ATASCADERO BASIN
Groundwater
Sustainability Agency

Executive Committee Meeting Agenda

Meeting Date: Wednesday, July 7, 2021

Meeting Time: 4:30 p.m.

Meeting Location: Templeton CSD Board Meeting Room
206 5th Street
Templeton, California 93465

1. Call to Order

2. Roll Call

3. Pledge of Allegiance

4. Order of Business
Executive Committee members may request to change the order of business.

5. Introductions

6. General Public Comments
The Executive Committee invites members of the public to address the committee on any subject that is within the purview of the committee and that is not on today's agenda. Comments shall be limited to three minutes.

7. Consent Agenda
The following items are considered routine and non-controversial by staff and may be approved by one motion if no member of the Executive Committee wishes an item removed. If discussion is desired, the item may be removed from the Consent Agenda by an Executive Committee member and will be considered separately. Questions or clarification may be made by the Executive Committee members without removal from the Consent Agenda. Individual items on the Consent Agenda are approved by the same vote that approves the Consent Agenda unless an item is pulled for separate consideration. Members of the public may comment on the Consent Agenda items.

   a. Minutes – April 7, 2021

8. Old Business:

9. New Business:
   a. Groundwater Sustainability Plan Public Draft
   b. Request for Future Items
   c. Next Meeting: October 6, 2021, 4:30 p.m.

10. Informational Items
    a. DWR Prop 1 Grant Progress Report, Q2 2021

11. Adjournment

ATASCADERO BASIN
Groundwater
Sustainability Agency

TO: Executive Committee

FROM: GSA Staff/ John Neil, Atascadero Mutual Water Company

DATE: July 7, 2021

SUBJECT: Agenda Item 7.a, Minutes from April 7, 2021 Meeting

The Executive Committee (Committee) of the Atascadero Basin Groundwater Sustainability Agency (GSA) held a meeting on Wednesday, April 7, 2021, at 4:30 p.m. via streaming video conference call due to the Covid-19 pandemic.

Roll Call: Chairperson Grigger Jones called the meeting to order at 4:35 p.m. Present at the Committee meeting were Voting Members Jones, Navid Fardanesh, Susan Funk, Debbie Arnold, and Rob Rossi. A quorum (minimum of 4 voting representatives) of the Committee was established. Voting Member John Hamon and Non-voting Member Tom Mora were absent.

Participating Staff and Consultants:

Atascadero Mutual Water Company – John Neil
County of San Luis Obispo – Angela Ford
Templeton Community Services District – Jeff Briltz
GEI Consultants – Mike Cornelius and Lydia Holland
Others in attendances: John Hollenbeck
(*) indicates part-time attendance

Order of Business: The Committee Members reviewed the order of the meeting's agenda and confirmed to conduct the meeting as presented in the agenda.

Introductions: None

General Public Comments: Chairperson Jones opened public comment and, seeing none, closed public comment.

Consent Agenda:

Agenda 7.a: February 4, 2020, Meeting Minutes – The Committee reviewed the minutes from the October 7, 2020, meeting. Member Funk noted that Debbie Arnold's first name was misspelled in the minutes, then made motion for approval of the minutes, seconded by Debbie Arnold.

Voice vote of Voting Members: Ayes – Jones, Fardanesh, Funk, Arnold, and Rossi. Nays – none. Motion carried.

Old Business Agenda: (None)

New Business Agenda:

Agenda 9.a: GSP Section 9, Projects and Management Actions – Neil introduced the agenda item and Mike Cornelius with GEI Consultants presented made a PowerPoint presentation. Mike described the adaptive management approach for managing the Basin and to develop projects to fill data gaps. Projects may include adding existing wells to the monitoring network, or development of a basin-specific groundwater model.

Member Funk asked what are the expectations for a groundwater model, and how might it affect planning horizon? Cornelius described the model as a mathematical representation of the basin, and that DWR expects the GSA to have solid hydrogeologic data to support the model, which is described in Section 4 of the GSP. The model allows the demand assumptions to be evaluated to develop trends in the basin's response and to compare these with monitoring data collected in the field. The modeling scenarios allows for developing results that are available for planning horizon evaluations to verify the Basin is being sustainably managed.

Member Rossi announced that the SMR Mutual Water Company will be taking their full entitlement of Nacimiento Water this year.

Member Funk asked if *de minimus* extraction criteria can be structured to verify the self-reporting, and Cornelius responded yes.

Member Funk asked how does groundwater level monitoring keep the basin from exceeding overuse? Cornelius responded by reminding the Executive Committee that DWR identifies the Basin as Very Low Priority, thus recognizing that the Basin has a long history of sustainable management activities. The formal monitoring of groundwater via the GSP with GSA oversight puts the establishes the formal management tools necessary to continue successful sustainability actions within the Basin by all stakeholders.

There was no public comment on this agenda item. Cornelius reminded the public to submit their comments via the web portal located at https://portal.atascaderobasin.com/.

A motion was made by member Fardanesh for the recommended action to post Section 9 to the web portal for a 45-day review/comment period, and the motion was seconded by Member Funk.

Voice vote of Voting Members: Ayes – Jones, Fardanesh, Funk, Arnold, and Rossi. Nays – none. Motion carried.

Agenda 9.b: GSP Section 10, Implementation Plan – Neil introduced the agenda item and Mike Cornelius with GEI Consultants presented made a PowerPoint presentation. He identified the use of adaptive management techniques for managing the Basin since the Basin is already sustainable. This technique allows the stakeholders to focus on specific actions and manage implementation costs.

The implementation plan considerations focus on reporting, funding and effects on local and regional areas. Member Funk asked if the AMWC will pay all the cost for implementation, and

Neil said no, and he reminded the members that the implementation cost allocations for all parties have not been established under the terms of the Memorandum of Agreement.

Member Funk asked if the cost of developing a groundwater model use grant funding when it becomes available, and Cornelius said grant funding cycles are unpredictable and the model is a first step implementation necessity and should be completed early, estimating it as a 12- to 18-month endeavor.

There was no public comment on this agenda item. Cornelius reminded the public to submit their comments via the web portal located at https://portal.atascaderobasin.com/.

A motion was made by member Fardanesh for the recommended action to post Section 9 to the web portal for a 45-day review/comment period, and the motion was seconded by Member Funk.

Voice vote of Voting Members: Ayes – Jones, Fardanesh, Funk, Arnold, and Rossi. Nays – none. Motion carried.

Agenda 9.c: Request for Future Items – The Committee did not offer any suggestions for future agenda items.

Agenda 9.d: Next Meeting: July 7, 2021, at 4:30 p.m. – The Committee did not offer any comments regarding the next scheduled meeting.

Informational Items:

Agenda 10.a: DWR Prop 1 Grant Progress Report, Q1 2021 – The Committee did not offer any comments.

Adjournment:

There being no further business to discuss, Chairperson Jones adjourned the meeting at 5:30 p.m.

Submitted by: ________________________________
Committee Member Rossi, Secretary

ATASCADERO BASIN
Groundwater
Sustainability Agency

TO: Executive Committee

FROM: GSA Staff/ John Neil, Atascadero Mutual Water Company

DATE: July 7, 2021

SUBJECT: Agenda Item 9.a, Groundwater Sustainability Plan Public Draft

RECOMMENDED ACTION:

Authorize staff to post a draft of the Atascadero Basin Groundwater Sustainability Plan on the Communications Portal for a 60-day public comment period.

DISCUSSION:

The Sustainable Groundwater Management Act (SGMA) became effective in January 2015. SGMA required the establishment of Groundwater Sustainability Agencies (GSA) by June 30, 2017, for all basins designated as medium- or high-priority by the Department of Water Resources (DWR). The Atascadero Basin was still considered part of the high-priority Paso Robles Basin at the time SGMA went into effect.

The DWR approved a basin boundary modification in October 2016 creating the Atascadero Basin, officially designated in the DWR's Bulletin 118 as Basin No. 3-004.11, Atascadero Area Groundwater Sub-basin of the Salinas Valley Basin. The Atascadero Basin was still classified medium- to high-priority, which subjected the basin to compliance with SGMA requirements.

The Memorandum of Agreement (MOA) forming the Atascadero Basin GSA became effective in May 2017. The purpose of the GSA was to develop and implement a Groundwater Sustainability Plan (GSP) for the Atascadero Basin. The GSA is governed by an Executive Committee.

The Executive Committee authorized its chair to send a notice to the DWR of the GSA's intent to prepare a GSP for the Atascadero Basin in January 2018.

The DWR released its draft re-prioritization of groundwater basins in the state in May 2018. The DWR re-classified the Atascadero Basin as being very-low priority, exempting it from the requirement to comply with SGMA. The re-prioritization of basins statewide was finalized in the fall of 2018.

The Executive Committee authorized staff to continue with preparation of a GSP in October 2018 even though the DWR re-classified the Atascadero Basin as being very-low priority, exempting it from SGMA requirements.

Between October 2018 and April 2021, GSA staff has been presenting the various draft sections of the GSP as they were completed to the Executive Committee for review and comment and has been publishing them on the Atascadero Basin communications portal for public review and comment.

Work on the Atascadero Basin GSP is nearing completion. Attached to this staff report is a draft of the GSP that includes all sections required by SGMA, which are listed below. Each section was reviewed by the GSA working group and your Executive Committee. Each section was posted on the GSA's communication portal for review and comment by interested parties. Comments received were incorporated into the draft of the GSP attached to this report.

1. Introduction
2. Agency Information
3. Description of Plan Area
4. Basin Setting
5. Groundwater Conditions
6. Water Budget
7. Monitoring Network
8. Sustainable Management Criteria
9. Projects & Management Actions
10. Implementation Plan
11. Notices and Communication
12. Interagency Agreements
13. References

Other items that are included in the GSP are an executive summary and a regulations cross-reference table.

Engagement of interested parties is a significant part of the GSP preparation process. To that end, a communications and engagement plan was developed to provide information on how interested parties can participate in the development of the GSP. The plan includes a website (www.atascaderobasin.com) and communications portal where interested parties can get information, sign up for the interested stakeholder e-mail list, and to see materials for past or upcoming meetings, education programs, and workshops related to the GSP development.

Because the Atascadero Basin is currently being managed sustainably, as evidenced by historic groundwater levels in the basin, there are no projects or management actions that are required to achieve sustainability at this time. Future projects and management actions may improve the understanding of the groundwater system to enhance the overall water management capability in the Atascadero Basin to continually meet existing and new requirements and accountability for improved and more efficient water management. One such project may be development of a groundwater model for the Atascadero Basin.

Projects and management actions will be implemented with an as-needed, adaptive-management approach, with decisions based largely on funding availability and the identified need at the time. The projects and management actions identified in the GSP are supported by the adaptive management strategy described therein, which allows for the GSA to respond to unexpected changes in conditions so that undesirable results can be avoided.

FISCAL IMPACT:

Fifty percent of the cost to develop the GSP is funded through a Proposition 1 grant awarded to the GSA by the DWR, with the remaining costs being a local match funded by the parties of the MOA.

ATTACHMENTS:

A. Draft Atascadero Basin Groundwater Sustainability Plan

Draft Atascadero Groundwater Sustainability Plan
July 2021

Prepared for: Atascadero Subbasin Groundwater Sustainability Agency

Table of Contents

Tables

List of Figures

Appendices

Abbreviations and Acronyms

AF	acre-feet
AFY	acre-feet per year
Basin Plan	Water Quality Control Plan for the Central Coastal Basin
BBMR	Basin Boundary Modification Application Report
bgs	below ground surface
BMP	Best Management Practice
CASGEM	California Statewide Groundwater Elevation Monitoring
CCAC	Central Coast Agriculture Coalition
CCRWQCB	Central Coast Regional Water Quality Control Board
CEDEN	California Environmental Data Exchange Network
CIMIS	California Irrigation Management Information System
COCs	Constituents of Concern
CSA	county services area
CSD	Community Services District
DDW	Division of Drinking Water
DMS	data management system
DWR	Department of Water Resources
EC	electrical conductivity
ETo	Evapotranspiration
ft/msl	feet above mean sea level
fm	Franciscan Formation
GAMA	Groundwater Ambient Monitoring and Assessment
GDEs	groundwater dependent ecosystems
GMP	Groundwater Management Plan
gmp	gallons per minute
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan also called Plan?
GSSI	Geoscience Support Services, Inc.
ILRP	Irrigated Lands Regulatory Program
InSAR	interferometric synthetic aperture radar
IRWMP	Integrated Regional Water Management Program
Kas	Atascadero Formation
Ktsh	Toro Formation
LOS	Level of Severity
LUCE	Land Use and Circulation Element
MCL	Maximum Contaminant Level
mg/L	milligrams per liter
MOA	Memorandum of Agreement
MWC	Mutual Water Company
MWR	Master Water Report
NASA	National Aeronautics and Space Administration
NCCAG	Natural Communities Commonly Associated with Groundwater

NCDC	National Climatic Data Center
NOAA	National Oceanic and Atmospheric Administration
NWIS	National Water Information System
NWP	Nacimiento Water Project
OSWCR	Online System for Well Completion Reports
Qa	Alluvium
QTp	Paso Robles Formation
RCPP	Regional Conservation Partnership Program
RWP	Recycled Water Policy
RMS	Representative Monitoring Sites
RPE	reference point elevations
RWQCB	Regional Water Quality Control Board
RWQCB Objective	Basin Plan Median Groundwater Quality Objective
SB	Senate Bill
SDWIS	Safe Drinking Water Information System
SGMA	State Groundwater Management Act
SGMP	Sustainable Groundwater Management Planning
SGWP	Sustainable Groundwater Planning
SLOFCWCD	San Luis Obispo Flood Control and Water Conservation District
SMC	Sustainable Management Criteria
SMCL	Secondary Maximum Contaminant Level
SMR	Santa Margarita Ranch
SNMP	Salt and Nutrient Management Plan
State Water Board	California State Water Resources Control Board
SWAMP	State Surface Water Ambient Monitoring Program
Basin	Atascadero Area Groundwater Basin
TDS	Total Dissolved Solids
Tm/Tml	Miocene-age Monterey Formation
Tsm	Santa Margarita Formation
Tv	Oligocene-age Vaqueros Formation
ug/l	micrograms per liter
U.S.	United States
USACE	U.S. Army Corps of Engineers
USGS	United States Geologic Survey
UWMP	Urban Water Management Plan
Water Code	State of California Water Code
WCR	well completion report
WEEG	Water and Energy Efficiency Grants
WQCP	Water Quality Control Plan for the Central Coast Basin
WQO	Water Quality Objectives

Regulations Cross-Reference

Atascadero Groundwater Sustainability Plan GSP Regulations Checklist (Elements Guide)

This checklist of the GSP Elements and indicates where in the GSP each element of the regulations is addressed.

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
§ 354.			**Introduction to Plan Contents**					
			This Article describes the required contents of Plans submitted to the Department for evaluation, including administrative information, a description of the basin setting, sustainable management criteria, description of the monitoring network, and projects and management actions.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Section 10733.2, Water Code.					
SubArticle 1.			**Administrative Information**					
§ 354.2.			**Introduction to Administrative Information**					
			This Subarticle describes information in the Plan relating to administrative and other general information about the Agency that has adopted the Plan and the area covered by the Plan.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Section 10733.2, Water Code.					
§ 354.4.			**General Information**					
			Each Plan shall include the following general information:					
(a)			An executive summary written in plain language that provides an overview of the Plan and description of groundwater conditions in the basin.					
(b)			A list of references and technical studies relied upon by the Agency in developing the Plan. Each Agency shall provide to the Department electronic copies of reports and other documents and materials cited as references that are not generally available to the public.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10733.2 and 10733.4, Water Code.					
§ 354.6.			**Agency Information**					
			When submitting an adopted Plan to the Department, the Agency shall include a copy of the information provided pursuant to Water Code Section 10723.8, with any updates, if necessary, along with the following information:					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
(a)			The name and mailing address of the Agency.					
(b)			The organization and management structure of the Agency, identifying persons with management authority for implementation of the Plan.					
(c)			The name and contact information, including the phone number, mailing address and electronic mail address, of the plan manager.					
(d)			The legal authority of the Agency, with specific reference to citations setting forth the duties, powers, and responsibilities of the Agency, demonstrating that the Agency has the legal authority to implement the Plan.					
(e)			An estimate of the cost of implementing the Plan and a general description of how the Agency plans to meet those costs.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10723.8, 10727.2, and 10733.2, Water Code.					
§ 354.8.			**Description of Plan Area**					
			Each Plan shall include a description of the geographic areas covered, including the following information:					
(a)			One or more maps of the basin that depict the following, as applicable:					
	(1)		The area covered by the Plan, delineating areas managed by the Agency as an exclusive Agency and any areas for which the Agency is not an exclusive Agency, and the name and location of any adjacent basins.					
	(2)		Adjudicated areas, other Agencies within the basin, and areas covered by an Alternative.					
	(3)		Jurisdictional boundaries of federal or state land (including the identity of the agency with jurisdiction over that land), tribal land, cities, counties, agencies with water management responsibilities, and areas covered by relevant general plans.					
	(4)		Existing land use designations and the identification of water use sector and water source type.					
	(5)		The density of wells per square mile, by dasymetric or similar mapping techniques, showing the general distribution of agricultural, industrial, and domestic water supply wells in the basin, including de minimis extractors, and the location and extent of communities dependent upon groundwater, utilizing data provided by the Department, as specified in Section 353.2, or the best available information.					
(b)			A written description of the Plan area, including a summary of the jurisdictional areas and other features depicted on the map.					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
(c)			Identification of existing water resource monitoring and management programs, and description of any such programs the Agency plans to incorporate in its monitoring network or in development of its Plan. The Agency may coordinate with existing water resource monitoring and management programs to incorporate and adopt that program as part of the Plan.					
(d)			A description of how existing water resource monitoring or management programs may limit operational flexibility in the basin, and how the Plan has been developed to adapt to those limits.					
(e)			A description of conjunctive use programs in the basin.					
(f)			A plain language description of the land use elements or topic categories of applicable general plans that includes the following:					
	(1)		A summary of general plans and other land use plans governing the basin.					
	(2)		A general description of how implementation of existing land use plans may change water demands within the basin or affect the ability of the Agency to achieve sustainable groundwater management over the planning and implementation horizon, and how the Plan addresses those potential effects					
	(3)		A general description of how implementation of the Plan may affect the water supply assumptions of relevant land use plans over the planning and implementation horizon.					
	(4)		A summary of the process for permitting new or replacement wells in the basin, including adopted standards in local well ordinances, zoning codes, and policies contained in adopted land use plans.					
	(5)		To the extent known, the Agency may include information regarding the implementation of land use plans outside the basin that could affect the ability of the Agency to achieve sustainable groundwater management.					
(g)			A description of any of the additional Plan elements included in Water Code Section 10727.4 that the Agency determines to be appropriate.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10720.3, 10727.2, 10727.4, 10733, and 10733.2, Water Code.					
§ 354.10.			**Notice and Communication**					
			Each Plan shall include a summary of information relating to notification and communication by the Agency with other agencies and interested parties including the following:					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
(a)			A description of the beneficial uses and users of groundwater in the basin, including the land uses and property interests potentially affected by the use of groundwater in the basin, the types of parties representing those interests, and the nature of consultation with those parties.					
(b)			A list of public meetings at which the Plan was discussed or considered by the Agency.					
(c)			Comments regarding the Plan received by the Agency and a summary of any responses by the Agency.					
(d)			A communication section of the Plan that includes the following:					
	(1)		An explanation of the Agency's decision-making process.					
	(2)		Identification of opportunities for public engagement and a discussion of how public input and response will be used.					
	(3)		A description of how the Agency encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin.					
	(4)		The method the Agency shall follow to inform the public about progress implementing the Plan, including the status of projects and actions.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10723.2, 10727.8, 10728.4, and 10733.2, Water Code					
SubArticle 2.			**Basin Setting**					
§ 354.12.			**Introduction to Basin Setting**					
			This Subarticle describes the information about the physical setting and characteristics of the basin and current conditions of the basin that shall be part of each Plan, including the identification of data gaps and levels of uncertainty, which comprise the basin setting that serves as the basis for defining and assessing reasonable sustainable management criteria and projects and management actions. Information provided pursuant to this Subarticle shall be prepared by or under the direction of a professional geologist or professional engineer.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Section 10733.2, Water Code.					
§ 354.14.			**Hydrogeologic Conceptual Model**					
(a)			Each Plan shall include a descriptive hydrogeologic conceptual model of the basin based on technical studies and qualified maps that characterizes the physical components and interaction of the surface water and groundwater systems in the basin.					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
(b)			The hydrogeologic conceptual model shall be summarized in a written description that includes the following:					
	(1)		The regional geologic and structural setting of the basin including the immediate surrounding area, as necessary for geologic consistency.					
	(2)		Lateral basin boundaries, including major geologic features that significantly affect groundwater flow.					
	(3)		The definable bottom of the basin.					
	(4)		Principal aquifers and aquitards, including the following information:					
		(A)	Formation names, if defined.					
		(B)	Physical properties of aquifers and aquitards, including the vertical and lateral extent, hydraulic conductivity, and storativity, which may be based on existing technical studies or other best available information.					
		(C)	Structural properties of the basin that restrict groundwater flow within the principal aquifers, including information regarding stratigraphic changes, truncation of units, or other features.					
		(D)	General water quality of the principal aquifers, which may be based on information derived from existing technical studies or regulatory programs.					
		(E)	Identification of the primary use or uses of each aquifer, such as domestic, irrigation, or municipal water supply.					
	(5)		Identification of data gaps and uncertainty within the hydrogeologic conceptual model					
(c)			The hydrogeologic conceptual model shall be represented graphically by at least two scaled cross-sections that display the information required by this section and are sufficient to depict major stratigraphic and structural features in the basin.					
(d)			Physical characteristics of the basin shall be represented on one or more maps that depict the following:					
	(1)		Topographic information derived from the U.S. Geological Survey or another reliable source.					
	(2)		Surficial geology derived from a qualified map including the locations of cross-sections required by this Section.					
	(3)		Soil characteristics as described by the appropriate Natural Resources Conservation Service soil survey or other applicable studies.					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
	(4)		Delineation of existing recharge areas that substantially contribute to the replenishment of the basin, potential recharge areas, and discharge areas, including significant active springs, seeps, and wetlands within or adjacent to the basin.					
	(5)		Surface water bodies that are significant to the management of the basin.					
	(6)		The source and point of delivery for imported water supplies.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10727.2, 10733, and 10733.2, Water Code.					
§ 354.16.			**Groundwater Conditions**					
			Each Plan shall provide a description of current and historical groundwater conditions in the basin, including data from January 1, 2015, to current conditions, based on the best available information that includes the following:					
(a)			Groundwater elevation data demonstrating flow directions, lateral and vertical gradients, and regional pumping patterns, including:					
	(1)		Groundwater elevation contour maps depicting the groundwater table or potentiometric surface associated with the current seasonal high and seasonal low for each principal aquifer within the basin.					
	(2)		Hydrographs depicting long-term groundwater elevations, historical highs and lows, and hydraulic gradients between principal aquifers.					
(b)			A graph depicting estimates of the change in groundwater in storage, based on data, demonstrating the annual and cumulative change in the volume of groundwater in storage between seasonal high groundwater conditions, including the annual groundwater use and water year type.					
(c)			Seawater intrusion conditions in the basin, including maps and cross-sections of the seawater intrusion front for each principal aquifer.					
(d)			Groundwater quality issues that may affect the supply and beneficial uses of groundwater, including a description and map of the location of known groundwater contamination sites and plumes.					
(e)			The extent, cumulative total, and annual rate of land subsidence, including maps depicting total subsidence, utilizing data available from the Department, as specified in Section 353.2, or the best available information.					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
(f)			Identification of interconnected surface water systems within the basin and an estimate of the quantity and timing of depletions of those systems, utilizing data available from the Department, as specified in Section 353.2, or the best available information.					
(g)			Identification of groundwater dependent ecosystems within the basin, utilizing data available from the Department, as specified in Section 353.2, or the best available information.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10723.2, 10727.2, 10727.4, and 10733.2, Water Code.					
§ 354.18.			**Water Budget**					
(a)			Each Plan shall include a water budget for the basin that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including historical, current and projected water budget conditions, and the change in the volume of water stored. Water budget information shall be reported in tabular and graphical form.					
(b)			The water budget shall quantify the following, either through direct measurements or estimates based on data:					
	(1)		Total surface water entering and leaving a basin by water source type.					
	(2)		Inflow to the groundwater system by water source type, including subsurface groundwater inflow and infiltration of precipitation, applied water, and surface water systems, such as lakes, streams, rivers, canals, springs and conveyance systems.					
	(3)		Outflows from the groundwater system by water use sector, including evapotranspiration, groundwater extraction, groundwater discharge to surface water sources, and subsurface groundwater outflow.					
	(4)		The change in the annual volume of groundwater in storage between seasonal high conditions.					
	(5)		If overdraft conditions occur, as defined in Bulletin 118, the water budget shall include a quantification of overdraft over a period of years during which water year and water supply conditions approximate average conditions.					
	(6)		The water year type associated with the annual supply, demand, and change in groundwater stored.					
	(7)		An estimate of sustainable yield for the basin.					
(c)			Each Plan shall quantify the current, historical, and projected water budget for the basin as follows:					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
	(1)		Current water budget information shall quantify current inflows and outflows for the basin using the most recent hydrology, water supply, water demand, and land use information.					
	(2)		Historical water budget information shall be used to evaluate availability or reliability of past surface water supply deliveries and aquifer response to water supply and demand trends relative to water year type. The historical water budget shall include the following:					
		(A)	A quantitative evaluation of the availability or reliability of historical surface water supply deliveries as a function of the historical planned versus actual annual surface water deliveries, by surface water source and water year type, and based on the most recent ten years of surface water supply information.					
		(B)	A quantitative assessment of the historical water budget, starting with the most recently available information and extending back a minimum of 10 years, or as is sufficient to calibrate and reduce the uncertainty of the tools and methods used to estimate and project future water budget information and future aquifer response to proposed sustainable groundwater management practices over the planning and implementation horizon.					
		(C)	A description of how historical conditions concerning hydrology, water demand, and surface water supply availability or reliability have impacted the ability of the Agency to operate the basin within sustainable yield. Basin hydrology may be characterized and evaluated using water year type.					
	(3)		Projected water budgets shall be used to estimate future baseline conditions of supply, demand, and aquifer response to Plan implementation, and to identify the uncertainties of these projected water budget components. The projected water budget shall utilize the following methodologies and assumptions to estimate future baseline conditions concerning hydrology, water demand and surface water supply availability or reliability over the planning and implementation horizon:					
		(A)	Projected hydrology shall utilize 50 years of historical precipitation, evapotranspiration, and streamflow information as the baseline condition for estimating future hydrology. The projected hydrology information shall also be applied as the baseline condition used to evaluate future scenarios of hydrologic uncertainty associated with projections of climate change and sea level rise.					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
		(B)	Projected water demand shall utilize the most recent land use, evapotranspiration, and crop coefficient information as the baseline condition for estimating future water demand. The projected water demand information shall also be applied as the baseline condition used to evaluate future scenarios of water demand uncertainty associated with projected changes in local land use planning, population growth, and climate.					
		(C)	Projected surface water supply shall utilize the most recent water supply information as the baseline condition for estimating future surface water supply. The projected surface water supply shall also be applied as the baseline condition used to evaluate future scenarios of surface water supply availability and reliability as a function of the historical surface water supply identified in Section 354.18(c)(2)(A), and the projected changes in local land use planning, population growth, and climate.					
(d)			The Agency shall utilize the following information provided, as available, by the Department pursuant to Section 353.2, or other data of comparable quality, to develop the water budget:					
	(1)		Historical water budget information for mean annual temperature, mean annual precipitation, water year type, and land use.					
	(2)		Current water budget information for temperature, water year type, evapotranspiration, and land use.					
	(3)		Projected water budget information for population, population growth, climate change, and sea level rise.					
(e)			Each Plan shall rely on the best available information and best available science to quantify the water budget for the basin in order to provide an understanding of historical and projected hydrology, water demand, water supply, land use, population, climate change, sea level rise, groundwater and surface water interaction, and subsurface groundwater flow. If a numerical groundwater and surface water model is not used to quantify and evaluate the projected water budget conditions and the potential impacts to beneficial uses and users of groundwater, the Plan shall identify and describe an equally effective method, tool, or analytical model to evaluate projected water budget conditions.					
(f)			The Department shall provide the California Central Valley Groundwater-Surface Water Simulation Model (C2VSIM) and the Integrated Water Flow Model (IWFM) for use by Agencies in developing the water budget. Each Agency may choose to use a different groundwater and surface water model, pursuant to Section 352.4.					
			Note: Authority cited: Section 10733.2, Water Code.					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
			Reference: Sections 10721, 10723.2, 10727.2, 10727.6, 10729, and 10733.2, Water Code.					
§ 354.20.			**Management Areas**					
(a)			Each Agency may define one or more management areas within a basin if the Agency has determined that creation of management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives than the basin at large, provided that undesirable results are defined consistently throughout the basin.					
(b)			A basin that includes one or more management areas shall describe the following in the Plan:					
	(1)		The reason for the creation of each management area.					
	(2)		The minimum thresholds and measurable objectives established for each management area, and an explanation of the rationale for selecting those values, if different from the basin at large.					
	(3)		The level of monitoring and analysis appropriate for each management area.					
	(4)		An explanation of how the management area can operate under different minimum thresholds and measurable objectives without causing undesirable results outside the management area, if applicable.					
(c)			If a Plan includes one or more management areas, the Plan shall include descriptions, maps, and other information required by this Subarticle sufficient to describe conditions in those areas.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10733.2 and 10733.4, Water Code.					
SubArticle 3.			**Sustainable Management Criteria**					
§ 354.22.			**Introduction to Sustainable Management Criteria**					
			This Subarticle describes criteria by which an Agency defines conditions in its Plan that constitute sustainable groundwater management for the basin, including the process by which the Agency shall characterize undesirable results, and establish minimum thresholds and measurable objectives for each applicable sustainability indicator.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Section 10733.2, Water Code.					
§ 354.24.			**Sustainability Goal**					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
			Each Agency shall establish in its Plan a sustainability goal for the basin that culminates in the absence of undesirable results within 20 years of the applicable statutory deadline. The Plan shall include a description of the sustainability goal, including information from the basin setting used to establish the sustainability goal, a discussion of the measures that will be implemented to ensure that the basin will be operated within its sustainable yield, and an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10721, 10727, 10727.2, 10733.2, and 10733.8, Water Code.					
§ 354.26.			**Undesirable Results**					
(a)			Each Agency shall describe in its Plan the processes and criteria relied upon to define undesirable results applicable to the basin. Undesirable results occur when significant and unreasonable effects for any of the sustainability indicators are caused by groundwater conditions occurring throughout the basin.					
(b)			The description of undesirable results shall include the following:					
	(1)		The cause of groundwater conditions occurring throughout the basin that would lead to or has led to undesirable results based on information described in the basin setting, and other data or models as appropriate.					
	(2)		The criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each applicable sustainability indicator. The criteria shall be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.					
	(3)		Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results.					
(c)			The Agency may need to evaluate multiple minimum thresholds to determine whether an undesirable result is occurring in the basin. The determination that undesirable results are occurring may depend upon measurements from multiple monitoring sites, rather than a single monitoring site.					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
(d)			An Agency that is able to demonstrate that undesirable results related to one or more sustainability indicators are not present and are not likely to occur in a basin shall not be required to establish criteria for undesirable results related to those sustainability indicators.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10721, 10723.2, 10727.2, 10733.2, and 10733.8, Water Code.					
§ 354.28.			**Minimum Thresholds**					
(a)			Each Agency in its Plan shall establish minimum thresholds that quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results as described in Section 354.26.					
(b)			The description of minimum thresholds shall include the following:					
	(1)		The information and criteria relied upon to establish and justify the minimum thresholds for each sustainability indicator. The justification for the minimum threshold shall be supported by information provided in the basin setting, and other data or models as appropriate, and qualified by uncertainty in the understanding of the basin setting.					
	(2)		The relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators.					
	(3)		How minimum thresholds have been selected to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.					
	(4)		How minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.					
	(5)		How state, federal, or local standards relate to the relevant sustainability indicator. If the minimum threshold differs from other regulatory standards, the Agency shall explain the nature of and basis for the difference.					
	(6)		How each minimum threshold will be quantitatively measured, consistent with the monitoring network requirements described in Subarticle 4.					
(c)			Minimum thresholds for each sustainability indicator shall be defined as follows:					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
	(1)		Chronic Lowering of Groundwater Levels. 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. Minimum thresholds for chronic lowering of groundwater levels shall be supported by the following:					
		(A)	The rate of groundwater elevation decline based on historical trends, water year type, and projected water use in the basin.					
		(B)	Potential effects on other sustainability indicators.					
	(2)		Reduction of Groundwater Storage. 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.					
	(3)		Seawater Intrusion. The minimum threshold for seawater intrusion shall be defined by a chloride concentration isocontour for each principal aquifer where seawater intrusion may lead to undesirable results. Minimum thresholds for seawater intrusion shall be supported by the following:					
		(A)	Maps and cross-sections of the chloride concentration isocontour that defines the minimum threshold and measurable objective for each principal aquifer.					
		(B)	A description of how the seawater intrusion minimum threshold considers the effects of current and projected sea levels.					
	(4)		Degraded Water Quality. The minimum threshold for degraded water quality shall be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality as determined by the Agency that may lead to undesirable results. 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. In setting minimum thresholds for degraded water quality, the Agency shall consider local, state, and federal water quality standards applicable to the basin.					
	(5)		Land Subsidence. 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. Minimum thresholds for land subsidence shall be supported by the following:					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
		(A)	Identification of land uses and property interests that have been affected or are likely to be affected by land subsidence in the basin, including an explanation of how the Agency has determined and considered those uses and interests, and the Agency's rationale for establishing minimum thresholds in light of those effects.					
		(B)	Maps and graphs showing the extent and rate of land subsidence in the basin that defines the minimum threshold and measurable objectives.					
	(6)		Depletions of Interconnected Surface Water. 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. The minimum threshold established for depletions of interconnected surface water shall be supported by the following:					
		(A)	The location, quantity, and timing of depletions of interconnected surface water.					
		(B)	A description of the groundwater and surface water model used to quantify surface water depletion. If a numerical groundwater and surface water model is not used to quantify surface water depletion, the Plan shall identify and describe an equally effective method, tool, or analytical model to accomplish the requirements of this Paragraph.					
(d)			An Agency may establish a representative minimum threshold for groundwater elevation to serve as the value for multiple sustainability indicators, where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual minimum thresholds as supported by adequate evidence.					
(e)			An Agency that has demonstrated that undesirable results related to one or more sustainability indicators are not present and are not likely to occur in a basin, as described in Section 354.26, shall not be required to establish minimum thresholds related to those sustainability indicators.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10723.2, 10727.2, 10733, 10733.2, and 10733.8, Water Code.					
§ 354.30.			**Measurable Objectives**					
(a)			Each Agency shall establish measurable objectives, including interim milestones in increments of five years, to achieve the sustainability goal for the basin within 20 years of Plan implementation and to continue to sustainably manage the groundwater basin over the planning and implementation horizon.					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
(b)			Measurable objectives shall be established for each sustainability indicator, based on quantitative values using the same metrics and monitoring sites as are used to define the minimum thresholds.					
(c)			Measurable objectives shall provide a reasonable margin of operational flexibility under adverse conditions which shall take into consideration components such as historical water budgets, seasonal and long-term trends, and periods of drought, and be commensurate with levels of uncertainty.					
(d)			An Agency may establish a representative measurable objective for groundwater elevation to serve as the value for multiple sustainability indicators where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual measurable objectives as supported by adequate evidence.					
(e)			Each Plan shall describe a reasonable path to achieve the sustainability goal for the basin within 20 years of Plan implementation, including a description of interim milestones for each relevant sustainability indicator, using the same metric as the measurable objective, in increments of five years. The description shall explain how the Plan is likely to maintain sustainable groundwater management over the planning and implementation horizon.					
(f)			Each Plan may include measurable objectives and interim milestones for additional Plan elements described in Water Code Section 10727.4 where the Agency determines such measures are appropriate for sustainable groundwater management in the basin.					
(g)			An Agency may establish measurable objectives that exceed the reasonable margin of operational flexibility for the purpose of improving overall conditions in the basin, but failure to achieve those objectives shall not be grounds for a finding of inadequacy of the Plan.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10727.2, 10727.4, and 10733.2, Water Code.					
SubArticle 4.			**Monitoring Networks**					
§ 354.32.			**Introduction to Monitoring Networks**					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
			This Subarticle describes the monitoring network that shall be developed for each basin, including monitoring objectives, monitoring protocols, and data reporting requirements. The monitoring network shall promote the collection of data of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the basin and evaluate changing conditions that occur through implementation of the Plan.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Section 10733.2, Water Code.					
§ 354.34.			**Monitoring Network**					
(a)			Each Agency shall develop a monitoring network capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate Plan implementation.					
(b)			Each Plan shall include a description of the monitoring network objectives for the basin, including an explanation of how the network will be developed and implemented to monitor groundwater and related surface conditions, and the interconnection of surface water and groundwater, with sufficient temporal frequency and spatial density to evaluate the affects and effectiveness of Plan implementation. The monitoring network objectives shall be implemented to accomplish the following:					
	(1)		Demonstrate progress toward achieving measurable objectives described in the Plan.					
	(2)		Monitor impacts to the beneficial uses or users of groundwater.					
	(3)		Monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds.					
	(4)		Quantify annual changes in water budget components.					
(c)			Each monitoring network shall be designed to accomplish the following for each sustainability indicator:					
	(1)		Chronic Lowering of Groundwater Levels. Demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features by the following methods:					
		(A)	A sufficient density of monitoring wells to collect representative measurements through depth-discrete perforated intervals to characterize the groundwater table or potentiometric surface for each principal aquifer.					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
		(B)	Static groundwater elevation measurements shall be collected at least two times per year, to represent seasonal low and seasonal high groundwater conditions.					
	(2)		Reduction of Groundwater Storage. Provide an estimate of the change in annual groundwater in storage.					
	(3)		Seawater Intrusion. Monitor seawater intrusion using chloride concentrations, or other measurements convertible to chloride concentrations, so that the current and projected rate and extent of seawater intrusion for each applicable principal aquifer may be calculated.					
	(4)		Degraded Water Quality. Collect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues.					
	(5)		Land Subsidence. Identify the rate and extent of land subsidence, which may be measured by extensometers, surveying, remote sensing technology, or other appropriate method.					
	(6)		Depletions of Interconnected Surface Water. Monitor surface water and groundwater, where interconnected surface water conditions exist, to characterize the spatial and temporal exchanges between surface water and groundwater, and to calibrate and apply the tools and methods necessary to calculate depletions of surface water caused by groundwater extractions. The monitoring network shall be able to characterize the following:					
		(A)	Flow conditions including surface water discharge, surface water head, and baseflow contribution.					
		(B)	Identifying the approximate date and location where ephemeral or intermittent flowing streams and rivers cease to flow, if applicable.					
		(C)	Temporal change in conditions due to variations in stream discharge and regional groundwater extraction.					
		(D)	Other factors that may be necessary to identify adverse impacts on beneficial uses of the surface water.					
(d)			The monitoring network shall be designed to ensure adequate coverage of sustainability indicators. If management areas are established, the quantity and density of monitoring sites in those areas shall be sufficient to evaluate conditions of the basin setting and sustainable management criteria specific to that area.					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
(e)			A Plan may utilize site information and monitoring data from existing sources as part of the monitoring network.					
(f)			The Agency shall determine the density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends based upon the following factors:					
	(1)		Amount of current and projected groundwater use.					
	(2)		Aquifer characteristics, including confined or unconfined aquifer conditions, or other physical characteristics that affect groundwater flow.					
	(3)		Impacts to beneficial uses and users of groundwater and land uses and property interests affected by groundwater production, and adjacent basins that could affect the ability of that basin to meet the sustainability goal.					
	(4)		Whether the Agency has adequate long-term existing monitoring results or other technical information to demonstrate an understanding of aquifer response.					
(g)			Each Plan shall describe the following information about the monitoring network:					
	(1)		Scientific rationale for the monitoring site selection process.					
	(2)		Consistency with data and reporting standards described in Section 352.4. If a site is not consistent with those standards, the Plan shall explain the necessity of the site to the monitoring network, and how any variation from the standards will not affect the usefulness of the results obtained.					
	(3)		For each sustainability indicator, the quantitative values for the minimum threshold, measurable objective, and interim milestones that will be measured at each monitoring site or representative monitoring sites established pursuant to Section 354.36.					
(h)			The 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.					
(i)			The monitoring protocols developed by each Agency shall include a description of technical standards, data collection methods, and other procedures or protocols pursuant to Water Code Section 10727.2(f) for monitoring sites or other data collection facilities to ensure that the monitoring network utilizes comparable data and methodologies.					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
(j)			An Agency that has demonstrated that undesirable results related to one or more sustainability indicators are not present and are not likely to occur in a basin, as described in Section 354.26, shall not be required to establish a monitoring network related to those sustainability indicators.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10723.2, 10727.2, 10727.4, 10728, 10733, 10733.2, and 10733.8, Water Code					
§ 354.36.			**Representative Monitoring**					
			Each Agency may designate a subset of monitoring sites as representative of conditions in the basin or an area of the basin, as follows:					
(a)			Representative monitoring sites may be designated by the Agency as the point at which sustainability indicators are monitored, and for which quantitative values for minimum thresholds, measurable objectives, and interim milestones are defined.					
(b)			(b) Groundwater elevations may be used as a proxy for monitoring other sustainability indicators if the Agency demonstrates the following:					
	(1)		Significant correlation exists between groundwater elevations and the sustainability indicators for which groundwater elevation measurements serve as a proxy.					
	(2)		Measurable objectives established for groundwater elevation shall include a reasonable margin of operational flexibility taking into consideration the basin setting to avoid undesirable results for the sustainability indicators for which groundwater elevation measurements serve as a proxy.					
(c)			The designation of a representative monitoring site shall be supported by adequate evidence demonstrating that the site reflects general conditions in the area.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10727.2 and 10733.2, Water Code					
§ 354.38.			**Assessment and Improvement of Monitoring Network**					
(a)			Each Agency shall review the monitoring network and include an evaluation in the Plan and each five-year assessment, including a determination of uncertainty and whether there are data gaps that could affect the ability of the Plan to achieve the sustainability goal for the basin.					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
(b)			Each Agency shall identify data gaps wherever the basin does not contain a sufficient number of monitoring sites, does not monitor sites at a sufficient frequency, or utilizes monitoring sites that are unreliable, including those that do not satisfy minimum standards of the monitoring network adopted by the Agency.					
(c)			If the monitoring network contains data gaps, the Plan shall include a description of the following:					
	(1)		The location and reason for data gaps in the monitoring network.					
	(2)		Local issues and circumstances that limit or prevent monitoring.					
(d)			Each Agency shall describe steps that will be taken to fill data gaps before the next five-year assessment, including the location and purpose of newly added or installed monitoring sites.					
(e)			Each Agency shall adjust the monitoring frequency and density of monitoring sites to provide an adequate level of detail about site-specific surface water and groundwater conditions and to assess the effectiveness of management actions under circumstances that include the following:					
	(1)		Minimum threshold exceedances.					
	(2)		Highly variable spatial or temporal conditions.					
	(3)		Adverse impacts to beneficial uses and users of groundwater.					
	(4)		The potential to adversely affect the ability of an adjacent basin to implement its Plan or impede achievement of sustainability goals in an adjacent basin.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10723.2, 10727.2, 10728.2, 10733, 10733.2, and 10733.8, Water Code					
§ 354.40.			**Reporting Monitoring Data to the Department**					
			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.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10728, 10728.2, 10733.2, and 10733.8, Water Code.					
SubArticle 5.			**Projects and Management Actions**					
§ 354.42.			**Introduction to Projects and Management Actions**					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
			This Subarticle describes the criteria for projects and management actions to be included in a Plan to meet the sustainability goal for the basin in a manner that can be maintained over the planning and implementation horizon.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Section 10733.2, Water Code.					
§ 354.44.			**Projects and Management Actions**					
(a)			Each Plan shall include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.					
(b)			Each Plan shall include a description of the projects and management actions that include the following:					
	(1)		A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent. The Plan shall include the following:					
		(A)	A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management actions, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.					
		(B)	The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.					
	(2)		If overdraft conditions are identified through the analysis required by Section 354.18, the Plan shall describe projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.					
	(3)		A summary of the permitting and regulatory process required for each project and management action.					
	(4)		The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.					
	(5)		An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.					

