Report on Water Quality Buffer Plan or alternative	March 1, 2019
Tier 3 Dischargers with farms/ranches growing high risk crops:	
Report total nitrogen applied on the Total Nitrogen Applied form	March 1, 2018 and every March 1 annually thereafter
Submit INMP Effectiveness Report	March 1, 2019

[1] Dates are relative to adoption of this Order, unless otherwise specified.

Appendix G

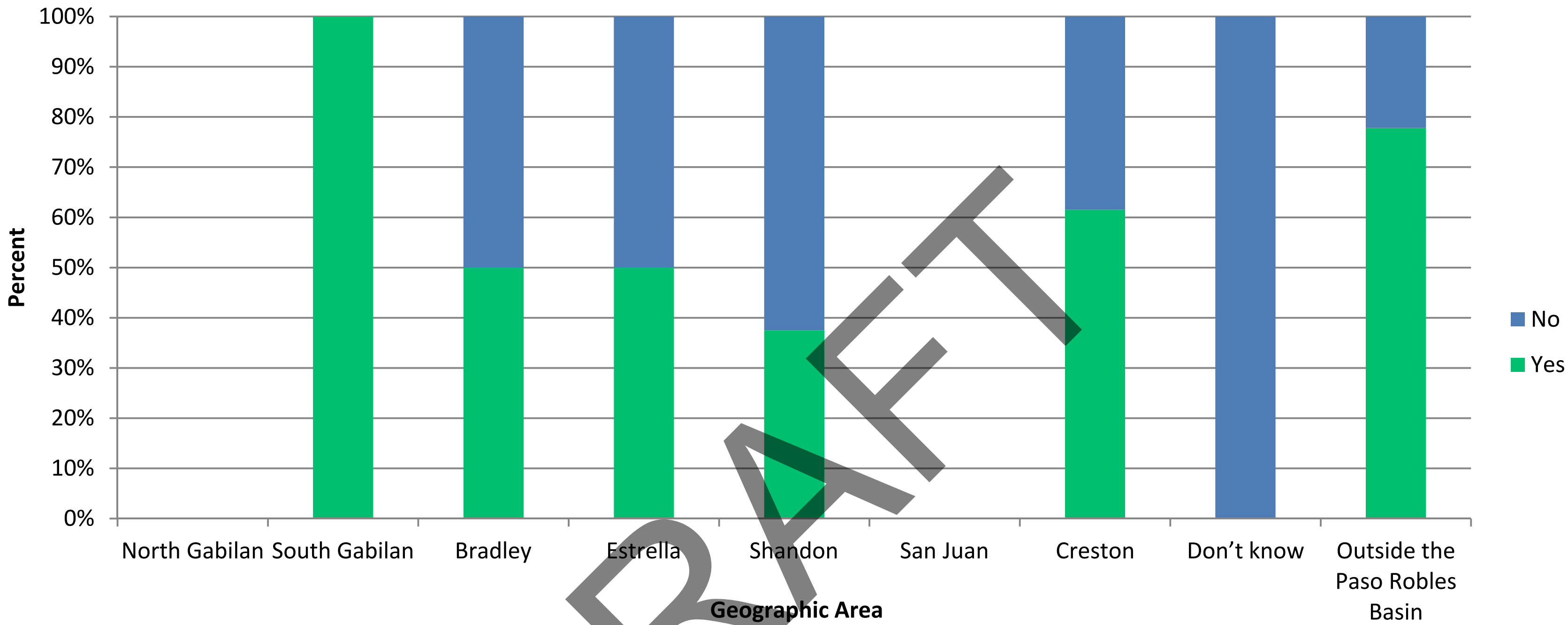
Sustainable Management Criteria Survey Results

Have you heard about the Sustainable Groundwater Management Act (SGMA) Groundwater Sustainability Plan (GSP) process?



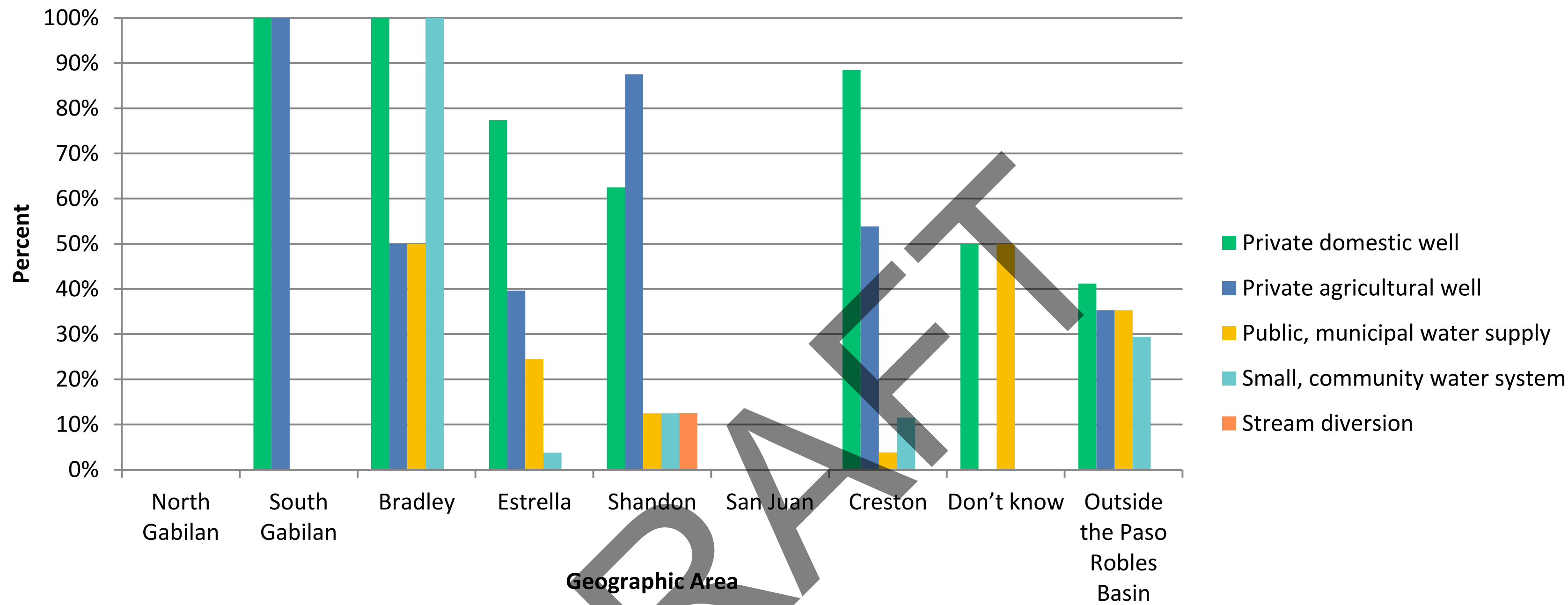
Geographic Area	Yes		No		Total	
	Percent	Count	Percent	Count	Percent	Count
North Gabilan	0%	0	0%	0	0%	0
South Gabilan	100%	1	0%	0	1%	1
Bradley	100%	2	0%	0	2%	2
Estrella	94%	50	6%	3	48%	53
Shandon	100%	8	0%	0	7%	8
San Juan	0%	0	0%	0	0%	0
Creston	100%	26	0%	0	23%	26
Don't know	100%	2	0%	0	2%	2
Outside the Paso Robles Basin	100%	19	0%	0	17%	19
Total	97%	108	3%	3	100%	111
					Answered	111
					Skipped	0

Have you been involved in other water supply public processes in the past?



Geographic Area	Yes		No		Total	
	Percent	Count	Percent	Count	Percent	Count
North Gabilan	0%	0	0%	0	0%	0
South Gabilan	100%	1	0%	0	1%	1
Bradley	50%	1	50%	1	2%	2
Estrella	50%	26	50%	26	48%	52
Shandon	38%	3	63%	5	7%	8
San Juan	0%	0	0%	0	0%	0
Creston	62%	16	38%	10	24%	26
Don’t know	0%	0	100%	2	2%	2
Outside the Paso Robles Basin	78%	14	22%	4	17%	18
Total	56%	61	44%	48	100%	109
					Answered	109
					Skipped	2

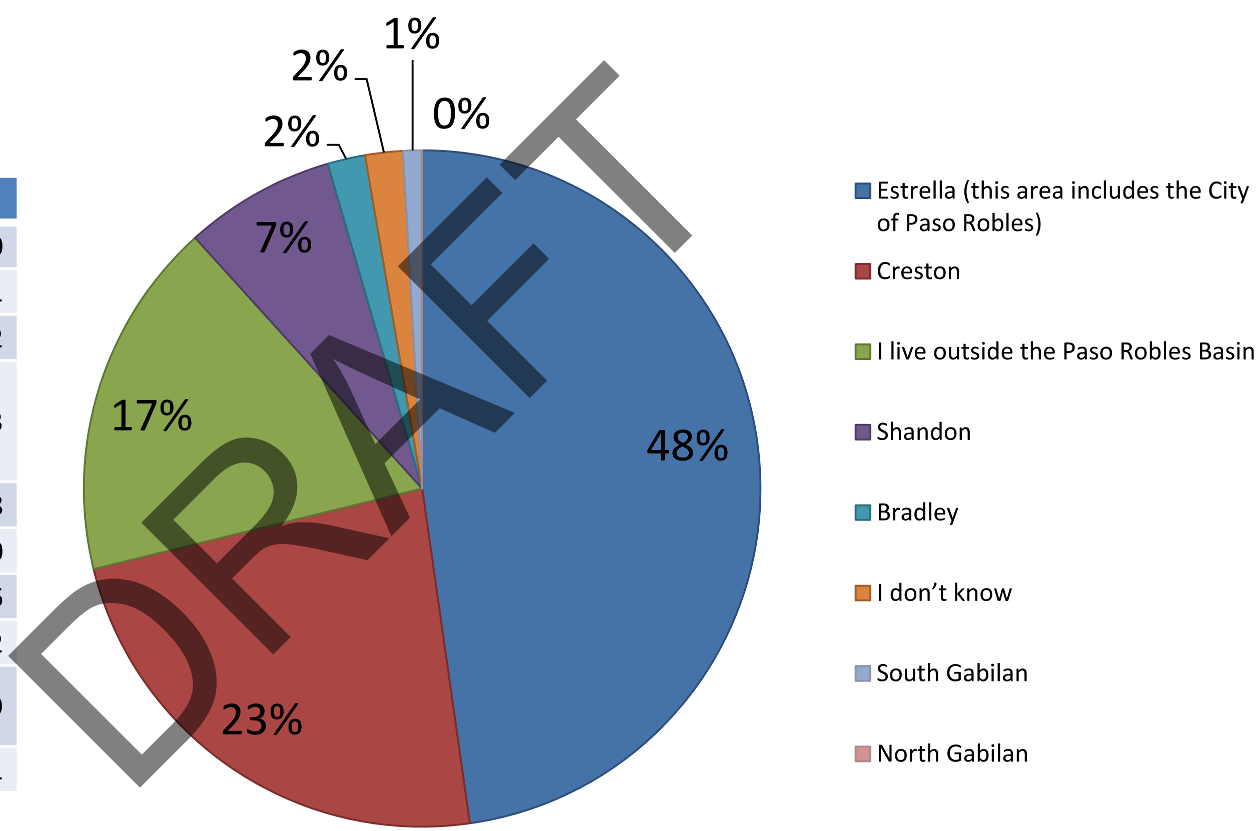
Which water sources do you use? (select all that apply)



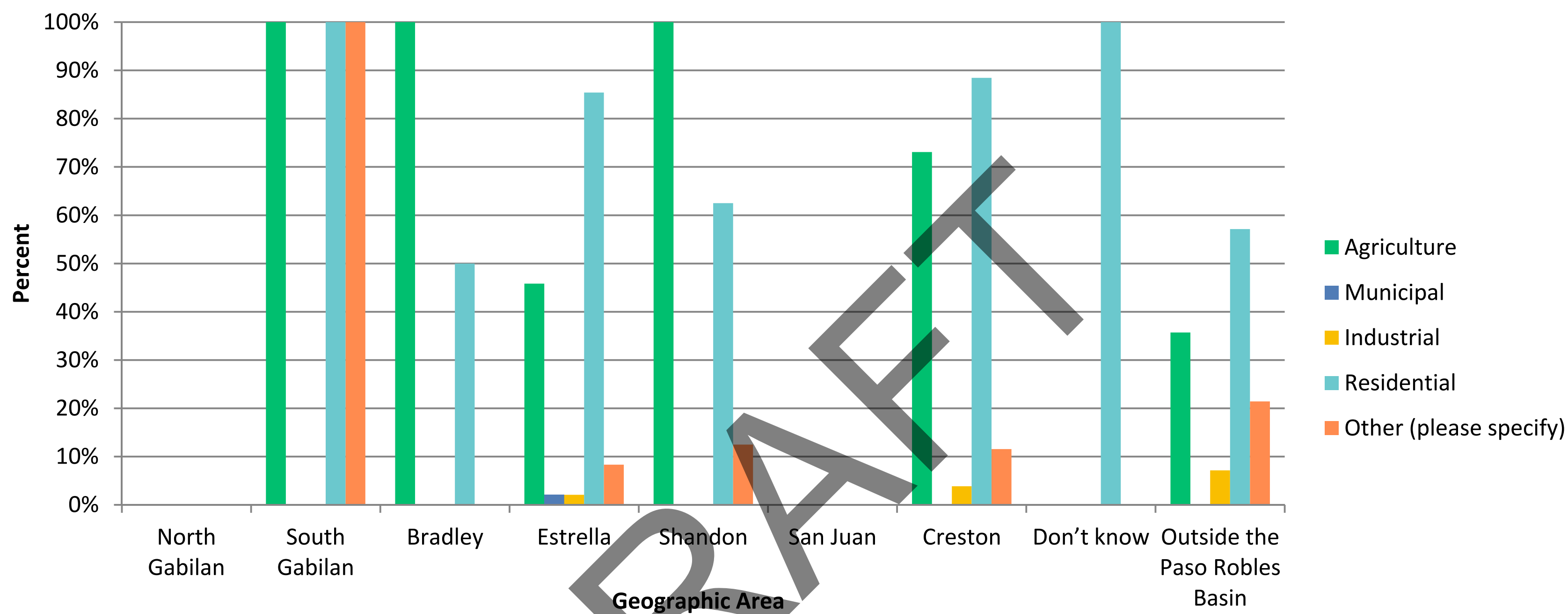
Geographic Area	Private domestic well		Private agricultural well		Public, municipal water supply		Small, community water system		Stream diversion		Total	
	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
South Gabilan	100%	1	100%	1	0%	0	0%	0	0%	0	1%	1
Bradley	100%	2	50%	1	50%	1	100%	2	0%	0	2%	2
Estrella	77%	41	40%	21	25%	13	4%	2	0%	0	49%	53
Shandon	63%	5	88%	7	13%	1	13%	1	13%	1	7%	8
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
Creston	88%	23	54%	14	4%	1	12%	3	0%	0	24%	26
Don't know	50%	1	0%	0	50%	1	0%	0	0%	0	2%	2
Outside the Paso Robles Basin	41%	7	35%	6	35%	6	29%	5	0%	0	16%	17
Total	73%	80	46%	50	21%	23	12%	13	1%	1	100%	109
											Answered	109
											Skipped	2

Which geographic area do you live in?

Geographic Area	Percent	Count
North Gabilan	0%	0
South Gabilan	1%	1
Bradley	2%	2
Estrella (this area includes the City of Paso Robles)	48%	53
Shandon	7%	8
San Juan	0%	0
Creston	23%	26
I don't know	2%	2
I live outside the Paso Robles Basin	17%	19
Total	100%	111



If you pump groundwater, what do you use it for? (check all that apply)



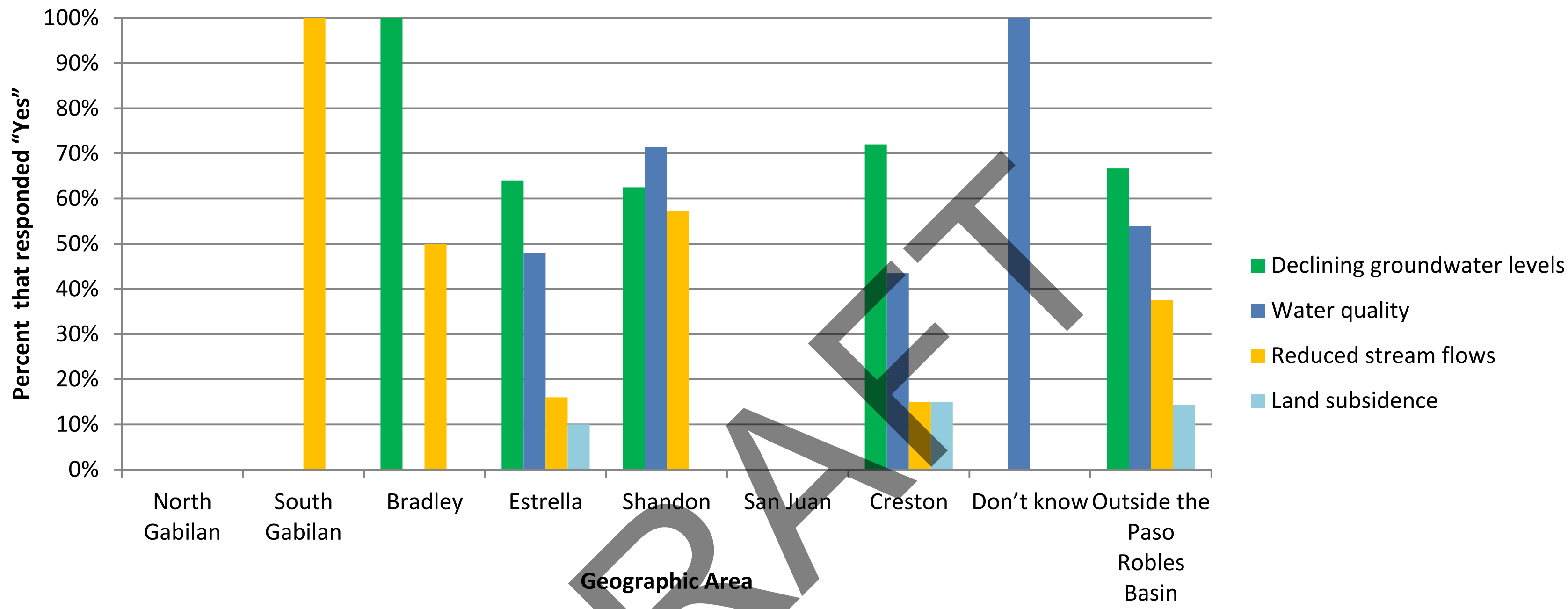
Geographic Area	Agriculture		Municipal		Industrial		Residential		Other (please specify)		Total	
	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
South Gabilan	100%	1	0%	0	0%	0	100%	1	100%	1	1%	1
Bradley	100%	2	0%	0	0%	0	50%	1	0%	0	2%	2
Estrella	46%	22	2%	1	2%	1	85%	41	8%	4	48%	48
Shandon	100%	8	0%	0	0%	0	63%	5	13%	1	8%	8
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
Creston	73%	19	0%	0	4%	1	88%	23	12%	3	26%	26
Don't know	0%	0	0%	0	0%	0	100%	1	0%	0	1%	1
Outside the Paso Robles Basin	36%	5	0%	0	7%	1	57%	8	21%	3	14%	14
Total	57%	57	1%	1	3%	3	80%	80	12%	12	100%	100
											Answered	100
											Skipped	11

Please rank the following potential negative impacts to groundwater based on your level of concern, with 1 representing the impact of greatest concern.

Impact	Rank:	1		2		3		4		Total		Weighted Score
Declining groundwater levels	North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0.0
	South Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0.0
	Bradley	0%	0	100%	1	0%	0	0%	0	1%	1	2.0
	Estrella	76%	35	17%	8	7%	3	0%	0	42%	46	1.3
	Shandon	83%	5	0%	0	17%	1	0%	0	5%	6	1.3
	San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0.0
	Creston	83%	20	8%	2	4%	1	4%	1	22%	24	1.3
	Don’t know	100%	2	0%	0	0%	0	0%	0	2%	2	1.0
	Outside the Paso Robles Basin	79%	15	16%	3	5%	1	0%	0	17%	19	1.3
	Total	70%	77	13%	14	5%	6	1%	1	100%	110	1.2
Water Quality	North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0.0
	South Gabilan	0%	0	100%	1	0%	0	0%	0	1%	1	2.0
	Bradley	100%	1	0%	0	0%	0	0%	0	1%	1	1.0
	Estrella	17%	8	55%	26	26%	12	2%	1	43%	47	2.1
	Shandon	33%	2	50%	3	17%	1	0%	0	5%	6	1.8
	San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0.0
	Creston	9%	2	74%	17	17%	4	0%	0	21%	23	2.1
	Don’t know	0%	0	100%	1	0%	0	0%	0	1%	1	2.0
	Outside the Paso Robles Basin	6%	1	72%	13	22%	4	0%	0	16%	18	2.2
	Total	13%	14	55%	61	19%	21	1%	1	100%	110	1.8
Reduced stream flows	North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0.0
	South Gabilan	100%	1	0%	0	0%	0	0%	0	1%	1	1.0
	Bradley	50%	1	0%	0	50%	1	0%	0	2%	2	2.0
	Estrella	2%	1	11%	5	52%	24	35%	16	42%	46	3.2
	Shandon	20%	1	60%	3	0%	0	20%	1	5%	5	2.2
	San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0.0
	Creston	5%	1	0%	0	75%	15	20%	4	18%	20	3.1
	Don’t know	0%	0	50%	1	50%	1	0%	0	2%	2	2.5
	Outside the Paso Robles Basin	6%	1	6%	1	61%	11	28%	5	16%	18	3.1
	Total	5%	6	9%	10	47%	52	24%	26	100%	110	2.6
Land subsidence	North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0.0
	South Gabilan	0%	0	0%	0	0%	0	100%	1	1%	1	4.0
	Bradley	0%	0	0%	0	50%	1	50%	1	2%	2	3.5
	Estrella	15%	7	13%	6	19%	9	54%	26	44%	48	3.1
	Shandon	0%	0	0%	0	40%	2	60%	3	5%	5	3.6
	San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0.0
	Creston	0%	0	14%	3	10%	2	76%	16	19%	21	3.6
	Don’t know	0%	0	0%	0	0%	0	100%	1	1%	1	4.0
	Outside the Paso Robles Basin	11%	2	6%	1	11%	2	72%	13	16%	18	3.4
	Total	8%	9	9%	10	15%	16	55%	61	100%	110	2.9

Have you been negatively impacted by the following?

Figure and table below show results for those who responded “Yes”



	Declining groundwater levels		Water quality		Reduced stream flows		Land subsidence	
Geographic Area	Percent	Count	Percent	Count	Percent	Count	Percent	Count
North Gabilan	0%	0	0%	0	0%	0	0%	0
South Gabilan	0%	0	0%	0	100%	1	0%	0
Bradley	100%	2	0%	0	50%	1	0%	0
Estrella	64%	32	48%	24	16%	8	10%	5
Shandon	63%	5	71%	5	57%	4	0%	0
San Juan	0%	0	0%	0	0%	0	0%	0
Creston	72%	18	43%	10	15%	3	15%	3
Don’t know	0%	0	100%	1	0%	0	0%	0
Outside the Paso Robles Basin	67%	10	54%	7	38%	6	14%	2
Total	62%	67	44%	47	21%	23	9%	10

Have you been negatively impacted by the following?

Responses from Creston				
Declining groundwater levels	Water quality	Reduced stream flows	Land subsidence-	Negative impacts:
No	No	No	No	
No	No	No		
Yes	Yes	No	No	
No	Yes	No	Yes	WATER LINES BREAKING
Yes	Yes	No	No	
Yes	No	No	No	
No	No	No	No	
No	No			
Yes	No			
Yes				Well ran dry.
Yes	No	No	Yes	
Yes				Had to stop watering my garden and. Lost apple and apricot trees. Could no longer have a food garden.
Yes	Yes	No	No	
Yes	Yes	Yes	No	
No	No	No	No	Not sure... How are individuals supposed to know the water quality characteristics?
Yes	No	No	No	Drill new deeper wells
Yes	Yes		No	We have given up our lawns and our vegetable garden and limited our baths/showers and wear clothes longer before washing.
No	No	No	No	
Yes	No	No	No	
Yes	No	No	No	Moderate decline in static water level. In close proximity to Windfall Farms who pumps constantly. Also in proximity to a newly planted very large vineyard with new pumping. The risk of adverse impact on our groundwater is very high.
				No ,none of the above
Yes	Yes	No	No	
Yes	Yes	No	No	Greatly reduced groundwater level and poor water quality in new well.
Yes	No	No	No	Dramatic decrease in aquifer level and need to drop pump in 2015
Yes	Yes	Yes	No	obvious increase in hardness of water; trees in creek dying; well levels not returning during average rain year.
Yes	Yes	Yes	Yes	

Have you been negatively impacted by the following?

Responses from Estrella				
Declining groundwater levels	Water quality	Reduced stream flows	Land subsidence-	Negative impacts:
Yes	Yes	Yes	No	
Yes	Yes	Yes	No	
Yes	Yes	No	No	2 dry wells
No	Yes	No	No	
No	No	No	No	
Yes	No	No	No	
No	Yes	No	No	Salt build-up in soil
Yes	Yes	No	No	
No	No	No	No	
Yes	Yes	Yes	Yes	well water level is very close to pump, have to have a new well drilled
Yes	Yes	No	No	
Yes	Yes	No	Yes	
No	No	No	No	
Yes	Yes	Yes	No	Each citizen within the basin is impacted by these whether aware or not. As these impacts increase the economic burden will increase, the communal burden will increase i.e. loss of natural beauty and shared public spaces, decisions of who gets water who does not. Increased public strife and division.
No	No	No	No	
Yes	No	No	No	
Yes	Yes	No	No	Had to lower the pumps Have to treat our water to combat water quality
Yes	Yes	No	Yes	Water quality has decreased with the concentration of salts in our wells.
No	No	No	No	
No	No	No	No	
No	No	No	No	
Yes	Yes	No	No	
No	Yes	No	No	Increased salinity
Yes	Yes	No	No	
No	Yes	No	No	
Yes	No	No	No	No measurements on water quality, but water table has dropped significantly since late 1990's

Have you been negatively impacted by the following?

Responses from Estrella Continued				
Declining groundwater levels	Water quality	Reduced stream flows	Land subsidence-	Negative impacts:
	No	No	No	Well static level has dropped 50’
No	Yes	No	No	increased salts, boron, etc.
No	Yes	No	No	
No	No	No	No	The city's attempt to take over right to my well water
Yes	Yes	No	No	Forced to install a second, larger holding tank and drop our well pump. When we purchased the home, the water tasted great and we had no problem with excess calcium build-up. Now it does not taste the same and we have excessive mineral build-up.
Yes	No	No	No	Cost per ac-ft increased due to declining levels.
Yes	No	No	No	
No	No	No	No	
Yes	No	No	Yes	
Yes	No	No	No	
No	No	No	No	
Yes	No	Yes	No	Quickly declining static water level in our well. Recharge rate reduced. Pumping volume reduced.
Yes	No	Yes	No	the water level in our well has dropped 50+ feet in the last four years
No	No	No	No	
Yes	Yes	Yes	No	The level of arsenic in our groundwater caused us to have to obtain a grant to correct the problem.
Yes	Yes		No	Higher energy costs, lowering in water quality and quantity
Yes	No	No	No	
Yes	Yes	No	No	My job and livelihood depends upon wine grape production and having a balanced and sustainable management of the groundwater basin for ALL should be achievable.
				Need more info.
Yes	Yes	No	No	
Yes	No	No	No	
Yes	No	No	Yes	Paid $35,000 for a new well 2 months ago!!!
Yes	No	Yes	No	I had to drill a much deeper well.
Yes	No	No	No	Static water level of our well has dropped 35' since 2011
No	No	No	No	
Yes	Yes			My 350 foot well went dry. Had to drill a new one

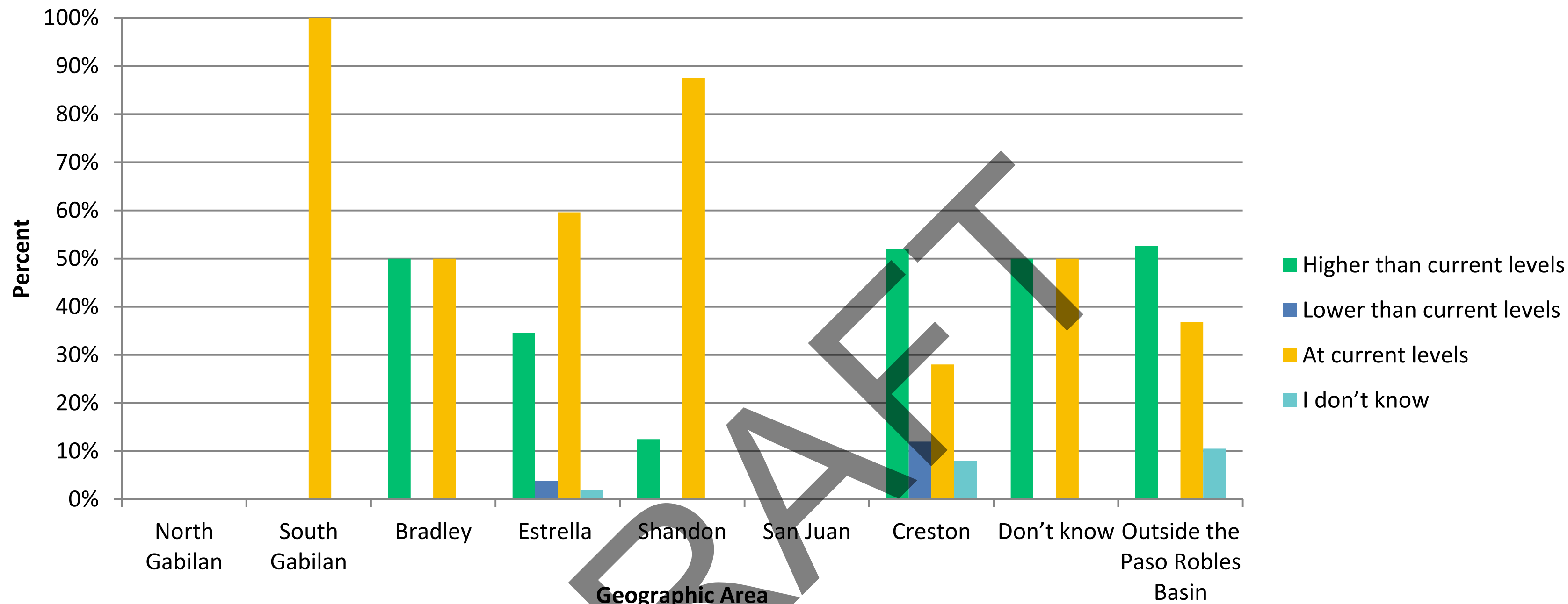
Have you been negatively impacted by the following?

Responses from Outside the Paso Robles Basin				
Declining groundwater levels	Water quality	Reduced stream flows	Land subsidence-	Negative impacts:
Yes		Yes	Yes	Fisheries, aquatic life,quality of life
Yes	Yes	Yes	No	Irrigation limitations.
Yes	No	Yes	No	
Yes	Yes	No	No	
No	No	No	No	
No	No	No	No	
Yes	No	No	No	
No	Yes	No	No	blowing dust in the wind
No	Yes	No	No	
		Yes		
		Yes		Reduced Steelhead spawning and rearing habitat. Riparian vegetation decline.
Yes				Wellntel's clients in the Paso basin are negatively impacted by declining groundwater levels.
Yes	No	No	No	
No	No	No	No	
Yes	Yes	Yes	Yes	
Yes	Yes	No	No	In Shandon over the last 90 years GW levels have declined and water quality has been reduced to a degree in some wells.
Yes	Yes	No	No	
Yes		Yes	Yes	Fisheries, aquatic life,quality of life
Yes	Yes	Yes	No	Irrigation limitations.
Yes	No	Yes	No	
Yes	Yes	No	No	
No	No	No	No	
No	No	No	No	
Yes	No	No	No	

Have you been negatively impacted by the following?

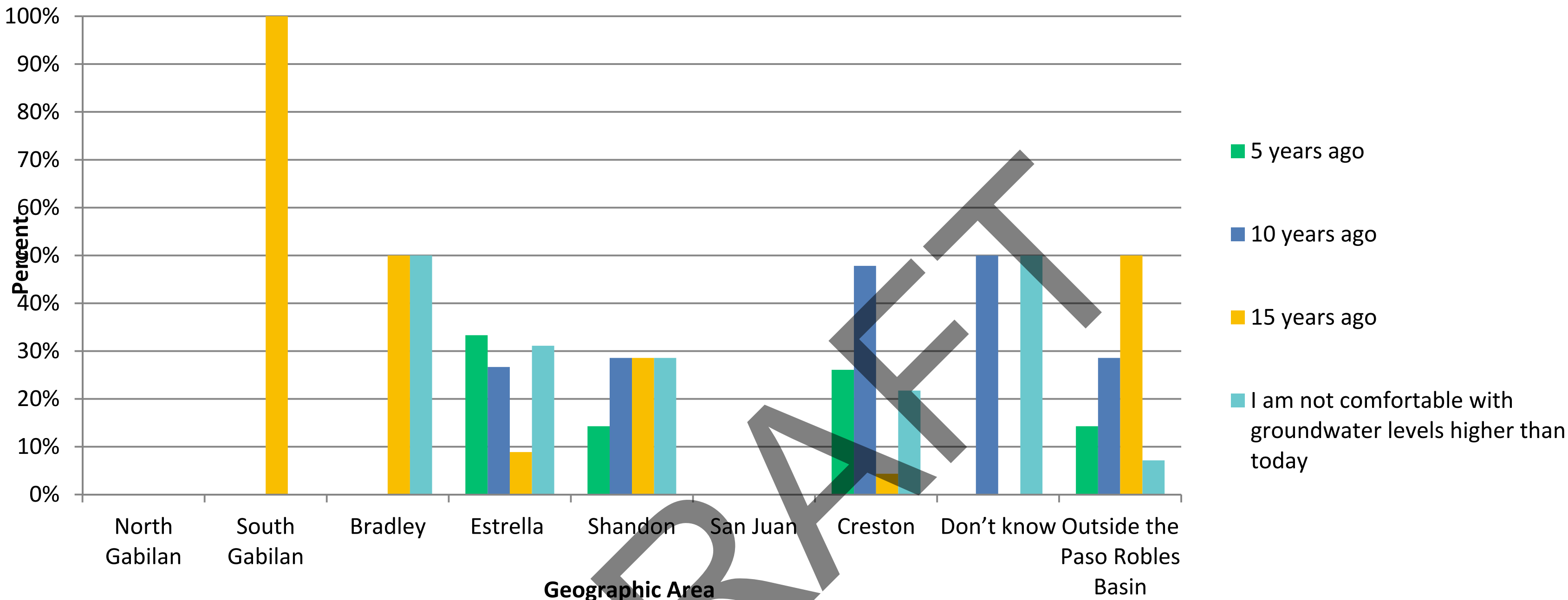
Declining groundwater levels	Water quality	Reduced stream flows	Land subsidence-	Negative impacts:
Responses from Bradley				
Yes	No	No	No	
Yes	No	Yes	No	Nacimiento recreation uses impaired by Monterey County dam releases. Limited water availability overall increases water usage in some agri-businesses. State water law creates contentiousness in water access.
Responses from Don't Know				
No	Yes	No	No	
				Not yet, many friends have lost their wells
Responses from South Gabilan				
No	No	Yes	No	Due to lack of rainfall, stream reduction results in less water penetrating the upper hardpan and replenishing the substrata and ground water.
Responses from Shandon				
No	Yes	No	No	
Yes	No	No	No	
Yes	Yes	No	No	Cost of water and lack of quality
Yes				Lost a well adjacent to vineyard property
Yes	Yes	Yes	No	Cost of pumping from groundwater levels and brackish water quality
No	Yes	Yes	No	
Yes	No	Yes	No	loss of grazing forage, loss of wildlife habitat, increased business expense/cost
No	Yes	Yes	No	

Raising groundwater levels requires developing new water supplies or reducing pumping; both of which have a financial cost. Lowering groundwater levels will allow increased pumping, but may dry out shallower (domestic) wells or streams. 20 years from now, would you be most satisfied with groundwater levels in your part of the basin that are stable at:



Geographic Area	Higher than current levels		Lower than current levels		At current levels		I don't know		Total	
	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0
South Gabilan	0%	0	0%	0	100%	1	0%	0	1%	1
Bradley	50%	1	0%	0	50%	1	0%	0	2%	2
Estrella	35%	18	4%	2	60%	31	2%	1	48%	52
Shandon	13%	1	0%	0	88%	7	0%	0	7%	8
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0
Creston	52%	13	12%	3	28%	7	8%	2	23%	25
Don't know	50%	1	0%	0	50%	1	0%	0	2%	2
Outside the Paso Robles Basin	53%	10	0%	0	37%	7	11%	2	17%	19
Total	40%	44	5%	5	50%	55	5%	5	100%	109
									Answered	109
									Skipped	2

If the basin is maintained higher than current levels, additional water must be imported or pumping must be reduced. Knowing that higher groundwater levels will result in higher costs, please complete the following statement. I am comfortable with groundwater levels that would stabilize at levels seen: (select one)

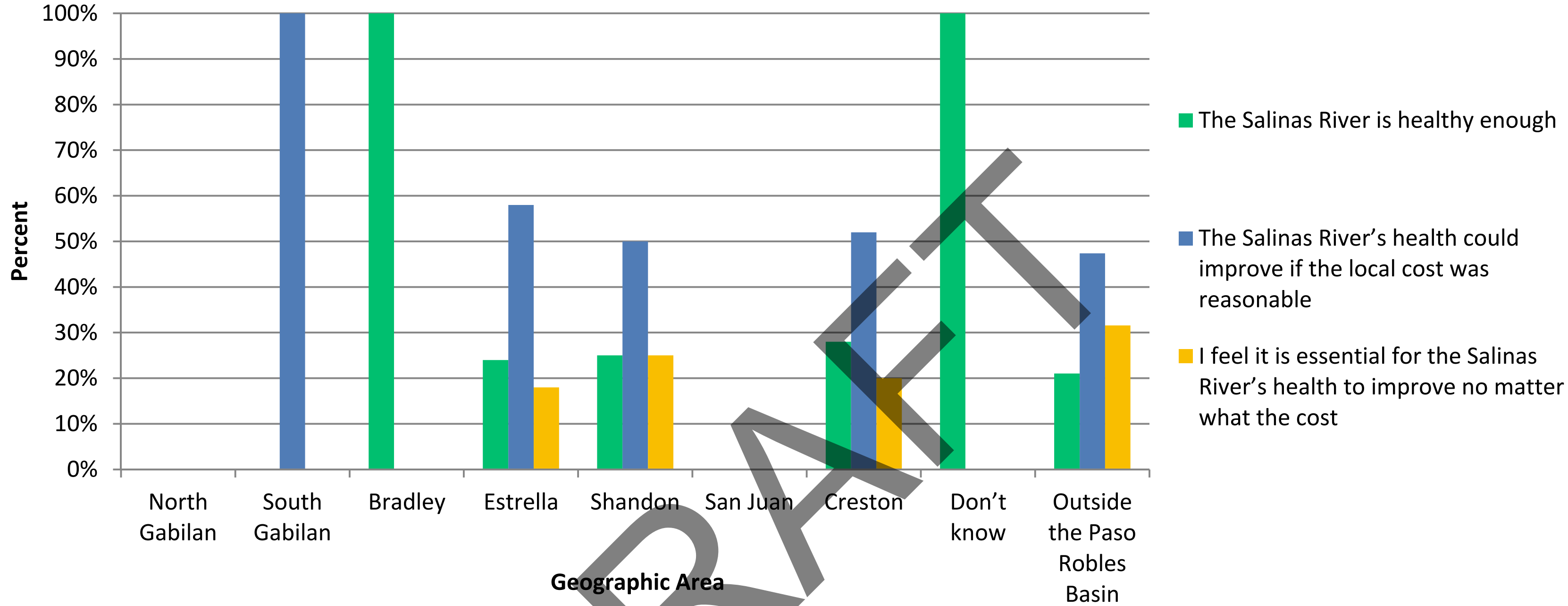


Geographic Area	5 years ago		10 years ago		15 years ago		I am not comfortable with groundwater levels higher than today		Total	
	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0
South Gabilan	0%	0	0%	0	100%	1	0%	0	1%	1
Bradley	0%	0	0%	0	50%	1	50%	1	2%	2
Estrella	33%	15	27%	12	9%	4	31%	14	48%	45
Shandon	14%	1	29%	2	29%	2	29%	2	7%	7
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0
Creston	26%	6	48%	11	4%	1	22%	5	24%	23
Don't know	0%	0	50%	1	0%	0	50%	1	2%	2
Outside the Paso Robles Basin	14%	2	29%	4	50%	7	7%	1	15%	14
Total	26%	24	32%	30	17%	16	26%	24	100%	94
Other (please specify)									20%	19
									Answered	94
									Skipped	17

If the basin is maintained at lower than current levels, domestic wells or local streams may dry out. How much lower, approximately, could groundwater levels drop before they are too low? If you do not believe levels should drop, leave the slider at zero.

Responses from Creston	Responses from Estrella	Responses from Don't know	Responses from Outside the Paso Robles Basin	Responses from Shandon	Responses from South Gabilan
102	100	13	1	3	0
0	0		100	0	
200	100		150	0	
0	15		50	0	
75	0		0	110	
0	100		0		
45	0		0		
0	401		0		
114	50		0		
0	251		0		
0	0		2		
0	1		49		
0	0				
	0				
	1				
	250				
	208				
	0				
	301				
	0				
	0				
	400				
	40				
	500				
	23				
	275				
	0				
	0				
	0				
	0				
	34				
	201				

Which statement best describes your opinion of the health (in terms of stream flow and water quality) of the Salinas River in the Paso Robles Basin?



Geographic Area	The Salinas River is healthy enough		The Salinas River’s health could improve if the local cost was reasonable		I feel it is essential for the Salinas River’s health to improve no matter what the cost		Total	
	Percent	Count	Percent	Count	Percent	Count	Percent	Count
North Gabilan	0%	0	0%	0	0%	0	0%	0
South Gabilan	0%	0	100%	1	0%	0	1%	1
Bradley	100%	2	0%	0	0%	0	2%	2
Estrella	24%	12	58%	29	18%	9	47%	50
Shandon	25%	2	50%	4	25%	2	8%	8
San Juan	0%	0	0%	0	0%	0	0%	0
Creston	28%	7	52%	13	20%	5	24%	25
Don’t know	100%	1	0%	0	0%	0	1%	1
Outside the Paso Robles Basin	21%	4	47%	9	32%	6	18%	19
Total	26%	28	53%	56	21%	22	100%	106
							Answered	106
							Skipped	5

Do you feel that the health of Salinas River in the Paso Robles Basin is negatively impacted by the following? Please indicate on a scale of 1 (least impact) to 5 (most impact): Limited releases from Santa Margarita Lake (Salinas Reservoir)

Geographic Area	Least impact 1		2		Moderate impact 3		4		Most impact 5		Total		Weighted Average
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
South Gabilan	0%	0	100%	1	0%	0	0%	0	0%	0	1%	1	2
Bradley	0%	0	0%	0	50%	1	50%	1	0%	0	2%	2	3.5
Estrella	14%	7	20%	10	22%	11	22%	11	20%	10	46%	49	3.14
Shandon	38%	3	13%	1	25%	2	13%	1	13%	1	8%	8	2.5
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
Creston	13%	3	17%	4	38%	9	13%	3	21%	5	23%	24	3.13
Don't know	0%	0	100%	1	0%	0	0%	0	0%	0	1%	1	2
Outside the Paso Robles Basin	22%	4	11%	2	11%	2	28%	5	28%	5	17%	18	3.28
Total	16%	17	18%	19	24%	25	20%	21	20%	21	100%	106	3.01
												Answered	106
												Skipped	5

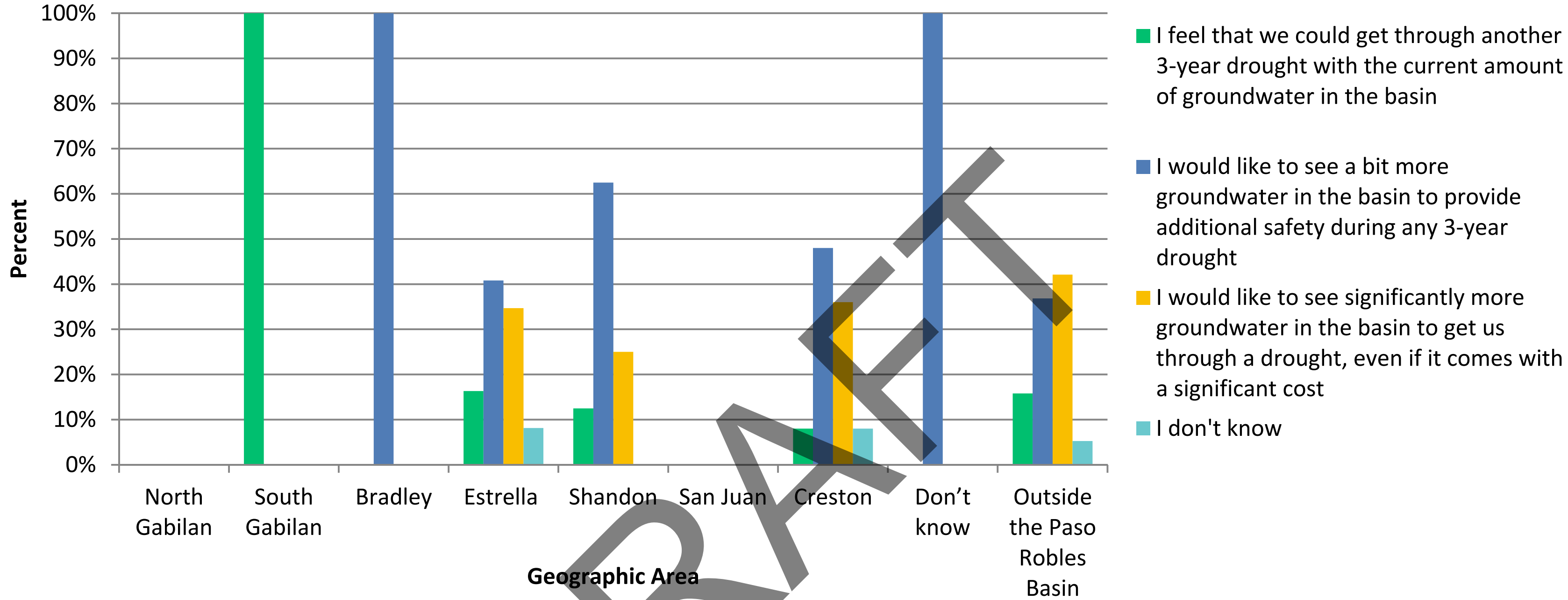
Do you feel that the health of Salinas River in the Paso Robles Basin is negatively impacted by the following? Please indicate on a scale of 1 (least impact) to 5 (most impact): People directly diverting water from the Salinas River in and upstream of the Paso Robles Basin

Geographic Area	Least impact 1		2		Moderate impact 3		4		Most impact 5		Total		Weighted Average
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
South Gabilan	100%	1	0%	0	0%	0	0%	0	0%	0	1%	1	1
Bradley	0%	0	0%	0	50%	1	0%	0	50%	1	2%	2	4
Estrella	10%	5	12%	6	34%	17	26%	13	18%	9	47%	50	3.3
Shandon	13%	1	38%	3	25%	2	13%	1	13%	1	8%	8	2.75
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
Creston	20%	5	12%	3	28%	7	16%	4	24%	6	24%	25	3.12
Don't know	0%	0	100%	1	0%	0	0%	0	0%	0	1%	1	2
Outside the Paso Robles Basin	28%	5	0%	0	33%	6	22%	4	17%	3	17%	18	3
Total	16%	17	12%	13	31%	33	21%	22	19%	20	100%	106	3.11
												Answered	106
												Skipped	5

Do you feel that the health of Salinas River in the Paso Robles Basin is negatively impacted by the following? Please indicate on a scale of 1 (least impact) to 5 (most impact): Groundwater wells pulling water from, or preventing water from getting to, the Salinas River

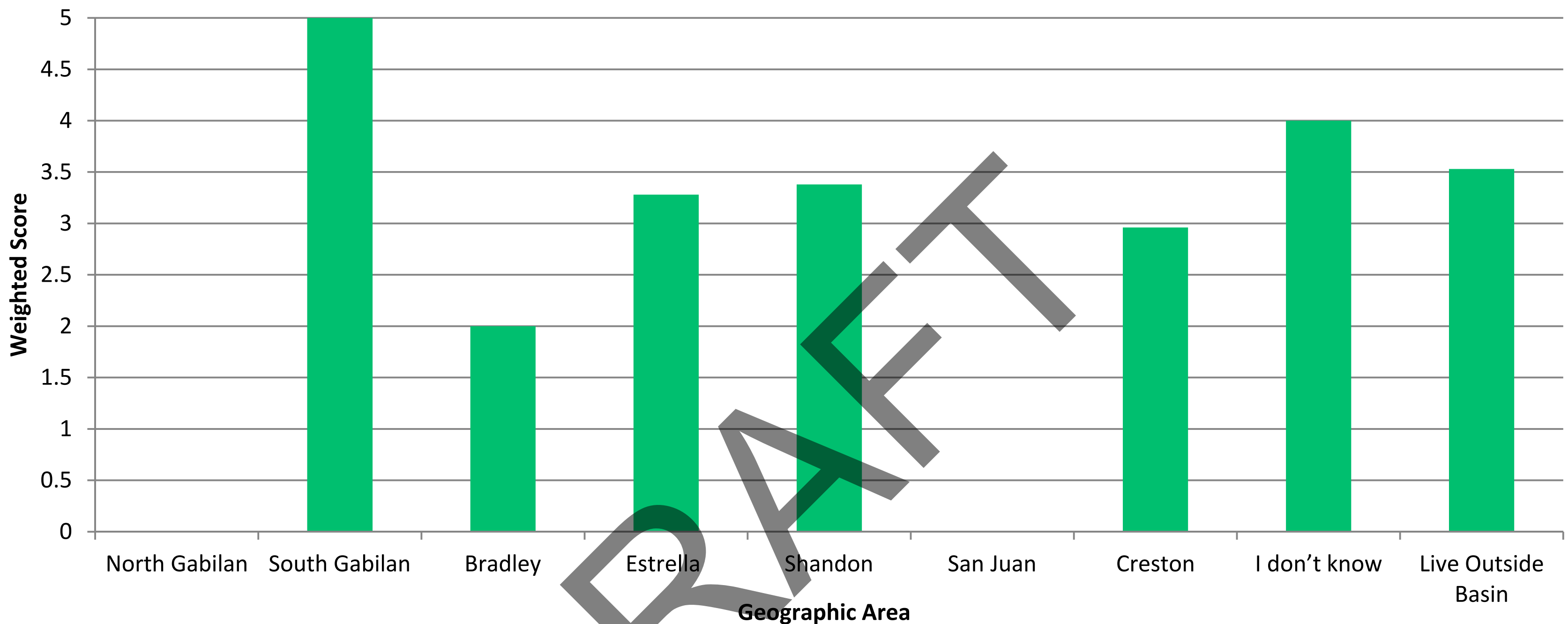
Geographic Area	Least impact 1		2		Moderate impact 3		4		Most impact 5		Total		Weighted Average
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
South Gabilan	0%	0	0%	0	100%	1	0%	0	0%	0	1%	1	3
Bradley	50%	1	0%	0	50%	1	0%	0	0%	0	2%	2	2
Estrella	18%	9	10%	5	30%	15	20%	10	22%	11	47%	50	3.18
Shandon	13%	1	13%	1	25%	2	13%	1	38%	3	8%	8	3.5
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
Creston	12%	3	12%	3	27%	7	8%	2	42%	11	25%	26	3.58
Don't know	0%	0	100%	1	0%	0	0%	0	0%	0	1%	1	2
Outside the Paso Robles Basin	17%	3	6%	1	28%	5	22%	4	28%	5	17%	18	3.39
Total	16%	17	10%	11	29%	31	16%	17	28%	30	100%	106	3.30
												Answered	106
												Skipped	5

Which statement best describes your opinion about the amount of groundwater stored in the Paso Robles Basin?



Geographic Area	I feel that we could get through another 3-year drought with the current amount of groundwater in the basin		I would like to see a bit more groundwater in the basin to provide additional safety during any 3-year drought		I would like to see significantly more groundwater in the basin to get us through a drought, even if it comes with a significant cost		I don't know		Total	
	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0
South Gabilan	100%	1	0%	0	0%	0	0%	0	1%	1
Bradley	0%	0	100%	2	0%	0	0%	0	2%	2
Estrella	16%	8	41%	20	35%	17	8%	4	47%	49
Shandon	13%	1	63%	5	25%	2	0%	0	8%	8
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0
Creston	8%	2	48%	12	36%	9	8%	2	24%	25
Don't know	0%	0	100%	1	0%	0	0%	0	1%	1
Outside the Paso Robles Basin	16%	3	37%	7	42%	8	5%	1	18%	19
Total	14%	15	45%	47	34%	36	7%	7	100%	105
									Answered	105
									Skipped	6

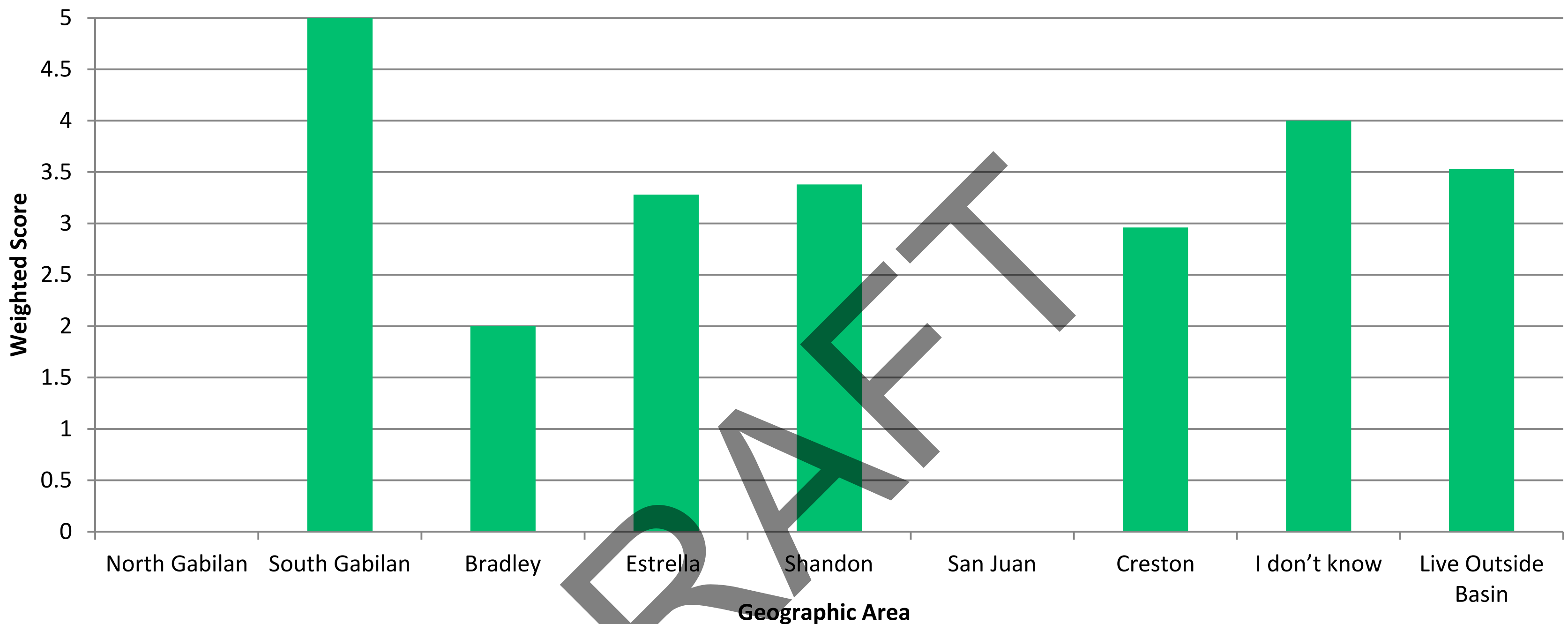
Reaching sustainability will likely require some concessions. On a scale of 1 (most acceptable concession) to 5 (least acceptable concession), how would you rate the following concessions that may be necessary to reach sustainability?
Lower groundwater levels in the future, even if they are stable



Geographic Area	most acceptable				moderately acceptable				least acceptable				
	1		2		3		4		5		Total		Weighted Score
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
South Gabilan	0%	0	0%	0	0%	0	0%	0	100%	1	1%	1	5
Bradley	50%	1	0%	0	50%	1	0%	0	0%	0	2%	2	2
Estrella	19%	9	11%	5	23%	11	17%	8	30%	14	47%	47	3.28
Shandon	0%	0	0%	0	75%	6	13%	1	13%	1	8%	8	3.38
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
Creston	17%	4	26%	6	22%	5	13%	3	22%	5	23%	23	2.96
I don’t know	0%	0	0%	0	0%	0	100%	1	0%	0	1%	1	4
Live Outside Basin	11%	2	11%	2	37%	7	0%	0	42%	8	19%	19	3.53
Total	16%	16	13%	13	30%	30	13%	13	29%	29	100%	101	
												Answered	101
												Skipped	10

Reaching sustainability will likely require some concessions. On a scale of 1 (most acceptable concession) to 5 (least acceptable concession), how would you rate the following concessions that may be necessary to reach sustainability?

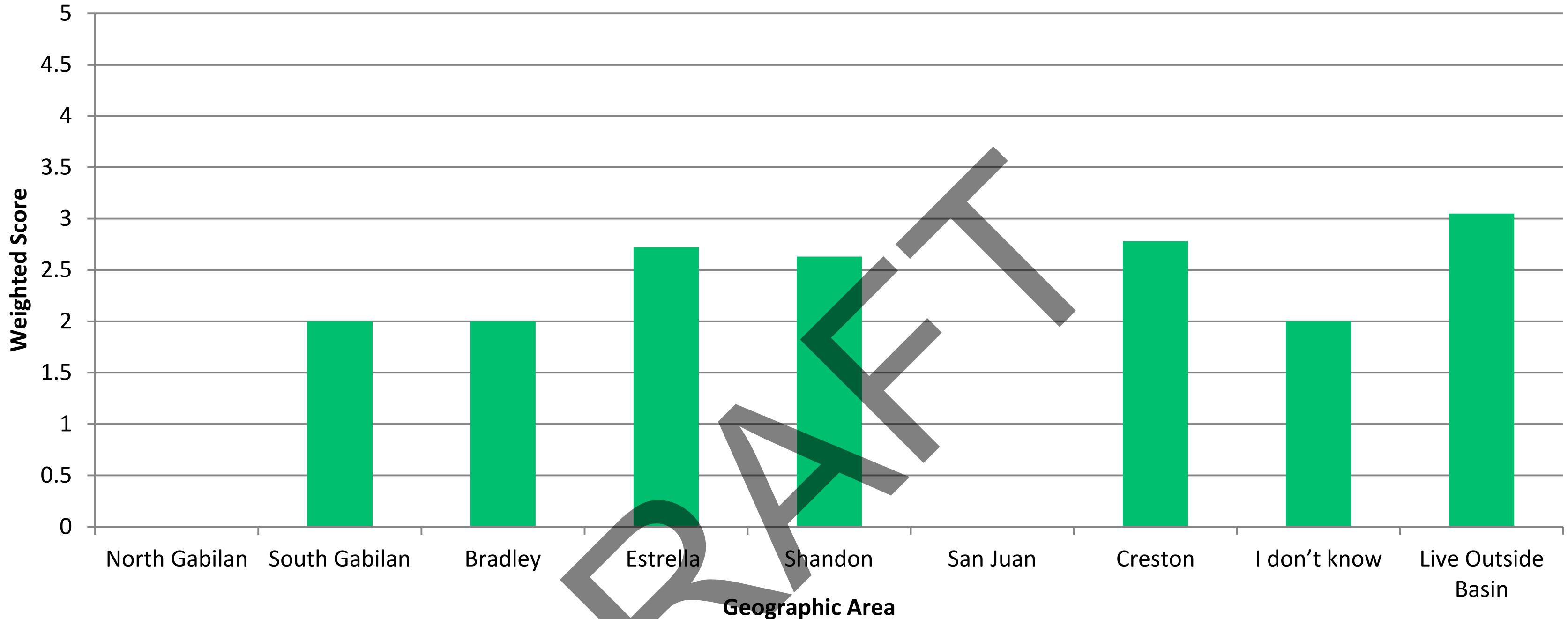
Restrictions on pumping in dry years when groundwater levels might be low



Geographic Area	most acceptable				moderately acceptable				least acceptable				
	1		2		3		4		5		Total		Weighted Score
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
South Gabilan	0%	0	0%	0	0%	0	0%	0	100%	1	1%	1	5
Bradley	50%	1	0%	0	50%	1	0%	0	0%	0	2%	2	2
Estrella	19%	9	11%	5	23%	11	17%	8	30%	14	47%	47	3.28
Shandon	0%	0	0%	0	75%	6	13%	1	13%	1	8%	8	3.38
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
Creston	17%	4	26%	6	22%	5	13%	3	22%	5	23%	23	2.96
I don't know	0%	0	0%	0	0%	0	100%	1	0%	0	1%	1	4
Live Outside Basin	11%	2	11%	2	37%	7	0%	0	42%	8	19%	19	3.53
Total	16%	16	13%	13	30%	30	13%	13	29%	29	100%	101	
												Answered	**101**
												Skipped	**10**

Reaching sustainability will likely require some concessions. On a scale of 1 (most acceptable concession) to 5 (least acceptable concession), how would you rate the following concessions that may be necessary to reach sustainability?

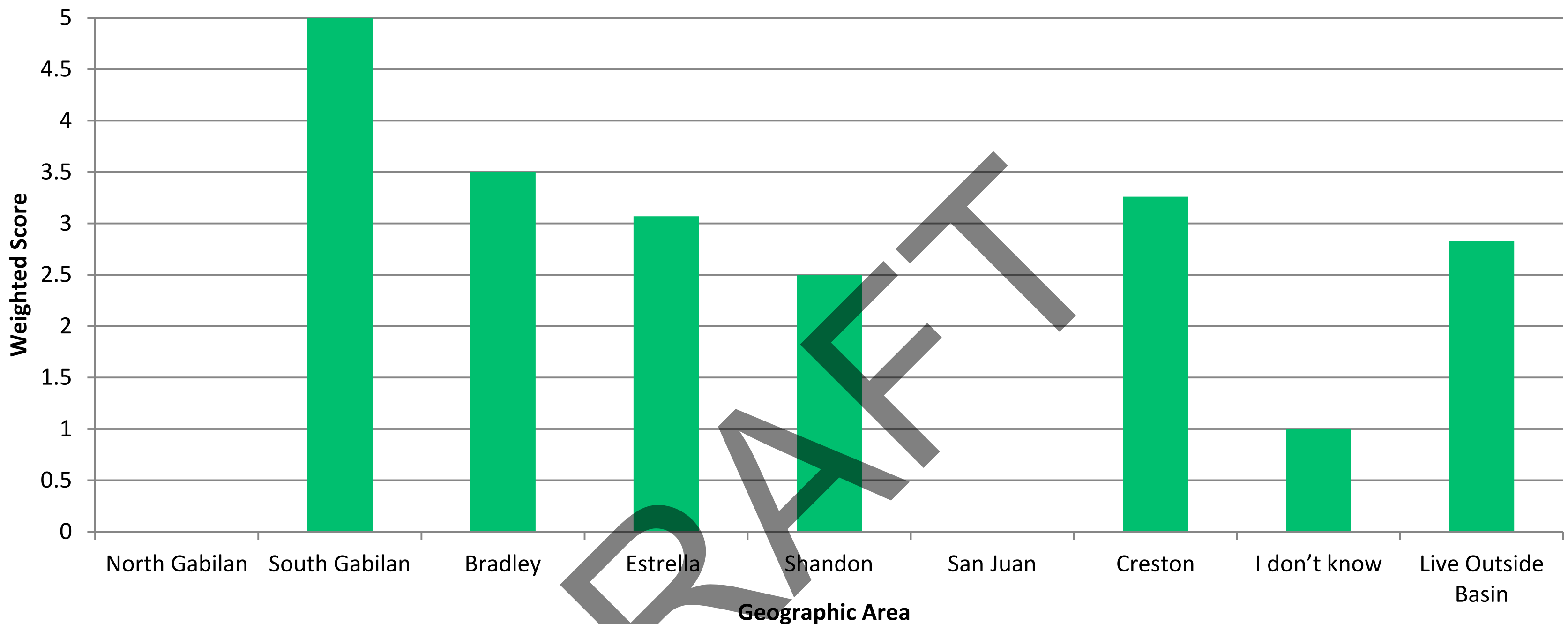
Less flow in the Salinas River



Geographic Area	most acceptable				moderately acceptable				least acceptable				
	1		2		3		4		5		Total		Weighted Score
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
South Gabilan	0%	0	100%	1	0%	0	0%	0	0%	0	1%	1	2
Bradley	50%	1	0%	0	50%	1	0%	0	0%	0	2%	2	2
Estrella	20%	9	22%	10	41%	19	2%	1	15%	7	46%	46	2.72
Shandon	25%	2	25%	2	25%	2	13%	1	13%	1	8%	8	2.63
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
Creston	22%	5	17%	4	35%	8	13%	3	13%	3	23%	23	2.78
I don't know	0%	0	100%	1	0%	0	0%	0	0%	0	1%	1	2
Live Outside Basin	21%	4	11%	2	26%	5	26%	5	16%	3	19%	19	3.05
Total	21%	21	20%	20	35%	35	10%	10	14%	14	100%	101	
												Answered	**101**
												Skipped	**10**

Reaching sustainability will likely require some concessions. On a scale of 1 (most acceptable concession) to 5 (least acceptable concession), how would you rate the following concessions that may be necessary to reach sustainability?

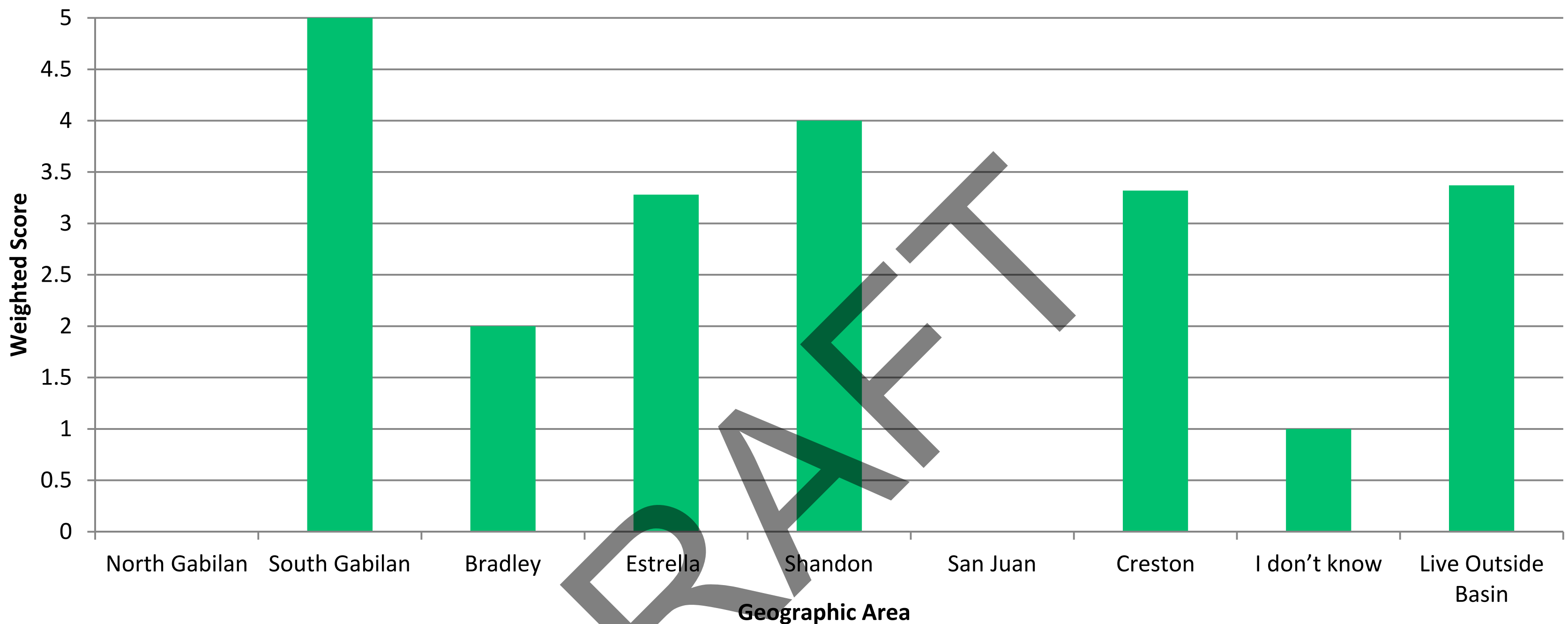
A requirement to reduce pumping to maintain creek flows



Geographic Area	most acceptable				moderately acceptable				least acceptable				
	1		2		3		4		5		Total		Weighted Score
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
South Gabilan	0%	0	0%	0	0%	0	0%	0	100%	1	1%	1	5
Bradley	0%	0	0%	0	50%	1	50%	1	0%	0	2%	2	3.5
Estrella	11%	5	22%	10	31%	14	20%	9	16%	7	45%	45	3.07
Shandon	38%	3	13%	1	25%	2	13%	1	13%	1	8%	8	2.5
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
Creston	17%	4	13%	3	26%	6	13%	3	30%	7	23%	23	3.26
I don't know	100%	1	0%	0	0%	0	0%	0	0%	0	1%	1	1
Live Outside Basin	28%	5	6%	1	28%	5	33%	6	6%	1	18%	18	2.83
Total	18%	18	15%	15	28%	28	20%	20	17%	17	100%	101	
											Answered		**101**
											Skipped		**10**

Reaching sustainability will likely require some concessions. On a scale of 1 (most acceptable concession) to 5 (least acceptable concession), how would you rate the following concessions that may be necessary to reach sustainability?