Article 5.			Plan Contents for Atascadero Basin	GSP Document References				
				Page Numbers of Plan	Or Section Numbers	Or Figure Numbers	Or Table Numbers	Notes
	(6)		An explanation of 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.					
	(7)		A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.					
	(8)		A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.					
	(9)		A description of the management of groundwater extractions and recharge to ensure that chronic lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels or storage during other periods.					
(c)			Projects and management actions shall be supported by best available information and best available science.					
(d)			An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.					
			Note: Authority cited: Section 10733.2, Water Code.					
			Reference: Sections 10727.2, 10727.4, and 10733.2, Water Code.					

Executive Summary

1. Introduction to Salinas Valley Basin Atascadero Area Groundwater Sustainability Plan

1.1 Purpose of the Groundwater Sustainability Plan

In 2014, the state of California enacted the Sustainable Groundwater Management Act (SGMA), Section 10720, et. al., of the State Water Code (Water Code). This law requires groundwater basins in the state that are designated as medium- or high-priority to be managed sustainably. Satisfying the requirements of SGMA generally requires four basic activities:

1. Forming one or multiple Groundwater Sustainability Agency/Agencies (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
4. Regular reporting to the California Department of Water Resources (DWR)

The Atascadero Area Groundwater Basin (Atascadero Basin or Basin) was reprioritized as very low priority and is not required to mandatorily comply with SGMA, however, the stakeholders within the Basin formed a GSA and the governing body decided it would proactively manage the groundwater resources and move forward with the development and adoption of a GSP. This document fulfills the GSP sustainability goal for the basin of the Salinas Valley Groundwater Basin, Basin No. 3-004.11. This GSP describes the Atascadero Basin, develops quantifiable management objectives that account for the interests of the Basin's beneficial groundwater uses and users, and identifies a group of projects and management actions that will allow the Basin to maintain sustainability in the future.

1.2 Description of Atascadero Basin

The Atascadero Basin is identified by DWR in Bulletin 118 as Subbasin No. 3-004.11 (DWR 2016). The Basin is part of the greater Salinas Valley Basin in the Central Coast region of California. It was subdivided from the Paso Robles Area Subbasin in 2016 based on information that showed the Rinconada Fault is a significant barrier to groundwater flow. The Paso Robles Formation makes up most of the water bearing sediments for both subbasins and the lateral (outer) extents are primarily defined by the contact with the Monterey Shale (bedrock). The southern basin boundary shows the presence of the Santa Margarita Formation, which impedes groundwater flow.[1] The boundary between the Paso Robles Subbasin and the Atascadero Basin is defined by the Rinconada Fault.[2]

[1] Page 15 of the Atascadero Basin Boundary Modification Technical Report

[2] https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA)/Atascadero-Groundwater-Basin.aspx

The northwestern, western, and southern boundaries are primarily defined by the contact of the Paso Robles Formation sediments with older, relatively impermeable geologic units, including Tertiary-age consolidated sedimentary beds, Cretaceous-age metamorphic rocks, and granitic rock.[3] The Basin encompasses an area of approximately 19,735 acres, or 31 square miles.

The Basin is bounded by the Paso Robles Subbasin, as shown on Figure 1-1. The Paso Robles Subbasin is located northeast of the Atascadero Basin. The shared boundary between the subbasins is the Rinconada Fault zone. The Rinconada Fault zone contains areas that are impervious and other areas that are considered to be a leaky barrier to groundwater flow.

The Paso Robles Subbasin is considered a high-priority basin and critically over drafted. It is subject to SGMA and is required to develop a GSP.

The Atascadero Basin includes the incorporated cities of Paso Robles and Atascadero. As well as the unincorporated census-designated places of Santa Margarita and Templeton (Figure 1-1).

1.3 Basin Prioritization

Bulletin 118 – Interim Update 2016 (DWR 2016) defines 517 groundwater basins and subbasins in California. DWR was required to prioritize these basins and subbasins as either High, Medium, Low, or Very Low.

The 2018 SGMA Basin Prioritization process was conducted to reassess the priority of the groundwater basins following the 2016 basin boundary modifications as required by the Water Code. For the 2018 SGMA Basin Prioritization, DWR followed the process and methodology developed for the 2014 California Statewide Groundwater Elevation Monitoring (CASGEM) prioritization, adjusted as required by SGMA and related legislation. DWR is required to prioritize basins for the purposes of SGMA, which was enacted to provide for the sustainable management of groundwater basins, among other things. This entailed a reassessment of factors that were utilized in the CASGEM program to prioritize basins based on groundwater elevation monitoring. SGMA also required DWR to continue to prioritize basins based on a consideration of the components specified in Water Code Section 10933(b), but the list of components was amended to include the italicized language in component 8:

1. The population overlying the basin or subbasin
2. The rate of current and projected growth of the population overlying the basin or subbasin
3. The number of public supply wells that draw from the basin or subbasin
4. The total number of wells that draw from the basin or subbasin
5. The irrigated acreage overlying the basin or subbasin

3 http://sgma.water.ca.gov/basinmod/docs/download/1374

6. The degree to which persons overlying the basin or subbasin rely on groundwater as their primary source of water
7. Any documented impacts on the groundwater within the basin or subbasin, including overdraft, subsidence, saline intrusion, and other water quality degradation
8. Any other information determined to be relevant by the department, including adverse impacts on local habitat and local streamflows

DWR incorporated new data, to the extent data are available, and the amended language of Water Code Section 10933(b)(8) (component 8) to include an analysis of adverse impacts on local habitat and local streamflows as part of the prioritization. Evaluation of groundwater basins at a statewide scale does not necessarily capture the local importance of groundwater resources within the smaller-size or lower-use groundwater basins. For many of California's low-use basins, groundwater provides close to 100 percent of the local beneficial uses. Thus, when reviewing the 2018 SGMA Basin Prioritization results, it is important to recognize that the findings are not intended to characterize groundwater management practices or diminish the local importance of the smaller-size or lower-use groundwater basins; rather, the results are presented as a statewide assessment of the overall importance of groundwater resources in meeting beneficial uses.

The following information was deemed relevant and considered as part of component 8 for the 2018 SGMA Basin Prioritization based on SGMA:

- Adverse impacts on local habitat and local streamflows
- Adjudicated areas
- Critically overdrafted basins
- Groundwater-related transfers

Additional information about how each of these components were analyzed can be found in the process section of the 2018 SGMA Basin Prioritization Process and Results document.[4]

In 2018, DWR designated the Atascadero Basin as a very low priority basin with no critical overdraft.

4 https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Basin-Prioritization/Files/2018-Sustainable-Groundwater-Management-Act-Basin-Prioritization.pdf?la=en&hash=B9F946563AA3E6B338674951A7FFB0D80B037530

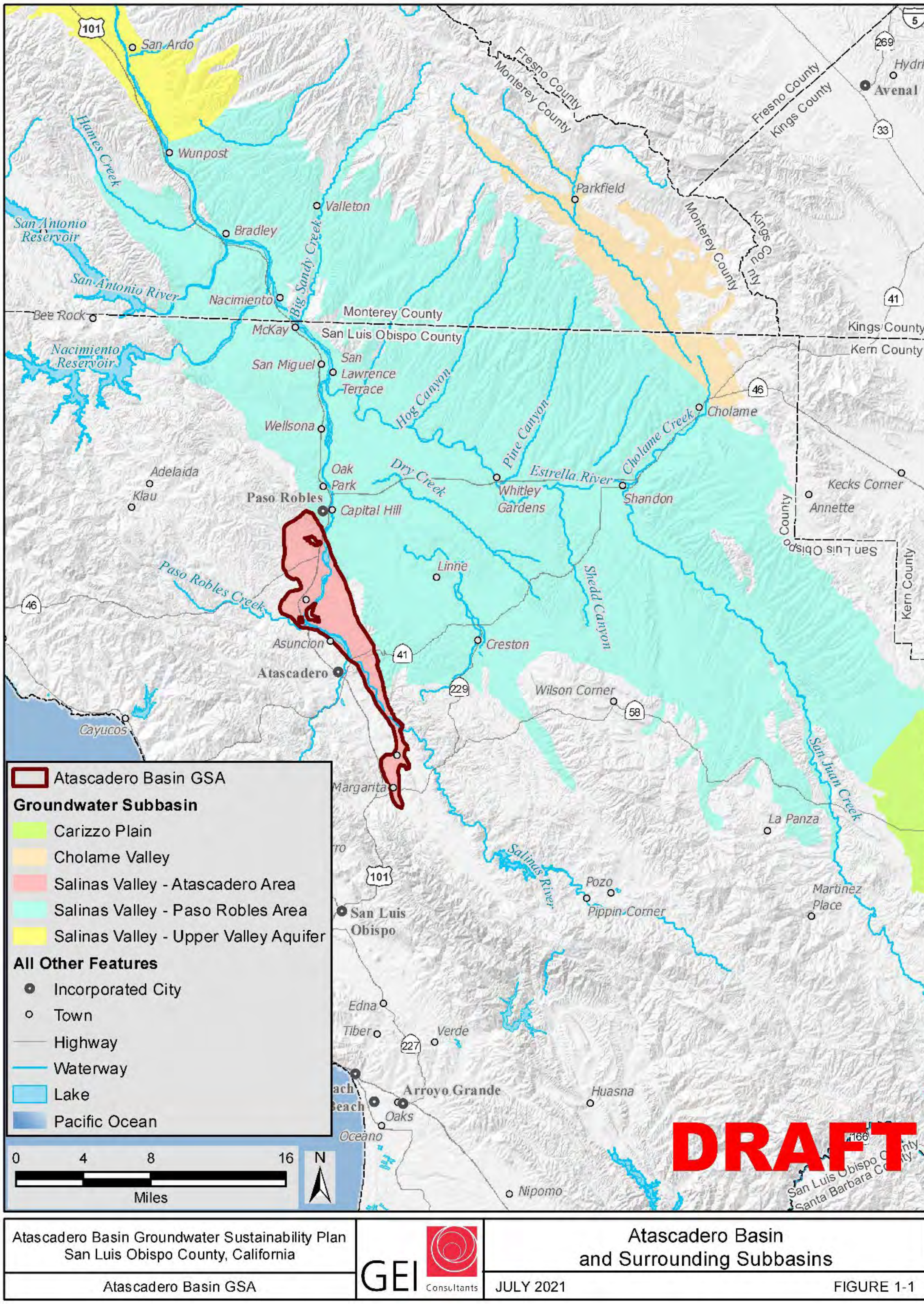


Figure 1-1. Atascadero Basin and Surrounding Subbasins

2. Agency Information (§ 354.6)

The purpose of the Atascadero Basin GSA is to serve as the GSA for the entire Atascadero Basin and to develop, adopt, and implement a GSP for the entire Atascadero Basin pursuant to SGMA and other applicable provisions of law.

2.1 Agency Names and Mailing Addresses

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

Atascadero Mutual Water Company
5005 El Camino Real
Atascadero CA 93422

Atascadero State Hospital
10333 El Camino Real
Atascadero, CA 93422

City of Atascadero
6500 Palma Ave
Atascadero, CA 93422

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

County of San Luis Obispo
1055 Monterey Street
San Luis Obispo, CA 93408

Garden Farms Water District
17005 Walnut Ave
Atascadero, CA 93422

Santa Ysabel Ranch Mutual Water Company
935 Riverside Ave Suite 13
Paso Robles CA 93446

SMR Mutual Water Company
750 Pismo Street
San Luis Obispo, CA 93401

Templeton Community Services District
420 Crocker Street
Templeton, CA 93465

Walnut Hills Mutual Water Company
400 Nutwood Circle
Paso Robles, CA 93445

2.2 Agency Organization and Management Structure

The Atascadero Basin GSA is comprised of four forming parties and six participating parties.

Forming Parties

- City of Atascadero
- City of Paso Robles
- County of San Luis Obispo
- Templeton Community Services District

Participating Parties

- Atascadero Mutual Water Company
- Atascadero State Hospital
- SMR Mutual Water Company
- Santa Ysabel Ranch Mutual Water Company
- Walnut Hills Mutual Water Company
- Garden Farms Water District

The organization and management structures of each of the parties of the GSA are described below. The GSA is governed by an Executive Committee and has both Voting and Non-voting Representatives, which is further described in Section 2.3.2 – Memorandum of Agreement.

2.2.1 *Atascadero Mutual Water Company*

The Atascadero Mutual Water Company (MWC) is a participating party of the GSA. It was incorporated on August 12, 1913 and provides water for domestic and irrigation purposes at cost to its shareholders. It is one of the largest retail mutual water companies in the state and is responsible for meeting the water requirements of more than 30,000 people. One member from the Atascadero MWC sits on the GSA Executive Committee.

2.2.2 *City of Atascadero*

The city of Atascadero is a forming party of the GSA. It 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 4-year overlapping terms. The mayor is directly elected and serves a 2-year term. One member from the city sits on the Executive Committee that coordinates activities among the GSA. This member will be appointed by and be a duly elected member of the city council.

2.2.3 *City of Paso Robles*

The city of Paso Robles is a forming party of the GSA. It 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 4-year overlapping terms. The mayor is directly elected and serves a 2-year term. One member from the city sits on the Executive Committee that coordinates activities among the GSA. The member will be appointed by and be a duly elected member of the city council. One member of the city sits on the GSA Executive Committee.

2.2.4 *County of San Luis Obispo*

The county of San Luis Obispo is a forming party of the GSA. It is governed by a five-member Board of Supervisors representing five districts in San Luis Obispo County. Board of Supervisor members are elected to staggered 4-year terms. One member from the county sits on the Executive Committee that coordinates activities among the GSA. The member will be appointed by the Board of Supervisors and shall be a duly elected supervisor from any district that has legislative territory over the Atascadero Basin. One member of the county sits on the GSA Executive Committee.

2.2.5 *Templeton Community Services District*

Templeton Community Services District (CSD) is a forming party in the GSA. It is an unincorporated community located along Highway 101 between the cities of Past Robles and Atascadero. Templeton is governed by a five-member Board of Directors that are elected to a 4-year term. One member of the Board of Directors sits on the Executive Committee that coordinates activities among the GSA. This member will be appointed by the Board of Directors and shall be a duly elected board member of the Templeton Community Service District.

2.2.6 *Other Small Water Systems*

There are five other small water systems that collectively are a participate in the Atascadero GSA. These small water systems collectively appoint a single member to represented them on the GSA executive committee that coordinates activities among the GSA. The executive committee appointee must be a duly elected member of the governing board from one of the small water systems. The executive committee member appointee will be confirmed by the Board of Supervisors of the county of San Luis Obispo.

2.2.6.1 Atascadero State Hospital

Atascadero State Hospital is a participating party of the GSA. It opened in 1954 and is a secure forensic hospital that houses inmates that were committed to psychiatric facilities by California's courts. It operates under the California Department of State Hospitals. Atascadero State Hospital is the largest employer in the city of Atascadero.

2.2.6.2 Garden Farms Community Water District

Garden Farms Community Water District is a participating party in the GSA. It is a small water system that was adopted in 2007. It operates under a Local Agency Formation Commission and serves the majority of the people living in Garden Farms. It is managed by a Board of Directors.

2.2.6.3 Santa Ysabel Ranch Mutual Water Company

Santa Ysabel Ranch MWC is a participating party in the GSA. It is a nonprofit, incorporated on July 15, 2002. It is managed by a Board of Directors.

2.2.6.4 Santa Margarita Ranch Mutual Water Company

The Santa Margarita Ranch (SMR) MWC is a participating party in the GSA. SMR MWC currently consists of one shareholder, three directors and three officers. The directors are elected annually.

2.2.6.5 Walnut Hills Mutual Water Company

Walnut Hills MWC provides water to the residents of Walnut Hills Ranch, an unincorporated area of the County of San Luis Obispo south of the City of Paso Robles. The Company also serves water to a mobile home park and a business plaza in an unincorporated area as well as two businesses in the City of Paso Robles. Walnut Hills MWC is a participating party in the GSA. Walnut Hills was incorporated on September 17, 1999. The owners of the 18 lots in the Walnut Hills Ranch development each own a share in the Walnut Hills MWC. Each year the owners elect three directors for Walnut Hills MWC to a 1-year term. The directors select the corporate officers.

2.3 Authority of Agencies

The GSA developing this coordinated GSP was formed in accordance with the requirements of Water Code §10723 *et seq*. The resolutions of formation for the GSA are included in Appendix 2A. The specific authorities for forming a GSA and implementing the GSP for the formed GSA are summarized below.

2.3.1 *Individual GSA Members*

The Atascadero Basin GSA consists of local agencies. In the Water Code [water Code§ 10721 “Local agency” means a local public agency that has water supply, water management, or land use responsibilities within a groundwater basin.].

2.3.1.1 Atascadero Mutual Water Company

Atascadero MWC provides water to the residents of the city of Atascadero and some of the adjacent unincorporated areas of San Luis Obispo County. It is an urban water supplier with an approved Urban Water Management Plan that was verified as complete by DWR on April 28, 2017. The MWC is also a surface water diverter that has and utilizes riparian, pre-appropriative, and appropriative rights to the Salinas River. Therefore, it is a local agency under Water Code§ 10721 with the authority to establish itself as a member of a GSA. Upon establishing itself as part of a GSA, the Atascadero MWC retains all the rights and authorities provided to GSAs under Water Code § 10725 *et seq*. Atascadero MWC is a participating party in the GSA and is categorized as a large water system. Atascadero MWC is a member of the Executive Committee and has 20 percent of the vote for the large water system representatives.

2.3.1.2 Atascadero State Hospital

Atascadero State Hospital is a Small Water System. The Hospital maintains their own municipal well field and wastewater treatment facility. Atascadero State Hospital is a participating party in the GSA and is categorized as an “Other Small Water System.” The Small Water Systems in aggregate have 10 percent of the vote for other representatives on the Executive Committee.

2.3.1.3 City of Atascadero

The city of Atascadero is incorporated under the laws of the state of California. The city provides land use planning services to its residents. The city is therefore a local agency under Water Code § 10721 with the authority to establish itself as a GSA. Upon entering as a party of the GSA, the city retains all the rights and authorities provided to GSAs under Water Code §10725 *et seq*. The city is a forming party in the GSA and is categorized as a Land Use/Small Water System. The city of Atascadero is a member of the Executive Committee and has 13.33 percent of the vote for other representatives on the Executive Committee.

2.3.1.4 City of Paso Robles

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 Water Code § 10721 with the authority to establish itself as a GSA. Upon establishing itself as a party of the GSA, Paso robles retains all the rights and authorities provided to GSAs under Water Code §10725 *et seq*. The city is a forming party in the GSA and is categorized as a large water system. The city of Paso Robles is a member of the Executive Committee and has 20 percent of the vote for the large water system representatives.

2.3.1.5 County of San Luis Obispo

The county of San Luis Obispo has land use authority over the unincorporated areas of the county, including areas overlying the Atascadero Basin. The county is therefore a local agency under Water Code§ 10721 with the authority to establish itself as a GSA. Upon establishing itself as a party of the GSA, the county retains all the rights and authorities provided to GSAs under Water Code § 10725 *et seq*. The county is a forming party in the GSA and is categorized as a Land Use/Small Water System. The county of San Luis Obispo is a member of the Executive Committee and has 16.67 percent of the vote for other representatives on the Executive Committee.