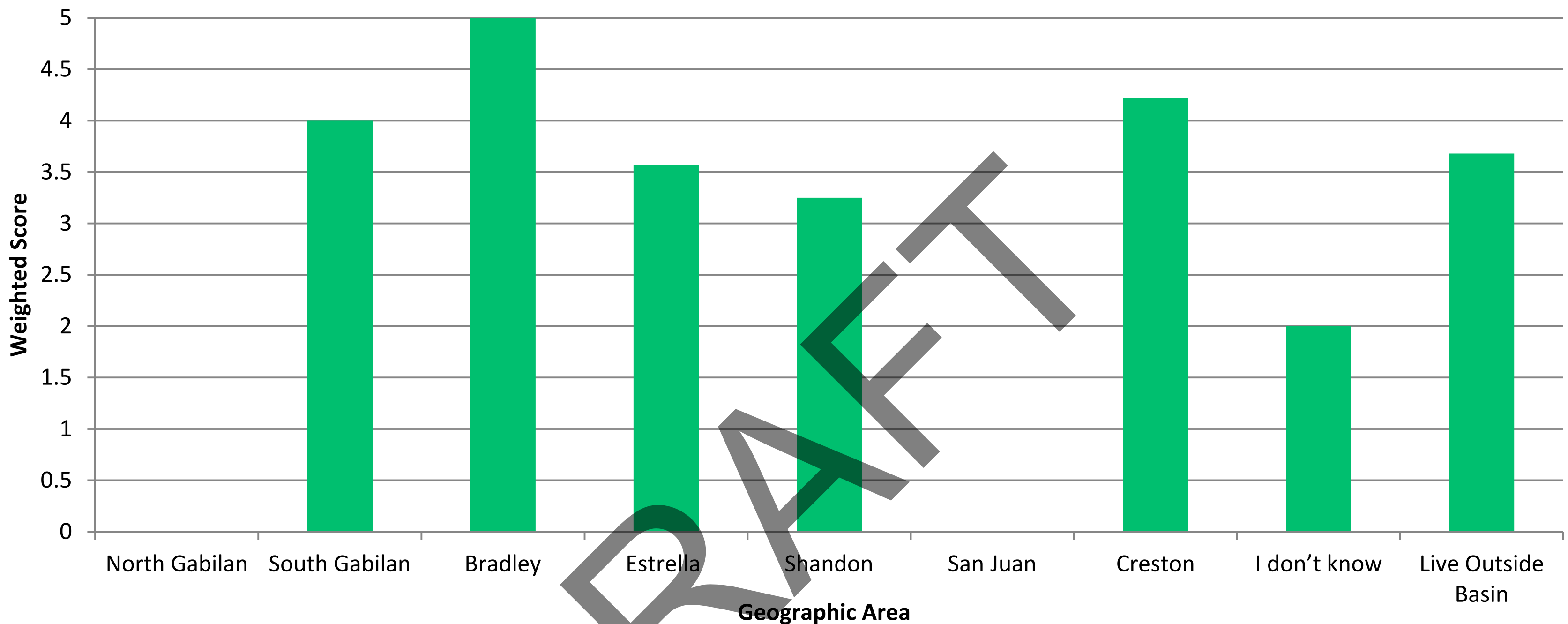
A requirement to reduce agricultural pumping in all years



Geographic Area	most acceptable				moderately acceptable				least acceptable				
	1		2		3		4		5		Total		Weighted Score
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
South Gabilan	0%	0	0%	0	0%	0	0%	0	100%	1	1%	1	5
Bradley	0%	0	100%	2	0%	0	0%	0	0%	0	2%	2	2
Estrella	19%	9	17%	8	17%	8	11%	5	36%	17	47%	47	3.28
Shandon	13%	1	0%	0	25%	2	0%	0	63%	5	8%	8	4
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
Creston	23%	5	14%	3	9%	2	18%	4	36%	8	22%	22	3.32
I don't know	100%	1	0%	0	0%	0	0%	0	0%	0	1%	1	1
Live Outside Basin	16%	3	11%	2	21%	4	26%	5	26%	5	19%	19	3.37
Total	19%	19	15%	15	16%	16	14%	14	36%	36	100%	101	
												Answered	**101**
												Skipped	**10**

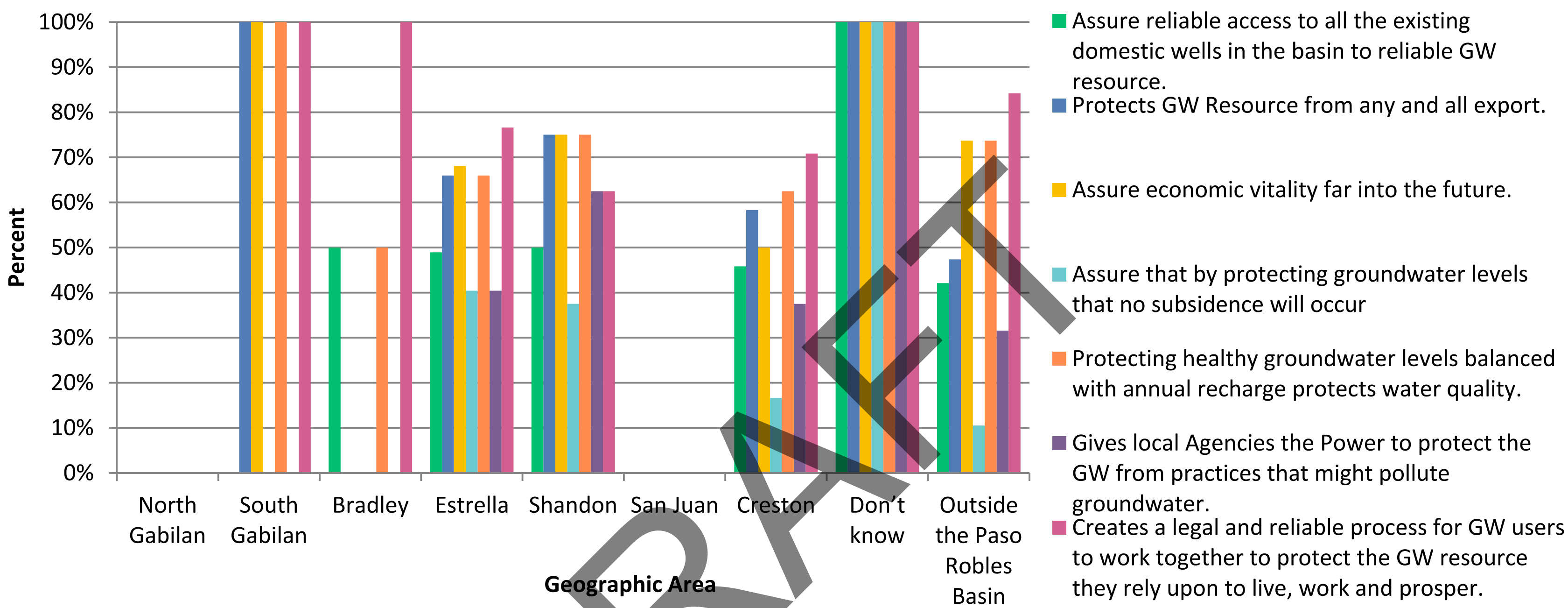
Reaching sustainability will likely require some concessions. On a scale of 1 (most acceptable concession) to 5 (least acceptable concession), how would you rate the following concessions that may be necessary to reach sustainability?

Shallow domestic wells going dry and needing to be deepened



Geographic Area	most acceptable				moderately acceptable				least acceptable				
	1		2		3		4		5		Total		Weighted Score
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
South Gabilan	0%	0	0%	0	0%	0	100%	1	0%	0	1%	1	4
Bradley	0%	0	0%	0	0%	0	0%	0	100%	2	2%	2	5
Estrella	15%	7	15%	7	13%	6	13%	6	45%	21	47%	47	3.57
Shandon	13%	1	0%	0	50%	4	25%	2	13%	1	8%	8	3.25
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
Creston	0%	0	4%	1	17%	4	30%	7	48%	11	23%	23	4.22
I don't know	0%	0	100%	1	0%	0	0%	0	0%	0	1%	1	2
Live Outside Basin	5%	1	16%	3	21%	4	21%	4	37%	7	19%	19	3.68
Total	9%	9	12%	12	18%	18	20%	20	42%	42	100%	101	
												Answered	**101**
												Skipped	**10**

From your perspective, check the boxes that apply to the biggest opportunities as a result of the SGMA process



Geographic Area	Assure reliable access to all the existing domestic wells in the basin to reliable GW resource.		Protects GW Resource from any and all export.		Assure economic vitality far into the future.		Assure that by protecting groundwater levels that no subsidence will occur		Protecting healthy groundwater levels balanced with annual recharge protects water quality.		Gives local Agencies the Power to protect the GW from practices that might pollute groundwater.		Creates a legal and reliable process for GW users to work together to protect the GW resource they rely upon to live, work and prosper.		Total	
	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count
North Gabilan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
South Gabilan	0%	0	100%	1	100%	1	0%	0	100%	1	0%	0	100%	1	1%	1
Bradley	50%	1	0%	0	0%	0	0%	0	50%	1	0%	0	100%	2	2%	2
Estrella	49%	23	66%	31	68%	32	40%	19	66%	31	40%	19	77%	36	46%	47
Shandon	50%	4	75%	6	75%	6	38%	3	75%	6	63%	5	63%	5	8%	8
San Juan	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
Creston	46%	11	58%	14	50%	12	17%	4	63%	15	38%	9	71%	17	24%	24
Don't know	100%	1	100%	1	100%	1	100%	1	100%	1	100%	1	100%	1	1%	1
Outside the Paso Robles Basin	42%	8	47%	9	74%	14	11%	2	74%	14	32%	6	84%	16	19%	19
Total	47%	48	61%	62	65%	66	28%	29	68%	69	39%	40	76%	78	100%	102
															Answered	102
															Skipped	9

What would be a successful outcome of the SGMA process from your perspective?

Responses from Estrella
Balancing the water usage in urban areas vs ag.
Sustainable groundwater levels
Protect groundwater supplies with an equitable approach for all users. Do not increase city use at the expense of agricultural use.
Maintain groundwater levels. Enforcement of over pumping. No selling groundwater.
Stability
Stable political situation which allows additional planting of irrigated crops
Maintain GW levels and quality at greater or at least current levels
Stop or reduce residential development including hotels which are major water users.
A successful outcome would be to further stabilize water levels and then come up with a plan to recharge the water basin.
We have too much government involved in our daily lives. Eliminate all of the SGMA governmental entities.
A better understanding of groundwater, its biggest users, biggest threats, and best practices that can help reduce use.
Respect for and preservation of private landowner water rights.
Raise current groundwater elevations
Completely measure the basin in all areas and develop accurate sustainable yields that are measurable
Creates a plan for stabilizing and perhaps improving future water availability and quality. Controls over pumping by some parties that are abusing groundwater pumping.
Slow growth in Paso Robles city limits.
All vested parties unite in reaching viable solutions for the betterment of all. Local control.
Develop and implement a plan that is acceptable to stakeholders while fulfilling the requirements of the SGMA process.
An allocation per acre, equal for all land owners that in total brings the usage down to a sustainable level. Owners that didn't plan to use their could lease, sell or contribute to raising the water table and help mitigate low rainfall
Land use regulations to monitor / regulate future growth of AG. Also need to monitor all development to ensure there is sufficient water resources. Water resources must be managed. Growth must be planned. Wells will need monitoring along with a reliable means of determining the water level of the basin.
Increased scientific research on the basin and the development of an integrated plan to reach sustainability using that research as a foundation.
The wake up call to City Council that we cannot keep adding 1000s of homes.

What would be a successful outcome of the SGMA process from your perspective?

Responses from Estrella Continued
Stabilize basin from decline without destroying agriculture.
The end of waiting for my well to run dry
A plan that stabilizes ground water sources which assures property values
Not to have to listen to that Graywall guy any more.
Stable well water levels
Collect data that clearly defines the status of the parts of the basin and then work to create a fair distribution of pumping capability so that NO WELL goes dry.
maintain ground water levels at current state in non impacted areas and increase the levels in severely impacted areas
Reaching SGMA's defined purpose: achieve sustained water supplies
enough groundwater to sustain growth in the area
{Better} educating our community so there is a clear, uniform understanding and coalition effort moving forward.
less residential & commercial development, mainly less residential density of development. The quality of life offered here is being squandered I feel by a hurry up attitude toward development. Paso Robles will only become more attractive in the future with a slower approach to development of high density projects. The land is the finite resource, once it's developed, nothing else can be done with it for long periods of time. Don't be in such a rush to sell the golden goose. Thank you for this survey opportunity.
A stable and reliable GW.
maintaining ground water levels about 100 feet higher than they are today.
One where limitations are placed on the amount of water that can be drawn from the aquifer and more specifically the larger agricultural operations. Also to implement practices of water consumption by the general public and practice water conservation at all times.
That those who have superior rights to groundwater maintain that entitlement, and the appropriators be the first to be required to conserve or find alternate sources of water, especially the city of Paso
No export and metered wells with allocations. Bring the basin back to health and sustainable levels for 100 years to come.

What would be a successful outcome of the SGMA process from your perspective?

Responses from Creston
Through additional data, prove that there is not a justification for rationing water.
Pumping reductions which are applied fairly (based on crop water duty factors vs. historic pumping) to ensure that groundwater levels return to and stay at January 1, 2015 levels on average (allowing for lower levels in dry years only if groundwater levels on average stay at Jan. 1, 2015 levels).
to keep large investors from selling our water.
Win Win deal for everyone. Increase storage supplies and keep the basin in balance.
We already conserve and use as little as we can get by with. Getting everyone to do the same would be most helpfuk
A fair, science based plan, with exponentially more monitoring, and rewards for the most efficient water management practices.
- addressing the elephant in the room of disproportionate water usage by grape growers - recognition of residential water users as de minimis users
Stabilize water level at or near present level without major heartache to residents.
One with facts to back up the actions and one that accounts for future growth.
-To most heavily scrutinize new development, whether housing or agriculture, rather than limit the current community. -To offer quality monitoring on a county-wide level to ensure the safety of private domestic well users. -
Stable water levels and plan for the future which could include more irrigated land if owners willing to pay imported water cost
Pumping limits on heavy ag users, and a means of monitoring their usage. Significant fines for violations - high enough to make it economically unfeasible to exceed the limits set.
Maintaining levels and quality of this precious resource for the years to come.
A county wide "slow growth" ordinance
For decades our area was dry farmed and the population was modest. We now have major irrigated farming and excessive development, residential, commercial, wineries, and breweries - all major uses of groundwater. We need to get realistic on how our groundwater is used.
Follow the law ,overlyers first all others get in line use their other water sources end of story
Restoration of the Basin to its condition before the recent (last 10 years) explosion of development and pumping.
Groundwater levels returned to January 2015 levels and maintained at those levels into the future. Each sub-area meets the levels for their area.
A stable, healthy aquifer, able to withstand drought years, all parties sharing in the burden.
maintaining water levels at the BMP levels set around the basin.
Balance and sensible approach

What would be a successful outcome of the SGMA process from your perspective?

Responses from Outside the Paso Robles Basin
Stop subdividing ag land by abolishing certificates of compliance. No more production of grapes. Encourage dry-land farming. Raise ground water levers to historic averages.
Maintain or improve existing pumping levels with no pumping restrictions.
It's very important that we have a reasoned and scientific assessment of the health of the Basin so that we can consider projects to will enhance the Basin's yield. Very little will be achieved if we try to fix the Basin by how people feel. Good science will have to drive this process. Opinions matter little. Only good science and data will allow for just and equitable solutions.
sustainability no adjudication
sustainability at current levels
SLO County (Paso Basin area especially) becomes a more resilient economy (more sustainable and profitable agriculture) and health of the Salinas is increased as much as possible in conjunction with the US-LTRCD and other stakeholders. To collaborate to make difficult decisions, but ensure that agricultural users are not harmed economically or can benefit in some way if these difficult decisions do affect them (e.g. investigate how agriculture can be a force of long-term ecological good through innovative conservation tools or incentives and skillful communication thereof).
Stabilize groundwater levels and create a workable plan for agriculture and domestic use
Protect ground water by limiting new growth in the Paso Robles area.
Restoration and protection of the irreplaceable natural resources of the Salinas River for present and future generations.
Ample monitoring programs(using Wellntel) that engage groundwater users in a shared understanding of groundwater dynamics - ensuring adequate water for everyone.
Sustainable yields to support agriculture at it's current level and with room to grow.
Appropriate and legally-defensible flows for fish.
A practical GSP that all the parties can successfully implement to protect the GW resource sustainably into the future.
Local management of the resource.   Improved local understanding and collaboration of people to understand how this GW source we have CAN be shared and used without harm to one another.
No domestic wells be effected. stop the wine industry growth no marijuana growers

What would be a successful outcome of the SGMA process from your perspective?

Responses from Bradley
GW resource is not overdeveloped. GW policies recognize the standing of individuals, and does not cater
Responses from Don't Know
lower ag use of water (wine grapes) alfalfa
Responses from South Gabilan
Stay out of the separate water supply in the Ranchita Canyon area and to the North, which is Northerly
Responses from Shandon
Shandon becoming its own basin
Publicly monitor ground water levels. Publicly monitor all agricultural wells. Maintain or improve groundwater levels.
reliable water
Meeting the requirements of the law with least amount of capital spending
Sustainable water volume and quality.
Users paying a fair price for water and an end to the disharmony in the community
recognition of dry land farming and ranching groundwater needs, ability to receive credit for groundwater recharge practices
Groundwater levels that are stable within a few years at a level that allows continued domestic and agricultural uses. Levels may differ by location within the basin.

Please provide any other information, comments, or questions that you have regarding the SGMA process and development of Minimum Thresholds for the Paso Robles Basin.

Responses from Estrella
Their must be rules about a corp drilling a signifiant well right on your fence line and destroying your ag well.
Developers and others continue to blame vineyards for water use . Actually vineyards with effective drip irrigation use little water compared to hotels and residential expansion.
Get out of our lives!!!!!
I have been in the profession of civil engineering and water sustainability for over 25 years. I am currently a sustainable wine auditor in SLO County for CSWA. There are ways to reduce water consumption that actually saves money that should be mandated.
Need to agricultural pumpers providing technical details about current irrigation practices including scheduling, water saving technologies, cultural practices, etc.
Your all dancing around the issue, there is 2 to 3 times the sustainable usage, it has to come down! Farming techniques have to reduce evaporation or reduce acreage.
We need to be careful in examining the estimated water use as submitted by some engineering companies. One example was the engineer report for the EPC Water District. Way over estimated water use, methodology flawed. They simply averaged all AG uses at 3.5 AF for all planted acres. Since most irrigated acreage in the EPC District was vines, this over estimated. For vines they used 1.8 AF based on a 30 year irrigation use average. With the advances in irrigation, this number should be 1to 1.25AF.
My fear is that the Council will approve lowering the threshold just to make it easier to maintain while adding 1000s of new homes to the area.
I think serious thought needs to be given to some vehicle to discourage new major large vineyards from contributing to the decline of the ground water in the basin
Keep the process objective, based on good science with the least government control.
unsure

Please provide any other information, comments, or questions that you have regarding the SGMA process and development of Minimum Thresholds for the Paso Robles Basin.

Responses from Creston
How can the county be sure of water quality, and well productivity throughout the basin(s) and are there currently sufficiently trained individuals to carry out the potential increase of data gathering, sampling and related activities to serve the public?
Pumping data and groundwater levels for 2015 - not 2011 - must be used. Key wells must be chosen and used for verification. Pumping reductions must be calculated based on 2015 data. Any groundwater reductions in the short term must be addressed, instead of waiting until 5 year reviews.
Get the supervisors on board
again increase storage and balance the basin. Allow Huer Huero River to run and bring the basin back into balance.
With the city of Paso planning major housing developments and hotels. The cities usage is going up exponentially
More information on the great many variations of the PR Basin.
This there even a chance to hold the water level near current with recent spurt of ag growth and continued residential growth--without draconian measures? Is this whole process just an exercise?
Is the county currently staffed with the workforce of individuals with experience in well sampling, depth sounding, field assessment of wellhead sanitation, environmental/watershed and related activities that will be of increased importance to serve the local community? -If the county will not be measuring or monitoring these criteria, who will?
Acceptable drops likely will vary in the Basin, a single figure in feet is likely too simplistic
I appreciate the opportunity to participate in a survey like this. Thank you
Where are the results of the last survey from about a month ago?
The overdraft is a lie , the casgem # a lie tell the truth   State provide the water you sold, build the dams we voted on
The first step is to require meters and reporting on all wells. The Basin will never be managed until we know accurately how much water is being extracted.
The El Pomar area should be addressed separately from the Creston sub-area. Data on key wells must be maintained to determine status of groundwater levels in relation to established minimum thresholds.
I am very disappointed by the lack of community spirit to solve this problem.
I have concerns that the GSPs will require too little, too late and the basin will be irreparably damaged. Plans will look good on paper but won't be effective. The larger ag interests will have taken maximum profit and move an.

Please provide any other information, comments, or questions that you have regarding the SGMA process and development of Minimum Thresholds for the Paso Robles Basin.

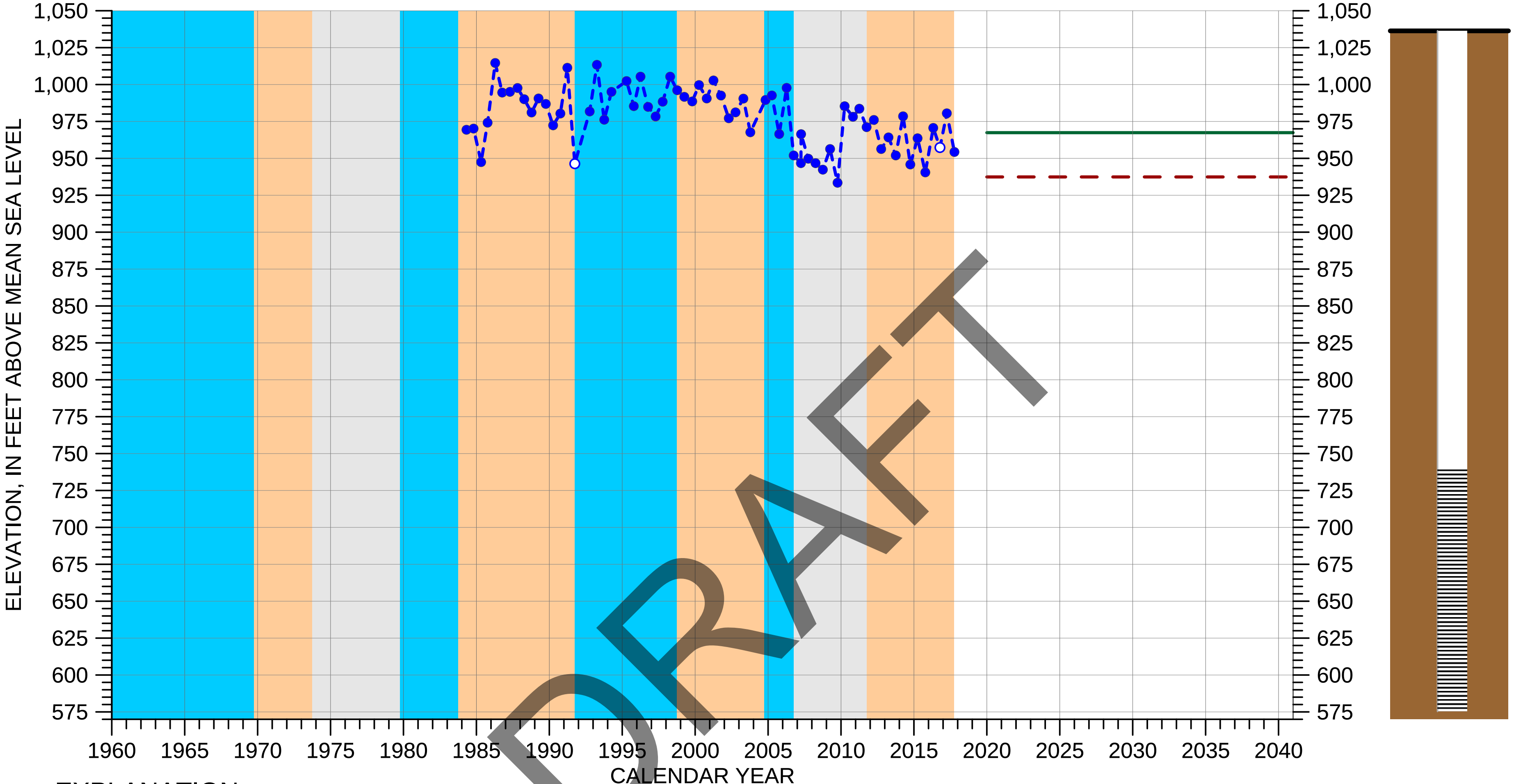
Responses from Outside the Paso Robles Basin
Minimum thresholds are the center piece of the GSP. This will require qualified hydrologists and hydrogeologists working together to analyze our basin and come up with alternatives and choices. Once the scientific data is analyzed and accepted by Basin users, then careful consideration must be made taking into account the social and economic impact of proposed changes to water usage in the Basin.
We are not sffected by basin levels so my answers may not be applicable.
Thank YOU! Appreciate the hard work you all are doing, and would love to see survey results or be informed about the tangible and intangible outcomes of it.
Minimum groudwater levels must be correlated with appropriate stream flow levels to protect all the Groundwater Dependent Ecosystems associated with the Salinas River, including the estuary.
The Paso GSA would benifit from using Wellntel based community groundwater monitoring networks. The network would fill data gaps, and engage stakeholders by providing them sustainability indicators for their own wells.
Nothing at this time and thank you for this survey!
Minimum thresholds in the Paso Basin need to be based on accurate rich publicly accessible GW data. Combining historical and new ongoing standing water level data sets with periodic quality testing.
I'm sure you are aware of this, but the Blue Ribbon Committee's work back in 2012 is a good source of information.
please do not bend to big money

Please provide any other information, comments, or questions that you have regarding the SGMA process and development of Minimum Thresholds for the Paso Robles Basin.

Responses from South Gabilan
For ranchers, farmers and others who wish to plant an irrigable agricultural product, give consideration towards them, even though they had not planted their lands before the explosive growth and heavy use of water for vineyards.
Responses from Don't Know
the County needs to have more regs re usage. How many acres of grapes have been planted since theCounty's last "regulation"
Responses from Shandon
Make everything easy for the public to know.
N/A
Please address the ability to deepen or drill new wells for domestic use in the Shandon area.
a successful outcome should include a market based system whereby credits/debits can be traded (monetized) for appropriate recharge/use of groundwater in the basin

Appendix H

Paso Robles Formation Aquifer RMS Hydrographs and Well Data



EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

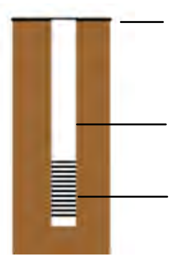
MEASUREMENT NOT VERIFIED*

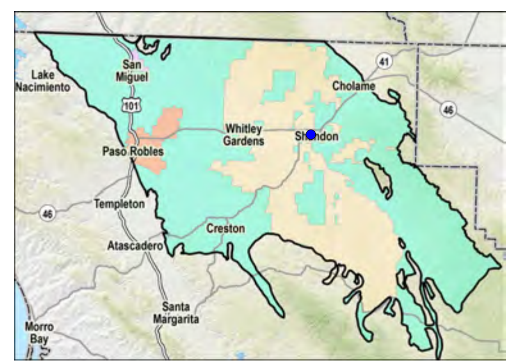
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 461 feet
Screened Interval: 297-461 feet below ground surface
Reference Point Elevation: 1036.36 feet above mean sea level

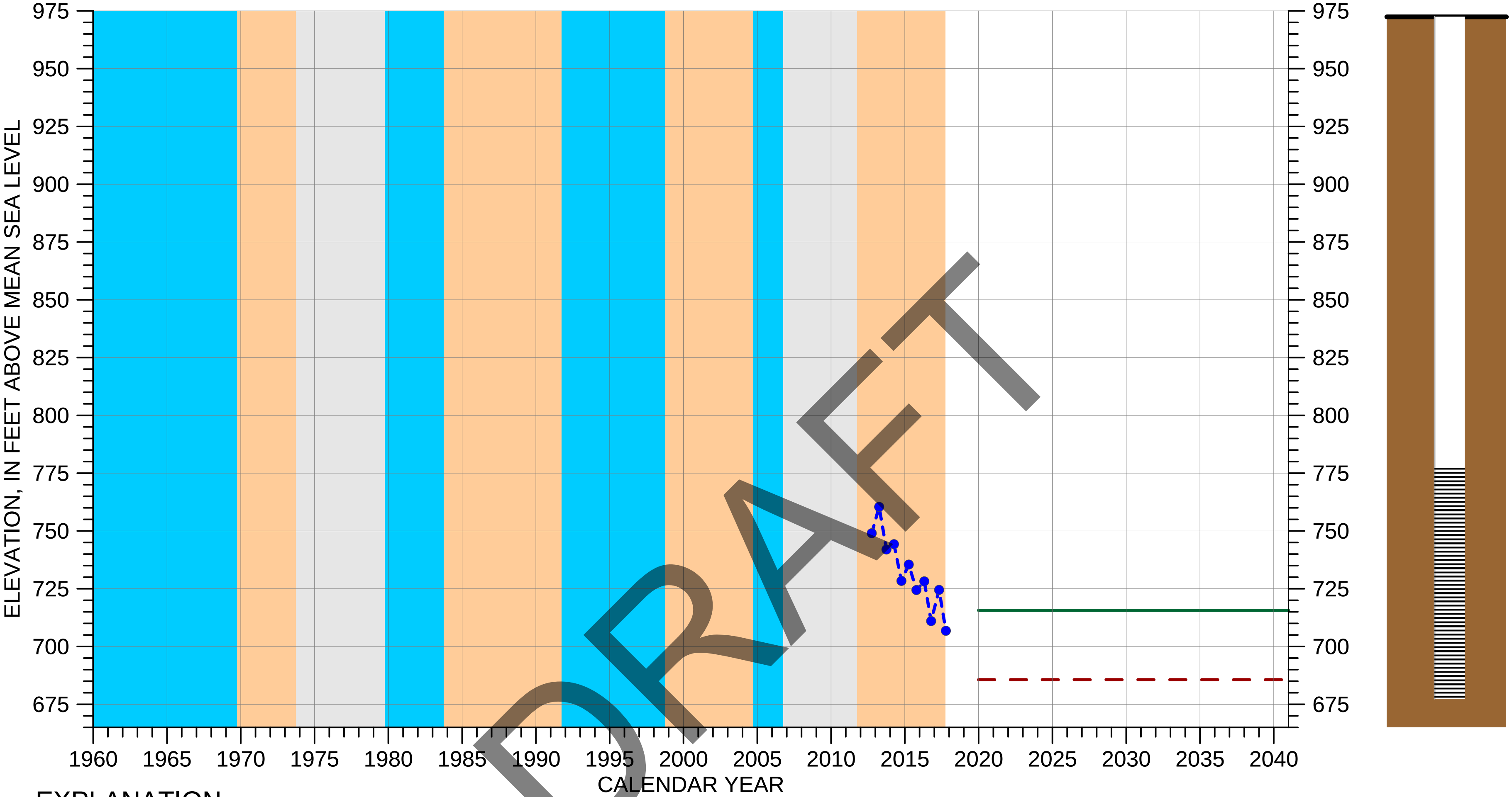
* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 26S/15E-20B04

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig07_26S_15E-20B04.grf



EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

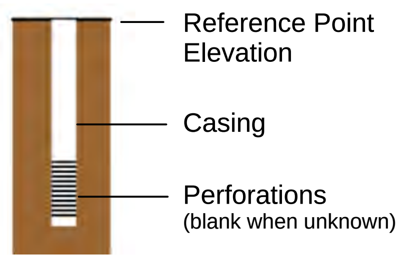
MEASUREMENT NOT VERIFIED*

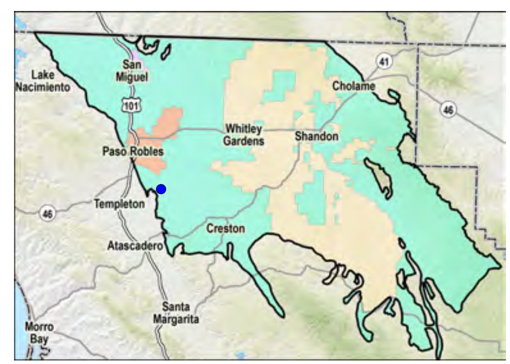
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 295 feet
Screened Interval: 195-295 feet below ground surface
Reference Point Elevation: 972.4 feet above mean sea level

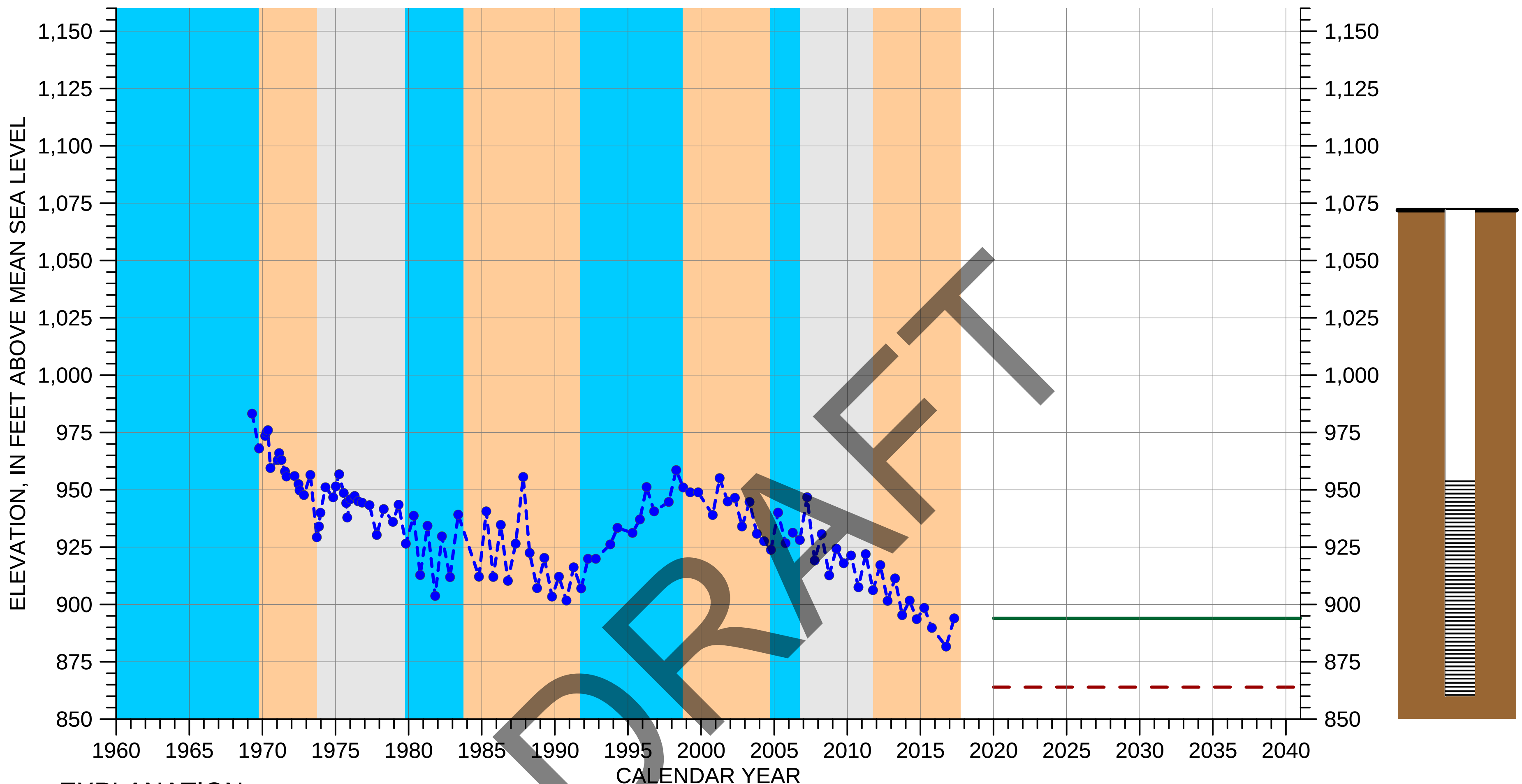
* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 27S/12E-13N01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig08_27S_12E-13N01.grf



EXPLANATION

MEASURABLE OBJECTIVE

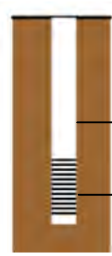
MINIMUM THRESHOLD

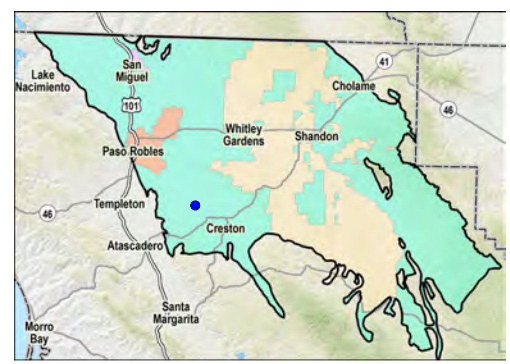
GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET



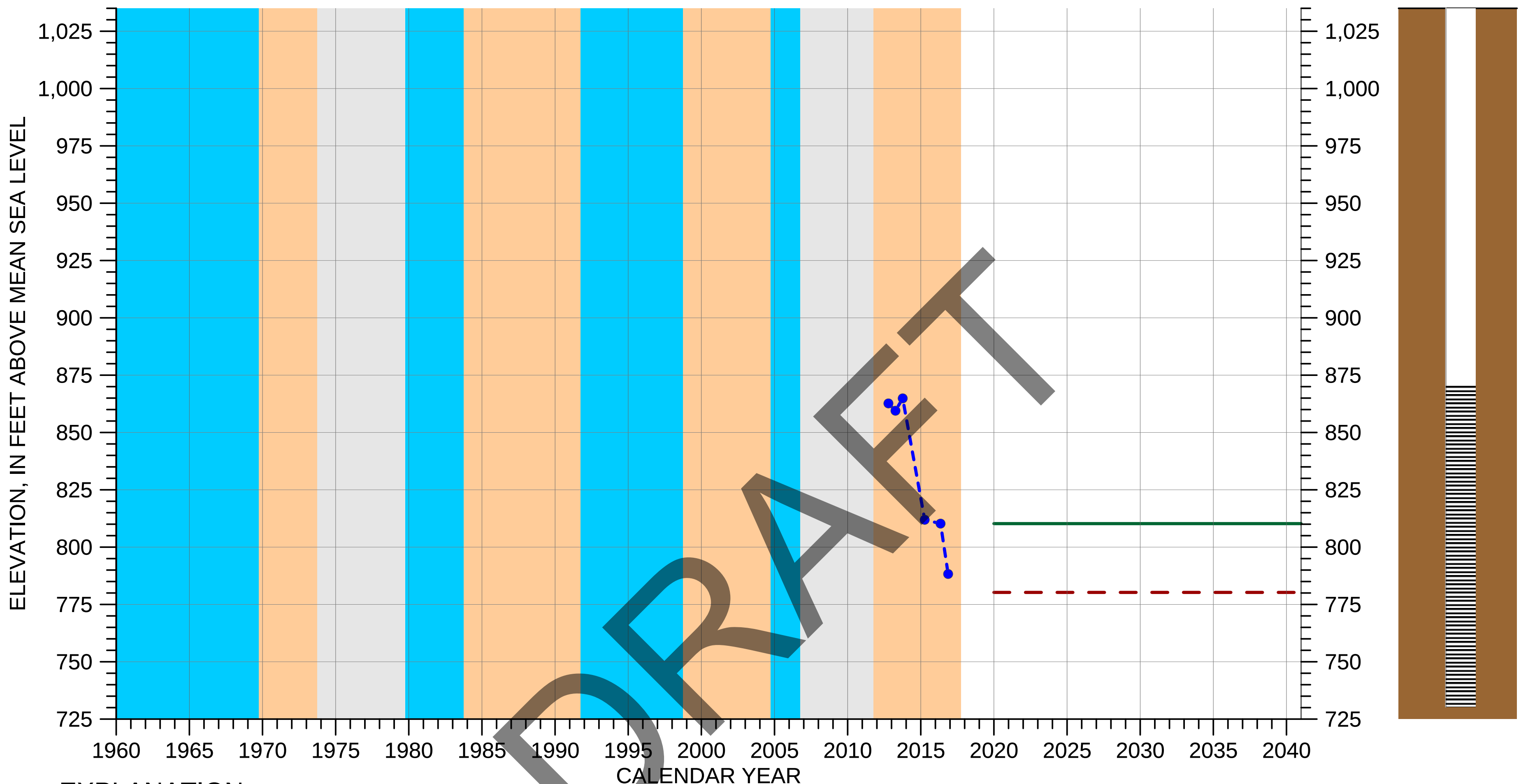


Well Depth: 212 feet
Screened Interval: 118-212 feet below ground surface
Reference Point Elevation: 1072 feet above mean sea level

* Measurement reported as not static

MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 27S/13E-28F01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig09_27S_13E-28F01.grf



EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

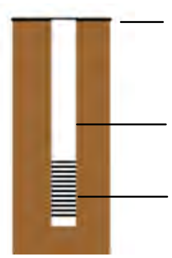
MEASUREMENT NOT VERIFIED*

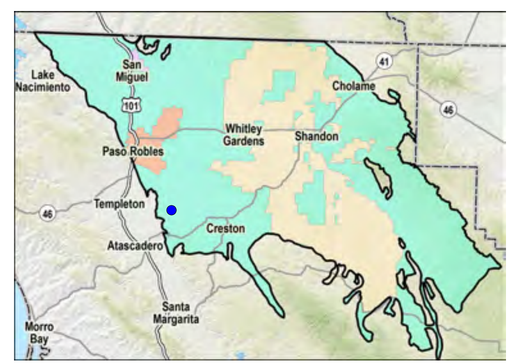
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 355 feet
Screened Interval: 215-235, 275-355 feet below ground surface
Reference Point Elevation: 1086.7 feet above mean sea level

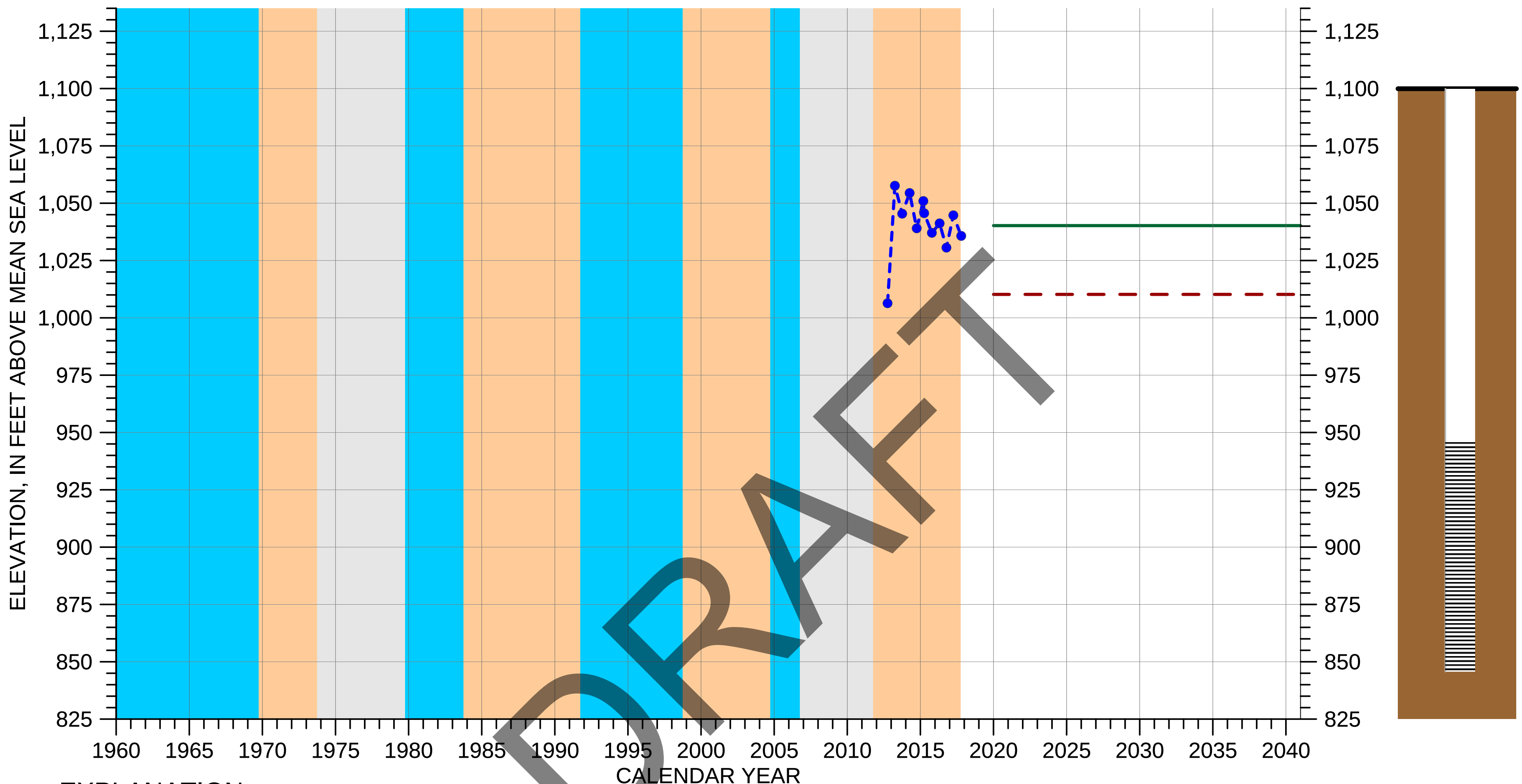
* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 27S/13E-30N01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig10_27S_13E-30N01.grf



EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

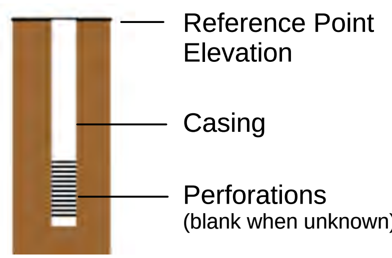
MEASUREMENT NOT VERIFIED*

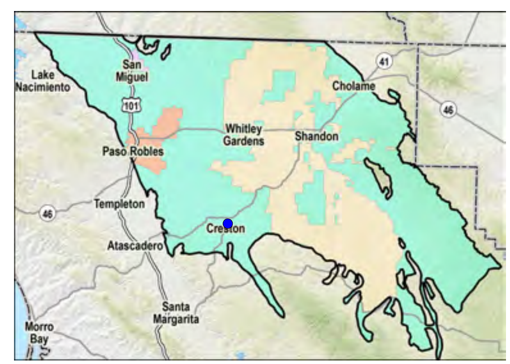
CLIMATE PERIOD CLASSIFICATION

DRY | AVERAGE/ALTERNATING | WET

Well Depth: 254 feet
Screened Interval: 154-254 feet below ground surface
Reference Point Elevation: 1099.9 feet above mean sea level

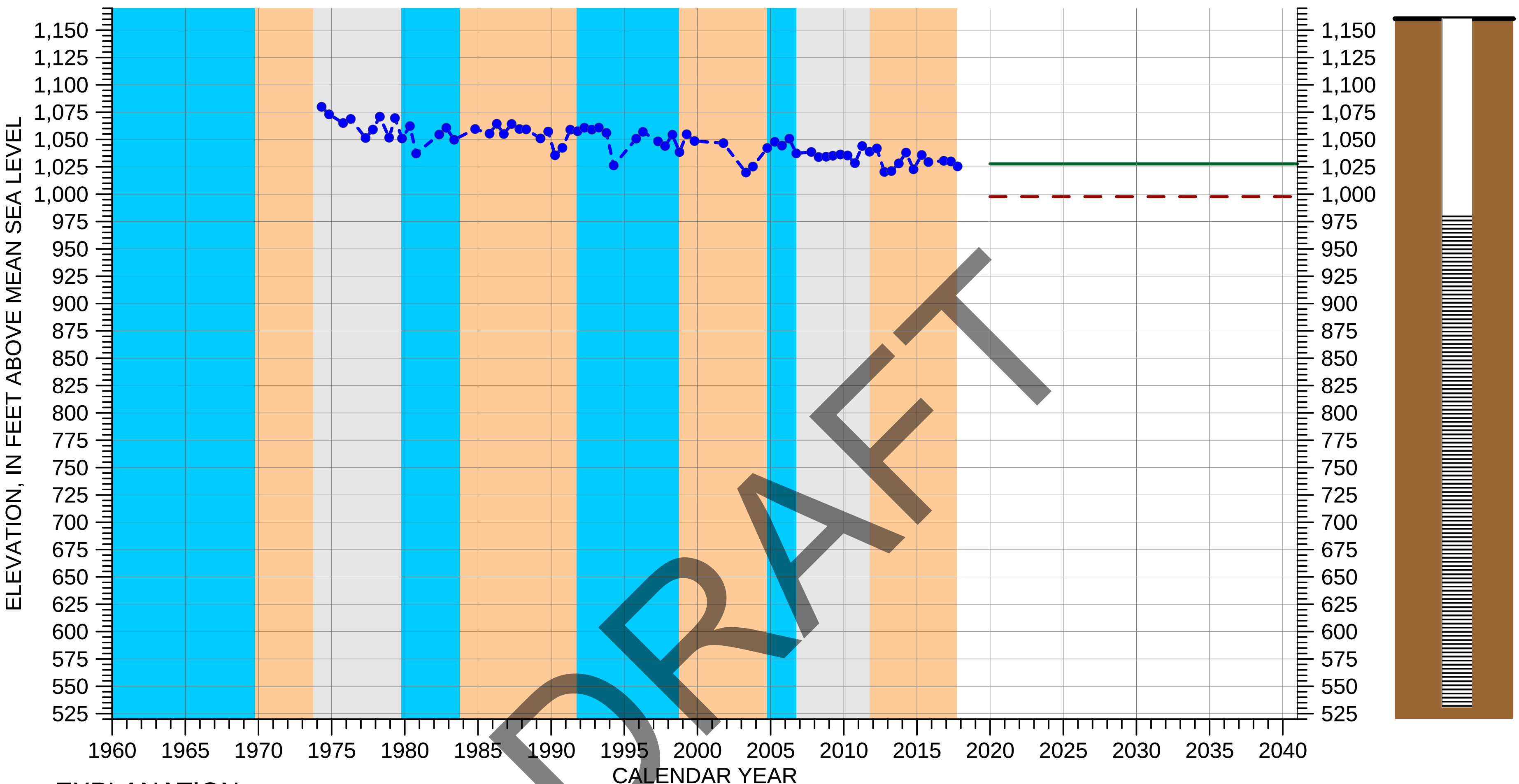
* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 28S/13E-01B01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig11_28S_13E-01B01.grf



EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

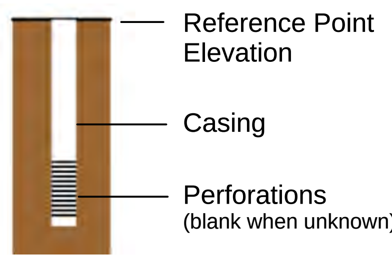
MEASUREMENT NOT VERIFIED*

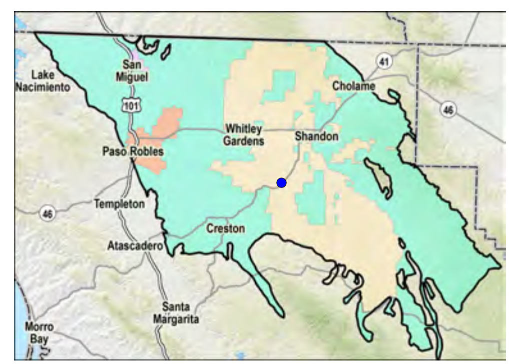
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 630
Screened Interval: 180-630 feet below ground surface
Reference Point Elevation: 1160.5 feet above mean sea level

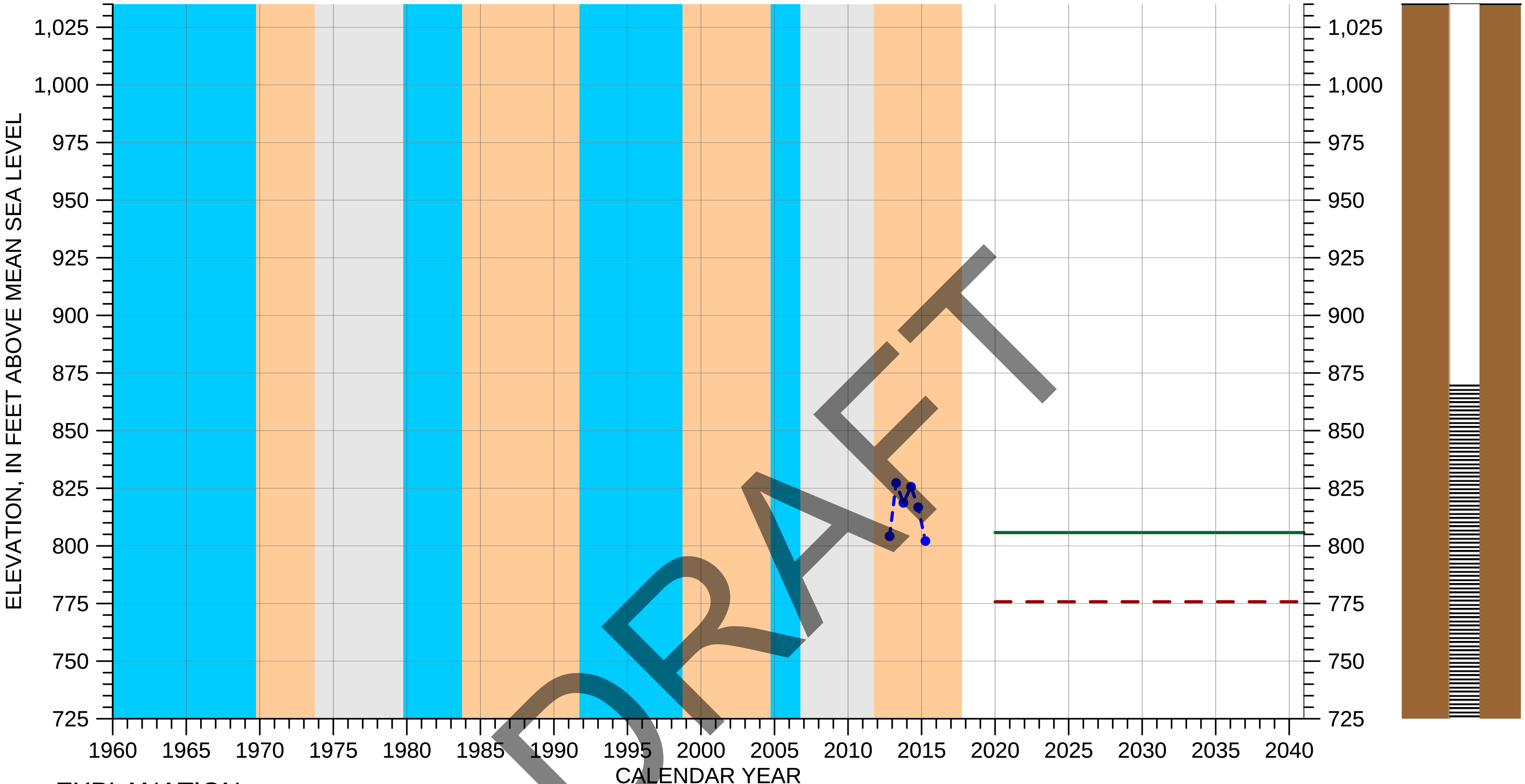
* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 27S/14E-11R01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig12_27S_14E-11R01.grf



EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

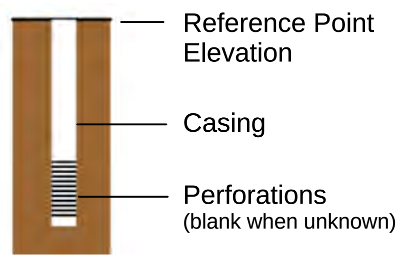
MEASUREMENT NOT VERIFIED*

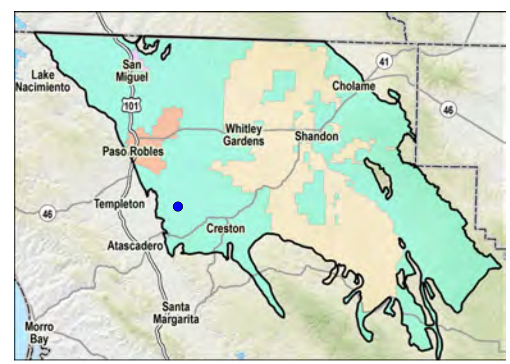
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 685
Screened Interval: 225-685 feet below ground surface
Reference Point Elevation: 1095 feet above mean sea level

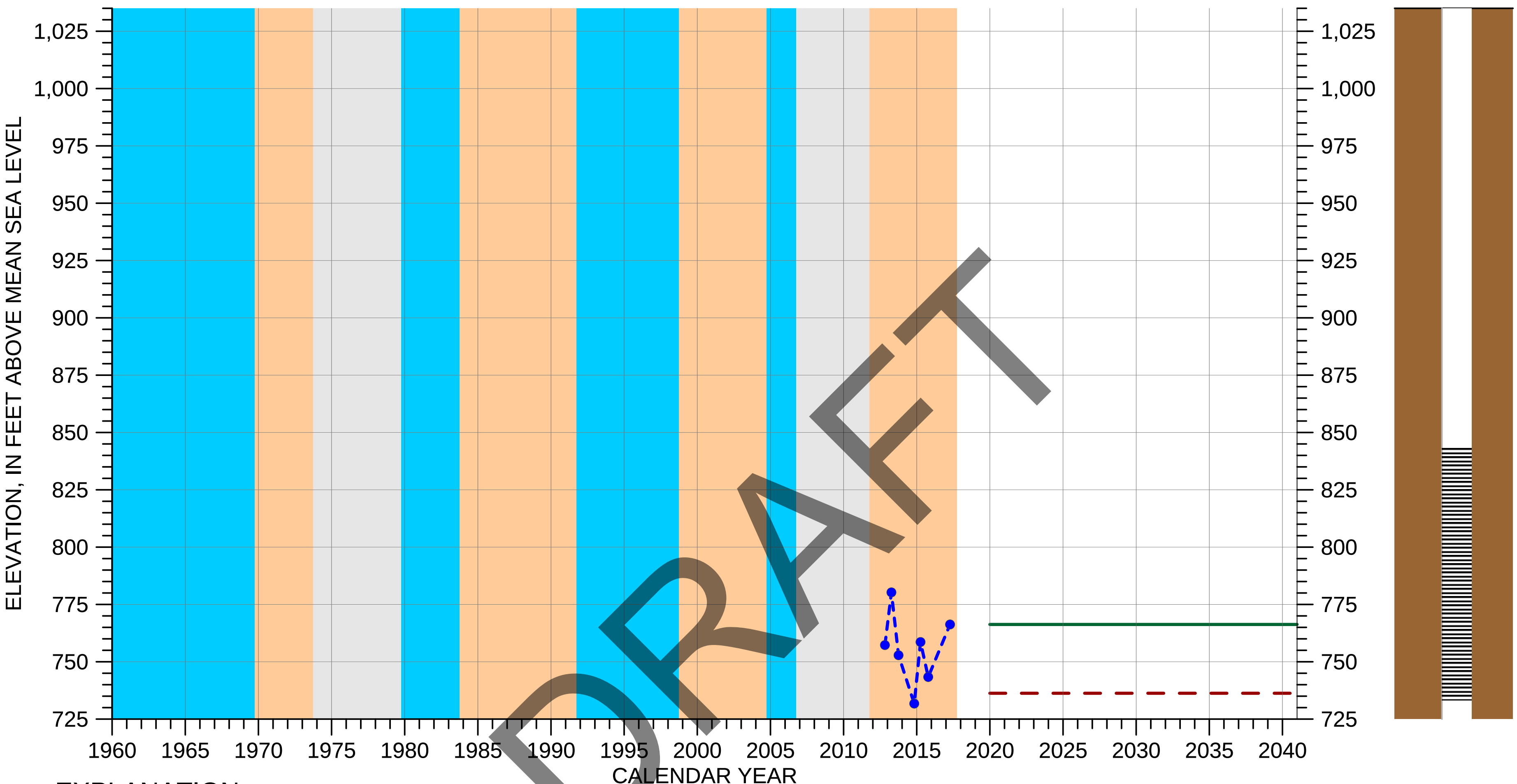
* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 27S/13E-30J01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig13_27S_13E-30J01.grf



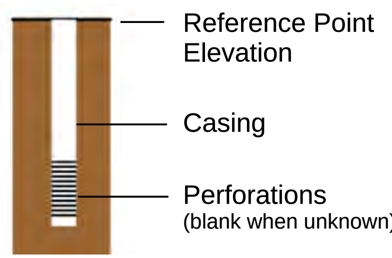
EXPLANATION

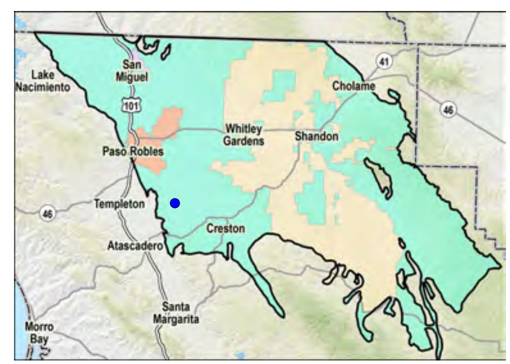
MEASURABLE OBJECTIVE
MINIMUM THRESHOLD
GROUNDWATER ELEVATION
MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

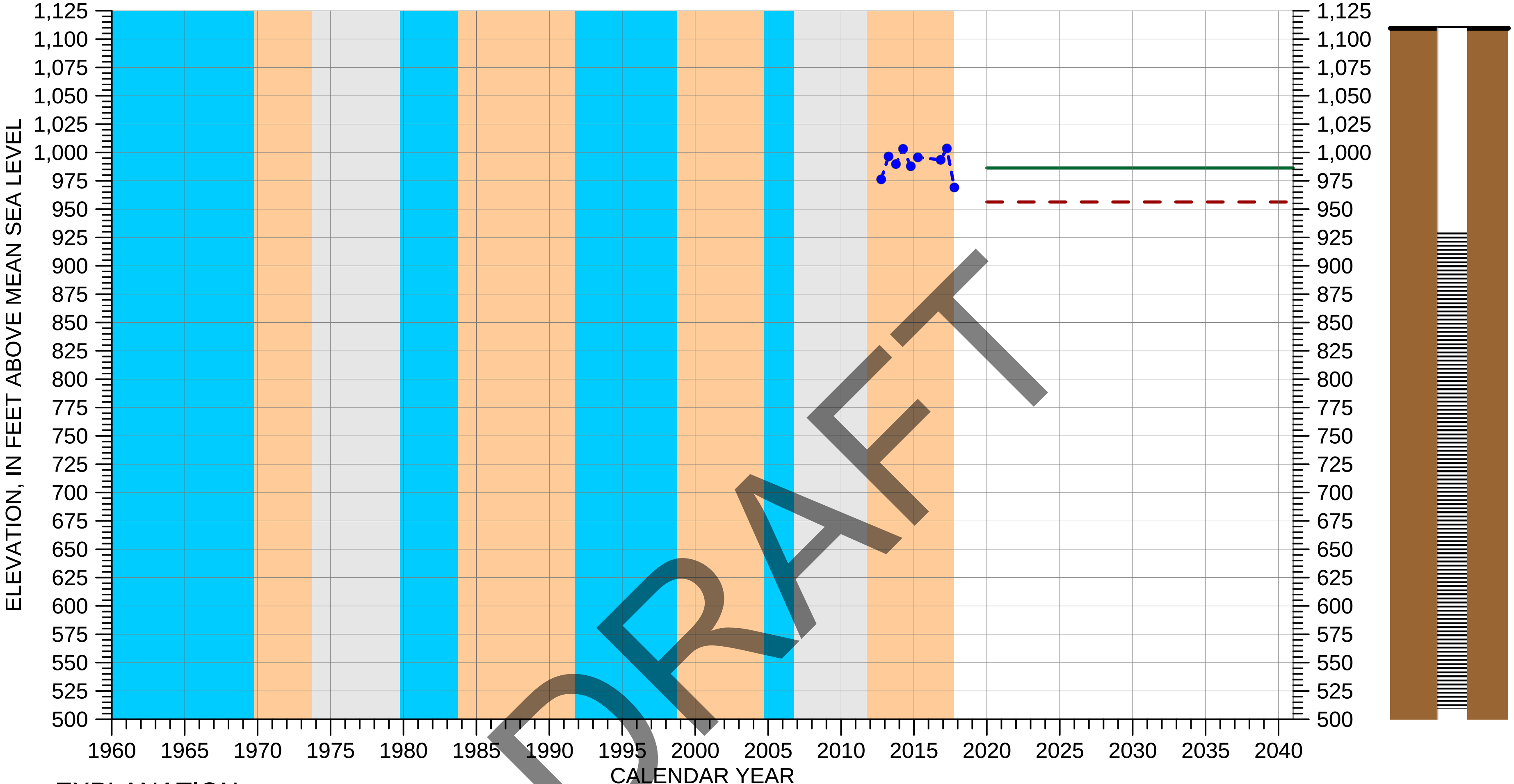
Well Depth: 310
Screened Interval: 200-310 feet below ground surface
Reference Point Elevation: 1043.2 feet above mean sea level
* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 27S/13E-30F01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig14_27S_13E-30F01.grf



EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

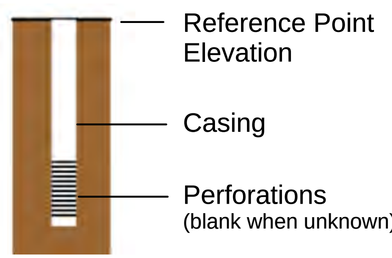
MEASUREMENT NOT VERIFIED*

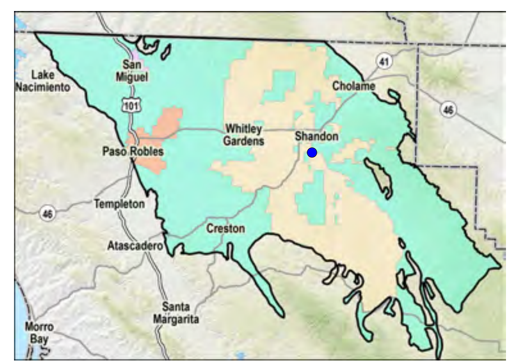
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 600
Screened Interval: 180-600 feet below ground surface
Reference Point Elevation: 1109.5 feet above mean sea level

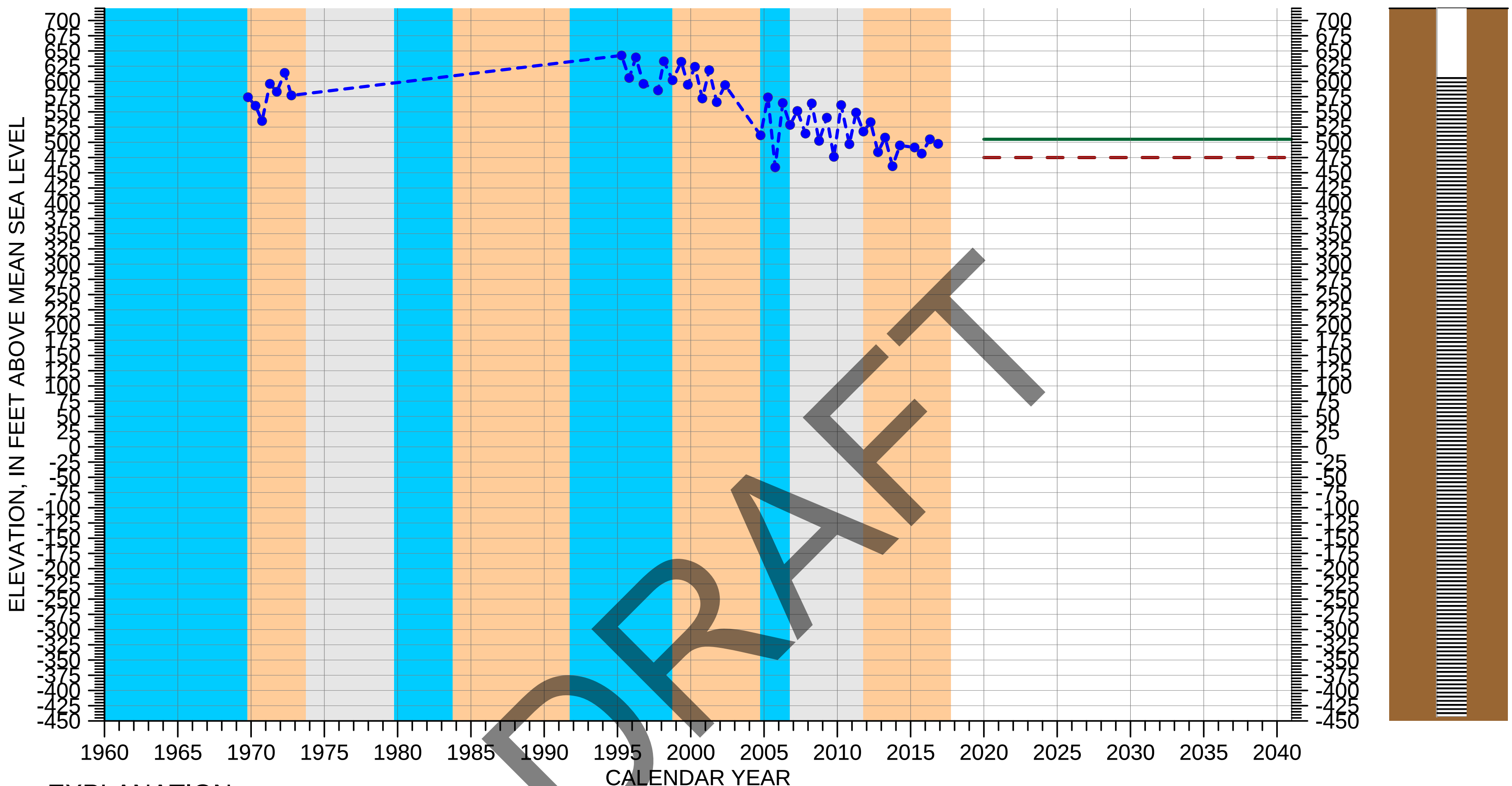
* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 26S/15E-29R01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig15_26S_15E-29R01.grf



EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

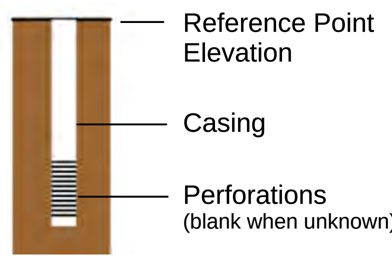
MEASUREMENT NOT VERIFIED*

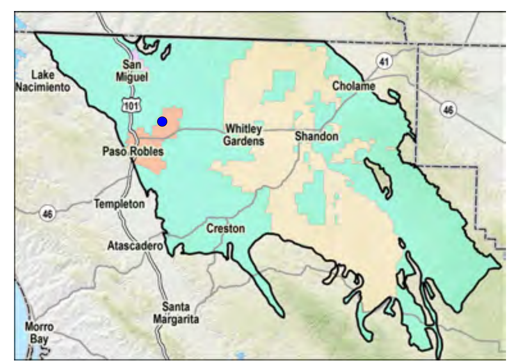
CLIMATE PERIOD CLASSIFICATION

DRY

AVERAGE/ALTERNATING

WET





Well Depth: 1230

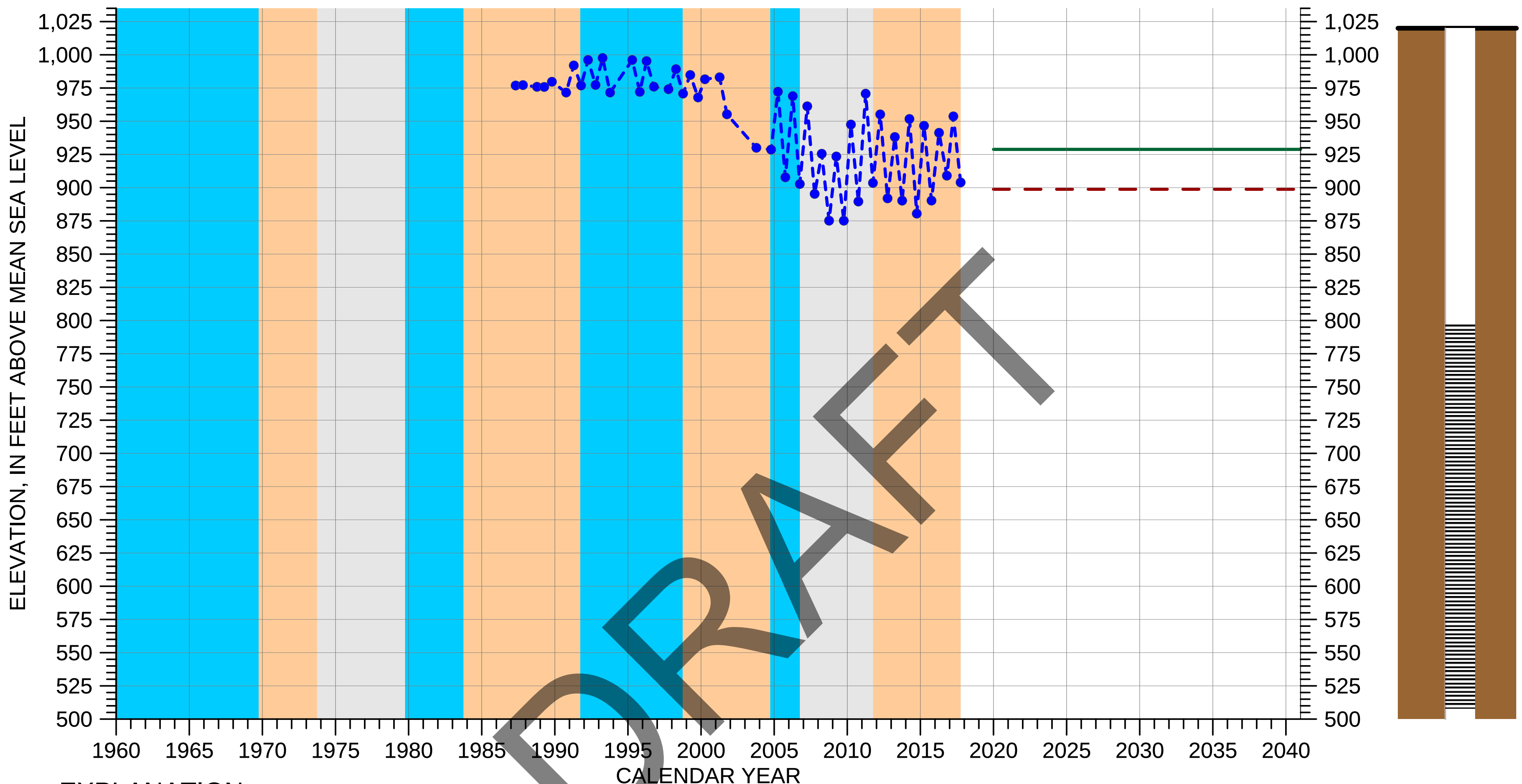
Screened Interval: 180-~1230 feet below ground surface

Reference Point Elevation: 790 feet above mean sea level

* Measurement reported as not static

MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 26S/12E-14H01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig16_26S_12E-14H01.grf



EXPLANATION

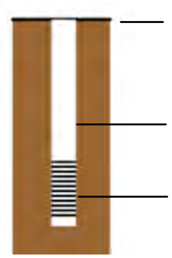
MEASURABLE OBJECTIVE
MINIMUM THRESHOLD
GROUNDWATER ELEVATION
MEASUREMENT NOT VERIFIED*

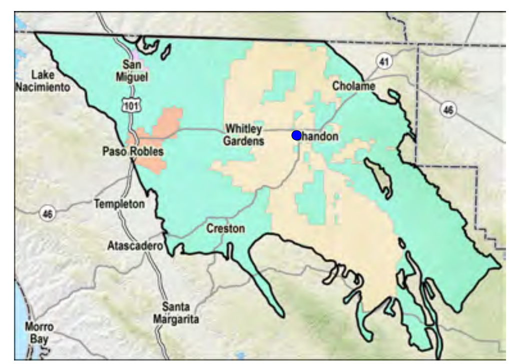
CLIMATE PERIOD CLASSIFICATION

DRY | AVERAGE/ALTERNATING | WET

Well Depth: 512
Screened Interval: 223-512 feet below ground surface
Reference Point Elevation: 1020 feet above mean sea level

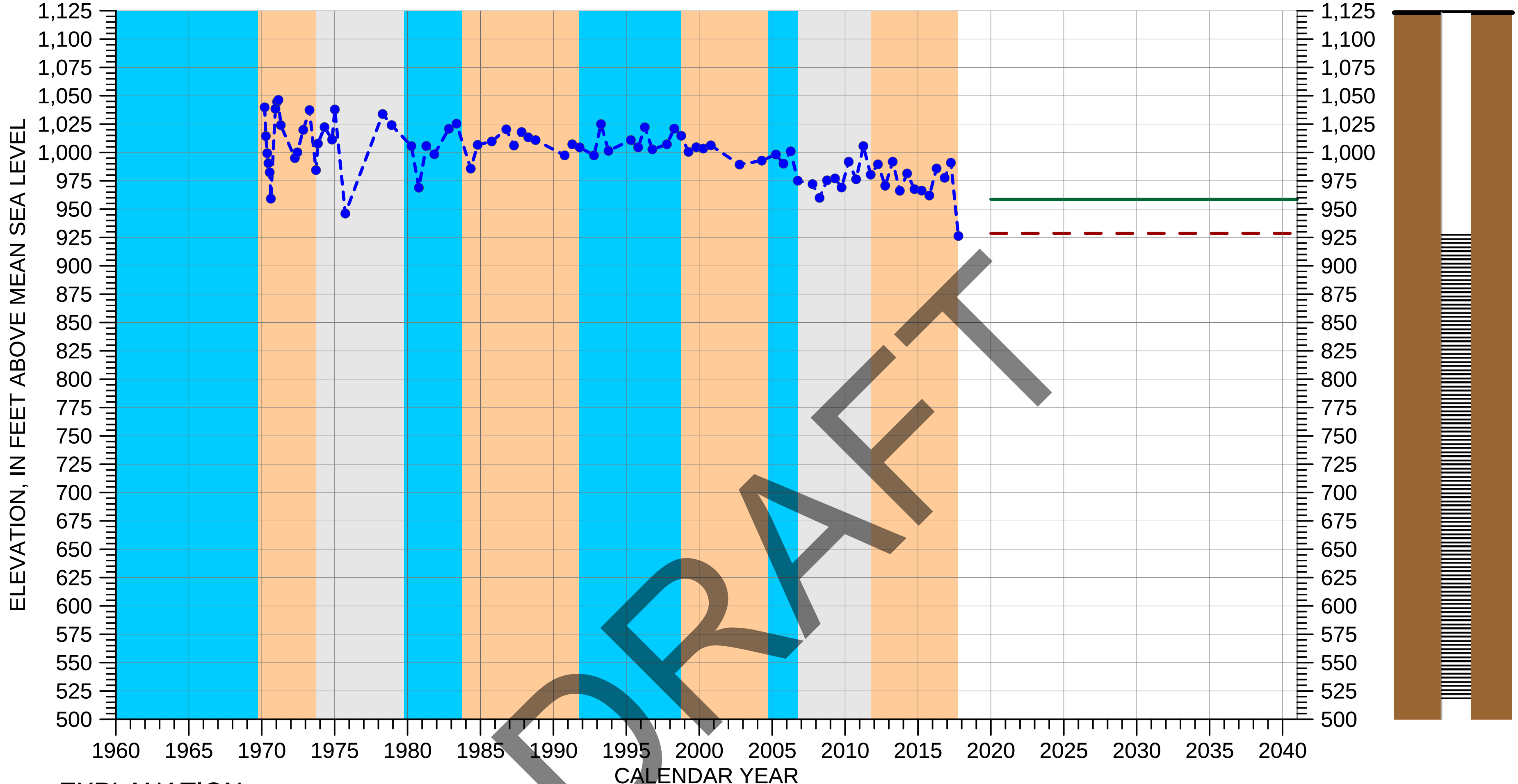
* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 26S/15E-19E01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig17_26S_15E-19E01.grf



EXPLANATION

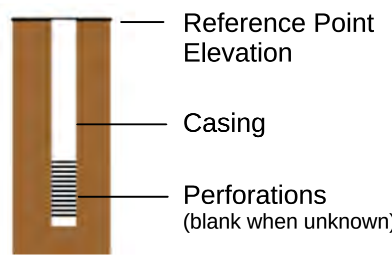
MEASURABLE OBJECTIVE
MINIMUM THRESHOLD
GROUNDWATER ELEVATION
MEASUREMENT NOT VERIFIED*

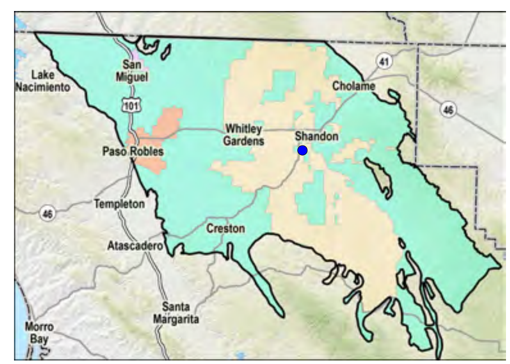
CLIMATE PERIOD CLASSIFICATION

DRY
AVERAGE/ALTERNATING
WET

Well Depth: 605
Screened Interval: 195-605 feet below ground surface
Reference Point Elevation: 1123.3 feet above mean sea level

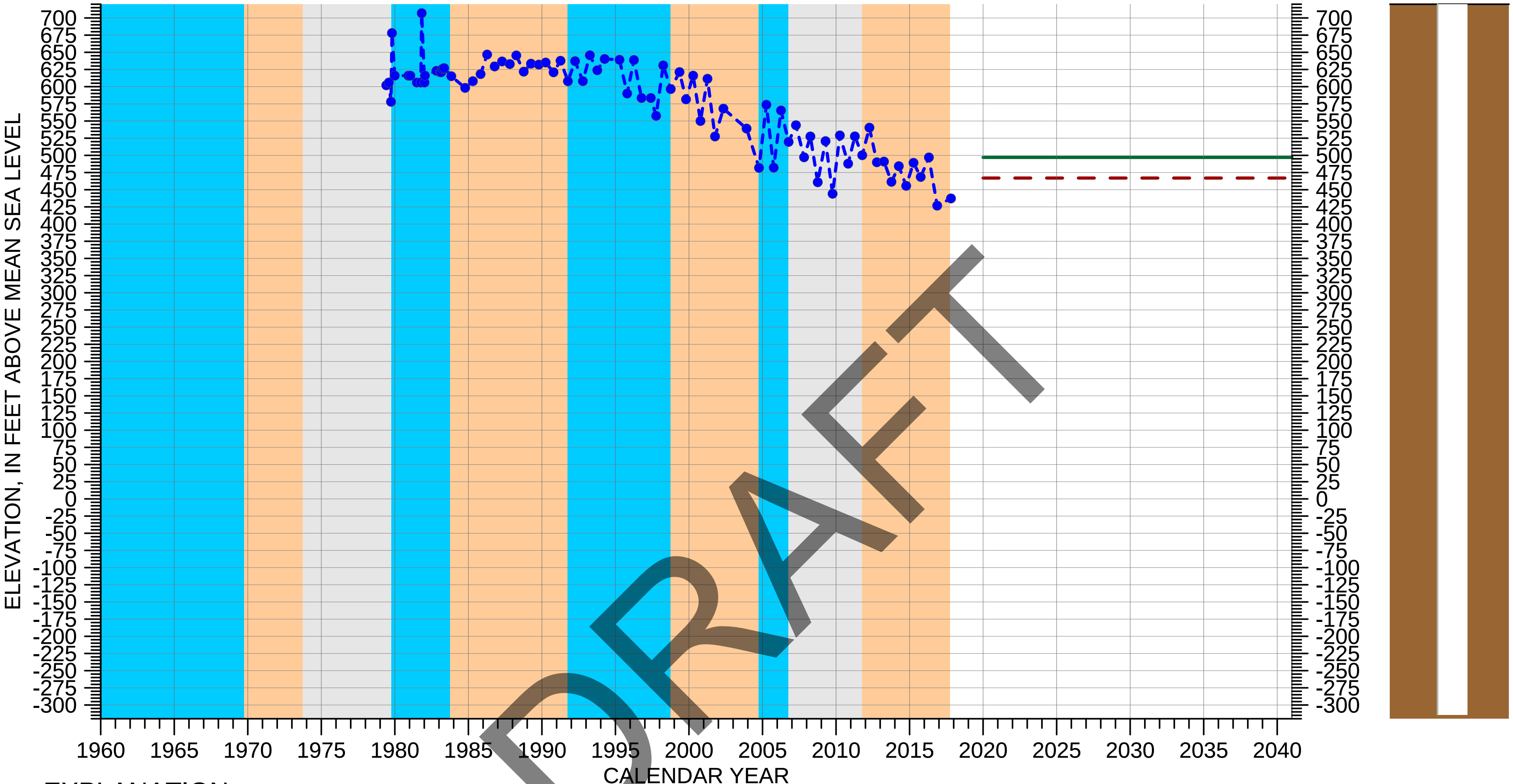
* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 26S/15E-30J01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig18_26S_15E-30J01.grf



EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

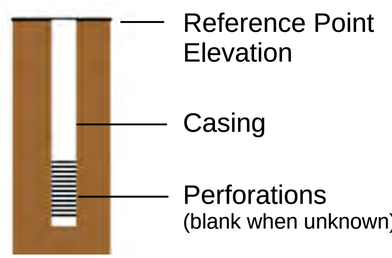
MEASUREMENT NOT VERIFIED*

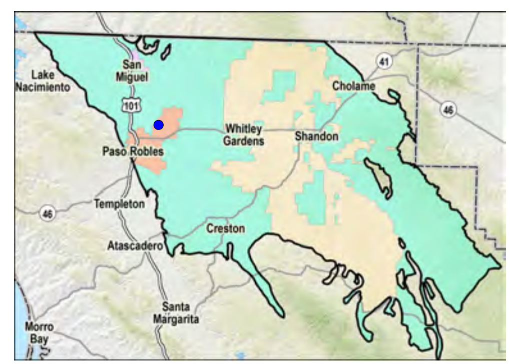
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 1100
Screened Interval: unknown
Reference Point Elevation: 786 feet above mean sea level

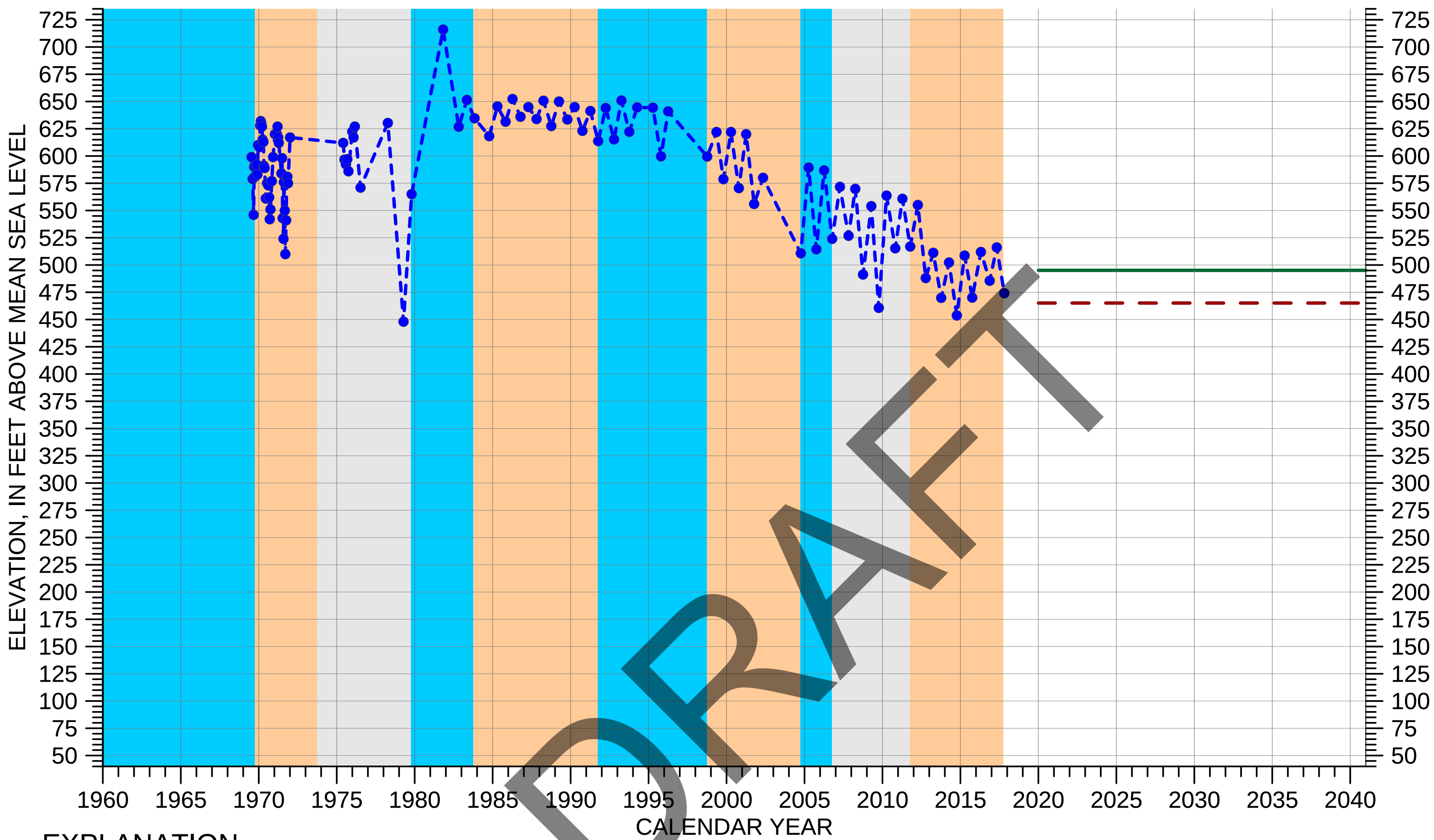
* Measurement reported as not static

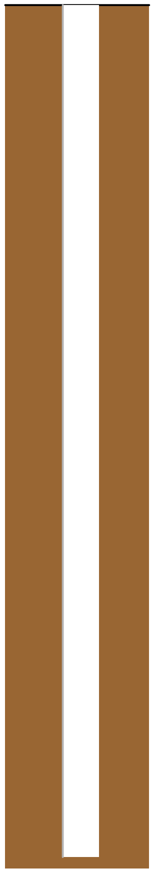




MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 26S/12E-14K01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig19_26S_12E-14K01.grf





EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

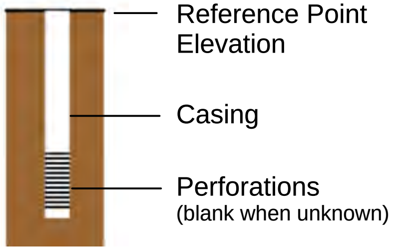
MEASUREMENT NOT VERIFIED*

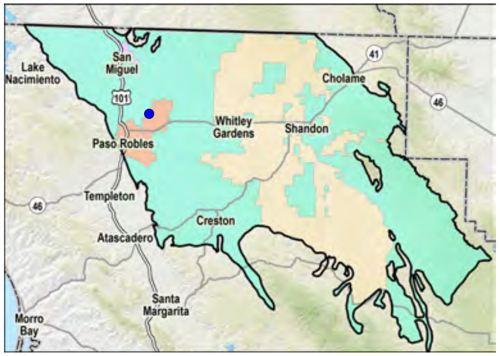
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 740
Screened Interval: unknown
Reference Point Elevation: 789.3 feet above mean sea level

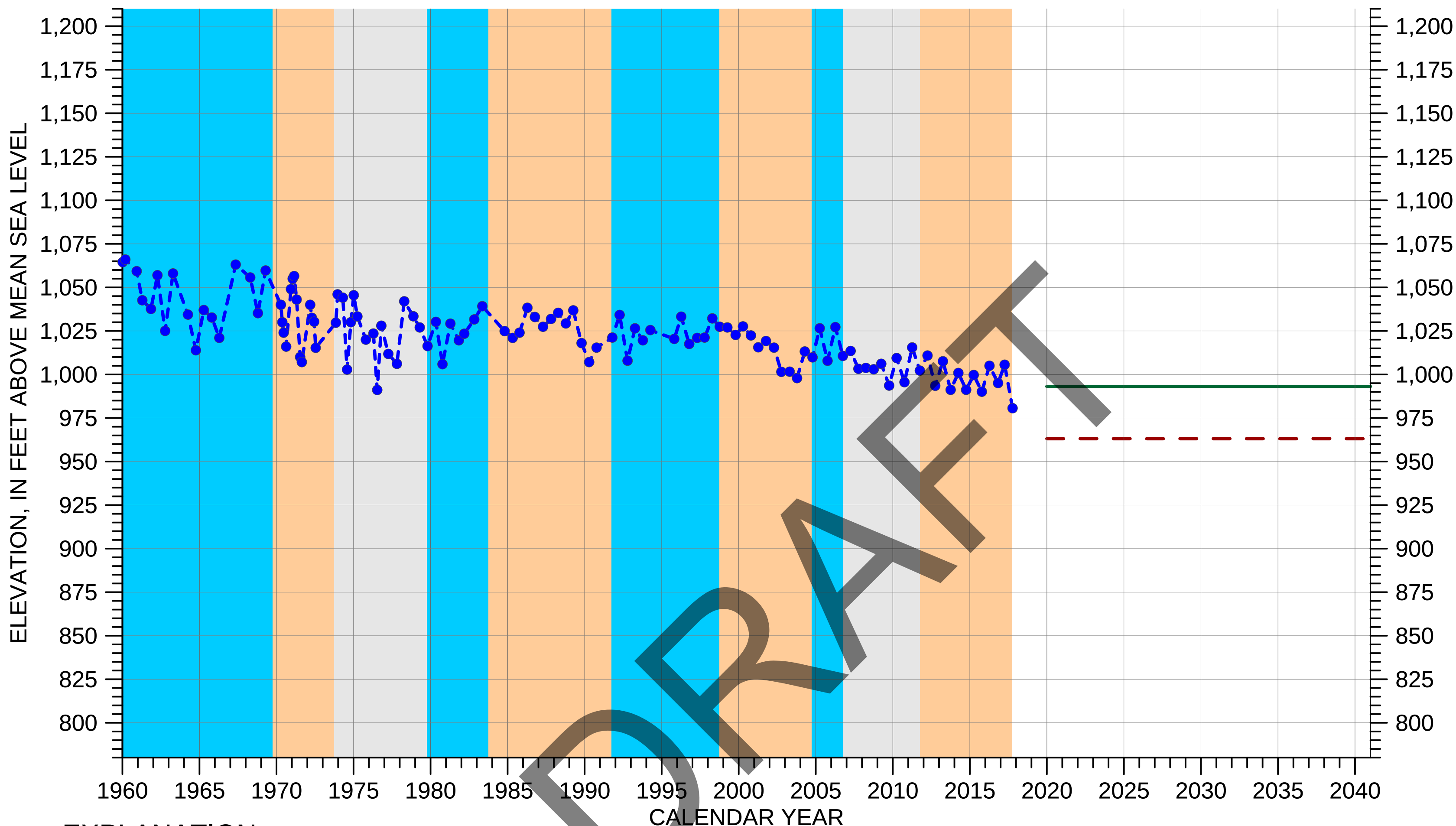
* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 26S/12E-14G01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig20_26S_12E-14G01.grf



EXPLANATION

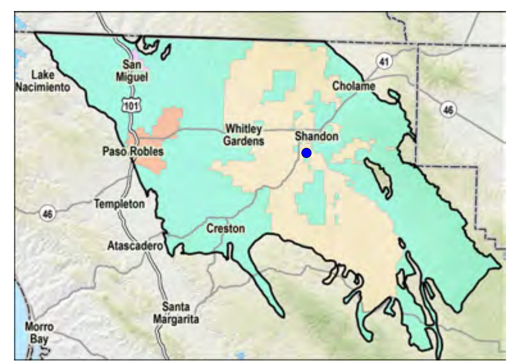
MEASURABLE OBJECTIVE
MINIMUM THRESHOLD
GROUNDWATER ELEVATION
MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

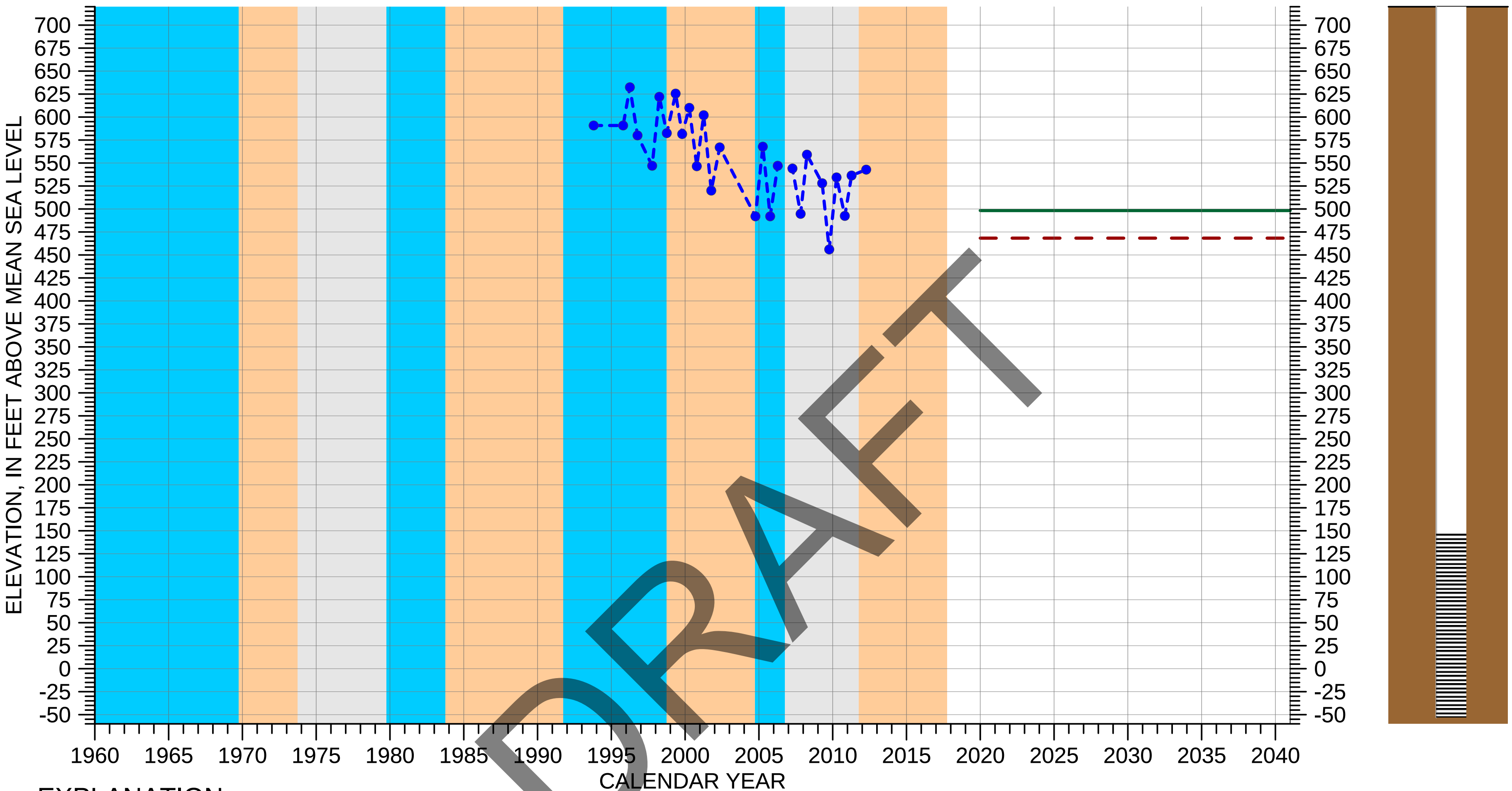
Well Depth: 350
Screened Interval: unknown
Reference Point Elevation: 1135 feet above mean sea level

* Measurement reported as not static



MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 26S/15E-29N01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig21_26S_15E-29N01.grf



EXPLANATION

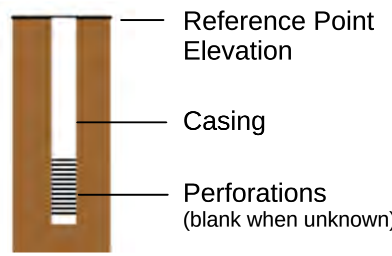
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD
- GROUNDWATER ELEVATION
- MEASUREMENT NOT VERIFIED*

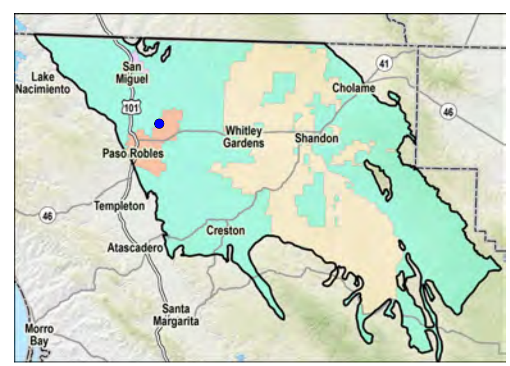
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 840
Screened Interval: 640- ~840 feet below ground surface
Reference Point Elevation: 787 feet above mean sea level

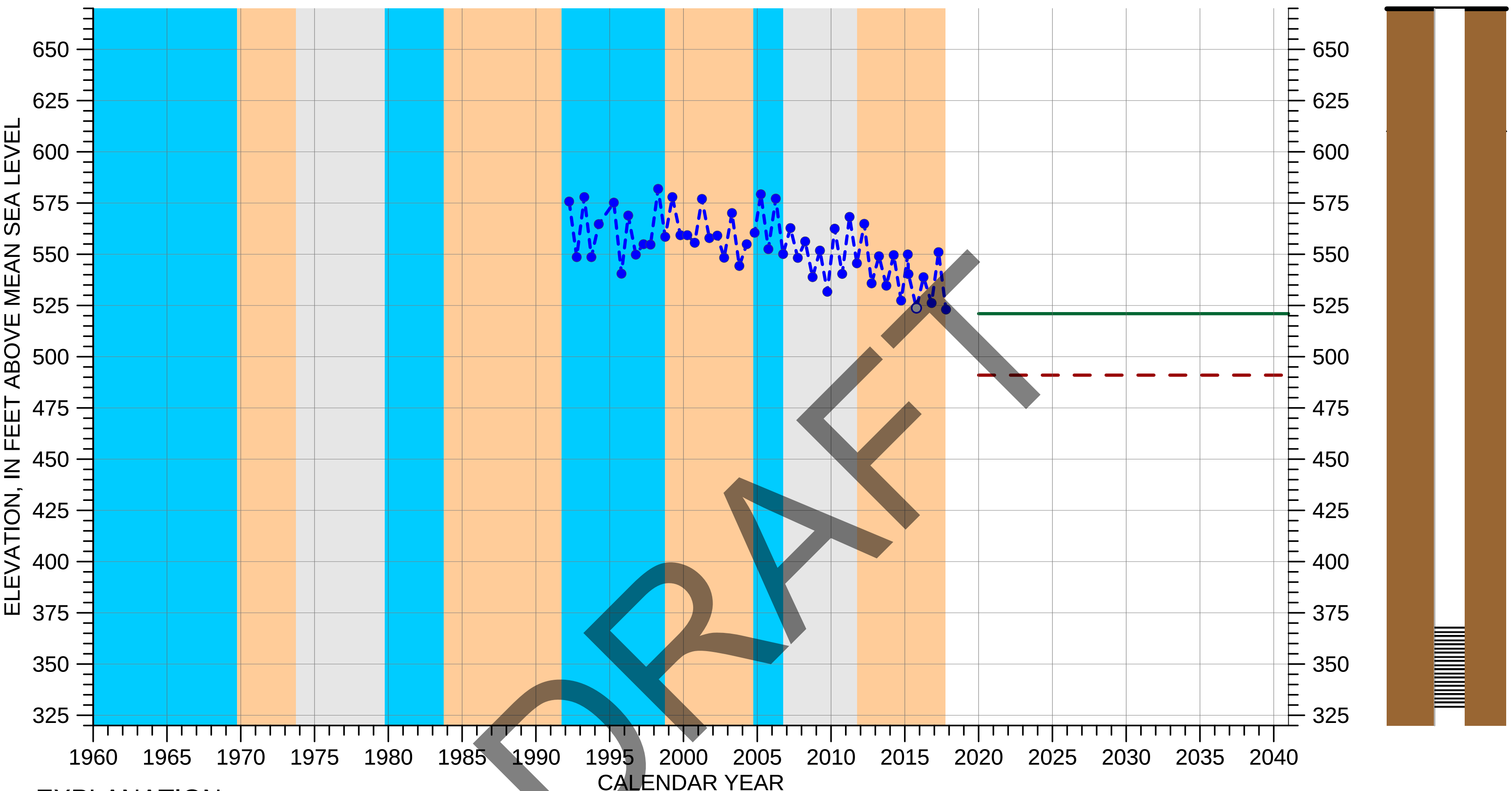
* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 26S/12E-14G02

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\Observed_only\Fig22_26S_12E-14G02.grf



EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

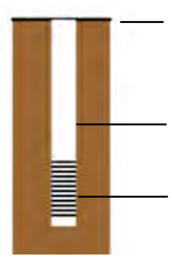
MEASUREMENT NOT VERIFIED*

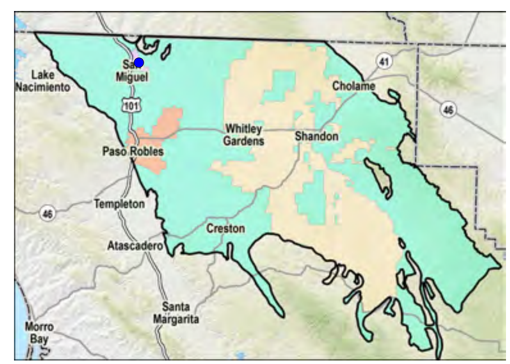
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 350 feet
Screened Interval: 300-310, 330-340 feet below ground surface
Reference Point Elevation: 669.8 feet above mean sea level

* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 25S/12E-16K05

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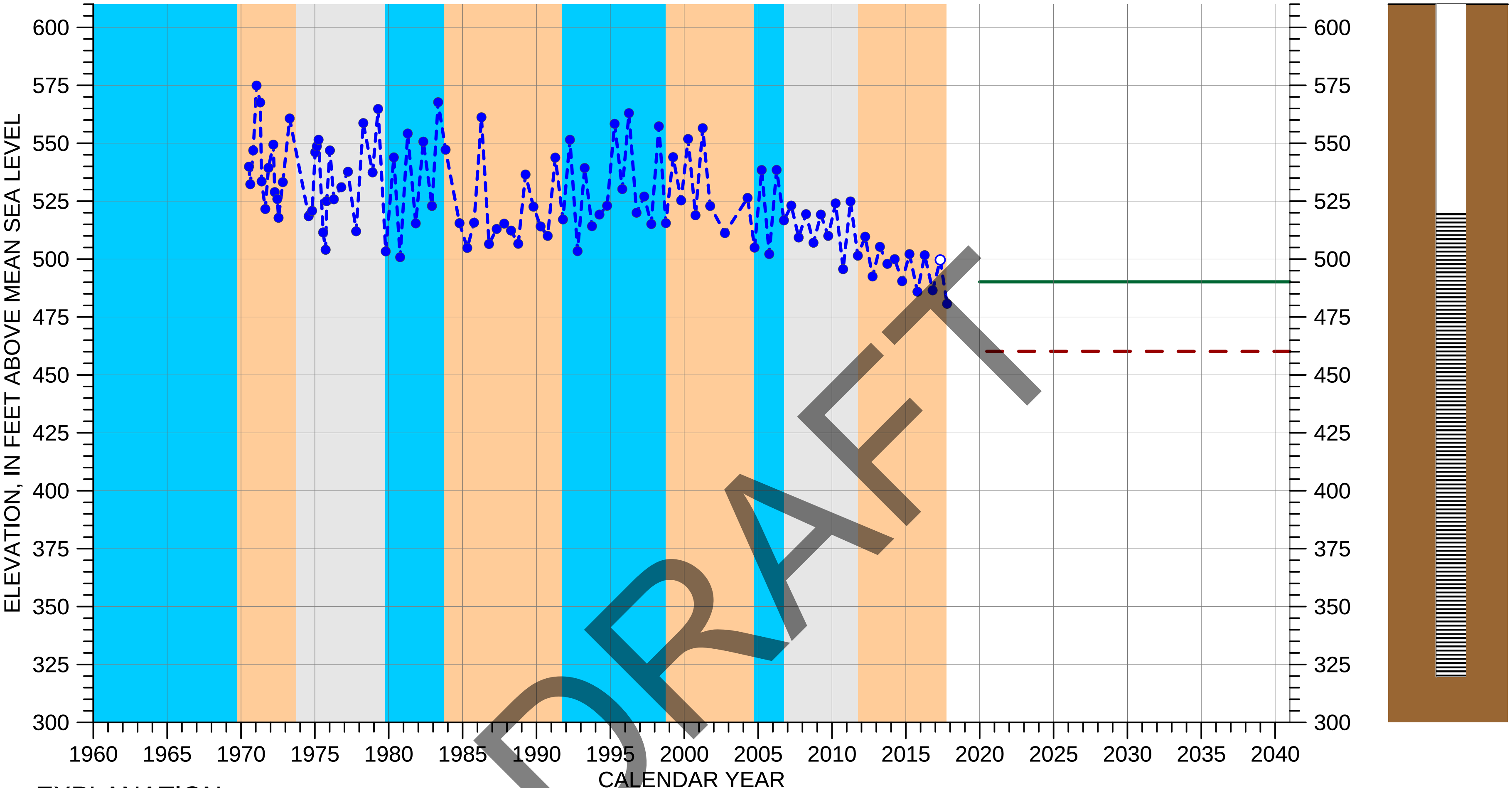


EXPLANATION

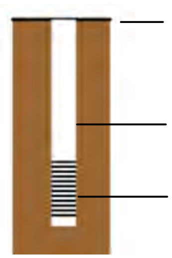
MEASURABLE OBJECTIVE
MINIMUM THRESHOLD
GROUNDWATER ELEVATION
MEASUREMENT NOT VERIFIED*

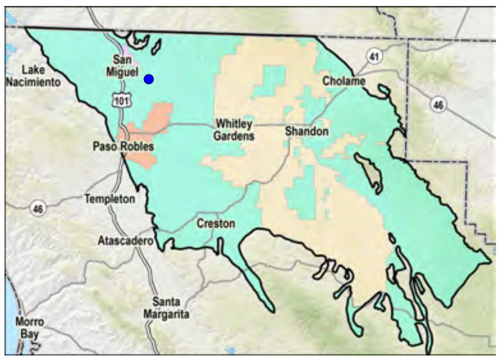
CLIMATE PERIOD CLASSIFICATION

DRY
AVERAGE/ALTERNATING
WET

Well Depth: 400 feet
Screened Interval: 200-400 feet below ground surface
Reference Point Elevation: 719.7 feet above mean sea level

* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 25S/12E-26L01

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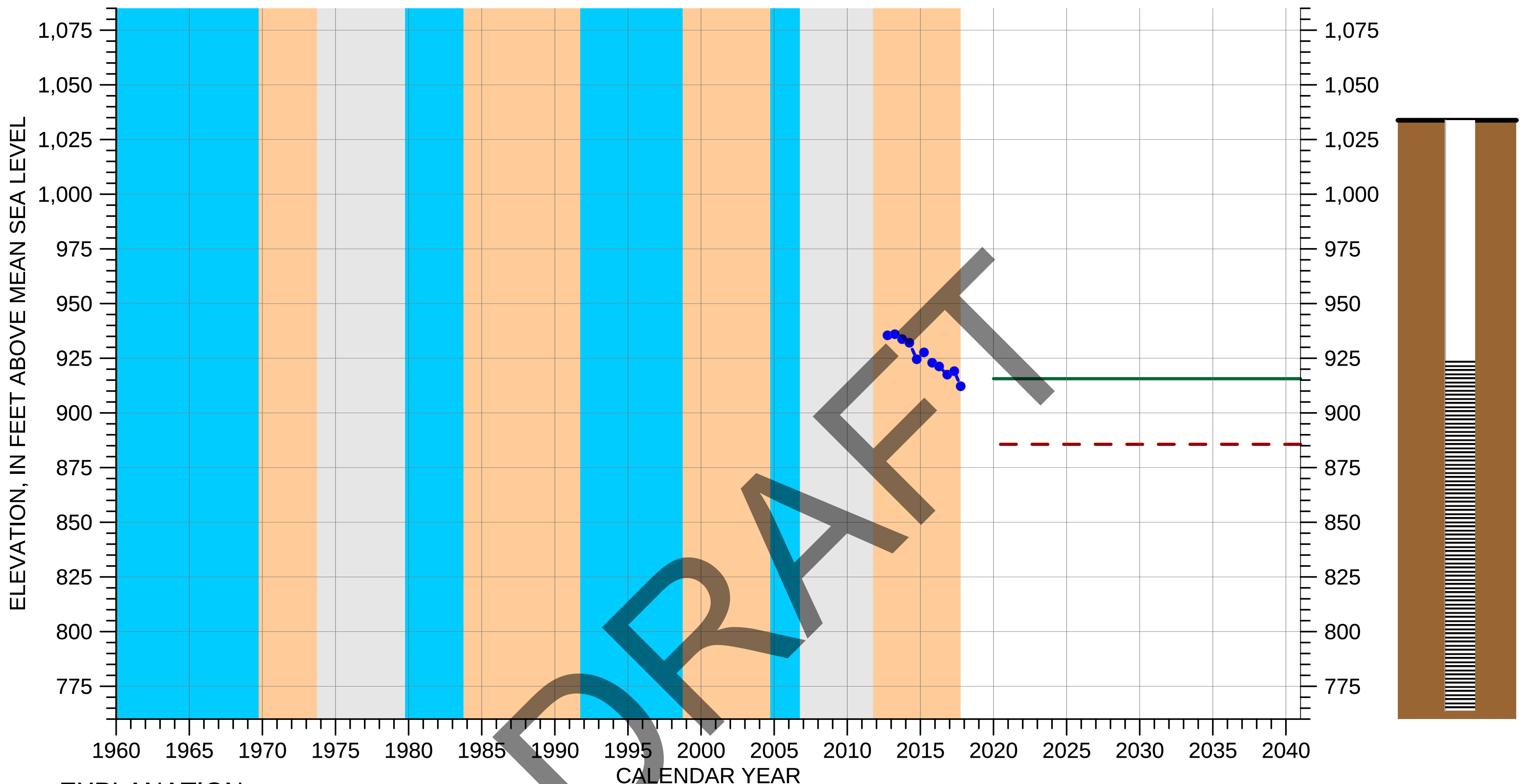

EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

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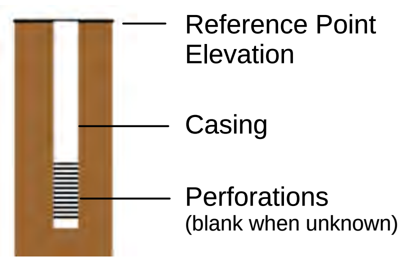
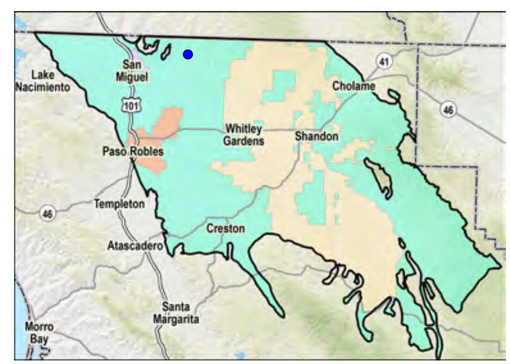
* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 25S/13E-08L02

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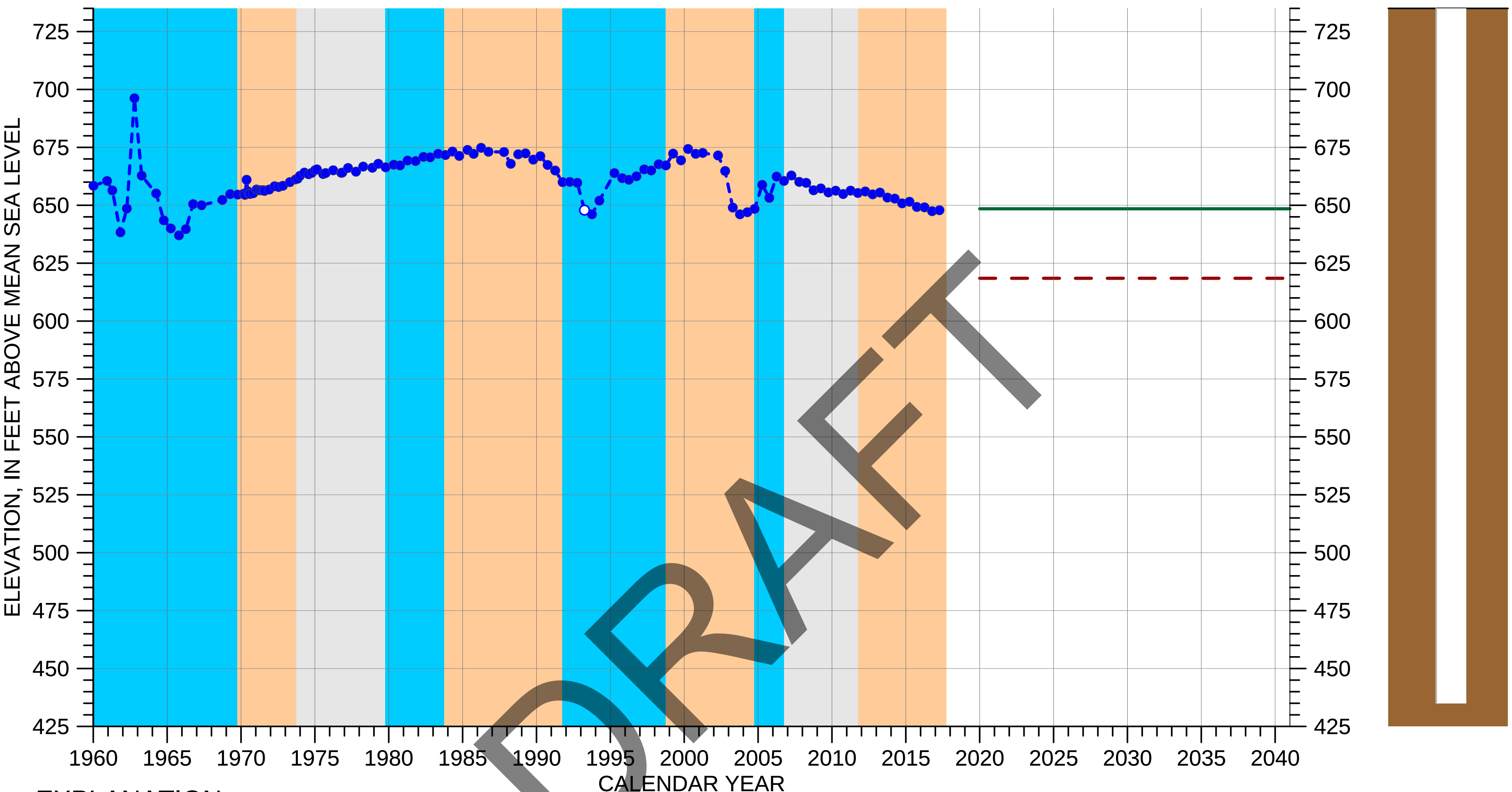


EXPLANATION

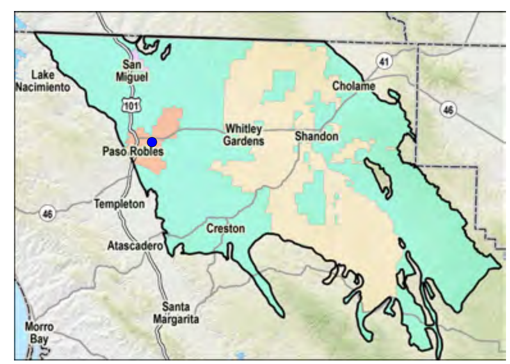
MEASURABLE OBJECTIVE
MINIMUM THRESHOLD
GROUNDWATER ELEVATION
MEASUREMENT NOT VERIFIED*

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 400 feet
Screened Interval: unknown
Reference Point Elevation: 835 feet above mean sea level

* Measurement reported as not static



MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 26S/12E-26E07

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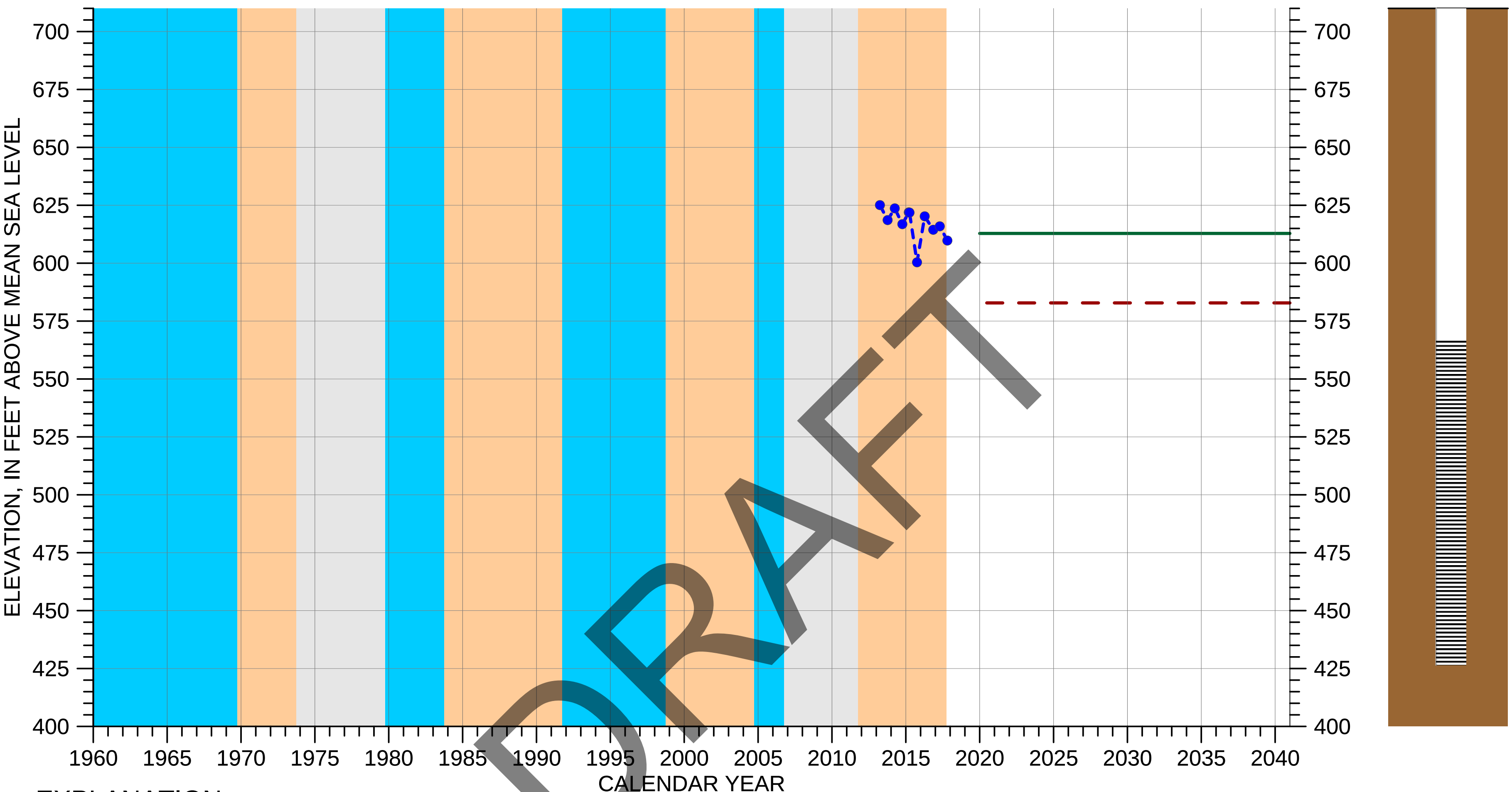


EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

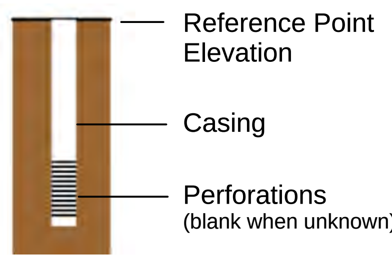
MEASUREMENT NOT VERIFIED*

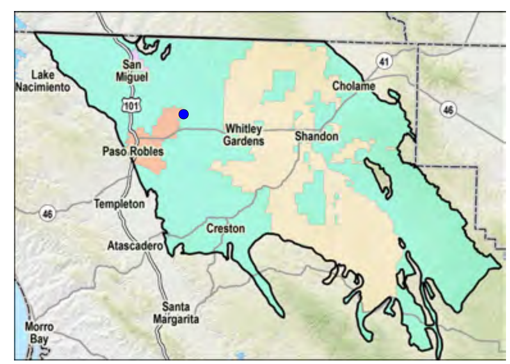
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 400 feet
Screened Interval: 260-400 feet below ground surface
Reference Point Elevation: 827.9 feet above mean sea level

* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 26S/13E-08M01

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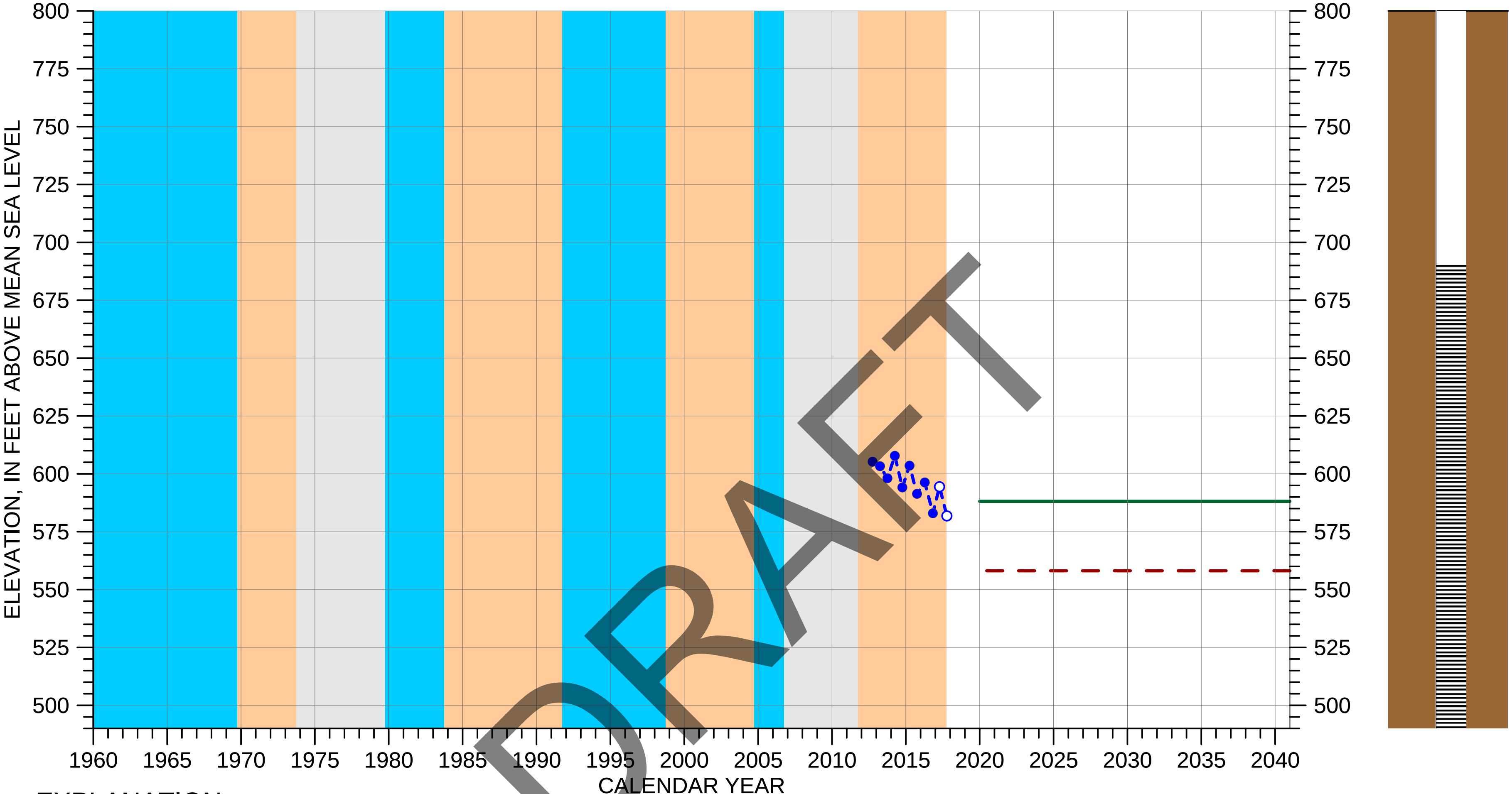


EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

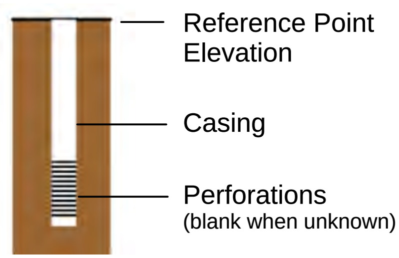
MEASUREMENT NOT VERIFIED*

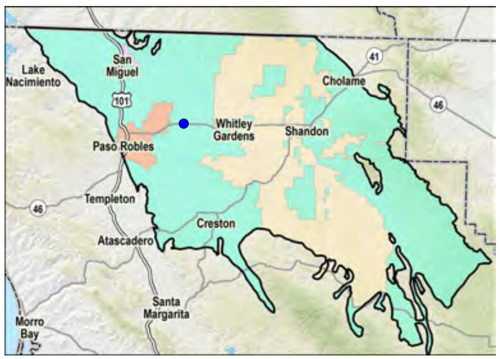
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 400 feet
Screened Interval: 200-400 feet below ground surface
Reference Point Elevation: 890.2 feet above mean sea level

* Measurement reported as not static





MEASUREABLE OBJECTIVES AND MINIMUM THRESHOLDS FOR 26S/13E-16N01

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Appendix I

Water Supplies

APPENDIX I – WATER SUPPLIES

1.1 Overview and Acquisition of Available Water Supplies

There are four types of surface waters available for use in the Paso Robles Subbasin for groundwater recharge or in-lieu use – State Water Project (SWP) water, Nacimiento Water Project (NWP) water, local recycled water, and flood flows from local rivers and streams. Below is a description of each supply, including a discussion of reliability and contracting issues.

1.1.1 State Water Project

The SWP is a water storage and delivery system of reservoirs, aqueducts, power plants, and pumping plants that extend from Northern to Southern California for over 600 miles. Its main purpose is to divert and store surplus water during wet periods and distribute it to 29 contractors in Northern California, the San Francisco Bay Area, the San Joaquin Valley, the Central Coast, and Southern California. The SWP is operated by the California Department of Water Resources (DWR).

The SWP's Coastal Branch passes through the southern portion of the Subbasin, through the Shandon and Creston regions. The Coastal Branch of this system extends from the California Aqueduct for 160 miles through the southern portion of Subbasin. Figure 1 shows the Coastal Branch and Polonio Pass Treatment Plant (PPWTP). Prior to treatment at PPWTP, water in the Coastal Branch is untreated. Water is treated at the PPWTP, and southeast of the PPWTP the water in the Coastal Branch pipeline is of potable water standards.

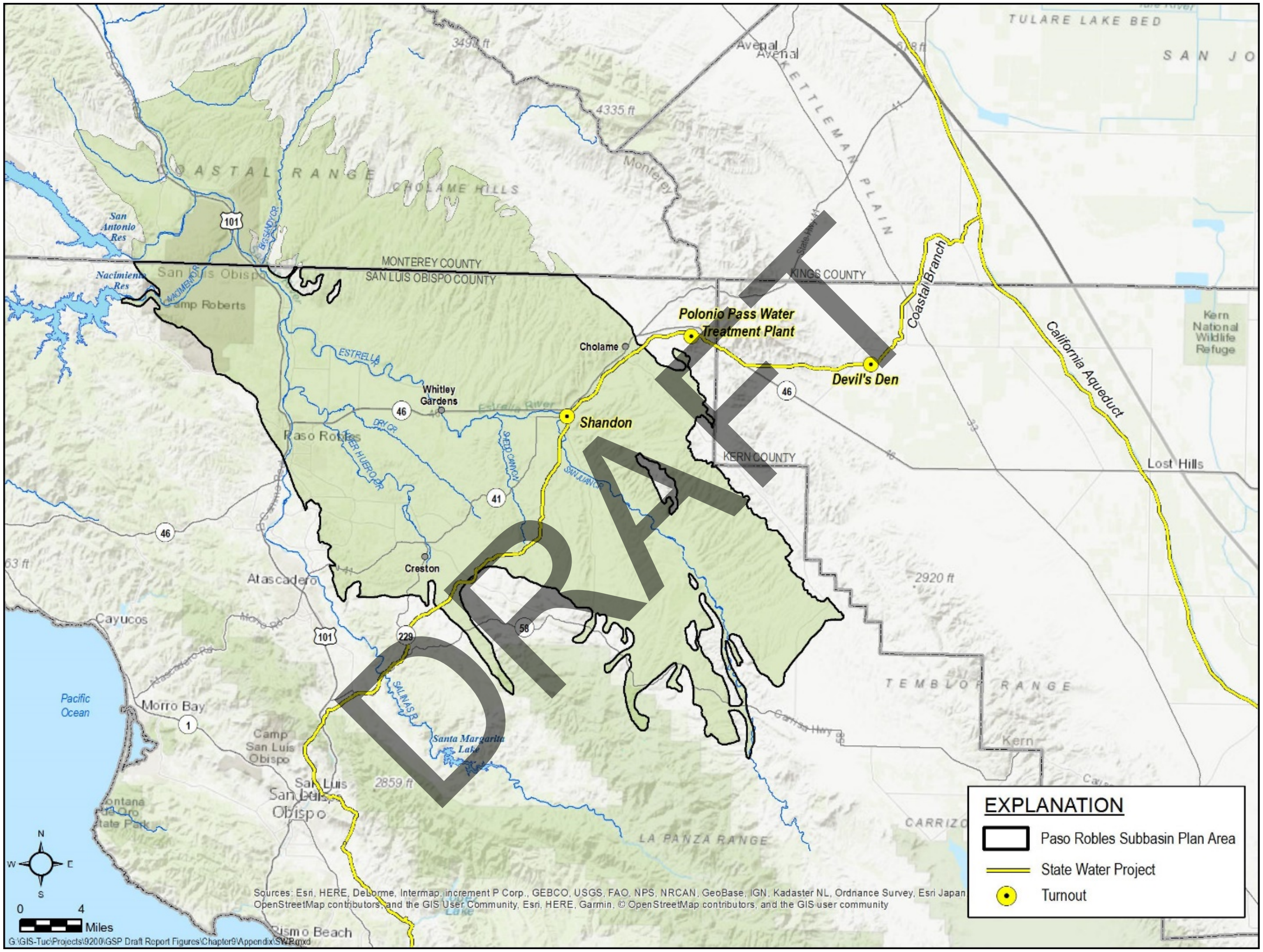

Figure 1: SWP Coastal Branch Infrastructure

The San Luis Obispo County Flood Control and Water Conservation District (SLOCFCWD) is one of DWR's 29 SWP contractors. DWR has contracts with both Santa Barbara County Flood Control and Water Conservation District (SBCFCWCD) and SLOCFCWD to deliver SWP water through the Coastal Branch. The Central Coast Water Authority (CCWA) owns, operates, and maintains the PPWTP and operates the portion of the Coastal Branch that is downstream of Polonio Pass.

SLOCFCWD currently has 25,000 AFY of Table A allocation contracted with DWR. Of this amount, 10,477 AFY is allocated to subcontractors through Water Supply Agreements. SLOCFCWD retains an excess allocation of 14,523 AFY; however, DWR estimates availability of SWP water to average around 58-62% of total allocations (DWR 2014, SWR 2015, DWR 2018). For SLOCFCWD's excess allocation of 14,523, 58-62% corresponds to between 8,400 and 9,000 AFY. For the purpose of the GSP, a value of 8,800 AFY has been assumed as the long-term average annual availability for SLOCFCWD's excess Table A allocation. The actual amount available for delivery by DWR would vary from year to year between zero and 14,523 AF.

1.1.1.1 Physical and Contractual Constraints

According to a study on the Coastal Branch (WSC 2011), enough hydraulic capacity exists to deliver water that exceeds SLOCFCWD's contracted capacity within the Coastal Branch pipeline; however, contractual capacity limits currently constrain the amount of excess allocation available to SLOCFCWD and would need to be renegotiated if SLOCFCWD were to take water at any location downstream of the PPWTP. In particular the Master Water Supply Agreement with DWR dictates:

- District's contractual capacity for Reach 1 is 7.17 cfs (5,191 AFY).
- District's contractual capacity for Reaches 2 through 4 is 7.17 cfs (5,191 AFY).

And the Master Water Treatment Agreement with CCWA dictates:

- District's contractual capacity in the PPWTP is 4,830 AFY

Additionally, existing District subcontractors can increase their SWP allocations. For example, the Oceano Community Services District recently contracted with SLOCFCWD for 750 AFY of additional drought buffer. These increases could limit the amount of excess allocation water available to the Subbasin.

Historical and anticipated future costs for existing subcontractors were analyzed in a supply options study by SLOCFCWD (Carollo, 2017). The analysis determined the range of costs for raw and treated water, shown in Table 1.

Table 1: SWP Estimated Costs Paid by Existing Subcontractors Based on Point of Delivery

Turnout Location	Water Quality	Estimated Unit Cost ($/AF)
SWP & Coastal Branch Intersection	Raw	$467
Devil's Den Pumping Station	Raw	$1,793
PPWTP	Treated	$2,292
Shandon Turnout	Treated	$2,503

The unit costs shown in 1 were estimated average values that were developed to account for a capacity buy-in that includes back payment of capacity allocation and anticipated payment for 20 years. The back payments and future payments were summed and divided over a 20-year payback period. These costs also factor in the SWP system's anticipated future reliability of an average annual delivery of 59% of the total allocation, meaning they are intended to represent costs for actual delivered water.

Raw water is available only east of the PPWTP. To secure the lower raw water cost, new infrastructure would need to be constructed to bring water from upstream of PPWTP to the Subbasin. A previous analysis showed that the annualized cost of the new infrastructure plus the cost of the raw water equated to a similar unit cost as that of treated water. The new infrastructure would also greatly increase the total capital cost of a project. The SWP projects analyzed for the purposes of the GSP assumed the use of treated water; however, the planning and predesign stages of a future SWP project could include an analysis of using treated vs. raw water.

SWP water can be procured by GSAs in two ways: negotiating with a current District or CCWA subcontractor, or negotiating with SLOCFCWD to receive an annual allocation as a new subcontractor.

Under the first method, the purchaser would hold a sub-agreement with an existing subcontractor (that has excess allocation) and not have a direct relationship with SLOCFCWD. The second method would come with an annual buy-in cost and a unit cost of water. It would also, however, increase the potential volume and certainty of supply. Given the amount of water being considered for projects in this GSP, it is likely that being a new subcontractor would be the only feasible route.

Contractual and legal information as it applies to the SWP is described in further detail in Attachment 1 to this appendix.

1.1.1.2 Nacimiento Water Project

The Nacimiento Water Project (NWP) consists of 45 miles of pipeline that conveys raw water from Lake Nacimiento in the northern portion of San Luis Obispo County to communities within San Luis Obispo County. Figure 2 shows an overview of the NWP.

Monterey County Water Resource Agency (MCWRA) manages and operates Lake Nacimiento. SLOCFCWD has an entitlement of 17,500 AFY through a Master Water Agreement with MCWRA negotiated in 1959. Of this amount, 1,750 AFY is permanently allocated to lakeside customers, and the rest is allocated to seven participants. Any surplus NWP water must be obtained through the existing participants. Table 2 shows the allocations of each of the seven participants. These allocations established in 2016 and fully allocated SLOVCWD's entitlement.

Table 2: Nacimiento Water Project Participants and Allocations

Agency	New Allocation
City of Paso Robles	6,488
Templeton Community Services District (CSD)	406
Atascadero Mutual Water Company (MWC)	3,244
City of San Luis Obispo	5,482
County Service Area 10A (CSA 10A)	40
Bella Vista Mobile Home Park	10
Santa Margarita Ranch Mutual Water Company	80
Total	15,750

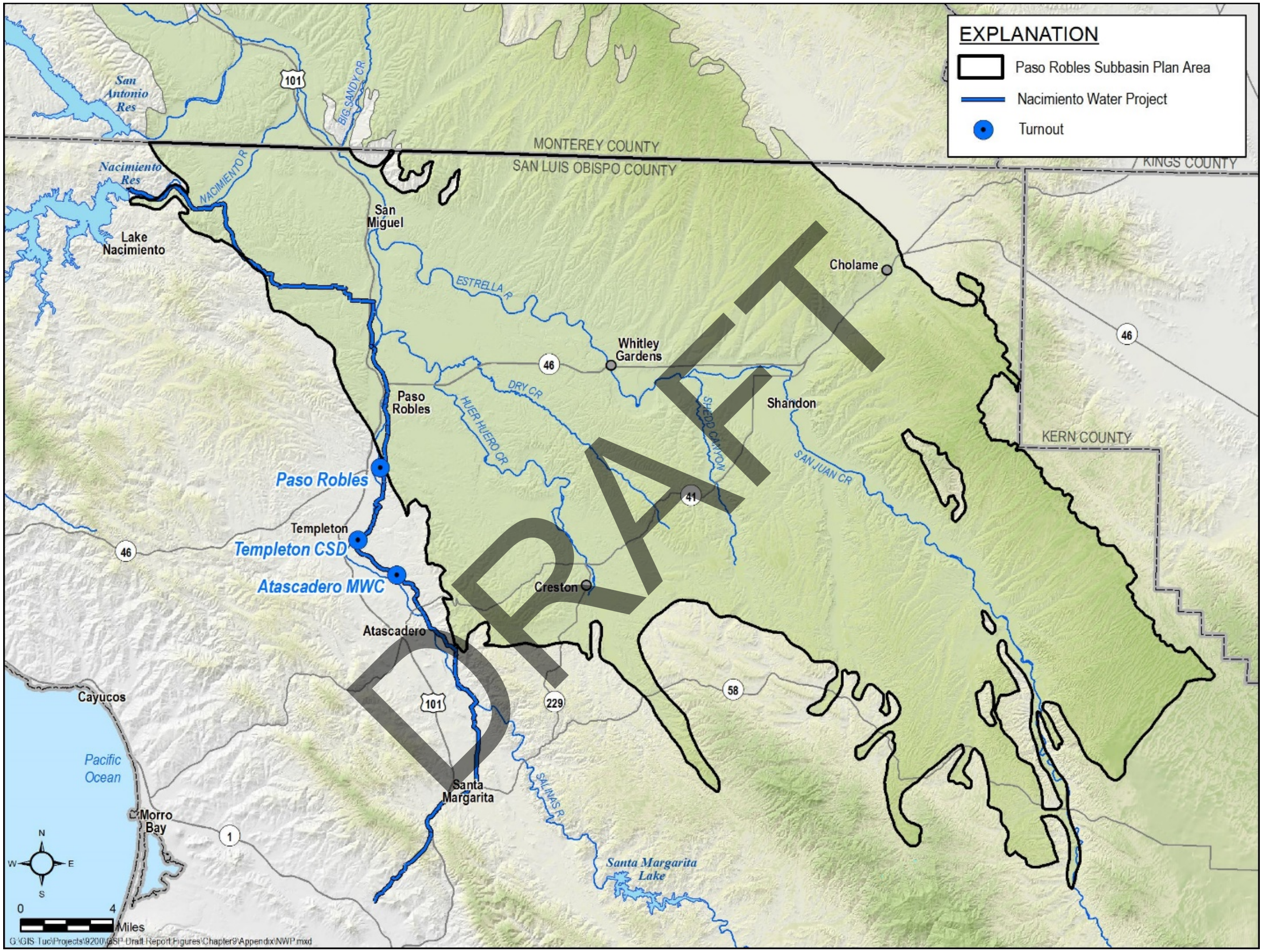

Figure 2: NWP Infrastructure

A previous study projected surplus NWP water based on participant's projected use (Carollo, 2017). The projected surplus is shown in Table 3. NWP is a very reliable supply, since SLOCFCWD's entitlement is for the lowest pool in the reservoir, and therefore is largely immune to level fluctuations. However, as seen in Table 3, NWP participants tend to use more during drought conditions, leaving less surplus water.