2.3.1.6 Garden Farms Community Water District

Garden Farms Community Water District is a nonprofit entity that runs a small water system that provides water to a majority of the residents of Garden Farms, 240 residents with 113 water service connections. Besides two small commercial establishments, all connections are residential. Garden Farms is therefore a local agency under Water Code§ 10721 with the authority to establish itself as a GSA. Upon establishing itself as a party of the GSA, the water district retains all the rights and authorities provided to GSAs under Water Code § 10725 *et seq*. The Garden Farms Community Water District is a participating party in the GSA and is categorized as an "Other Small Water System." The Small Water Systems in aggregate have 10 percent of the vote for other representatives on the Executive Committee.

2.3.1.7 Santa Ysabel Ranch Mutual Water Company

The Santa Ysabel Ranch Mutual Water Company is a community water system that supplies water for residential and fire suppression uses to the members/homeowners of Santa Ysabel Ranch development. The SYR development is composed of 147 residential and common area parcels with approximately 100 service connections as of January 2021. The SYR development overlies both the Atascadero Basin and the Paso Robles Basin. However, the water sources for the entire development are two groundwater wells located in the Atascadero Subbasin, Salinas River alluvial terrace east of the Salinas River, hence its inclusion in the Atascadero Basin Groundwater Sustainability Agency. In addition to the water wells and well pumps, the SYRMWC facilities include solar arrays, backup power systems, piping from the wells to the water storage tank, a chlorination system, and a distribution system. Santa Ysabel Ranch MWC it is a local agency under Water Code§ 10721 with the authority to establish itself as a GSA. Upon establishing itself as a party of the GSA, the MWC retains all the rights and authorities provided to GSAs under Water Code § 10725 *et seq*. The MWC is a participating party in the GSA and is categorized as an “Other Small Water System.” The Small Water Systems in aggregate have 10 percent of the vote for other representatives on the Executive Committee.

2.3.1.8 Santa Margarita Ranch Mutual Water Company

SMR MWC provides water to the residents of Santa Margarita Ranch. Therefore, it is considered to be a local agency under Water Code§ 10721 with the authority to establish itself as a GSA. Upon establishing itself as a party of the GSA, the MWC retains all the rights and authorities provided to GSAs under Water Code § 10725 *et seq*. The SMR MWC is a participating party in the GSA and is categorized as an “Other Small Water System.” The Small Water Systems in aggregate have 10 percent of the vote for other representatives on the Executive Committee.

2.3.1.9 Templeton Community Services District

Templeton CSD is a public entity that manages water, sewer, fire, parks and recreation, as well as other services it provides to the areas that have been adopted into the District. The Templeton area has several homes on larger lots, and thus exhibits a relatively large per capita water demand as a result. The CSD is therefore a local agency under Water Code§ 10721 with the authority to establish itself as a GSA. Upon establishing itself as a party of the GSA, the District retains all the rights and authorities provided to GSAs under Water Code § 10725 *et seq*. The CSD is a forming party in the GSA and is categorized as a large water system. Templeton CSD is a member of the Executive Committee and has 20 percent of the vote for the large water system representatives.

2.3.1.10 Walnut Hills MWC

Walnut Hills MWC provides water to the residents of Walnut Hill, an unincorporated area of the county of San Luis Obispo south of the city of Paso Robles. The MWC also serves water to a mobile home park and a business plaza in an unincorporated area as well as two businesses in the city of Paso Robles. Therefore, it is a local agency under Water Code§ 10721 with the authority to establish itself as a GSA. Upon establishing itself as a party of the GSA, the MWC retains all the rights and authorities provided to GSAs under Water Code § 10725 *et seq*. Walnut Hills MWC is a participating party in the GSA and is categorized as an “Other Small Water System.” The Small Water Systems in aggregate have 10 percent of the vote for other representatives on the Executive Committee.

2.3.2 *Memorandum of Agreement*

The GSA parties entered into a Memorandum of Agreement (MOA) effective on May 30, 2017. The purpose of the MOA is to establish a single GSA over the Atascadero Basin, which will develop a basin-wide GSP, and following the adoption thereof, will take actions necessary to implement the GSP. The single GSP developed under this MOA will be considered for adoption by each individual party and subsequently submitted to DWR for approval. A copy of the MOA is included in Appendix 2A.

The MOA establishes the Executive Committee, a nine-member body, consisting of one member and one alternate (optional for at-large members) from each of the Large Water System Representatives (3 total), Other Representatives (three total), and one-each for at-large members from rural residential, agricultural, and environmental. The Executive Committee conducts activities related to GSP development and SGMA implementation. The full list of activities that the Executive Committee is authorized to undertake is included in the MOA in Appendix 2A. Highlights include:

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

The MOA sets forth each parties' weighted voting percentages and the votes needed to implement certain actions or make certain recommendations to the individual members. The MOA states that the Executive Committee must unanimously adopt the final GSP by an accumulated two-thirds (66.67%) super majority affirmative vote tally.

2.3.3 *Coordination Agreements*

A coordination agreement is not required for the Atascadero Basin because there is only a single GSA that manages the basin.

2.4 Contact Information for Plan Manager(s)

The GSP manager is Mr. John B. Neil, P.E. from the Atascadero MWC. His contact information is below:

John Neil, General Manager
Atascadero Mutual Water Company
5005 El Camino Real
Atascadero CA 93422
(805) 466-2428
jneil@amwc.us

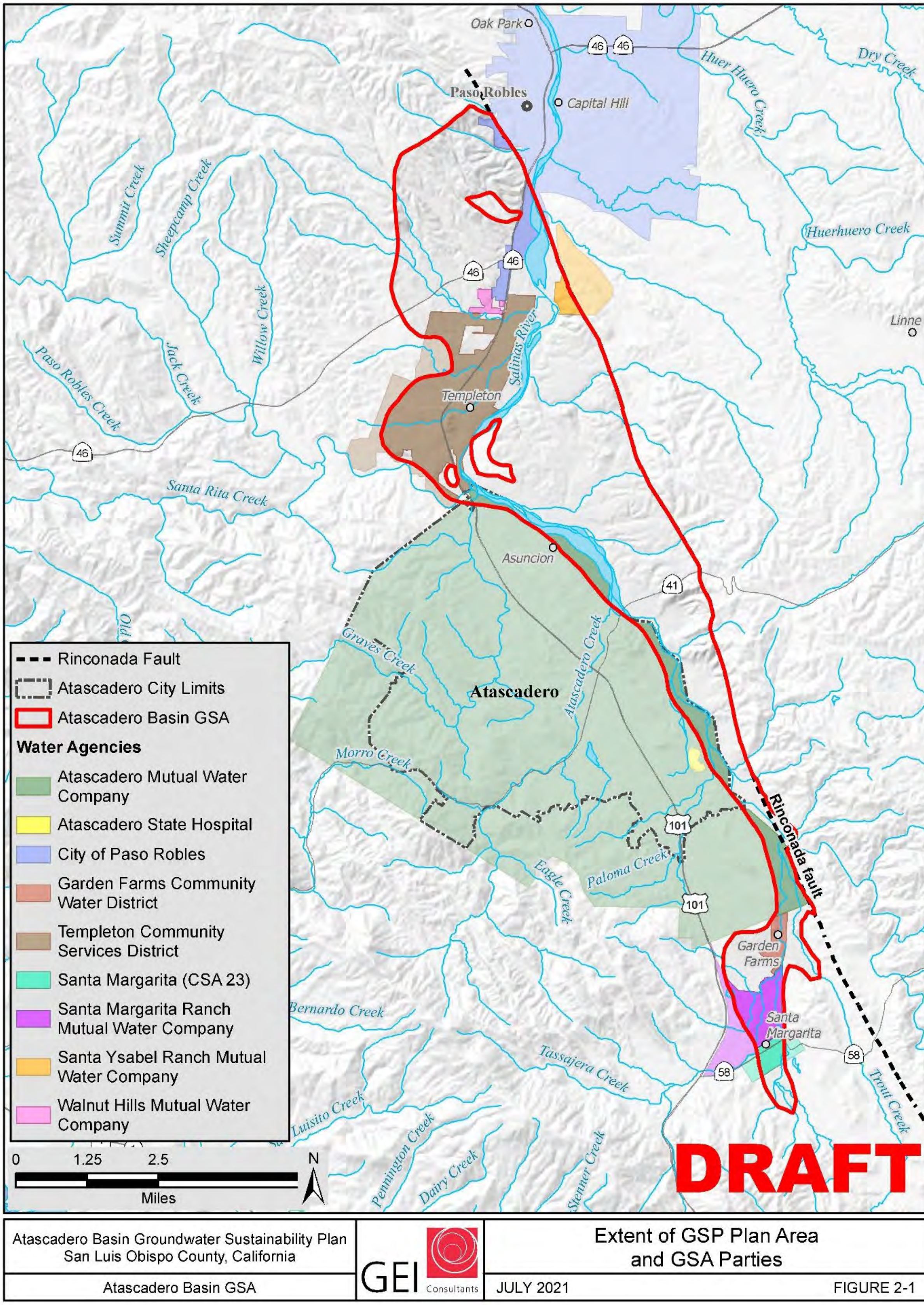


Figure 2-1. Extent of GSP Area and GSA Parties

3. Description of GSP Area (§ 354.8)

3.1 Introduction

This GSP covers the Atascadero Basin of the Salinas Valley Basin identified as Basin No. 3-004.11 in the state of California DWR Bulletin 118 (DWR 2016). The Basin is located entirely in San Luis Obispo County and is approximately 19,800 acres in size. The Basin extends north along the Salinas River from the community of Santa Margarita to the southern limits of Paso Robles.[5] The Basin is comprised of flatlands ranging in elevation from approximately 700 to 1,400 feet above mean sea level (ft/msl) that are bordered to the west by the Santa Lucia Range southern Coast Ranges. The average annual precipitation ranges from 13 to 23 inches, and rainfall increases across the Basin from the southeast to the northwest.[6]

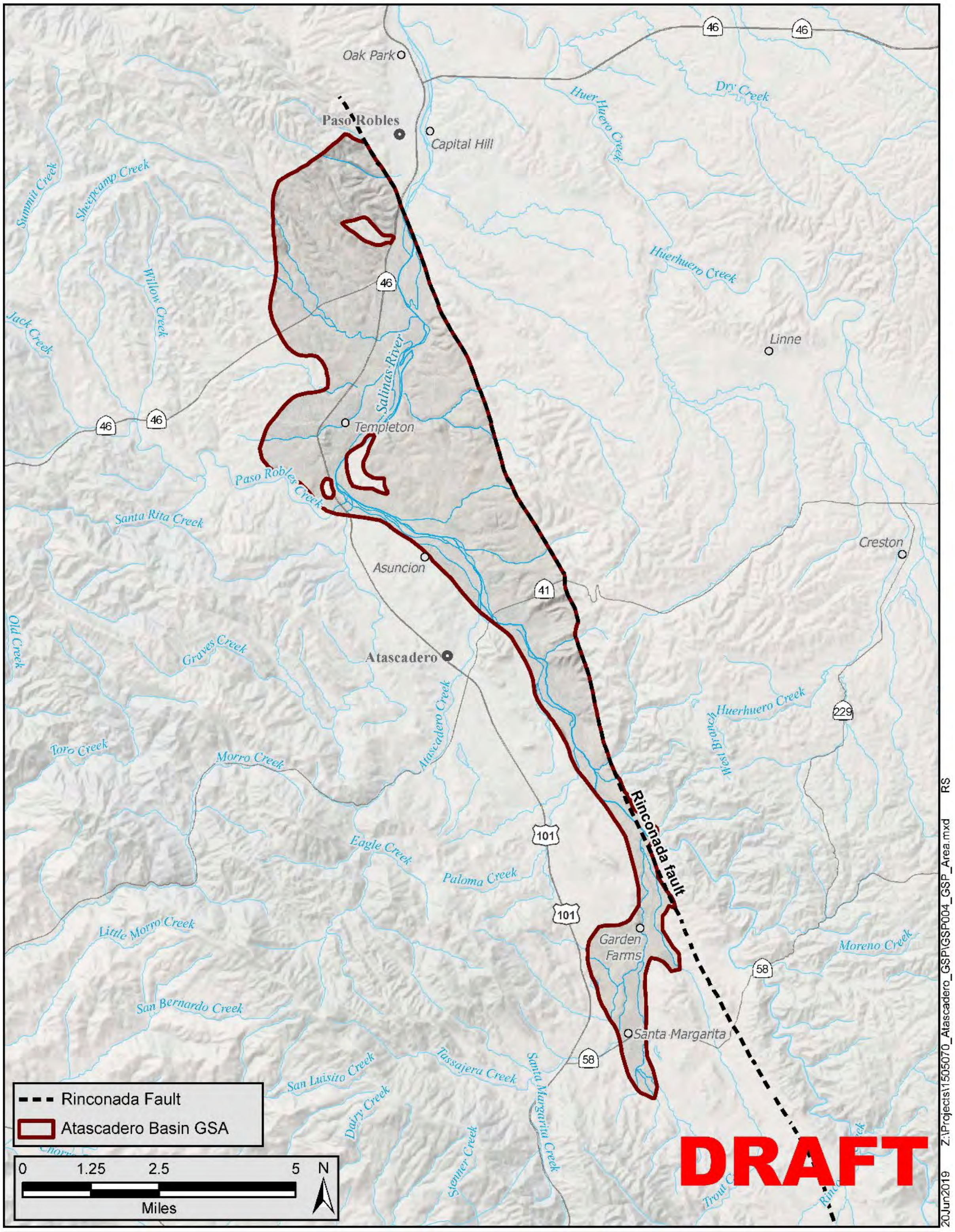
The DWR determined that the Rinconada Fault is a substantial barrier to the flow of percolating groundwater between Paso Robles Basin and Atascadero Basin in its 2016 Bulletin 118 Interim Update. The Atascadero Basin was identified as very-low priority and is not subject to SGMA at the time of the writing of this document. Figure 3-1 shows the extent of the GSP area as well as the significant water bodies, communities, and highways.

The Salinas River is the primary surface water feature within the Basin. Significant tributaries to the Salinas River within the Basin include Paso Robles, Atascadero, Graves, Santa Margarita, Paloma, and Trout creeks. Urban communities in the Basin are the city of Atascadero, city of Paso Robles, the community of Santa Margarita, and the community of Templeton. Highway 101 is the most significant north-south highway in the Basin, with Highway 58 at the southern border of the Basin extending east, Highway 41 at mid-basin extending east-west, and Highway 46 near the northern border of the Basin extending east-west. Figure 3-1 shows the extent of the GSP area as well as the significant water bodies, communities, and highways.

3.2 Adjudicated Areas

No part of the Basin is adjudicated, nor are any surrounding subbasins adjudicated. No other GSAs exist within the Basin. No SGMA Alternative Plans have been submitted for any part of the Basin, nor for any of the surrounding subbasins. Since there are no adjudicated areas, other GSAs, or alternative plans in the Basin, no map is included in this GSP for these items.

[5] *2018.06.21, Atascadero MWC, comment to RMS update text.docx*
[6] This is based on PRISM 30-yr normal 800m grid [1981-2010] that is calibrated to the precip station in Atascadero [3] *2018.06.21, Atascadero MWC, comment to RMS update text.docx*



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Area Covered by GSP	
Atascadero Basin GSA		JULY 2021	FIGURE 3-1

Figure 3-1. Area Covered by GSP

3.3 Jurisdictional Areas

In addition to the GSA, there are agencies that have some degree of water management authority in the Basin. Each agency or organization is discussed below. A map of the jurisdictional extent of the county and Special District within the Basin is shown on Figure 3-2. A map showing the jurisdictional extent of city and local jurisdictions within the Basin is shown on Figure 3-3.

3.3.1 *Federal Jurisdictions*

There are no federal agencies with land holdings in the Basin.

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 Basin.

3.3.3 *State Jurisdictions*

The Department of State Hospitals operates the Atascadero State Hospital in the city of Atascadero and operates its own water supply system.

3.3.4 *County Jurisdictions*

San Luis Obispo County and the associated San Luis Obispo Flood Control and Water Conservation District (SLOFCWCD) has jurisdiction over the entire Basin. The county owns or manages the unincorporated areas of the Basin; this includes a portion of the northwest and a majority of the land east of the Salinas River. It also includes the Templeton and Santa Margarita community parks, as well as one county services area (CSA), CSA 23 Santa Margarita.

3.3.5 *City and Local Jurisdictions*

The city of Paso Robles lies on the northeast side of the Basin, has water management authority over its incorporated area, and manages a number of parks. Two community service districts exist in the Basin, and four mutual water companies exist in the Basin: Atascadero MWC (includes city of Atascadero), Santa Margarita Ranch MWC, Santa Ysabel Ranch MWC, and Walnut Hills MWC.

3.3.6 *Special Districts*

Special districts include airport, cemetery, community services (including Templeton CSD and Garden Farms Community Water District), fire, flood, irrigation, metropolitan planning, open space, port/harbor, recreation/parks, regional park, sanitation, and school districts. The Basin includes three special district areas: Tom Jermin Senior Community Park, Eves Park, and Santa Margarita Community Park.

3.4 Land Use

Land use planning in the Basin is the responsibility of San Luis Obispo County, the city of Atascadero, and the city of Paso Robles. Land use information for the Basin was collected by DWR and San Luis Obispo County's Agricultural Commissioner Offices. Current land use in the Basin is shown on Figure 3-4 and is summarized by category in Table 3-1. All land use categories except native vegetation listed in the table are the land use categories provided by San Luis Obispo County. The balance of the approximately 19,800 acres in the GSP area is largely native vegetation and could include dry-farmed land.

Table 3-1. Land Use Summary

Land Use Category[7]	Acres
Citrus and subtropical	26
Deciduous fruits and nuts	339
Grain and hay crops	39
Idle	1,938
Pasture	331
Truck nursery and berry crops	54
Vineyard	1,280
Young perennial	9
Agricultural Subtotal	***4,016***
Urban	2,592
Urban Subtotal	***2,592***
Native vegetation	13,192
Native Vegetation Subtotal	***13,192***
Total	**19,800**

Source: DWR 2014

[7] https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/California-Water-Plan/Docs/Materials/Update2018/Plenary/2017/California-Water-Plan-2017-Plenary-Land-Use-VisualizationSession-Presentation.pdf?la=en&hash=1C0D1F040C47C95B532E5DC94B5107202D06B7C6

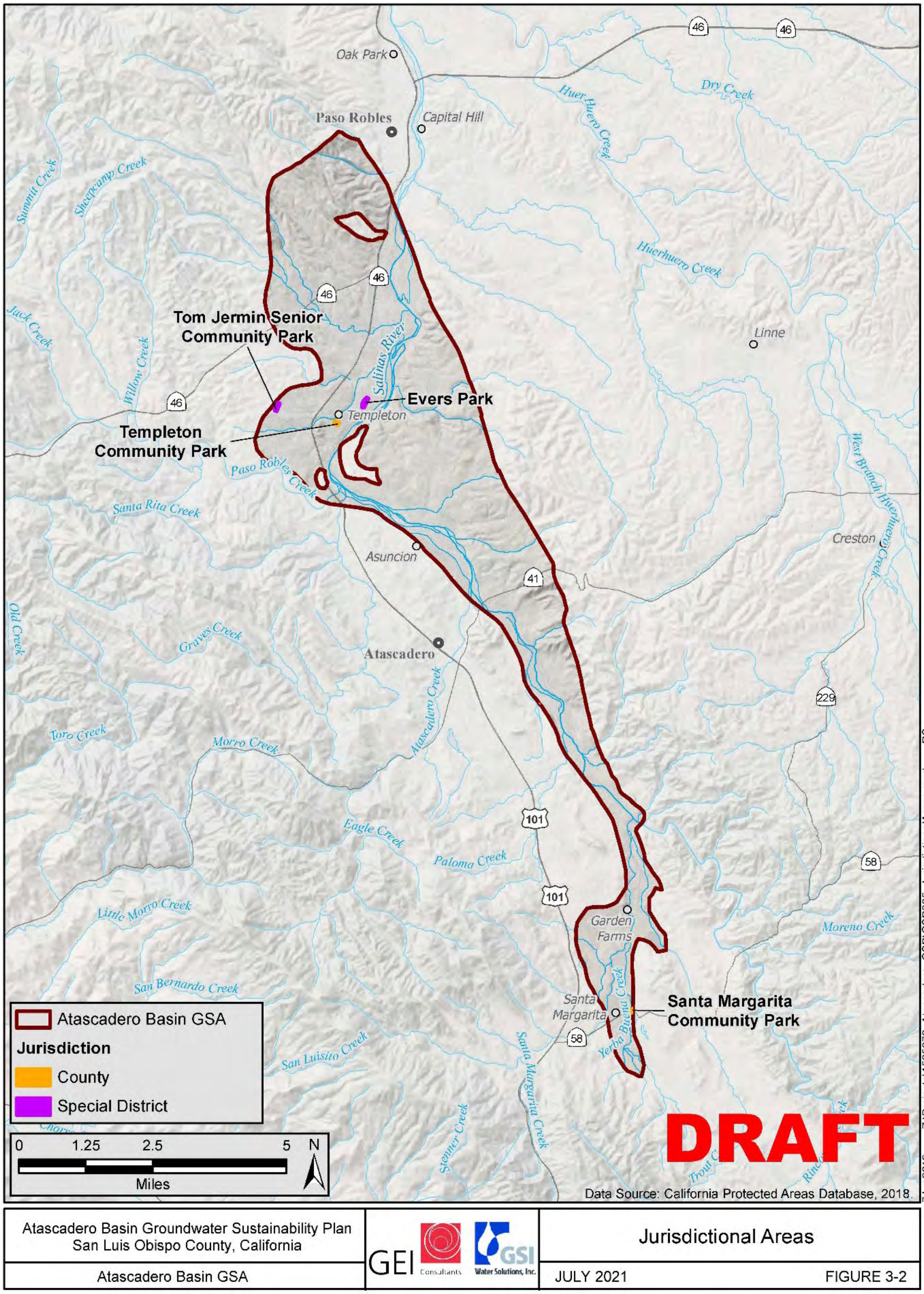
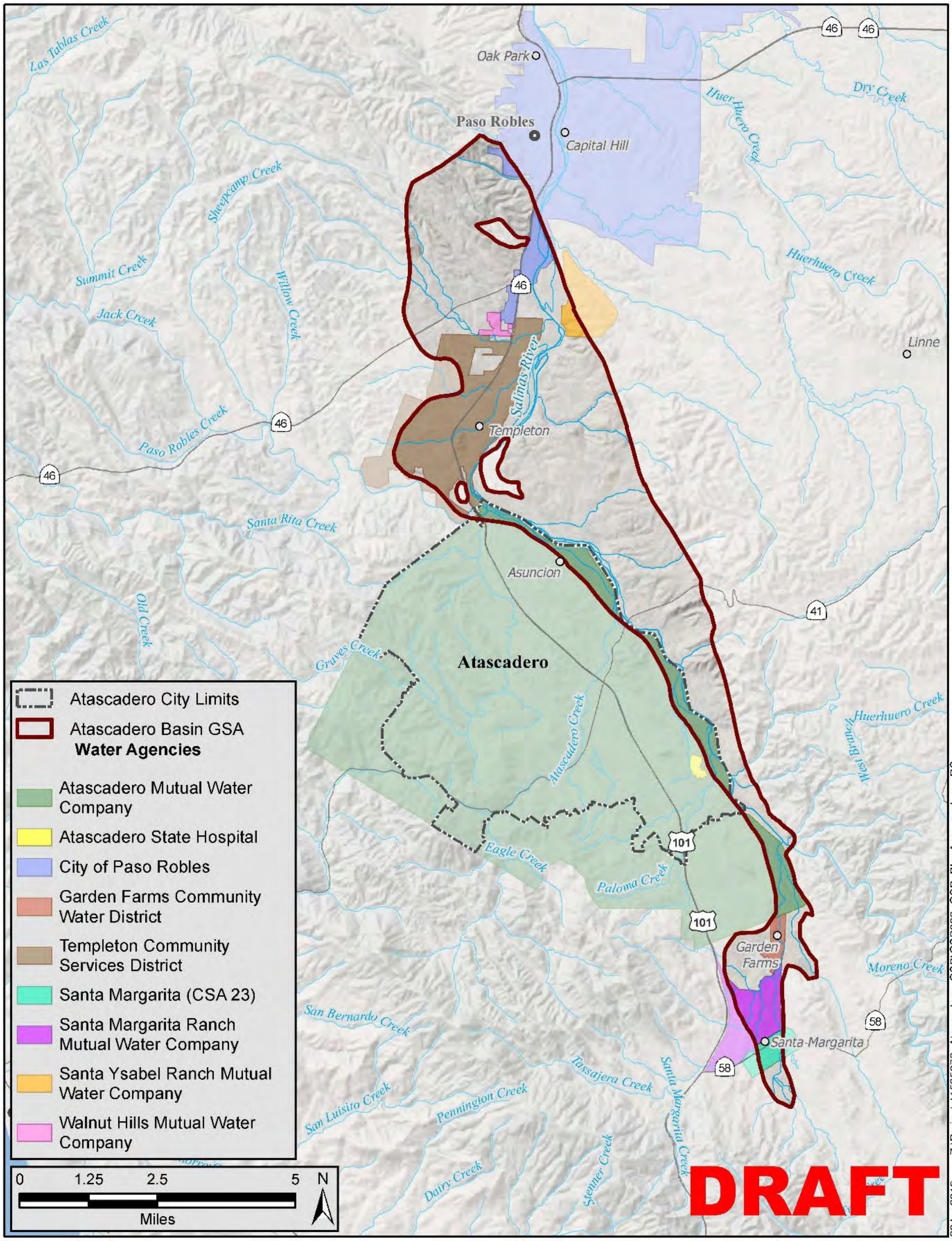


Figure 3-2. Jurisdictional Areas



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	City, CSD and Water District Jurisdictional Areas
Atascadero Basin GSA		JULY 2021 FIGURE 3-3

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

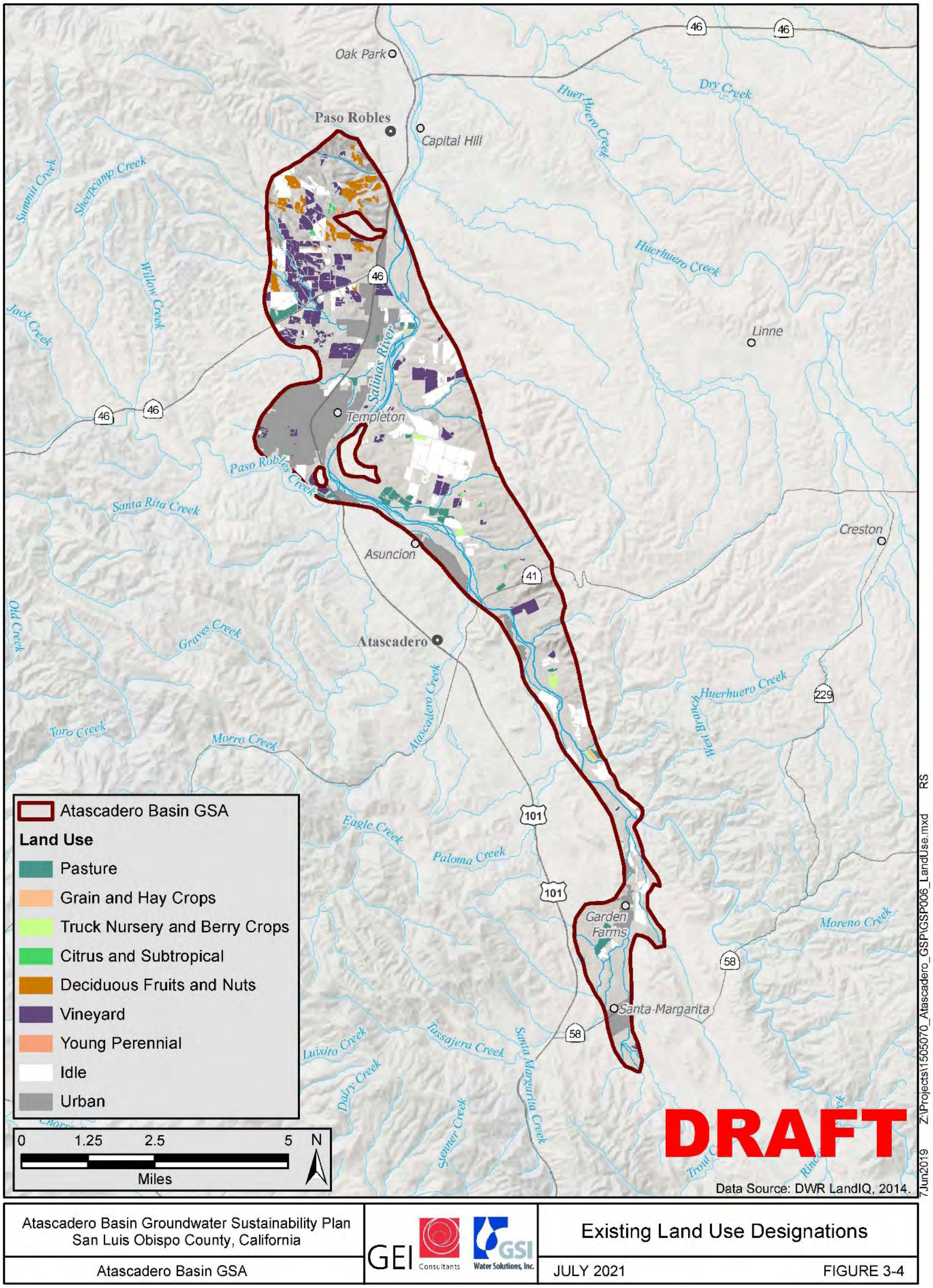


Figure 3-4. Existing Land Use Designations

3.4.1 *Water Source Types*

The Basin has three water source types: groundwater, surface water, and recycled water.

3.4.1.1 Groundwater

All water demands in the Basin are met with groundwater. There are approximately 1,960 water supply wells located in the Basin.[8]

3.4.1.2 Surface Water

The Nacimiento Water Project (NWP) regional raw water transmission facility delivers water from Lake Nacimiento to communities in San Luis Obispo County. The NWP includes 45 miles of pipeline. It is designed to deliver 15,750 acre-feet of water per year (AFY). In 2004, Atascadero MWC, Templeton CSD, and the city of Paso Robles entered into Delivery Entitlement Contracts with the SLOFCWCD for participation in the NWP. As of April 19, 2016, the NWP is fully allocated.[9] Allocations to the four NWP participants in the Basin are shown in Table 3-2.

Table 3-2. Nacimiento Water Project Allocations

NWP Participants	Allocations (AFY)
Atascadero MWC	3,244
City of Paso Robles	6,488
Templeton CSD	406
SMR MWC	80
Total	**10,218**

Source: San Luis Obispo County 2016-2018.

3.4.1.3 Recycled Water

Historically, recycled water has not been used as a source of water in the Basin. The city of Paso Robles operates a wastewater treatment plant and is currently upgrading its water treatment system. There are plans to use Paso Robles treated wastewater for irrigation and other, non-potable uses in the Paso Robles Subbasin, but not in the Atascadero Basin. Templeton CSD percolates treated effluent into percolation ponds, then recovers the water from municipal production wells downstream. The city of Atascadero provides percolated recycled water from the city's water recycling facility to the Chalk Mountain Golf Course through an irrigation well. The Chalk Mount Golf Course is located outside of the Basin. Currently, there is no land using wastewater as a water source type.

[8] Will need to reference the databases we use to make this statement

[9] https://www.slocounty.ca.gov/Departments/Planning-Building/Forms-Documents/General-Plan-Forms-and-Documents/Resource-Summary-Report/2016-2018-RSR-Revised-Clean.pdf https://www.slocounty.ca.gov/Departments/Planning-Building/Forms-Documents/General-Plan-Forms-and-Documents/Resource-Summary-Report/2016-2018-RSR-Revised-Clean.pdf

There are no opportunities for desalinated water projects in the Atascadero Basin, nor is stormwater used as a supplemental water supply.