To determine how much NWP water might be available for purchase by the GSAs, the 2040 projected annual average surplus supply amounts were used. Dry years were assumed to occur one year out of every three years. A weighted average of the 2040 dry and wet year supplies was calculated as 5,800 AFY. While 5,800 AFY was assumed to be available to the Paso Robles GSAs, the actual amount would need to be negotiated with existing NWP project participants as there may be other entities interested in acquiring surplus NWP water.

Table 3: Nacimiento Water Project Projected Annual Surplus Supply

	Normal Year (AFY)	Dry Year (AFY)
2020	10,135	5,577
2030	8,473	4,045
2040	7,269	2,852

The NWP contract established the process for determining the cost per acre-foot of surplus water, which was applicable prior to full allocation of NWP water among the existing participants. According to the contract, the cost of surplus water to each NWP participant had two components:

1. Operations and maintenance costs per AF of surplus water for the prior year
2. Variable energy costs associated with delivering the surplus water.

For non-participants, a third component is added consisting of debt service costs for surplus water delivered for the current year. Table 4 shows the estimated costs for FY 2015/16, which was the last year when there was non-allocated NWP water available.

Table 4: Nacimiento Water Project Estimated Costs

Location	For Participants	For Non-Participants[2]
City of Paso Robles	$216/AF	$1,299/AF
Templeton CSD	$234/AF	$1,967/AF
Atascadero MWC	$235/AF	$1,554/AF

Under full allocation, the NWP contract requires selling surplus water at a cost the market can bear but not less than costs participants pay for the delivery of the same unit or units of water. At the time of this report, no surplus water sales have occurred after full allocation approval in April 2016. Thus, a range of purchase costs is possible.

The minimum cost of $250/AF is based on FY 2015/16 costs for participants, representing the cost to convey the water to a turnout. The maximum cost of $2,000/AF is assumed based on FY 2015/16 costs for non-participants, including the debt service cost. However, the actual cost must be negotiated between the purchaser and the NWP participants.

A non-participant may purchase NWP water from an NWP participant every year. However, the non-participant will not have permanent rights to the water unless a participant is willing to sell a portion of its NWP allotment. Thus, a multi-year purchase agreement from a non-participant is likely required to support capital investment in conveyance facilities.

1.1.1.3 Recycled Water

The Paso Subbasin contains two wastewater treatment plants (WWTPs): Paso Robles WWTP and San Miguel WWTP. Recycled water meeting high quality standards established by the State of California is available from these plants year-round. Most demand or recycled water is non-potable demand, such as irrigation. This demand is seasonal, with much greater demand in the summer.

Water quality is a potential issue for irrigation projects using recycled water. Because the water is high in salinity, only a portion of the total amount of water used for irrigation can be recycled water without damaging the crops. To mitigate this issue, recycled water projects in the Subbasin would either be blended with groundwater supplies or occasional flushing would be performed to prevent buildup of salts in the root zone.

The City of Paso Robles is in the process of planning and constructing a recycled water project which could provide up to 2,900-5,000 AFY of in-lieu and direct recharge by providing recycled water for use on golf courses, City parks, nearby vineyards, and recharge through discharge into Huer Huero Creek.

According to the Recycled Water Distribution System Final Design (Carollo, 2018), 1,320 AFY of recycled water will be available during Phase 1 of the project. Some of this water will be used for park irrigation and industrial use, offsetting the City of Paso Robles’ potable water demand. Some of this water will be used to offset agricultural pumping. Excess water supply will be discharged to Huer Huero Creek as a recharge project. Phase 1 of the project is modeled in the modified baseline simulation of this GSP, beginning in 2025.

Phase 2 of the project is less well defined. Phase 2 is based on the assumption that as the City grows, the available wastewater for recycled water use will increase. In Phase 2, an assumed additional 902 AFY of recycled water will be available for use for both in-City and out of city demands. Excess tertiary treated water will be discharged to Huer Huero creek. Phase 2 of the project is modeled in the modified baseline simulation of this GSP beginning in 2040.

Phase 1 of the recycled water project planned by the City of Paso Robles is shown in Figure 3. Private pipelines that will use recycled water for agricultural purposes are not shown in Figure 3; however, the in-lieu recharge has been modeled as part of the modified baseline simulation.

The City of San Miguel is also planning to reuse some or all of its centrally-treated wastewater which could amount to up to 200+ AFY. This additional recycled water is also available for irrigation or other non-potable projects that could offset groundwater pumping.

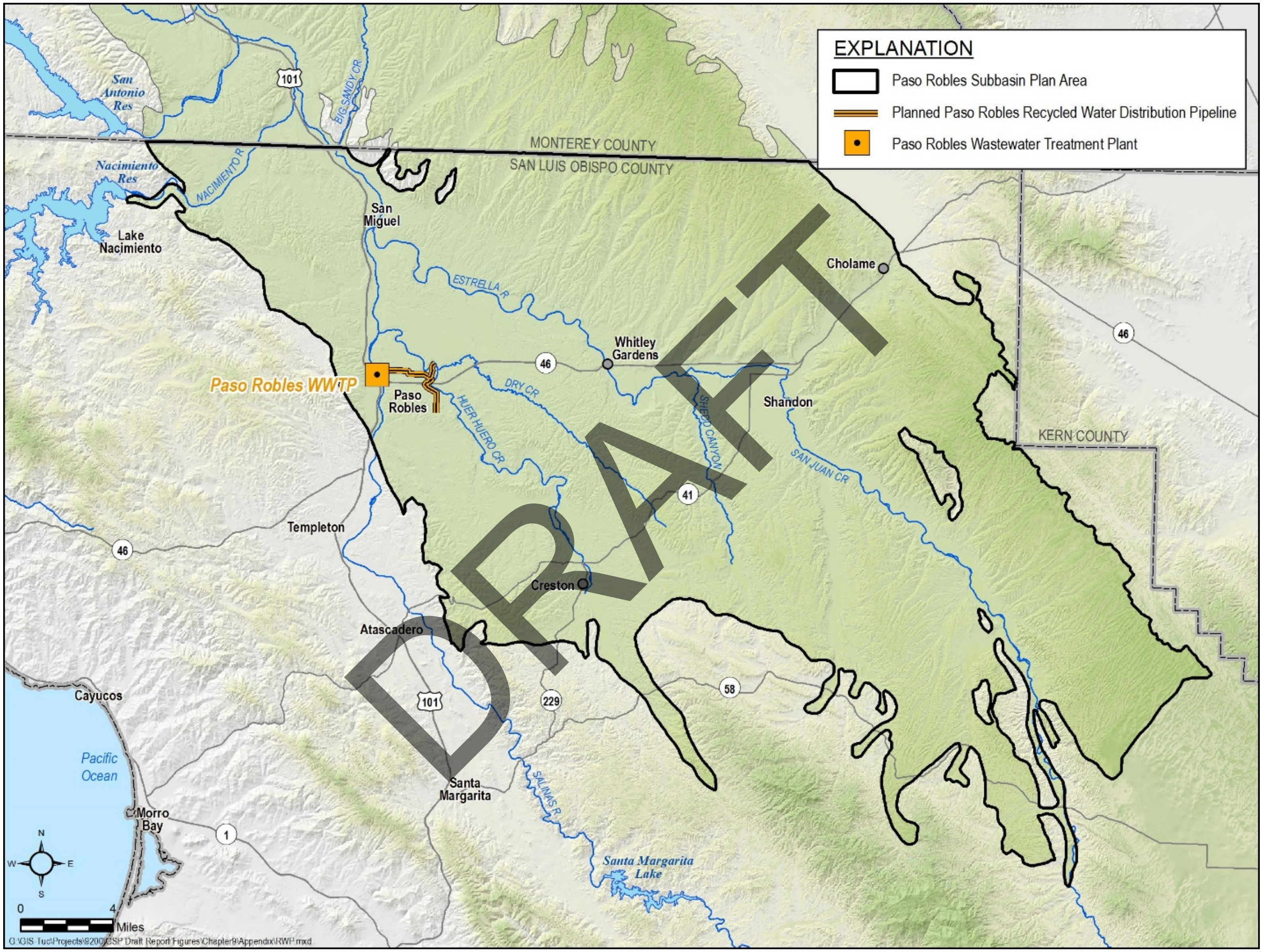

Figure 3: City of Paso Robles Planned Recycled Water Project

1.1.1.4 Surface Water

Three large perennial streams flow through the Paso Robles Basin – the Salinas River, the Estrella River, and Huer Huero Creek, as shown in Figure 4. There are two ways to acquire rights to use surface water from these streams – a standard surface water diversion permit or a temporary flood flow permit, both discussed below.

Acquiring a standard diversion permit is a lengthy and complicated process. A standard permit is likely to be very difficult to acquire, since any downstream user can protest a permit application. Furthermore, the Salinas River between Salinas Dam and the inlet of the Nacimiento is fully allocated throughout the year, except between January and May 1. The acquisition of a standard water diversion permit was not explored further.

DWR has circulated a proposed approach to streamline applicants that seek to divert water only during high flow events (SWRCB 2018). Under the proposed administrative approach, applicants could apply for a temporary permit to divert flows that exceed the 90^{th} percentile daily flow up to 10 or 20% of the total flow between December 1 and March 31.

For example, the 90^{th} percentile flood flow of the Salinas River for January 26^{th} is 1,250 cfs; however, the 90^{th} percentile flood flow for January 27^{th} is 876 cfs. If the river were to flow at 1,000 cfs for both days, water could only be captured during January 27^{th} but not during January 26^{th}. What this means is that flood flows could only be captured infrequently and the large scale infrastucture required to capture these flows could sit idle many years at a time.

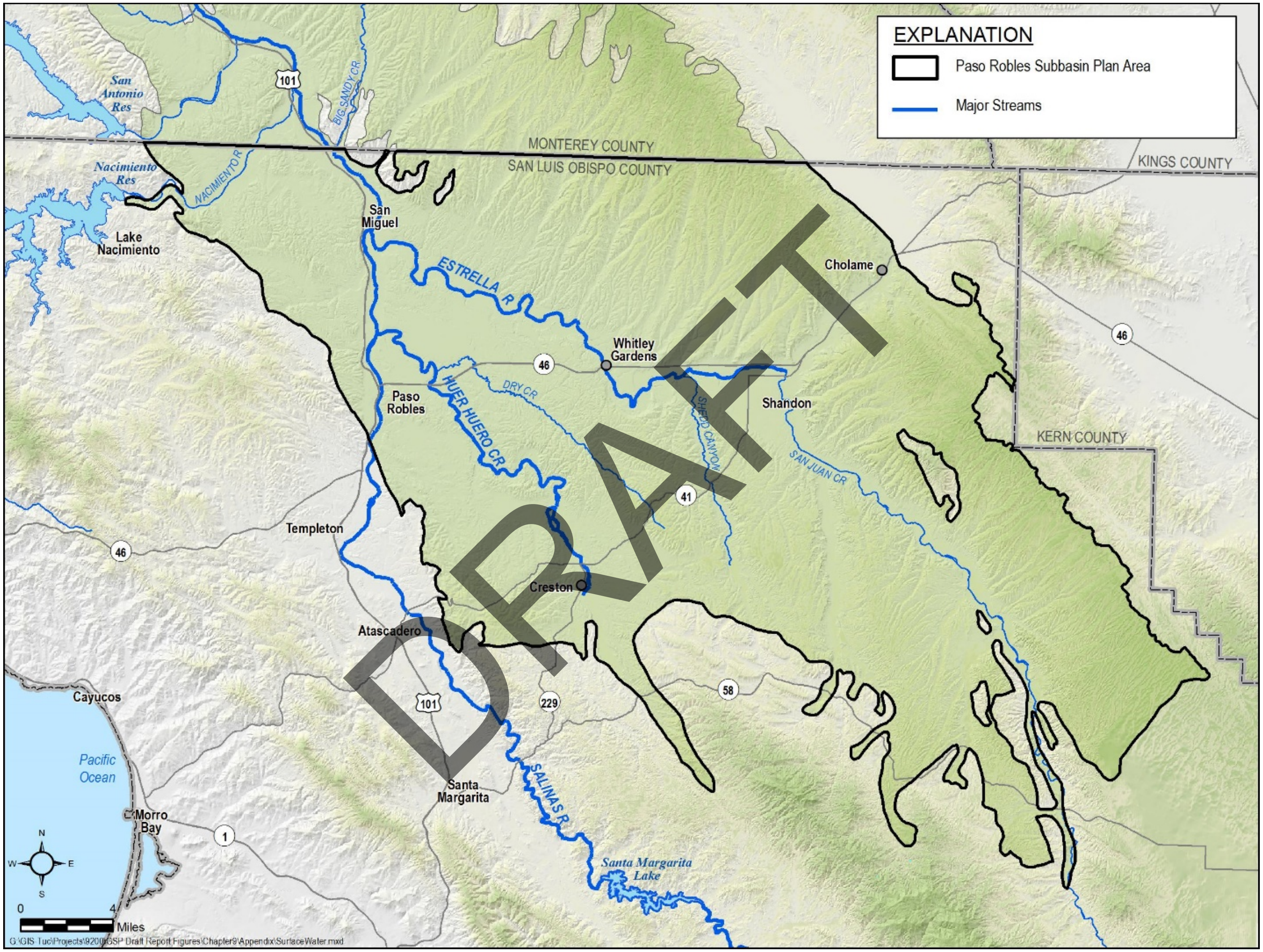

Figure 4: Major Streams in the Paso Robles Subbasin

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DWR 2014. The State Water Project Final Delivery Reliability Report 2013. December 2014.

DWR 2015. The State Water Project Final Delivery Capability Report 2015. July 2015.

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SWRCB 2018. Streamlined Permitting Process for Diversions of High Flows to Underground Storage: Discussion Draft July 20, 2018. SWRCB Division of Water Rights. July 20, 2018.

WSC 2011. Capacity Assessment of the Coastal Branch, Chorro Valley & Lopez Pipelines. 2011.

WSC 2016. Paso Robles Groundwater Basin Supplemental Supply Options Study: Technical Memorandum No. 3. Potential Supply Options and Points of Delivery for State Water. San Luis Obispo County Flood Control and Water Conservation District. December 2016.

ATTACHMENT 1: MEMORANDUM REGARDING STATE WATER PROJECT EXCESS ALLOCATION

O'Laughlin & Paris LLP Attorneys at Law

MEMORANDUM

To:	HydroMetrics – Paso Robles GSP
From:	OLP
Issue:	San Luis Obispo County Flood Control and Water Conservation District's State Water Project "Excess Allocation"
Date:	June 6, 2018
Client No.:	1902

San Luis Obispo County's State Water Project ("SWP") contract is between the San Luis Obispo Flood Control and Water Conservation District ("District") and the Department of Water Resources ("DWR"). (District SWP Water Supply Contract, at 1.) This Water Supply Contract gives the District the right to 25,000 acre-feet of SWP water each year. (District SWP Water Supply Contract, at 78.) The District then subcontracts its SWP allocation to ten subcontractors.

The SWP water is delivered to the District via the Coastal Branch of the California Aqueduct. Although the District is entitled to 25,000 acre-feet of SWP water each year, contractual provisions from agreements entered during the Coastal Branch's construction substantially limit the District's Coastal Branch conveyance capacity. Consequently, the District possesses an "Excess Allocation," which represents the difference between the District's annual allocation and the water reserved and delivered to its subcontractors. The following discussion begins with a primer on the District's involvement with the SWP. It then addresses the District's Excess Allocation and concludes by discussing factors influencing how much Excess Allocation water is currently available.

I. <u>State Water Project: Coastal Branch – Background.</u>

The SWP is a water storage and delivery system of reservoirs, aqueducts, power plants, and pumping plants extending for more than 600 miles from northern to southern California. ((SLO Technical Memorandum #3, at 3-6) ("Tech. Memo 3").) The California Aqueduct ("Aqueduct") is one of the key features of the SWP by conveying water from the Delta to central and southern California. (*Id.*) Of relevance here, the Coastal Branch of the SWP connects to the Aqueduct approximately 11 miles south of Kettleman City. (*Id.*) The Coastal Branch extends for approximately 160 miles through Kings, Kern, San Luis Obispo, and Santa Barbara Counties and terminates in Northern Santa Barbara County. (*Id.*)

DWR delivers SWP water through the Coastal Branch to two SWP contractors: (1) the District; and (2) the Santa Barbara County Flood Control and Water Conservation District ("SBCFCWCD"), via the Central Coast Water Authority ("CCWA"), a joint powers authority. Both the District and CCWA then subcontract out their SWP entitlements via "Water Supply Agreements" with individual subcontractors. (*Id.*)

The Coastal Branch was constructed in two phases – "Phase I" and "Phase II." (*Id.*) Phase I was completed in 1968 and includes 15 miles of aqueduct and two pumping stations (Las Perillas and Badger Hill). Although Phase I was completed in 1968, SWP water was not delivered to SBFCWCD or the District until Phase II was completed, because the facilities did not reach the District or SBFCWCD end users. (Department of Water Resources Bulletin 132-98, at xxviii.)

Phase II consists of 101 miles of pipeline and extends from the terminus of Phase I to Tank 5, located in Northern Santa Barbara County. (Tech. Memo 3, at 3-9.) Included within Phase II are three pumping stations (Devils Den, Bluestone, and Polonio Pass) as well as the Polonio Pass Water Treatment Plant ("PPWTP"). (*Id.*) After Phase II was completed in August 1997, SWP water was finally delivered to the District and SBCFCWCD. (*Id.*)

The ownership and operation of the Phase II facilities is divided amongst/between DWR, CCWA, and the District. DWR was responsible for the design and construction of all Phase II facilities. (CCWA Urban Water Management Plan 2010, at 3.) Following construction, DWR has retained ownership of Phase II facilities. (*Id.*) In addition, DWR maintains and operates the "raw water portion" of Phase II, which is located "upstream" of the PPWTP. (San Luis Obispo Regional Integrated Water Management Proposal, Attachment 13, at 1-2.)

However, CCWA and the District financed the costs for Phase II's design and construction and continue to finance the operation of Phase II. (*Id.*) CCWA operates the "treated portion" of Phase II, which runs from the PPWTP and encompasses all conveyance facilities from the PPWTP to the end of Phase II in Santa Barbara. (Central Coast Water Authority, 2017-18 Fiscal Budget, at 298.)

The District's delivery of water through Phase II facilities is controlled by the Master Water Treatment Agreement between the District and CCWA. This Agreement provides that CCWA is responsible for treating the District's SWP water at the PPWTP and conveying the treated water through Phase II facilities to District subcontractors. (Tech. Memo 3, at 3-11.) The District only funded its portion of Phase II, which would support the delivery of 4,830 acre-feet per year. Because of the District's decision to fund the Phase II only up to its existing demand, the Water Treatment Agreement limits the delivery of District water to 4,830 acre feet of PPWTP treated water through the Phase II conveyance facilities per year. (*Id.*; Master Water Treatment Agreement 1992 and 1995.)

II. <u>Quantifying the District's Excess Allocation</u>

The District's Excess Allocation represents the difference between its SWP entitlement of 25,000 acre-feet per year and the amount of water reserved by its subcontractors. (Tech Memo 3, at 3-10.) As noted above, subcontractor demand is 4,830 acre-feet per year. (*Id.*, at 3-10 to 3-11.) This leaves 20,170 acre feet of excess allocation.

However, the SWP often is not able to deliver 100 percent of contract water to the SWP contractors. Because the SWP allocations are often reduced to below 100 percent delivery, the District also provides its subcontractors the opportunity acquire "drought buffer" deliveries. The purpose of the drought buffer is to maintain full water deliveries to District subcontractors even when SWP allocations are reduced.

The District provides up to 5,747 acre feet of drought buffer allocation per year, as shown in the chart below. The drought buffer works as follows: Envision a subcontractor with a contract for 100 acre-feet of water per year (Water Service Amount) and 100 acre-feet "drought buffer." In a year where SWP allocation are reduced to 50 percent of the contract amount, this subcontractor would still get 100 acre-feet of water because they would get 50 percent of their water service amount (50 acre-feet) and 50 percent of their drought buffer (50 acre-feet).

Subcontractor	Water Service Amount	Drought Buffer	Total Reserved
Chorro Valley Turnout		*~$1,100 per AF*	
City of Morro Bay	1,313	2,290	3,603
CA Men's Colony	400	400	800
County OP Center	425	425	850
Cuesta College	200	200	400
Lopez Turnout		*~$1,000 per AF*	
City of Pismo Beach	1,240	1,240	2,480
Oceano CSD	750	750	1500
San Miguelito MWC	275	275	550
Avila Beach CSD	100	100	200
Avila Valley MWC	20	60	80
San Luis Coastal USD	7	7	14
Shandon	100	0	100
TOTAL	**4,830**	**5,747**	**10,577**

As displayed above, the District's current subcontractors have purchased various quantities of drought buffer rights. In years where SWP allocations are reduced to greater than 50 percent, the District will need to demand almost the entire 10,577 acre feet to serve its subcontractors. This reduces the excess allocation of the District to <u>14,423 acre-feet per year</u>. ((San Luis Obispo County Water Resources, Division of Public Works: State Water Project, available at: https://www.slocountywater.org/site/Major%20Projects/State%20Water%20Project/) (Accessed May 14, 2018).)

III. <u>How Much of The District's Excess Allocation is Actually Available</u>?

On paper, the District has 14,423 acre-feet in Excess Allocation. However, there are several factors that may make it difficult to access and put the Excess Allocation to beneficial use. Those factors are summarized below.

1. <u>SWP Rarely Delivers 100 Percent of Contractor Allocation</u>

Although the District is entitled to 25,000 acre-feet per year, the actual amount of water delivered to SWP contractors can vary substantially each year. For example, in 2006, the District received 100 percent of its annual allocation. (Tech. Memo 3, at 3-17.) Conversely, in 2014, the District received only 5 percent of its annual allocation. (*Id.*) Carollo Engineers developed a Technical Memorandum on behalf of the District addressing supplemental supply options in the Paso Robles basin.

The Technical Memorandum estimated that future long-term average annual allocation would likely be around 58 percent. (Tech. Memo 3, at 3-30.) In other words, for planning purposes, future SWP deliveries to the District will likely average around 58 percent of the District's 25,000 SWP contract entitlement. (*Id.*) Applying this figure to the District's current Excess Allocation, this means (all other constraints aside) the District could expect to have access to approximately 8,365 acre-feet of excess allocation per year in an average year – rather than 14,432 acre-feet. (14,432 acre-feet x .58 = 8,365.34).

2. Capacity Constraints

As discussed above, the District's Master Water Treatment Agreement limits the District's Phase II capacity to 4,830 acre-feet per year. Thus, even if the District could obtain excess allocation from the SWP, the current Agreement with CCWA limits capacity to 4,830 acre feet per year.

The Technical Memorandum concluded that there is "significant unused capacity" within the SWP Coastal Branch facilities that could be used to deliver additional District SWP water. (Tech. Memo 3, at 3-3.) If there is physical capacity available, it is possible the District and CCWA could negotiate an amendment to the Master Water Treatment Agreement to allow the District to access additional capacity in Phase II facilities. The Master Water Treatment agreement has been amended before (in 1995 to reflect the District's current 4,830 acre-feet limitation). However, that amendment occurred before Phase II was completed in 1997. While the Master Water Treatment has an amendment provision, it does not appear that the agreement has been amended since Phase II came online in August of 1997.

Other than amendment of the Master Water Treatment Agreement between the District and CCWA, there are capacity limitations for the Coastal Branch facilities reaches 1-6 included in the DWR contract for SWP water with SBCFCWCD. (Table B of the SWP/SBCFCWCD Contract.) To the extent these limitations control CCWA, they may restrict CCWA from allocating the District additional capacity in Phase II facilities.

The Master Water Treatment Agreement between CCWA and the District limits the District's capacity on the "treated" portion of Phase II. However, the Master Water Treatment Agreement does not limit the District's capacity to convey water through the "untreated portion" of Phase II (Reach 1) which consists of approximately 16.2 miles of pipeline and three pumping plants (Devils Den, Bluestone, and Polonio Pass). (Tech. Memo 3, at A-3 (Need to review Exhibit E of the Master Water Treatment Agreement to confirm this finding.).) Similarly, the Master Water Service Agreement does not limit District delivery of water through Phase I (completed in 1968). Therefore, if the conveyance capacity challenges above cannot be overcome, there may be an option to access the excess SWP allocation by building a new pipeline or other delivery conveyance structure that separately conveys the excess allocation prior to the “treated” portion of Phase II facilities.

3. Potential Rights of Existing Subcontractors

The District currently has 10 subcontractors. The subcontractors may have certain rights of first refusal on the District’s Excess Allocation. Specifically, this right derives from the District’s “Excess Entitlement Policy” and may be further included in each subcontractor’s Local Water Supply Contract with the District.

In 2003, the District developed a series of Excess Entitlement policies. (Tech. Memo 3, at 3-10 to 3-11 (San Luis Obispo Board of Supervisors, *Policy on Excess State Water Supply*, January 2003).) In relevant part, these policies provide that prior to transferring the District’s Excess Allocation for “any other use,” subcontractors of the District’s SWP water with capacity in Phase II must have the “first right” to utilize the Excess Allocation for “drought buffer” purposes. (San Luis Obispo Board of Supervisors, *Policy on Excess Water State Water Supply*, at 1.) The process by which subcontractors acquire excess allocation is unclear as are any potential limitations on acquisition of future drought buffer quantities from the District.

5. The District’s Current Excess Allocation Activities

In recent years, the District has leveraged its Excess Allocation via DWR sanctioned water sales, stored the water for future use, and (potentially) engaged in an exchange program with CCWA. For example, in 2013 the District participated in a DWR sanctioned “Multiyear Water Pool” program whereby it sold 19,404 acre-feet of water to other SWP contractors. (DWR Bulletin 132-14, at 169.)

Additionally, the District has also stored portions of its Excess Allocation for use in the following year. An example of this is the SWP’s “carryover water” program. This program permits SWP contractors to carryover a portion of its allocated water approved for delivery in the current year for delivery during the following year. (Tech. Memo 3, at 3-14.) In 2014, when the SWP delivered only 5 percent of contractors’ entitlements, the District delivered 2,693 acre-feet of carryover water. (DWR Bulletin 132-15, at Table 9-8.)

In addition to water sales and carryover storage, in 2016, the District attempted to implement an “exchange program” with CCWA. In this program, the District proposed to exchange some of its “wet water” in storage for pipeline and treatment capacity above its current 4,830 acre-feet limitation. (SLO Department of Public Works, Report of J. Ogren, at 3 (December 13, 2016).) The proposed exchange was structured as a 2 for 1 program whereby for every two acre-feet of water the District provided to CCWA in excess of the District’s annual 4,830 acre-feet limitation, CCWA would get to keep one acre-foot and CCWA would treat and then convey the other acre-foot to the District’s subcontractors. (*Id*. (emphasis added).) It is unclear if this proposed program was implemented. However, the fact that the District proposed this program suggests the District is making efforts to utilize its Excess Allocation.

4. Acquisition of the District's Excess Allocation.

All other limitations aside, the GSA should consider if there were Excess Allocation available, how it would acquire this water from the District. This consideration should include (1) the relationship between the District and the County and whether the District would allow the County to use the Excess Allocation; (2) whether the GSA could become a District subcontractor; (3) whether any other entity could become a District subcontractor; (4) negotiations of which entities would pay for the Excess Allocation and/or increased capacity

IV. **Outstanding Questions**.

The following are outstanding questions at this time:

1. What is the extent of the the subcontractor right of first refusal to Excess Allocation? Is it limited to drought buffer rights? Or do subcontractors have right to refuse all excess allocation?

2. Is it possible to negotiate increased capacity in Phase II facilities with CCWA?

3. What are the estimated costs for conveyance facilities to divert water above the PPWTP and deliver to the GSA service area?

V. **Conclusion and Next Steps**.

The major limiting factors in accessing Excess Allocation include: (1) SWP delivery shortages; (2) limited capacity in Phase II facilities; and (3) the (potentially) superior rights of existing subcontractors.

***

Appendix J

Project Assumptions

APPENDIX J – PROJECT ASSUMPTIONS

This document provides an overview of the assumptions used to develop projects and costs in Chapter 9 of the Paso Robles GSP. Assumptions need to be checked and tested during the pre-design phase of each project. Project designs, and therefore costs, could change considerably as more information is gathered.

1.1 Year-to-Year Variability in Water Supply Amount

All water supplies being considered to supplement the Paso Subbasin are rainfall dependent and therefore vary year to year in the amount available for supply. To make use of the available long-term average annual average water supply, projects and infrastructure such as pipes and pump stations must be sized for the highest flows that could occur. The highest available flows, as well as the long-term expected averages for SWP and NWP are presented in Table 1.

Table 1: Long-term Average and High Flow Available

Supply	Long-term Average (AFY)	Highest Flow (AFY)
SWP	8,860	14,770
NWP	5,800	7,270

1.2 Seasonal Variability in Demand

Injection and recharge basin projects were sized to deliver flow steadily throughout the year with no seasonal variation. Direct delivery projects were sized to deliver water according to seasonal fluctuations in demand.

1.3 Daily Variability in Demand

No daily variation in demand was assumed for any projects. For irrigation projects, water for each day would be delivered over a 24-hour period, even though irrigation might typically occur over a 12-hour or less window. This would require farmers to have onsite storage and pumps. All onsite improvements for direct users are assumed to be developed by individual land owners.

1.3.1 Recycled Water Projects

The two recycled water Projects described in the GSP are planned projects being implemented by the City of Paso Robles and San Miguel CSD. The Paso Robles project is currently underway, with design expected to be complete by 2019 and construction to be complete by 2021. Pipeline alignments, costs, and delivery amounts were obtained from the project design 60% design information.

The San Miguel project is not as far along as that of Paso Robles. Some conceptual information is known; however, exact pipelines, customers, flows, and costs have not been determined yet. To obtain a cost for the purposes of the GSP, the project team came up with a potential design for a San Miguel RW project – one that sends half the flow to the eastern customers, and another half of the flow to western customers. The actual design is to be determined.

1.3.2 Recharge Basin Projects

All recharge basin projects were sized assuming an infiltration rate of 0.5' per day. Recharge basins were assumed to receive water consistently throughout the year, with no seasonal variation in water delivery.

The locations of all three recharge basin projects were selected to be close enough to the supply pipelines such that a pump station would not be required to deliver water to the recharge site. If land close to supply lines cannot be procured, these projects might require a pump station, which would increase project cost.

1.3.3 Direct Delivery Projects

The three NWP direct delivery projects were selected and sized to offset pumping throughout the eastern central region of the Subbasin and even out projected water levels.

Seasonal variation of demand (by month) was assumed in each region to follow patterns based on 2015 agricultural pumping demand curves modeled in the GSP model. Assumed peaking factors by month are shown in Table 2.

Table 2: Agricultural Demand Peaking Factors, by Month

Month	Peaking Factor
January	0.00
February	0.00
March	0.7
April	2
May	1.6
June	2.5
July	2
August	1.1
September	1.2
October	0.7

Pipelines were sized to deliver supply commensurate with the amount of NWP water that would be available during a wet year (Table 1). Table 3 shows the amount of peak and average demand met by each project in the project region.

Table 3: Peak and Average Demand and Deliveries for Direct Delivery Projects

	North	Central[1]	Eastern
Peak Monthly Demand (gpm)	15,920	2,640	5,500
Max Pipeline Delivery (gpm)	2,960	1,260	2,480
Average annual demand (AFY)	10,415	1,725	3,600
Annual water delivered, wet year (AFY)	3,510	1,250	2,510

Notes:
1. Demands for this area are those remaining demand after accounting for recycled water deliveries (from the modified baseline model run).

Pipelines were sized to deliver demand at all hours of the day regardless of the time period required for irrigation. This assumption was made to reduce the pipeline diameter and pump station requirements; however, this assumption requires that farmers have daily on-site storage to collect water from the pipeline during times when they're not irrigating. The cost of on-site storage and other on-site improvements was not included in the cost estimates.

Water from the NWP might have water quality that is problematic for irrigation systems; the NWP pipeline carries untreated reservoir water that can be high in metals and contain algae that that could clog or foul drip irrigation or sprinkler heads. No treatment was assumed in the project costs; however, water quality would need to be analyzed and a small pilot study conducted to determine if any water quality adjustment would be required. Alternatively, different irrigation techniques or operational changes may need to be utilized with NWP water deliveries. This could be determined in a pilot study.

1.3.4 Local Recharge Projects

The perennial rivers that flow through the Paso Robles Basin can be engorged with flood water for several weeks at a time while remaining dry for most of the year. Historical water levels on the Estrella River, Huer Huero Creek, and the Salinas River were analyzed to determine the frequency, length, and volume of flow imparted by these flood events.

Legal issues were also considered to determine how much water could feasibly be extracted for a local recharge project. A standard surface water diversion permit would theoretically allow for more water to be extracted from a river; however, the process for obtaining a standard surface water permit is extremely lengthy and complicated. The Salinas River between Salinas Dam and the Nacimiento confluence is fully allocated except between Jan 1 – May 15; and, permit applications would be subject to protest from all existing upstream and downstream permit-holders.

DWR may introduce a streamlined surface water permit for GSAs to extract water during flood flows. The draft concept of the temporary permit is to allow the diversion of flood flows between December 1 and March 31. The diversions can only legally occur on days when the volume of flow in the river is greater than the 90th percentile flow for that particular day of the year. This concept is described in detail in Appendix I.

Though the volume of water available during floods is considerable, the infrastructure required to divert a large volume would also need to be sizeable. The volume of stormwater that could be captured from the Salinas River under the draft streamlined permit was computed for three different sized systems. Flood flows for the last 30 years (1989-2018) were used to simulate the diversions, which were set to occur only on days between January 1 and March 31 with flood flows higher than the 90th percentile flood flow. The results are shown in Table 4.

Table 4: Simulated Volume Diverted from the Salinas River under the Draft Streamlined Permit over a 30-Year Period for Different System Sizes

System Size (cfs)	Recharge basin size (acres)	Volume captured over the 30 year period (AF)	Average annual captured (AFY)
10	40	4,900	165
40	160	20,400	645
80	315	38,000	1,260

It is worth noting that, over the 30-year simulated period, the stormwater diversion infrastructure would have been activated for a total of 250 days (an average of 8 days per year). Costs are provided for the 10 cfs system. Water would be extracted via radial Ranney wells, which are built to draw water from the alluvium and do not require in-river infrastructure.

1.3.5 Salinas Dam Expansion

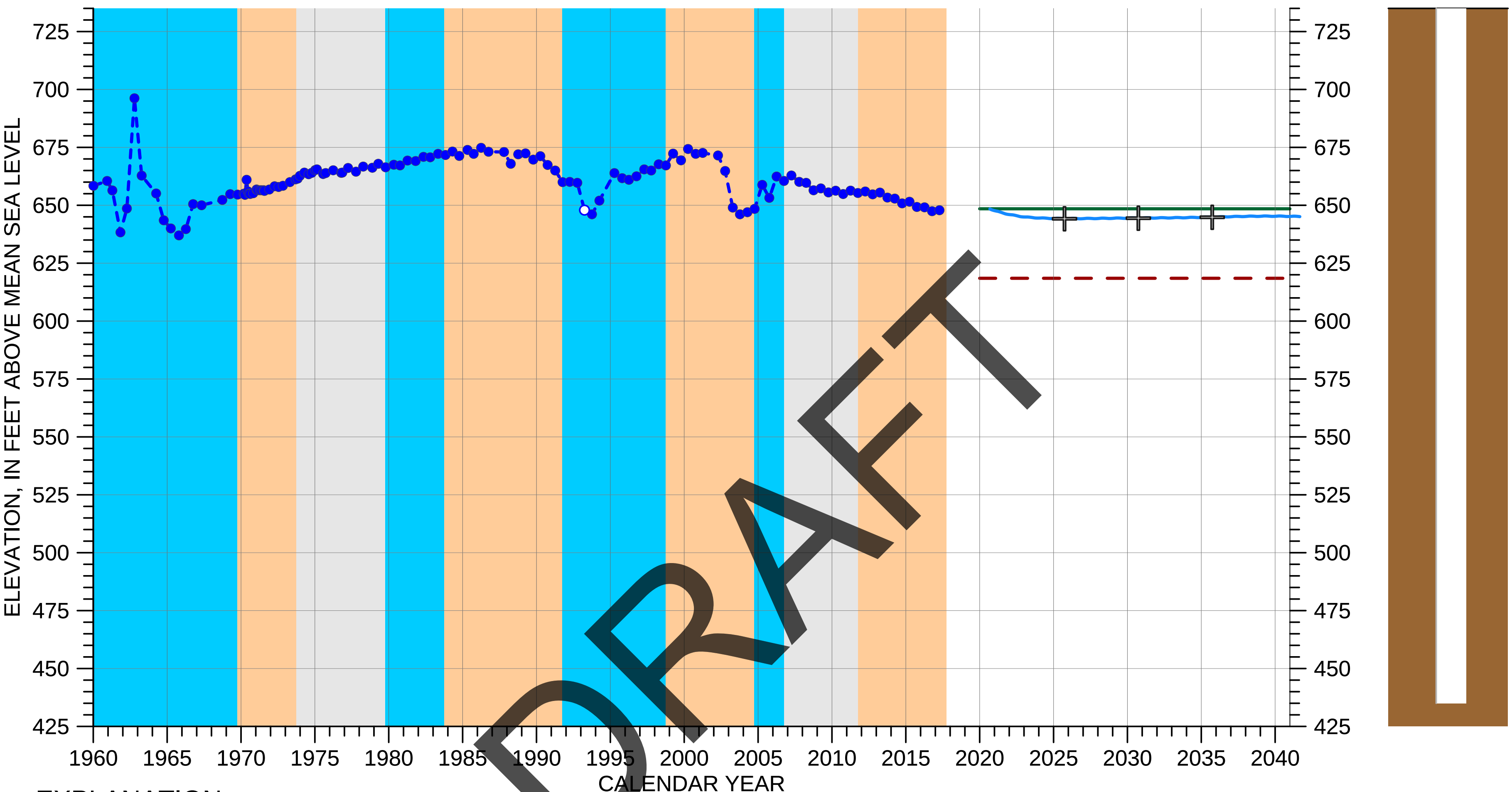
Information regarding the Salinas Dam expansion was obtained from SLOCFCWCD.

REFERENCES

SLOCFCWCD 2008. Paso Robles Groundwater Subbasin Water Banking Feasibility Study. Final Report. San Luis Obispo County Flood Control and Water Conservation District. April 2008.

Appendix K

Model Results that Demonstrate Sustainability



EXPLANATION

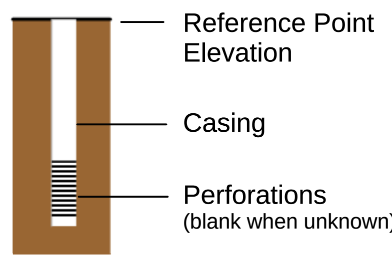
MEASURABLE OBJECTIVE
MINIMUM THRESHOLD
GROUNDWATER ELEVATION
MEASUREMENT NOT VERIFIED*
PROJECTED WATER LEVEL
INTERIM MILESTONE

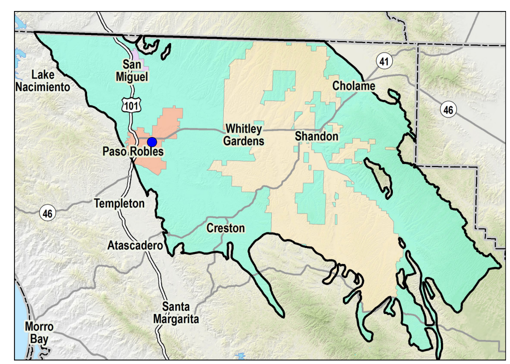
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 400 feet
Screened Interval: unknown
Reference Point Elevation: 835 feet above mean sea level

* Measurement reported as not static





MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 26S/12E-26E07

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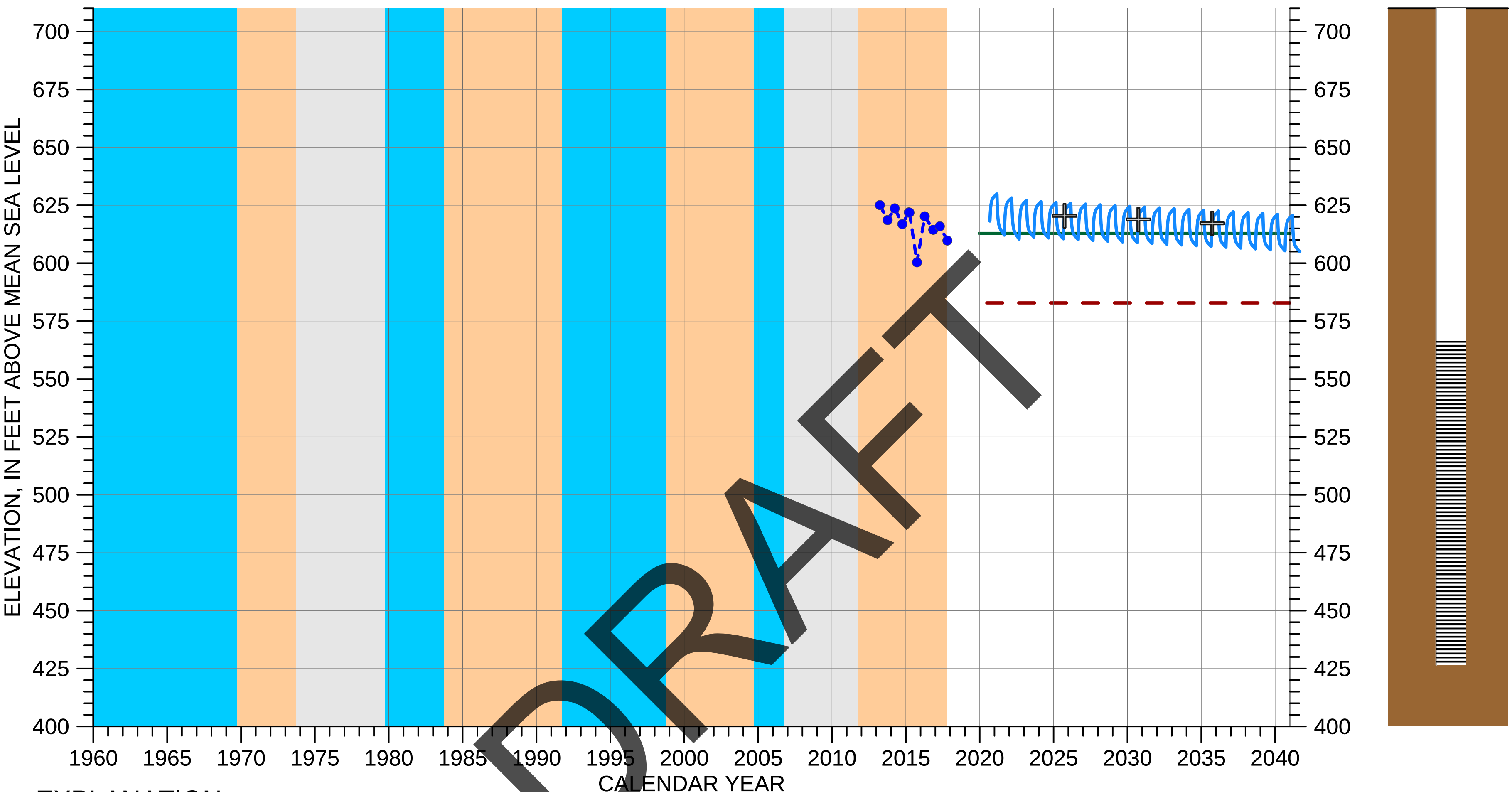

EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

PROJECTED WATER LEVEL

INTERIM MILESTONE

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

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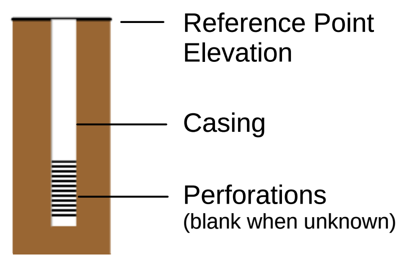
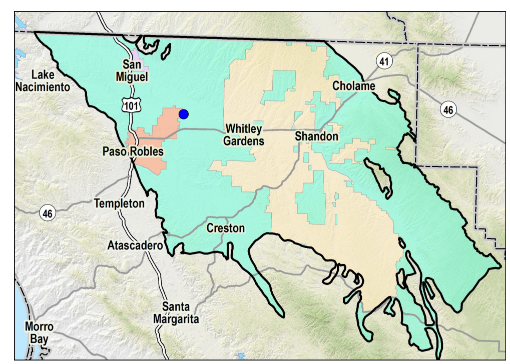
Screened Interval: 260-400 feet below ground surface
Reference Point Elevation: 827.9 feet above mean sea level

* Measurement reported as not static





MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 26S/13E-08M01

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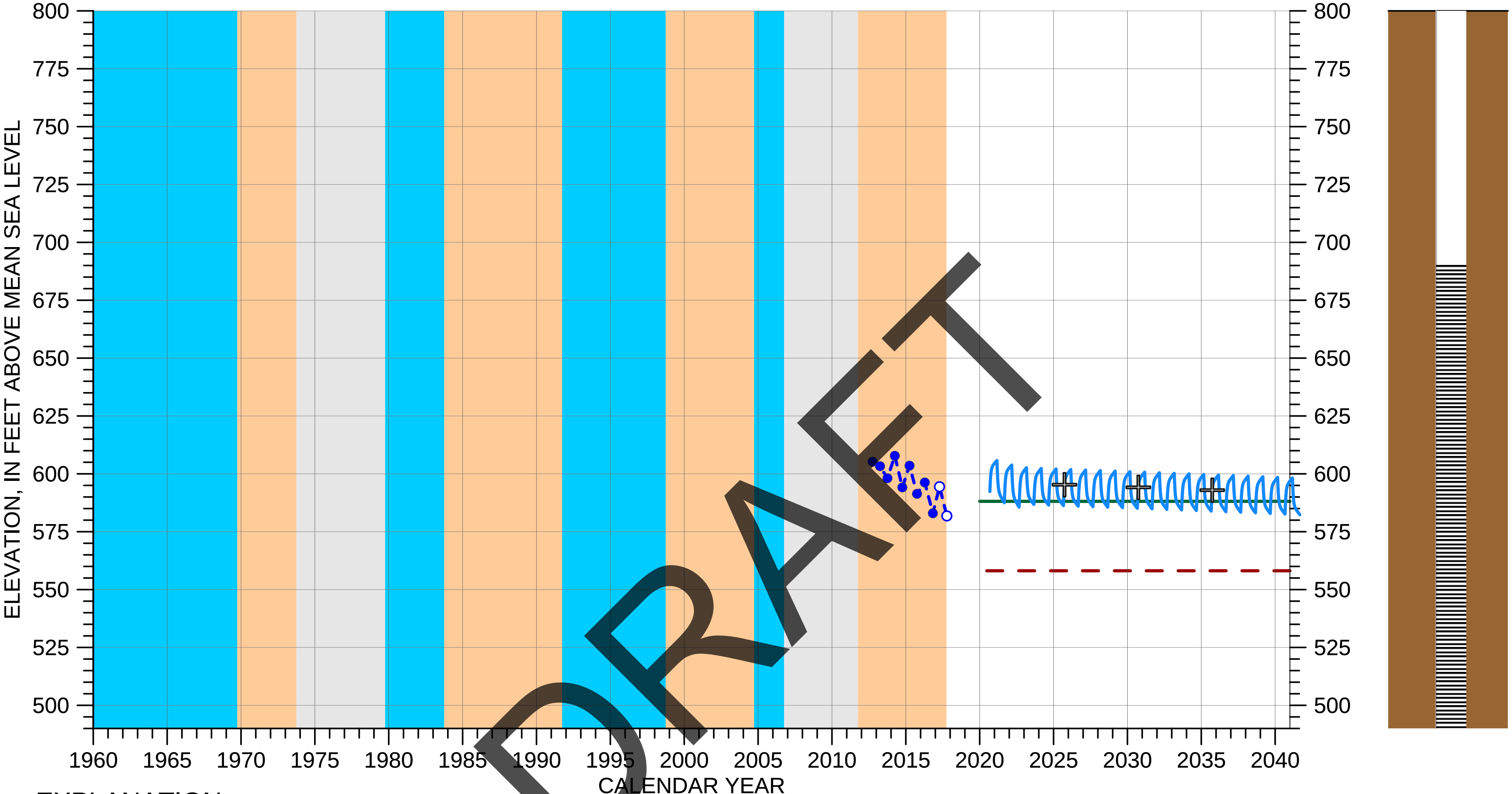


EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

PROJECTED WATER LEVEL

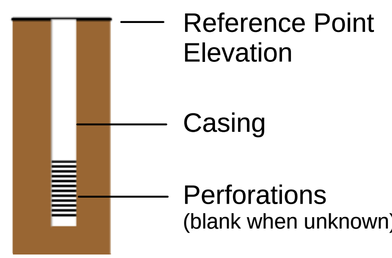
INTERIM MILESTONE

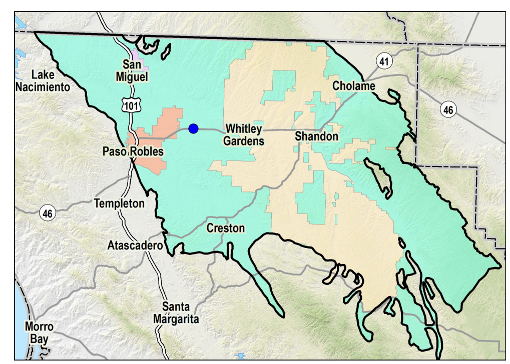
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 400 feet
Screened Interval: 200-400 feet below ground surface
Reference Point Elevation: 890.2 feet above mean sea level

* Measurement reported as not static





MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 26S/13E-16N01

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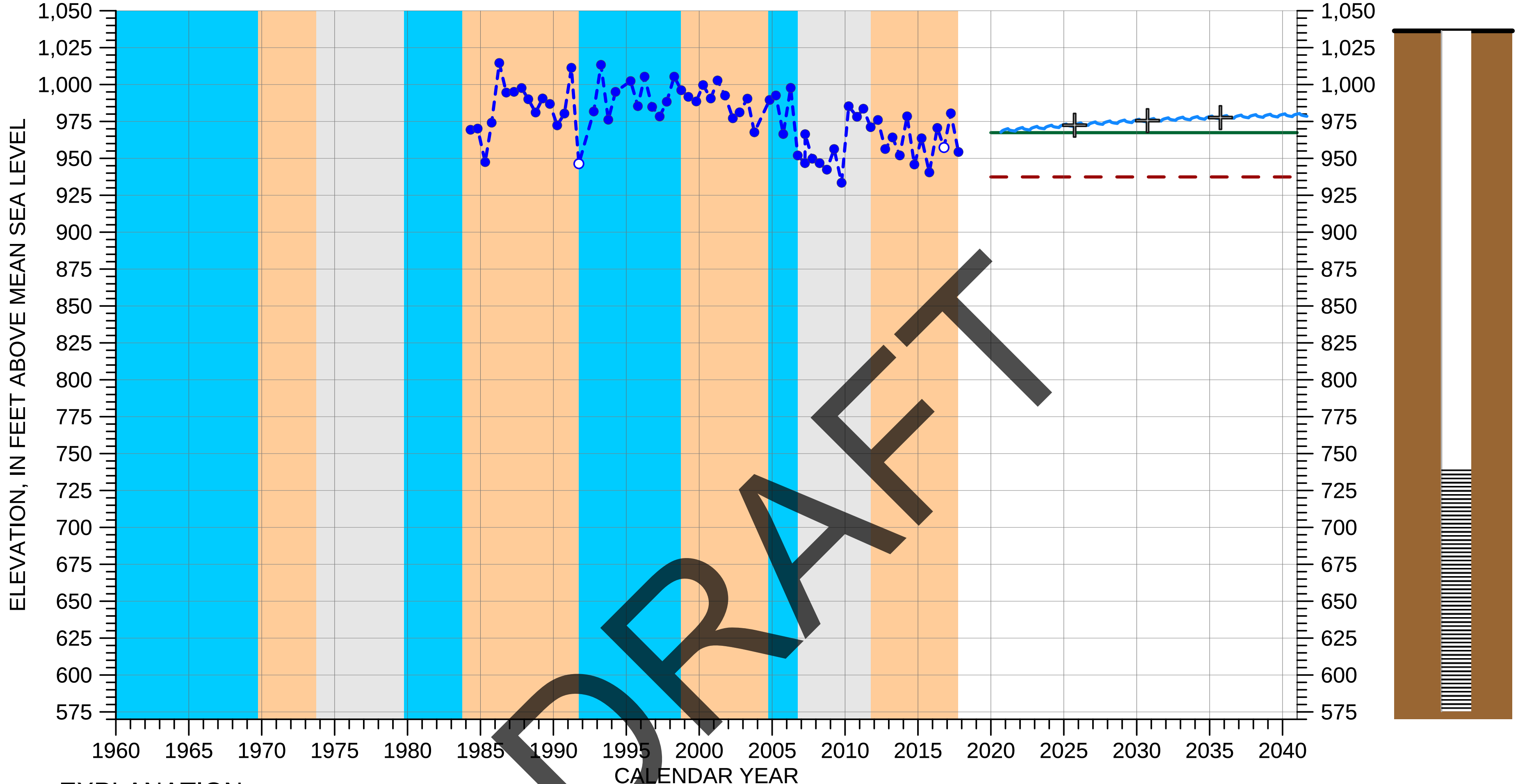


EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

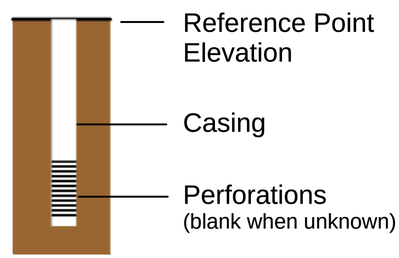
MEASUREMENT NOT VERIFIED*

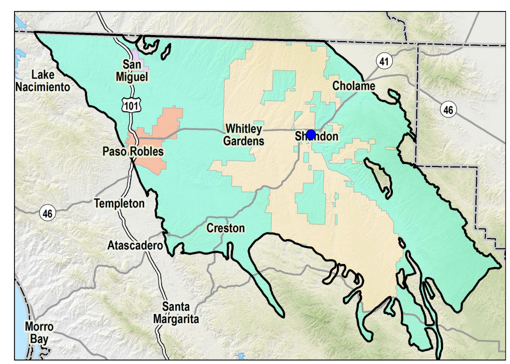
PROJECTED WATER LEVEL

INTERIM MILESTONE

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET





Well Depth: 461 feet
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Reference Point Elevation: 1036.36 feet above mean sea level

* Measurement reported as not static

MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 26S/15E-20B04

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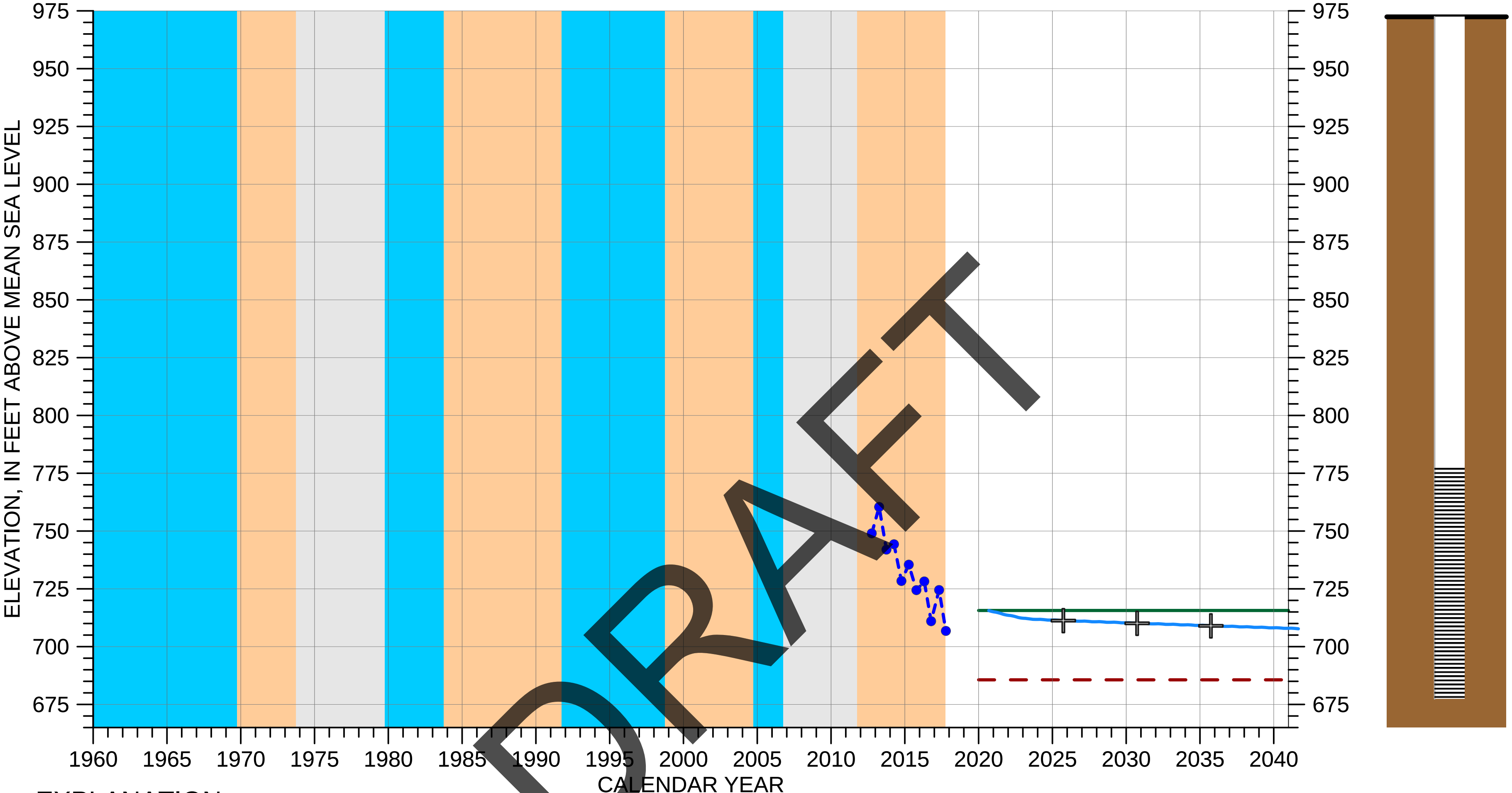


EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

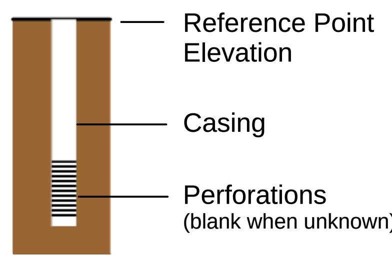
MEASUREMENT NOT VERIFIED*

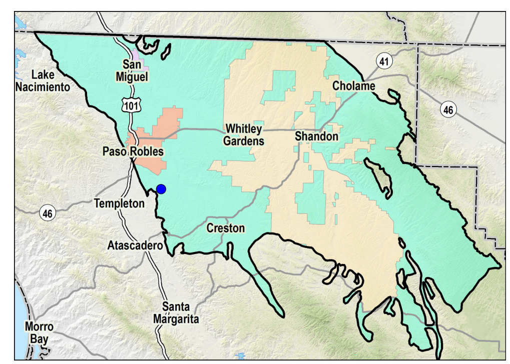
PROJECTED WATER LEVEL

INTERIM MILESTONE

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET





Well Depth: 295 feet
Screened Interval: 195-295 feet below ground surface
Reference Point Elevation: 972.4 feet above mean sea level

* Measurement reported as not static

MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 27S/12E-13N01

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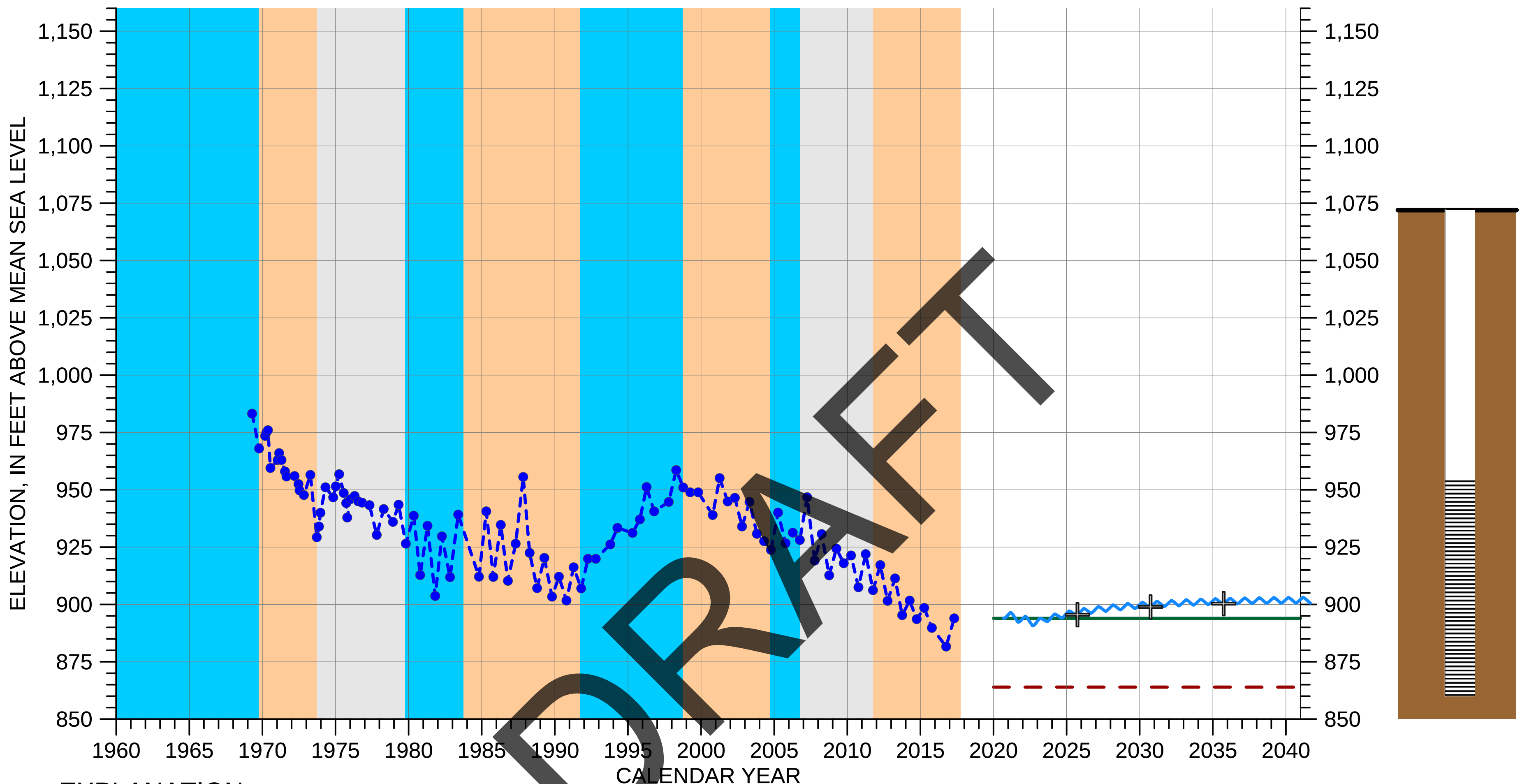


EXPLANATION

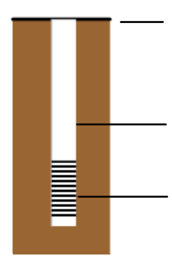
MEASURABLE OBJECTIVE
MINIMUM THRESHOLD
GROUNDWATER ELEVATION
MEASUREMENT NOT VERIFIED*
PROJECTED WATER LEVEL
INTERIM MILESTONE

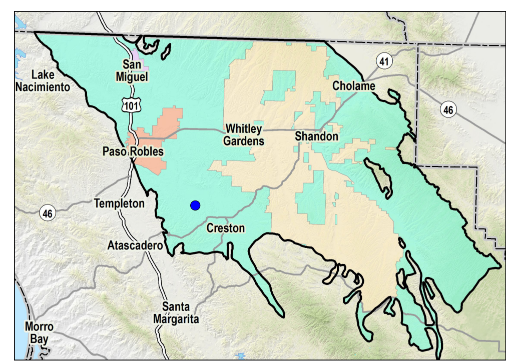
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 212 feet
Screened Interval: 118-212 feet below ground surface
Reference Point Elevation: 1072 feet above mean sea level

* Measurement reported as not static





MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 27S/13E-28F01

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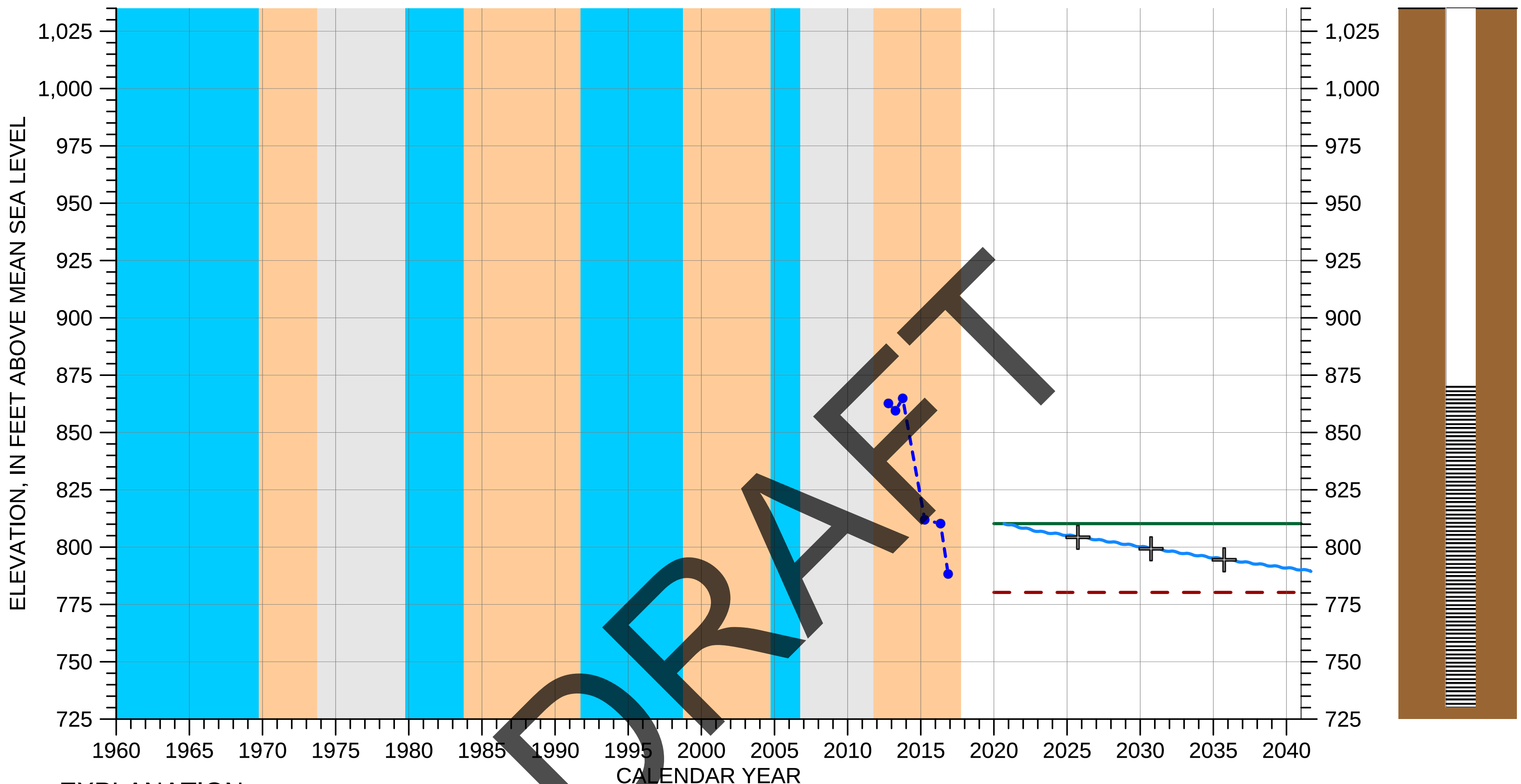

EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

PROJECTED WATER LEVEL

INTERIM MILESTONE

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 355 feet
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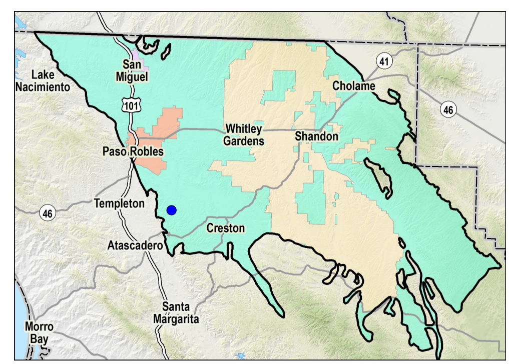
Reference Point Elevation: 1086.7 feet above mean sea level

* Measurement reported as not static



MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 27S/13E-30N01

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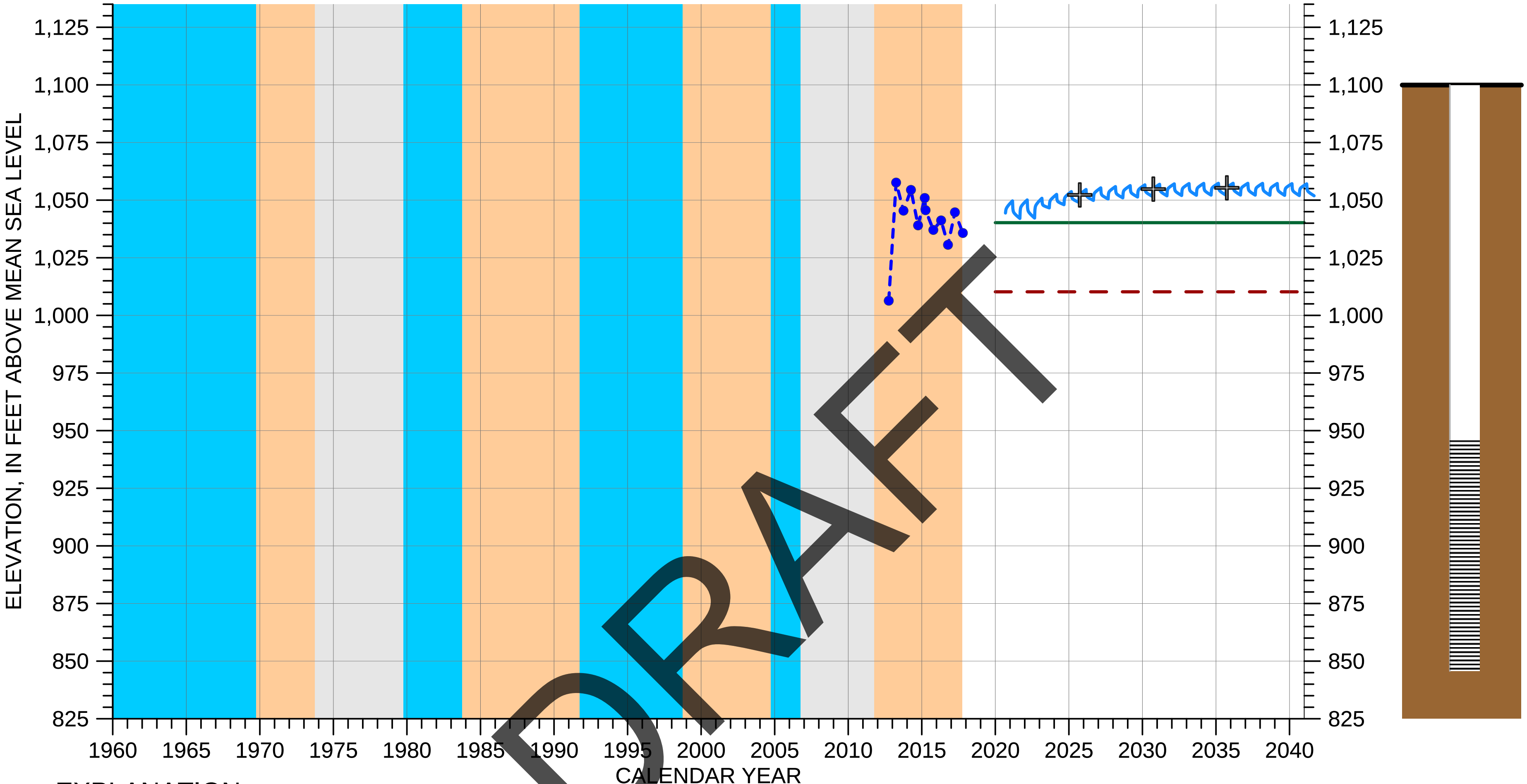


EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

PROJECTED WATER LEVEL

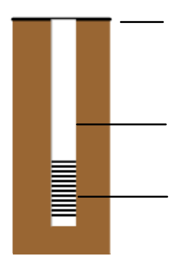
INTERIM MILESTONE

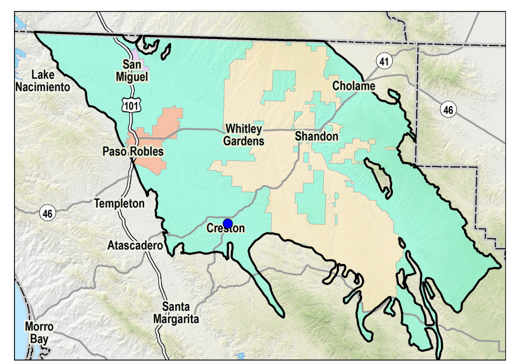
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 254 feet
Screened Interval: 154-254 feet below ground surface
Reference Point Elevation: 1099.9 feet above mean sea level

* Measurement reported as not static





MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 28S/13E-01B01

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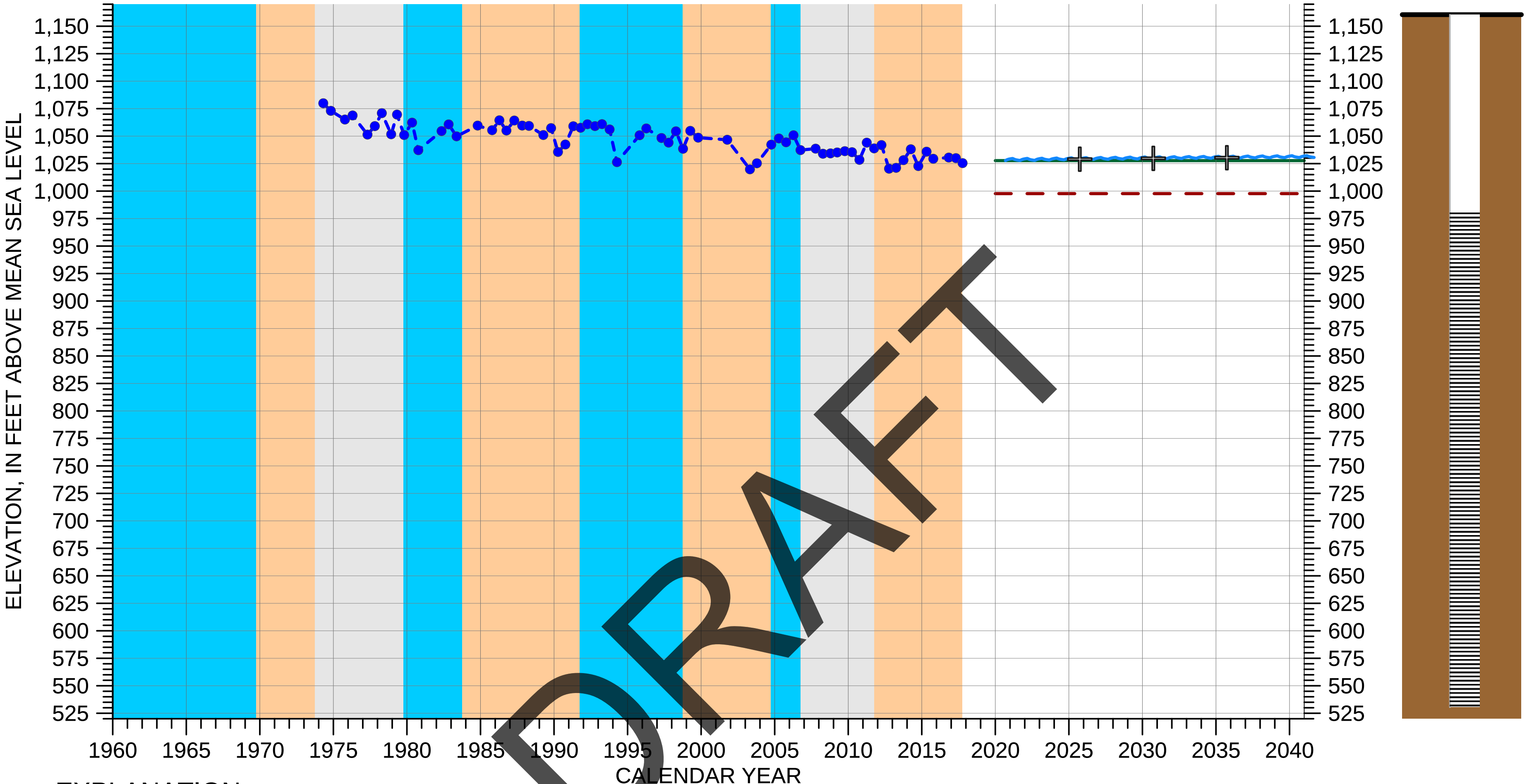


EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

PROJECTED WATER LEVEL

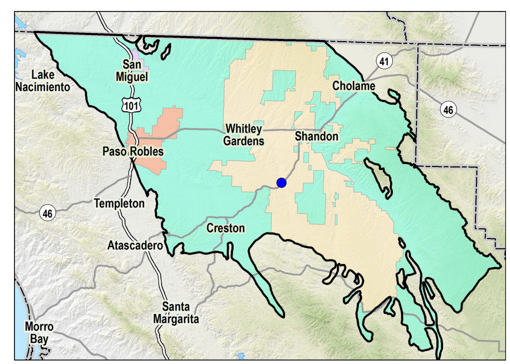
INTERIM MILESTONE

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 630
Screened Interval: 180-630 feet below ground surface
Reference Point Elevation: 1160.5 feet above mean sea level

* Measurement reported as not static



MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 27S/14E-11R01

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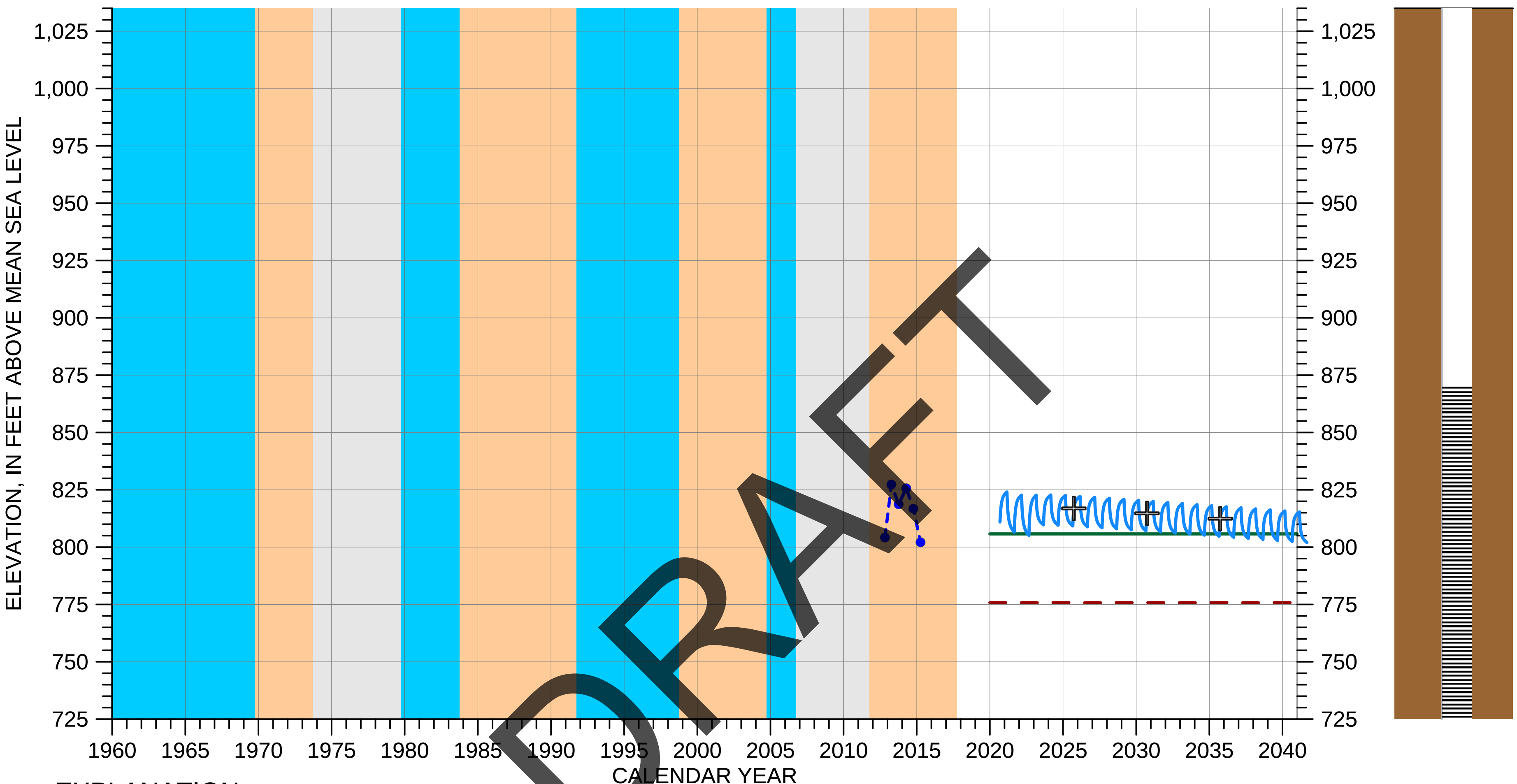


EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

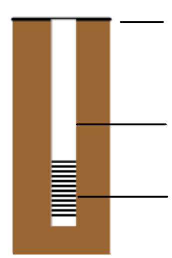
MEASUREMENT NOT VERIFIED*

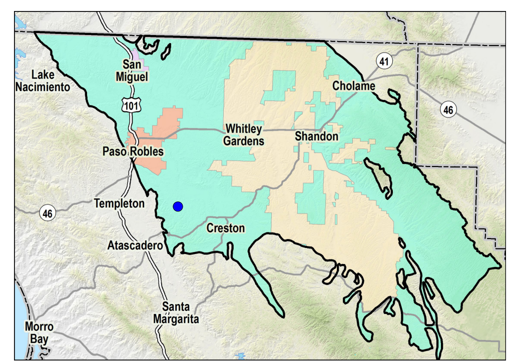
PROJECTED WATER LEVEL

INTERIM MILESTONE

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET



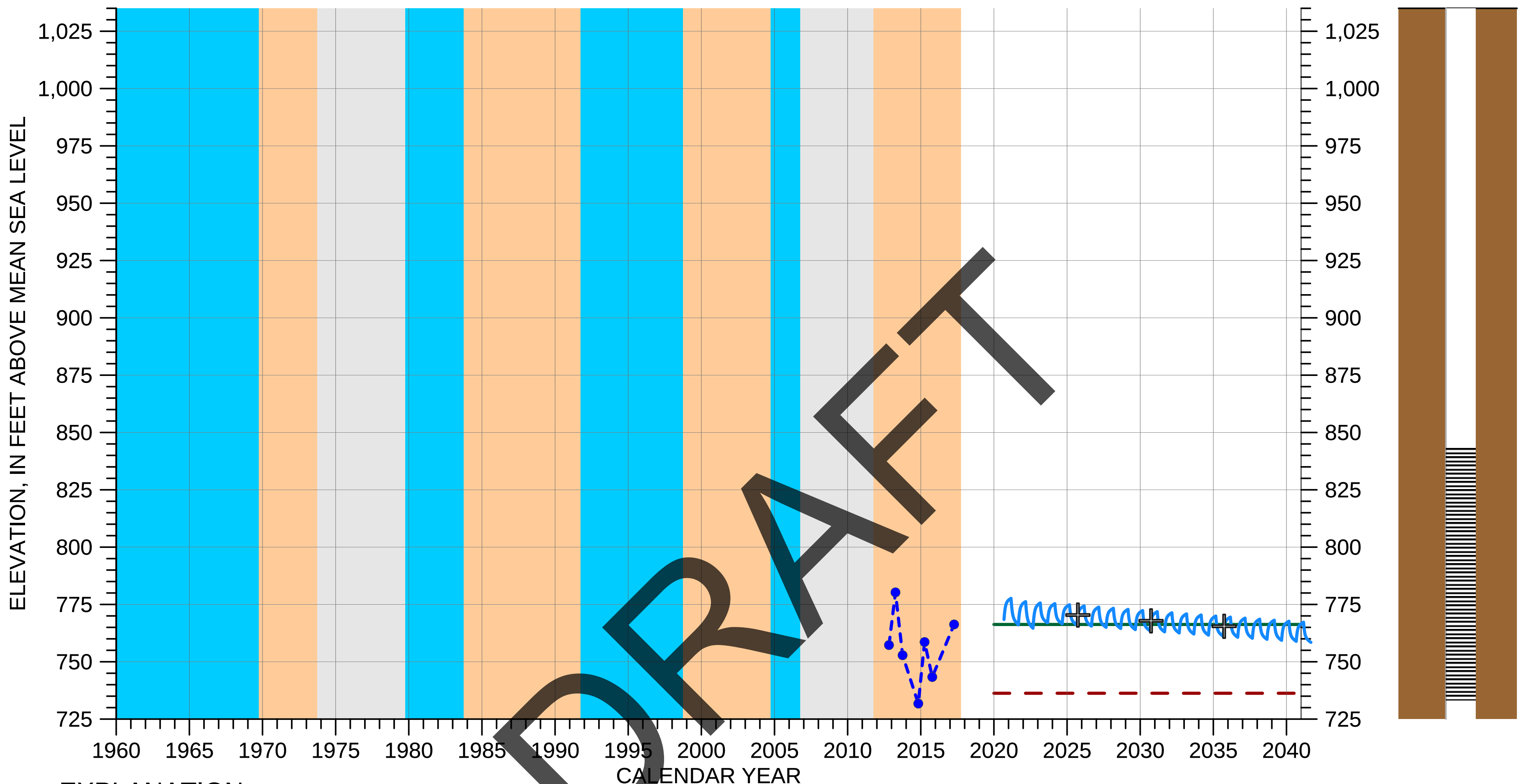


Well Depth: 685
Screened Interval: 225-685 feet below ground surface
Reference Point Elevation: 1095 feet above mean sea level

* Measurement reported as not static

MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 27S/13E-30J01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\ProjectedWL_2017MO_withIM\Fig13_27S_13E-30J01.grf



EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

PROJECTED WATER LEVEL

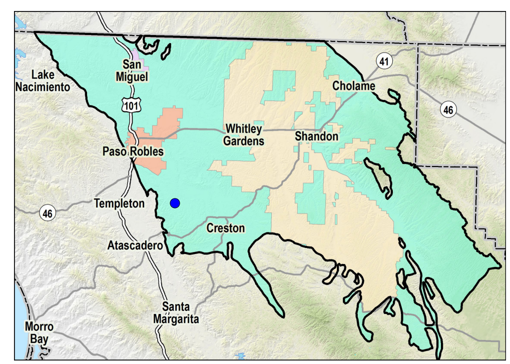
INTERIM MILESTONE

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 310
Screened Interval: 200-310 feet below ground surface
Reference Point Elevation: 1043.2 feet above mean sea level

* Measurement reported as not static



MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 27S/13E-30F01

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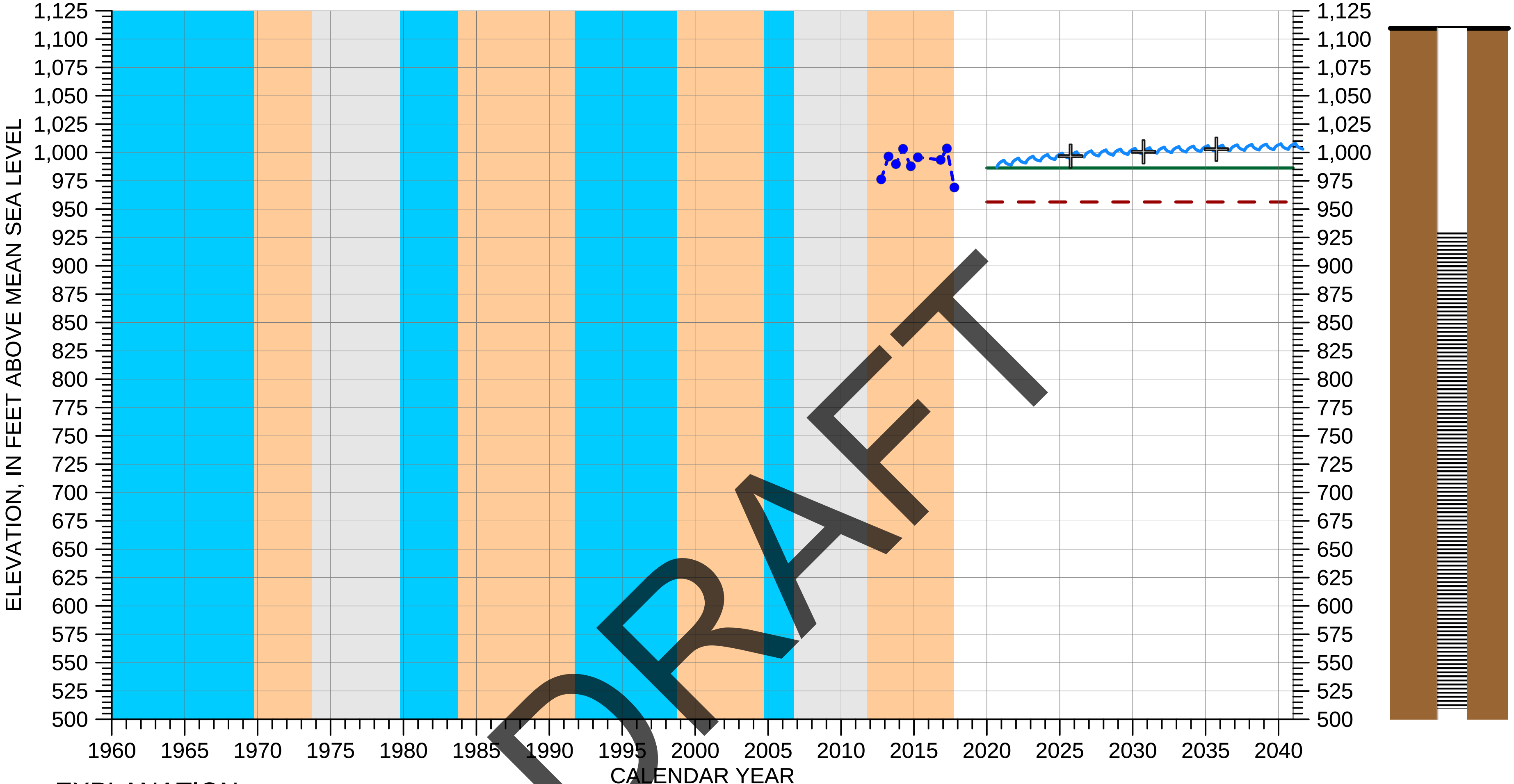


EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

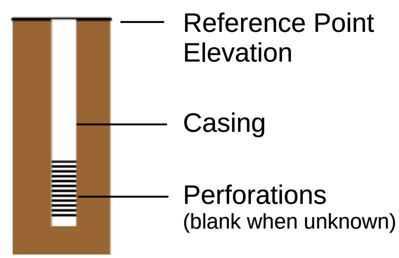
MEASUREMENT NOT VERIFIED*

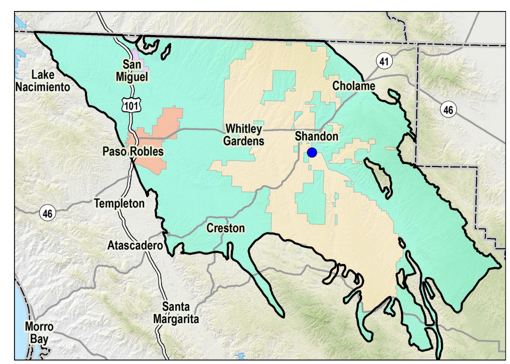
PROJECTED WATER LEVEL

INTERIM MILESTONE

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET



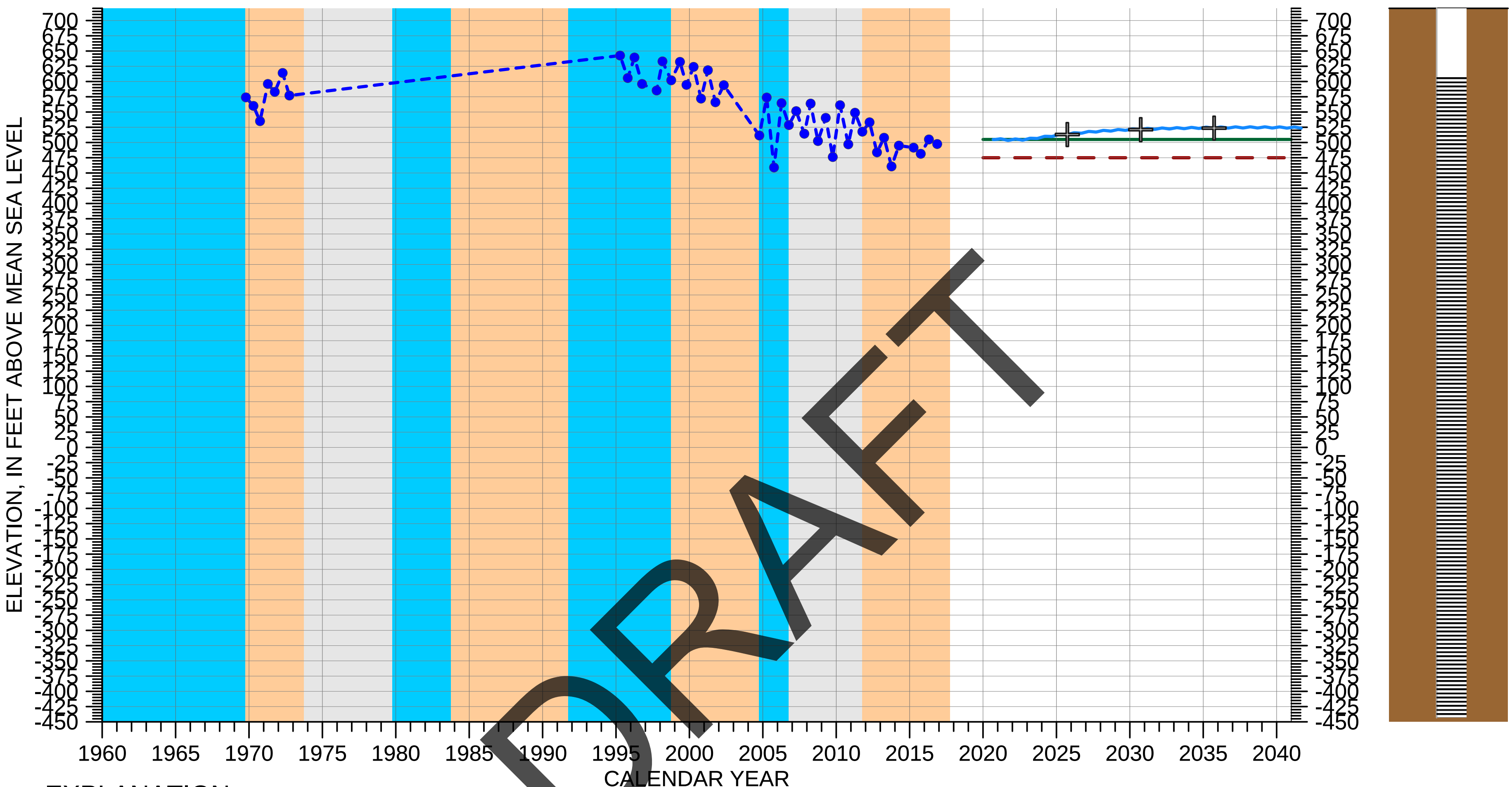


Well Depth: 600
Screened Interval: 180-600 feet below ground surface
Reference Point Elevation: 1109.5 feet above mean sea level

* Measurement reported as not static

MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 26S/15E-29R01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\ProjectedWL_2017MO_withIM\Fig15_26S_15E-29R01.grf



EXPLANATION

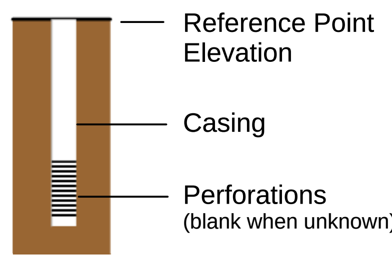
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD
- GROUNDWATER ELEVATION
- MEASUREMENT NOT VERIFIED*
- PROJECTED WATER LEVEL
- INTERIM MILESTONE

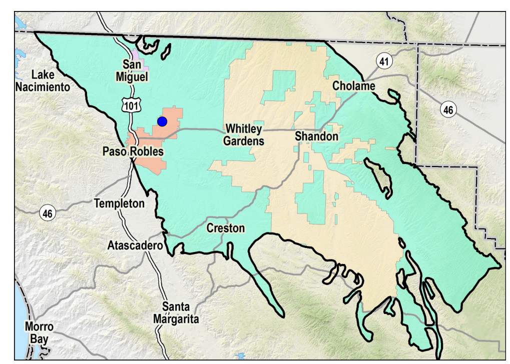
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 1230
Screened Interval: 180-~1230 feet below ground surface
Reference Point Elevation: 790 feet above mean sea level

* Measurement reported as not static





MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 26S/12E-14H01

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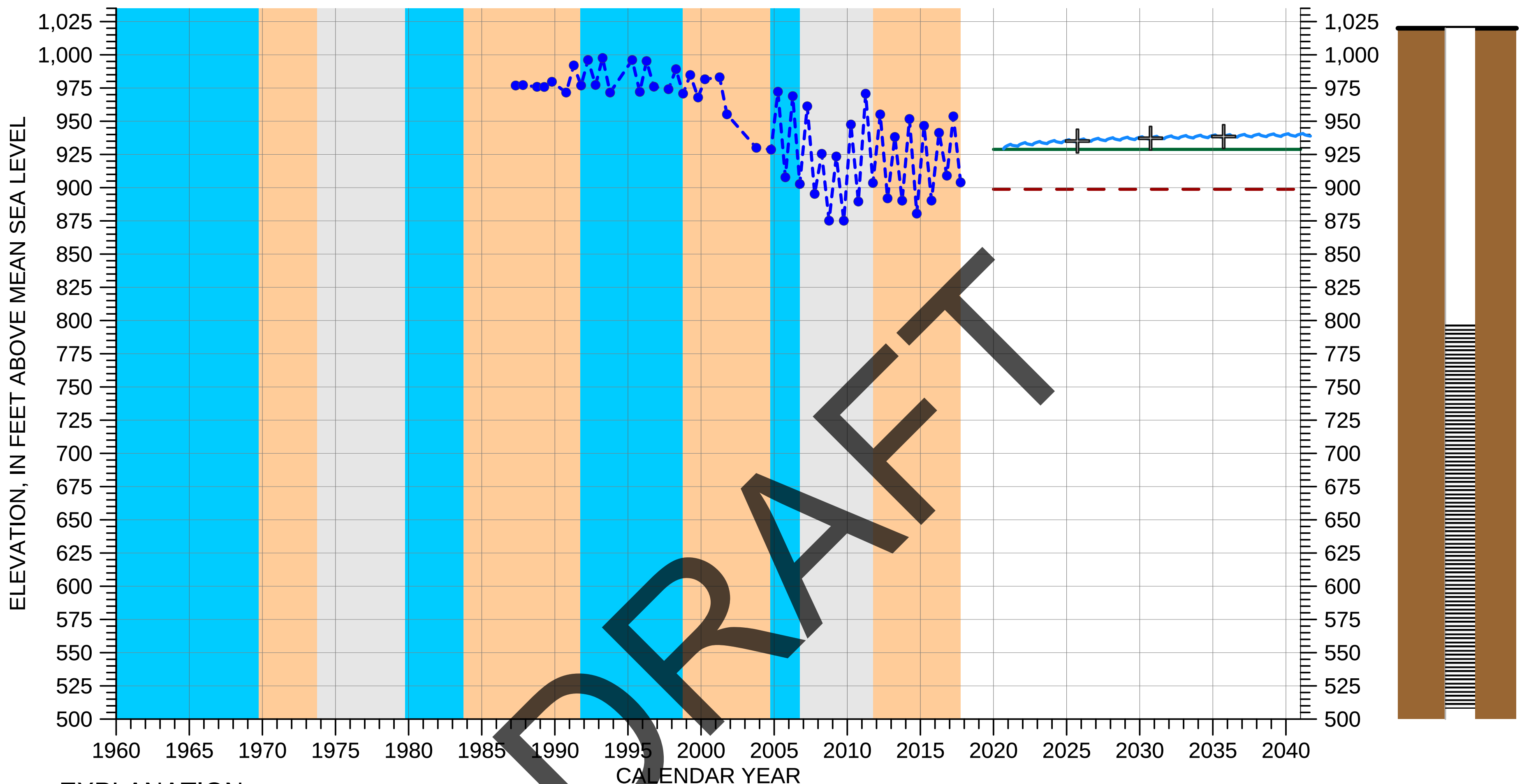


EXPLANATION

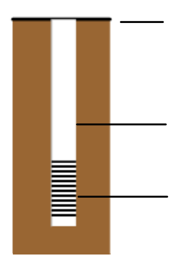
MEASURABLE OBJECTIVE
MINIMUM THRESHOLD
GROUNDWATER ELEVATION
MEASUREMENT NOT VERIFIED*
PROJECTED WATER LEVEL
INTERIM MILESTONE

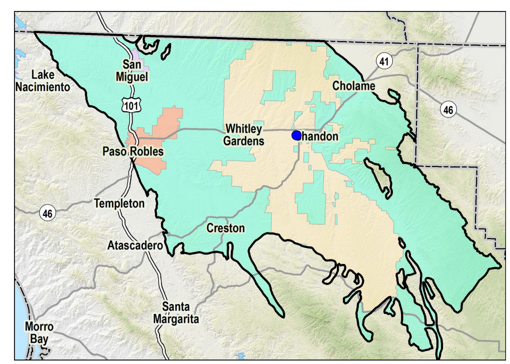
CLIMATE PERIOD CLASSIFICATION

DRY | AVERAGE/ALTERNATING | WET

Well Depth: 512
Screened Interval: 223-512 feet below ground surface
Reference Point Elevation: 1020 feet above mean sea level

* Measurement reported as not static





MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 26S/15E-19E01

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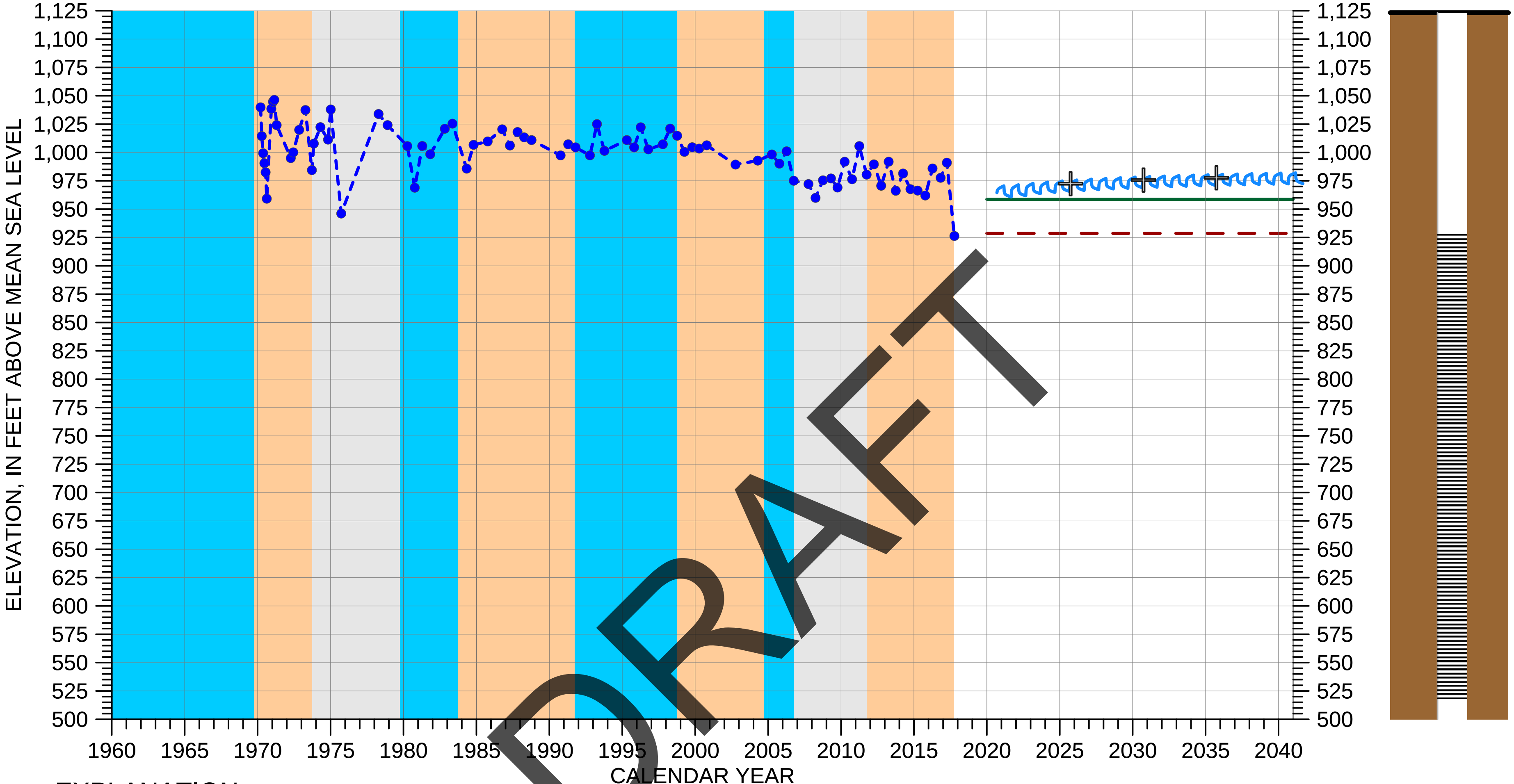


EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

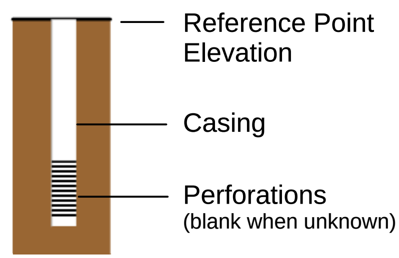
MEASUREMENT NOT VERIFIED*

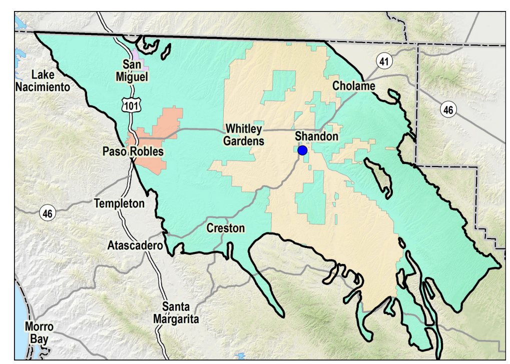
PROJECTED WATER LEVEL

INTERIM MILESTONE

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET



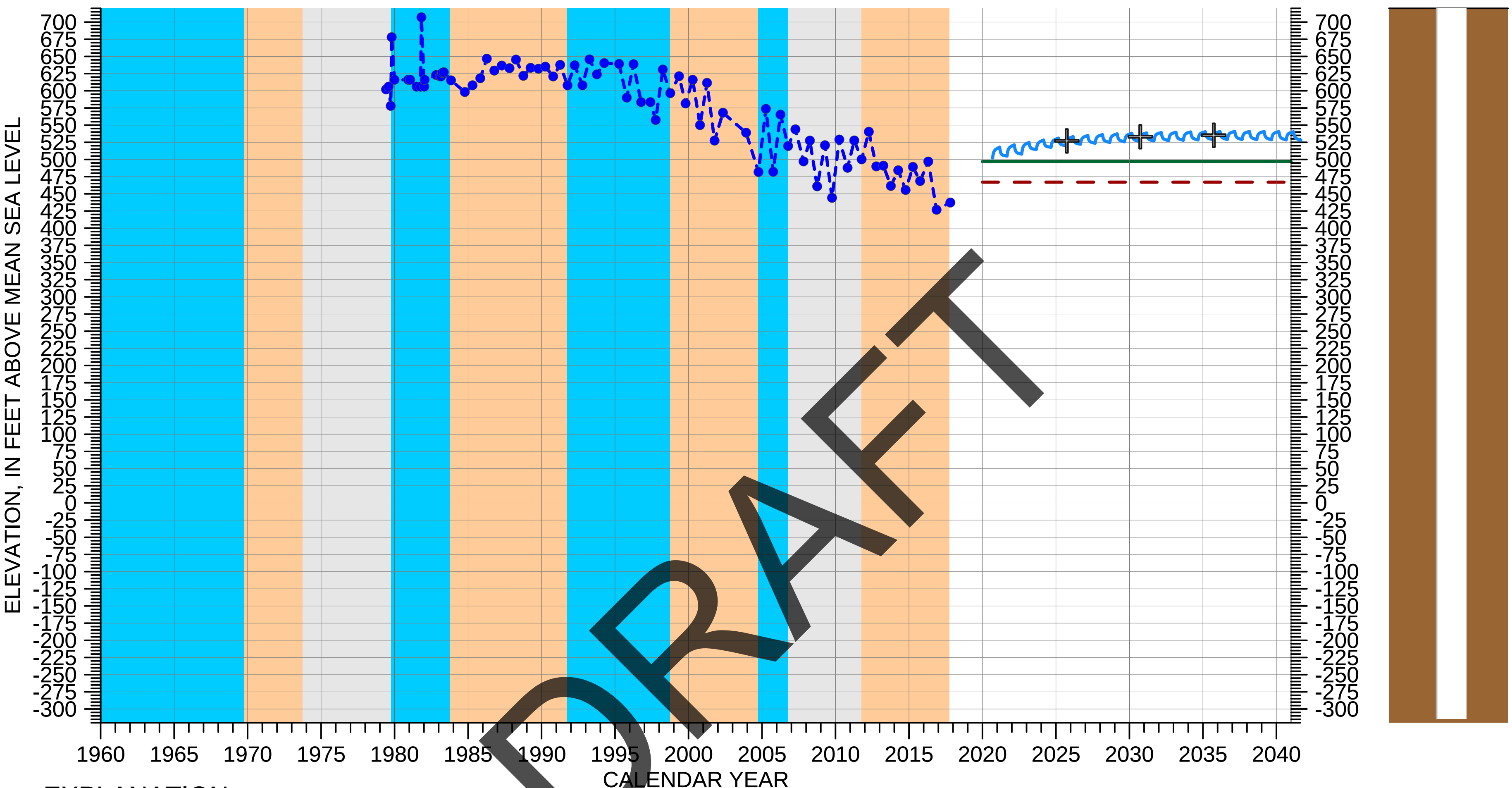


Well Depth: 605
Screened Interval: 195-605 feet below ground surface
Reference Point Elevation: 1123.3 feet above mean sea level

* Measurement reported as not static

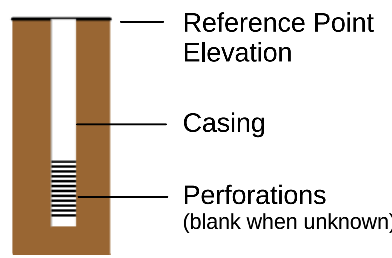
MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 26S/15E-30J01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\ProjectedWL_2017MO_withIM\Fig18_26S_15E-30J01.grf



EXPLANATION

- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD
- GROUNDWATER ELEVATION
- MEASUREMENT NOT VERIFIED*
- PROJECTED WATER LEVEL
- INTERIM MILESTONE

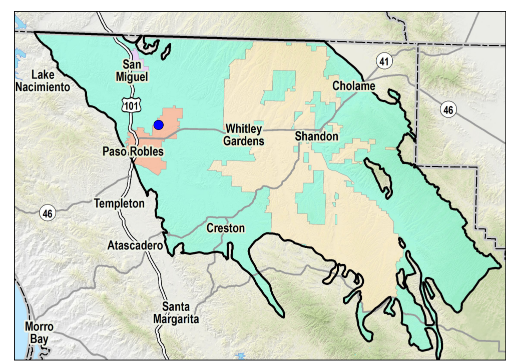


CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 1100
Screened Interval: unknown
Reference Point Elevation: 786 feet above mean sea level

* Measurement reported as not static



MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 26S/12E-14K01

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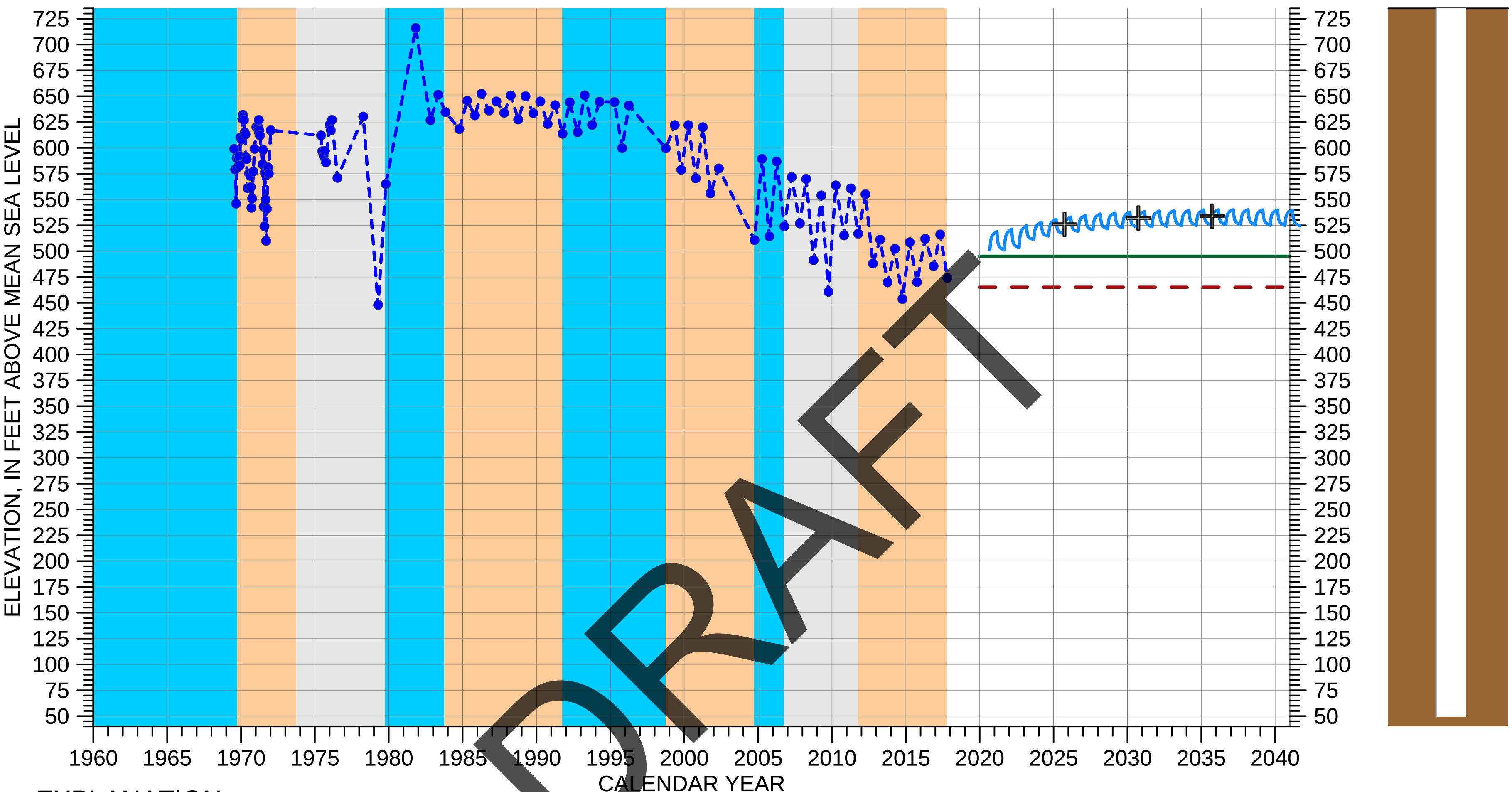


EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

PROJECTED WATER LEVEL

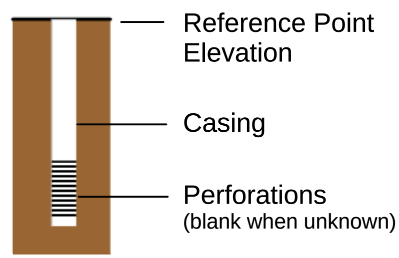
INTERIM MILESTONE

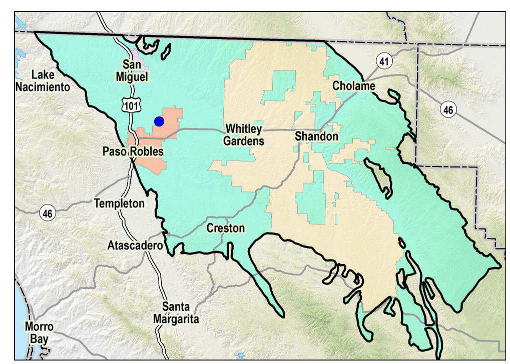
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 740
Screened Interval: unknown
Reference Point Elevation: 789.3 feet above mean sea level

* Measurement reported as not static





MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 26S/12E-14G01

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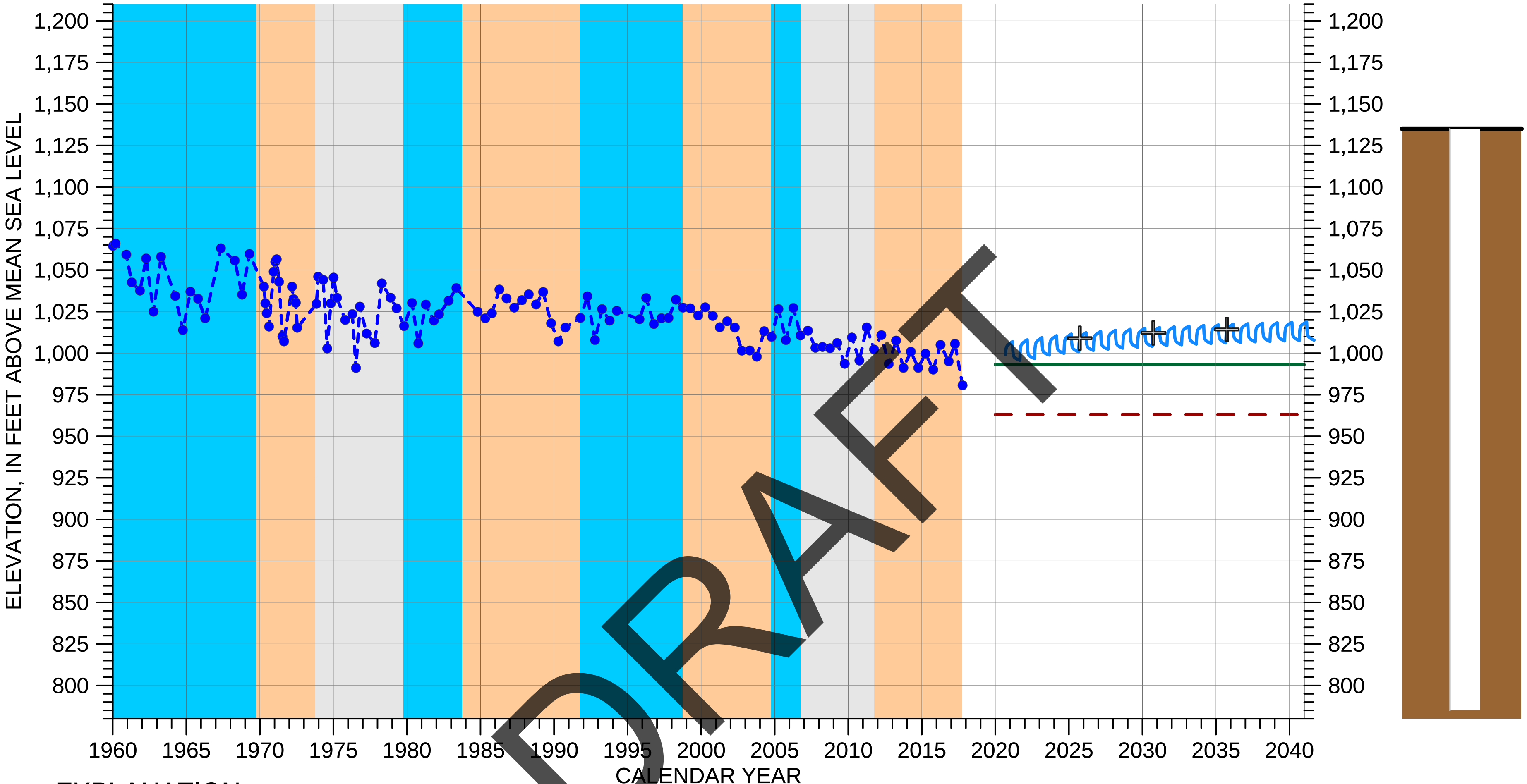


EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

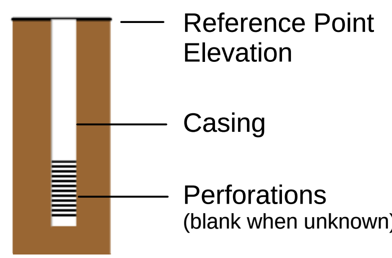
MEASUREMENT NOT VERIFIED*

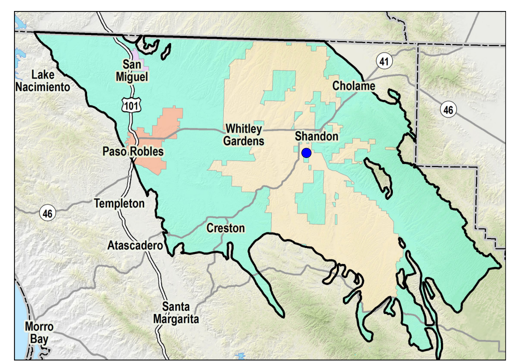
PROJECTED WATER LEVEL

INTERIM MILESTONE

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET



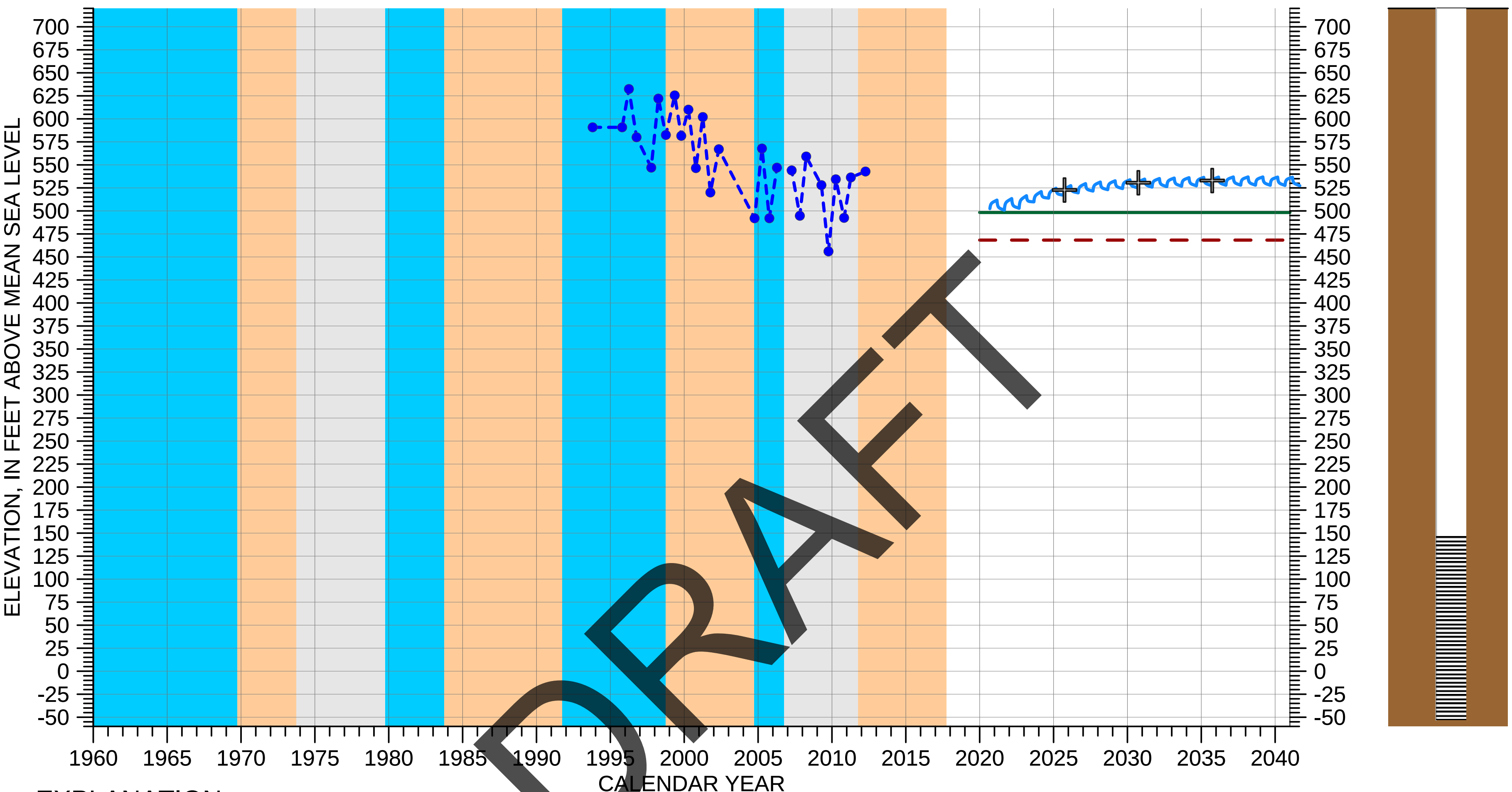


Well Depth: 350
Screened Interval: unknown
Reference Point Elevation: 1135 feet above mean sea level

* Measurement reported as not static

MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 26S/15E-29N01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\ProjectedWL_2017MO_withIM\Fig21_26S_15E-29N01.grf



EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

PROJECTED WATER LEVEL

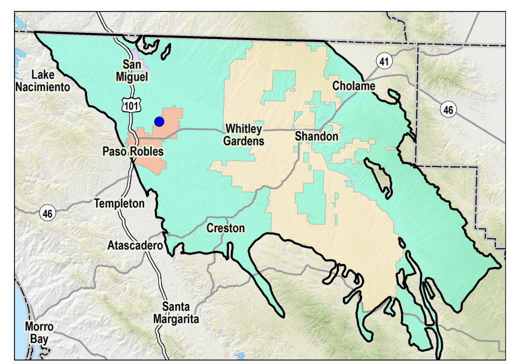
INTERIM MILESTONE

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 840
Screened Interval: 640- ~840 feet below ground surface
Reference Point Elevation: 787 feet above mean sea level

* Measurement reported as not static



MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 26S/12E-14G02

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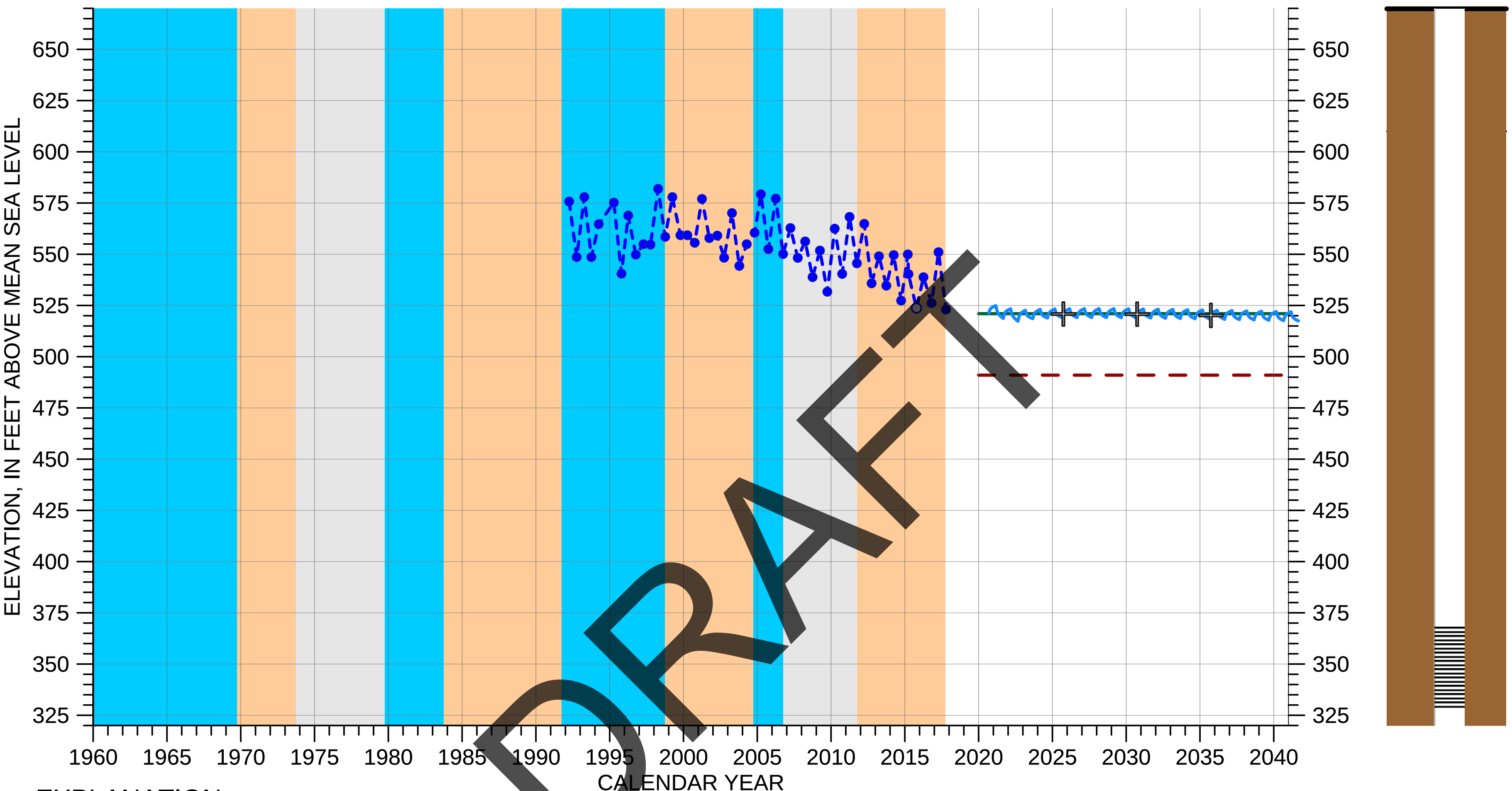
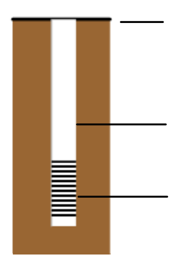


EXPLANATION

- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD
- GROUNDWATER ELEVATION
- MEASUREMENT NOT VERIFIED*
- PROJECTED WATER LEVEL
- INTERIM MILESTONE

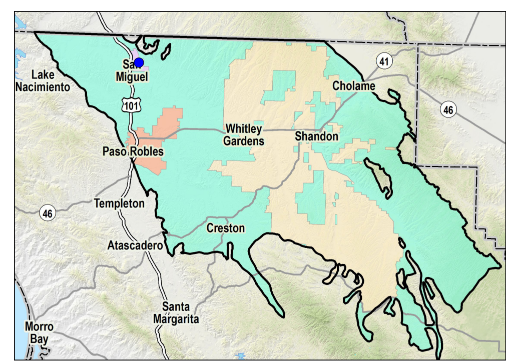
CLIMATE PERIOD CLASSIFICATION

DRY | AVERAGE/ALTERNATING | WET



Well Depth: 350 feet
Screened Interval: 300-310, 330-340 feet below ground surface
Reference Point Elevation: 669.8 feet above mean sea level

* Measurement reported as not static



MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 25S/12E-16K05

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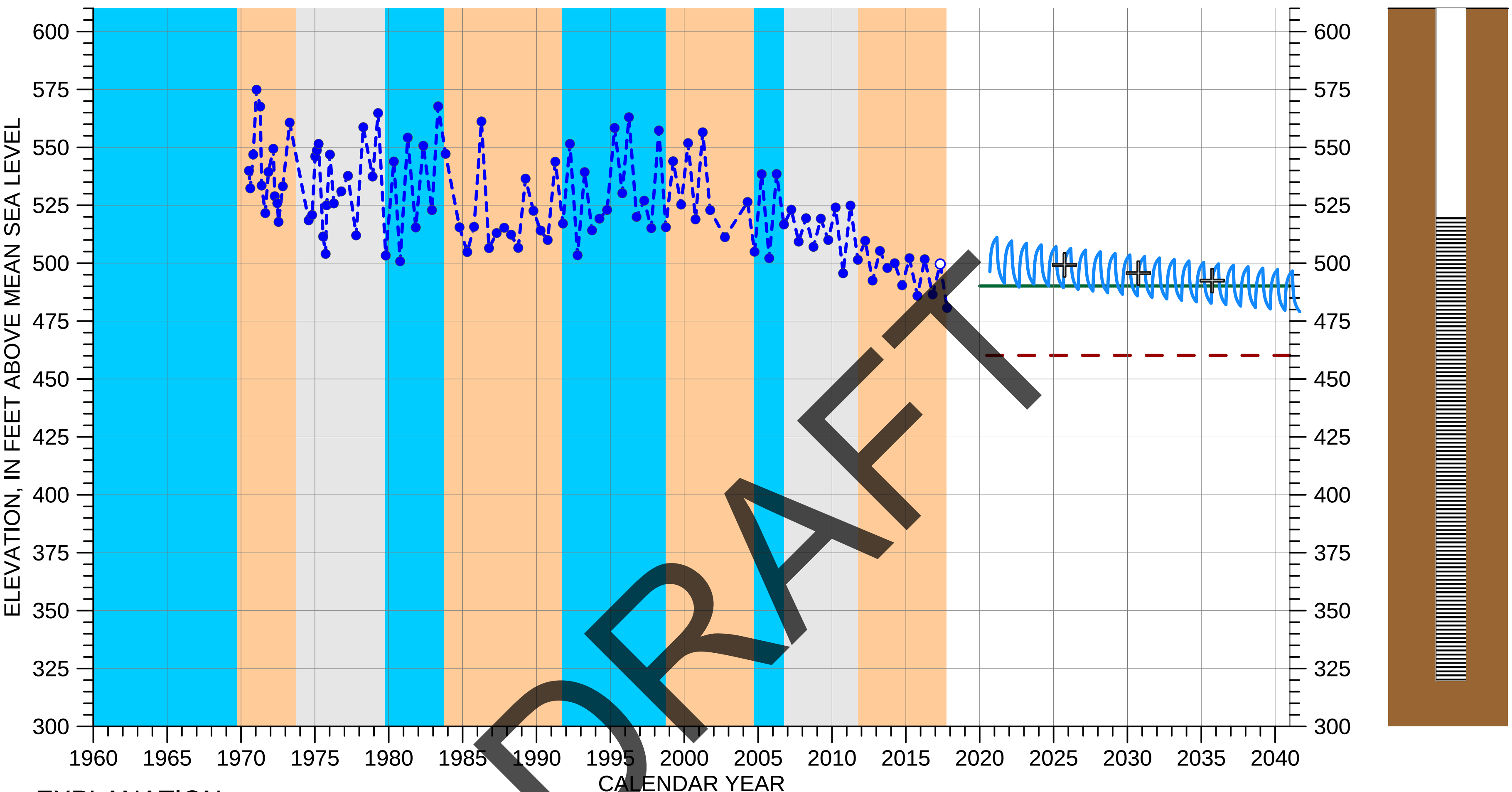
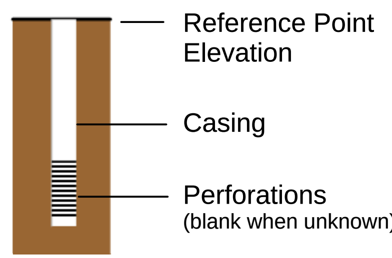


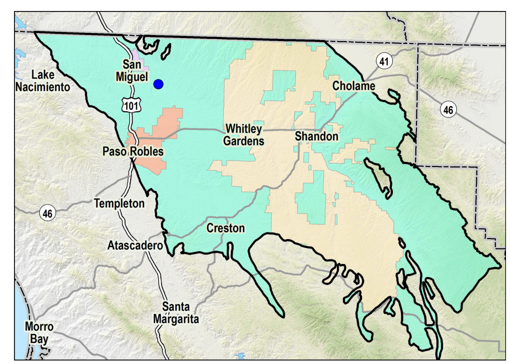
EXPLANATION

MEASURABLE OBJECTIVE
MINIMUM THRESHOLD
GROUNDWATER ELEVATION
MEASUREMENT NOT VERIFIED*
PROJECTED WATER LEVEL
INTERIM MILESTONE

CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET



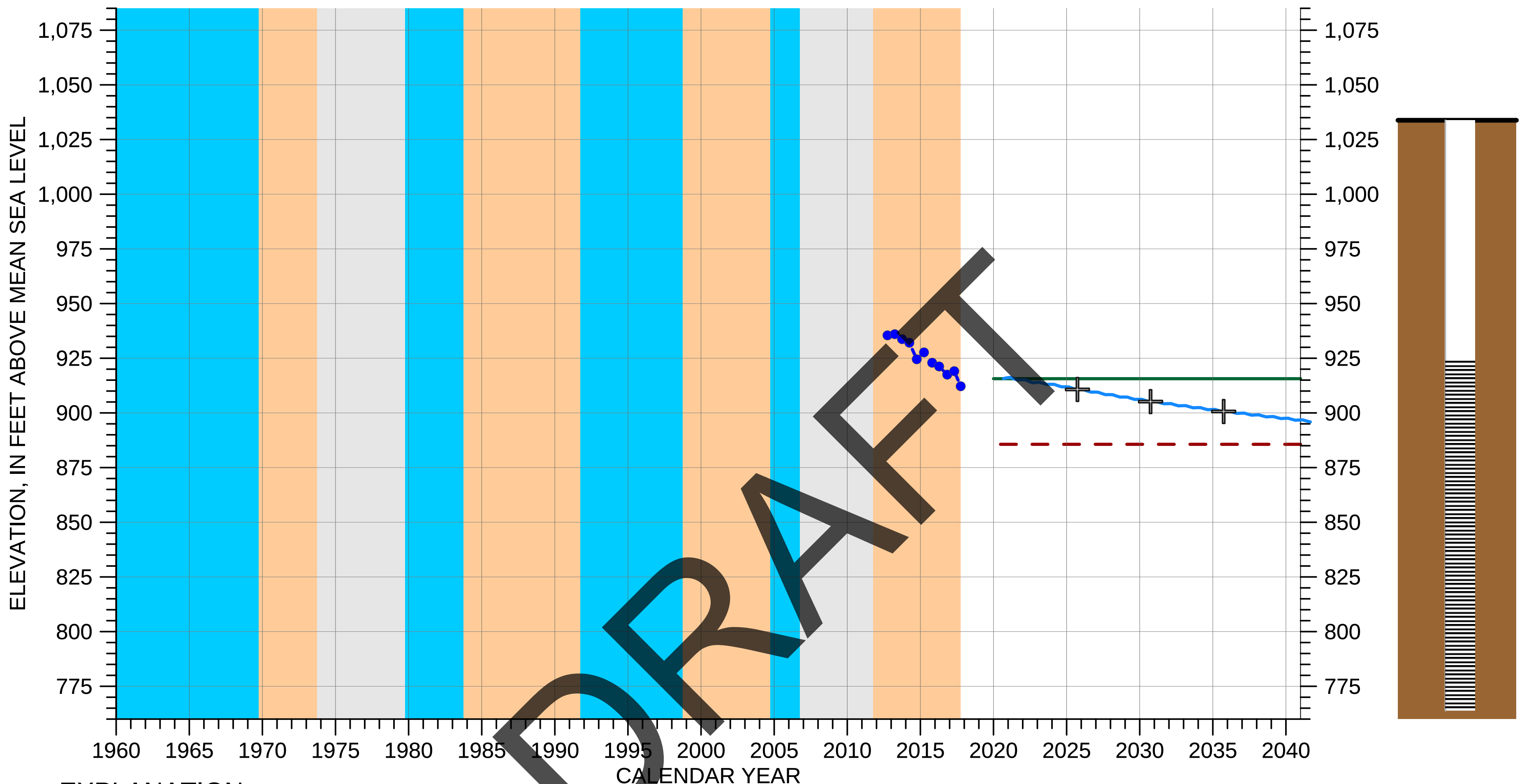


Well Depth: 400 feet
Screened Interval: 200-400 feet below ground surface
Reference Point Elevation: 719.7 feet above mean sea level

* Measurement reported as not static

MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 25S/12E-26L01

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\ProjectedWL_2017MO_withIM\Fig02_25S_12E-26L01.grf



EXPLANATION

MEASURABLE OBJECTIVE

MINIMUM THRESHOLD

GROUNDWATER ELEVATION

MEASUREMENT NOT VERIFIED*

PROJECTED WATER LEVEL

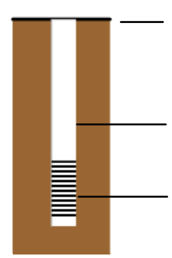
INTERIM MILESTONE

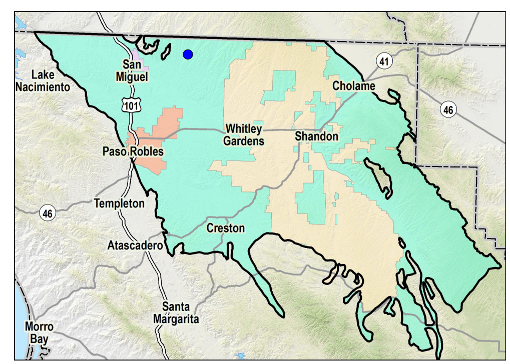
CLIMATE PERIOD CLASSIFICATION

DRY AVERAGE/ALTERNATING WET

Well Depth: 270 feet
Screened Interval: 110-270 feet below ground surface
Reference Point Elevation: 1033.8 feet above mean sea level

* Measurement reported as not static





MEASUREABLE OBJECTIVES, MINIMUM THRESHOLDS, AND INTERIM MILESTONES FOR 25S/13E-08L02

S:\projects\9200_Paso Robles GSP\GSP\Ch 9-10 Coordination Effort\Ch 9\Appendices\AppendixJ_SimulatedHydrographs\grf\ProjectedWL_2017MO_withIM\Fig03_25S_13E-08L02.grf

Appendix L

Other Management Action Program Concepts

APPENDIX L. OTHER MANAGEMENT ACTION PROGRAM CONCEPTS

Programs that affected pumpers could fund to achieve necessary reductions and/or avoid undesirable results are described below.