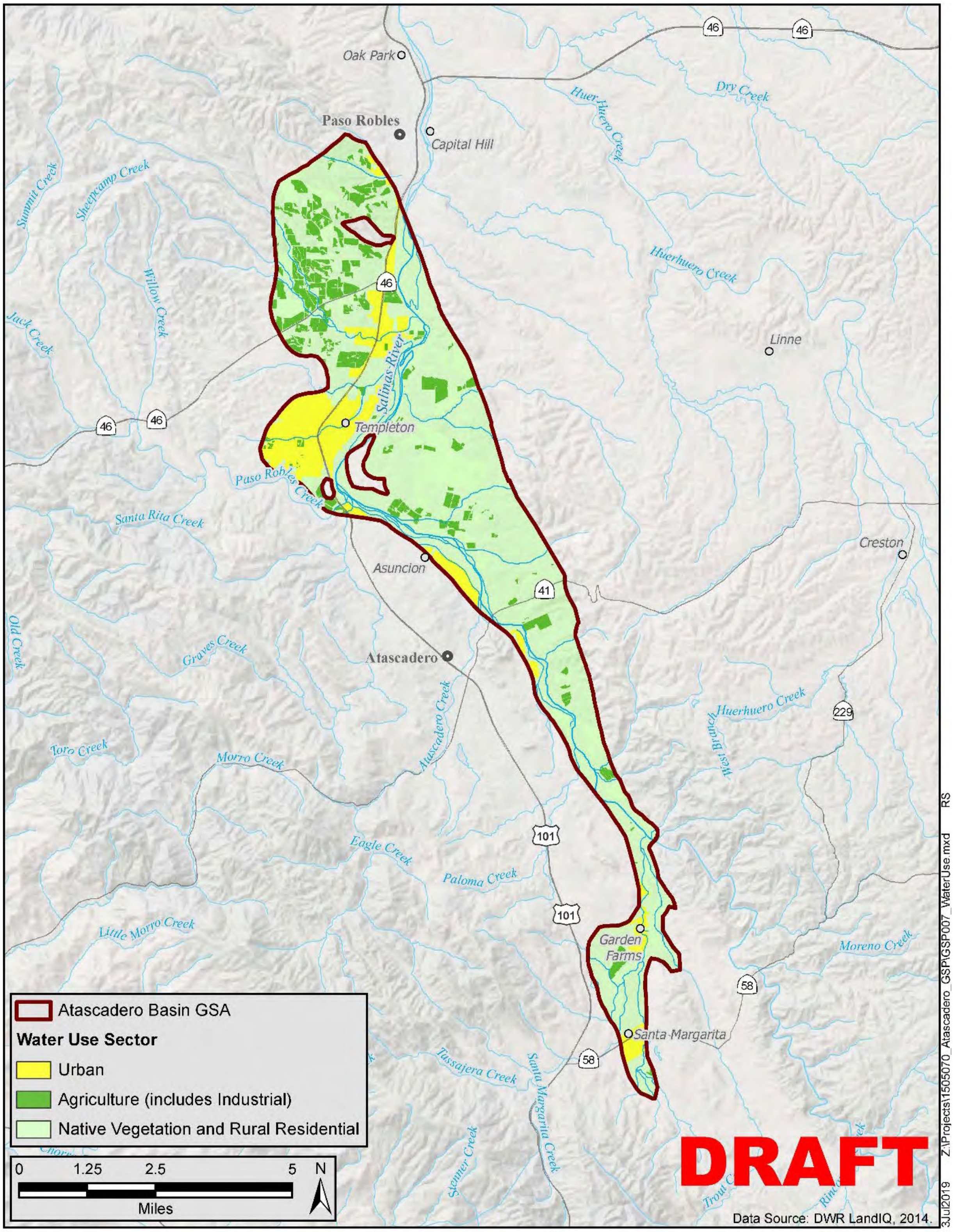
3.4.2 *Water Use Sectors*

Water demands in the Basin are organized into the same water use sectors identified in Article 2 of the GSP emergency regulations (DWR 2016). These include:

- **Urban.** Urban water use is assigned to non-agricultural water uses in the cities and census-designated places. This is the largest water use sector in the Basin. Domestic use outside of census-designated places (i.e., rural residential areas) is not considered urban use.
- **Rural Domestic.** This is not an identified sector in the regulation, but rural pumping is present in the Basin and includes domestic water use by development in rural areas. It has the second largest water demand.[10]
- **Industrial.** There is limited industrial use in the Basin. DWR does not have any records of wells in the Basin that are categorized for industrial use. Most industrial use is associated with agriculture and is lumped into the agricultural water use sector.
- **Agricultural.** Agriculture demand on water usage is relatively small. It accounted for approximately 8.5% of the water demand in 2006[11].
- **Managed Wetlands.** There are no managed wetlands in the Basin.
- **Recharge Recovery.** The city of Paso Robles, Templeton CSD and Atascadero MWC recharge water from the NWP in recharge basins for recovery with wells within the Basin.
- **Native Vegetation.** This is the largest land area in the Basin but does not have an applied water demand.

Figure 3-6 shows the distribution of the water use sectors in the Basin. Native vegetation and rural residential have been grouped together because rural residential is not an identified water use sector in the emergency regulations.

[10] same reference as 7
[11] Paso Robles Groundwater Basin Management Plan March 2011 page 35 https://prcity.com/DocumentCenter/View/14828/Groundwater-Basin-Management-Plan-PDF



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Water Use Sectors	
Atascadero Basin GSA		JULY 2021	FIGURE 3-5

Figure 3-5. Water Use Sectors

3.5 Density of Wells

Well types, well depth data, and well distribution data were reviewed from DWR's well completion report map application (map application) (DWR 2018), the State Public Water System, and Groundwater Ambient Monitoring and Assessment (GAMA). Regulation Section 354.8 (5) requires that the general distribution of agricultural, industrial, and domestic water supply well data be "provided by the department as specified in Section 353.2, or the best available information." The data sources that were reviewed do not follow exactly the same well designations as specified in the regulation because of the rural nature of the Basin. When attempting to filter the map application by the above well types, only 127 wells were identified. However, when the filters are removed, approximately 1,900 wells were identified. Therefore, only two categories of wells will be presented in this GSP. Rural residential and agricultural wells are grouped together into one category. The other is public wells. Table 3-3 shows the total number of wells for the two categories.

Table 3-3. Well Distribution

Type of Well	Total Wells
Rural Residential and Agricultural	1899
Public	57
Total	1956

Figures 3-6 and 3-7 show the density of wells in the Basin within the two categories. These maps should be considered representative of well distributions but are not definitive.

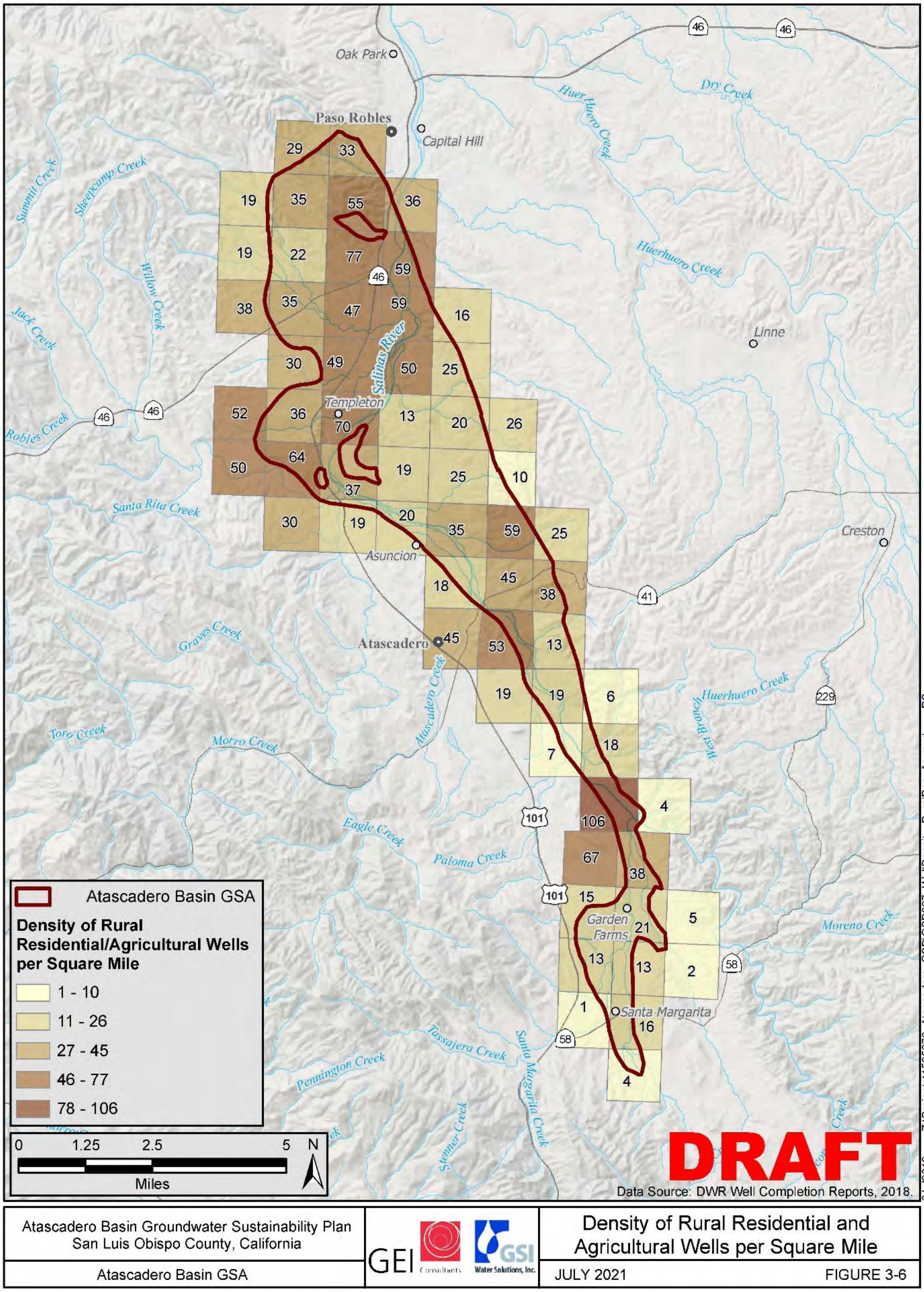


Figure 3-6. Density of Rural Residential and Agricultural Wells per Square Mile

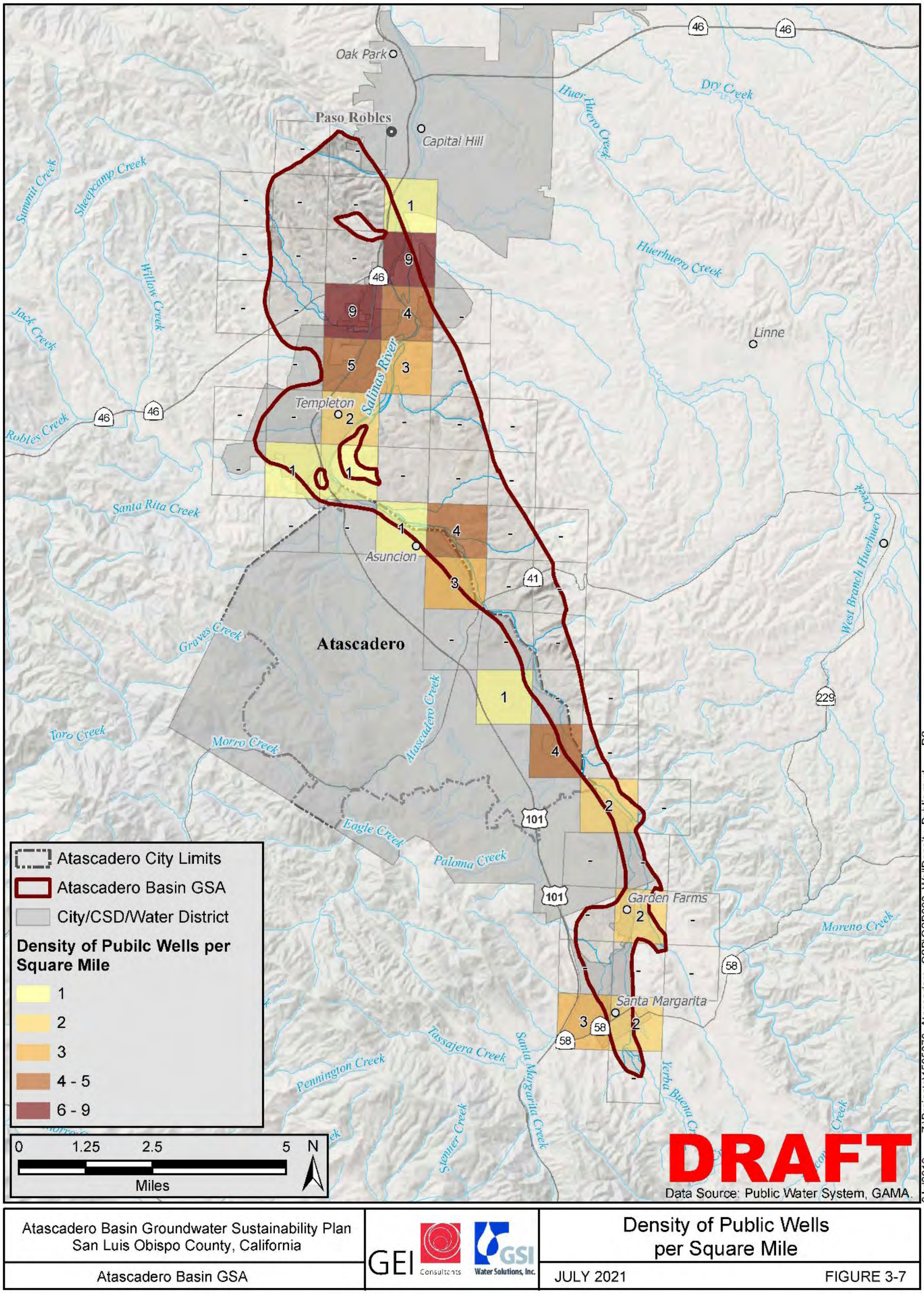


Figure 3-7. Density of Public Wells per Square Mile

3.6 Existing Monitoring and Management Programs

3.6.1 *Groundwater Monitoring*

3.6.1.1 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 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 United States Geological Survey (USGS) has four stations within the Basin that have historically monitored groundwater levels. These stations are currently inactive, and none has readings from within the past 5 years. The frequency for monitoring is given as "periodic," so the frequency is unknown at this time.

Routine monitoring of groundwater levels is conducted by the county in the Basin. Figure 3-8 shows the locations of monitoring wells in the USGS monitoring system and other wells identified in the GAMA program (identified as public well in groundwater monitoring network on Figure 3-8) The monitoring network also includes other wells in the GSP area designated as private that are not shown on this map. Additional evaluation of the current monitoring program will be conducted for the GSP to establish a representative monitoring network of public and private wells that will be used during plan implementation to track groundwater elevations and to ensure that minimum thresholds have not been exceeded.

3.6.1.2 Groundwater Quality Monitoring

Groundwater quality is monitored/reported 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 State Water Resources Control Board (State Water Board) Division of Drinking Water (DDW).
- The USGS collects water quality data on a routine basis under the GAMA program. These data are stored in the state's GAMA/Geotracker system.
- The State Water 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 Atascadero Basin (Recycled Water Policy [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 (CCRWQCB).
- California Water Data Library contains groundwater level and water quality monitoring stations. The data available from this resource has been used above.

- Figure 3-9 shows the location of wells in the state's GAMA Geotracker database and the USGS database.

In the past the USGS has monitored groundwater quality at four stations in the Basin. These stations are currently inactive, and none has readings during the past 5 years. The frequency for monitoring is given as "periodic," so the frequency is unknown at this time.

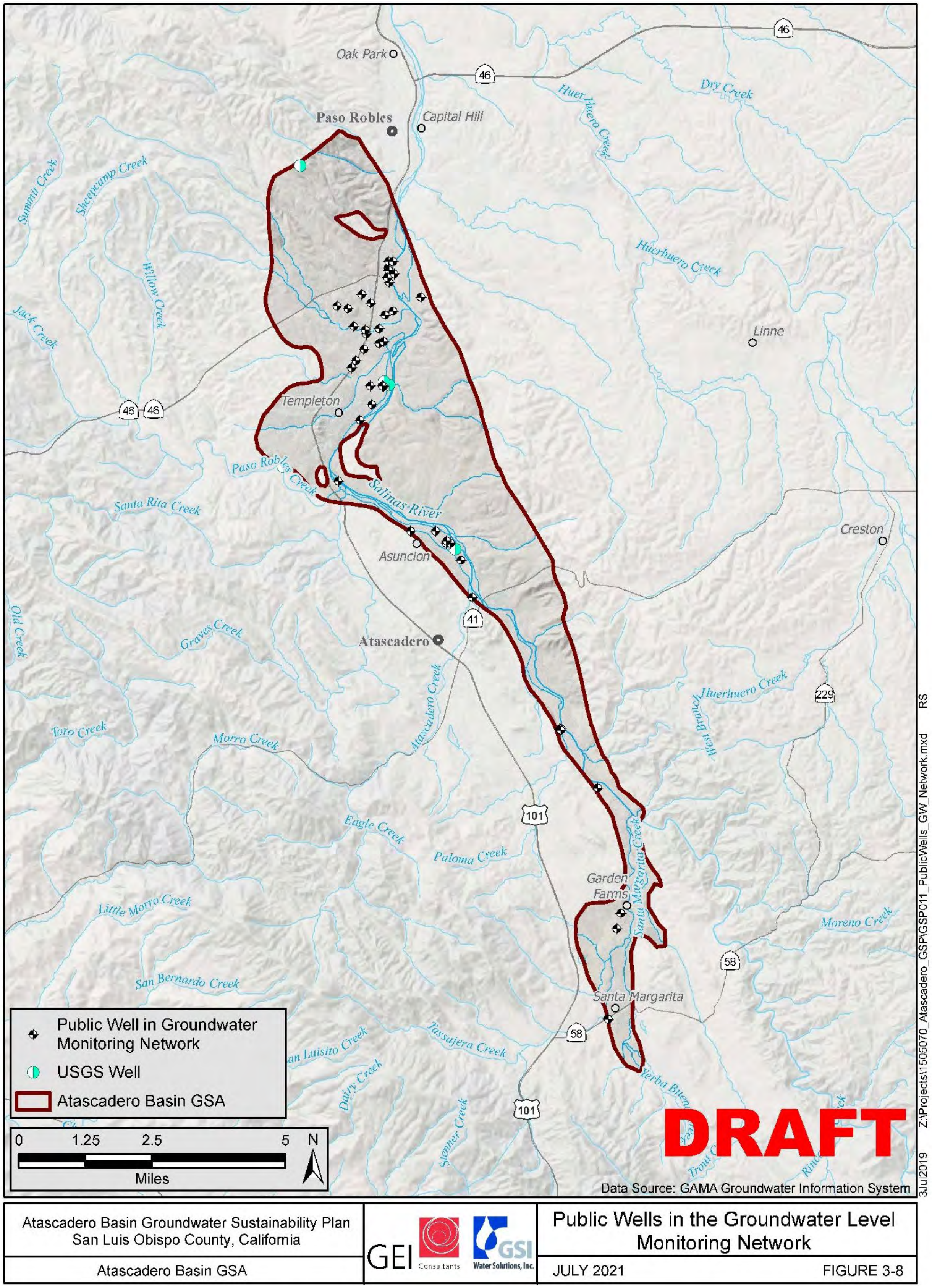


Figure 3-8. Public Wells in the Groundwater Level Monitoring Network

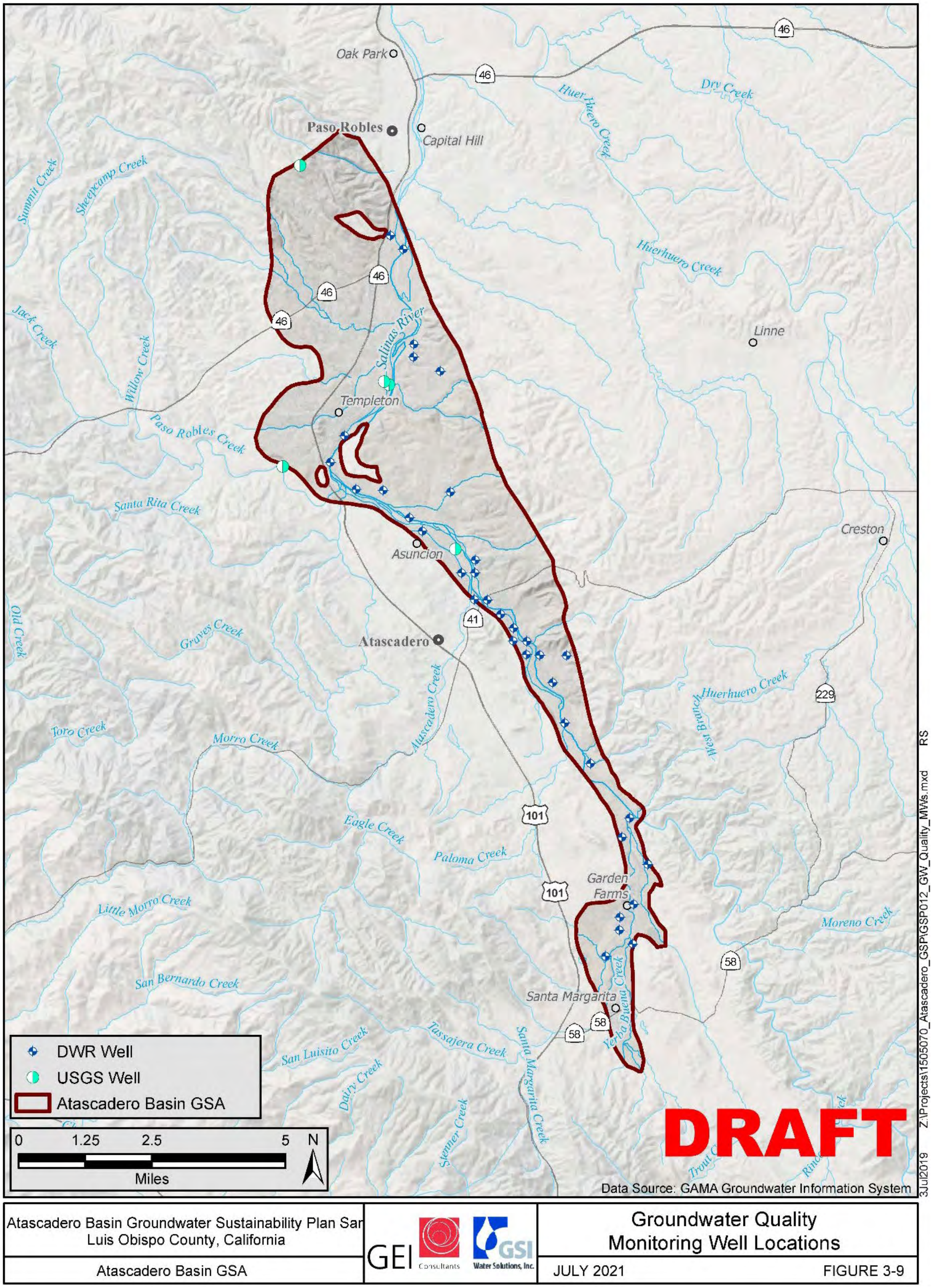


Figure 3-9. Groundwater Quality Monitoring Well Locations

3.6.1.3 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 Basin, but no SLOFCWCD stream gauges lie within the Basin. Of the USGS stream gauges with historical data, none of the gauges is currently active in the Basin. The USGS 11147500 Salinas R A Paso Robles CA stream USGS stream gauge is located outside of the northeastern area of the Basin, as shown on Figure 3-10, and gauge specifics are present in Table 3-4.

Table 3-4. Stream Gage

Station Name	Agency	Data Recorded	Data Interval	Period of Record
1147500 Salinas R A Paso Robles CA	USGS	Gage Height	15 minutes	2007-2019

The CCRWQCB participates in the State Surface Water Ambient Monitoring Program (SWAMP).[12] SWAMP is tasked with assessing water quality in all of California's surface waters. The California Environmental Data Exchange Network (CEDEN)[13] integrates data from SWAMP. There are four stations in the Basin: (309-SALIN-44, 309SAT, 309-SMARG-41, 309-YERBA-41) and eight in the vicinity of the Basin (309-TROUT-41, 309-SALIN-45, 309ATS, 309-ATASC-41, 309-GRAVE-41, 309PASOR-41, 309-SALIN-47, and 309PSO).

3.6.1.4 Climate Monitoring

Climate monitoring in the Basin includes stations that collect data related to temperature, evapotranspiration (ETo), relative humidity, atmospheric pressure, precipitation, etc. Two stations monitored by San Luis Obispo County Public Works collect precipitation data in the Basin, Templeton #762 and Atascadero #711.[14] Santa Margarita #723 is just outside of the Basin. The locations of these stations are shown on Figure 3-10.

---

[12] https://www.waterboards.ca.gov/water_issues/programs/swamp/monitoring/regional_monitoring_programs/region_3.html
[13] https://ceden.waterboards.ca.gov/AdvancedQueryTool
[14] https://www.slocounty.ca.gov/Departments/Public-Works/Forms-Documents/Water-Resources/Monthly-Precipitation-Reports/TempletonPrecipitation-Data-Site-762.aspx
https://www.slocounty.ca.gov/getattachment/078c9cb0-c326-4bf4-a8b6-f458d71d3639/Atascadero-Precipitation-Data-Site-711.aspx
https://www.slocounty.ca.gov/Departments/Public-Works/Forms-Documents/Water-Resources/Monthly-Precipitation-Reports/Santa-MargaritaPrecipitation-Data-Site-723.aspx

The National Climatic Data Center[15] (NCDC) has three stations within the Basin that collect precipitation data. These stations do not have extensive historic data. The station with the most data, US1CASL0014, began recording data in June 2011. The Paso Robles Climate Station, USC00046730, has a large historical data range.

Table 3-5. Climate Monitoring Stations

Station Name	Agency	Data Recorded	Data Interval	Period of Record
Templeton #762	SLO County	Precipitation	Daily	2010-2018
Atascadero # 711	SLO County	Precipitation	Daily	1999-2018
Santa Margarita #722	SLO County	Precipitation	Daily	2005-2018
TEMPLETON 0.4 E, CA US (US1CASL0011)	NCDC*	Precipitation		2010-2013
TEMPLETON 0.4 ENE, CA US (US1CASL0025)	NCDC*	Precipitation	Daily	2017-2019
PASO ROBLES, CA US (USC00046730)	NCDC*	Precipitation, Air Temperature	Daily	1894 to 2019
163 Atascadero	CIMIS	ETo, Precipitation, Air Temperature, Solar Radiation, Relative Humidity, Dew Point, Wind Speed, Soil Temperature	Daily	2000-2018
Atascadero MWC Weather Station	Atascadero MWC	Precipitation	Daily	1916-2018

* National Climatic Data Center, now NCEI – National Centers for Environmental Information

The Templeton 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 ETo for the area. Atascadero MWC has a weather station located in Atascadero. It has been collecting precipitation data since 1916. All climate monitoring stations are identified in Table 3-6.

The long-term precipitation measurements at this station are shown in Table 3-7. Average annual precipitation at this station varies from approximately 8 to 30 inches. Figure 3-11 displays the long-term precipitation record at the Atascadero MWC weather station. Table 3-8 provides a summary of average monthly rainfall, temperature, and reference ETo for the Basin.

[15] https://www.ncdc.noaa.gov/cdo-web/datatools/findstation

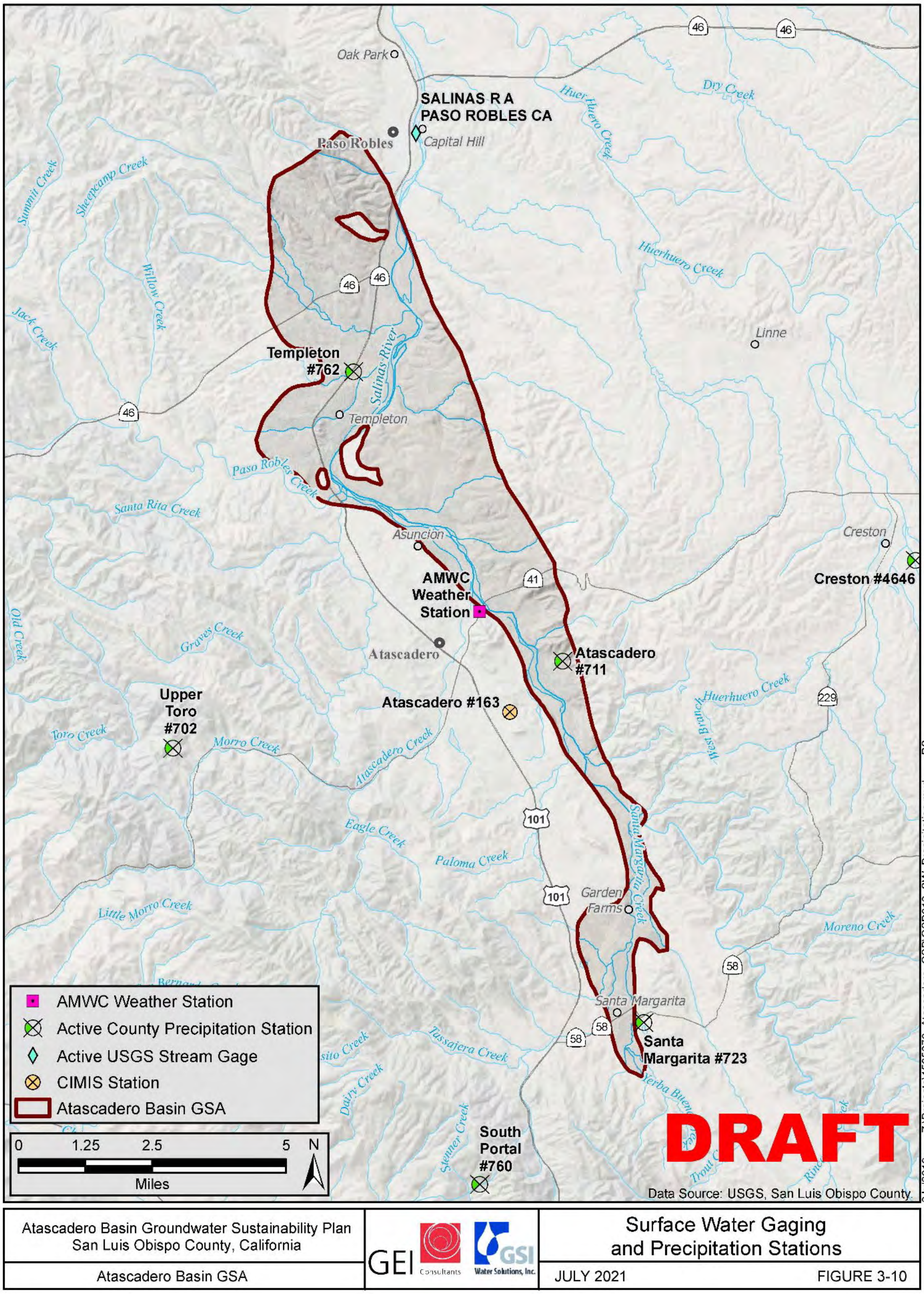


Figure 3-10. Surface Water Gauging and Precipitation Stations

Table 3-6. Precipitation Measurements at the Atascadero MWC Weather Station from 2008 to 2018

Water Year	Precipitation at Name Station ID: Atascadero MWC Weather Station
2008	15.56
2009	10.99
2010	26.51
2011	25.91
2012	11.74
2013	8.41
2014	9.23
2015	11.91
2016	14.16
2017	29.94
2018	12.03
Minimum	8.41
Maximum	29.94
Average	16.04

Note:
All values in inches

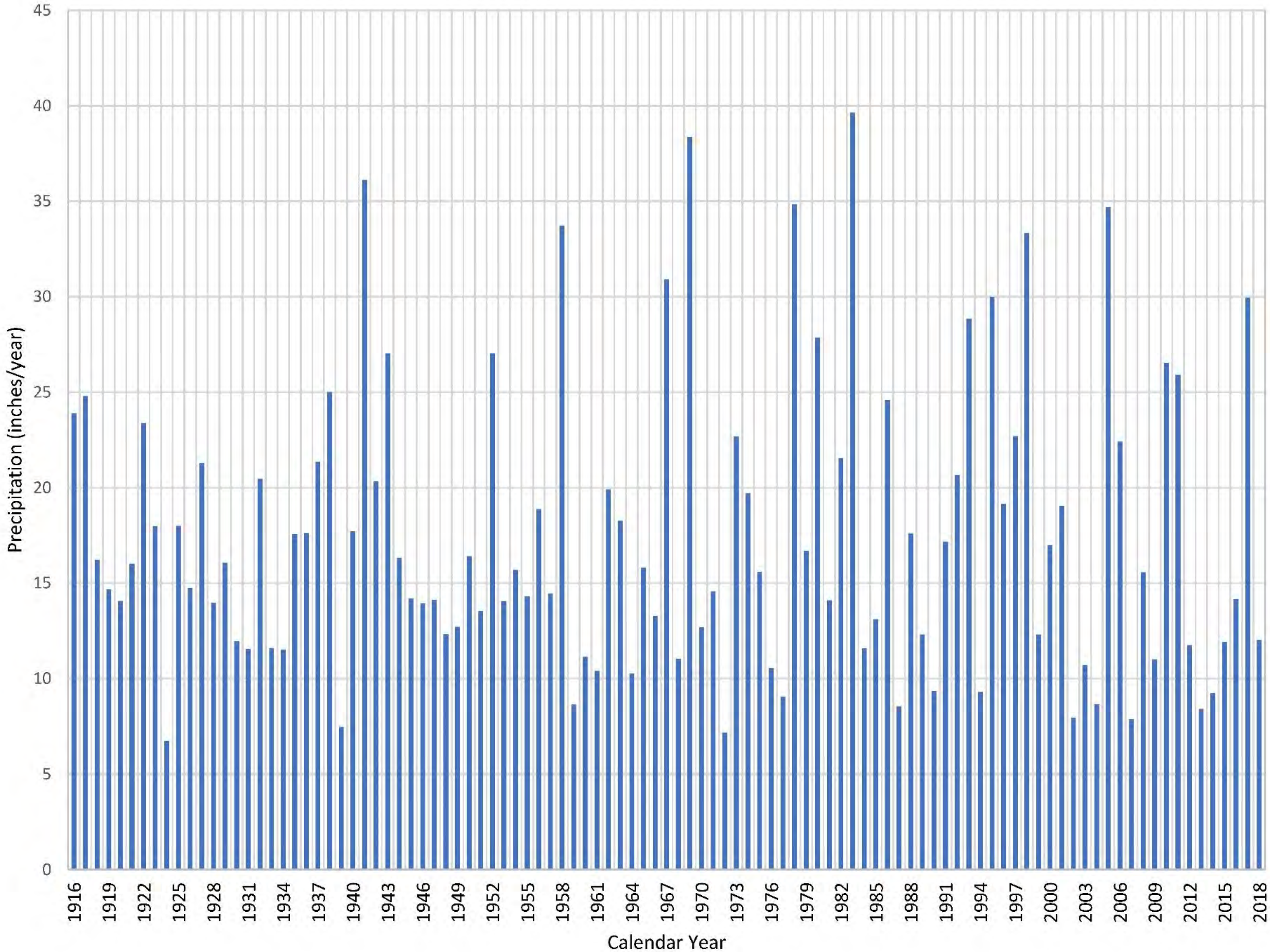


Figure 3-11. Annual Precipitation at the Atascadero MWC Weather Station

This page left blank intentionally.