L1.1 Well Interference Mitigation Program

GSAs have explicit authority to impose spacing requirements on new groundwater well construction to minimize well interference and impose reasonable operating regulations on existing groundwater wells to minimize well interference, including requiring extractors to operate on a rotation basis (Water Code 10726.4).

The net effect of implementing a program to mitigate well interference could be a reduction in groundwater pumping.

L1.1.1 Relevant Measurable Objectives

An interference mitigation program would benefit the groundwater elevation, groundwater storage, and land subsidence measurable objectives.

L1.1.2 Expected Benefits and Evaluation of Benefits

The primary benefit from the well interference program could be less pumping in the Subbasin. A connected secondary benefit will be mitigating the decline, or raising, groundwater elevations from reduced pumping. An ancillary benefit from stable or rising groundwater elevations may include avoiding pumping induced subsidence. Because the amount of pumping reduction from an interference mitigation program is unknown at this time, it is difficult to quantify the expected benefits.

Reductions in groundwater pumping would be measured directly through the metering and reporting program and recorded in the DMS. Changes in groundwater elevation would be measured with the groundwater level monitoring program. Subsidence would be measured with the CGPS station network. Changes in groundwater storage would be estimated using the groundwater level proxy. Information about the monitoring programs is provided in Chapter 7. Isolating the effect of the interference mitigation program on groundwater levels will be challenging because it will be only one of several management actions that may be implemented concurrently in the Subbasin.

L1.1.3 Circumstances for Implementation

The interference mitigation program would be initiated only after a GSA decides whether it will be implemented.

L1.1.4 Public Noticing

Public meetings would be held to inform the public that interference mitigation program is being considered and/or developed. The interference mitigation program would be developed in an open and transparent process. The public and interested stakeholders would have the opportunity at these meetings to provide input and comments on the process and the program elements.

L1.1.5 Permitting and Regulatory Process

The interference mitigation program may be subject to CEQA. Pumping rotation schedules and well spacing requirements may need to be implemented by establishing new ordinances.

L1.1.6 Implementation Schedule

The interference mitigation program would be developed and implemented when a GSA decides to initiate the process.

L1.1.7 Legal Authority

California Water Code §10726.4 provides GSAs the authorities to establish well spacing requirements and establish pumping rotation schedules.

L1.1.8 Estimated Cost

The cost to develop and implement the interference mitigation program is estimated to be up to $750,000 depending on the final components included. The estimated cost of the CEQA permitting process and the annual cost of data collection, data management, and program compliance are unknown at this time.

L1.2 Groundwater Conservation Program

A groundwater conservation program could be implemented to achieve the necessary limitations in groundwater pumping. This program could include elements that would facilitate compensating landowners for fallowing or retiring agricultural land, incentivize water use efficiency through a tiered pumping fee structure, and/or facilitate the development of projects. The program would need adequate monitoring and oversight to ensure there are no unintended consequences from implementing the program elements and projects. The GSA would likely conduct substantial public outreach and hold meetings to educate and solicit input on the groundwater conservation program and any proposed elements. This outreach program would be designed to ensure that the conservation program is equitable to all beneficial groundwater users and uses, and that it is consistent with groundwater laws and water rights.

Substantial negotiation among Subbasin groundwater users and public input would be needed to develop an equitable fee structure and the details of a groundwater conservation program. The groundwater conservation program would be developed with the intent of providing groundwater pumpers flexibility in how they manage water. Some groundwater pumpers may choose to reduce pumping, others may choose to coordinate through the groundwater conservation program with neighbors retiring land or paying for projects.

L1.2.1 Relevant Measurable Objectives

The groundwater management program would benefit the groundwater elevation, groundwater storage, and land subsidence measurable objectives.

L1.2.2 Expected Benefits and Evaluation of Benefits

The primary benefit from implementing a groundwater conservation program is reduced Subbasin pumping. A connected benefit of reduced pumping is mitigating the decline, or raising, groundwater elevations. An ancillary benefit from stable or increasing groundwater elevations may include avoiding pumping induced subsidence. The program is designed to ramp down pumping to the sustainable yield; therefore, the quantifiable benefit is to maintain pumping within the sustainable yield.

Reductions in groundwater pumping would be measured directly through the metering and reporting program and recorded in the DMS. Changes in groundwater elevation are an important metric for the groundwater conservation program and would be measured with the groundwater level monitoring program. Subsidence would be measured with the CGPS station network. Changes in groundwater storage would be estimated using the groundwater level proxy. Information about the monitoring programs is provided in Chapter 7. Isolating the effect of the groundwater conservation program on sustainability metrics will be challenging because it would be only one of several management actions that may be implemented concurrently in the Subbasin. However, as the program is initiated, the correlation between reduced pumping and higher groundwater levels may become more apparent.

L1.2.3 Circumstances for Implementation

The groundwater conservation program would be developed and implemented when a GSA decides to initiate the process.

L1.2.4 Public Noticing

Public meetings will be held to inform groundwater pumpers and other stakeholders that the groundwater conservation program is being developed. The groundwater conservation program would be developed in an open and transparent process. Groundwater pumpers and other stakeholders would have the opportunity at these meetings to provide input and comments on the process and the program elements.

L1.2.5 Permitting and Regulatory Process

A groundwater conservation program is subject to CEQA. A groundwater conservation program would be developed in accordance with all applicable groundwater laws and respect all groundwater rights. Depending on the funding approach agreed to for developing this management action, the fee structure and its justification developed as part of the groundwater conservation program would need to meet all California Constitutional requirements related to government funding mechanisms.

L1.2.6 Implementation Schedule

Developing and implementing a groundwater conservation program would likely take approximately two years, which includes time for conducting the required funding procedures.

L1.2.7 Legal Authority

California Water Code §10730 and §10730.2 provide GSAs the authorities to impose fees, including fees on groundwater pumping.

L1.2.8 Estimated Cost

The cost to develop and implement a groundwater conservation program is estimated to be $750,000. This does not include the cost of the CEQA permitting or any ongoing program oversight.

Appendix M

Communication and Engagement Plan

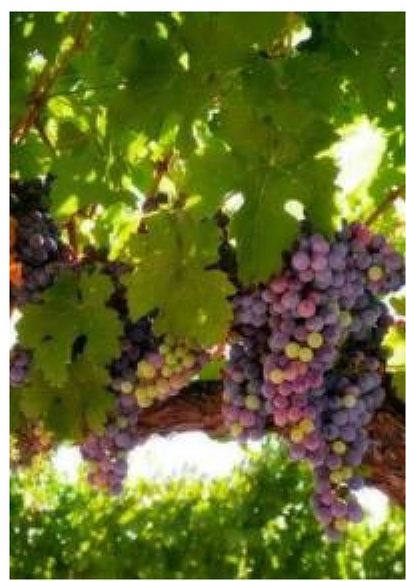
COMMUNICATION & ENGAGEMENT PLAN

FOR THE PASO ROBLES SUBBASIN GROUNDWATER SUSTAINABILITY PLAN

JULY 2018

Paso Robles Subbasin Groundwater Sustainability Agencies

- *County of San Luis Obispo*
- *City of Paso Robles*
- *San Miguel Community Services District*
- *Heritage Ranch Community Services District*
- *Shandon San Juan Water District*



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1.0 INTRODUCTION

In 2015, the California state legislature approved a new groundwater management law known as the Sustainable Groundwater Management Act (SGMA). SGMA requires local agencies in medium- and high-priority groundwater basins, as designated by the California Department of Water Resources (DWR), to form Groundwater Sustainability Agencies (GSAs) and prepare Groundwater Sustainability Plans (GSPs). Because the Paso Robles Subbasin[1] (DWR Bulletin 118 Basin No. 3-4.06) has been designated as a high-priority basin subject to critical conditions of overdraft, the Paso Robles Subbasin GSP is due by January 31, 2020. Whereas, other medium- and high- priority basins not subject to critical conditions of overdraft are due January 31, 2022. During the GSP preparation process, GSP Regulations require public outreach and engagement with basin users, the public, and other stakeholders (collectively referred to in this document as Interested Parties).

The purpose of this Communication and Engagement Plan (C&E Plan) is to outline the process for Interested Parties' involvement in the development of a GSP for the Paso Robles Subbasin.

About Paso Robles Subbasin

The Paso Robles Subbasin lies in northern San Luis Obispo County and extends into southern Monterey County. The Subbasin is bounded by the Santa Lucia Range on the west, the La Panza Range on the south, and the Temblor and Diablo Ranges on the east. The **Figure 1** shows the Paso Robles Subbasin and the GSAs formed therein.

Basin Boundary Modifications

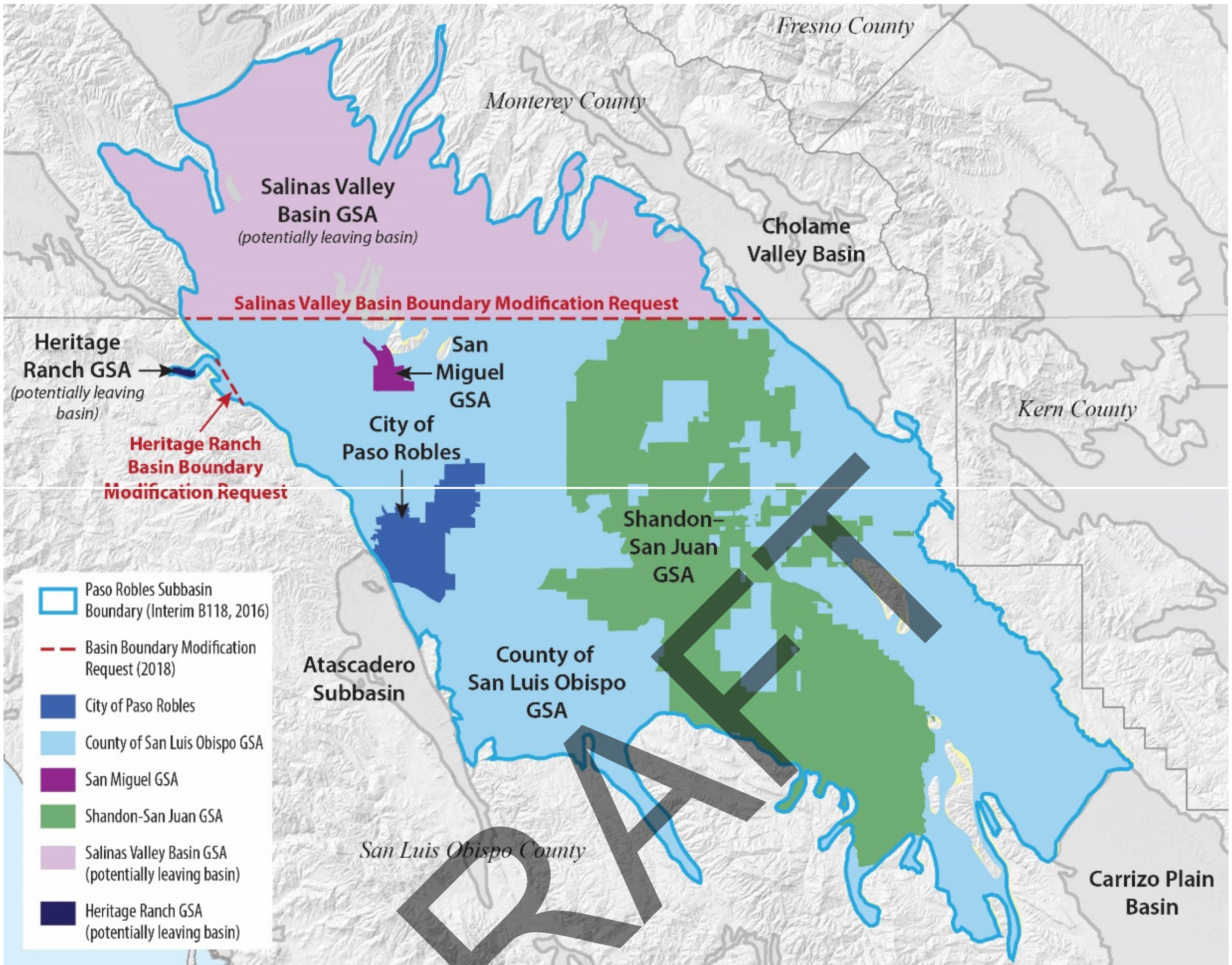
Two GSAs currently included in the Paso Robles Subbasin have filed initial notifications to DWR for a basin boundary modification which would cause them to leave the Paso Robles Subbasin.

- **Salinas Valley Basin GSA** (SVBGSA) submitted an initial notification on May 1, 2018 and a basin boundary modification request on July 5, 2018 to DWR regarding a jurisdictional internal boundary modification at the County line. If SVBGSA is granted the basin boundary modification, they will modify the border between the Upper Valley Aquifer and Paso Robles Subbasin to coincide with the Monterey/San Luis Obispo County line resulting in the Paso Subbasin lying wholly in San Luis Obispo County. The Paso Robles Subbasin GSAs support this request.
- **Heritage Ranch CSD GSA** submitted an initial notification on April 23, 2018 and a basin boundary modification request on June 27, 2018 to DWR regarding a scientific external boundary modification. If the request is granted, the Heritage Ranch CSD GSA area will be excluded from the Paso Robles Subbasin.

If either of these GSAs are granted a basin boundary modification, the Paso Robles Subbasin GSAs will continue to engage and coordinate with them as needed to achieve sustainable groundwater management.

[1] Formally, the Paso Robles Area Subbasin of the Salinas Valley Groundwater Subbasin

Figure 1. ***Paso Robles Subbasin and GSA Boundaries***



Formation of a Single GSP Memorandum of Agreement

In September 2017, through a Memorandum of Agreement (MOA), five GSAs that were formed under the DWR GSA process collectively agreed to develop one GSP for the portion of the Paso Robles Subbasin in San Luis Obispo County. As part of the MOA (Section 4.4(D)) they also decided to collectively develop a stakeholder participation plan that includes public outreach and involves Interested Parties in developing the GSP. These GSAs include:

- Paso Basin – County of San Luis Obispo GSA
- City of Paso Robles GSA
- San Miguel Community Services District GSA
- Shandon–San Juan GSA
- Heritage Ranch Community Services District GSA *(currently seeking basin boundary modification)*

The GSAs above will work together to develop the Paso Subbasin GSP. To streamline GSP development, each GSA provides a representative to serve on the Paso Subbasin Cooperative Committee ("Cooperative Committee"). Details about the Cooperative Committee are discussed in Section 4.0 GSAs' DECISION-MAKING PROCESS.

Our Promise

The Cooperative Committee, comprised of representatives of the five GSAs, *commit to developing a recommended GSP that will safeguard our local groundwater resources through sustainable management and to preserve this invaluable water supply source for future generations. We commit to work with Interested Parties to ensure that their concerns and inputs are considered in GSP development.*

C&E Plan as a Roadmap

This C&E Plan serves as a roadmap to meet the statutory requirements of SGMA and the GSP Regulations as outlined in **Appendix A** and, more importantly, serves to create common understanding and transparency among GSAs and Interested Parties throughout the GSP development process. The GSAs will follow this C&E Plan to engage with and gather input from various Interested Parties to support GSP development. GSP information, meeting schedules, and useful links can be found at the Paso Robles Groundwater Communication Portal (Paso GCP) at: www.pasogcp.com. Anyone may register as an Interested Party to be notified of upcoming events and activities regarding GSP development. For more information on the Paso GCP, refer to **Appendix B**.

2.0 GOALS AND OBJECTIVES

The goal of Paso Robles Subbasin communication and engagement efforts is to involve broad and diverse Interested Parties, including stakeholders, the public, and beneficial users, throughout the GSP development process to ensure Interested Parties' concerns, issues, and aspirations are consistently understood and considered in the GSAs' decision-making process.

Under the umbrella of meeting the statutory requirements of SGMA and the GSP Regulations, the objectives of the GSAs' engagement efforts are as follows:

- Educate Interested Parties about the importance of a GSP, what is and is not feasible, what must be accomplished, and how success will be measured
- Ensure Interested Parties and beneficial users of groundwater are given the opportunity to contribute meaningful input, which is then considered in the decision-making process
- Involve a diverse group of Interested Parties in the GSP process
- Make public participation easy and accessible

Interested Parties discuss potential options for groundwater management in the Paso Robles Subbasin at a public workshop held on May 14, 2018.

3.0 BENEFICIAL USES AND STAKEHOLDER GROUPS

Among the beneficial groundwater uses supported by the Paso Robles Subbasin are various irrigated and non-irrigated agricultural activities (including but not limited to grazing, vineyards, and orchards); rural domestic/residential wells; municipal and industrial supply; and aquatic ecosystems associated with rivers and streams, some of which provide habitat for threatened or endangered species.

Given its location, the Paso Robles Subbasin has diverse land uses including the following:

— Urban (i.e. City of el Paso de Robles)
— Community Services Districts (2)
— Urban Reserve area (e.g. Shandon)
— Village Reserve area (e.g. Creston)
— Rural Residential areas
— Agriculture
— Industrial areas
— Commercial areas
— Natural landscape

The Paso Robles Subbasin also covers a wide range of Interested Parties, including, but not limited to, the following:

— Land use authorities
— Private well users
— Urban users
— Native American Tribal interests
— Business interests
— Agriculture interests
— Public agencies
— Public water systems/ community water systems
— Environmental interests
— Disadvantaged Communities (DACs) – as identified in **Appendix C**
— General public

California Water Code (CWC) §10723.4 requires GSAs to establish and maintain a list of persons interested in receiving notices regarding plan preparation, meeting announcements, and availability of draft plans, maps, and other relevant documents. Any person may request, in writing, to be placed on the list of interested persons. Additionally, the GSAs developed the Paso Robles Groundwater Communication Portal (Paso GCP) where any person may sign up to be added to the list of Interested Parties. The Paso GCP is available at www.pasogcp.com. **Appendix D** includes an initial list of Interested Parties identified at the time of GSA formation. The updated Interested Parties list, with individual registrants, is stored in the Paso GCP, and will be available to DWR at the time of GSP submittal.

Diverse Outreach Practices

The Paso Robles Subbasin GSAs are committed to encouraging the active involvement of diverse social, cultural, and economic interests of the population within the groundwater basin. As such, outreach practices will be diverse as well, as outlined in Section 7.0.

4.0 GSAs' DECISION-MAKING PROCESS

The MOA, as introduced in Section 1.0, lays the framework for governance and decision-making. The MOA established the Cooperative Committee made up of representatives of the five GSAs to develop a single GSP that will be considered for adoption by each individual GSA. It is important to note that the MOA automatically terminates upon the State's approval of the GSP.

To provide for consistent and effective communication among the GSAs, each GSA agreed to designate one Cooperative Committee Member to conduct activities related to GSP development and SGMA implementation. **Table 1** lists the Primary and Alternate Members of the Cooperative Committee, as well as a point of contact for each GSA's staff. Each Cooperative Committee Member represents their respective GSA in the development of a recommended GSP that will be considered for adoption by each individual GSA and subsequently submitted to DWR for approval. GSA Staff works with the GSA Consultant on administrative matters to move the GSP process forward. A copy of the MOA and detailed Cooperative Committee responsibilities in the development of the GSP is available at https://slocountywater.org/site/Water%20Resources/SGMA/paso/pdf/FinalMOA_FullyExecuted.pdf

Table 1. Cooperative Committee Members and Weighted Vote for Decision-Making

GSA (% Weighted Vote)	Cooperative Committee Member	Cooperative Committee Alternate	GSA's Staff Point of Contact
County of San Luis Obispo (61%)	John Peschong	Debbie Arnold	Angela Ruberto
City of Paso Robles (15%)	John Hamon	Steve Martin	Dick McKinley
Shandon-San Juan Water District (20%)	Willy Cunha	Matt Turrentine	Randy Diffenbaugh
San Miguel CSD (3%)	Joe Parent	Kelly Dodds	Blaine Reely
Heritage Ranch CSD (1%)	Reginald Coussineau	Scott Duffield	Scott Duffield

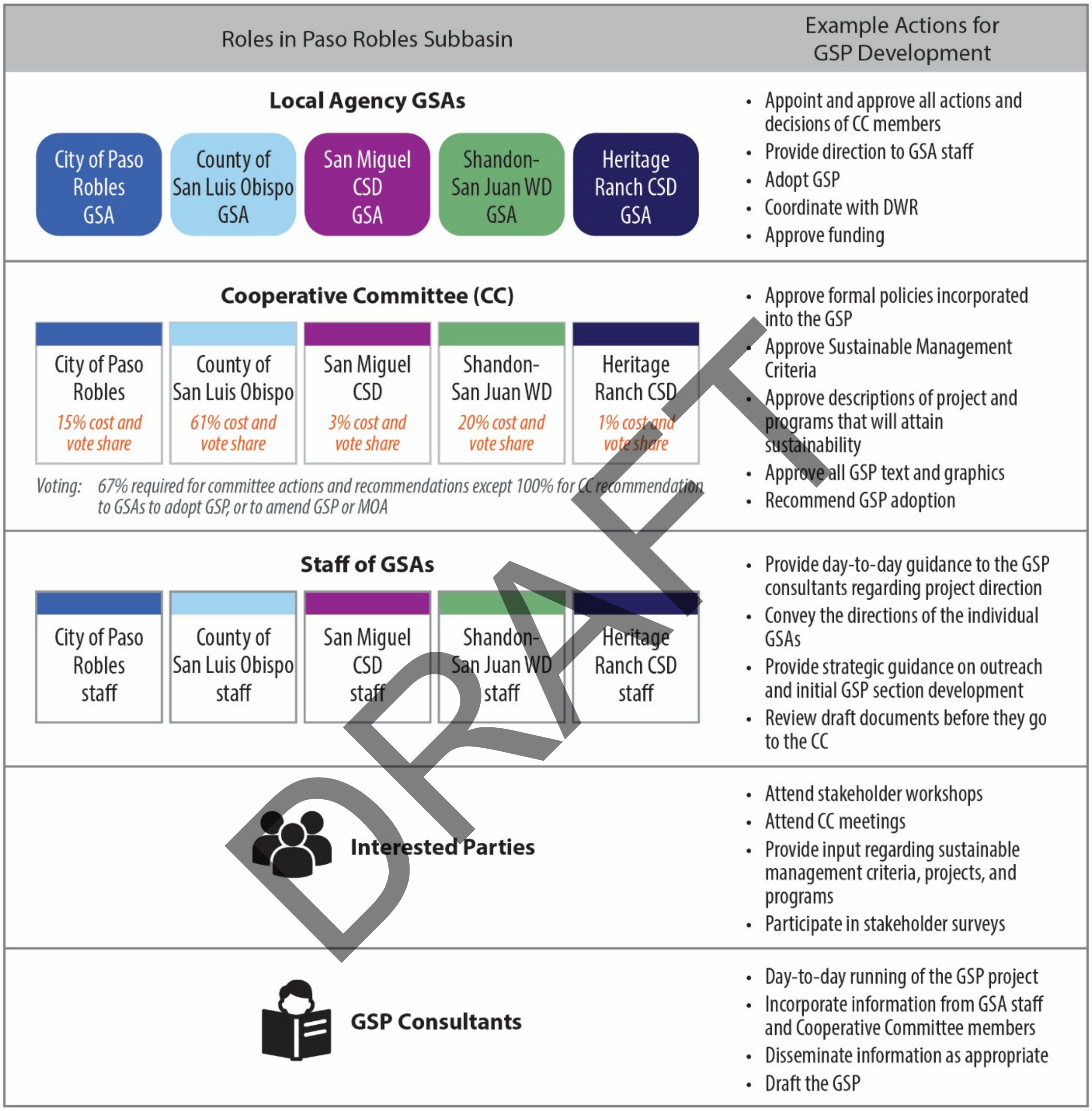
The Cooperative Committee will consider all beneficial uses and users of groundwater in the Subbasin as well as public input during the decision-making process. Each of the GSAs have weighted voting (see **Table 1**) on decision-making, with the exception of MOA amendments or termination and recommendation that the GSAs adopt the final GSP or any amendments thereto which require a unanimous vote. Portions of the MOA addressing voting are provided below.

> *MOA Section 4.8: Any action or recommendation considered by the Cooperative Committee shall require the affirmative vote of 67 percent based on the percentages set forth in Section 4.6 or 4.7 above (of the MOA), as applicable. Notwithstanding the foregoing, **the following shall require the affirmative vote of 100 percent** based on the percentages set forth in Section 4.6 or 4.7 above (of the MOA), as applicable: (A) a recommendation that each of the Parties adopt the GSP or adopt any amendment thereto prepared in response to comments from DWR and (B) a recommendation that the Parties amend this MOA.*

> *MOA Section 9.2: This MOA may be terminated upon unanimous written consent of all current Parties.*

A summary of the Paso Robles Subbasin roles and actions for GSP development is depicted in **Figure 2**.

Figure 2. ***Paso Robles Subbasin Roles and Example Actions for GSP Development***



The following are descriptions of how each GSA makes their individual GSA decisions and which forums are used to devise their decision-making. Once their decisions are made they report to the Cooperative Committee for discussion.

County of San Luis Obispo GSA

Governing body	**County of San Luis Obispo Board of Supervisors**
Meeting information	**Bi-Monthly, on average; San Luis Obispo County Government Center.** See the complete schedule online. If matters relating to GSP development will be discussed during a Board meeting, the topic will be shown on the meeting's agenda.

The Paso Basin – County of San Luis Obispo GSA's governing body is the **County of San Luis Obispo Board of Supervisors**. The County's SGMA Strategy supports 1) fair and equitable representation in GSAs decision-making processes that include participation by the County and/or an alternative, stakeholder-driven eligible entity, and 2) adequate consultation between any GSA efforts and related County authorities and/or planning/management efforts. The County supports participating in a GSA in a basin to represent one or more of the following key roles and/or authorities:

- Interest 1: Representation of County Service Area(s)
- Interest 2: Representation of otherwise unrepresented beneficial uses/users of groundwater (e.g., rural domestic, agricultural, environmental, etc. as defined by SGMA)
- Interest 3: Land use authority
- Interest 4: Well construction permitting authority
- Interest 5: Integration and alignment of the County's discrete management actions (e.g., groundwater export ordinance) to the GSA's basin-wide, comprehensive management actions

City of Paso Robles GSA

Governing body	**Paso Robles City Council**
Meeting information	**First and third Tuesday of each month, Paso Robles City Hall.** If matters relating to GSP development will be discussed during a City Council meeting, the topic will be shown on the meeting's agenda.

The City of Paso Robles' GSA covers properties in the City limits except that portion of the City that is west of the Rinconada fault and thus in the Atascadero Basin. The GSA's governing body is the **Paso Robles City Council**, acting as the Board of the GSA. The City Council meets on the first and third Tuesday of each month in the Council Chamber in City Hall, but only meets as the GSA Board when there is a specific action item for the GSA.

Shandon-San Juan Water District GSA

Governing body	**Shandon-San Juan Water District Board of Directors**
Meeting information	**Third Tuesday of each month, Shandon High School Library.** If matters relating to GSP development will be discussed during a Board meeting, the topic will be shown on the meeting's agenda.

The Shandon San Juan GSA is formed and governed by an "opt-in" California Water District lying in the northeastern portion of San Luis Obispo County. The GSA's governing body is the **Board of Directors of the Shandon-San Juan Water District** (SSJWD), acting as the Board of the GSA. SSJWD meets on the third Tuesday of each month at the Shandon High School Library.

San Miguel CSD GSA

Governing body	**San Miguel Community Services District Board of Directors**
Meeting information	**Fourth Thursday of each month, San Miguel CSD District Office.** If matters relating to GSP development will be discussed during a Board meeting, the topic will be shown on the meeting's agenda.

The San Miguel Community Services District GSA covers the properties within its District boundaries. The GSA's governing body is the **San Miguel Community Services District Board of Directors**, acting as the Board of the GSA. The District Board of Directors meets on the fourth Thursday of each month at the District office which is located at 1150 Mission St. in San Miguel, CA 93451. The Board of Directors only meets as the GSA Board when there is a specific action item for the GSA on the agenda.

While an initial list of Interested parties was identified for the Paso Robles Subbasin at the time of GSA formation**,** additional Interested Parties specific to San Miguel CSD include the following:

- Disadvantaged communities, including but not limited to, those served by private domestic wells or small community water systems or ratepayers and domestic well owners – the Community of San Miguel, which lies within the District's GSA, is designated as a Disadvantaged Community (DAC)
- Entities listed in Section 10927 that are monitoring and reporting groundwater elevations in all or part of a groundwater basin managed by the GSA – the San Miguel Community Services District files, contributes, and/or maintain California Statewide Groundwater Elevation Monitoring (CASGEM) monitoring data with the DWR through San Luis Obispo County.

Heritage Ranch CSD GSA

Governing body	**Heritage Ranch Community Services District Board of Directors**
Meeting information	**Third Thursday of each month, Heritage Ranch CSD District Office.** If matters relating to GSP development will be discussed during a Board meeting, the topic will be shown on the meeting's agenda.

The Heritage Ranch Community Services District's governing body is a **Board of Directors** of five members. Director terms are four years, with staggered elections of three seats and two seats. They meet at 4:00 p.m. on the third Thursday of every month, in the Board Room located at 4870 Heritage Road, Paso Robles CA, 93446.

The Heritage Ranch Board also has five Committees. The Committees may include two Board members and members of the public. The manager is the staff person assigned to all Committees. The Board President appoints membership to committees at the first regular meeting in December in even number years. Heritage Ranch Committee membership is for two years. The Board President may also appoint ad-hoc committees. In response to SGMA, an ad-hoc SGMA Committee was appointed. The current SGMA Committee is Director Cousineau and Director Barker.

Heritage Ranch Committee motions and recommendations shall be advisory to the Board and shall not commit the District [HRCSD] to any policy, act, or expenditure unless expressly delegated by Board action. Nor may any committee direct staff to perform specific duties unless duly authorized by the Board. The committee chair is authorized to schedule committee meetings as deemed necessary and all such meetings shall be in compliance with Open Meeting Law of California (Brown Act).

Additional Contributors to GSP Development

Interested Parties

Interested Parties can participate in public meetings and hearings, which are posted on the Paso GCP, and communicate with Cooperative Committee members to provide input, obtain information, and review and comment on GSP documents. An initial list of Interested Parties identified for the Paso Robles Subbasin at the time of GSA formation is provided in **Appendix D**. Anyone may register as an Interested Party via the Paso GCP at www.pasogcp.com. Once registered, Interested Parties will receive invitations to meetings and workshops related Paso Robles Subbasin GSP development. The Interested Party list is stored and maintained in the Paso GCP database.

GSP Consultants

A team of consultants will conduct technical studies and investigations, including groundwater modeling, and draft the GSP documents.

Consultant work will be overseen by the GSA staff, who will provide guidance and oversight regarding GSP development, prior to reviewing draft documents with the Cooperative Committee. The consulting firms assisting with GSP development for the Paso Robles Subbasin are listed below.

- Hydrometrics Water Resources, Inc. (lead consultant)
- Montgomery and Associates
- Carollo Engineers
- GEI Consultants, Inc.
- O'Laughlin & Paris, LLP
- Strategy Driver, Inc.
- WestWater Research, LLC

Staff of the GSAs

Staff of the GSAs provide day-to-day guidance to the GSP consultant regarding project direction. Staff of the GSAs review GSP documents before they are passed to the Cooperative Committee. Staff members make interim decisions on the approach and messaging involved in GSP development. Fundamental to this decision-making approach is that staff of each GSA regularly communicate with GSA Boards or Councils and respective Cooperative Committee Members.

Decision-Making Steps

The Paso Robles Subbasin GSP must be developed under a compressed schedule, as the final adopted GSP is due to DWR by January 31, 2020. To ensure the GSP is delivered on time, decision-making during chapter development as well as for final approval must follow a streamlined process. These processes are outlined in **Figure 3** and **Figure 4**, respectively.

Figure 3. ***GSP Chapter Development Process***

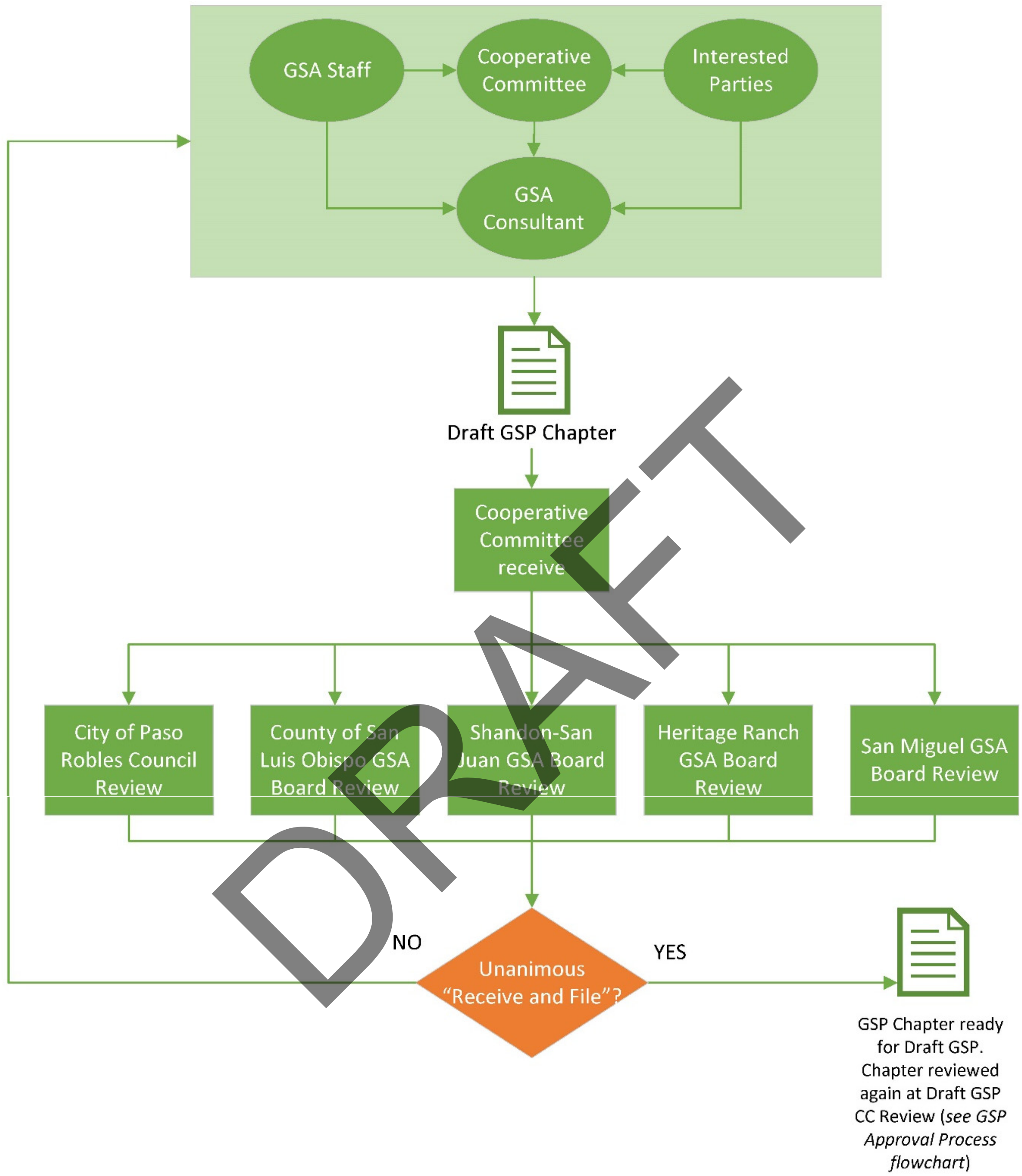
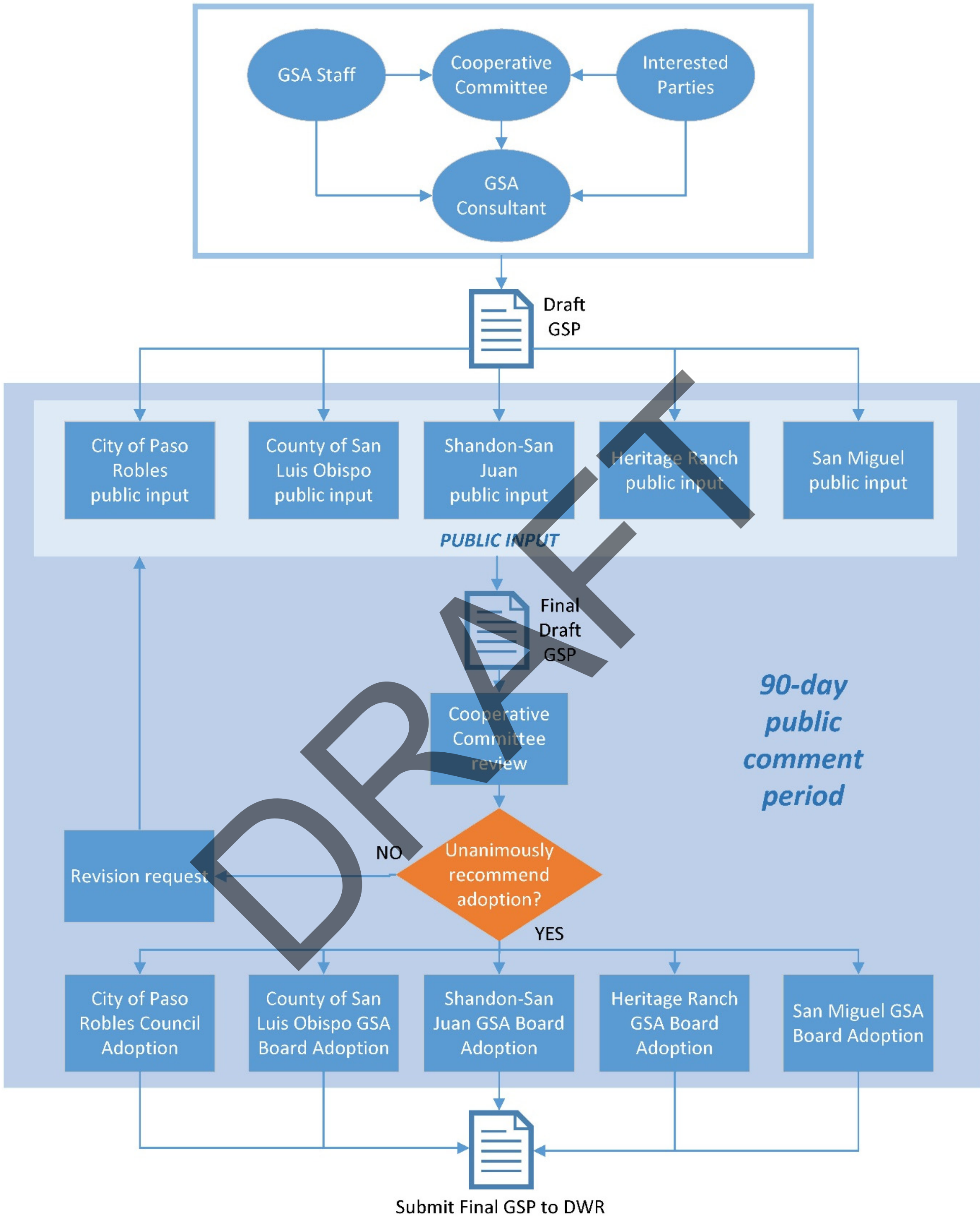


Figure 4. ***GSP Approval Process***



5.0 HOW CAN INTERESTED PARTIES AND PUBLIC GET INVOLVED?

The GSP process for the Paso Robles Subbasin includes both the development and implementation of a GSP. Interested Party participation is vital to the success of the GSP. A first step for Interested Parties to get involved is to sign up through the Paso GCP at www.pasogcp.com and review the content on the following websites:

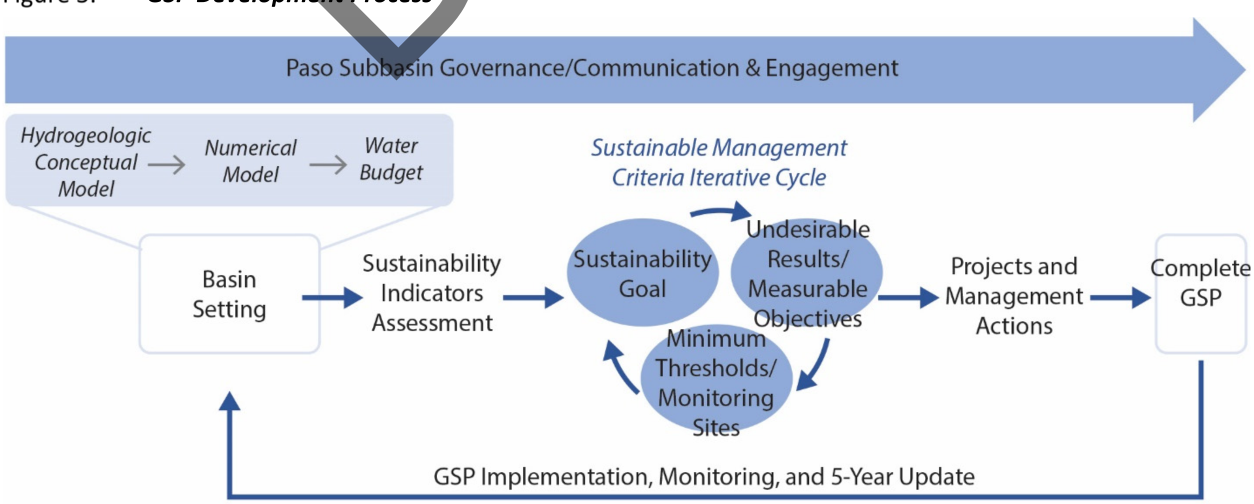
- Paso Robles Subbasin Groundwater Communication Portal (Paso GCP) – www.pasogcp.com
- GSA websites
    - County of San Luis Obispo – www.slocountywater.org
    - Shandon-San Juan Water District – www.ssjwd.org
    - Heritage Ranch CSD – www.heritageranchcsd.com
    - San Miguel CSD – www.sanmiguelcsd.org
    - City of Paso Robles – www.prcity.com
- DWR's SGMA Portal – https://sgma.water.ca.gov/portal/

Meetings of the Paso Subbasin Cooperative Committee are scheduled on a regular basis to provide information to the public and Interested Parties and provide opportunities to ask questions and make suggestions. These meetings are posted on the Paso GCP and announced via email. See **Section 7.0** to learn more ways the GSAs are engaging Interested Parties and inviting participation.

GSP Development Process

The GSP development process for the Paso Robles Subbasin shown in **Figure 5** outlines key tasks and their relationship to one another in developing the GSP. These main tasks roughly follow what will ultimately be the GSP's chapters. GSP development will also include: listing data gaps and how they will be filled during GSP implementation, conducting technical studies, defining the Subbasin's characteristics, accounting for current and planned groundwater uses, considering groundwater dependent ecosystems (GDEs), incorporating land use planning, and developing sustainable management criteria.

Figure 5. ***GSP Development Process***



Appendix E includes a preliminary schedule showing milestones and Interested Party engagement activities. As shown on the schedule, Cooperative Committee meetings will be held at regular intervals. Cooperative Committee meetings are open to the public. Focused workshops will be held as needed. In addition, technical staff will be available throughout the process to communicate and engage with Interested Parties. Interested Parties can be involved in GSP development by providing input throughout the process of completing these tasks. Periodic updates and materials will be posted on the [Paso GCP] and presented at Cooperative Committee meetings for Interested Parties review and comment.

Above, Interested Parties participate in an interactive workshop (May 14, 2018) about projects and actions.

6.0 DESIRED OUTCOMES

DWR's Stakeholder Communication and Engagement Guidance Document suggests answering a series of questions when setting desired outcomes for GSP Interested Party outreach. The questions and responses for the Paso Robles Subbasin are listed below.

What are we trying to accomplish?
We aim to make opportunities available for Interested Parties to provide input during development of the Paso Robles Subbasin GSP, and ensure the GSP considers input from Interested Parties.

How will we know if we are successful?
We will be successful when various Interested Parties have opportunities to provide their input, ask questions, receive up-to-date information, and comment on GSP development and draft documents.

What are the challenges or barriers?
One of the challenges is making a complete list of Interested Parties and being able to effectively communicate with them. We will make efforts to reach a broad set of Interested Parties and expand the list. We will use several forms of communication outreach such as: meetings, calendar updates with notification automatically sent to Interested Parties, radio and newspaper advertising, and email blasts. For a list of media contacted regarding Paso Subbasin GSP events, see **Appendix F**.

What are the opportunities for communication and engagement?
Available communication and engagement opportunities for Interested Parties include public workshops and hearings, communication through individual GSA webpages, registration as an Interested Party or contact through the Paso GCP, correspondence, phone calls, emails, and Cooperative Committee meetings.

What is the timeframe?
GSP development began in spring 2018 and will progress to adoption before January 31, 2020. During that period, Interested Party communication and engagement will be a continuous process, including the public review period for GSP approval. The Draft Paso Subbasin GSP will be available for 90 days of review during Fall 2019.

When will public input be relevant?
During GSP development, public input will be most relevant when the GSAs are framing the scope of studies, setting sustainable management criteria, developing management actions, identifying groundwater-dependent ecosystems (GDE), collecting existing and planned groundwater use information, and during public review of the draft GSP prior to DWR approval. Workshops and/or surveys will be held or conducted during GSP development for public input when it is most relevant.

How will public input be used?
GSP Regulations (Section 355.4) require that GSAs consider the interests of the beneficial uses and users of groundwater in the Subbasin. In addition, the GSAs as part of the GSP, will consider land use and property interests. Public input is essential in understanding and considering these interests and effects. During the GSP review and approval process, DWR will take public comments into account when determining whether interests within the Subbasin have been considered in the development and implementation of the GSP (Section 353.8).

7.0 COMMUNICATION + ENGAGEMENT TOOLS AND VENUES

Communication and engagement with Interested Parties may include Subbasin-wide outreach as well as engagement specifically within the individual GSA areas. Each GSA area may include a set of Interested Parties with specific interests. Each GSA will decide required levels of communication for its own GSA area and engage with Interested Parties in its GSA area as appropriate.

For Subbasin-wide interests and issues, the Cooperative Committee will communicate with Interested Parties. The Paso Robles Subbasin GSAs are committed to encouraging the active involvement of diverse social, cultural, and economic elements of the population within the groundwater basin. Therefore, outreach will be conducted through multiple and varied venues. Descriptions of these venues are presented below.

Paso GCP

Interested Parties are invited to register using the Paso GCP at www.pasogcp.com. Registrants will automatically be invited by email to activities regarding GSP development. Interested Parties may also view a calendar of events, register for upcoming events, and view materials from past events.

GSA Web Pages

Dedicated SGMA webpages for each GSA are listed below and also accessible at www.pasogcp.com. The webpages are designed to provide background information, maps, documents, status updates, useful links, contact information, and a means of communicating between the GSAs and the public.

- City of Paso Robles – www.prcity.com
- County of San Luis Obispo – www.slocountywater.org
- Heritage Ranch CSD – www.heritageranchcsd.com
- San Miguel CSD – www.sanmiguelcsd.org
- Shandon-San Juan Water District – www.ssjwd.org

Cooperative Committee Special Meetings

The Paso Robles Subbasin Cooperative Committee will host Special Meetings as-needed to cover time-sensitive GSP topics. For example, Special Meetings were hosted by the Cooperative Committee in Spring 2018 to launch the GSP process on the following topics:

- GSP Timeline, GSP requirements, and an introduction to Sustainable Management Criteria (April 23, 2018)
- Groundwater law and its connection to SGMA, State of the Subbasin (April 30, 2018)
- Projects and programs for groundwater management (May 14, 2018)
- Further information on the state of the Subbasin, and follow-up to the first three meetings (May 21, 2018)

Unless noticed as a Special Meeting, GSP-related discussions will take place during the regular meetings of the Cooperative Committee.

Cooperative Committee Regular Meetings

The Cooperative Committee meets regularly to carry out GSP activities. Regular Cooperative Committee meetings locations vary, but are typically held in the Paso Robles City Council Chambers. Meeting information, agendas, and other relevant documents are posted on the Paso GCP. The Cooperative Committee prepares and maintains minutes of its meetings, and all meetings of the Cooperative Committee are conducted in accordance with the Ralph M. Brown Act (Government Code §§ 54950 et seq.).

Public Surveys

Public surveys will be conducted when GSP development requires specific input from Interested Parties. Two public surveys were identified as of May 2018. The first was a C&E Survey, the results of which are discussed in **Appendix A** and many suggestions have been incorporated into this C&E Plan. The second survey centered around Sustainable Management Criteria/Minimum Thresholds and was conducted in Summer 2018.

Meeting feedback forms are available at public workshops to encourage Interested Party feedback on how the workshops are conducted. These feedback forms have been useful in helping the Cooperative Committee, GSA staff, and GSP consultants adapt to meet needs of Interested Parties along the way. For example, one meeting feedback form indicated that signage was needed at the meeting location to help find the correct building. Reusable directional signs were produced and displayed at the next meeting and will be available for future meetings. An example of the meeting feedback form is provided in **Appendix H**.

GSAs' Board of Directors/Supervisors/Council Meeting

Table 2 lists meetings of the governing bodies of the GSAs where interim updates regarding GSP development may be discussed as needed. See the linked websites below for the meeting agendas which may list SGMA as a topic. Stakeholders and members of the public may choose to comment at those meetings.

Table 2. GSA Regularly Scheduled Meetings

GSA / WEBSITE	DATE/TIME	LOCATION
County of San Luis Obispo www.slocounty.ca.gov/Departments/Board-of-Supervisors/Board-Meetings,-Agendas-and-Minutes.aspx	On average, twice per month	County Government Center Board of Supervisors Chambers 1055 Monterey Street San Luis Obispo, CA 93408
City of Paso Robles www.prcity.com	As-needed on the agenda of the City Council Meetings, held the first and third Tuesday of each month	Paso Robles City Hall Council Chambers 1000 Spring Street Paso Robles, CA 93446
Shandon-San Juan Water District www.ssjwd.org	As-needed on the agenda of the District Board Meetings, held on the third Tuesday of each month	Shandon High School 151 S. 1st Street Shandon, CA 93461

GSA / WEBSITE	DATE/TIME	LOCATION
Heritage Ranch CSD www.heritageranchcsd.com	As-needed on the agenda of the District Board Meetings, held on the third Thursday of each month	Heritage Ranch CSD District Office 4870 Heritage Road Paso Robles, CA 93446
San Miguel CSD www.sanmiguelcsd.org	As-needed on the agenda of the District Board Meetings, held on the fourth Thursday of each month	San Miguel CSD District Office 1150 Mission Street (Fire Station) San Miguel, CA 93451

eMail

Email blasts (emails to the entire list of Interested Parties) will be sent when there is significant information to communicate regarding GSP development. For example, email blasts are sent when Special Meetings of the Cooperative Committee are scheduled.

Individual emails will also be sent to invite known Interested Party groups to participate. For example, a letter was sent via email to local Native American Tribal governments inviting participation in the GSP process. A copy of the letter is included as **Appendix I**.

Postal Mail

Postal mail will be utilized to reach areas of the groundwater basin that may not otherwise be informed of GSP activities. For example, a postcard was mailed to Interested Parties in the San Miguel CSD GSA service area to announce the Special Meetings and launch of the Paso GCP, because the existing contact list for the San Miguel GSA included postal addresses, but not email addresses. The postcard invited these known Interested Parties in the San Miguel GSA to attend the Cooperative Committee Special Meetings and register their email address online with the Paso GCP. This postcard was also available at the Shandon-San Juan Water District Office for Interested Parties to pick up when they stopped by and was distributed to the rural communities of Jardine, Ground Squirrel Hollow, and Geneseo. The postcard is included with **Appendix J**.

Spanish Language Materials

The Cooperative Committee identified that there are potential Interested Parties who may be primarily Spanish-speaking. Because of this input, additional materials for communication about GSP development will be created in Spanish. Items identified initially for Spanish-language communications include the following:

- Postcard in Spanish to advertise Paso GCP (see **Appendix J**)
- Web page on Paso GCP written in Spanish
- Link on Paso GCP Spanish-language web page to request materials in Spanish

Adjacent Basin Meetings

Members of adjacent basins are welcome to participate in regularly scheduled Cooperative Committee meetings as well as special meetings. In addition, coordination between adjacent basins and individual GSAs will occur as needed. The names and GSP deadlines for basins adjacent are shown in **Table 3**.

Table 3. Basins Adjacent to the Paso Robles Subbasin

Basin	Basin Prioritization	GSP Due Date
Atascadero Subbasin	Draft 2018 DWR basin prioritization as Very Low (subject to change)	Pending final DWR basin prioritization
Lockwood Valley Basin	Very Low	N/A
Salinas Basin - Upper Valley Aquifer	Medium	January 31, 2022
Cholame Valley Basin	Very Low	N/A
Carrizo Plain Basin	Very Low	N/A

Public Hearings

Notices of public hearings are published in a variety of media, including radio and local newspapers, informing the public on meeting information, subject, and how to provide comments prior to decision making. Public hearings will also be noticed through the Paso GCP. At a minimum, a Public Hearing will be held when adopting or amending the GSP, or imposing or increasing a fee.

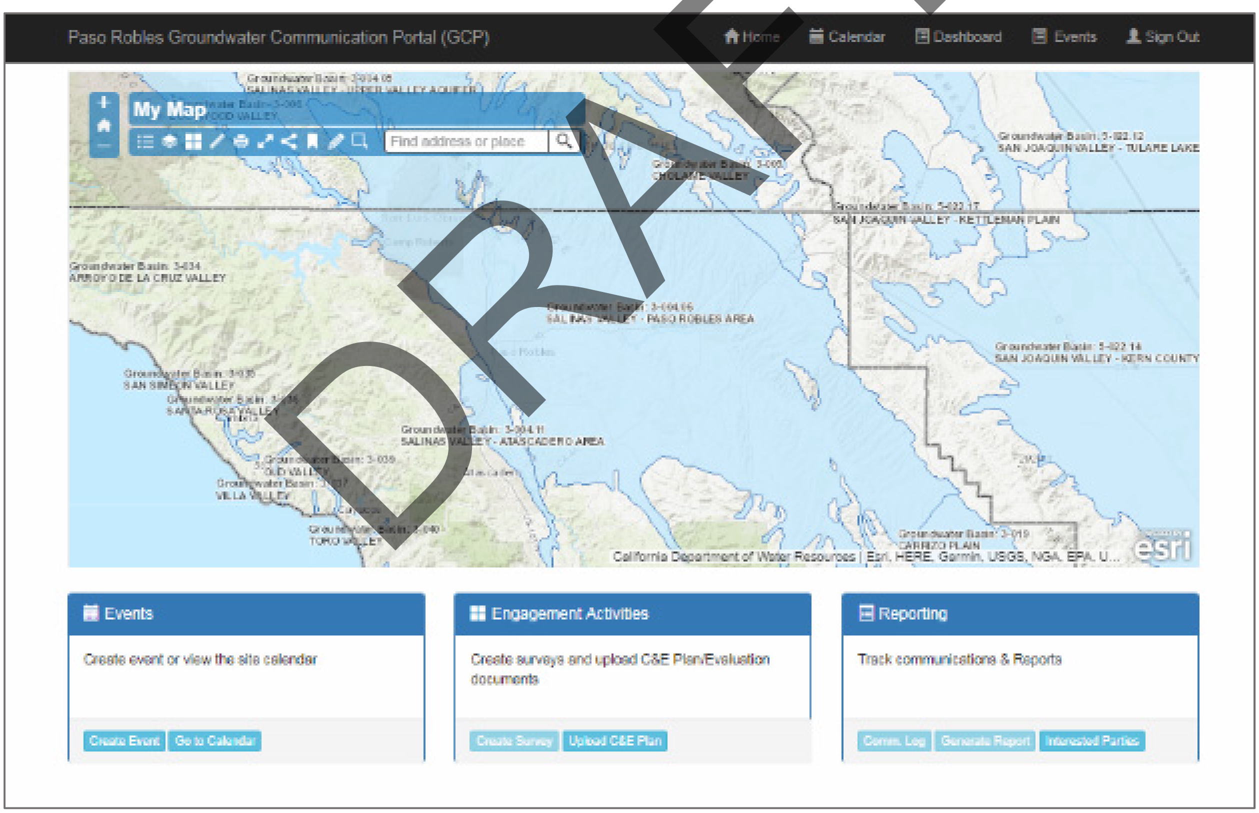
8.0 TRACK AND EVALUATE COMMUNICATIONS AND ENGAGEMENT

The Paso GCP (see **Appendix B**) tracks communications and engagement efforts for the Paso Robles Subbasin GSAs.

The Paso GCP serves as a repository for information about public meetings and interested parties. It tracks outreach efforts by the GSAs in its database; storing meeting attendance information, logging targeted outreach, and hosting the Interested Parties list.

Tool administrators can generate reports about meetings related to GSP planning. The reports include items such as attendance sheets, RSVPs, agendas, minutes, handouts, and presentations. Reports such as these will be included with the final Paso Robles Subbasin GSP as submitted to DWR.

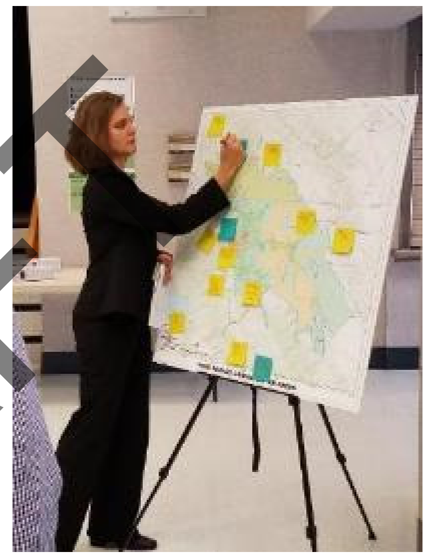
GSAs continually evaluate communications and engagement efforts as they are executed following this C&E Plan. This evaluation is conducted through the Cooperative Committee, GSA Staff, and GSP Consultant observations, as well as through feedback from Interested Parties via online surveys and meeting feedback forms. The Cooperative Committee, GSA Staff, and GSP Consultants will assess needs and update this C&E Plan as necessary.



The Paso GCP is the primary tool for tracking communication and engagement in the Paso Robles Subbasin. Above is a view of the Administrator's dashboard, where site administrators can post events, upload documents, and generate reports regarding communication and engagement.

9.0 SUMMARY

Interested Parties' communication and outreach activities are essential in GSP development. Only through effective communication and outreach can Interested Parties' concerns, issues, and aspirations be consistently understood and considered in the GSAs' decision-making process. Moreover, the C&E Plan process will be ongoing, starting with GSP development and continuing through implementation of the approved GSP for the Paso Robles Subbasin. As in GSP development, periodic reviews and adjustments of the C&E Plan process may be necessary. The goal is to develop and implement a robust Interested Parties C&E Plan process so we may achieve sustainability and manage our valuable shared groundwater resource for future generations.



Interested Parties, GSA Staff Member Dick McKinley of City of Paso Robles GSA, and consultants Matthew Payne and Lydia Holmes at a public workshop in May 2018.

APPENDICES

Appendix A. Statutory Table

Legislative/Regulatory Requirement	Legislative/Regulatory Section Reference	C&E Plan Section
Publish public notices and conduct public meetings when establishing a GSA, adopting or amending a GSP, or imposing or increasing a fee.	SGMA Sections 10723(b), 10728.4, and 10730(b)(1).	7.0
Maintain a list of, and communicate directly with, interested parties.	SGMA Sections 10723.4, 10730(b)(2), and 10723.8(a)	4.0
Consider the interests of all beneficial uses and users of groundwater.	SGMA Section 10723.2	4.0
Provide a written statement describing how interested parties may participate in plan [GSP] development and implementation, as well as a list of interested parties, at the time of GSA formation.	SGMA Sections 10723.8(a) and 10727.8(a)	4.0
Encourage active involvement of diverse social, cultural, and economic elements of the population within the groundwater basin.	SGMA Section 10727.8(a)	7.0
Understand that any federally recognized Indian Tribe may voluntarily agree to participate in the planning, financing, and management of groundwater basins – refer to DWR's Engagement with Tribal Governments Guidance Document for Tribal recommended communication procedures.	SGMA 10720.3(c)	7.0
Description of beneficial uses and users of groundwater in the basin	GSP Regulations §354.10	3.0
List of public meetings at which the Plan [GSP] was discussed or considered	GSP Regulations §354.10	Appendix E
Comments regarding the Plan [GSP] received by the Agency and a summary of responses	GSP Regulations §354.10	N/A at time of publication
A communication section that includes the following (GSP Regulations §354.10):		
Explanation of the Agency's decision-making process	GSP Regulations §354.10	4.0
Identification of opportunities for public engagement and discussion of how public input and response will be used	GSP Regulations §354.10	7.0
Description of how the Agency encourages active involvement of diverse social, cultural, and economic elements of the population within the basin	GSP Regulations §354.10	7.0
The method the Agency will follow to inform the public about progress implementing the Plan [GSP], including the status of projects and actions	GSP Regulations §354.10	7.0

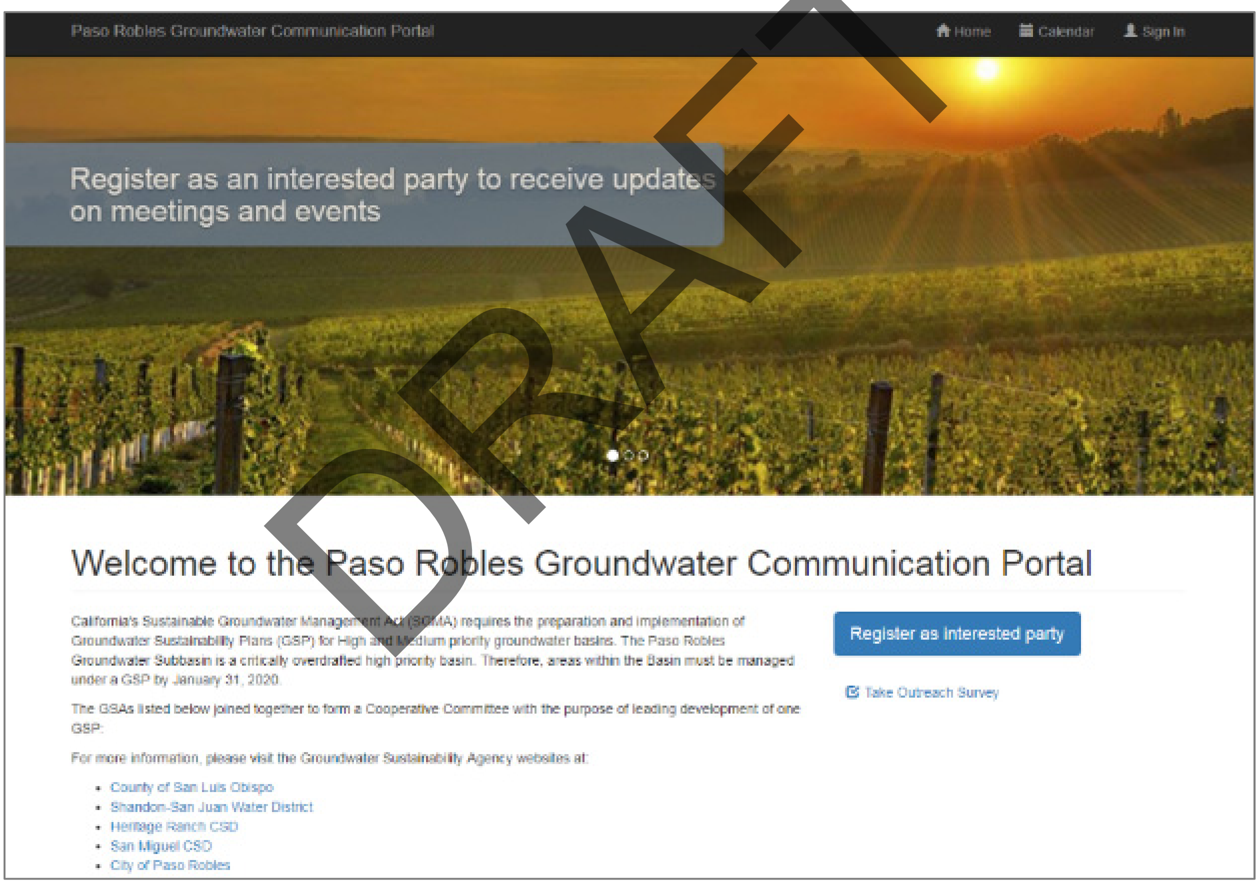
Appendix B. Paso Robles Subbasin Groundwater Communication Portal

The Paso Robles Subbasin Groundwater Communication Portal (Paso GCP) is a web-based outreach tool for Paso Subbasin GSAs to post events and automatically inform Interested Parties about GSP development. Interested Parties can visit the website and register their email address to stay informed about upcoming activities.

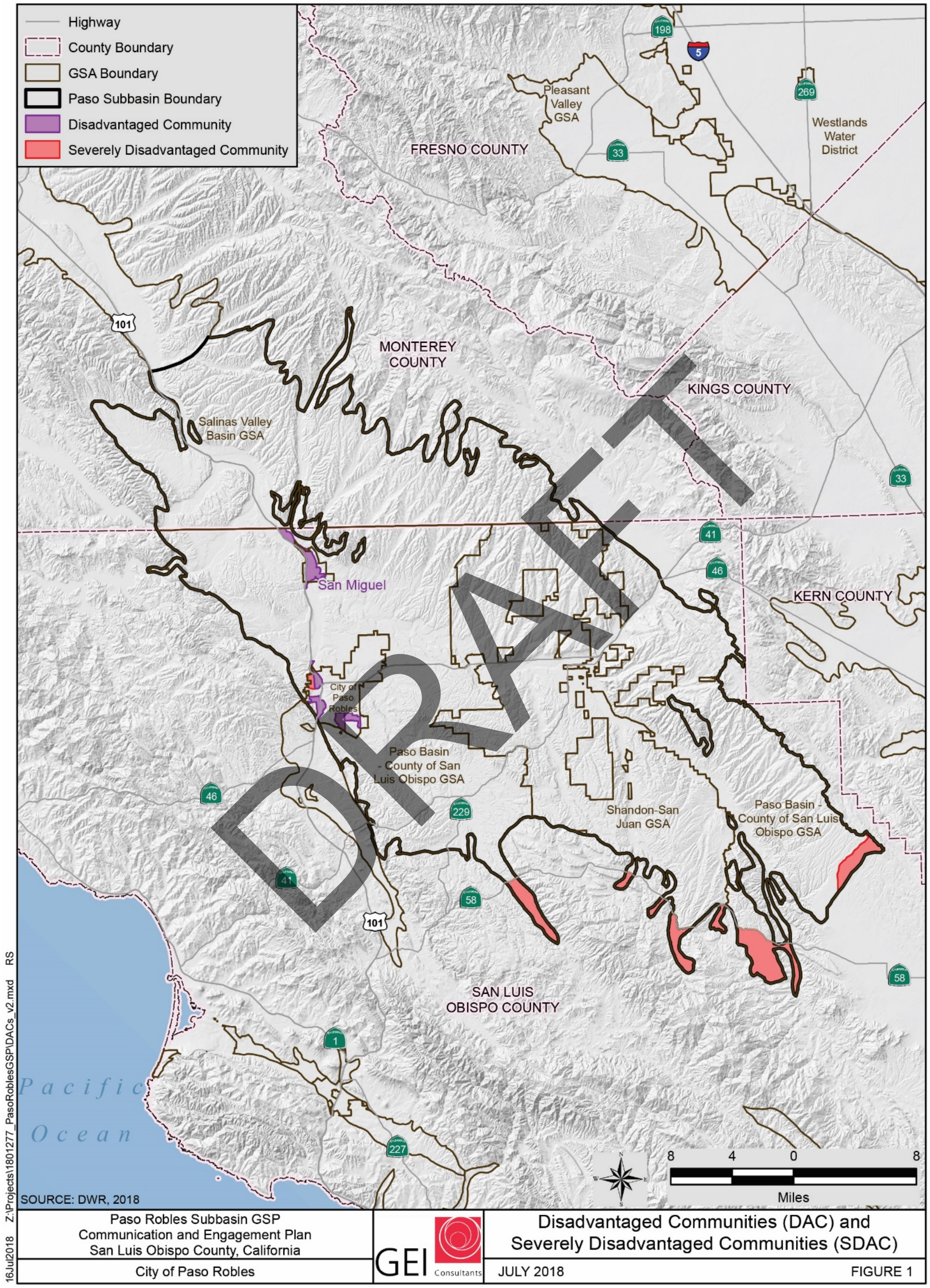
The Paso GCP serves as a repository for GSA information about Paso Robles Subbasin meetings, communications, and Interested Parties. It tracks outreach efforts by the GSAs; storing meeting attendance information, logging targeted outreach, and hosting the interested parties list.