Table 3-7. Average Monthly Climate Summary

Month	Average Rainfall (inches)[a]	Average ET_o (inches)[b]	Average Daily Temperature (F°)[b]
January	4.15	1.72	46
February	3.74	2.10	48
March	3.13	3.64	52
April	1.01	4.74	54
May	0.26	5.99	60
June	0.03	6.55	66
July	0.04	6.87	69
August	0.05	6.31	68
September	0.25	4.99	65
October	0.89	3.57	58
November	1.50	1.95	51
December	2.84	1.56	45
Monthly Average	1.49	4.17	-
Average Calendar Year	18	50.04	57

Notes:

Average of monthly precipitation at Atascadero MWC Weather Station 1968 to 2018.

ET_o = Average of monthly ETo at CIMIS163 Atascadero Station for 2001 to 2018 [c] Average Calendar Year is not the sum of monthly average, but rather a historical annual average over the period of record.

3.6.2 *Existing Management Plans*

There are numerous groundwater and water management plans that cover the Basin. 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.

3.6.2.1 Paso Robles Groundwater Basin Management Plan (2011)

The city of Paso Robles and its partnering agencies developed a Groundwater Management Plan (GMP) (GEI Consultants, Inc. et. al. 2012) that is compliant with Assembly Bill 3030 and Senate Bill (SB) 1938 legislation. The GMP covered both the Atascadero and Paso Robles subbasins but excluded the area between the San Juan and San Andreas faults. Appendix 3A contains a copy of the plan. A subset of the 73 groundwater management activities identified in the GMP could be implemented in the Basin. The groundwater management activities were grouped into various categories including stakeholder involvement, monitoring and data collection, resource protection, sustainability, and water management. The GMP included an implementation schedule and a requirement for periodic updates.

3.6.2.2 San Luis Obispo County Master Water Report (2012)

The San Luis Obispo County's Master Water Report (MWR) (Carollo 2012) is a compilation of the current and future water resource management activities being undertaken by various entities within the county and is organized by Water Planning Areas. 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

3.6.2.3 San Luis Obispo County 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 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, prepared the IRWMP to align the county'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.

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

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

Water Policy (RMC 2015). At the time of the SNMP, the Atascadero Basin was included in the Paso Robles Subbasin.

3.6.2.5 Salinas and Carmel Rivers Basin Study (2019)

The purpose of the Salinas and Carmel Rivers Basin Study (Basin Study) was to inform and guide future courses of action in response to existing and potential future imbalances between water supplies and demands in the Salinas and Carmel River basins. This Basin Study is a collaborative effort between four local partner agencies and is supported by two federal agencies. It will identify existing water supplies and demands, model future water supplies and demands, accounting for uncertainties in future climate conditions, population growth, and other socioeconomic trends.[16]

3.6.2.6 Atascadero MWC 2015 Urban Water Management Plan (2016)

Atascadero MWC is a public urban water supplier serving more than 31,000 customers. The Atascadero MWC 2015 Urban Water Management Plan (UWMP) (MKN & Associates 2016) was developed to meet the requirements of the California UWMP Act from 2010 as well as the updates from 2015. The UWMP includes a system description, system water use, Water Conservation Act baselines and targets, current and future system water supplies, a water supply reliability assessment, water shortage contingency planning, and demand management measures.

The system water supplies include imported water from the NWP and groundwater from two distinct yet interrelated groundwater sources: the Salinas River Underflow and the Atascadero Basin of the Salinas Valley Groundwater Basin. Atascadero MWC does not have a self-supplied surface water supply source, does not currently or intend to supplement water supply demands with stormwater, nor does it provide recycled water to customers within the service area. The city of Atascadero does, however, provide recycled water from the city's water reclamation facility to the Chalk Mountain Golf Course through an irrigation well. There are no opportunities for desalinated water projects in the service area, and Atascadero MWC does not anticipate any planned or potential future water exchanges or transfers. Atascadero MWC has an emergency water supply agreement with San Luis Obispo County to provide water from the Atascadero MWC system to CSA 23 and Garden Farms Community Water District during emergency water shortage conditions.

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

The City of Paso Robles UWMP (Todd Groundwater 2016) describes the Paso Robles' current and future water demands, identifies current water supply sources, and assesses supply reliability for the city of Paso Robles. The UWMP describes the city's reliance on groundwater and its support for efforts to avoid overdraft by developing additional sources. The UWMP provides a forecast of future growth, water demand, and water sources for the city through 2035. These

[16] http://www.mpwmd.net/asd/board/committees/watersupply/2017/20170208/02/Item-2-Exh-B.pdf

sources include water conservation, surface water from Lake Nacimiento, and recycled water for irrigation. The UWMP identifies beneficial impacts to groundwater quality using these sources.

3.6.3 *Existing Groundwater Regulatory Programs*

3.6.3.1 Salinas River Live Stream Requirements (1972)

In 1972, the State Water Board 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 were 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.

3.6.3.2 Groundwater Export Ordinance (2015)

In 2015, San Luis Obispo County 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 their 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 1 year.

3.6.3.3 Countywide Water Conservation Program Resolution 2015-288 (2015)

This resolution identified areas of severe decline in groundwater elevation. Properties overlying these areas would be restricted from planting new or expanding irrigated agriculture except for those converting irrigated agriculture on the same property into a different crop type. This resolution applies to the Nipomo Mesa Water Conservation Area (which is part of the Santa Maria Groundwater Basin), and the Los Osos and Paso Robles groundwater basins. Therefore, the resolution is not applicable to the Atascadero Basin.

3.6.3.4 Agricultural Order R3-2017-002 (2017)

In 2017 the CCRWQCB issued Agricultural Order No. R3-2017-0002, a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands. The permit requires that growers implement practices to reduce nitrate leaching into groundwater and to 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 implanted by the Central Coast Groundwater Coalition) are required to test all on-farm domestic wells and the primary irrigation supply wells for nitrate or nitrate plus nitrite, and general minerals (including, but not limited to, Total Dissolved Solids (TDS), sodium, chloride, and sulfate).

3.6.3.5 Water Quality Control Plan for the Central Coast Basins (2017)

The Water Quality Control Plan for the Central Coastal Basin (Basin Plan) was most recently updated in September 2017 by the State Water Board. 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 that must be maintained to allow those uses, provides an implementation plan, details State Water Board and CCRWQCB plans and policies to protect water quality, and implements 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 preservation; 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.

3.6.3.6 California DWR Well Standards (1969)

Under the Water Code Sections 13700 to 13806, DWR has the responsibility for developing well standards. DWR maintains these standards to protect groundwater quality.

California Well Standards, published as DWR Bulletin 74, represent minimum standards for well construction, alteration, and destruction to protect groundwater. Cities, counties, and water agencies in California have regulatory authority over wells and can adopt local well ordinances that meet or exceed the statewide Well Standards. When a well is constructed, modified or destroyed, a well completion report is required to be submitted to DWR.

3.6.3.7 Requirements for New Wells (2017)

Effective on January 1, 2018, SB 252 requires well permit applicants in critically overdrafted basins to include information about the proposed well, such as location, depth, and pumping capacity. The bill also requires the permitting agency to make the information easily accessible to the public and the GSA. As of 2019, these requirements are under review by DWR. This bill is not applicable because the Atascadero Basin is not a critically overdrafted basin.

3.6.3.8 Title 22 Drinking Water Program (2018)

The 2018 State Water Board 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 that provides 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, and industrial and irrigation wells are not regulated by the DDW.

The State Water Board DDW enforces the monitoring requirements established in Title 22 of the California Code of Regulations for public water system wells, and all the data collected must be reported to the DDW. Title 22 also designates the regulatory limits (e.g., 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.

3.6.3.9 Incorporation Into GSP

Information in these various plans has been incorporated into this GSP and will be used during the preparation of Sustainability Goals, when setting Minimum Thresholds and Measurable

Objectives, and was considered during development of Projects and Management Actions (Section 9).

3.6.3.10 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 2015 Groundwater Export Ordinance prevents export of water out of the Basin. This is likely not a significant limitation because exporting water out of the Basin hinders sustainability.
- The San Luis Obispo County IRWMP and the Title 22 Drinking Water Program restrict the quality of water that can be recharged into the Basin.

3.7 Conjunctive Use Programs

The city of Paso Robles, Templeton CSD, and Atascadero MWC conduct recharge recovery programs using water from the NWP within the Basin.

3.8 Land Use Plans

San Luis Obispo County, the city of Atascadero, and the city of Paso Robles have land use authority. The GSA does not have land use authority. However, SGMA does require the GSA to consider land use documents by the overlying governing agencies. 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 supply.

3.8.1 *City of Atascadero General Plan (2016)*

The 2016 city of Atascadero's General Plan bridges the gap between community values, visions and objectives, and physical decisions such as subdivision, land development, and public works. The land use element designates the general distribution and intensity of land uses, including the location and type of housing, businesses, industry, open space, education facilities, public buildings, and parks.

The General Plan assumes that an annual population growth rate averaging 1.25 percent will be sustained during the 20-year period between 2000 and 2020. The projected potential development, Table II-3 in the General Plan, established the land use designations of the General Plan and lists maximum potential development for each designation, is shown in Table 3-9.

The Atascadero General Plan 2025 states,

> The city analyzed the capacity of existing water resources and determined that given the existing water supply and that which will result from the NWP, the existing water supply is not a constraint to growth in the city and is available for all vacant zones with the city to accommodate its regional housing needs allocation.

Table 3-8. General Plan Land Use – Projected Potential Development

Table II-3 General Plan Land Use – Projected Potential Development

Land Use Designation	Maximum Density	Average FAR	Minimum Lot Size	Acres (ac)	Projected Dwelling Units (du)	Projected Population 2.65 people/unit (pp)
RR / RE / SE	0.1 - 0.4 unit/acre gross**		2.5 -10 ac	9,340.4 ac	3,634 du	9630 pp
SFR-Z	1.0 unit/acre gross**		1.5 - 2.5 ac	655.2 ac	652 du	1728pp
SFR-Y	2.0 units/acre gross		1.0 ac	1,579.5 ac	2,831du	7503pp
SFR-X	4.0 units/acre net*		0.5 ac	472.7 ac	1,380 du	3658 pp
MDR	10 units/acre net		0.5 ac	217.1 ac	1,116 du	2958 pp
HDR	24 units/acre net (minimum 20 units/acre net)		0.5 ac	303.0 ac	3,801du	10,070 pp
GC	20 units/acre net	0.3 FAR		292.1 ac	194 du	514 pp
SC		0.4 FAR		41.8 ac		
D	20 units/acre net	3.0 FAR		62.3 ac	55 du	146 pp
MU	20 units/acre net	0.3 FAR		66.6 ac	208 du	551 pp
CPK		0.4 FAR		82.9 ac		
CREC	10 units/acre net	0.1 FAR		6.7 ac		
IND		0.4 FAR		65.2 ac		
AG	0.1 - 0.4 units/acre gross**		2.5 - 10 ac	43.9 ac		
REC				501.7 ac		
PUB		0.4 FAR		1,174.3 ac		
OS				277.4 ac		
Total				**15,182.6 ac**	**13,871 du**	**36,758 pp**

- "Net" shall mean minimum lot size exclusive of private or publicly owned abutting road rights-of-way while "Gross" shall include abutting road right-of-way to center line.
  FAR (Floor Area Ratio): The FAR expresses the percentage of a site area that could be covered by a building. The FAR is not considered an absolute cap under this General Plan but is used as an overall land use designation average to calculate traffic and job generation related to the uses. Actually site utilization restrictions are determined by the zoning ordinance's setback, landscaping, parking and height standards.
  Downtown FAR is assumed with an average of 0.4 with a max of 3.0.
- * The maximum density sets a limit to the number of units that may be developed in each land use designation. The General Plan also sets minimum lots size areas that are allowed through the subdivision process consistent with the "Elbow Room" principle. The minimum lot sizes are more restrictive than the maximum densities in order to reflect historic small lot development densities and to allow for new planned development projects that incorporate smaller lot sizes with innovative design concepts.
  ** Density is adjusted by performance standards in this land use designation. The maximum density may be lower based on the application of performance standards.

3.8.2 *City of Paso Robles General Plan (2011)*

The 2011 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 General Plan has a planning horizon of 2025.

Current 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 to fully develop at the densities recommended in the city's General Plan. The Paso Robles' General Plan land use element appendix indicated in Table 1-E[17], Population Projection Details, that only approximately 4 percent of this growth would occur on the west side of the City, not including the Uptown/Town Centre Specific GSP area. Though the bounds of this area referred to as the west side are not clearly defined in the General Plan, part of this area of the city is located within the Atascadero Basin. The area to the left of the red line on Figure 3-12[18] indicates roughly the area located in the Atascadero Basin which would fall into the west side of the city.

Table 3-9. Rural North County Land Use Type and 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.

3.8.3 *San Luis Obispo County General Plan (2014)*

The 2014 San Lis Obispo County General Plan contains three pertinent elements that are related to land use and water supply. Pertinent sections include the following elements

- Land Use

---

[17] https://www.prcity.com/DocumentCenter/View/14350/Land-Use-Element-Appendix-PDF
[18] https://www.prcity.com/DocumentCenter/View/14424/Figure-LU-3---Specific-Plan-Overlay-PDF

- Agricultural
- Inland Area Plans

The county's General Plan also contains programs that 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. 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 Basin boundaries but does provide a general representation of the land use in the area. Figure 3-13 is copied from the County General Plan and shows the planning areas.

Part III of the LUCE includes a component for community plans. Community plans are developed to guide future land use and transportation in specific areas of the county. These include the Templeton Community Plan and the Santa Margarita Community Plan. These plans are to be consistent with the other elements of the County General Plan.

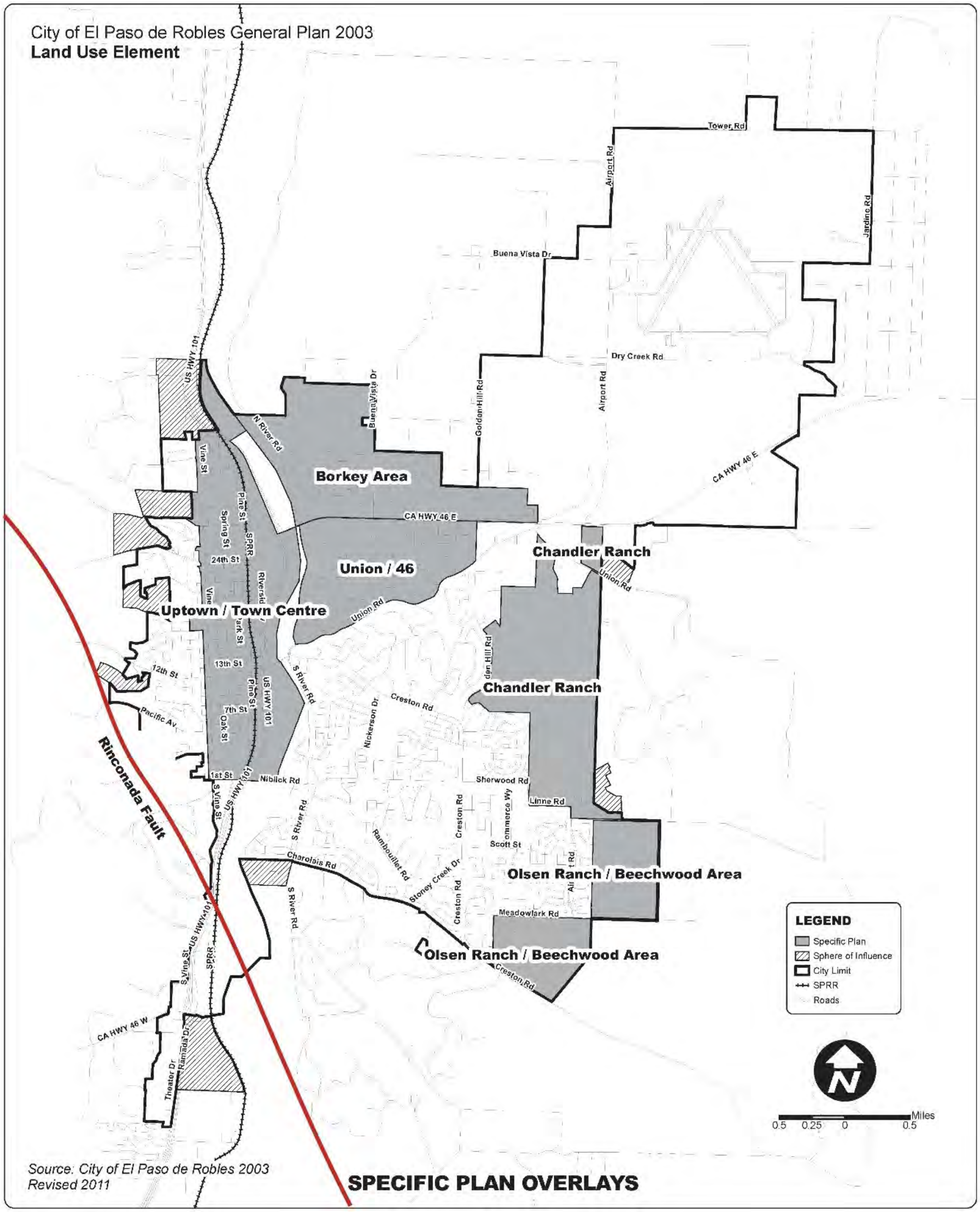


Figure 3-12. Paso Robles' General Plan Specific Plan Overlays

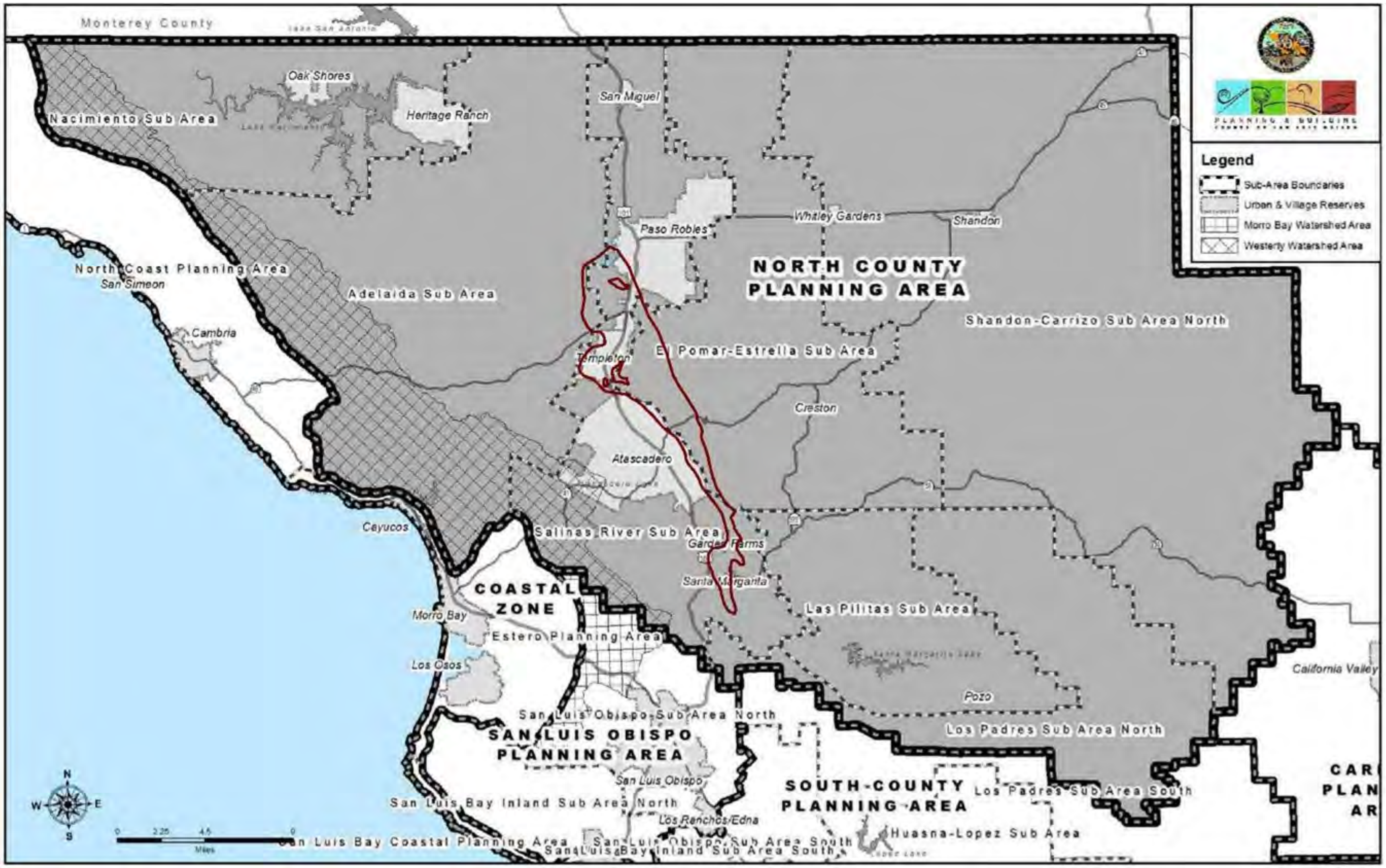


Figure 3-13. North County Planning Subareas

This page left blank intentionally.

The county’s 2014 General Plan identifies land use types and acres within the North County planning area. The data from the 2014 update are summarized in Table 3-10.

The San Luis Obispo County 2014 General Plan included a table of the United States Census Population Estimates between 1960 to 2015. Data from areas within the Basin are included in Table 3-11. Population growth has been low since the 1990s.[19]

Table 3-10 U.S. Census Population Estimates 1960-2015

	1960	1970	1980	1990	2000	2010	2015
Atascadero	5,983	10,290	16,232	23,138	24,945	26,986	27,366
Paso Robles	6,677	7,168	9,163	18,583	23,370	29,624	30,522
Santa Margarita	630	726	887	1,173	1,279	1,259	1,281
Templeton	950	743	1,216	2,887	4,687	6,976	7,184

The Atascadero General Plan (2025) assumes that an annual growth rate averaging 1.25 percent will be sustained during the next 20 years (Atascadero General Plan 2025).

The San Luis Obispo 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. The estimated 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 acre-feet (AF), which is 44 percent of ultimate build-out.

3.8.4 *Templeton Community Plan (2014)*

The 2014 Templeton Community Plan establishes a vision for the future over the next 20 years.

The community plan is a component of Part III of the LUCEs of the San Luis Obispo County General Plan. All other county plans, policies, and programs that involve the community of Templeton and are subject to the county’s General Plan are to be consistent with the Templeton Community Plan. The Community Plan describes county land use and transportation programs in the community of Templeton, including regulations adopted in the Land Use Ordinance and Land Use Element.

3.8.5 *Santa Margarita Community Plan (1996)*

The 1996 Santa Margarita Community Plan establishes a vision for the future over the next 20 years. The community plan is a component of Part III of the LUCEs of the county’s General Plan. All other county plans, policies, and programs that involve the Santa Margarita and are subject to the county’s General Plan are to be consistent with the Templeton Community Plan. The

[19] https://www.slocounty.ca.gov/getattachment/f98b8501-5194-49b4-bf20-f51feb6359ab/Housing-Element.aspx page 5-4

Community Plan describes county land use and transportation programs in the community of Templeton, including regulations adopted in the Land Use Ordinance and Land Use Element.

3.9 Management Areas

Based on historic, current, and projected groundwater conditions in the Atascadero Basin, it was determined that management areas are not needed at this time to continue to sustainable manage the Basin. If conditions change in the future, management areas will be considered as part of the adaptive management approach.

4. Basin Setting

This section describes the hydrogeologic conceptual model of the Atascadero Area Groundwater Sub-basin of the Salinas Valley Basin (Basin), including the Basin boundaries, geologic formations and structures, and principal aquifer units. The section also summarizes general Basin water quality, and generalized groundwater recharge and discharge areas. This section draws upon previously published studies, primarily hydrogeologic and geologic investigations prepared by Fugro for the San Luis Obispo County Flood Control and Water Conservation District in 2002 and 2005 (Fugro and Cleath 2002; Fugro et. al. 2005) and the Atascadero Basin's Basin Boundary Modification Application report (BBMR) (Fugro 2016). All subsequent investigations, including the BBMR, adopted the geologic interpretations of the Fugro and Cleath 2002 and Furgo et. al. 2005 reports. The Hydrogeologic Conceptual Model presented in this section is not intended to be exhaustive but is a summary of the relevant and important aspects of the Basin hydrogeology that influence groundwater sustainability. More detailed information can be found in the original reports (Fugro and Cleath 2002; Fugro et. al. 2005). This section sets the framework for subsequent sections on groundwater conditions and water budgets.

4.1 Basin Topography and Boundaries

The Basin is a narrow structural northwest-trending trough that extends from the Santa Margarita area at its southern end to the city of Paso Robles in the north. The Basin is bounded by the Santa Lucia Range on the west. The ground surface elevation of the Basin ranges from approximately 1,300 ft/msl in the highlands at the northern tip of the Basin to approximately 700 ft/msl where the Salinas River exits the Basin to the north. The southern tip of the Basin is approximately 1,000 ft/msl. The middle part of the Basin forms an elongate narrow valley along the Salinas River, flanked by areas of variable topographic relief. The Basin encompasses an area of approximately 19,800 acres.

Figure 4-1 shows the topography of the Basin using 100-foot contour intervals. The Basin boundary is defined in DWR Bulletin 118 (DWR 2016). It is generally bounded by geologic units with low permeability, sediments with poor groundwater quality, rock, and structural faults. Along a portion of the northeast boundary, sediments of the Basin are continuous with the adjacent Paso Robles Area Groundwater Sub-basin of the Salinas Valley Basin (Paso Robles Basin). Specific Basin lateral boundaries include the following:[20]

- The northwestern, western, and southern boundaries of the Basin are defined by the contact of Basin sediments with older, relatively impermeable geologic units, including Tertiary-age consolidated sedimentary beds, Cretaceous-age metamorphic rocks, and granitic rock.

[20] Minor discrepancies between these boundary descriptions and the Bulletin 118 boundary are discussed in Section 4.3

- Along the northern portion of the eastern boundary, north of Templeton, the Rinconada Fault defines the eastern boundary of the Basin and is assumed to form a leaky hydraulic barrier between the Paso Robles Basin and the Basin.
- Along the southern portion of the eastern boundary, south of Templeton, between Atascadero and Creston, the Rinconada Fault juxtaposes Monterey Formation rocks and other bedrock units with the Paso Robles Formation basin sediments.

The bottom of the Basin is generally defined as the base of the Paso Robles Formation, which is an irregular surface formed as the result of folding, faulting, and erosion (Fugro and Cleath 2002). The exception to this is the Santa Margarita area at the southern end of the Basin. In this area, the bottom of the Basin is defined as the base of the Alluvium. The Basin boundary and bottom are not considered absolute barriers 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 it is therefore not considered part of the Basin. Figure 4-2 shows the lateral boundaries of the Basin and the approximate depth to the bottom of the Basin as defined by the base of the Paso Robles Formation.