Tool administrators can generate reports about GSP outreach activities. The reports include items such as attendance sheets, RSVPs, agendas, minutes, handouts, and presentations.

Paso GCP Home Page



Appendix C.Disadvantaged Communities in the Paso Robles Subbasin



Appendix D. Initial Interested Parties List

Pursuant to the California Water Code Section 10723.2, the Paso Robles Subbasin GSAs will consider the interest of all beneficial uses and users of groundwater when developing and implementing the Paso Robles Subbasin GSP.

The five Paso Robles Subbasin GSAs[2], party to the MOA, developed lists of Interested Parties and submitted those lists to DWR at the time of GSA formation. A compiled list of those submissions is provided below. This initial list, plus individuals who expressed interest in receiving updates about GSP development via the San Luis Obispo County website, were imported into the Paso GCP (presented in **Appendix B**) in May 2018. The Paso GCP automatically notifies the Interested Parties list via email when GSP-related events are scheduled in the Paso Robles Subbasin. The list continues to grow as additional Interested Parties self-register or are otherwise identified.

Agency

- Atascadero Basin GSA
- City of Paso Robles
- County of Monterey
- County of San Luis Obispo
- Creston School District
- Estrella-El Pomar-Creston Water District
- Heritage Ranch CSD
- Monterey County Parks Department
- Monterey County Water Resources Agency
- Paso Robles Unified School District
- Salinas Valley GSA
- San Luis Obispo County Flood Control & Water Conservation District
- San Miguel CSD
- San Miguel Joint Union School District
- Shandon San Juan Water District
- Shandon Unified School District
- Templeton CSD
- U.S. Department of Commerce – National Oceanic and Atmospheric Administration

Water Corporations Regulated by PUC or a Mutual Water Company

- Atascadero Mutual Water Company
- Green River Mutual Water Company
- Mustang Springs Mutual Water Company
- Rancho Salinas Mutual Benefit Water Company
- Santa Ysabel Ranch Mutual Water Company
- Spanish Lakes Mutual Water Company
- Walnut Hills Mutual Water Company

[2] City of Paso Robles GSA, County of San Luis Obispo GSA, Shandon-San Juan GSA, San Miguel GSA, and Heritage Ranch GSA

Agricultural users

- Agricultural landowners (individuals)_
- Agricultural Liaison Advisory Board (ALAB)
- Central Coast Vineyard Team
- Central Coast Wine Grape Growers Association
- Farm Bureau
- Grower-Shipper Association
- Independent Grape Growers of Paso Robles
- Local Chapter California Certified Organic Farms
- North County Farmers Market Association
- Paso Robles Vintners and Growers Association
- Paso Robles Wine Country Alliance
- SLO County Cattlemen
- SLO County Cattlewomen
- SLO County Farm Supply
- UC Cooperative Extension
- Upper Salinas-Las Tablas Resource Conservation District
- USDA Conservation Service
- USDA Farm Service Agency
- 4-H Clubs

Domestic well owners

- Individual rural residential/suburban landowners

Municipal well operators

- Covered in other categories

Public water systems (per EHS records)

- Almira Water Association
- Arciero Winery
- Cal Trans Shandon Rest Stop
- Camp Roberts
- Creston Country Store
- Creston Elementary School
- El Paso De Robles Youth Correction Facility
- Huerhuero Ranch
- Hunter Ranch Golf Course
- Jack Ranch Cafe
- Links at Lista Del Hombre
- Loading Chute
- Longbranch Saloon
- Los Robles Mobile Estates
- Meridian Vineyard
- North River Road
- Paso Robles RV Ranch
- Paso Robles Truck Plaza (San Paso)

- Pete Johnston GM
- Pleasant Valley Elementary
- SATCOM
- Shandon CSA

Local land use planning agencies

- City of Atascadero
- City of Paso Robles
- County of San Luis Obispo
- San Luis Obispo Council of Government (SLO COG)

Environmental users of groundwater

- Various agencies on this list address environmental concerns related to groundwater and the Paso Robles Subbasin GSAs will work with them to consider and protect such interests.

Surface water users (if hydrologic connection)

- Atascadero Community Services District (CSD)
- City of Paso Robles
- City of San Luis Obispo
- Heritage Ranch CSD
- Templeton CSD

Federal government

- Camp Roberts
- National Marine Fisheries Service
- U.S. Fish & Wildlife

California Native American tribes

- Chumash
- Salinan

Disadvantaged communities

- There are disadvantaged communities in the Paso Robles Subbasin, particularly in the southern portion of the Subbasin, where there are severely disadvantaged communities.

Entities monitoring and reporting groundwater in the Subbasin

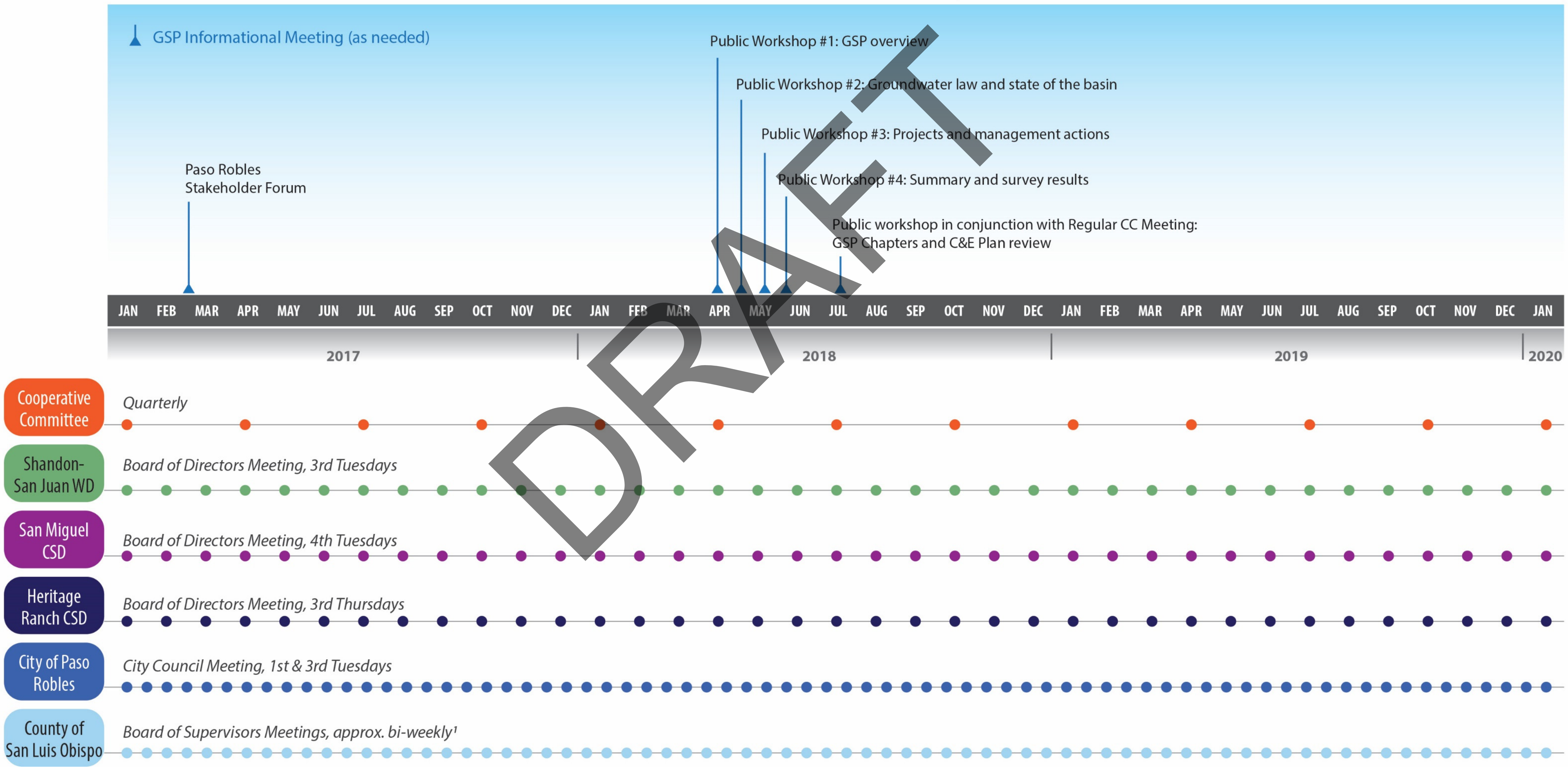
- Various of the agencies and water companies listed above collect and report groundwater data including at the County and State level (CASGEM).

NOTES

1. See San Luis Obispo County Board of Supervisors meeting schedule online at http://www.slocounty.ca.gov/Departments/Administrative-Office/Board-of-Supervisors-Agenda.aspx
2. Schedule is representative. Dates subject to change.
3. Visit the Paso Robles Groundwater Communication Portal (Paso GCP) at www.pasogcp.com to see up-to-date information on Interested Party engagement opportunities.

Paso Robles Subbasin GSP Development

Preliminary Stakeholder Engagement Schedule



Appendix F. Media Contacts List

Press releases regarding GSP development public workshops are sent to the following contacts.

- Atascadero Mutual Water Company
- Atascadero News
- City of Atascadero
- City of Paso Robles
- County Administrator
- County Blade
- Cuestonian - Cuesta College
- KCBX
- KCOY-TV (NPG of California)
- KCPR
- KEYT KCOY KKFX
- KGUR
- KIDI FM/ KTAP
- KKJG/ KZOZ/ KKAL/KSTT/KVEC
- KPRL
- KPYG/ KWWV/ KXDZ/ KXTZ/ KYNS
- KSBW
- KSBY-TV
- KSMA/ KVEC/KJUG
- KTAS-TV, Telemundo
- KUHL-AM
- Los Osos Bay News; SLO City News; Coast News
- Monterey County Water Resources Agency
- Monterey Herald
- Mustang Daily
- New Times
- Paso Robles Chamber of Commerce
- Paso Robles Daily News
- Paso Robles Press
- Paso Robles Unified School District
- Pleasant Valley Joint Union School Dist.
- San Luis Obispo County Admin Analyst
- San Luis Obispo County Public Works
- San Miguel Community Services District
- San Miguel Joint School District
- SGMA/Calif Department of Water Resources & RWQCB
- Shandon Unified School District
- SLO County Board of Supervisors Secretary
- Soaring Eagle Press
- Templeton Chamber of Commerce
- Templeton Community Services District
- Templeton Unified School District
- The Tribune / County Digest

Appendix G. C&E Survey Results

From May 4 to May 18, 2018 a public survey was conducted to evaluate best methods for communication and engagement in the Paso Robles Subbasin. An invitation was sent to over 500 Interested Party contacts in the Paso GCP database. Over 100 Interested Parties responded and completed the survey. The results of the survey guided the formation of this C&E Plan and were presented at the May 21, 2018 Special Meeting of the Cooperative Committee. The presentation slides from that meeting are presented on the following pages.

How the Survey Results Were Used

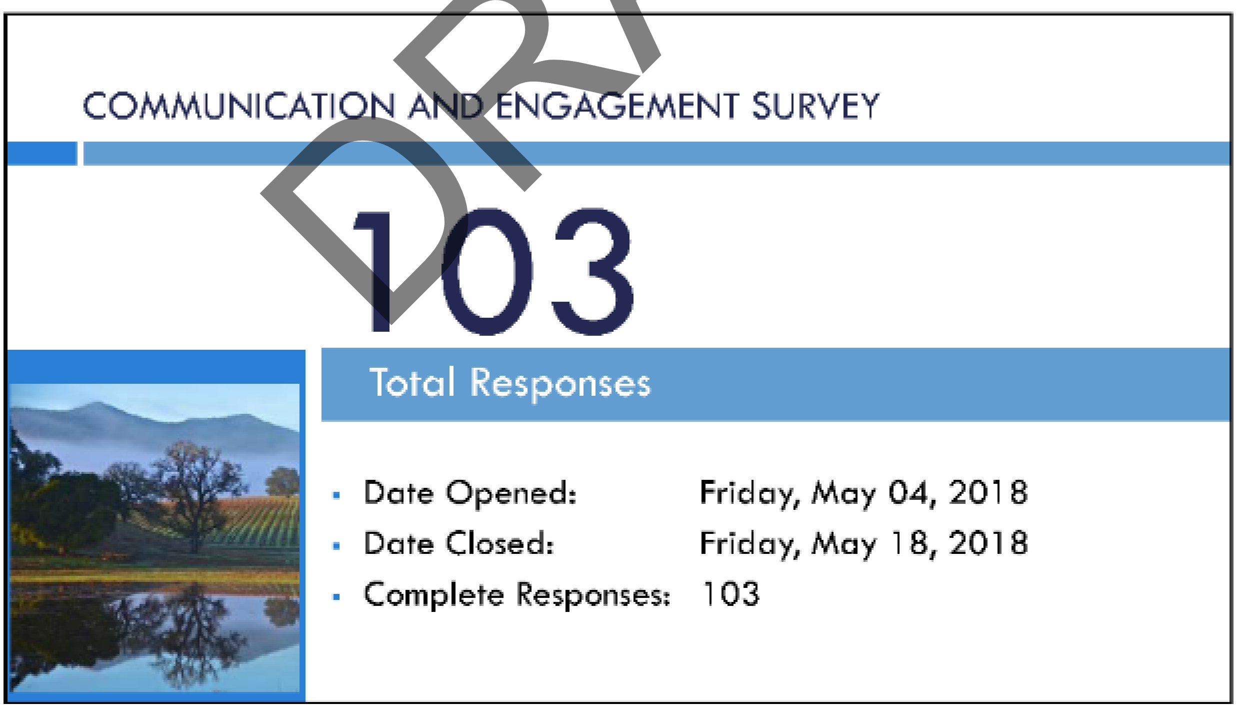
The C&E Survey identified many methods in which the Interested Parties could receive information and provide input into the GSP process. As a result of the Survey, certain communication methods are emphasized in the C&E Plan, such as the development of the Paso Groundwater Communication Portal (Paso GCP) where Interested Parties can receive information in one consolidated location rather than seek information from all five individual GSA websites. Information posted to the Paso GCP includes meeting announcements, notes and materials provided at the meetings, FACT Sheets, frequently asked questions (FAQ), and important documents related to the SGMA GSP development process. In addition, the Paso GCP will provide input opportunities for Interested Parties to comment on the GSP process.

Many of the Interested Parties requests were accommodated through a meeting feedback form (see **Appendix H**) that was available at the four Informational Meetings held in Spring 2018. Subsequent actions as a result of the meeting feedback forms included:

- Providing clear signage to the meeting location
- Incorporating topics of interest expressed by Interested Parties to be discussed at the meetings
- Adding station-facilitated exercises where the Interested Parties could participate in smaller groups with the Cooperative Committee, GSA Staff, and Consultants on-hand for open dialog and interactive discussion for input.
- Developing specific outreach postcards for communities identified by Interested Parties, including both Disadvantaged Communities and Rural communities which may not have received electronic information.

We are appreciative of all those Interested Parties that participated in the online C&E Survey and the meeting feedback forms to improve the Paso GSP outreach process to be most effective.

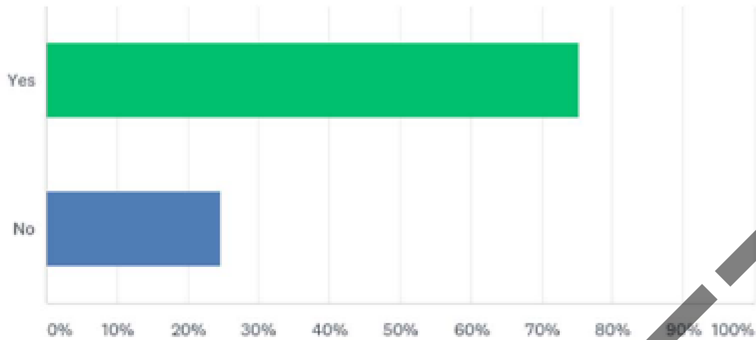

COMMUNICATION AND ENGAGEMENT SURVEY RESULTS
Paso Robles Basin
Paso Robles Basin GSAs
City of Paso Robles
County of San Luis Obispo
Heritage Ranch CSD
San Miguel CSD
Shandon-San Juan Water District
May 21, 2018


COMMUNICATION AND ENGAGEMENT SURVEY
103
Total Responses
Date Opened: Friday, May 04, 2018
Date Closed: Friday, May 18, 2018
Complete Responses: 103

Q1: Have you participated in a public process before?

ANSWER CHOICES	RESPONSES	
Yes	75.25%	76
No	24.75%	25
TOTAL		101

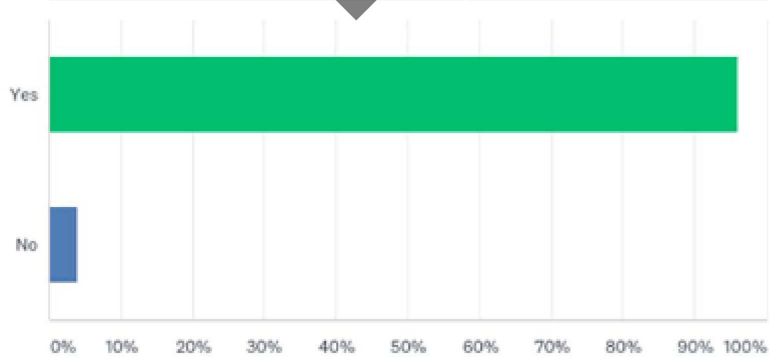
Answered: 101
Skipped: 2



Q2: Have you heard about the SGMA GSP process?

ANSWER CHOICES	RESPONSES	
Yes	96.08%	98
No	3.92%	4
TOTAL		102

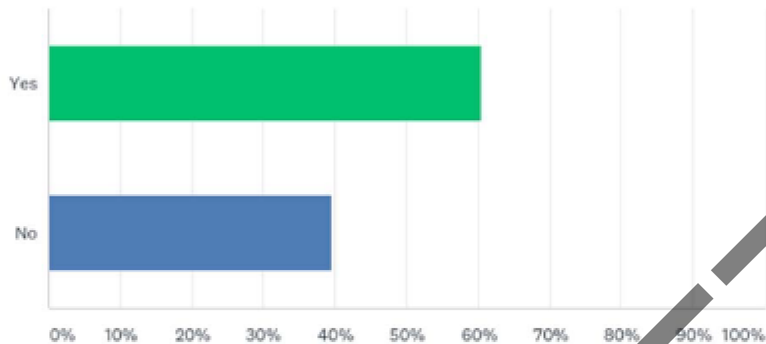
Answered: 102
Skipped: 1



Q3: Have you been involved in other water supply public processes in the past?

ANSWER CHOICES	RESPONSES	
Yes	60.40%	61
No	39.60%	40
TOTAL		101

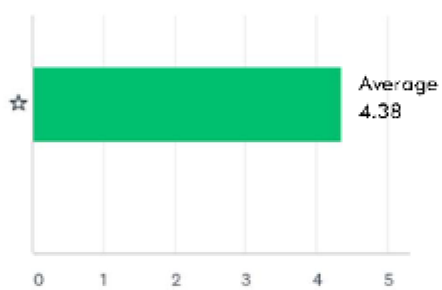
Answered: 101
Skipped: 2



Q4: What is your level of interest in providing input on the planning and implementation of the SGMA GSP process?

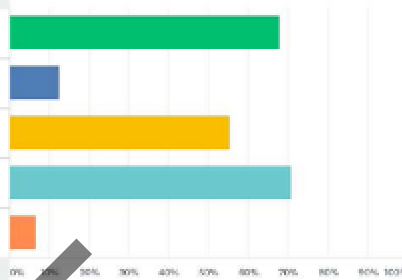
	LEAST INTEREST ☆	☆☆	☆☆☆	☆☆☆☆	MOST INTEREST ☆☆☆☆☆	TOTAL	WEIGHTED AVERAGE
☆	1.96% 2	1.96% 2	13.73% 14	23.53% 24	58.82% 60	102	4.35

Answered: 102
Skipped: 1



Q5: How would you like to provide input on the SGMA GSP process? Choose all that apply.

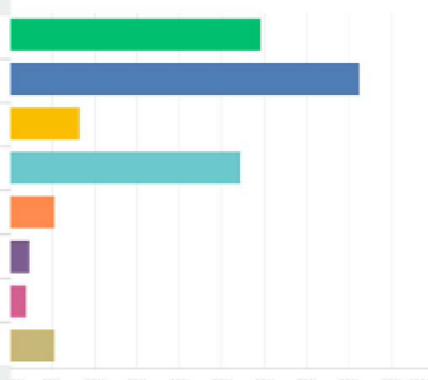
ANSWER CHOICES	RESPONSES	
Through a comment portal online	67.96%	70
Using social media	12.62%	13
During in-person meetings	55.34%	57
By reviewing draft project documents	70.87%	73
Other (please specify)	6.80%	7
Total Respondents: 103		



Answered: 103 Skipped: 0

Q6: How would you like to receive information about the GSP process? Choose all that apply.

ANSWER CHOICES	RESPONSES	
Website updates	59.22%	61
E-blasts/newsletters	82.52%	85
Flyers/community postings	16.50%	17
Meetings	54.37%	56
Social media: Facebook	10.68%	11
Social media: Nextdoor	4.85%	5
Social media: Twitter	3.88%	4
Other (please specify)	10.68%	11
Total Respondents: 103		

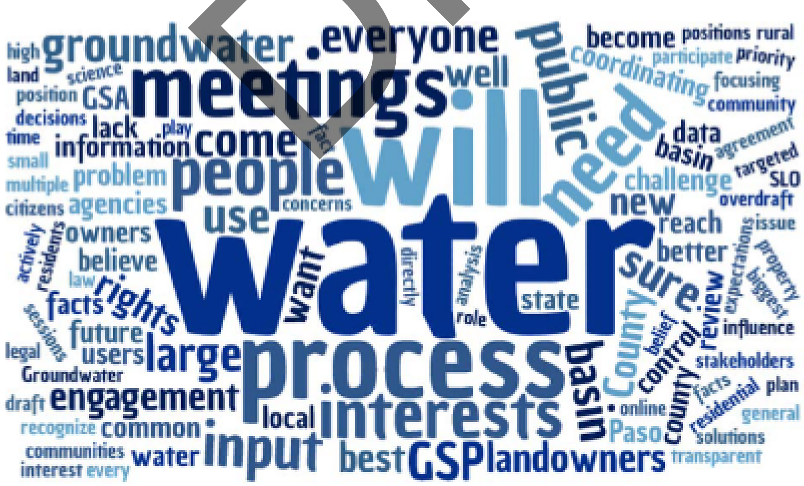


Answered: 103 Skipped: 0

Q7: What SGMA topics and information are of interest to you?

Answered: 96
Skipped: 7

Q8: What potential challenges do you anticipate regarding engagement? How can they be addressed?



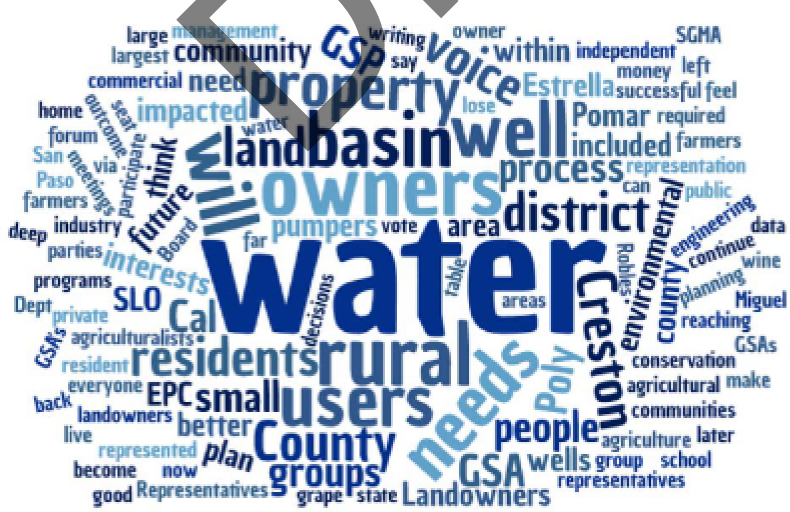
Answered: 91
Skipped: 12

Q9: What would be a successful outcome for the GSP from your perspective?

Answered: 97
Skipped: 6

Q10. Who else do you think needs to be involved in the planning and implementation of the SGMA GSP?

Answered: 81
Skipped: 22



Q11. Do you have any other suggestions for the GSAs on communication and engagement methods for the SGMA GSP process?

Answered: 73
Skipped: 30

Appendix H. Meeting Feedback Form

Paso Robles Basin Meeting Survey

Name: ____

Contact: ____

Date: ____

Please provide feedback to improve out communication and engagement process.

Survey Questions		Agree	Disagree
1	Information provided was useful and understandable?		
2	Meeting noticing was timely, informative about location and meeting topic(s)?		
3	Opportunity was provided to comment/ask questions?		
4	Can we contact you regarding your survey to follow up?		
5	Other SGMA topics and information of interest to you include: a. ______ b. ______ c. ______ d. ______		
6	Other suggestions on communication and engagement that would be helpful for the SGMA process: ______ ______ ______ ______		

Example Meeting Feedback Form

Appendix I. Letter Distributed to Native American Tribal Governments

[Variable greeting]

We are writing to notify you that a Groundwater Sustainability Plan (GSP) for the Paso Robles Groundwater Basin is under development and we are inviting you to participate in the GSP process.

In 2015, the State legislature approved a new groundwater management law known as the Sustainable Groundwater Management Act (SGMA). SGMA required local agencies to form Groundwater Sustainability Agencies (GSAs) by June 30, 2017 and prepare a GSP. SGMA allows any federally recognized Indian tribe to voluntarily participate in the preparation or administration of a GSP. A federally recognized tribe's actions during participation will be based on the tribe's independent sovereign authority and not the authorities that SGMA provides to local agencies[1]. Regardless of whether a tribe opts to coordinate their groundwater management with SGMA implementation, SGMA requires GSAs to consider the interests of all beneficial uses and users of groundwater, including tribes[2]. For more information on Tribal Government Engagement with GSAs, please see the Discussion Questions[3] paper prepared by the California Department of Water Resources Sustainable Groundwater Management Program Tribal Advisory Group.

We invite you to participate in the Paso Robles Groundwater Basin GSP. If you wish to be included on the list of Interested Parties to receive further information on ways to meaningfully participate in processes related to GSP development in the Paso Robles Basin, please register at the following web address: www.pasogcp.com and feel free to contact our Public Outreach Facilitator, Ellen Cross, with any questions or comments by email at crosse@strategydriver.com or by phone at (510) 316-9657.

Thank you.

The Paso Robles Groundwater Basin Cooperative Committee

- *City of Paso Robles GSA*
- *County of San Luis Obispo GSA*
- *Shandon-San Juan GSA*
- *Heritage Ranch GSA*
- *San Miguel GSA*

[1] Water Code §10720.3(c)
(2) Water Code §10723.2
(3) http://www.water.ca.gov/-/media/DWR-Website/Web-Pages/About/Tribal/Files/Publications/Tribal-Engagement-with-GSA-Discussion-Questions.pdf

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[1] Water Code §10720.3(c)
[2] Water Code §10723.2
[3] http://www.water.ca.gov/-/media/DWR-Website/Web-Pages/About/Tribal/Files/Publications/Tribal-Engagement-with-GSA-Discussion-Questions.pdf

Appendix J. Postcard Mailers

JOIN THE DISCUSSION

www.pasogcp.com

JOIN THE DISCUSSION

In accordance with the Sustainable Groundwater Management Act (SGMA), a Groundwater Sustainability Plan (GSP) is being developed for the Paso Robles Groundwater Basin.

The Paso Basin Cooperative Committee invites you to register as an Interested Party to be notified about events concerning GSP preparation and to provide your insights.

For more information and to register as an Interested Party, please visit the website below.

www.pasogcp.com

REGISTER TODAY!

Sent on behalf of the Paso Robles Basin Groundwater Sustainability Agencies:

County of San Luis Obispo GSA
City of Paso Robles GSA
San Miguel Community Services District GSA
Heritage Ranch Community Services District GSA
Shandon San Juan Water District GSA

HYDROMETRICS
PASO BASIN TEAM
1232 PARK STREET, SUITE 2B
PASO ROBLES, CA 93446

Postcard sent to announce the Paso GCP

JOIN THE DISCUSSION

Sustainable Groundwater Management in the
Paso Robles Groundwater Subbasin

JOIN THE DISCUSSION

In accordance with the Sustainable Groundwater Management Act (SGMA), the Paso Robles Groundwater Basin is in the process of preparing a Groundwater Sustainability Plan (GSP).

Interested Parties are encouraged to attend the following workshops to learn more:

Projects and Programs for Groundwater Management Workshop
Monday, May 14, 2018 at 5:30 PM

Summary of the Paso Basin GSP Process Workshop
Monday, May 21, 2018 at 5:30 PM

The workshops above will be held at:
Kermit King Elementary
700 Schoolhouse Cir, Paso Robles, CA 93446

For more information, contact the San Miguel CSD offices at (805) 467-3388 or visit **www.sanmiguelcsd.org**

After May 15, for all *future* GSP information, register as an Interested Party at **www.pasogcp.com**.

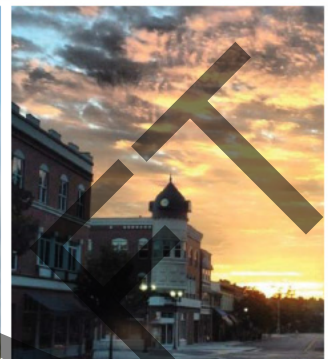
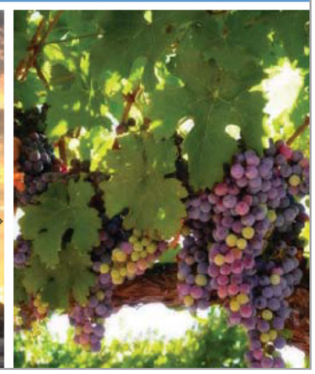
SAN MIGUEL C.S.D.
1150 MISSION ST.
SAN MIGUEL, CA 93451

Postcard sent to invite Interested Parties to attend public workshops

PARTICIPE EN LA DISCUSIÓN

www.pasogcp.com



PARTICIPE EN LA DISCUSIÓN

De acuerdo con la ley de Gestión Sustentable del Agua Subterránea (SGMA), se está desarrollando un Plan de Sustentabilidad de Agua Subterránea para la Cuenca de Paso de Robles (GSP).

El Comité Cooperativo de la Cuenca de Paso de Robles lo invita a registrase como una Parte Interesada para recibir notificaciones sobre eventos acerca de la preparación del GSP y para proporcionar sus ideas.

Para más información y para registrarse como una Parte Interesada, visite el sitio web a continuación.

www.pasogcp.com

¡REGÍSTRESE AHORA!

Enviado en nombre de las Agencias de Sustentabilidad de Agua Subterránea de la Cuenca de Paso de Robles:

GSA del Condado de San Luis Obispo
GSA de la Ciudad de Paso de Robles
GSA del Distrito de Servicios Comunitarios de San Miguel
GSA del Distrito de Servicios Comunitarios de Heritage Ranch
GSA del Distrito de Agua de Shandon-San Juan

HYDROMETRICS
PASO BASIN TEAM
1232 PARK STREET, SUITE 2B
PASO ROBLES, CA 93446

Spanish language postcard for Interested Parties

Appendix N

Public Comments

Public Comments received through 5/28/2019
to be considered while compiling the Draft GSP

Name	Chapter & Section	Comment	GSA	Comment Source	Date/Time	Attachment(s)
Sheila Lyons	**Ch. 1 Introduction to Paso Robles Subbasin Groundwater Sustainability Plan** 1.2 Description of Paso Robles Subbasin	Please read on as this comment does apply to Chapter 1. Chapter 3, Figure 3-14 Indicates current Land Use Planning subareas. There needs to be an additional Figure indicating the PR Groundwater Basin Subareas such the one from Fugro, 2002 Basin Boundary showing subareas of the Basin. This can be found on the front page of the June 10, 2015 report "Achieving Sustainability in the PR Groundwater Basin. If not in this section, the Basin subarea map from Fugro needs to be included in the GSP somewhere....Chapter #1? This is important....land use planning areas are significantly different from basin planning areas. They have different characteristics and land use planning areas would be inappropriate for basin management. Creston participated early on in meetings for setting voluntary Basin Management Objectives and we are clear that the Creston Sub-Area has different management objectives from other parts of the basin due to our location (leading head of much of the recharge water going into the aquifer). We were much more aggressive and conservative about what course of action we think needs to be implemented to obtain basin sustainability. We believe the Creston Sub-area must be considered separate from the El Pomar-Estrella Land Use Planning Area because they are very different from one another and have very different management requirements.	County of San Luis Obispo GSA	pasogcp.com	9/22/2018 2:40:00 PM	
Laurie Gage, District Administrator	**Ch. 1 Introduction to Paso Robles Subbasin Groundwater Sustainability Plan**	The Board of Directors of the Estrella-El Pomar-Creston Water District has reviewed Chapter 1 and concluded that it has no comments on this chapter at this time. Individual Board directors may choose to personally comment on this chapter separately and independently from the Board as a whole.	City of Paso Robles GSA	pasogcp.com	10/11/2018 8:59:00 PM	
Verna Jigour	**Ch. 1 Introduction to Paso Robles Subbasin Groundwater Sustainability Plan** 1.2 Description of Paso Robles Subbasin	I advise expanding the text and figure 1.1 to include the watersheds/catchments feeding the pertinent subbasins. I realize that SGMA does not require planning outside the basins of concern but, especially in the case of the Paso Robles Subbasin, opportunities to augment groundwater recharge and storage will be left out of the equation if planning is confined solely to the basins. GSA stakeholders correctly identified potential watershed approaches at the third GSP informational meeting May 14, 2018, according to the documented results of the Projects and Management Actions Rotating Group Stations. Following are pertinent excerpts: Despite that Station 1 was titled In-Basin Supply Projects some of the documented suggestions do, in fact, consider the broader watershed context, as follows: "Ideas from the small groups related to in-Basin water supply projects: Slow down flows in Salinas River Optimize Salinas River recharge Incentive-based recharge Improve local stream recharge Recharge on floodplains (with environmental benefit) Forest management Recharge above the basin/higher up in basin Station 2 Out of Basin Supply Projects Ideas from the small groups related to out-of-Basin water supply projects: Watershed restoration projects " Management "Restore after fires/reseed with native vegetation Study Salinas Watershed at headwaters for potentialStation 4 Conservation Measures Ideas from the small groups related to conservation measures: Watershed management Forest management Promote healthy soils (pastures, root crops), carbon farming While this especially pertains to CHAPTER 9. Projects and Management Actions, Chapter 1 sets the stage for all subsequent chapters, does it not? If Chapter 1 considers solely the basins, projects and management actions relevant to the watersheds/ catchments will be left out. I consider it a mistaken artifact of reductionism that SGMA dictates apply solely to the (alluvial) groundwater basins [sinks], considering that those basins are actually fed by their respective watersheds/ catchments [source]. Alas, this reductionistic paradigm, one of several documented in the Alternate Paradigms section of my website, has dominated water resources thinking for most of the past century but that was not always the case. Excerpts from the Proceedings of a Conference of Governors in the White House, Washington, D.C., convened by President Theodore Roosevelt in 1908, shared in my third blog post, How Watersheds Relate to Groundwater, demonstrate that livestock managers of that era correctly recognized that the forests and vegetation serve the same purpose as artificial reservoirs, made by dams or otherwise. They were similarly attuned to the minimum flow a.k.a. baseflow as a measure of watershed health. I offer additional details and links in the file attachments to my comments, but suffice it to state here that the approach proposed on my Rainfall to Groundwater website, based on my doctoral dissertation, Watershed Restoration for Baseflow Augmentation [Jigour 2008 (2011)], abstract attached, is literally tailor-made for the Paso Robles Subbasin GSP Chapter 11. Projects and Management. The Paso Robles Subbasin is the poster child for the Rainfall to Groundwater Approach. I only hope the GSAs will avail themselves of this nearly singular opportunity to restore watershed/catchment functions for groundwater sustainability, including restoration of steelhead habitats among other ecological benefits.		pasogcp.com	10/15/2018 9:58:00 PM	Link: 20181015_Jigour
Laurie Gage, District Administrator	**Ch. 2 Agencies' Information**	The Board of Directors of the Estrella-El Pomar-Creston Water District has reviewed Chapter 2 and concluded that it has no comments on this chapter at this time. Individual Board directors may choose to personally comment on this chapter separately and independently from the Board as a whole.	City of Paso Robles GSA	pasogcp.com	10/11/2018 8:59:00 PM	
Verna Jigour	**Ch. 2 Agencies' Information** 2.1 Agencies' Names and Mailing Addresses	Change to include watersheds/ catchments feeding the subbasins as noted for Chapter 1.		pasogcp.com	10/15/2018 9:58:00 PM	Link: 20181015_Jigour
Sheila Lyons	**Ch. 3 Description of Plan Area** 3.4 Land Use	Section 3.4.2 and Figure 3-6, of the same name "Water Use Sectors" show the distribution of sectors but there is no table or text with the actual numbers by acres for each of these sectors, nor is there any estimate of their usage. Perhaps the second part (usage) of this will come in later chapters but the first (acreage) should be shown here.	County of San Luis Obispo GSA	pasogcp.com	9/22/2018 3:40:00 PM	
Sheila Lyons	**Ch. 3 Description of Plan Area** 3.4 Land Use	Table 3-1 Land Use Summary - data from DWR 2014 is obviously out of date. Much has changed since. The SLO Department of Agriculture surely has more recent data (see there annual reports). An update of current info should be done. We believe there are closer to 40,000 or more acres in vineyards today.	County of San Luis Obispo GSA	pasogcp.com	9/22/2018 2:40:00 PM	
Sheila Lyons	**Ch. 3 Description of Plan Area** 3.5 Existing Well Types, Numbers, and Density	Table 3-2 Types of Wells - data appears to be entirely too low. CAB members believe this number should be revisited with numbers acquired from our Public Works department rather than DWR data.. 99 productions wells is way too low. We know there are 200 wineries in North County, admittedly all are not over the PR Basin, but many are. Windfall Farms which is here is Creston has around 6 wells alone that are production wells.	County of San Luis Obispo GSA	pasogcp.com	9/22/2018 2:40:00 PM	
Sheila Lyons	**Ch. 3 Description of Plan Area** 3.6 Existing Monitoring Programs	Section 3.6.4 Climate MonitoringTable 3-4 Average Month Climate Summary Avg of 2010-2017 If this data is to be used for any calculations going forward the more important number would be the slope of the line for the average increase in monthly temperatures over time. Fixed numbers are not really useful for predicting future events. Or, at a minimum if this is a "for information only" section, the rate of temperature increases should be calculated and included as part of this section.	County of San Luis Obispo GSA	pasogcp.com	9/22/2018 2:40:00 PM	
Sheila Lyons	**Ch. 3 Description of Plan Area** 3.10 Land Use Plans	Figure 3-14 Indicates current Land Use Planning subareas. There needs to be an additional Figure indicating the PR Groundwater Basin Subareas such the one from Fugro, 2002 Basin Boundary showing subareas of the Basin. This can be found on the front page of the June 10, 2015 report "Achieving Sustainability in the PR Groundwater Basin. If not in this section, the Basin subarea map from Fugro needs to be included in the GSP somewhere....Chapter #1? This is important....land use planning areas are significantly different from basin planning areas. They have different characteristics and land use planning areas would be inappropriate for basin management. Creston participated early on in meetings for setting voluntary Basin Management Objectives and we are clear that the Creston Sub-Area has different management objectives from other parts of the basin due to our location (leading head of much of the recharge water going into the aquifer).We were much more aggressive and conservative about what course of action we think needs to be implemented to obtain basin sustainability. We believe the Creston Sub-area must be considered separate from the El Pomar-Estrella Land Use Planning Area because they are very different from one another and have very different management requirements.	County of San Luis Obispo GSA	pasogcp.com	9/22/2018 2:40:00 PM	

Public Comments received through 5/28/2019
to be considered while compiling the Draft GSP

Name	Chapter & Section	Comment	GSA	Comment Source	Date/Time	Attachment(s)
Sheila Lyons	**Ch. 3 Description of Plan Area** 3.5 Existing Well Types, Numbers, and Density	CAB recently submitted a comment regarding Table 3-2 Wells over the Basin stating that we didn't believe the numbers shown in this table. We have since located an Excel file provided to CAB from the SLO PW Dept in recent months showing that there are 3945 production wells over the PR Basin. This indicates that there are many many more wells than the Table 3-2 of the Chapter 3 draft of the GSP would suggest. See attached file.	County of San Luis Obispo GSA	pasogcp.com	9/30/2018 8:51:00 AM	Link: 20180930_Lyons
Dennis Loucks	**Ch. 3 Description of Plan Area** 3.4 Land Use	See attachment regarding Chapter 3.4 Land Use -- specifically Table 3-1, Land Use Summary.Notes:Comment uploaded by consultant via scanned hard copy. Because physical address is required to submit form, address for Dennis Loucks was found online posted in the SAN LUIS OBISPO LOCAL AGENCY FORMATION COMMISSION MEETING MINUTES FOR THURSDAY September 17, 2015. Therefore, address may be dated or incorrect. Because comment was uploaded by consultant, and the interested party's email address was not known to the consultant, the email address provided with this form belongs to uploading party.	County of San Luis Obispo GSA	pasogcp.com	9/30/2018 4:30:00 PM	Link: 20180725_Loucks
Laurie Gage, District Administrator	**Ch. 3 Description of Plan Area**	The Board of Directors of the Estrella-El Pomar-Creston Water District has reviewed Chapter 3 and concluded that it has no comments on this chapter at this time. Individual Board directors may choose to personally comment on this chapter separately and independently from the Board as a whole.	City of Paso Robles GSA	pasogcp.com	10/11/2018 8:59:00 PM	
Verna Jigour	**Ch. 3 Description of Plan Area** 3.1 Paso Robles Subbasin Introduction	This GSP covers the entire Paso Robles Subbasin.This GSP covers the entire watershed/ catchment area feeding the Paso Robles Subbasin.Figure 3-1: Area Covered by GSP:Change to include watershed/ catchment area.		pasogcp.com	10/15/2018 9:58:00 PM	Link: 20181015_Jigour
Verna Jigour	**Ch. 3 Description of Plan Area** 3.4 Land Use	3.4.2 WATER USE SECTORS Please correct the following patently incorrect statement: Native vegetation. This is the largest water use sector in the Subbasin by land area.This sector includes rural residential areas. Again, this largest water use sector is dominated by nonnative annual grasslands., as stated above. Figure 3-6: Water Use SectorsPlease correct the erroneous label stating Native Vegetation		pasogcp.com	10/15/2018 9:58:00 PM	Link: 20181015_Jigour
Verna Jigour	**Ch. 3 Description of Plan Area** 3.4 Land Use	The following statement is flat-out incorrect: The balance of the approximately 438,000 acres in the GSP Plan Area is largely native vegetation and could include dry farmed land. Surely the County of San Luis Obispo has its own Geographic Information System (GIS) it can use to test the veracity of the above claim. The GSP should not rely on erroneous information, even if it comes from DWR. My own past GIS work with landcover layers derived from the California Gap Analysis (explained in greater detail in my accompanying file attachment) showed me that a vast proportion of what I then referred to as upper Salinas River watershed is clothed with nonnative annual grasslands. While DWR may have referred to these lands as native vegetation they certainly not known for their discernment of vegetation types.The Land Use section should include at least a summary of historical and prehistorical (Native American) land use to fully establish the environmental setting of human cause changes in vegetative land cover. For example, the charcoal industry is known to have thrived later in SLO County than in many other regions of California. Historical removal of native oaks used in the charcoal should ideally be mapped to correlate historical changes to watershed land cover. The spatial locations of other documented impacts on native vegetation (and its watershed/ catchment functions), such as those mid- 20th Century state-sanctioned projects aimed at removing woody vegetation for rangeland improvement summarized in my blog post, Ball and Chain & Other Links, should be mapped. Historical impacts for which spatial documentation may not be forthcoming should at least be considered as part of the planning process.		pasogcp.com	10/15/2018 9:58:00 PM	Link: 20181015_Jigour
Sheila Lyons	**Ch. 3 Description of Plan Area** 3.1 Paso Robles Subbasin Introduction	CAB voted at our Oct 17th meeting to echo the sentiments of the public present at the Oct. 8, 2018 Workshop held in Creston, that Creston is unique and should not be lumped in with El Pomar, Estrella, or any other part of the PR Basin, but should be considered a sub-area unto itself. Our hydrology is different and our view on basin management is more conservative than other areas of the basin.	County of San Luis Obispo GSA	pasogcp.com	10/20/2018 9:27:00 AM	
Dick McKinley	**Ch. 4 Hydrogeologic Conceptual Model** 4.3 Regional Geology	Explain transmissivity. Is 400ft fast or slow?	City of Paso Robles GSA	pasogcp.com	10/5/2018 1:06:00 PM	
Dick McKinley	**Ch. 4 Hydrogeologic Conceptual Model** 4.7 Groundwater Recharge and Discharge Areas	We may need to date this page at a later date because it is an amended page.	City of Paso Robles GSA	pasogcp.com	10/5/2018 1:06:00 PM	
Dana Merrill	**Ch. 4 Hydrogeologic Conceptual Model** 4.9 Data Gaps in the Hydrogeologic Conceptual Model	In my opinion options for cutbacks that won't cause major reverse economic impacts across our presently robust local economy are very limited, I am most interested In Supply and Recharge options. The upper range of the PR (below the Alluvial) has experience the most decline. It is where the majority of domestic and smaller capacity agricultural wells are located, mostly drilled 20+ years ago. A major effort to recharge that zone would accomplish a great deal and should be an area of major focus immediately. What's needed to focus on this aspect? Vertical zone basin studies for one. There are a good many wells in this range and some could be converted to recharge wells since they don't pump water anymore. Figure a way to comply with regulations on recharge. If the upper range could be restored and regularly recharged it helps rural landowners, agriculture and really everyone.Let's get to meaningful work ASAP. Background efforts I realize are required in the process but the challenges are pretty obvious after decades of study and recent history of wells going dry.	County of San Luis Obispo GSA	pasogcp.com	11/12/2018 7:15:00 AM	
John Thompson	**Ch. 4 Hydrogeologic Conceptual Model** 4.9 Data Gaps in the Hydrogeologic Conceptual Model	Since well logs are readily available, it would seem a model could be made (realizing that someone has to gather the data and create the map and probably would not do it for free). I have noticed that well drillers do not always describe formations the same. But if you took a driller of 40 years who has drilled all over the basin and mapped using his/her logs you could have a GOOD map. You could go onsite with said driller and see what they call cemented gravel and everyone could be on the same page.		pasogcp.com	12/6/2018 1:00:00 PM	
John Thompson	**Ch. 4 Hydrogeologic Conceptual Model** 4.1 Subbasin Topography and Boundaries	Bottom of Page 4. "...very little well data in this portion of the subbasin." Is the lack of data something that is looking to be corrected? It would seem that a local well drilling company could be a huge source of data and information. I do not know the legalities of such things, just an idea.		pasogcp.com	12/6/2018 1:00:00 PM	
Patricia Wilmore	**Ch. 4 Hydrogeologic Conceptual Model** 4.5 Primary Users of Groundwater	Municipal use, when addressed in future chapters, should indicate, outline and encourage opportunities where in the City of Paso Robles can utilize other sources besides groundwater. This should be one of the highest priority means of balancing the basin.	City of Paso Robles GSA	pasogcp.com	12/9/2018 3:16:00 PM	
Patricia Wilmore	**Ch. 4 Hydrogeologic Conceptual Model** 4.7 Groundwater Recharge and Discharge Areas	Figure 4-16 provides an excellent basis for bringing additional water into the basin via recharge.	City of Paso Robles GSA	pasogcp.com	12/9/2018 3:16:00 PM	
Verna Jigour	**Ch. 4 Hydrogeologic Conceptual Model** 4.7 Groundwater Recharge and Discharge Areas	Re: the last sentence of 4.7.1: "this map provides good guidance on where natural recharge likely occurs" it actually offers only a partial picture considering solely recharge occurring from strictly vertical infiltration/percolation from surfaces directly above the identified recharge areas. It fails to consider *interflow* from natural infiltration/percolation on uplands draining to those apparently optimal areas. See the catchment model on my web page, Stream Networks vs Watersheds/ Catchments: https://rainfalltogroundwater.net/stream-networks-vs-catchments/		pasogcp.com	12/10/2018 5:48:00 PM	
Verna Jigour	**Ch. 4 Hydrogeologic Conceptual Model** 4.9 Data Gaps in the Hydrogeologic Conceptual Model	Another method for ascertaining aquifer continuity and/or fault influence on groundwater flow is isotope analysis, e.g., see the following: Zdon, A., M. L. Davisson, and A. H. Love. 2018. Understanding the source of water for selected springs within Mojave Trails National Monument, California. Environmental Forensics 19:99-111 https://doi.org/10.1080/15275922.2018.1448909		pasogcp.com	12/10/2018 5:48:00 PM	

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Name	Chapter & Section	Comment	GSA	Comment Source	Date/Time	Attachment(s)
Verna Jigour	**Ch. 4 Hydrogeologic Conceptual Model** 4.2 Soils Infiltration Potential	The first sentence, Saturated hydraulic conductivity of surficial soils is a good indicator of the soils infiltration potential may have been assumed true by many in the early 20th century, but by mid-century empirical observations began to show that woody plant roots and their decay products strongly influence both infiltration and percolation. Furthermore, soil structure mediated by especially woody plant roots, along with their soil ecosystems, also influences infiltration and percolation rates. Ecohydrology emerged around the turn of this current century/ millennium and it's past time to be integrating it into such public planning processes as this. Remember, infiltration and percolation begin in the unsaturated a.k.a vadose zone (not the saturated zone) and the properties of the vadose zone are highly influenced by the vegetation there. While inferences based on the purely physical property of saturated hydraulic conductivity offer some insight, they tell far from the whole story. Infiltration and percolation may be greatly enhanced by restoring native woody plants to historically degraded watersheds the case for most in this subbasin, as per my comments on earlier chapters. If this GSP overlooks that it will be overlooking important opportunities to enhance sustainability. For some pertinent insights, please see the following pages on my website: Plants in an Ecohydrology Context: https://rainfalltogroundwater.net/plants-in-an-ecohydrology-context/ and Surface-Groundwater Systems in a Holistic Water Cycle: https://rainfalltogroundwater.net/surface-groundwater-systems/		pasogcp.com	12/10/2018 5:48:00 PM	
Dennis Loucks, Fred Hoey & Greg Grewal	**Ch. 5 Groundwater Conditions** 5.4 Subsidence	(See attachments)		Other	10/17/2018	Link: 20181017_LouGreHoe Link: 20181017_USGS
Todd Beights	**Ch. 5 Groundwater Conditions** 5.2 Change in Groundwater Storage	A neighbor nearby has recently installed 30,000 gallons of water storage tanks with another 10,000 gallons of storage about to be installed. Our water wells are only a few hundred feet apart and they have to run their well around the clock to continually fill these storage tanks that are used for agricultural benefits. I am nervous that over drafting is occurring and potentially jeopardizing the future of our domestic well use. Is unlimited storage and well pumping a sound practice that you endorse or do you view it some other way that might warrant addressing the issue?		pasogcp.com	11/26/2018 3:00:00 PM	
Todd Beights	**Ch. 5 Groundwater Conditions** 5.2 Change in Groundwater Storage	A neighbor nearby has recently installed 30,000 gallons of water storage tanks with another 10,000 gallons of storage about to be installed. Our water wells are only a few hundred feet apart and they have to run their well around the clock to continually fill these storage tanks that are used for agricultural benefits. I am nervous that over drafting is occurring and potentially jeopardizing the future of our domestic well use. Is unlimited storage and well pumping a sound practice that you endorse or do you view it some other way that might warrant addressing the issue?		pasogcp.com	11/26/2018 3:00:00 PM	
Kevin Peck	**Ch. 5 Groundwater Conditions** 5.1 Groundwater Elevations	Paragraph 1 of 5.1.2.2 explains that there is a lack of publicly available ground water data. Has there been an effort during this GSP process, to contact basin landowners to access their wells for acquiring additional water levels data?	Shandon San Juan GSA	pasogcp.com	11/26/2018 3:59:00 PM	
Molly Scott	**Ch. 5 Groundwater Conditions** 5.2 Change in Groundwater Storage	Good morning, With mutual respect for the effort that has been put into writing these chapters, it would be my recommendation to ensure there is a glossary defining critical terms such as: Alluvial Aquifer, Groundwater Storage, Groundwater pumping, etc. Having a specific outlined definition for terms such as these would be beneficial for all parties and allow for greater consistency when discussing and ready future chapters. Thank you, Molly Scott, Grower Relations Manager JUSTIN Vineyards & Winery	County of San Luis Obispo GSA	pasogcp.com	12/6/2018 11:44:00 AM	
John Thompson	**Ch. 5 Groundwater Conditions** 5.2 Change in Groundwater Storage	From page 5-23, "This suggests that the loss in groundwater storage is not due to increased pumping, but is more likely a result of lock of recharge during low precipitation years." Figures 5-14 and 5-15 are supposed to visually describe this, but I think they do not help with comprehending the above statement. It seems obvious in figure 5-14 but is unclear in 5-15. I think the visual of the chart/graph can be better represented or the statement should be modified.		pasogcp.com	12/6/2018 1:28:00 PM	
John Thompson	**Ch. 5 Groundwater Conditions** 5.2 Change in Groundwater Storage	Is there such a thing as groundwater storage potential? Does this change? Is this where subsidence comes into play?		pasogcp.com	12/6/2018 1:28:00 PM	
John Thompson	**Ch. 5 Groundwater Conditions** 5.1 Groundwater Elevations	Some items that could use another paragraph to put more in layman's terms: Standardized precipitation Index Vertical Groundwater Gradients		pasogcp.com	12/6/2018 1:28:00 PM	
John Thompson	**Ch. 5 Groundwater Conditions** 5.1 Groundwater Elevations	The map of monitoring wells seem to be lacking some of the most critical areas such as Jardine, Ground Squirrel Hollow, and Independence Ranch. IDEA: Waive water offset fee/tax for continued monitoring allowance.		pasogcp.com	12/6/2018 1:00:00 PM	
John Thompson	**Ch. 5 Groundwater Conditions** 5.1 Groundwater Elevations	Is there a better map available to see where the monitoring wells are or does that violate certain rights?		pasogcp.com	12/6/2018 1:00:00 PM	
John Thompson	**Ch. 5 Groundwater Conditions** 5.1 Groundwater Elevations	Overlay figures 5-7 & 5-1 to really see where data is lacking and where it is really needed.		pasogcp.com	12/6/2018 1:00:00 PM	
John Thompson	**Ch. 5 Groundwater Conditions** 5.1 Groundwater Elevations	Regarding Hydrographs, I have noticed that everyone wants to think of water levels in terms of feet below ground surface instead of feet above sea level. I think both could be represented on the graph so all could see the correlation. For instance, feet above sea level could stay on the left hand vertical axis and the right hand vertical axis could be stated in feet below ground surface.		pasogcp.com	12/6/2018 1:00:00 PM	
John Thompson	**Ch. 5 Groundwater Conditions** 5.3 Seawater Intrusion	Regarding subsidence. On the surface it seems a trite item if we can stabilize groundwater levels. However, if it persists, are we harming how much water our aquifer can potentially hold? If so, maybe our minimal threshold should be geared more towards this type of data. Is there any plans to measure this? Is there a way to differentiate between natural and pumping causes?		pasogcp.com	12/6/2018 1:28:00 PM	
John Thompson	**Ch. 5 Groundwater Conditions** 5.6 Groundwater Quality Distribution and Trends	Last paragraph. Is there any examples of this happening? Is this a legitimate concern?		pasogcp.com	12/6/2018 1:28:00 PM	
John Thompson	**Ch. 5 Groundwater Conditions** 5.6 Groundwater Quality Distribution and Trends	Of your groundwater constituents, it is not clear why each of them is being considered as a constituent. For example, "elevated chloride concentrations in groundwater can damage crops and affect plant growth," is strait forward and I could see why you would measure it. However, TDS, sulfate, and gross alpha radiation are not adequately explained as to their usefulness as groundwater quality constituents. And gross alpha radiation is not adequately defined so that I would even know what it is.		pasogcp.com	12/6/2018 1:28:00 PM	
Patricia Wilmore	**Ch. 5 Groundwater Conditions** 5.2 Change in Groundwater Storage	5.21. Alluvial Aquifer Notes that Figure 5-14 "suggests that the loss in groundwater during low precipitation years is not due to increased pumping but is more likely a result of lack of recharge during low precipitation years" is a key point for future planning.	City of Paso Robles GSA	pasogcp.com	12/9/2018 3:16:00 PM	
Patricia Wilmore	**Ch. 5 Groundwater Conditions** 5.1 Groundwater Elevations	Significant data gaps are indicated due to lack of publicly available groundwater level data. How can this be remedied? Since confidentiality appears to be important, pursue getting additional agreements.	City of Paso Robles GSA	pasogcp.com	12/9/2018 3:16:00 PM	

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John Onderdonk	**Ch. 5 Groundwater Conditions** 5.1 Groundwater Elevations	The last sentence of the first paragraph of Section 5.1.2.2 states: The lack of publicly available groundwater level data for the Paso Robles Formation Aquifer is a significant data gap. This data gap combined with uncertainty with regard to aquifer continuity within the Subbasin (Section 4.9) and continuity with neighboring Subbasins, particularly given the Northern boundary of the Subbasinis defined by the county line not by a physical barrier to groundwater flow (Section 4.1), highlights the limited understanding of aquifer attributes and current conditions. The GSP must establish a clear protocol for how this uncertaintywill be addressed. According to Section 5.1.2.1, the lack of data will be partially addressed through a recommended expansion of the Subbasin monitoring network which will be detailed in Chapter 8. It would be beneficial if the GSP explicitly states a timeline for this monitoring expansion and provided specific guidance on whether or not the additional monitoring and data collection will be done before or after the adoption of the GSP and how new monitoring data will be incorporated during GSP implementation. Specific procedures for how the GSP can be refined, modified and challenged as new data is presented should be clearly defined in advance. While the collection of additional data will improve the development and implementation of the GSP, uncertainly will still remain. Given that fact, the GSP should clearly define where the burden of proof for compliance/non-compliance lies (with the landowneror GSA). Additionally, clear procedures for demonstrating compliance in light of limited data and uncertainty should be defined.	County of San Luis Obispo GSA	pasogcp.com	12/10/2018 8:59:00 AM	
Timothy Cleath	**Ch. 5 Groundwater Conditions** 5.1 Groundwater Elevations	Fig 5-2: as shown should not be included in the alluvial aquifer map as these areas are typically on elevated terraces and are not saturated. Paso Robles Formation aquifer infers that there is only one aquifer. In fact, within the Paso Robles Formation there are many aquifers. Modify the title to say Aquifers. Fig 5-3, -4, -5 and -6 contours extend considerably beyond where well water level information occurs (Fig. 5-1) northeast of Whitley Gardens and east of the San Juan River. Either show the basis for these contours (on Figure 5-1) or remove or dash the contours in these areas on Fig 5-3. Showing the "inferred groundwater flow direction" can be misleading (the gradient of the interpreted contours may be due to various factors and is not always the direction of flow) and should be removed. Fig 5-6 and 5-7 similarly include areas where the contours have extended beyond the water level information. The depression west of Creston is based on one data point and may not be representative of other wells in this area (the basin is shallower in this area and may show significant variability in water levels from one well to another). This should be noted in the text. The water level rise along the western edge of the basin near Paso Robles is acknowledged to be a result of limited data and it is best to not try to guess why in the text (delete last sentence on para. 1 of page 5-13). 5.1.2.2 Identify where the 18 monitored wells are located. In light of the potential need for "key wells" as a basis for groundwater management, further discussions should be included regarding available publicly reviewable groundwater level hydrographs. With respect to the hydrographs, Fig 5-11 shows the water level at nearly the bottom of the well. This well, in the Creston area, would not be good for a future water level monitoring well. The well water level for the Shandon area shows stability during the recent dry period, while the other two hydrographs (Creston and Estrella subareas) show a 40- to 50-foot decline. Please consider including some comment on this in the text. 5.1.3 Historically an upward vertical gradient in the Estrella River valley near Shandon has been indicated by flowing wells in this area. As groundwater levels decline in the lower aquifers, the vertical gradient will change. Similarly, wells in the Creston area have flowed during wet periods.		pasogcp.com	12/10/2018 11:29:00 AM	
Verna Jigour	**Ch. 5 Groundwater Conditions** 5.2 Change in Groundwater Storage	5.2.1 ALLUVIAL AQUIFER, 3rd paragraph: Some text seems to be missing here: As indicated on _____ presumably Figure 5-14?		pasogcp.com	12/10/2018 5:48:00 PM	
Jerry Reaugh	**Ch. 5 Groundwater Conditions** 5.2 Change in Groundwater Storage	Comments Pertaining to Chapter 5 of the Paso Robles Subbasin Groundwater Sustainability Plan	County of San Luis Obispo GSA	pasogcp.com	12/10/2018 12:49:00 PM	
Jerry Reaugh	**Ch. 5 Groundwater Conditions** 5.2 Change in Groundwater Storage	This comment should be referred to the SLO County Paso Basin GSA. The EPC WD is in the County GSA but the way you do the addresses prevents this comment from being assigned to the proper GSA. Jerry Reaugh	County of San Luis Obispo GSA	pasogcp.com	12/10/2018 12:31:00 PM	
Herb Rowland	**Ch. 5 Groundwater Conditions** 5.2 Change in Groundwater Storage	In regards to Figures 5-14 and 5-15, how is the annual groundwater pumping determined? How was this measured historically and how will it be estimated going forward? If wells are not metered, and even the ones that are metered aren't being reported, how is that number established? It is a very crucial number to determine the water budget for the basin and will affect a large number of people and businesses if it is incorrect. There needs to be a high level of confidence and consensus in this number, throughout the basin, if the overall plan is to succeed. This number is too important to just make generalizations and the assumptions that whatever model you use takes, must be vetted under a very high level of scrutiny.	County of San Luis Obispo GSA	pasogcp.com	12/10/2018 11:50:00 AM	
Timothy Cleath	**Ch. 5 Groundwater Conditions** 5.2 Change in Groundwater Storage	For comparison purposes, use the same scales for the alluvial aquifer and Paso Robles Formation plots. The net change in storage in the alluvial aquifer is highly dependent on inflows from rainfall runoff, releases from reservoirs and wastewater discharges. This should be noted. The lack of alluvial aquifer water level data in the various stream valleys limits the verification of the modeled change in storage. This should be noted. fourth para p. 5-23: "As indicated on" ?? what? Total groundwater in alluvial aquifer storage should be stated to understand the impact of the "cumulative change in storage". This would also be appropriate for the Paso Robles Formation aquifers. page 5-25 first sentence: Fig 5-15 shows climate periods not precipitation data.		pasogcp.com	12/10/2018 11:29:00 AM	
Timothy Cleath	**Ch. 5 Groundwater Conditions** 5.4 Subsidence	Comment on whether subsidence is significant for groundwater management of this basin. What is the level at which it is significant? Has there been any impacts to date?		pasogcp.com	12/10/2018 11:29:00 AM	
Timothy Cleath	**Ch. 5 Groundwater Conditions** 5.5 Interconnected Surface Water	Why wouldn't groundwater elevations in the alluvial wells at or above the stream channel at any time suggest interconnectivity between the surface water and the groundwater? Paso Robles Formation wells would not necessarily indicate interconnectivity based on water levels. Water levels for model simulation time step durations are not be the best indicator of connectivity. Are the surface water areas and the alluvial aquifers not interconnected if they are not shown in red on Fig. 5-17? The depletion of interconnected surface water across the basin is much more complex than is depicted in this section. A discussion of the factors and their significance in different areas of the basin would be a good start toward a more thorough analysis of this interconnectivity.		pasogcp.com	12/10/2018 11:29:00 AM	
Verna Jigour	**Ch. 5 Groundwater Conditions** 5.6 Groundwater Quality Distribution and Trends	5.6.1 GROUNDWATER QUALITY SUITABILITY FOR DRINKING WATER, last sentence: Please explain the likely source for exceedance of mercury in 1990 and whether/why it may no longer be an issue (?)		pasogcp.com	12/10/2018 5:48:00 PM	

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Timothy Cleath	**Ch. 5 Groundwater Conditions** 5.6 Groundwater Quality Distribution and Trends	Since the 2002 report, changes to MCLs and additional water quality data has occurred. Arsenic has been found at levels above the MCL. More information about boron is available in the western portion of the basin between San Miguel and Paso Robles. These should be discussed and possible recommendations made to further delineate areas/aquifers where these occur. The quality of wastewater discharges has changed but current discharges can be a significant source of salt to the groundwater recharge. This should be discussed and potential management measures to evaluate and reduce this source of salt contribution to the basin. TDS and Chloride concentrations are shown to be high on Figs 5-20 and -21 in the area near Paso Robles. Groundwater recharge is also high in this area. Sustainability projects and management actions could result in improvements to this condition. Average Boron Concentration as noted in table 5-6 is probably not correct for most of the Estrella subarea (high boron does occur in the underlying formations beneath the Paso Robles Formation and in the area west of Highway 101).		pasogcp.com	12/10/2018 11:29:00 AM	
Patricia Wilmore	**Ch. 6 Water Budgets** 6.5 Future Water Budget	General Comment: Future Water Budgets should use well data, gathered from more wells than 12 (as noted in Chapter 7) rather than a GSP model. The monitoring network, to produce valid information on which to base actions, should be at least 50 wells. 6.5.1. States that "a portion of the City's future groundwater demand will be offset by Nacimiento water." The beneficial use of Naci water is a key point of this entire GSP. There needs to be a more serious effort/plan to either have the City use more of the 6,500 AFY entitlement, either via a greater treatment capacity than it has now and/ or additional supplies into the Salinas to be recovered by recovery well(s) and/or a viable plan to deliver and sell the water to agriculture. In other words, the difference between what the city is entitled to and what it currently uses needs to be accounted and planned for in the GSP. The GSP should and the County should actively support and promote the Basin's access to Nacimiento water.	City of Paso Robles GSA	pasogcp.com	4/15/2019 10:42:00 AM	
TImothy Cleath	**Ch. 6 Water Budgets** 6.3 Historical Water Budget	Table 6-3 and ensuing tables: Wastewater pond "leakage" should be better referred to as "percolation". Leakage sounds like it is unintentional. Table 6-3 (and ensuing tables): Rather than not having the numbers add up and saying some difference relates to water year/calendar year values, it would be better to make some adjustments to the numbers and not have this discrepancy. 6.3.2.2Table 6-4: Shouldn't riparian ET have some variation (max/min), even if it is not much? Some of the hydrologic budget components have appreciable increases over the historic period. Therefore, a discussion of the trends would be useful in determining if the "average" values should be used to compare historic and recent uses. 6.3.2.3 Figure 6-4: 1986 does not have a value- I'd assume that is because it is "0" but perhaps some way of showing that on the graph would be good. 6.3.2.4 The report should identify a "balanced" hydrologic period during which sustainable yield should be determined in addition to using the full base period. This is important since the time interval for appreciable recharge (10-12 years) is longer than in many other basins.		pasogcp.com	4/15/2019 12:21:00 PM	
TImothy Cleath	**Ch. 6 Water Budgets** 6.4 Current Water Budget	6.4.1.1 Imported Nacimiento water should be aggregated into the surface water budget in light of the fact that this source will be increasingly used to the benefit of the basin. 6.4.1.2 Are the Salinas River releases based on flow at the Niblick bridge or are they releases from the dam? In light of the extractions between the dam and the down flow stream gage, value may be appreciably different. Tables 6-6 and 6-7 Groundwater discharge to the river is more than the percolation of surface water to groundwater during this drought period. It would seem to me that the opposite should be true. 6.4.1.4 Figure 6-5 should have the same vertical scale as Figure 6-4 6.4.2.3 Comparing historic average to current average would be better if it considered the trends of water use over the historic time period (particularly for rural domestic). Figure 6-7 could be better presented as a bar graph considering the limited number of datapoints and the fact that they represent the entire year.		pasogcp.com	4/15/2019 12:21:00 PM	
Sandi Matsumoto	**Ch. 6 Water Budgets** 6.4 Current Water Budget	Please clarify what assumptions and data were used to calculate Riparian Evapotranspiration. Why was evapotranspiration only calculated for riparian vegetation? In Chapter 3.4.2 ofthe Draft GSP, native vegetation was identified as the largest water use sectorin the subbasin by land area. Please estimate evapotranspiration for allnative vegetation in the subbasin for the water budget.		pasogcp.com	4/15/2019 1:20:00 PM	20190415_Matsumoto
Stephen Sinton	**Ch. 6 Water Budgets** 6.5 Future Water Budget	A groundwater basin which is at or beyond its safe yield is allocated according to water rights with the priority given to domestic and agricultural uses overlying the basin. Projections for the City's future groundwater demand must be limited to any prescriptive rights determined to be held by it, but may not be expanded. Therefore, under current water law, the City and SMCSD's future water demands are limited in the basin and will need to be satisfied by other sources. Because we don't know what a judge might do with regard to the City's and SMCSD's rights, this section should be removed.	Shandon San Juan GSA	pasogcp.com	4/15/2019 12:00:00 AM	
Verna Jigour	**Ch. 6 Water Budgets** 6.1 Overview of Water Budget Development	1st paragraph: This chapter includes one appendix Please state specifically which appendix here (presumably D?). Figure 6-1. Hydrologic Cycle:The labels for Infiltration are incorrect. The associated arrows in the diagram depict *Interflow*, rather than infiltration. *Infiltration* should be shown at watershed surfaces. *Percolation* follows infiltration through the vadose and saturated zones.		pasogcp.com	4/15/2019 9:48:00 PM	
Verna Jigour	**Ch. 6 Water Budgets** 6.3 Historical Water Budget	The largest groundwater inflow component is streamflow percolation, which accounts for approximately 38% of the total average inflow. Especially since surface-groundwater interflows operate in both directions, how were the figures for Streamflow Percolation derived? Perhaps this is revealed in one of the earlier models but it is not apparent in Chapter 6 nor in Appendix D. Does that high percentage of inflows attributed to streamflow percolation apply primarily on certain streams or is it consistent throughout the watershed? Given that the combined substrate area of all streams comprises a fraction of the area of watershed uplands, this predominance of Streamflow Percolation over Deep Percolation of Direct Precipitation and Subsurface Inflow contributions seems to suggest a fairly high rate of runoff. That supports the historical degradation of the watersheds Iv'e pointed to in previous comments.That is, the detention (infiltration and percolation) storage capacity of regional watersheds has become degraded through historical human impacts on land cover (vegetation) such that runoff became enhanced. This comment is intended to connect with my previous and current input that watershed restoration could serve some of the purpose intended by flood water capture.		pasogcp.com	4/15/2019 9:48:00 PM	
National Marine Fisheries Service - Rick Rogers	**Ch. 6 Water Budgets**	Section 6.2.1 (Model Assumptions and Uncertainty) stated: “Results of the previous calibration process demonstrated that the model-simulated groundwater and surface water flow conditions were similar to observed conditions. After updating for the GSP, the calibration of the GSP model was reviewed. Results of the review indicated that the GSP model was sufficiently calibrated for use in the GSP.” Since the evaluation of interconnected surface water are based on the results of simulated streamflow and groundwater levels from the GSP model, we would like to obtain a detailed information about the results of the calibration process and the differences between observed and simulated streamflow and groundwater levels. In this way, we will have a better understanding of the uncertainty in the interconnected surface water results associated with the GSP model results.		email		
Patricia Wilmore	**Ch. 7 Monitoring Networks** 7.2 Groundwater Level Monitoring Network	12 wells in the monitoring network is woefully insufficient data on which to base decisions. Significant and dedicated outreach needs to be done to get this number up to about 50. The GSP should have a section detailing how this will be achieved. As for the percentage of monitoring wells that will trigger action, the current draft uses 15%; we recommend 25%.	City of Paso Robles GSA	pasogcp.com	4/15/2019 10:42:00 AM	