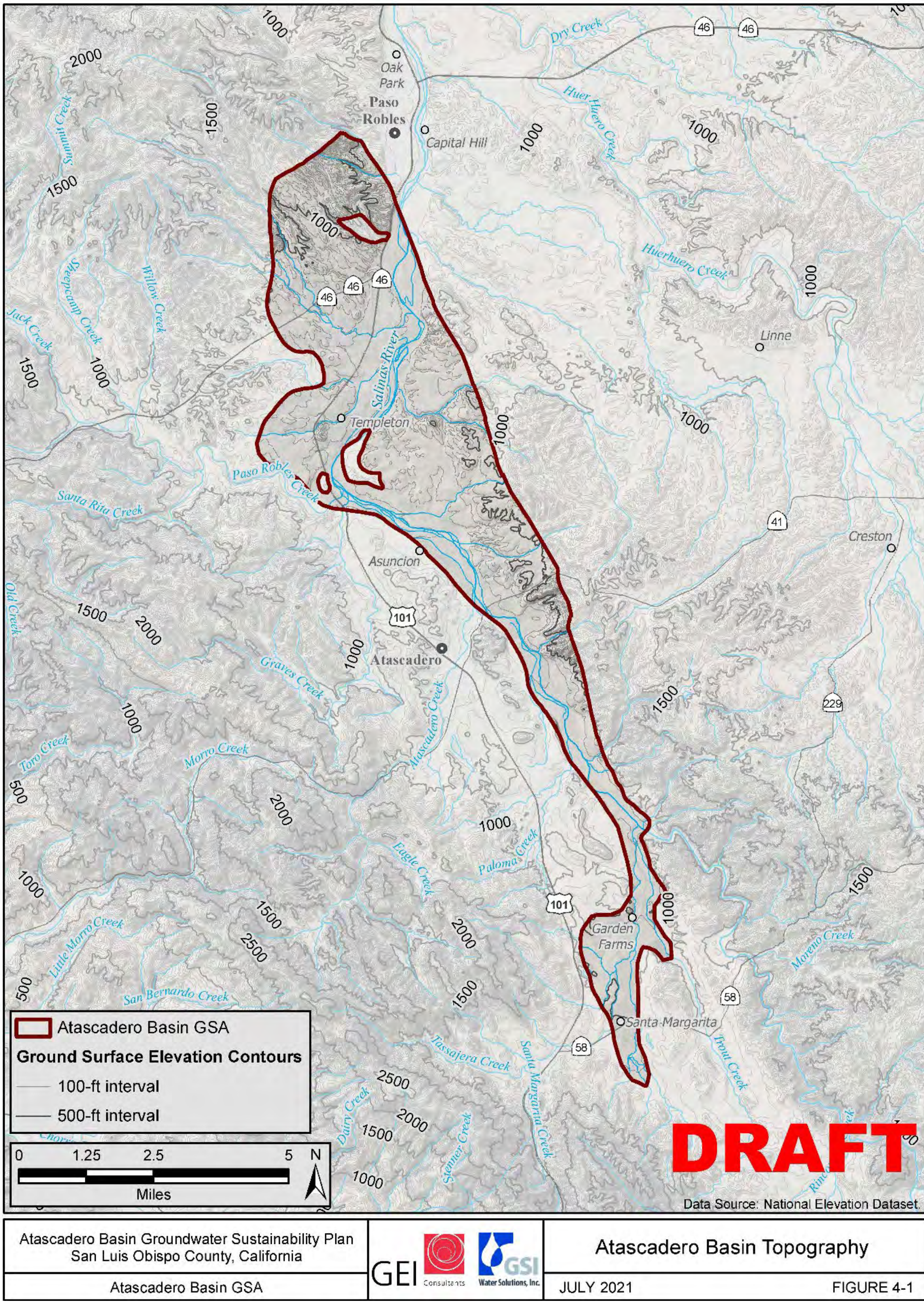
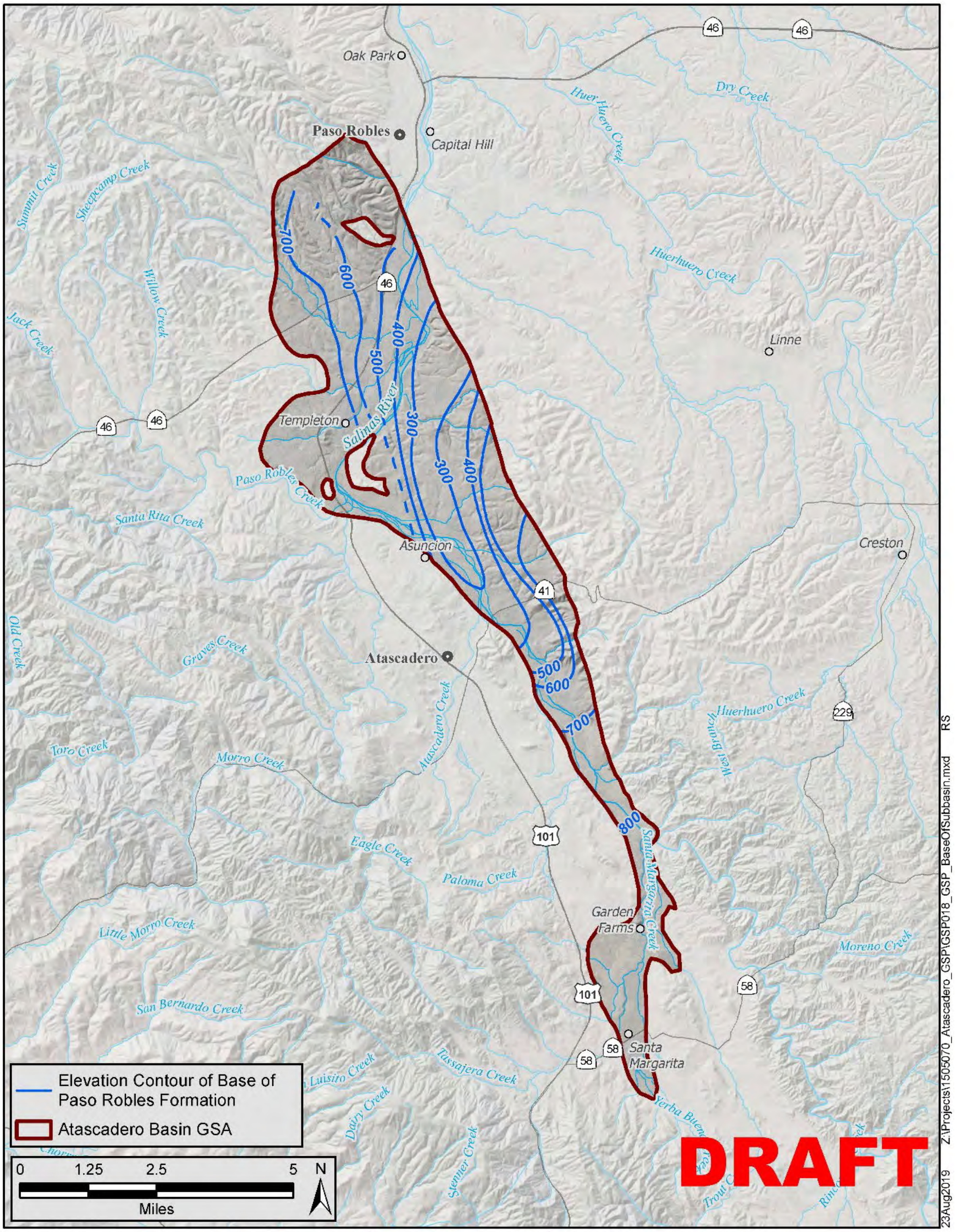


Figure 4-1. Atascadero Basin Topography



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Base of the Basin as Defined by the Base of the Paso Robles Formation
Atascadero Basin GSA		JULY 2021 FIGURE 4-2

Figure 4-2. Base of the Basin 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, 2007) 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 groups are defined as:

- Group A – High Infiltration Rate: water is transmitted freely through the soil; soils typically less than 10% clay and more than 90% sand or gravel
- Group B – Moderate Infiltration Rate: water transmission through the soil is unimpeded; soils typically have between 10 and 20% clay and 50 to 90% sand
- Group C – Slow Infiltration Rate: water transmission through the soil is somewhat restricted; soils typically have between 20 and 40% clay and less than 50% sand
- Group D – Very Slow Infiltration Rate: water movement through the soil is restricted or very restricted; soils typically have greater than 40% clay, less than 50% 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 generally correspond to areas underlain by Alluvium, unsaturated Older Alluvium, or areas of coarser sediments within the Paso Robles Formation.

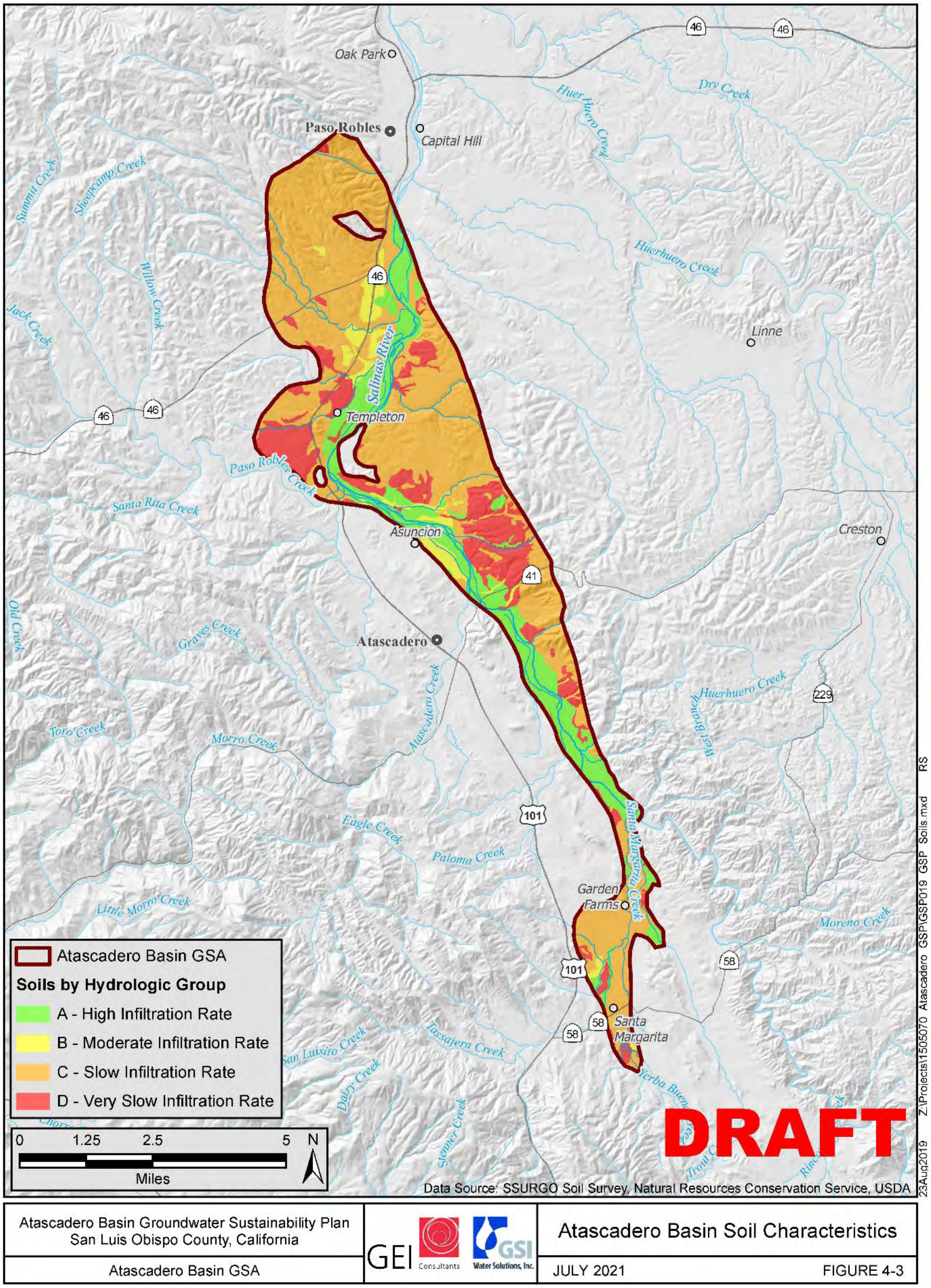


Figure 4-3. Atascadero Basin Soil Characteristics

4.3 Regional Geology

This section provides a description of the geologic formations in the Basin. These descriptions are summarized from previously published reports by Fugro (Fugro and Cleath 2002; Fugro et. al. 2005). Figure 4-4 shows the surficial geology and geologic structures of the Basin (Dibblee and Minch 2004a–h; 2006a–d). Figure 4-5 provides the location of the geologic cross-sections shown on Figure 4-6 through Figure 4-11 The selected geologic cross-sections illustrate the relationship of the geologic formations that comprise the Basin and the geologic formations that underlie and bound the Basin. These cross sections shown on Figures 4-6 through 4-9 were directly adopted from the BBMR (Fugro 2016). The cross sections shown on Figures 4-10 and 4-11 includes a majority portion adopted from the BBMR (Fugro 2016) with an extension of the southern end, completed for this GSP.

4.3.1 *Regional Geologic Structures*

The Basin is a narrow structural northwest-trending trough filled with sediments that have been folded and faulted by regional tectonics. The Basin is bounded on the west by the Santa Lucia Range. Water-bearing sedimentary deposits in the Basin are estimated to be up to approximately 700- to 800-feet thick. Based on inspection of well logs and the base of permeable sediments, the deepest part of the basin is the area between Templeton and the Rinconada Fault (Fugro and Cleath 2002) (Figures 4-2, 4-10, 4-11).

The northwestern, western, and southern boundaries of the Basin are defined by the contact of Paso Robles Formation sediments with older, relatively impermeable geologic units, including Tertiary-age consolidated sedimentary beds, Cretaceous-age metamorphic rocks, and granitic rock. The Rinconada Fault defines the eastern boundary of the Basin and, along the northern portion of the boundary between the Paso Robles Basin and the Basin, is assumed to form a leaky hydraulic barrier. Between Atascadero and Creston, the Rinconada Fault juxtaposes less permeable granitic and Monterey Formation rocks to the east with the Paso Robles Formation basin sediments west of the fault. Dibblee (1976) suggests that vertical displacement along the Rinconada Fault exists, but the data conflict depending on location. In the fault reach along the boundary of the Atascadero Basin, evidence exists to suggest relative uplift of the northeast block. Dibblee (1976) suggests that the earliest displacement since Miocene time was up on the northeast, then up on the southwest in the late Pleistocene. All evidence indicates that horizontal displacement on the fault is right lateral (Dibblee, 1976; Campion, et al, 1983). The Rinconada Fault is not considered active because it does not displace Holocene-age deposits, but it is considered potentially active because it displaces the Quaternary-age Paso Robles Formation.

4.3.2 *Geologic Formations within the Basin*

The stratigraphy in the watershed of the Basin includes the water-bearing geologic units that form the basin aquifer, and the non-water bearing geologic units that underlie and are adjacent to the basin sediments. Figure 4-4 shows the extent of the geologic formations described in the following paragraphs[21]. Descriptions of the water bearing and some of the non-water bearing geologic formations are provided below, including hydrogeologic characterizations of each formation. In addition, the critical structural features within and bounding the basins are identified.

The main criteria for defining the water bearing geologic formations in the Basin are that they exhibit both 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) on a long-term basis (Fugro 2016). Another criterion is that the groundwater produced from the geologic formation must have generally acceptable quality. DWR (1979) used groundwater conductivity of 3,000 micromhos/centimeter as the maximum limit for basin groundwater quality. Application of these two criteria limits definition of the basin sediments to Quaternary-age alluvial deposits and the Plio-Pleistocene-age Paso Robles Formation.

4.3.2.1 Alluvium

The Alluvium (Qa) consists of alluvial (river or stream-related) deposits occurring beneath the flood plains of the rivers and streams within the Basin. These deposits reach a depth of about 100 feet or less below ground surface (bgs) and are typically comprised of coarse sand and gravel. The Alluvium is generally much coarser than the Paso Robles Formation sediments, with higher permeability that results in well production capability that often exceeds 1,000 gpm. One of the principal areas of groundwater recharge to the basin occur where the shallow alluvial sand and gravel beds are in direct contact with the Paso Robles Formation.

4.3.2.2 Older Alluvium

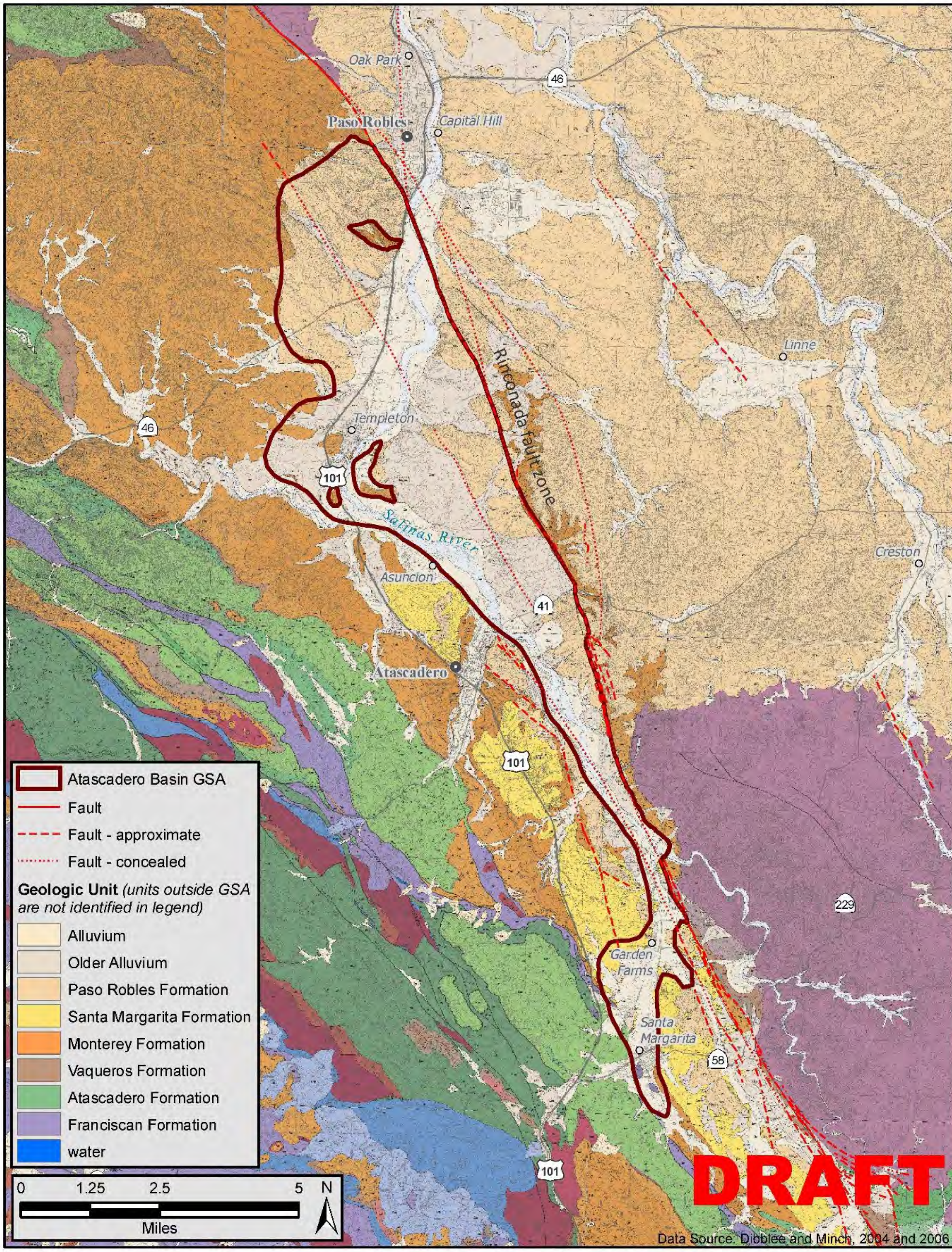
Numerous deposits of Older Alluvium are located throughout the Basin (Figure 4-4). These deposits are terraces of dissected older alluvial sands and gravels. They are unsaturated and therefore are not considered a principal aquifer unit within the Basin.

4.3.2.3 Paso Robles Formation

The Basin is comprised predominantly of Paso Robles Formation (QTp) sedimentary layers that extend from the ground surface, or the base of Alluvium, to approximately 700 to 800 feet thick in some areas of the Basin. The Paso Robles Formation is a Plio-Pleistocene, predominantly non-marine geologic unit comprised of relatively thin, often discontinuous sand and gravel layers interbedded with thicker layers of silt and clay. It was deposited in alluvial fan, flood plain, and lake depositional environments. Seashells are reported in some well logs near the base of the Paso Robles Formation, suggesting a near-shore marine depositional environment. The formation is unconsolidated and generally poorly sorted. It is not usually intensely deformed, except locally

[21] Figure 4-4 includes the Basin boundary as defined by DWR Bulletin 118 (Bulletin 118 boundary) (DWR, 2016). As shown on Figure 4-4, the Bulletin 118 boundary does not everywhere include the full lateral extent of Basin sediments (described in Section 4.3.2) and the Bulletin 118 boundary also occasionally includes older, relatively impermeable non-Basin geologic units (described in Section 4.3.3). These discrepancies between the Bulletin 118 boundary and the surficial geology presented in Figure 4-4 are generally minor and may be corrected in a future BBMR.

near fault zones. The sand and gravel beds within the unit have a high percentage of Monterey shale gravel fragments and generally have moderately lower permeability compared to the shallow, unconsolidated alluvial sand and gravel beds. The formation is typically sufficiently thick such that water wells generally produce several hundred gpm. In the area near Atascadero, the Paso Robles Formation has been folded, exposing the basal gravel beds. With the basal gravel exposed and in direct contact with the Alluvium, the Paso Robles Formation is recharged directly from the Alluvium (Fugro 2016).



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Surficial Geology and Geologic Structures	
Atascadero Basin GSA		JULY 2021	FIGURE 4-4

Figure 4-4. Surficial Geology and Geologic Structures

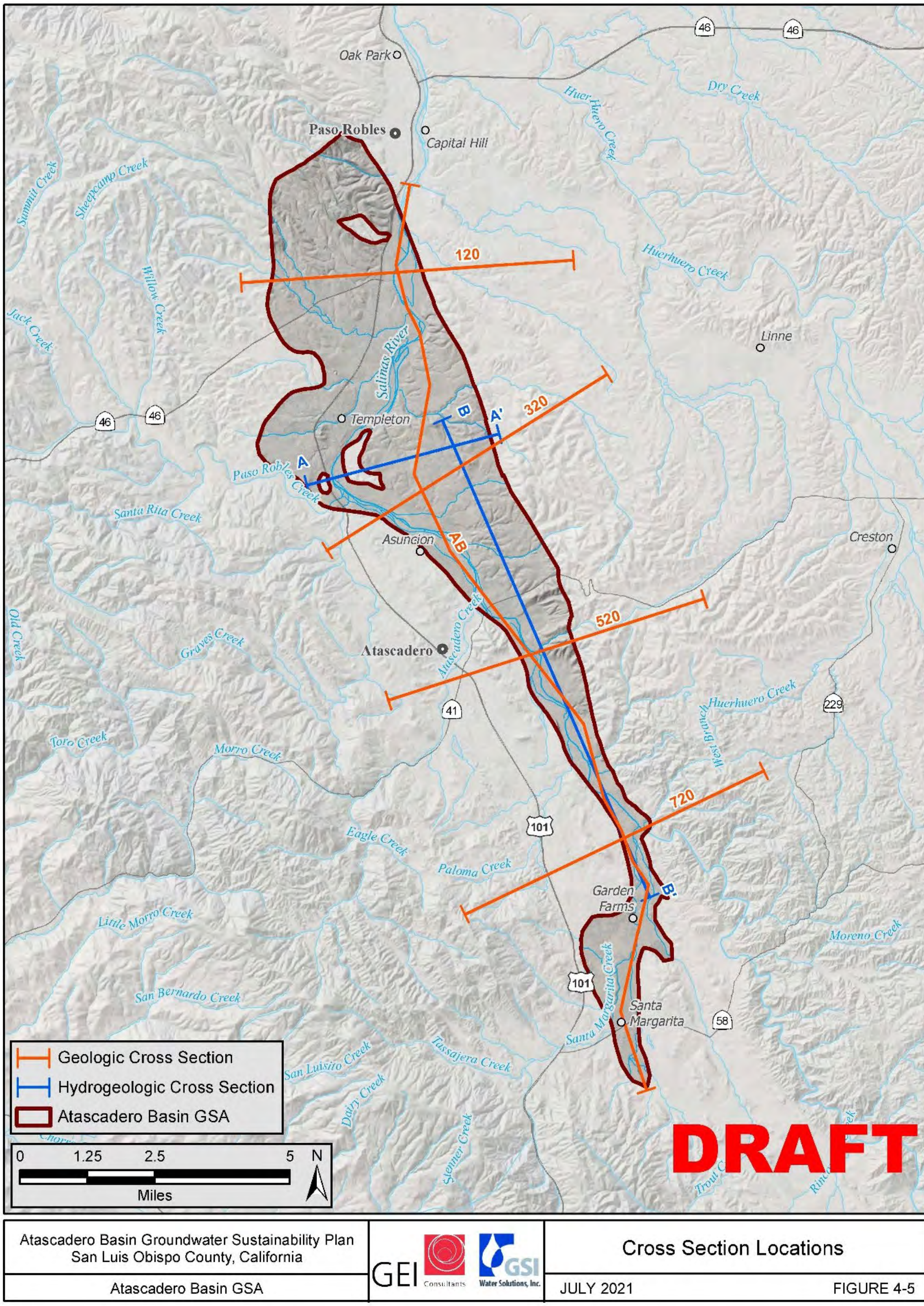


Figure 4-5. Cross Section Locations

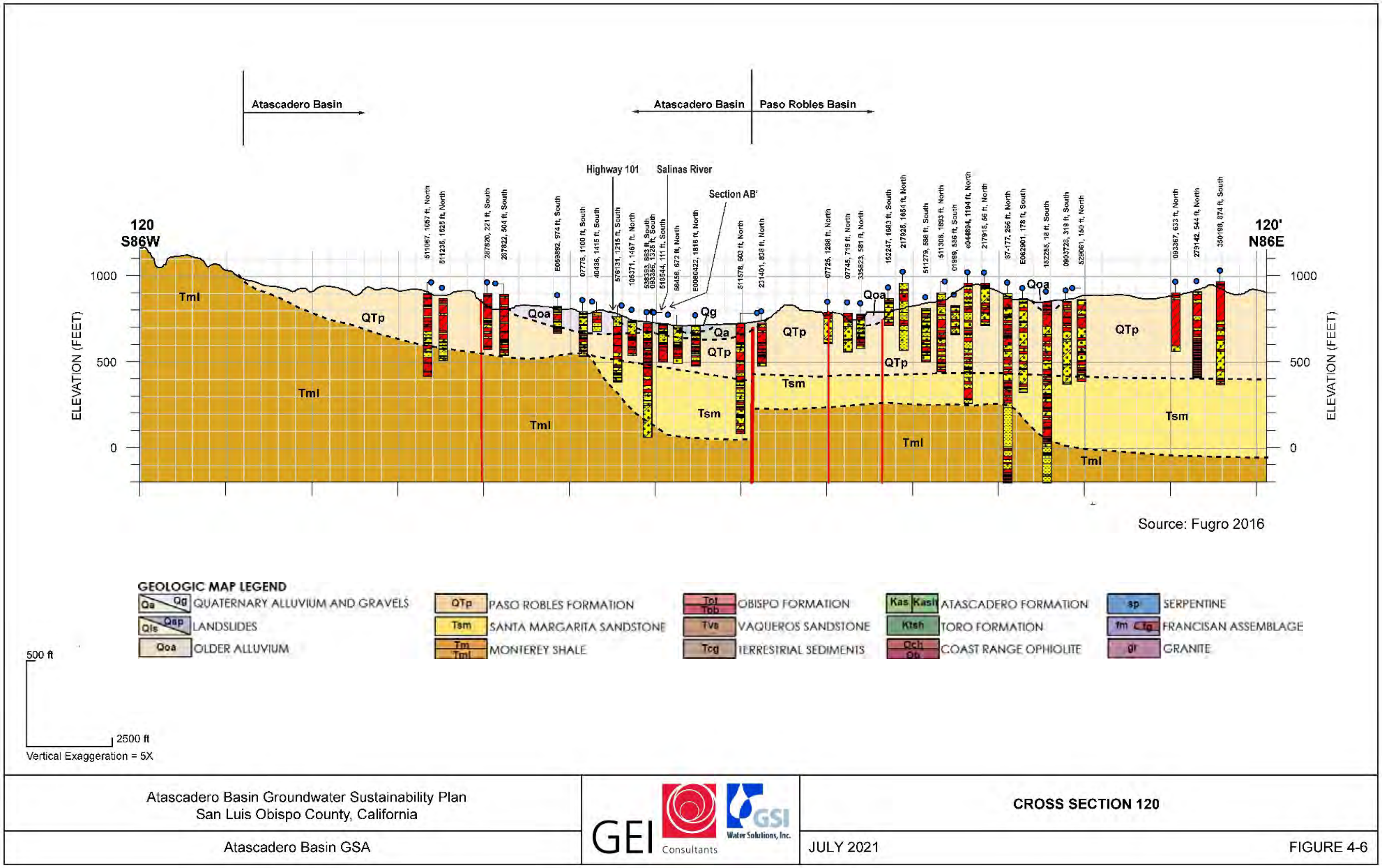
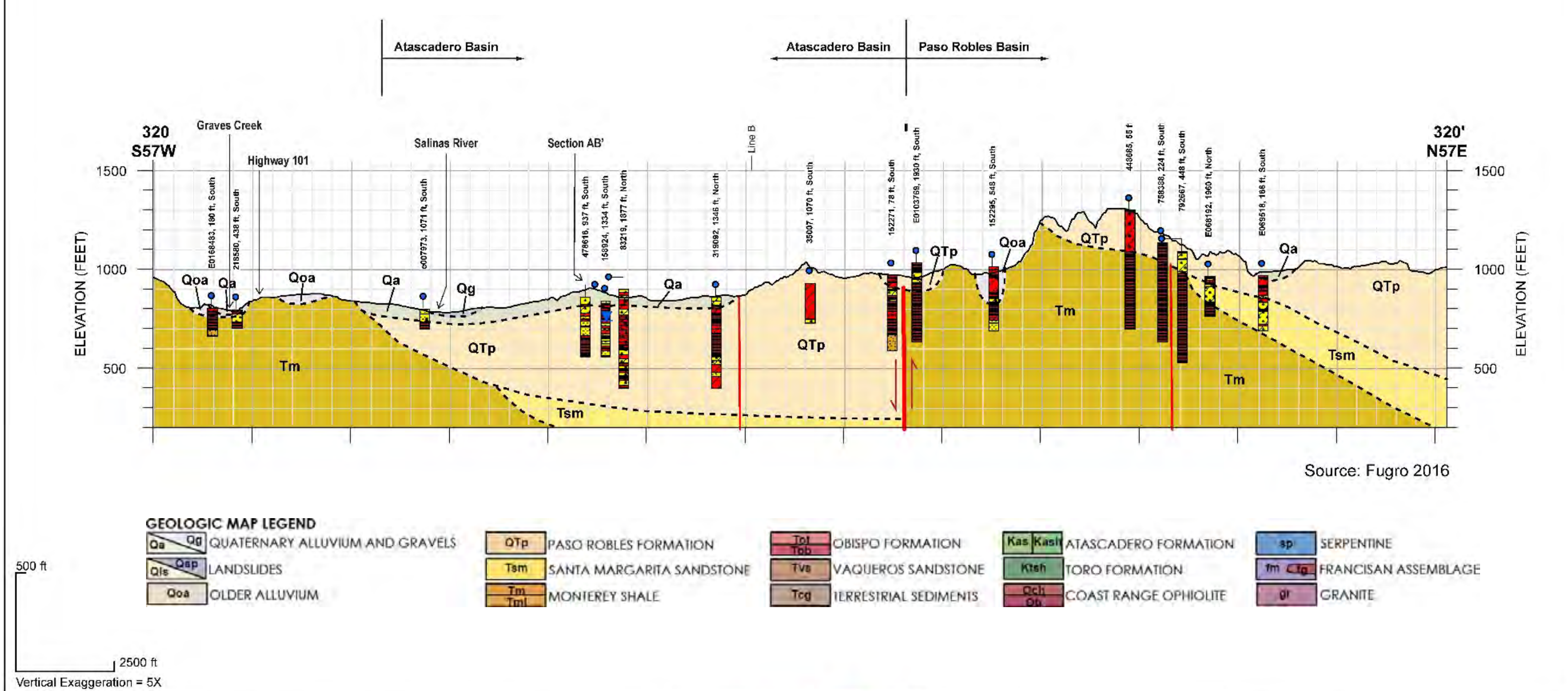