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TImothy Cleath	**Ch. 7 Monitoring Networks** 7.2 Groundwater Level Monitoring Network	7.2 Available alluvial aquifer groundwater level monitoring data should be obtained for the wastewater discharge monitoring sites. This provides good information on alluvial aquifer groundwater levels- particularly for City of Paso Robles, San Miguel CSD and Camp Roberts. This information is publicly released and can be used without a confidentiality agreement. This information can also be used in evaluating surface water/groundwater flow conditions. The bmp criteria for monitoring well networks and the data gaps in Table 7-2 might be better connected with Figure 7-3 if specific data gap locations are related to specific bmp criteria (e.g., well data density for storage calculations, wells located to address alluvial aquifer/surface water interconnectivity, wells used to monitor groundwater recharge activities, wells to monitor conditions along the borders with other subbasins).The Camp Roberts wells tapping the Paso Robles Formation can serve to address some of the data gap issues on the northern boundary of the basin as discussed in the data gaps on Table 7-2. This information was used in defining the basin structure in the 2002 basin study. City of Paso Robles has formed a GSA and will need to provide groundwater level data for their GSP. This data should be considered as available. The City has wells in the alluvial deposits and the Paso Robles Formation that are monitored. Table 7-2 states that in the future "only publicly available data will be used to develop contour maps". This will severely limit the accuracy of the contour maps. Other basin management agencies have used data in-house to develop contour maps without releasing the specific well water level data. This section refers to "confidential" wells. It is important to use appropriate terminology. The wells themselves are not confidential.Â The water level data collected is considered "confidential" where no release has been given to share the data to the public. It may also be good to define the term "confidential".Table 7-2 The last item says that the "network will be expanded". Say the "network will need to be expanded"7.4 If not reviewed already, the 2015 CCGWC Groundwater Quality Characterization report should be reviewed to identify areas of known high nitrate concentrations and verify that groundwater quality monitoring is sufficient to address the impact of the sources of nitrate on the basin groundwater. Recent water quality investigations have noted arsenic concentrations exceeding the current MCL at quite a few wells in the basin. These were not identified in the 2002 basin study because there was a higher MCL at the time. Groundwater quality monitoring in the future should better define the extent of this natural constituent.7.5 While no documented subsidence has been found, the existing monitoring network for subsidence is insufficient to evaluate subsidence due to groundwater pumping in the basin. Three sites are along the northern border of the subbasin where little pumping is occurring and there are only two others in the remainder of the basin area: one south of Whitley Gardens and the other in Camatta Canyon. Only the Whitley Gardens site is in the main area of pumping. The long term monitoring of these locations should be verified as some subsidence monitoring is tied to research activities that do not have long term funding.7.6 As a professional hydrogeologist working in this area for 35 years, I am not part of the consensus that there is "no interconnection between surface water and groundwater in the Subbasin". Since the GSP is saying that further evaluation of interconnectivity will need to be performed, the monitoring program should be developed if further evaluation establishes interconnectivity. As I mentioned earlier on data collection, there are existing monitoring wells in the "datagap" areas that have been monitored for many years and whose data is publicly available.Streamflow data is typically less abundant but some may be available from the City of Paso Robles near the wastewater treatment plant. Inquiry with the City should be done to see if they have this information.		pasogcp.com	4/15/2019 12:21:00 PM	
Sandi Matsumoto	**Ch. 7 Monitoring Networks** 7.2 Groundwater Level Monitoring Network	Data must be able to characterize conditions and monitor adverse impacts to beneficial uses andusers identified within the basin. Aside from GDEs mapped in the basin (Figure 4-18), environmental surfacewater users have not been identified in the GSP thus far. SGMA requires that potential effects on GDEs andenvironmental surface water users be described when defining undesirableresults. In addition to identifying GDEs inthe basin, The Nature Conservancy recommends identifying beneficial users ofsurface water, which include environmental users. This is a critical step, asit is impossible to define significant and unreasonable adverse impacts without knowing what is being impacted, nor is possible to monitor ISWs in a way that can identify adverse impacts on beneficial uses ofsurface water[23 CCR, §354.34(c)(6)(D)]. For your convenience, we've provided a list of freshwater species within the boundary of the Paso Robles basin in Attachment C of our letter. Our hope is that this information will help your GSA better evaluate and monitor the impacts of groundwater management on environmental beneficial users ofsurface water. We recommend that after identifying whichfreshwater species exist in your basin, especially federal and state listed species, that you contact staff at the Department of Fish and Wildlife (DFW), United States Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Services (NMFS) to obtain their input on thegroundwater and surface water needs of the organisms on the freshwater specieslist, and how best to monitor them. Because effects to plants and animalsare difficult and sometimes impossible to reverse, we recommend erring on theside of caution to preserve sufficient groundwater conditions to sustain GDEs and ISWs. Please identify appropriate biological indicators that can be used to monitor potential impacts to environmental beneficial users as a current data gap, and make plans to reconcile these in Chapter 10 (Plan Implementation).		pasogcp.com	4/15/2019 1:20:00 PM	20190415_Matsumoto
Sandi Matsumoto	**Ch. 7 Monitoring Networks** 7.6 Interconnected Surface Water Monitoring Network	The first sentence in this section is contradictory to the ISW mapping conducted in Chapter 5 do exist in the Paso Robles Subbasin (Figure 5-17). Depletions of surface water were also estimatedin Section 5.5.1, and the statement that there is no need for a monitoring network that quantifies surface water depletion from is false and goes against SGMA requirements. SGMA requires tha twhen monitoring depletions of interconnected surface water that spatial and temporal exchanges between surface water and groundwater are necessary to calculate depletions of surface water caused by groundwater extraction [23CCR §354.34(c)(6)] and that the monitoring network shall be designed to ensure adequate coverage of sustainability indicators [23CCR,§ 354.34(d)]. Where minimum thresholds for ISWs are to be quantified by the location, quantity, and timing of depletions of interconnected surface water [23 CCR, §354.28(c)(6)(A)]. Thus, there is a need for a monitoring network that quantifies surface water depletion from interconnected surface waters. In addition to the need for additional shallow monitoring wells in the Alluvial aquifer to map ISWs, there is also a need to enhancing monitoring of stream flow and vertical groundwater gradients by installing more stream gauges and clustered/nested wells near streams, rivers or wetlands. Ideally, co-locating stream gauges with clustered wells that can monitor groundwater levels in both the Alluvial and Paso Robles Formation aquifers would enhance understanding about where ISWs exist in the basin and whether pumping is causing depletions of surface water or impacts on beneficial users of surfacewater and groundwater.There is a need to integrate biological indicators that can monitor adverse impacts to beneficial uses of surface water and groundwater within ISWs.		pasogcp.com	4/15/2019 1:20:00 PM	20190415_Matsumoto

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National Marine Fisheries Service - Rick Rogers	**Ch. 7 Monitoring Networks**	Section 7.6 (Interconnected Surface Water Monitoring Network) stated: “As discussed in Chapter 5, the consensus among local groundwater experts is that there is no interconnection between surface water and groundwater in the Subbasin. Therefore, there is no need for a monitoring network that quantifies surface water depletion from interconnected surface waters. However, there is a need to verify whether or not there are interconnected surface waters in the Subbasin. The assessment of whether or not there are interconnected surface waters will be evaluated by monitoring surface water and groundwater in areas where interconnected surface water conditions may exist.” We have reviewed Chapter 5 and have not found any statement or references regarding the consensus among local groundwater experts (which are not identified) indicated in the previous paragraph. Chapter 5 stated: “Limited and ephemeral surface water flows in the Subbasin over the last 40 years make it difficult to study the interconnectivity of surface water and groundwater and to quantify the degree to which surface water depletion has occurred. The spatial extent of interconnected surface water was evaluated based on results from the basin-wide groundwater flow model of the Paso Robles Subbasin.” Also, Chapter 6 (Section 6.2.1) stated: “During early implementation of the GSP, additional data will be collected to refine Subbasin understanding and recalibrate the GSP model. New hydrologic data and the recalibrated model will be used to adaptively implement sustainability management actions and projects to ensure that progress toward sustainability goals is being achieved.” Therefore, the first statement in Section 7.6 (regarding non-interconnected surface waters) is not properly justified and should not be mentioned at this time. More definitive conclusions should be provided after the GSP model is refined and recalibrate.				
Andrew Christie	**Ch. 8 Sustainable Management Criteria** 8.9 Depletion of Interconnected Surface Water SMC	As set forth below, Chapter 8 claims that that the proposed minimum thresholds would not impact interconnected surface waters because, Chapter 8 claims, there are no interconnected surface waters. Depletion of interconnected surface waters. The assessment of local groundwater experts is that there are not interconnected surface waters in the Subbasin. Therefore, there are no current minimum thresholds or undesirable results that could be affected by the groundwater elevation minimum thresholds. Changes in groundwater elevations, however, could reconnect surface waters. If this occurs, minimum thresholds will be established for depletion of interconnected surface waters and the relationship between those new minimum thresholds and all other sustainability indicators will be reassessed. Chapter 5, however, shows that the basin does include areas of surface water connection. See Figure 5-17, at 5-29. Accordingly, Chapter 8 must analyze the relationship between the proposed minimum thresholds and surface water connections. Chapter 8 claims, Groundwater elevation minimum thresholds effectively protect the groundwater resource including those existing ecological habitats that rely upon it. As noted above, groundwater level minimum thresholds may limit both agricultural and rural residential growth. Ecological land uses and users may benefit by this reduction in agricultural and rural residential growth. The claim that the thresholds effectively protect ecological habitats, however, is not supported by any analysis of data. As such, Chapter 8 must be revised to include analysis of the relationship between the groundwater levels and ecological habitats and discuss whether and the extent to which the proposed minimum thresholds affect ecological habitats.		pasogcp.com	4/1/2019 3:46:00 PM	
Patricia Wilmore	**Ch. 8 Sustainable Management Criteria** 8.4 Chronic Lowering of Groundwater Levels Sustainable Management Criteria	8.3 relies on a survey (also referred to in other parts of the document) that represents a small sample and asks for opinions on matters for which there was no accompanying data on which to base an opinion. Therefore, its analysis and conclusions should not be used to set standards which by their nature require study and expertise, including knowledge of the consequences of each decision. 8.4.2. Minimum Thresholds. These need to be reset at a reasonable level that doesn't put us behind at the outset. They should protect the resource while also giving the GSA's time to collect and analyze data, allow for public input on specific actions under consideration and create specific funding mechanisms. 8.4.2.7. Effects on Beneficial Users and Land Uses. As noted, "many parts of the local economy rely on a vibrant agricultural industry and they too will be hurt proportional to the losses imparted to agricultural businesses." Indeed! The entire GSP needs a more thorough economic analysis of its proposals. Our most recent study, done by the UC Davis Agricultural Issues Center, indicated in 2016 a total of $1.65 Billion economic impact for the Paso AVA. Of that, in 2015 the year on which the study was based, property tax assessments to vineyards and wineries represented 28% of the total in SLO County and the sales tax revenue collected from those same entities was 10% of the SLO County total. It would be well worth it to factor in the proportional benefits to increasing supply with realistic projects based on clear defensible data. There are challenges ahead and concerned citizens, landowners and interested parties need to be part of the process to make it successful.	City of Paso Robles GSA	pasogcp.com	4/15/2019 10:42:00 AM	
Patricia Noel	**Ch. 8 Sustainable Management Criteria** 8.3 General Process for Establishing Sustainable Management Criteria	Please allow the enforcing agencies to have adequate time (at least five years) to start implementation and observe the results before more drastic measures are commenced.Water levels should be given adequate time to stabilize after the historic drought.Any undesirable results should be addressed locally, not throughout the basin. Bottom line: I support the Shandon-San Juan Water District's comments on the Basin Plan as posted on its website.	Shandon San Juan GSA	pasogcp.com	4/15/2019 12:53:00 PM	
Sandi Matsumoto	**Ch. 8 Sustainable Management Criteria** 8.3 General Process for Establishing Sustainable Management Criteria	Stakeholder involvement is crucial whenestablishing sustainable management criteria. The role of the GSA is to represent and balance the needs of all groundwater beneficial uses and users in the basin, which has been expressed in the Sustainability goal in Section 8.2. According to p.6, only rural residents, farmers, and local cities were surveyed to gather input on sustainable management criteria. Please specify what information or efforts have been used/made to protect the interests of environmental users and disadvantaged community members. SGMA requires that sustainable management criteria are consistent with other state, federal or local regulatory standards [23 CCR, §354.28(b)(5)]. Please describe what process was used to identify other regulatory standards that need consideration when establishing minimum thresholds for sustainability criteria.		pasogcp.com	4/15/2019 1:20:00 PM	20190415_Matsumoto

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Sandi Matsumoto	**Ch. 8 Sustainable Management Criteria** 8.4 Chronic Lowering of Groundwater Levels Sustainable Management Criteria	[8.4.1] The definition of significant and unreasonable is a qualitative statement that is used to describe when undesirable results would occur in the basin, such that a minimum threshold can be quantified. Potential effects on all beneficial users of groundwater in the basin need to be taken into consideration. According to the California Constitution Article X, water resources in California must be put to beneficial use to the fullest extent of which they are capable. Please modify the local definition for significant and unreasonable (provided on p. 6), so that it also specifies potential effects on environmental beneficial users of groundwater in the basin, and addresses how water rights amongst beneficial users will be prioritized when establishing thresholds. [8.4.2.1] The use of 2017 groundwater elevations to establish minimum thresholds for the Paso Robles Formation Aquifer is inadequate, since the SGMA benchmark date is January 1, 2015. Also, no scientific rationale was explained for using 2007 groundwater elevation data to establish initial minimum thresholds for the Alluvial Aquifer. SGMA is based on the use of best available science, and selecting minimum thresholds solely on public opinion from a select group of stakeholders (e.g., domestic well users, irrigators, municipalities) in the basin, is not a scientifically-based approach nor does it consider potential effects on environmental beneficial users of groundwater. A better approach is to use 10-year baseline period of groundwater elevation data (2005-2015) to establish how groundwater conditions during that time period affect different water users across the basin. Please document the consideration of the following when establishing minimum thresholds for chronic lowering of groundwater levels:- Are groundwater elevations between 2005-2015 above the max screen depth for domestic, agriculture, municipal wells?- Are the proposed minimum thresholds preserving water rights? [Water Code ,§10720.5(b)]- Are the proposed minimum thresholds consistent with other state, federal or local regulatory standards? [23 CCR, §354.28(b)(5)]- Are there environmental beneficial groundwater users that need consideration, particularly those that are legally protected under the United States Endangered Species Act or California Endangered Species Act? (See Attachment C in the attached letter for a list of freshwater species located in the Paso Robles Subbasin).- Is the equity being applied across different beneficial user groups (e.g., domestic, agriculture, municipal, environmental) when establishing minimum thresholds? [8.4.2.1] Please provide a description for how the initial minimum threshold groundwater elevations for the Alluvial Aquifer (Figure 8-3) may impact environmental beneficial users of groundwater (e.g., GDEs) in the basin. When converting groundwater elevations to depth to groundwater contours, please use the USGS digital elevation model (see Attachment D in the letter). [8.4.2.1] Please make a back-up plan in the Monitoring network chapter on how the GSA will install shallow monitoring wells in the Alluvial Aquifer if confidentially agreements still prevent existing wells from being used as representative monitoring wells for the Chronic Lowering of Groundwater sustainability indicator. [8.4.2.5] Depletions of interconnected surface waters do exist in the Paso Robles Subbasin (Figure 5-17). Depletions of surface water were also estimated in Section 5.5.1, and the statement that there are no current minimum thresholds or undesirable results for interconnected surface water is inadequate and goes against SGMA requirements. Thus, there is a need to establish sustainable management criteria for interconnected surface waters in the basin. (See further comments in attached letter regarding Interconnected Surface Waters)..		pasogcp.com	4/15/2019 1:20:00 PM	20190415_Matsumoto
		[8.4.2.7] The description of how the groundwater elevation minimum thresholds affect ecological land uses and users (Section 8.4.2.7 p.17) is inadequate for the following reasons:- The draft GSP has failed to describe current and historical groundwater conditions with GDE areas. Thus, it is impossible to assess how the proposed minimum thresholds relate to historical groundwater conditions in the GDE and whether potential adverse effects could occur to the GDEs as a result of groundwater conditions. - Legally protected species located with GDEs have not been identified. Thus, it is impossible to evaluate whether federal, state, or local standards exist for groundwater elevations needed to protect these listed species (see Section 8.4.2.8). [8.4.3.1] Under SGMA, Measurable Objectives are to be established to achieve the sustainability goal of the basin within 20 years of Plan implementation [23 CCR ,§ 354.30 (a)]. Please modify the methodology for setting measurable objectives for groundwater levels (p.18-19) so that it helps attain the sustainability goal defined on p. 4 (Section 8.2): sustainably manage the groundwater resources of the Paso Robles Subbasin for long-term community, financial, and environmental benefit of residents and business in the Subbasin. This GSP outlines the approach to achieve a sustainable groundwater resource free of undesirable results within 20 years, while maintaining the unique cultural, community, and business aspects of the Subbasin. In adopting this GSP, it is the express goal of the GSAs to balance the needs of all groundwater users in the Subbasin, within the sustainable limits of the Subbasins resources. [8.4.4.1] Please elaborate how the 15% exceedance criteria balances the interests of environmental beneficial users in comparison with other groundwater users in the basin				
Sandi Matsumoto	**Ch. 8 Sustainable Management Criteria** 8.9 Depletion of Interconnected Surface Water SMC	According to Chapter 5, interconnected surface waters exist in the Paso Robles Subbasin (Figure 5-17). Depletions of surface water were also estimated in Section 5.5.1. While there is certainly data gaps and a need for additional shallow monitoring wells inthe Alluvial aquifer to map ISWs, there is also a need to enhancing monitoring of stream flow and vertical groundwater gradients by installing morestream. SGMA is based on best available science and adaptive management, thusthere should be an attempt to identify some minimum thresholds for ISWs, which are to be quantified by The location, quantity, and timing of depletions of interconnected surface water [23 CCR, §354.28(c)(6)(A)]. [8.9.2] There is a need to evaluate potential effects on beneficial uses of surface and groundwater. Please refer to Attachment C (in the attached letter) for a list of freshwater species in Paso Robles Subbasin that may be existwithin ISWs. We recommend that after identifying which freshwater species exist in your basin, especially federal and state listed species, that you contact staff at the Department of Fish and Wildlife (DFW), United States Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Services (NMFS) to obtain their input on the groundwater and surface water needs of the organisms on the freshwater species list. Because effects to plants and animals are difficult and sometimes impossible to reverse, we recommend erring on the side of caution to preserve sufficient groundwater conditions to sustain GDEs and ISWs.		pasogcp.com	4/15/2019 1:20:00 PM	20190415_Matsumoto
Martha Noel	**Ch. 8 Sustainable Management Criteria** 8.3 General Process for Establishing Sustainable Management Criteria	I want the Basin Plan to provide for the following: 1. That the agencies that have to enforce the plan have adequate time (at least five years) to start implementation and observe the results before more drastic measures are commenced. 2. That water levels be given adequate time to stabilize after the historic drought. 3. That "undesirable results" not include shallow wells going dry. 4. That any undesirable results be addressed locally, not throughout the basin. I am in support the Shandon-San Juan Water District's comments on the Basin Plan as posted on its website.	Shandon San Juan GSA	pasogcp.com	4/15/2019 1:49:00 PM	
William Noel	**Ch. 8 Sustainable Management Criteria** 8.1 Definitions	Here are my requests about definitions. Thank you. Will 1. That water levels be given adequate time to stabilize after the historic drought. 3. That "undesirable results" not include shallow wells going dry. 4. That any undesirable results be addressed locally, not throughout the basin. I support the Shandon-San Juan Water District's comments on the Basin Plan as posted on its website. All my best. Will	Shandon "San Juan GSA	pasogcp.com	4/15/2019 2:12:00 PM	

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Julie Pruniski	**Ch. 8 Sustainable Management Criteria** 8.3 General Process for Establishing Sustainable Management Criteria	Overall, I support the Shandon-San Juan Water District's comments on the Basin Plan as posted on its website. Specifically, the Basin Plan should 1) provide the agencies that have to enforce the plan with adequate time (at least five years) to start implementation and observe the results before more drastic measures are commenced; 2) that water levels be given adequate time to stabilize after the historic drought; 3) that "undesirable results" not include shallow wells going dry, and 4) that any undesirable results be addressed locally, not throughout the basin.	Shandon San Juan GSA	pasogcp.com	4/15/2019 2:18:00 PM	
Laurie Gage	**Ch. 8 Sustainable Management Criteria** 8.1 Definitions	Multiple sections addressed in attached document	County of San Luis Obispo GSA	pasogcp.com	4/15/2019 4:51:00 PM	20190415_Gage
Timothy Cleath	**Ch. 8 Sustainable Management Criteria** 8.7 Degraded Water Quality Sustainable Management Criteria	8.7.2 Water Quality: Arsenic is a naturally occurring constituent that should be monitored. 8.7.2 Previous statement that there are no mapped plumes is repeated here. The treated wastewater effluent discharges introduce higher NO3 water to the groundwater. There is also a nitrate high concentration near Creston. These have been documented in the 2015 CCGWC report prepared for the irrigated lands program monitoring.		pasogcp.com	4/15/2019 4:53:00 PM	
Timothy Cleath	**Ch. 8 Sustainable Management Criteria** 8.9 Depletion of Interconnected Surface Water SMC	8.9.1 I believe there is some interconnectivity.8.9.4 Impacts can occur based on interconnectivity.		pasogcp.com	4/15/2019 4:53:00 PM	
Timothy Cleath	**Ch. 8 Sustainable Management Criteria** 8.10 Management Areas	Groundwater management for specific management areas within the Subbasin is highly recommended to address impacts more appropriately.		pasogcp.com	4/15/2019 4:53:00 PM	
Timothy Cleath	**Ch. 8 Sustainable Management Criteria** 8.4 Chronic Lowering of Groundwater Levels Sustainable Management Criteria	8.4.2.1 Water level in the alluvium is very sensitive to time of year. State specific time of year when water level data is to be used for threshold. The water level should be specific to the monitored well-simulated information is not accurate enough. 8.4.2.4 I question the accuracy of the water levels in OSWCR wells with the minimum thresholds because often these wells do not have accurate ground surface elevations. 8.4.2.5 Water Quality Degradation: It is possible (and likely) that some upflow may already be occurring from the poor quality water at depth in some locations due to low water levels. 8.4.2.5 Subsidence: It is not reasonable to establish a zero subsidence threshold because some subsidence is possible without causing an unacceptable impact. Subsidence is very site specific, so if subsidence is to be a criteria for management, the location of monitoring sites is critical and the amount of subsidence causing an unacceptable impact should be applied to that location based on impact to local structures.		pasogcp.com	4/15/2019 4:53:00 PM	
Stephen Sinton	**Ch. 8 Sustainable Management Criteria** 8.1 Definitions	Minimum thresholds as used are a problem because they put us in violation the moment they are adopted. GSA's need time to implement measures to arrest groundwater level declines and even after 5 years, may need additional leeway in setting minimum thresholds to allow time for the design, permitting and construction of water supply enhancement projects. Appropriate Minimum thresholds are at best a guess at this point. The historic excess pumping (as calculated by the Model) are very small amounts compared to the total amount of water in storage in the basin. I don't think that point is well described, but should be in order for interested and concerned citizens to understand the situation. I suspect that hydrographs that don't show the depth to the bottom of the groundwater formation give a false sense of urgency. We definitely need to stop the downward trend, but the real question is how much time do we have before we risk undesirable results.	Shandon San Juan GSA	pasogcp.com	4/15/2019 5:38:00 PM	
Stephen Sinton	**Ch. 8 Sustainable Management Criteria** 8.2 Sustainability Goal	Public surveys in the absence of facts about costs and other impacts have limited value and shouldn't be relied upon as the primary basis for setting standards. The outreach for this GSP was valuable, but reached a relatively small sample of the total basin groundwater users. The comments received are valuable, but scientific information should be the real basis for decisions made. I think the projects and management actions should be stated as options, not requirements. I think the Figure 8-2 map is wrong and troublesome and should be deleted. We might want to show measureable objectives, but I'm not even sure about the value of doing that.	Shandon San Juan GSA	pasogcp.com	4/15/2019 5:38:00 PM	
Stephen Sinton	**Ch. 8 Sustainable Management Criteria** 8.1 Definitions	It would help if the acronyms used were defined, either in the definitions sectionÂ or when they first appear in the text. I would think this would be a good practice at the beginning of each chapter.	Shandon San Juan GSA	pasogcp.com	4/15/2019 5:38:00 PM	
Stephen Sinton	**Ch. 8 Sustainable Management Criteria** 8.4 Chronic Lowering of Groundwater Levels Sustainable Management Criteria	8.4.2.6Â Third paragraph refers to "two" GSAs, but there are four of us and one more in Monterey County. The language about minimum thresholds should be replaced with measureable objectives.Going back to minimum thresholds, I think they are essential for preventing undesirable results, but since we don't know where orÂ at what water levels that is going to occur, I think it's essential that the GSP be clear that minimum thresholds are an estimate and shouldn't be considered as fixed or absolute.	Shandon San Juan GSA	pasogcp.com	4/15/2019 5:38:00 PM	
Stephen Sinton	**Ch. 8 Sustainable Management Criteria** 8.5 Reduction in Groundwater Storage Sustainable Management Criteria	There are two itemized points under 8.5.1 and #2 says that pumping should be reduced in dry years is a highly ranked concession. The fact is that pumping should be reduced in wet years, when less "added" water from irrigation is required. In dry years farmers have to use more water to make up for the lack of rain. 8.5.2.4 I couldn't understand the opening sentence. Same with 8.5.4.3.	Shandon San Juan GSA	pasogcp.com	4/15/2019 5:38:00 PM	
Stephen Sinton	**Ch. 8 Sustainable Management Criteria** 8.7 Degraded Water Quality Sustainable Management Criteria	8.7.2.1 & .2 If a new monitoring well is added to the system and it has water quality that exceeds the established limits, does that constitute an exceedance?	Shandon San Juan GSA	pasogcp.com	4/15/2019 5:38:00 PM	
John Onderdonk	**Ch. 8 Sustainable Management Criteria** 8.4 Chronic Lowering of Groundwater Levels Sustainable Management Criteria	This theme is reiterated in Chapters 7 and 8. Given that uncertainty, it seems reasonable to expect that management thresholds be set conservatively. The proposed decision to base individual well minimum thresholdson single points in time (2007 or 2017) based on survey responses doesn't seem to reflect appropriately conservative decision making in the face ofuncertainty. A more prudent approach would be to set minimum thresholds more conservatively (lower elevation) than suggested in the GSP and adjust those minimum thresholds, to become more stringent (higher elevation) as additional data dictates. Perhaps an appropriate methodology for this would be to add trend lines to the hydrographs in Appendix G, extend that trend out five years and set theminimum threshold at that point. Another concern is the reliance on 12 wells to be representative of the entire Subbasin. Here again, choosing 15% (two wells) as the limit on minimum threshold exceedance in the chronic lowering of groundwater level is overly aggressive and presumptuous. A more reasoned decision would acknowledge the small sample size and increase the percentage appropriately. It seems a 33% (four wells) threshold would be significantly more representative of the entire Subbasin. Alternatively, the threshold could be set at a lower percentage, say 25% (three wells), if management action were triggered only in the event those wells were each in a geographically distinct area of the Subasin. Of course these numbers may not be nor are they based on rigorous mathematics, but they do allow for the early adoption of management criteria, collection of additional data to further inform decision making and time for regulated entities to participate and adapt to the GSP management actions. Importantly, this processof continued refinement and data informed regulation is consistent with the intention of SGMA and US environmental case law.	County of San Luis Obispo GSA	pasogcp.com	4/15/2019 8:50:00 PM	

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National Marine Fisheries Service - Rick Rogers	**Ch. 8 Sustainable Management Criteria**	Page 48 states "As described in Chapter 4, Hydrogeologic Conceptual Model and Chapter 5, Groundwater Conditions, the prevailing belief of local residents and experts in the Subbasin based on observation and some hydrologic data, is that interconnected surface water and groundwater does not currently exist in the Subbasin." This conclusion is not supported by Chapter 5, which clearly shows interconnected surface water in Figure 5-17. In fact, the process used in Chapter 5 to identify groundwater/surface water interconnection likely underestimates the extent and distribution of this connection – "If model simulated groundwater elevations in any aquifer were above the bottom of the stream or river for at least half of the time between 2010 and 2016, then the surface water was considered interconnected with the groundwater." First, no explanation is given as to why modeled groundwater elevations must be above the streambed elevation for "at least half of the time" for streamflow depletion to be realized. Without further explanation, this assumption is not scientifically appropriate or justified. Also, why was the time period of 2010-2016 (a historic drought) chosen as the period of analysis? Given the likely depressed groundwater elevation expected during a drought and the resultant underestimation of groundwater/surface water connectivity, using this time period is inappropriate. In Chapter 6 the draft GSP acknowledges as much, stating that using the period 2012-2016 for the current water budget "represents a more extreme condition in the basin and is not appropriate for sustainability planning in the Subbasin." Thus, the Paso GSP should begin developing a threshold and measureable objective for streamflow depletion at this time, in addition to planning for further data analysis in the future that will help refine those values.			4/15/2019 12:00:00 AM	
Daniel Sinton	**Ch. 8 Sustainable Management Criteria** 8.3 General Process for Establishing Sustainable Management Criteria	1. That the agencies that have to enforce the plan haveadequate time (at least five years) to start implementation and observe the results before more drastic measures are commenced.2. That water levels be given adequate time to stabilizeafter the historic drought. 3. That "undesirable results" not include shallow wells going dry. 4. That any undesirable results be addressed locally, notthroughout the basin. I support the Shandon-San Juan Water District's comments on the Basin Plan as posted on its website.	Shandon San Juan GSA	pasogcp.com	4/16/2019 7:18:00 AM	
Laurie Gage	**Ch. 9 Projects and Management Actions** (Revised) 9.4 Level 2 Management Actions	Section 9.4.2.3 references "Re-locating pumping allowances provides pumpers with flexibility and maintains consistency with San Luis Obispo County's current Agriculture Offset Program." I fully agree that there needs to be a program that allows transition from the current offset ordinance to something that provides equal or better protection in terms of total water use. But the fly in the ointment is that the ordinance must have an extension in order to remain in effect, or there will be a gap between the sunset date of the ordinance (upon adoption of the GSP by the last GSA), and the time that any GSP-defined replacement could take place. We have seen a rush to plant in the past when a gap opportunity presented itself and at that time, it was on the order of months, and not a few years. BUT MORE IMPORTANTLY, allowing the ordinance to sunset presents another more immediately critical issue: the deed restrictions in place on properties which provided the offset credit fall away as of the sunset date. Which means that if the current sunset date is not extended, then EVERY FALLOWED ACRE COULD IMMEDIATE COME BACK ON LINE FOR IRRIGATION. The total number of acre-feet used for agricultural irrigation offset credits (according to County GSA staff) is approximately 12,000 acre-feet. That is the amount that could feasibly come back on line into irrigation the day after the GSP is adopted. With a projected annual deficit of 13,000 acre-feet, we are looking at DOUBLING the deficit if those acre-feet are reclaimed for use upon the sunset date of the offset ordinance. As an even nastier side effect of not extending the ordinance and having fallowed acreage come back online, that acreage could be used AGAIN for a future offset credit under the relocation and transfer or pumping allowances program outlined in this section. At the very minimum, GSP staff should be aware of the potential 12,000 acre-feet that could come back online after the sunset date without extension of the offset ordinance, and to utilize that figure in all projections of annual use in calculations for the GSP. Please consider the extreme degree to which the choice not to extend the sunset date of the offset ordinance could potentially impact the annual deficit.		County of San Luis Obispo GSA	5/26/2019 1:24:00 PM	
Laurie Gage, District Administrator	**Ch. 11 Notice and Communications**	The Board of Directors of the Estrella-El Pomar-Creston Water District has reviewed Chapter 11 and concluded that it has no comments on this chapter at this time. Individual Board directors may choose to personally comment on this chapter separately and independently from the Board as a whole.	City of Paso Robles GSA	pasogcp.com	10/11/2018 8:59:00 PM	
Dan Penkauskas	**Ch. 11 Notice and Communications** 11.1 Communications and Engagement Plan	Hi All. We're in the Creston area and have a single domestic well for our drinking water. We vote for maintaining levels as they are today. Also, please sign us up to monitor our well. Thank you, Dan	County of San Luis Obispo GSA	pasogcp.com	10/12/2018 6:41:00 AM	
Sheila Lyons	**Ch. 11 Notice and Communications** 11.1 Communications and Engagement Plan	Anywhere in the GSP where there is a reference to interested parties, including the Appendix D of Chapter 11, all Citizen Advisory Groups over the Paso Basin should be listed. CAB is writing to ask specifically that we be added throughout, including Appendix D of this chapter.	County of San Luis Obispo GSA	pasogcp.com	10/20/2018 9:26:00 AM	
Mackenna Buchholz	Additional Comments	(See attachment)		Other	5/3/2018	Link: 20180503_Buchholz
Greg Grewal	Additional Comments	(See attachment)		Other	5/14/2018	Link: 20180514_Grewal
Donald Morris	Additional Comments	(See attachment)		Other	5/21/2018	Link: 20180521_Morris
Sheila Lyons	Additional Comments	Please find enclosed below a letter and an attachment with input from the Creston Advisory Body representing the Creston Community and Rural Residents across the Basin. The vote of endorsement for the contents of this letter by the CAB member at last night's CAB meeting was unanimous. We hope you will find this information helpful when making decisions on Basin management. Thank you for your attention to our input. Sheila Lyons CAB Chairperson		Other	7/19/2018	Link: 20180719_Lyons
William Enholm	Additional Comments	(See attachment)		Other	7/25/2018	Link: 20180725_Elholm
Tommy & Kathy Carter	Additional Comments	(See attachment)		Other	7/26/2018	Link: 20180727_Carter
Dianne Jackson	Additional Comments	Supervisors Peschong & Arnold, and Chairperson Hamon, I am in complete agreement and support the comments CAB submitted to the Paso Basin Cooperative Committee. CAB has been working on this topic for over a decade and has tried to include the many comments that they have received from the public, over the years. The new groundwater sustainability plans require each basin to reverse groundwater overdraft. There is only one way to get that accomplished, stop over pumping. Hoping you will take into serious consideration every point that was addressed. Grace and Peace, Dianne Jackson		Other	7/26/2018	
Carol & Harold Rowland	Additional Comments	(See attachment)		Other	7/26/2018	Link: 20180726_Rowland

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Sheila Lyons	Additional Comments	In reading the notes from various PR Basin Cooperative Committee meetings we don't see anywhere that the local Citizen's Advisory Councils are included for receiving notices or communications. Additionally in those lists we have seen all entities listed have specific addresses by which the organizations or agencies may be noticed, however, Rural Residents are simply called out as Rural Residents. It seems greatly amiss to us that Rural Residents who are the great majority of the people living over the Paso Basin and who will be impacted the very most are not being communicated with directly. At the very least all Citizen Advisory Councils over the Basin should be noticed. Please add the Creston Advisory Body (CAB) to your contact lists. All notices may be sent directly to our chairperson, Sheila Lyons, (removed)	County of San Luis Obispo GSA	pasogcp.com	9/22/2018 2:47:00 PM	
Leslie Jordan	Additional Comments	(See attachment)		Other	9/25/2018	Link: 20180925_Jordan
Melenie Ristow	Additional Comments	Hello, I'm on vacation & won't be able to attend the water meeting in Creston. I wanted you to know I'm extremely worried about what will happen to my residential water well for my home & 20 acres. I've lived on Huer Huero rd for 38+ yrs with a mix of drought, normal & wet years & so far never run out of water, but I'm a lucky one. We've always known water is life out here & we have chosen a variety of ways to be responsible & conserve our water to be able to live here. I too worry about my investment in my property & realize my investment will be compromised if my well runs dry. Not being a big or corporate water user I have very few alternatives or be financially able to truck water to my home. And thus count on my representatives to protect my water interests. I implore you to do just that. Please protect mine & the thousands of residential water user wells in our Creston area. Thank You, Melenie Ristow		Other	10/1/2018	
Sheila Lyons	Additional Comments	Hello Supervisor Arnold, I submitted the following Excel file, that CAB received from the Public Works Dept back in the spring, to the Paso Basin Groundwater Sustainability Cooperative Committee through the GCP Portal. You may recall that CAB questioned the table in Chapter 3 of the GSP (Table 3-2, page 22) because it didn't appear to be up to date. In fact Table 3-2 of Chapter 3 showed only about 1/3 of the total wells that the SLO PW Dept indicated as being in production over the PR Basin, as given to CAB earlier this year. Sheila Lyons CAB Chairperson (See attachment)		Other	10/2/2018	Link: 20181002_Lyons
Dick McKinley	Additional Comments	Figures 4.6-4.10 have print that is too small to read.	City of Paso Robles GSA	pasogcp.com	10/5/2018 1:06:00 PM	
Frederick Hoey	Additional Comments	These comments relate to Figure 3-14: North County Planning Subareas: I object to the El Pomar-Estrella-Sub Area as defined. Interestingly, this Sub Area is startlingly similar to the boundaries of the "area of influence" of the Estrella-El Pomar-Creston Water District as defined by SLO-LAFCO. I expect this harmony is deliberate. The Creston area is distinctly different from both the El Pomar and Estrella area; accordingly, actions that are appropriate and necessary for the El Pomar and Estrella areas will not be appropriate for Creston. For instance within the Estrella areas a significant "cone of depression" has been created by the egregious groundwater pumping by the City of Paso Robles, which has been compounded by the local concentrations of large vineyard operations. Many Creston landowners have long been concerned that Creston groundwater would ultimately be utilized to remedy the damage that has been done to the Estrella groundwater levels. By combining three geographic areas, each with their own unique issues, into a Planning Sub Area, the authors of Chapter 3 wrongly assumed that the citizens of Creston would not rise up in strong opposition to such blatant, potential piracy of our water resources to cover the sins of the City of Paso Robles through the exploitation of the Estrella area. I strongly urge that the Creston area be identified as a separate Planning Sub Area, a view shared by all of my Creston friends and connections.	County of San Luis Obispo GSA	pasogcp.com	10/6/2018 4:03:00 PM	
James Green	Additional Comments	Good afternoon, Micki: Please distribute the attached letter regarding County Groundwater Sustainability Agency (GSA) Meetings to the Supervisors, all districts. Thank you. Warm Regards, James Green Government Affairs Specialist		Other	10/8/2018	Link: 20181008_Green
Dennis Loucks	Additional Comments	Dear Mr Peschong, Attached are my comments pertaining to the GSP plan to date. Please refer them to your Cooperative Committee. (See attachment)		Other	10/8/2018	Link: 20181008_Loucks
Frederick Hoey	Additional Comments	(See attachment)		Other	10/12/2018	Link: 20181012_Hoey
Dennis Loucks	Additional Comments	(See attachment)		Other	10/15/2018	Link: 20181017_USGS

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Stephen Sinton	Additional Comments	Figure 4-12 makes zones look simple and continuous when they are probably more complicated and multi-layered with impervious and semi-impervious layers scattered both vertically and horizontally. I believe our newest well on Shell Creek was 592' with almost continuous sandfrom surface to the bottom of the formation. It test pumped more like 1500 gpm, although we don't use it at thatlevel. The transmissivity information could be very significant. Is there a source for where this came from? Artesian wells existed within the boundaries of Shandon itself. Overall Much of the information available for this GSP is uncertain, but we will know a lot more as we begin implementation. The risk, therefore, is that facts will become immovable and immutable if we don't repeatedly state our uncertainties and the need forrefinement. The Plan needs to be clear that our understanding of the basin is likely to change over time, numbers will have to be changed, basin limits will undoubtedly be revised and many other aspects will be altered by new information. So we need to be unambiguous that each "fact" may potentially require updating and decisions and actions based on those facts may need to bealtered.	County of San Luis Obispo GSA	pasogcp.com	10/15/2018 8:01:00 AM	
Verna Jigour	Additional Comments	This is just to note my apologies if you received two copies of my comment addendum file. My comment on this web input function is that I could not tell how many files I had attached the screen only shows the most recent attachment. I intended/ attempted to attach two files 1. my comments addendum and 2. my doctoral dissertation abstract. If you did not receive both files, please advise me and I will provide them again. Thanks for the opportunity to comment! Verna Jigour, PhD Rainfall to Groundwater		pasogcp.com	10/15/2018 9:58:00 PM	Link: 20181015_Jigour
Dana Merrill	Additional Comments	RE Survey While the comments are interesting to read and seem to suggest in general experience with falling water levels and concern for more to follow, they have several shortcomings in my opinion. 1. Done in a vacuum as no mention of cost or who would pay renders them useless without follow up 2. Sample size is likely too small and cannot be verified as to authenticity 3. Time and cost hopefully was minimal as time is passing while the drought continues and meaningful measures and strategies are urgently needed for individuals and businesses to plan and budget for the future. 4. More critical work is needed, asking whether Utopia is desired is of minimal interest without quoting a cost Sorry but that's my feeling on the Survey. Maybe a well intentioned legislative mandate that it be included but we need to get on to the real issues and strategies. Every stakeholder, landowner, and even cities will feel the impact of severe pumping cutbacks in the Paso Basin as economic multipliers in reverse mean higher taxes, less jobs, tourism and lower property values. The Urgency Ordinace is an example of how land values plummet if water is restricted. Let's get going on solutions and figure out whether we can find a way to pay for them!	County of San Luis Obispo GSA	pasogcp.com	11/12/2018 7:56:00 AM	
John Thompson	Additional Comments	This probably seems tedious, but when reviewing the draft, the dark "DRAFT" across the page is distracting. Possibly lighten the text across the page or put "DRAFT" as a header.		pasogcp.com	12/6/2018 1:00:00 PM	
John Thompson	Additional Comments	In general, when a source is referred to in the text, it would be nice if it were properly cited. I do not know that we need a literature cited at the end of each section, but one online literature sited page would suffice. For instance, on page 5-38 the map is cited as RMC, 2015, but that resource is hard to find without a proper literature cited appendix or reference. Better yet, a website that could digitally link you to all cited works.		pasogcp.com	12/6/2018 1:00:00 PM	
Steve Sinton	Additional Comments	Can the chapter draw any conclusions as to what would happen to groundwater levels if we had a period of above normal rainfall years? 2. Can you further clarify the different aquifers? Most readers are familiar with the deep sulfur water and the aquifer above it, but Chapter 5 seems to further divide the upper aquifer in a way that isn't perfectly clear. 3. Figure 5-8 does not reflect the groundwater elevation conditions I experience on Shell Creek. Perhaps the extrapolation used in the figure covers too wide an area. 4. In 5.1.3 there is discussion of upward vertical groundwater flow. What is this based on and what does it mean to the management of the basin? 5. It may just be me, but I find Figures 5-15 and 5-16 very confusing. 5-15 makes it look like water use (the black lines coming down) is declining, but the text says the opposite. 6. Section 5.5 talks about gaining streams, but other than a few places where underflow is forced to the surface, I don't know of anything that is a gaining stream. The same applies to 5.5.1 where the chapter talks about groundwater discharge to surface water. I don't know of any place where it exists. The conclusion that the mean annual surface water depletion was about 8500 af/year seems impossible. If that statement (and Figure 5-18) is based solely on the model, that only makes the model seem less valid.	Shandon San Juan GSA	pasogcp.com	12/9/2018 9:55:00 PM	

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Name	Chapter & Section	Comment	GSA	Comment Source	Date/Time	Attachment(s)
Timothy Cleath	Additional Comments	Specific Edits: P. 7 Para 4: Delete sentences 5 and 6 (King City fault?). Fig 4-6: Geologic Map does not agree with portions of this cross section. P. 17 Delete last sentence of first paragraph: not necessary and not significant. P. 17 para 2: Identify arsenic as a constituent of concern. P. 19 para 1: Poor quality water in the Pancho Rico is not necessarily associated with the tar sands. We don't see tar sands in the Pancho Rico underlying the basin. P. 19 para : The Santa Margarita Formation varies inpermeability but is typically much lower than the Paso Robles Formation. That is the basis for not including it in the basin sediments. Where the geothermal water is present, groundwater quality is more brackish. P. 19 para 4: Vaqueros Formation groundwater is typically brackish. Fig 4-12 to 4-15: Reference map showing locations of cross sections. Aquifers shown in blue stop abruptly in some areas. Please explain why. P. 25 para 2: sentence 4: Not shown on Figure 14-4. Last sentence: Not clear what is meant by the "shallow aquifer.... may be an isolated aquifer area". Please explain. Table 4-1: Define Q/s. Note that the hydraulic conductivity is an average based on the full perforated interval and is not a specific aquifer hydraulic conductivity. P. 26 Para 2: Is the reference to the Paso Robles Formation and the shallow aquifer zone correct? This seems to be conflicting. P. 27 The specific yield for the Paso Robles Formation gravels is appropriate in light of the flatness and compaction of these gravel beds. P. 27 last para: Folds and faults do affect groundwater flow in the Subbasin. Consider particularly the Red Hills/San Juan faults and the folds near the Rinconada fault. P. 28 para 1: Municipal demands are significantly met by Nacimiento and State Water Project waters (Paso and Shandon) Fig 4-16: This map is incomplete and also not a good representation of where groundwater recharge can occur to the Paso Robles Formation. The alluvial areas are obvious. It may be best to exclude this figure and provide more discussions related to factors for recharge such as is discussed in the Huer Huero and Paso banking studies. P. 31 The areas identified as "discharge areas" just happen to be near where wastewater discharges occur and may not be areas of groundwater discharge. The areas of mapped springs and seeps are likely to be due to stratigraphic and structural conditions and not shallow and perched aquifer units. P. 34 Include the Nacimiento River and Shell Creek in the surface water features. Surface Water Bodies would seem to refer to lakes and ponds and not so much streams. It would be better to take out "bodies" from the title. P. 36 Recommendations should be for a geostatistical analysis of well completion reports and for general geophysics, not just aerial geophysics. Also, note that there is one nested well as is discussed in Chapter 5.		pasogcp.com	12/10/2018 9:36:00 AM	
Timothy Cleath	Additional Comments	General comments: Paso Robles Aquifer suggests there is only one aquifer-change to Aquifers. In light of the need to adjust the basin boundaries, there should be a discussion and illustration showing the 2002 basin boundary and the San Juan/Red Hills faults should be shown. The Base of the Permeable Sediments map from the 2002 Paso study is in need of a revision based on more recent information. The deep basin area near San Miguel is much shallower than was shown in that map. Soils infiltration rates in the table are not quantitative and the clay content and sand and gravel content do not add up. Explain why. Figure 14 has extensive areas where no soil infiltration information is available. Explain why.		pasogcp.com	12/10/2018 9:36:00 AM	
Green River Mutual Water Company	Additional Comments	(See attachment)		Other	1/2019	Link: 20190101_GRM
Dana Merrill	Additional Comments	My comments in brief are:	County of San Luis Obispo GSA	Other	2/25/2019	
Dana Merrill	Additional Comments	(See attachment)	County of San Luis Obispo GSA	Other	2/26/2019	Link: 20190225_DMerril1_Ch9
Bill Stansbury	Additional Comments	It is good to see a concrete plan taking place. I am a deminimis user. It appears I will not be financially impacted by the GSP. I do fear a large political backlash by land owners, particularly in the Creston area. They always seem to have their alternate version of the facts and refuse to believe there is an overdraft problem. I am 70 years old, survive on a pension and live alone. When my wife was alive, we had to drill a new well in 2006 after moving in in 1992. Our well was 250 feet. The water table was at 135 feet when we moved here in 1992. Our new well is 500 feet deep and the water is now at 320 feet. I cannot afford to drill to 1,000 feet and what guarantee is there that there is potable water at this depth in our area? As you can see the "little guy" is in a tough spot here. I wish you the best and I hope I live to see this plan come to fruition. Thanks, Bill Stansbury		Other	2/27/2019	

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Name	Chapter & Section	Comment	GSA	Comment Source	Date/Time	Attachment(s)
George Tracy	Additional Comments	Thanks for sending this. There are a few typos in some of the draft documents but I found them very interesting. The minimal users appear to be exempt from the GSA as the law allows. I hope this will be true in the future too. I assume the county is to be the overriding GSA for the purposes of implementation. I am curious on how the other water purveyors will react to that. Since there is not a written agreement for the implementation of the Paso Basin GSA how are you planning to get it implemented by all the GSA agencies. I have heard there will be an agreement but I have not seen one. As a county resident I have watched my well levels fall year after year. I measure the well every year since 2013 when I had to replace my pump at the level it had been installed in 1997. That level was 252 feet. The initial water level when installed was 150 feet.It has fallen every year. Last year it was at 307 below the ground some 200 feet above the replaced well pump. The plan does not mention what the county ordinance that limits planting will be once the plan has been implemented. Will a new ordinance be put in place to limit installation of new plantings again? Not all crops are listed in the SLO county ordinance. Specifically Hemp and Marijuana are missing, there may be others as well. Brewers are also not listed but several use groundwater for their source of water. Do you have a list of facilities that will be implicated as pumpers? I hope to attend the March 6 meeting but the notice does not indicate time or place. could you send that to me?		Other	2/27/2019	
Laurie Gage	Additional Comments	To the Paso Basin Cooperative Committee: I am writing in support of the letter to be considered by the Paso Basin Cooperative Committee as Item #8 in its March 6, 2019 meeting. As the holder of an onsite offset clearance, I have carefully reviewed the language of the termination clause in the deed restriction that was required of me by the clearance, and it would appear that without modification of the sunset date of the ordinance, it might be possible for me to begin irrigating the acreage that I fallowed in order to create the credit. I have no intention of pursuing reirrigating fallowed land, but it begs the question whether any owner of property fallowed to create an offset credit needed on that property or transferred/sold elsewhere, would feel the same reluctance to begin irrigating again. If the ordinance sunset date is not modified, I believe it might lead to having the clearance-fallowed land be irrigated again, completely negating any benefit of the one-to-one offset put in place to protect the basin. Add that to the increased water demand by having a gap between the sunset date and some future and, as of yet, unknown and undetermined program in the GSP, and the consequences could be long-lasting and very, very negative. Look to history and the 6-week gap in the ordinance process and what kind of advantage was taken back then. Thank you for your consideration and again, I urge your support of the letter in Item 8 of your March 6 agenda. Laurie Gage Full Sail Farm		Other	3/3/2019	
Sue Luft	Additional Comments	Paso Basin Cooperative Committee, I have reviewed the letter on page 59 of the agenda package for your March 6, 2019 meeting. I ask that your Committee approve this request that the SLO County Board of Supervisors modify the sunset date of the County's Water Conservation Ordinance related to the Paso Basin to when conservation provisions in the adopted Groundwater Sustainability Plan are implemented. Without modifying the sunset date of the County's Water Conservation Ordinance, there will be a gap which may result in increased water demand in the Paso Basin. This increased demand would increase the projected deficit in the basin and would impact the ability to comply with the Sustainable Groundwater Management Act. Thank you. Sue Luft Landowner, El Pomar area of Paso Basin		Other	3/3/2019	
Greg Grewal	Additional Comments	(See attachment)		Other	3/6/2019	20190306_Grewal

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Name	Chapter & Section	Comment	GSA	Comment Source	Date/Time	Attachment(s)
Douglas Brown	Project and Management Actions - Concepts	Appreciate your taking the time to speak with me yesterday. Here are the comments I last submitted on the website on Chapter 9 of the GSP which you indicate have not come through to you and others: I would request that the following alternatives be included as potential projects/management actions for study and implementation: 1.Reducing or eliminating exports of Salinas river water outside of the basin, particularly exports from Santa Margarita to the City of San Luis Obispo. These exports have negative environmental effects on the river as well as the groundwater basin and reduce recharge to the groundwater basin. The County, through the SLOCFCWCD, has significant obligations and control over these exports; 2.Require Shandon to participate in the SWP, as was envisioned in the early 1990's when a contract was executed for that purpose, prior to requiring other water users to participate in the SWP or other supplemental water projects. The County, through the SLOCFCWCD, was a significant, if not the lead, actor involved in such contract; 3.Require the urban agencies to use Nacimiento water for current water users rather than for new development prior to requiring other water users to participate in Nacimiento, SWP or other supplemental water projects. The County, through the SLOCFCWCD, has significant obligations and controls over the Nacimiento project and contracts with the urban agencies. While I understand that these proposals may not be popular options for various of the urban agencies, I do believe that failure to consider them would be inconsistent with the obligations that the GSAs have under state statutes. On the call you indicated that there had been no discussion of the environmental process for the GSP or projects or actions proposed to be undertaken. If true, I believe this is unfair to land owners and water users overlying the Paso Robles groundwater basin who deserve a clear explanation of this process and when they have a right to object. I reiterate my request to speak with the attorney in the county counsel office advising the County on environmental compliance with respect to the GSP. Douglas S. Brown		pasogcp.com	3/21/2019 5:12:00 PM	
Douglas Brown	Project and Management Actions - Concepts	Courtney, Thank you for your response. The public trust doctrine in California can operate to require additional releases above and beyond the permit conditions if necessary for instream or groundwater basin protection. I would respectfully request that the County (and the other GMAs) analyze this issue as an alternative. I have been told (but do not know) that Shandon does not take its full allocation of SWP water. I would respectfully suggest that the County and the other GMA's study of any SWP water alternative not include any project paid for by rural or agricultural users until Shandon takes its full allocation of SWP. I would respectfully suggest that the GMAs study urban use of Nacimiento water for existing users rather than new development. While I appreciate that other studies may have considered certain of these options, I would respectfully suggest that the GMAs need to re-review these options as part of their statutory duties under the groundwater management act. How much (or little) they can depend on the prior work will presumably depend of whether that prior work meets the standards applicable to the groundwater management act. Douglas S. Brown		pasogcp.com	3/21/2019 5:20:00 PM	
Sheila Lyons	Project and Management Actions - Concepts	Comments from both public and members at CAB Meetings - Administration, Accounting and Management - Ag pumping data collection states that one way would be for the Ag pumpers to report metered pumping to their GSA. How will this be verified? Management Actions - Although land use restrictions are mentioned there is no reference to working with the Planning and Building Dept. at the County to align new ordinances and policies to protect water resources. CAB has recently reviewed proposed ordinance changes for growing cannibis (not considered an ag crop) and for agricultural worker housing. Offsets are stated to be the source of water in one case...offsets do not make water and there aren't enough replacement toilets for the program to do any good. Ag operators agree that giving off-sets is not the answer for cannabis projects. No mention of water source in proposed Ag worker housing ordinance at all and the allowance for this type of housing is being expanded hugelyokay on lots down to 5 acres in size, 1 worker per 1 acre of grapes, expanded zoning allowance, etc. ALL new or modified County ordinances need to have conditions for where the water will come from in new plantings or development. Existing rural residents, most of which will be de minimis users with shallow wells, are still going to be impacted by allowing additional planting and development and no amount of money is going to compensate them for these infractions. Available Water Supplies - State Water Project - Although there is 14,500 AFY currently unused that number will drop in drought years when we would most need it due to increased demand from the subscriber. We would still have to pay for 14,500 AFY, not 8900 AFY to insure that we still get 8900 AFY. Or else, if we only contract for 8900 AFY we will get only 5160 AFY (58% of 8900). Who currently owns the Salinas Dam? What about down stream properties that were dependent on this run off water in the past - legal commitments? Options to Deliver New Water Supplies - Is there consideration that any new recharge basins be covered to prevent excess evaporation? Development of Project Alternatives for GSP - General Assumptions - For direct delivery projects, pipeline alignments were selected to deliver water to the largest users closest to the water source. Do these users pay the most for this benefit? They should. Direct Injection of		pasogcp.com	3/25/2019 5:03:00 PM	
Sheila Lyons	Project and Management Actions - Concepts	CAB felt that the discussion questions are rather vague and non-specific so hard to comment upon in some cases. Here are the comments we were able to obtain.		pasogcp.com	3/25/2019 5:03:00 PM	
Sheila Lyons	Project and Management Actions - Concepts	Introduction - Second point, #4 - and throughout...there appears to be a focus on Growers and how they are impacted. What will be the fall out for Rural Residents who have animals, orchards, etc. and use more than de minimis users?		pasogcp.com	3/25/2019 5:03:00 PM	
Andrew Rainey	Ch. 1003 Summary of Model Update and Modification 1003.5 Comparison of Groundwater Budgets	I do not see how a change in the lines on a map will defy gravity & the change in elevation from a higher point to lower point.if you say that a fault line will act to separate the water basins some how, maybe like a geological dam eventually the water will either come over the dam or fine a way to seep through the dam if the elevation goes from higher to lower.common logic would say that the water shed above the PR water basin has to effect the inflow into the PR water basin area.I do not see how you can not include the Atascadero water area into the PR water basin. they must be linked as the watershed is headed down hill.seems very strange to me to come to any other conclusion.	City of Paso Robles GSA	pasogcp.com	3/29/2019 9:32:00 AM	

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Name	Chapter & Section	Comment	GSA	Comment Source	Date/Time	Attachment(s)
Dana Merrill	Project and Management Actions - Concepts	My comments to this Chapter are: Page 4, paragraph 1. Exempting de minimous from water charges is fine but not necessarily from "assessments" as they are users who have a stake in the Basin health. Cumulatively they are a significant use of water. Page 6, Management Action, second paragraph "adversely affecting the local economy" is a significant point. The wine industry and resulting tourism boom has benefitted beyond the ag water users. Cutback will negatively impact the economy and a measurement of that impact should be carried out to help decide what cost of supplemental water or idling of irrigated farming really costs our community. Same paragraph: Water charging framework should prioritize water efficiency and higher water use crops should not be subsidized or favored because of historic use. Page 7: Paragraph 1, last sentence dealing with idled and to save water, should have added "...beneficial uses of the acquired land given its water use limitation." Page 8, Paragraph 2, Naci Water Project: The Naci Water Partners potentially could consider selling to a new partner: the Paso Robles Basin, whether the County entity or other. Perhaps there are willing sellers to carve out a base entitlement which could be augmented by shorter term purchases from other partners' shares. Page 9 "Important Considerations", line 2, what are "Potential water quality issues" associated with Naci lake water that would be limiting as a source?Page 10: General Assumptions: "Local groundwater deficits" require more precise determinations of boundaries, perhaps related to the same issue with "Zones" Page 10 SWP Assumptions: Need to determine definitively whether heavier pumping beyond the Red Zone impacts the Red Zone. And whether adding Supplemental Water to non Red Zone can improve Red Zone water levels. Same paragraph: Buying untreated SWP water farther east pre treatment would be cheaper and allow for more quantity to be acquired potentially. Cost of additional pipeline would have to be evaluated as part of viability review	County of San Luis Obispo GSA	pasogcp.com	3/29/2019 11:53:00 AM	
Dana Merrill	Project and Management Actions - Concepts	Topics of Discussion section 1. Equity bullet point page 1; define "heavy pumper"; is that volume based upon acreage or by crop (alfalfa vs winegrapes etc)? Projects should be paid via a combination of Capital Project funding and operational charges for recurring operating expenses. 2. Equity bullet #2: monitoring wells, negotiating water charges framework, video logging wells (determining Zone Boundaries), extraction system monitoring etc. could be funded at last initially by a per acre charge, probably on irrigated lands. 3. Bullets page 2: deminimus pumpers: Yes and No to complete exemption. Lower base fee of their own is logical. 4. Pumping allowances: Set a base fixed amount, likely between 1 ac ft/acre/year and 1.25 ac ft/acre/year regardless of irrigated crop grown. Use economics as a tool to encourage water to move to most efficient use within Ag uses. 5. Standarized uses should be Paso Basin oriented. Battany study a good source for one at least. 6. Ramp downs: 10 years to complete, start in 5 at soonest. Need to see what Supplemental water is required. A given hopefully is current County Ordinance regarding new irrigated land is renewed for 5 years or GSAs choose a new approach (don't let it expire and start land development and well drilling rush to put us farther behind). 7. Ramp downs need to be equal until Zone boundaries are established with research. 8. Don't cap carryover or users will make sure to pump to avoid losing 9. County fine to be State Water Contractor IF they will take action to get it going. If not, get different entity motivated to get this going asap to know if it is a viable option supported by those who will pay for it. County record so far is too little, too late on Supplemental sources to Basin in general. 10. State Water contractor could be paid with usage charges and property tax in combination. Many examples statewide to select from	County of San Luis Obispo GSA	pasogcp.com	3/29/2019 12:10:00 PM	
Dana Merrill	Project and Management Actions - Concepts	Re: changes in Pumping Allowance from Ag to M and I: most non Ag uses including Manufacturing and Industrial (M and I) which was mentioned and conversion to urban housing or ranchettes can attract a higher financial return on pumped water than Agriculture, Even tree crops, wine grapes and vegetables cannot compete with non Ag buyers of water whether groundwater or supplemental sources. Agriculture needs to be appreciated when it comes to pricing water. Ag is a key economic contributor today helping to drive the strong local economy. It is possible go the way of southern CA and other regions that can converted to non Ag uses. That could happen is Paso Robles if the combination of cutbacks and high price supplemental water makes it an obvious choice to convert to non Ag uses. Plus pressure from the state to build more housing. Those with high priced water to sell will profit in the near term but the agricultural character will change dramatically from the present. The allure of Paso Robles is not only the town but its setting, led by it becoming a world class wine destination. So be careful about moving Ag water to M and I or other uses, as mentioned as an possible strategy, as our very unique character could be lost.	County of San Luis Obispo GSA	pasogcp.com	3/30/2019 6:12:00 PM	
Dan Penkauskas	Additional Comments	I really like the job you've done - good research and analysis of the current state and several proposed solutions with their costs worked out. I particularly like the proposed cost of water for growers - a nominal cost for the first 12", but sharply (10x?) higher for drafts over that. Some growers have very deep pockets indeed, and only draconian rates after the first 12" will encourage them to comply.Thank you.	County of San Luis Obispo GSA	pasogcp.com	4/5/2019 12:29:00 PM	

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Name	Chapter & Section	Comment	GSA	Comment Source	Date/Time	Attachment(s)
Allen Duckworth	Ch. 9 Projects and Management Actions Fact Sheet and Discussion Points 9.2 Discussion Points	It appears that the priorities of the Draft Projects Summaries are in reverse order. Even in a bad year, the Paso Robles Basin and surrounding water shed, receives more than enough good clean rain water to meet our needs so it makes no sense to let that water run down the Salinas River to the Pacific Ocean then purchase water from the unreliable State Water Project that could potentially contaminate our pristine basin. Water from the State Water Project should never be at the top of the list as they have already allocated way more water than they will ever have so we could never count on that water being available when most needed. The pipeline projects are very expensive,should require an Environmental Impact Report and would best serve a limited group of property owners. Such projects would not meet the stated goal of providing equity between who benefits from projects and who pays for projects therefore should only be considered by the individual water districts whose members would be the primary benefactors ratherthan being part of the GSP. Taking advantage of natural recharge methods such as installing check dams in natural percolation areas to redirect more runoff water into the basin would be much more cost effective and benefit a larger portion of the basin. One project that should be at or near the top of the list is enlarging the Salinas Dam because that could restore the Salinas River to the required, year around surface flow which would greatly increase the basin recharge. This project would be financially advantageous because it would be eligible for Proposition 1 grants as well as Federal funds from the RAIL act which will be redirecting money from the failed highspeed rail project to California water storage projects. Let's get our priorities straight and concentrate on providing a sustainable water supply for all the residents rather than a water banking opportunity for a selectgroup of investors. This DRAFT plan looks just like the Assembly Bill 2453 that nearly 80% of the area voters have already rejected. Please listen to the will of the people!	County of San Luis Obispo GSA	pasogcp.com	4/13/2019 1:03:00 PM	
Sheila Lyons	Ch. 9 Projects and Management Actions Fact Sheet and Discussion Points 9.1 Fact Sheet	Has consideration been given to charging cannabis projects for their ability to irrigate from the PR Basin? The state is apparently already doing this. With all the cannabis projects coming into North County this should be considered. See link to state charges: https://www.waterboards.ca.gov/resources/fees/water_rights/docs/fy1819_finalfeeschedulesummary.pdf	County of San Luis Obispo GSA	pasogcp.com	4/11/2019 3:47:00 PM	
Verna Jigour	Ch. 9 Projects and Management Actions Fact Sheet and Discussion Points 9.1 Fact Sheet	"Local Rivers/Streams" Localized recharge of rainfall runoff before it enters a stream or river is also possible. Restoring detention storage functions on *vast areas of rangelands in the watershed* could capture excess stormwater flows more efficiently than engineered structures. Restored native woody and perennial plants, their root systems and associated soil ecosystems, would capture and route more precipitation directly to groundwater right where it falls circumventing the need to capture and divert flood flows to human-maintained basins. [See RainfalltoGroundwater for elaboration.] This is not a small source, as suggested in the second paragraph under Local Rivers/Streams. Applied to the entire watershed/catchment, this is an enormous potential source, as I've strived to point out in my comments on your process.		pasogcp.com	4/15/2019 9:48:00 PM	
Jerry Reaugh	Combined comments on Chapters 6, 7 & 8	The attached are my comments on Chapters 6,7,& 8. Regards, Jerry Reaugh	County of San Luis Obispo GSA	pasogcp.com	4/15/2019 11:52:00 AM	20190415_Reaugh
Sandi Matsumoto	Ch. 1001 Methodology for Identifying Potential Groundwater Dependent Ecosystem1001.1000 N/A	Please specify what field verification methods (e.g., isotope analysis, enhanced shallow groundwater monitoring) will be used to definitively determine whether potential GDEs are true GDEs. It is highly advised that multiple depth to groundwater measurements are used to verify whether an iGDE (or NC dataset polygon) is connected to groundwater, so that fluctuations in the groundwater regime can be adequately represented. The analysis described on p.7 to create Figure B-3 only relies on Spring 2017 depth data, which is also after the Jan 1, 2015 SGMA benchmark date. Also, according to the shallow monitoring well data gaps described in Chapter 5 and 7, there is insufficient data to confidently remove data for NC polygons that are >5km away from a shallow well. See Attachment D of this letter for six best practices when using groundwater data to verify the NC dataset.The NC dataset needs to be ground truthed with aerial photography to screen for changes in land use that many not be reflected in the NC dataset (e.g., recent development, cultivated agricultural land, obvious human-made features). Grouping multiple GDE polygons into larger units by location (proximity to each other) and principal aquifer will simplify the process ofevaluating potential effects on GDE due to groundwater conditions under GSP Chapter 7: Sustainable Management Criteria. Groundwater conditions within GDEs should be briefly described within the portion of the Basin Setting Section where GDEs are being identified. Not all GDEs are created equal. Some GDEs may contain legally protected species or ecologically rich communities, whereas other GDEs may be highly degraded with little conservation value. Including a description of the types of species (protected status, native versus non-native), habitat, and environmental beneficial uses (Refer to Attachment C for a list of freshwater species found in the Paso Robles Subbasin and refer to Worksheet 2, p.74 of GDE Guidance Document) can be helpful in assigning an ecological value to the GDEs. Identifying an ecological value of each GDE can help prioritize limited resources when considering GDEs as well as prioritizing legally protected species or habitat that may need special consideration when setting sustainable management criteria. Decisions to remove, keep, or add polygons from the NC dataset into a basin GDE map should be based on best availablescience in a manner that promotes transparency and accountability with stakeholders. Any polygons that are removed, added, or kept should be inventoried in the submitted shapefile to DWR, and mapped in the plan. We recommend revising Figure 4-11, Appendix B, and including it in Chapter 5 to reflect this change.		pasogcp.com	4/15/2019 1:20:00 PM	
Gail Schoettler	Additional Comments	Steve Sinton has been critical to the development of the local groundwater plan for the Paso Robles Basin, which desperately needs such a plan. I have watched the groundwater level fall for decades and now, with all the vineyards in the area, the time is more important than ever to ensure that the Basin can sustain all the agricultural and domestic uses. Agencies involved need time to implement the plan and evaluate how it is working so they can make adjustments as necessary. Given the long drought in California, the plan should also ensure that water levels be given time to stabilize. It is imperative that existing wells not go dry, so please take this into account as well. If results are not good, localities need to be given the opportunity to fix the problems before the Basin takes charge.	Shandon San Juan GSA	pasogcp.com	4/15/2019 3:20:00 PM	
Greg Grewal	Additional Comments	(See attachment)		PBCC Meeting	4/24/2019	20190425_Grewal
Dick McKinley	Public Comments from the City of Paso Robles GSA public hearing; Chapters 5-8	These are public comments from the City of Paso Robles GSA public hearing regarding Chapters 5-8. 1. Dale Gustin “Asked about the relationship of this draft GSP to the Steinbeck litigation. Noted that there has been a lot of rain in 2019, and if the GSP took that into account. The answer was given that the GSP was based on data prior to 2019 per DWR guidelines. 2. Gerry Stover “Asked about wastewater and was informed about the Recycled Water project currently underway, and the recent completion of the Tertiary Treatment portion of the Wastewater Treatment Plant.	City of Paso Robles GSA	Public Meeting; submitted via pasogcp.com	5/2/2019 9:07:00 AM	

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Name	Chapter & Section	Comment	GSA	Comment Source	Date/Time	Attachment(s)
William & Doris Land & Energy Co LLC	Additional Comments	Re: Sustainable Groundwater Management Act Ladies and Gentlemen: William & Doris Land & Energy Co., LLC is the owner of approximately 2,440 acres of open land in San Luis Obispo County identified as Assessor's Parcel Nos. 037-321-016 and 037-331-014. While that property has been irrigated with groundwater in the past, there has been no recent irrigation of the property. We have just become aware that the groundwater sustainability plan (the "GSP") being developed for the subbasin underlying our property under Sustainable Groundwater Management Act may deny our property the right to pump groundwater in the future because groundwater has not been applied to the property for a number of years. We write to express our strenuous opposition to any GSP that fails to recognize our overlying groundwater rights or our right to pump groundwater in the future. Precluding the exercise of our overlying rights simply because they have not recently been exercised would amount to an unconstitutional taking of those rights that could result in an enormous reduction in our land value. Should that occur, we would have no alternative but to bring an action for inverse condemnation and other claims to recover that lost value. We want to avoid that outcome. We therefore urge you to recognize the rights of our property and similarly situated lands to pump groundwater regardless of whether those rights have been recently exercised, and to not adopt any GSP that interferes with those rights or discriminates between currently irrigated land and land that has not recently been irrigated. Very Truly Yours, (signed) Manager		Letter to the County Board of Supervisors Office	5/8/2019	