Figure 4-6. Cross Section 120



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	CROSS SECTION 320
Atascadero Basin GSA		JULY 2021 — FIGURE 4-7

Figure 4-7. Cross Section 320

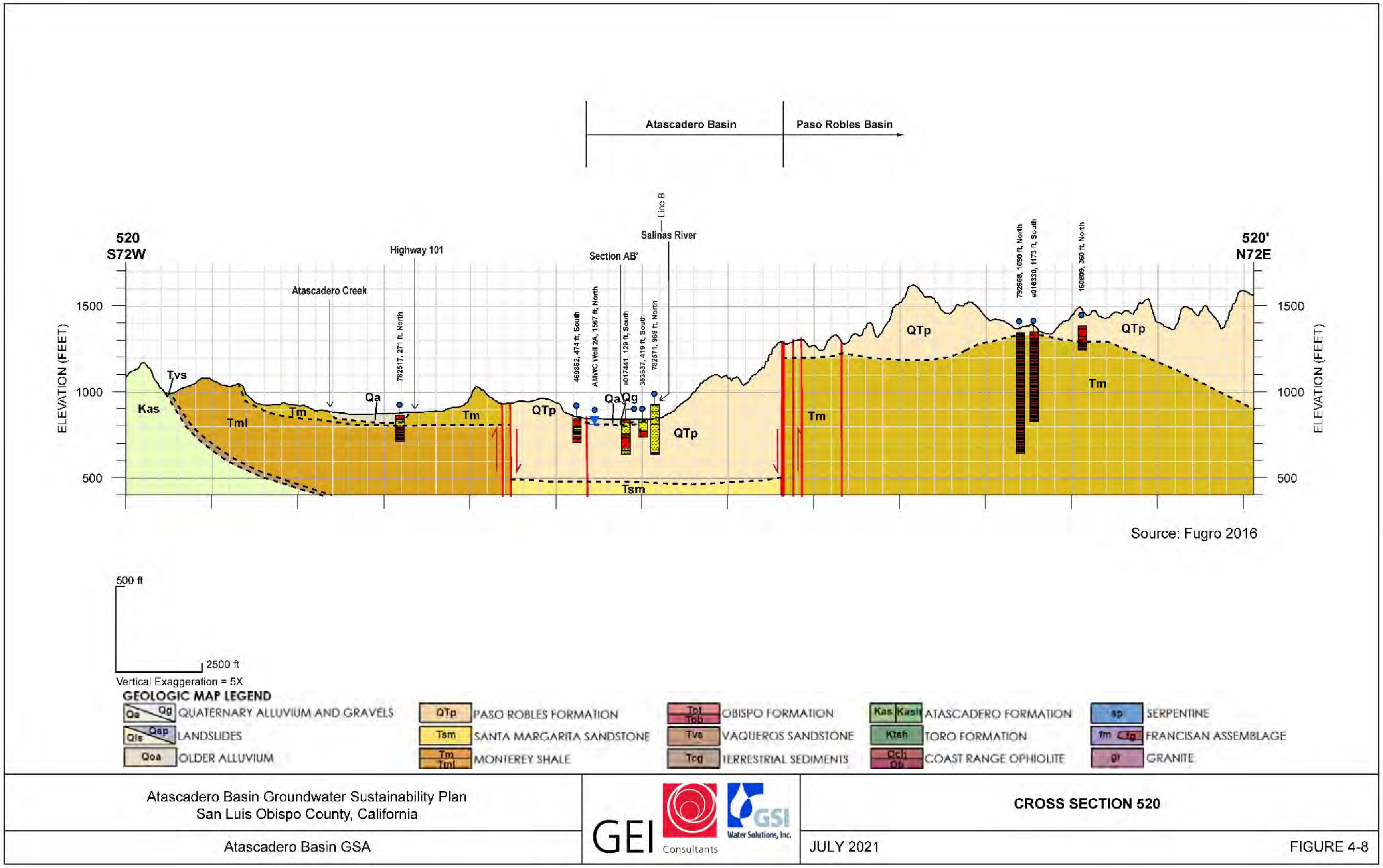
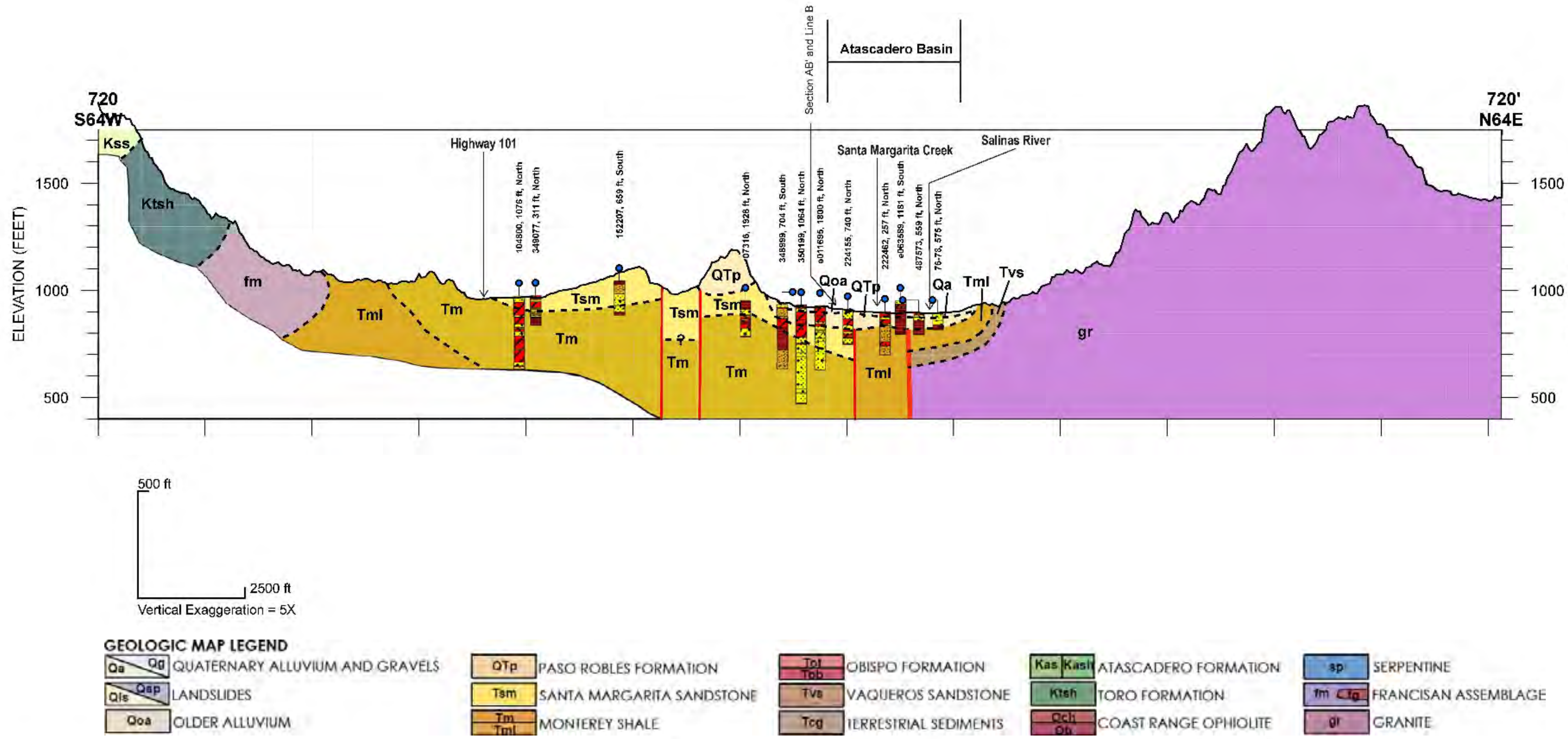
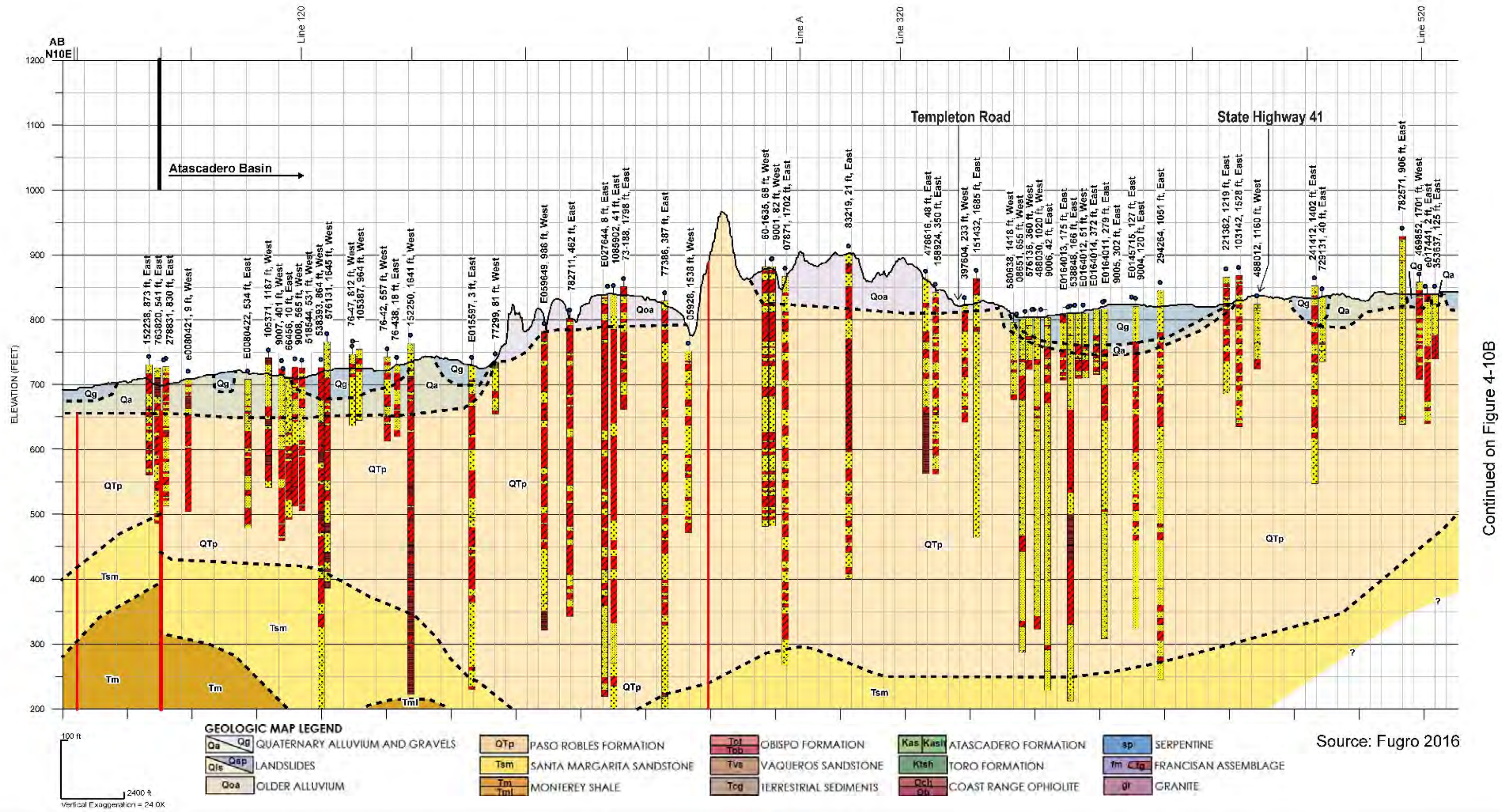


Figure 4-8. Cross Section 520



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	CROSS SECTION 720
Atascadero Basin GSA		JULY 2021 — FIGURE 4-9

Figure 4-9. Cross Section 720



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	AB' SECTION
Atascadero Basin GSA		JULY 2021 — FIGURE 4-10

Figure 4-10. Northern Extent of Cross Section AB

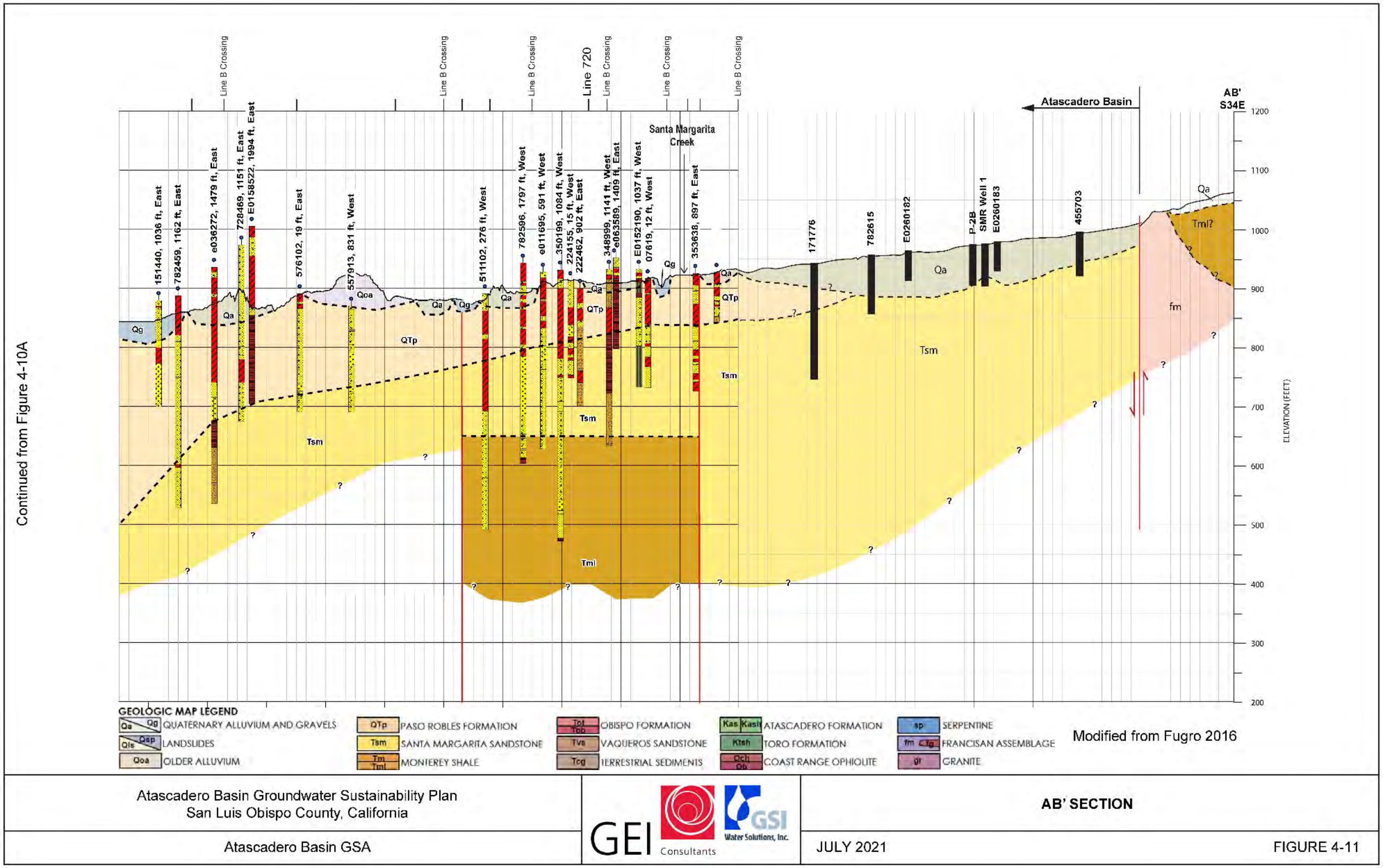


Figure 4-11. Southern Extent of Cross Section AB

4.3.3 *Geologic Formations Surrounding the Basin*

Underlying the Basin sedimentary beds are older geologic formations that typically have lower permeability and/or porosity. In some cases, these older beds occasionally yield flow in excess of 50 gpm to wells, but wells drilled into these units are also often dry or produce groundwater less than 10 gpm. Generally, the water quality from the bedrock units is poor. In general, the geologic units underlying the basin include Tertiary-age consolidated sedimentary beds, Cretaceous-age metamorphic rocks, and granitic rock.

Figure 4-12 shows the location of oil and gas exploration wells drilled in the Basin. All of these oil and gas exploration wells were dry holes that were subsequently plugged. These oil and gas wells help identify the depth and extent of the geologic formations that surround and underlie the Basin.

The Tertiary-age older consolidated sedimentary formations include the Santa Margarita Formation, the Monterey Formation, and the Vaqueros Formation. These units crop out predominantly on the western edge of the Basin (Figure 4-4) and underlie the basin sediments.

4.3.3.1 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 regionally. The unit is found beneath most of the basin. The Santa Margarita Formation crops out in the Santa Margarita area where many domestic water wells depend on its very limited flow capabilities. It is also a host to a number of springs. South of Templeton, water produced from the Santa Margarita Formation is often of acceptable water quality. However, north of Templeton in the area south of the city of Paso Robles, the unit becomes progressively more permeable and is the main reservoir for the historical presence of geothermal water. Groundwater in the geothermal areas is often under pressure and artesian flow is a common occurrence, with flow rates at times exceeding 400 gpm. The Santa Margarita Formation aquifer is not considered part of the Basin because the produced water quality is usually very poor and because it is relatively impermeable in many areas in the vicinity of the Basin. 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.

4.3.3.2 Monterey Formation

The Miocene-age Monterey Formation (Tm/Tml) consists of interbedded argillaceous and siliceous shale, sandstone, siltstone, and diatomite. The unit outcrops in the highlands surrounding the Basin and generally forms the adjacent bedrock unit, stratigraphically below the Paso Robles Formation, on the western edge of the Basin. Regionally, the unit thickness is as great as 2,000 feet, and the unit is often highly deformed. Water wells completed in the Monterey Formation are occasionally productive if a sufficient thickness of highly deformed and brittle siliceous shale is encountered. More often, however, the Monterey shale produces groundwater to wells in very low quantities. Springs issue from the Monterey Formation in the Atascadero area and on Cuesta Ridge south of the Basin. North of the Basin, the Monterey Formation can also be a source for oil in the area near Hames Valley, downstream of Lake San Antonio, and in upper Indian Valley. Groundwater produced from the Monterey Formation often has high concentrations of hydrogen sulfide, total organic carbon, and manganese. In the Paso Robles area, the Monterey Formation may be a host to geothermal water that has high sulfide concentrations in addition to high boron, iron, manganese, and total dissolved solids.

4.3.3.3 Vaqueros Formation

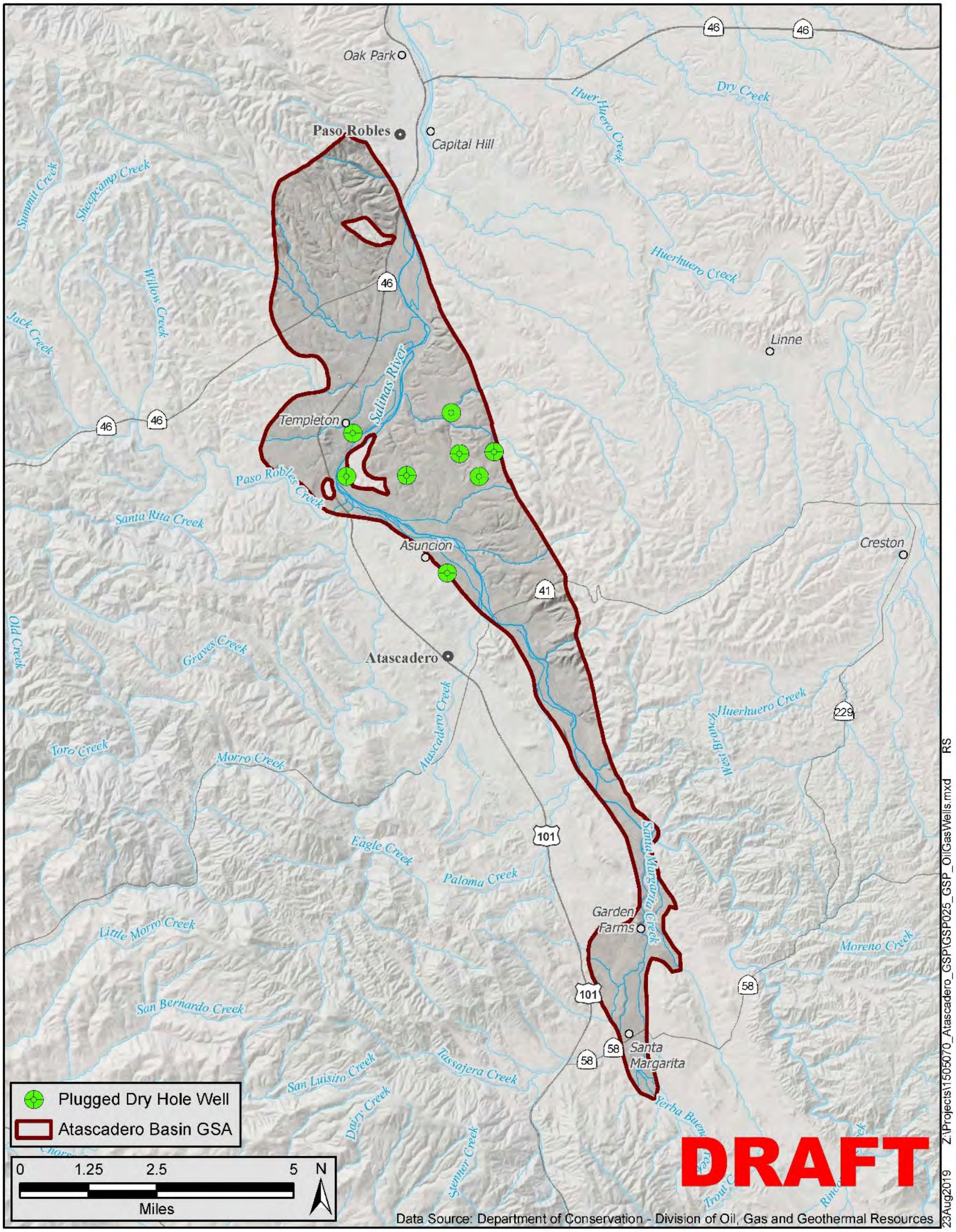
The marine Oligocene-age Vaqueros Formation (Tv) is a highly cemented fossiliferous sandstone that reaches a thickness up to 200 feet. Springs with flows up to 25 gpm are common in canyons where the Vaqueros Formation is exposed in the Santa Lucia Range. Most water wells tapping this formation produce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

4.3.3.4 Metamorphic and Granitic Rocks

Portions of the southern and eastern edges of the Basin are bordered by Cretaceous-age metamorphic and granitic rock. The metamorphic rock units include the Franciscan, Toro, and Atascadero formations. The Franciscan Formation (fm) consists of discontinuous outcrops of shale, chert, metavolcanics, graywacke, and blue schist, with or without serpentinite. The Franciscan Formation has an undetermined thickness and has low permeability and porosity. Limited volumes of groundwater can be produced from this geologic unit, generally only where the metavolcanics rock has been highly fractured.

The Toro Formation (Ktsh) is a highly consolidated claystone and shale that does not typically yield significant water to wells. The Atascadero Formation (Kas) is highly consolidated but does have some sandstone beds that yield limited amounts of water to wells. Both the Toro and Atascadero formations are exposed in the Santa Lucia Range west of Santa Margarita, Atascadero, and Templeton.

The granitic rock lies east of the Rinconada Fault zone, east of the city of Atascadero. The Park Hill area south of Creston and east of Atascadero is well known for the difficulty of finding sufficient groundwater to serve single residences. Where water is found, it is typically low in salinity. The granitic rocks often have a decomposed regolith up to 80 feet in thickness in the valley floor areas that may contain limited amounts of groundwater despite low sediment permeability due to the breakdown of feldspar and iron and magnesium silicates into clays and fine-grained sediment. Springs are occasionally found where the rock is fractured.



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Oil and Gas Wells in Atascadero Basin	
Atascadero Basin GSA		JULY 2021	FIGURE 4-12

Figure 4-12. Oil and Gas Wells in Atascadero Basin

4.4 Principal Aquifers and Aquitards

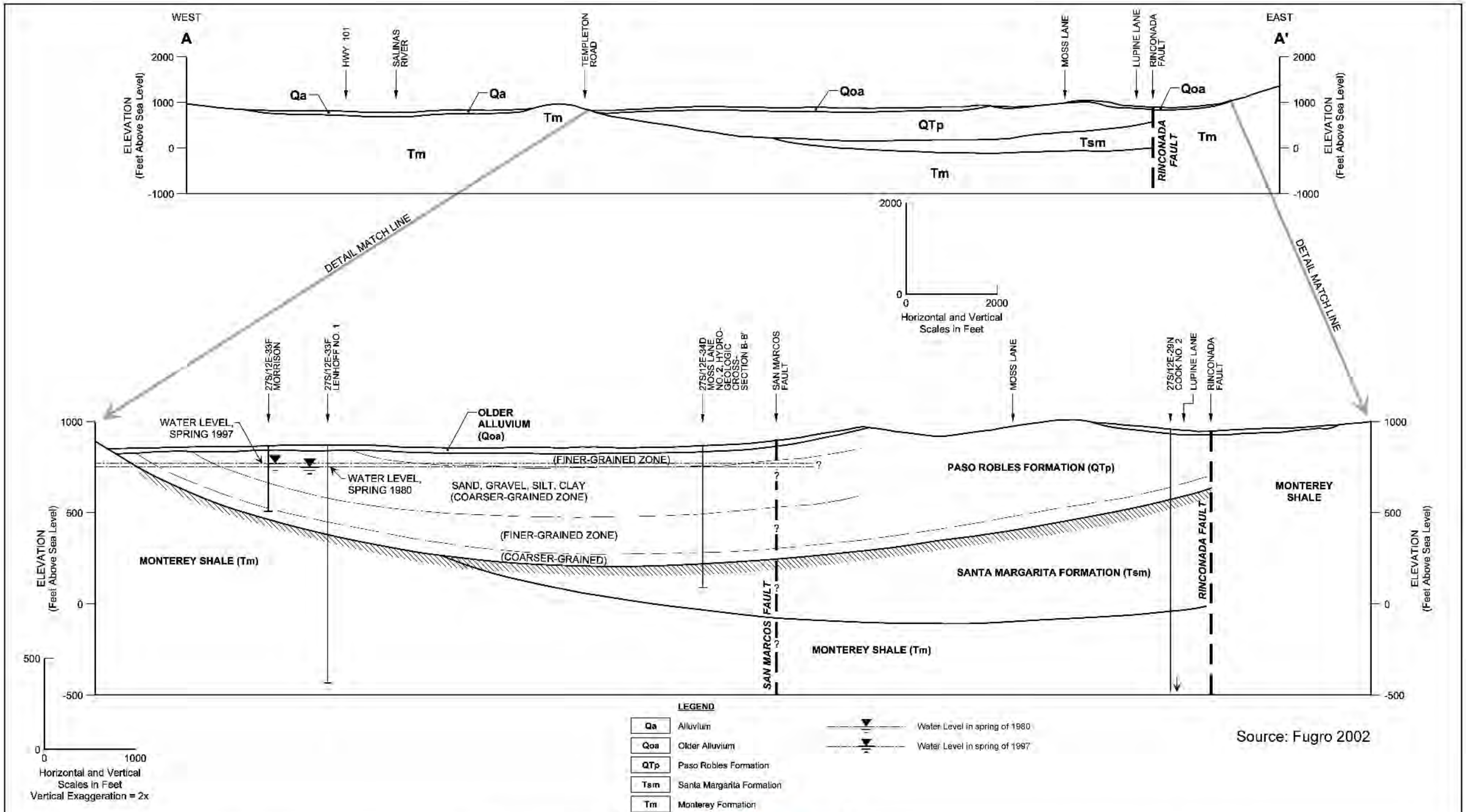
Water-bearing sand and gravel beds that may be laterally and vertically discontinuous are generally grouped together into zones that are referred to as aquifers. The aquifers can be vertically separated by fine-grained zones that can impede movement of groundwater between aquifers. Two aquifers exist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

- **Alluvial Aquifer** – A relatively continuous aquifer comprising alluvial sediments that underlie the Salinas River and tributary streams
- **Paso Robles Formation Aquifer** – An interbedded aquifer comprised of sand and gravel lenses in the Paso Robles Formation.

There are no formally defined or laterally continuous aquitards within the Basin. However, the upper portions of the Paso Robles Formation often contain thin, discontinuous clay layers interbedded with sand and "shale gravels" that can act as a leaky confining layer. These upper clay layers are generally pervasive throughout the Basin. In the Templeton area from Graves Creek to approximately Highway 46, the contact between the Alluvial Aquifer and the Paso Robles Formation Aquifer is characterized by a thick (60 feet) clay-rich aquitard that forms a hydraulic barrier to vertical groundwater flow, effectively separating the Alluvial Aquifer from the Paso Robles Formation Aquifer (Torres 1979). Two areas where the Paso Robles Formation Aquifer is known to be in direct communication with the overlying Alluvial Aquifer, that is, there is little to no clay-rich confining layer, include:

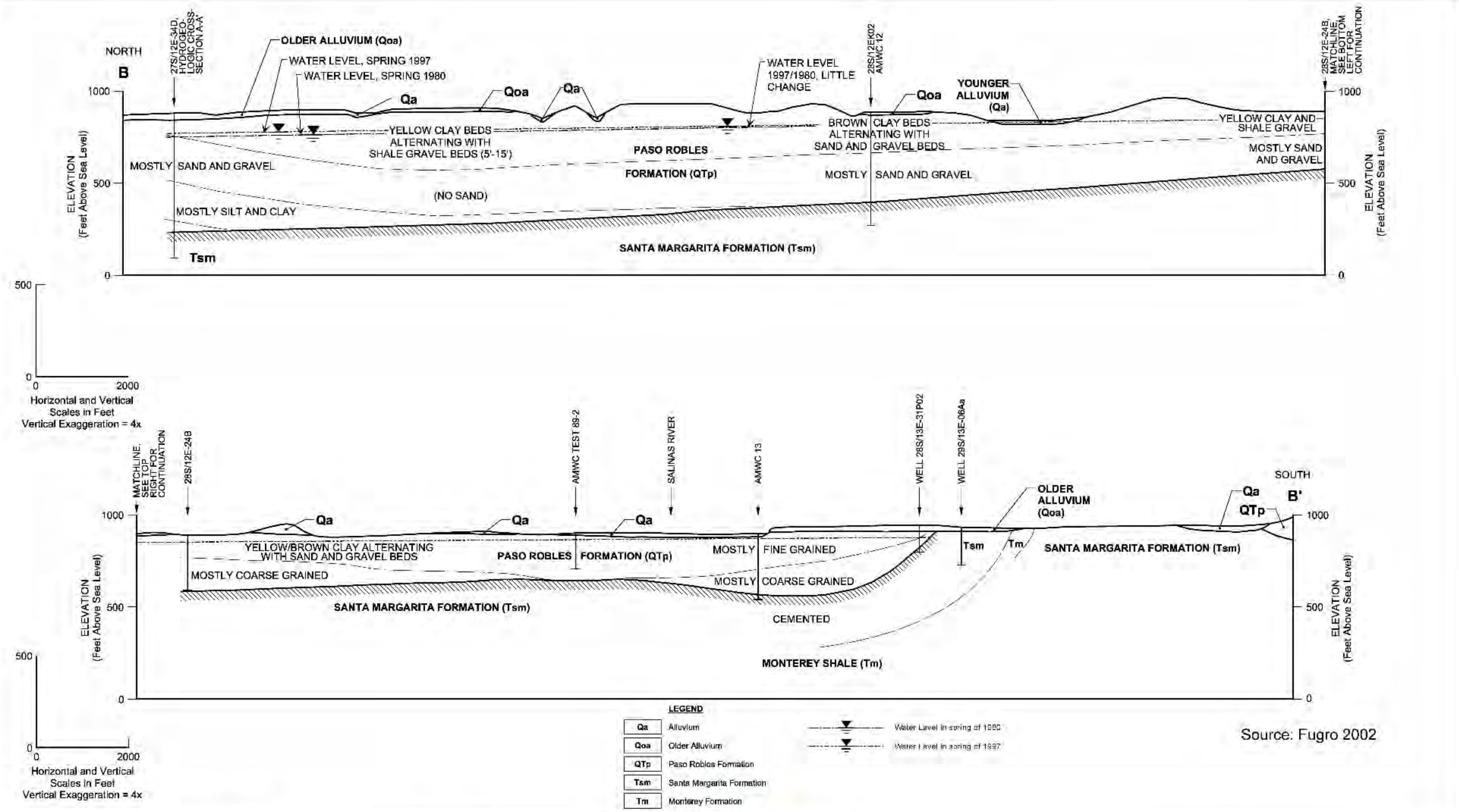
1. The Atascadero area, along the Salinas River corridor from approximately the Highway 41 crossing downstream to the confluence with Paso Robles Creek ("Jack Creek")
1. The area north of Templeton, along the Salinas River corridor from approximately the junction of Highway 46 and Highway 101 north to the Rinconada Fault

Figure 4-5 shows the location of hydrogeologic sections that were used to depict the aquifers in the subsurface. Figures 4-13 and 4-14 show the aquifers in profile, which are interpreted from the geologic logs, geophysical logs, groundwater levels, and water quality (Fugro and Cleath 2002; Furgo et. al. 2005).



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	HYDROGEOLOGIC SECTION A
Atascadero Basin GSA		JULY 2021 — FIGURE 4-13

Figure 4-13. Hydrogeologic Section A



Atascadero Basin Groundwater Sustainability Plan
San Luis Obispo County, California

Atascadero Basin GSA

HYDROGEOLOGIC SECTION B

JULY 2021

FIGURE 4-14

Figure 4-14. Hydrogeologic Section B

4.4.1 *Aquifer Characteristics*

Fugro and Cleath (2002) reviewed the results of several pumping tests performed on wells completed in the Alluvial Aquifer and the Paso Robles Formation Aquifer throughout the Basin. The aquifer characteristics of each unit are summarized below and presented in Table 1.

4.4.1.1 Alluvial Aquifer

Water wells penetrating and extracting groundwater from the Alluvial Aquifer are located along the Salinas River and its tributaries, including within the Santa Margarita area. The unit, consisting almost entirely of sand and gravel, is everywhere unconfined with high to very high transmissivity values. The thickness of the Alluvium ranges widely, with an estimated maximum thickness of 75 to 90 feet. Specific capacity values for wells in the Alluvium range from 20 to 60 gpm per foot (gpm/ft) at production rates as high as 1,000 gpm (Fugro and Cleath 2002). Overall, within the Basin, the geometric mean hydraulic conductivity of the Alluvial Aquifer is estimated at 481 ft/day (Fugro and Cleath 2002).

4.4.1.2 Paso Robles Formation Aquifer

In the Atascadero area and the area north of Templeton, the Paso Robles Formation Aquifer underlies and is in direct hydraulic contact with the Alluvial Aquifer along the Salinas River channel. Wells in the Paso Robles Formation Aquifer in hydraulic communication with the overlying Alluvium tend to have higher transmissivity values than wells that penetrate the portions of the Paso Robles Formation not in contact with the Alluvium. Constant discharge aquifer pumping tests for wells in Atascadero on the west side of the Salinas River showed production rates up to 1,300 gpm, with an average specific capacity of 15 gpm/ft (Fugro and Cleath 2002).

Elsewhere in the Basin the upper 300 feet or so of the Paso Robles Formation is characterized by thin (5–15 feet thick) interbedded brown or yellow clays with sand and "shale gravel," as described above. The beds tend to be thicker below 300 feet, with an increasing proportion of sand and gravel. The results of several controlled aquifer pumping tests were reviewed for wells in the Paso Robles Formation Aquifer, including wells in both the Templeton and Atascadero areas. None of these wells were in direct hydraulic communication with the Alluvial Aquifer. The specific capacity in these wells ranged from 0.9 to 5.7 gpm/ft at pumping rates of 110 to 810 gpm. Overall, within the Basin, the geometric mean hydraulic conductivity of the Paso Robles Formation Aquifer is estimated at 8.6 ft/day and the storativity ranges from 0.04 to 0.0001 (Fugro and Cleath 2002).

Table 4-10. Atascadero Basin Aquifer Properties

Well Location	Test (hours)	Flow (gpm)	Well Depth (ft)	Perf. Int. (ft)	Trans. (gpd/ft)	Q/s (gpm/ft)	Hyd. Cond. (ft/day)	Storativity	Aquifer of Completion
28S/12E-5	8	90	55	30	101,106	110	450.6		Qa
27S/12E-29	24	740	60	25	650,000	105	3475.9		Qa
27S/12E-31	20	220	60	20	24,200	27.2	161.8		Qa
27S/12E-31	24	15	25	10	15,840	7.1	211.8		Qa
28S/12E-03	72	1300	425	270	45,760	17.6	22.7		QTp
28S/12E-03	72	1300 (obs)	505	332	45,760	na (obs)	18.4	0.04	QTp
28S/13E-31a	12	1000	450	300	52,800	11.5	23.5		QTp
28S/13E-31b	12	950 (obs)	450	300	36,000	na (obs)	16	0.0002	QTp
28S/13E-31c	24	1000	330	120	22,000	14.5	24.5		QTp
28S/13E-31d	24	1000 (obs)	320	87	26,400	na (obs)	40.6	0.0001	QTp
28S/13E-31e	24	1000 (obs)	310	283	--	na (obs)	146.4	0.004	QTp
28S/12E-03	24	325	370	225	5,400	3	3.2		QTp
28S/12E-11	72	810	600	300	6,198	5.7	2.8		QTp
28S/12E-11	72	810(obs)	350	200	8,250	na (obs)	5.5	0.002	QTp
27S/12E-9	72	475	605	312	6,600	2.3	2.8		QTp
27S/12E-16	24	426	640	380	2,900	2.1	1		QTp
27S/12E-16	24	441	280	115	7,300	4.6	8.5		QTp
27S/12E-20	103	110	290	120	1,700	0.9	1.9		QTp
27S/12E-20	24	150	195	87	7,275	2.8	11.2		QTp
27S/12E-17	50	200	270	170	2,122	1.8	1.7		QTp
Summary:									
Qa (average/geomean)		266	50	21	70,846	62	481		
QTp (average/geomean)		567	399	225	10,583	6	8.6	0.009	

Notes:

Qa – Alluvial Aquifer	Trans. – Transmissivity	Q/s – Specific capacity
QTp – Paso Robles Formation Aquifer	gpd/ft - Gallons per day per foot	obs – Observation well data
gpm – Gallons per minute	Perf. Int. – Perforated interval	na - Not applicable
Hyd. Cond. - Hydraulic conductivity		

4.4.2 *Confining Beds and Geologic Structures*

There are no formally defined or laterally continuous aquitards within the Basin. Along the northwestern, western, and southern boundaries of the Basin sediments of the Paso Robles Formation are in contact with older, relatively impermeable geologic units, including Tertiary-age consolidated sedimentary beds, Cretaceous-age metamorphic rocks, and granitic rock.

The Rinconada Fault defines the eastern boundary of the Basin and forms a hydraulic barrier between the Paso Robles Basin and the Basin. Between Atascadero and Creston, the Rinconada

Fault juxtaposes less permeable granitic and Monterey Formation rocks with the Paso Robles Formation basin sediments. Farther north, the Rinconada Fault zone was exposed in trenches on the Santa Ysabel Ranch (GeoSolutions 2000), where the investigation concluded that the fault was a barrier to groundwater flow in the Paso Robles Formation as evidenced by differences in water levels at the Santa Ysabel warm water spring and wells drilled at the edge of the terrace above the Salinas River flood plain. South of the city of Paso Robles, the Paso Robles Formation is found on both sides of the Rinconada Fault. Based on distinctly different trends observed in Paso Robles Formation water levels on either side of the Rinconada Fault[22], it is assumed that the fault zone forms a leaky barrier that restricts flow from the Basin to the main part of the Paso Robles Basin. Groundwater flow from the Basin west of the Rinconada Fault into the Paso Robles Basin is limited to underflow in the alluvial Salinas River deposits and minor subsurface groundwater flux in the Paso Robles Formation (Fugro 2016).

4.5 Primary Users of Groundwater

The primary groundwater users in the Basin include municipal, agricultural, rural residential, small community water systems, and small commercial entities. Municipal, domestic, and agricultural demands in the Basin currently rely almost entirely on groundwater. Both the municipal sector and the agriculture sector use groundwater from the Alluvial Aquifer and the Paso Robles Aquifer.

4.6 General Water Quality

In general, the groundwater quality of the basins is relatively good, with few areas of unacceptable quality and few significant trends of deteriorating water quality. The main source of recharge to the Basin is the percolation of streamflow from the Salinas River, which drains the Cretaceous-age granitic rocks and sedimentary beds of the northwestern La Panza Range. This recharge, typically a calcium and magnesium bicarbonate water, has the greatest influence on water quality in the basin. Increasing TDS and chlorides in shallow Paso Robles Formation deposits along the Salinas River in the central portion of the basin was identified as a trend of slight water quality deterioration (Fugro 2002). Water quality in the Basin is discussed in further detail in Section 5 – Groundwater Conditions.

4.7 Groundwater Recharge and Discharge Areas

Areas of significant areal recharge and discharge within the Basin are discussed below. Quantitative information about all natural and anthropogenic recharge and discharge is provided in Section 6 – Water Budgets.

[22] Groundwater levels in the western portion of the Paso Robles Basin (east of the Rinconada Fault) have generally and dramatically declined since the mid to late 1990s; whereas groundwater levels in the Atascadero Basin have remained relatively stable (Fugro 2016).

4.7.1 *Groundwater Recharge Areas*

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

1. Distributed areal infiltration of precipitation
2. Subsurface inflow from adjacent “non-water bearing bedrock”
3. Infiltration of surface water from streams and creeks

Figure 4-15 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 was developed by the California Soil Resource Lab at UC Davis and the University of California Agricultural and Natural Resources Department[23]. 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.

Subsurface inflow is the flow of groundwater from the surrounding "non-water bearing bedrock" into the basin sediments. Flow across the basin boundary is predominantly via highly conductive, but random and discontinuous, fractures. The rate of subsurface inflow to the Basin from the surrounding hill and mountain area varies considerably from year to year depending upon precipitation (intensity, frequency and duration, seasonal totals, etc.) and groundwater level gradients. There are no available published or unpublished inflow data for the hill and mountain areas surrounding the Basin. However, it is suspected that significant subsurface recharge comes into the Templeton area from the highland areas to the northwest.

In the area near Atascadero, the Paso Robles Formation has been folded, exposing the basal gravel beds. With the basal gravel exposed and in direct contact with the shallow Alluvium, the Paso Robles Formation is recharged directly from the river Alluvium (Fugro and Cleath 2002). Groundwater recharge from percolation of streamflow is known to occur near Atascadero and just south of the city of Paso Robles, with little to no recharge occurring in the Templeton area downstream of the confluence of the Salinas River with Graves and Paso Robles creeks (Fugro 2016).

[23] Figure 4-14 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.

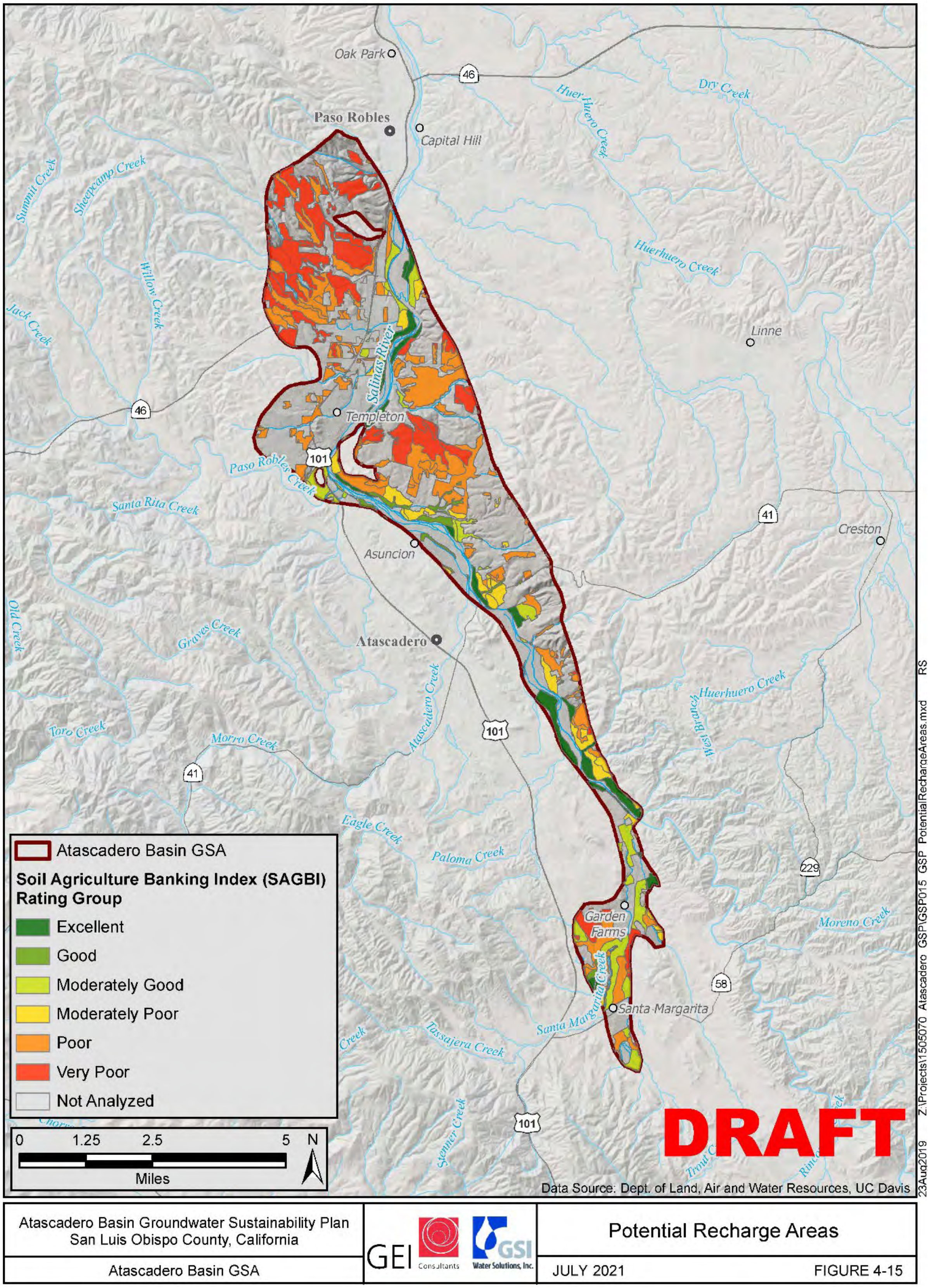


Figure 4-15. Potential Recharge Areas

Significant anthropogenic recharge occurs via three processes, discussed further below:

1. Percolation of wastewater treatment plant effluent
2. Percolation of return flow from agricultural irrigation
3. Percolation of imported Lake Nacimiento water

Wastewater treatment plants serving the communities of Atascadero and Templeton are operated within the Basin. Effluent from these plants is discharged to percolation ponds in the Alluvium adjacent to the Salinas River. Irrigated agriculture is prevalent in the Basin, especially in the northern portion. Return flows from irrigated agriculture occur when water is supplied to the irrigated crops in excess of the crop's water demand. This is done to avoid excess build-up of salts in the soil and is general standard practice. The percolation of the wastewater effluent and irrigation return flows are a significant anthropogenic source of recharge to the Basin.

The NWP regional raw water transmission facility delivers water from Lake Nacimiento to communities in San Luis Obispo County, including Atascadero, Templeton, the city of Paso Robles, and the SMR MWC. The NWP is designed to deliver 15,750 AFY. Atascadero MWC has an allocation of 3,244 AFY and began taking deliveries of water in the summer of 2012. Templeton CSD has an allocation of 406 AFY and began taking deliveries of water in 2011. The city of Paso Robles has an allocation of 6,488 AFY and the SMR MWC has an allocation of 80 AFY. Both Atascadero MWC and Templeton CSD utilize their imported NWP water to recharge the Basin via percolation ponds located in the Alluvium adjacent to the Salinas River. The city of Paso Robles utilizes their NWP allocation in two ways: treatment in a package water treatment plant and applying directly to the ground surface on the alluvial gravels of the Salinas River floodplain in the north end of the Basin. SMR MWC has not yet begun receiving NWP water. The source and points of delivery for the imported NWP water with the Basin are shown on Figure 4-16.

4.7.2 *Groundwater Discharge Areas*

Natural groundwater discharge occurs as discharge to springs, seeps and wetlands, subsurface outflows, and evapotranspiration (ETo by phreatophytes. Figure 4-17 shows the locations of significant active springs, seeps, and wetlands within or adjacent to the Basin. There are no mapped springs or seeps located within the Basin. Groundwater discharge to streams and potential groundwater dependent ecosystems (GDEs) are discussed in Section 5 – Groundwater Conditions. 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. Subsurface outflow and ETo by phreatophytes are discussed in Section 6 – Water Budgets.

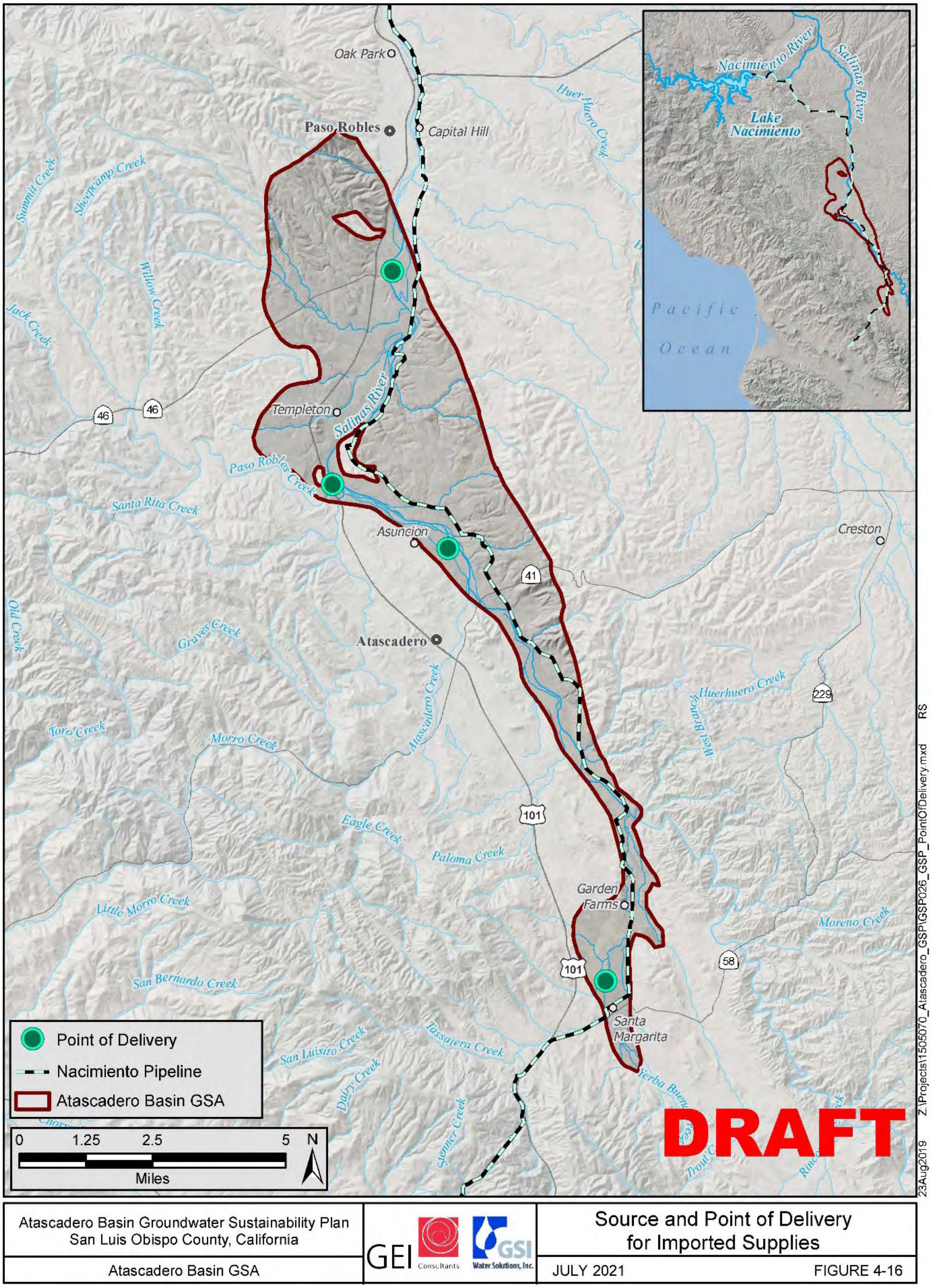
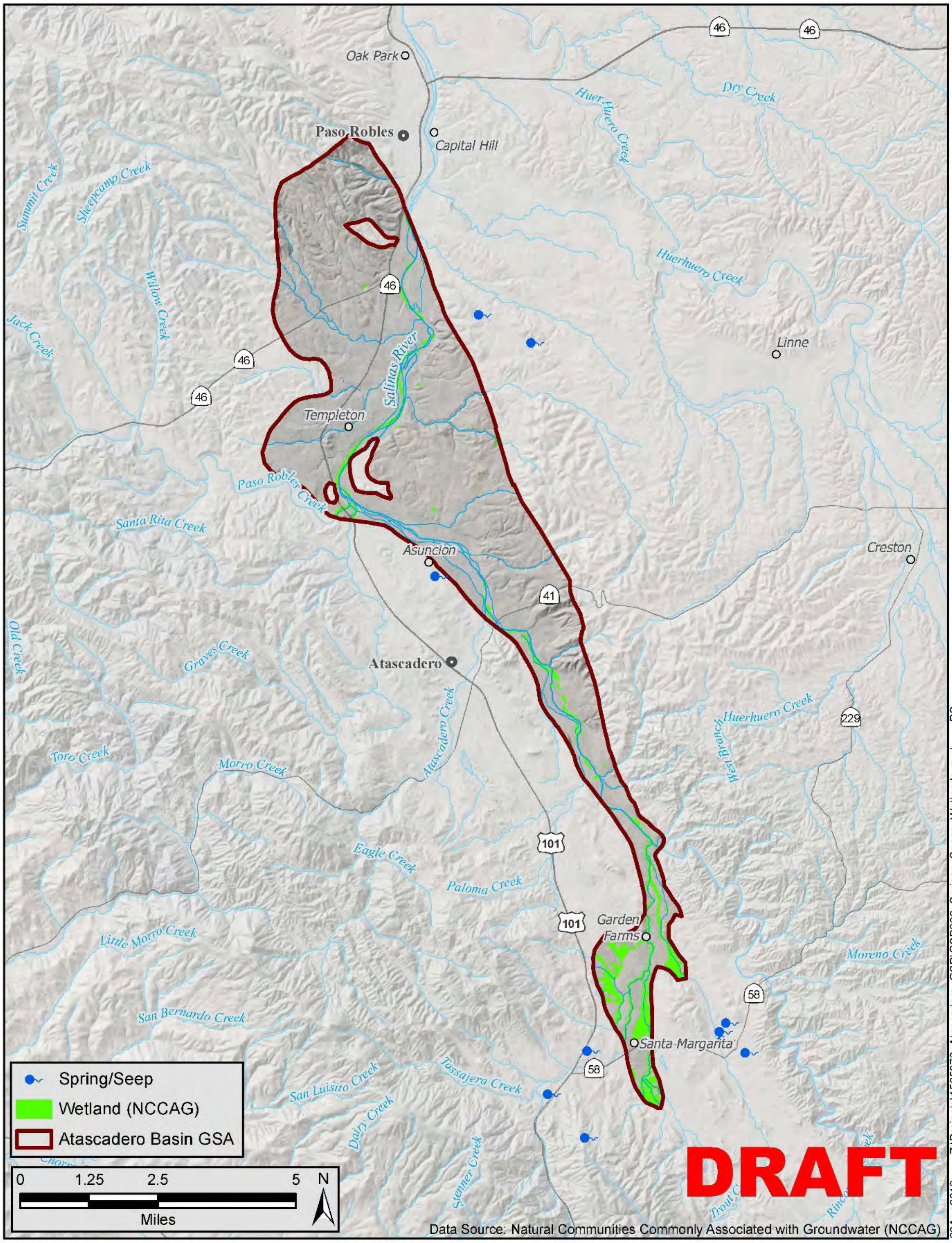


Figure 4-16. Source and Point of Delivery for Imported Supplies



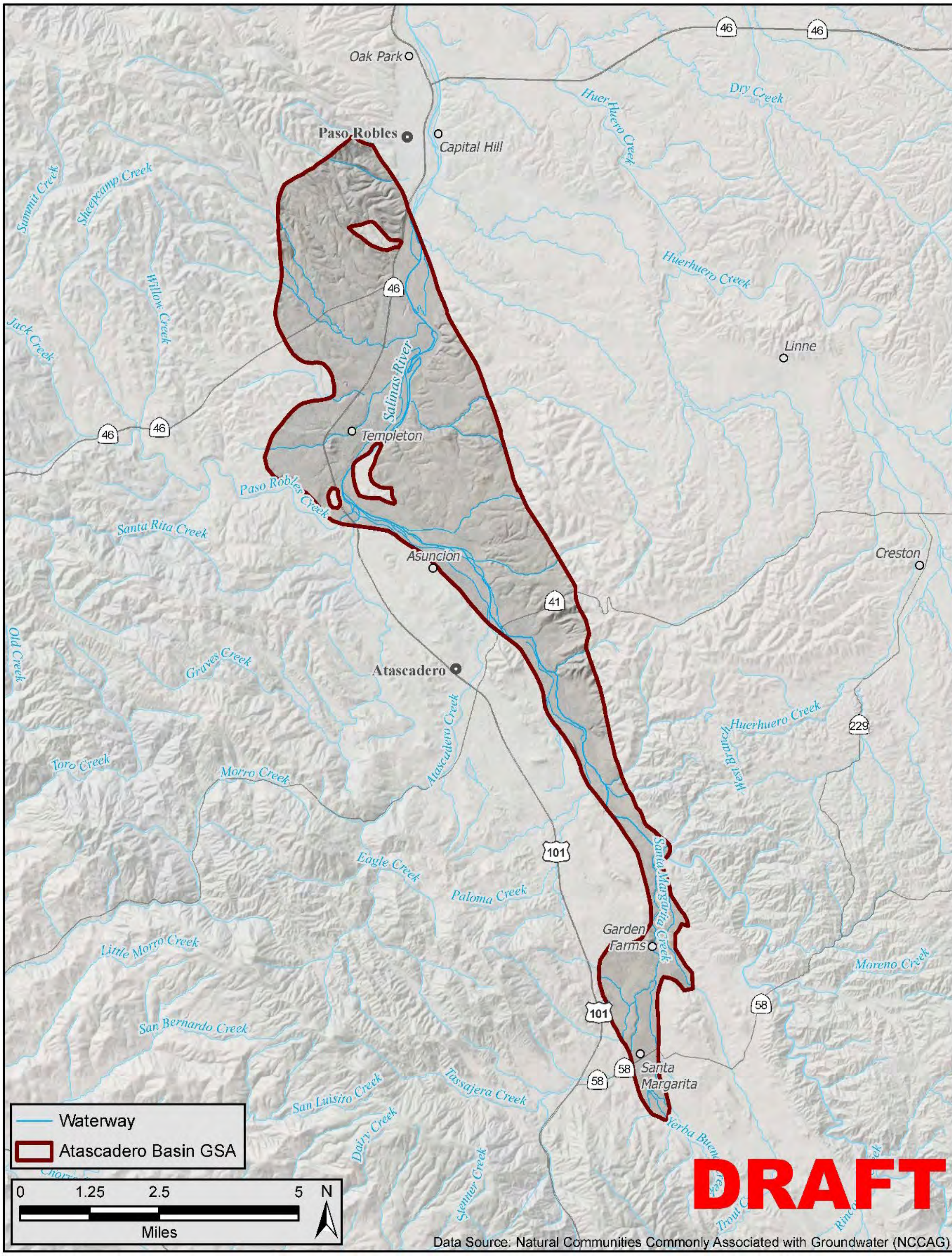
Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Springs/Seeps and Wetlands
Atascadero Basin GSA		JULY 2021 FIGURE 4-17

Figure 4-17. Springs/Seeps and Wetlands

4.8 Surface Water Bodies

Figure 4-18 shows the Salinas River, which is considered significant to the management of groundwater in the Basin. The Salinas River is ephemeral, and during most of the year loses water to the shallow aquifer. A complete description and quantification of the stream/aquifer interaction is included in Section 5 – Groundwater Conditions and Section 6 – Water Budgets. There are no natural lakes in the Basin.

There are no water supply reservoirs within the Basin; however, there is one reservoir in the watershed. The Salinas Dam south of the Basin 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 military division of 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 Santa Margarita Reservoir for water supply.



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Surface Water Bodies
Atascadero Basin GSA		JULY 2021 FIGURE 4-18

Figure 4-18. 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 Basin could be improved with certain additional data and analyses. Several data gaps are identified below.

4.9.1 *Groundwater Elevation Data*

Atascadero Basin has generally very good coverage in its existing groundwater monitoring network. However, the northwest end of the Basin, especially the area north of Highway 46, does not. A better understanding of water levels in the Paso Robles Formation in this area is important to the future management of the north end of the Basin. There are many existing private wells in the northwest area so there may be opportunities to bring one or more of them into the monitoring program through an outreach program.

4.9.2 *Fault Influence on Groundwater Flow*

The Rinconada Fault defines the eastern boundary of the Basin. In the area south of the city of Paso Robles, the Paso Robles Formation is found on both sides of the Rinconada Fault. Existing groundwater elevation data qualitatively show that the Rinconada Fault forms a leaky barrier to groundwater flow in this area, but no quantitative determination of the barrier's effectiveness has yet been made. A better understanding of the effectiveness of this barrier would aid in future management of the Basin. It may be possible to get a better understanding of the influence of the Rinconada Fault by performing aquifer tests across the trace of the fault.

4.9.3 *Vertical Groundwater Gradients*

Three sets of paired wells were used to demonstrate vertical hydraulic gradients. 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.

5. Groundwater Conditions

This section describes the current and historical groundwater conditions in the Alluvial Aquifer and the Paso Robles Formation Aquifer in the Atascadero Area Groundwater Sub-basin of the Salinas Valley Basin (Basin). 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. This section focuses on information required by the GSP regulations and information that is important for developing an effective plan to achieve sustainability. The organization of Section 5 – Groundwater Conditions, aligns with the six sustainability indicators specified in the GSP regulations, including:

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

5.1 Groundwater Elevations

The following assessment of groundwater elevation conditions is based largely on data from the SLOFCWCD groundwater monitoring program. Groundwater levels are measured by the SLOFCWCD through a network of public and private wells in the Basin. Additional groundwater elevation data for wells were obtained from environmental investigations pertaining to the crude oil pipeline spill in the Santa Margarita area. Approximately 128 wells (depending on year) were used for the groundwater elevation assessment. Of these wells, 95 are not subject to confidentiality agreements. The locations of these non-confidential wells used for the groundwater elevation assessment are shown on Figure 5-1. Although the groundwater elevation data from the 33 confidential wells were included in the groundwater assessment, their locations are not provided in this GSP, as consistent with their confidentiality agreements. In no cases are the well owner information provided in this GSP.

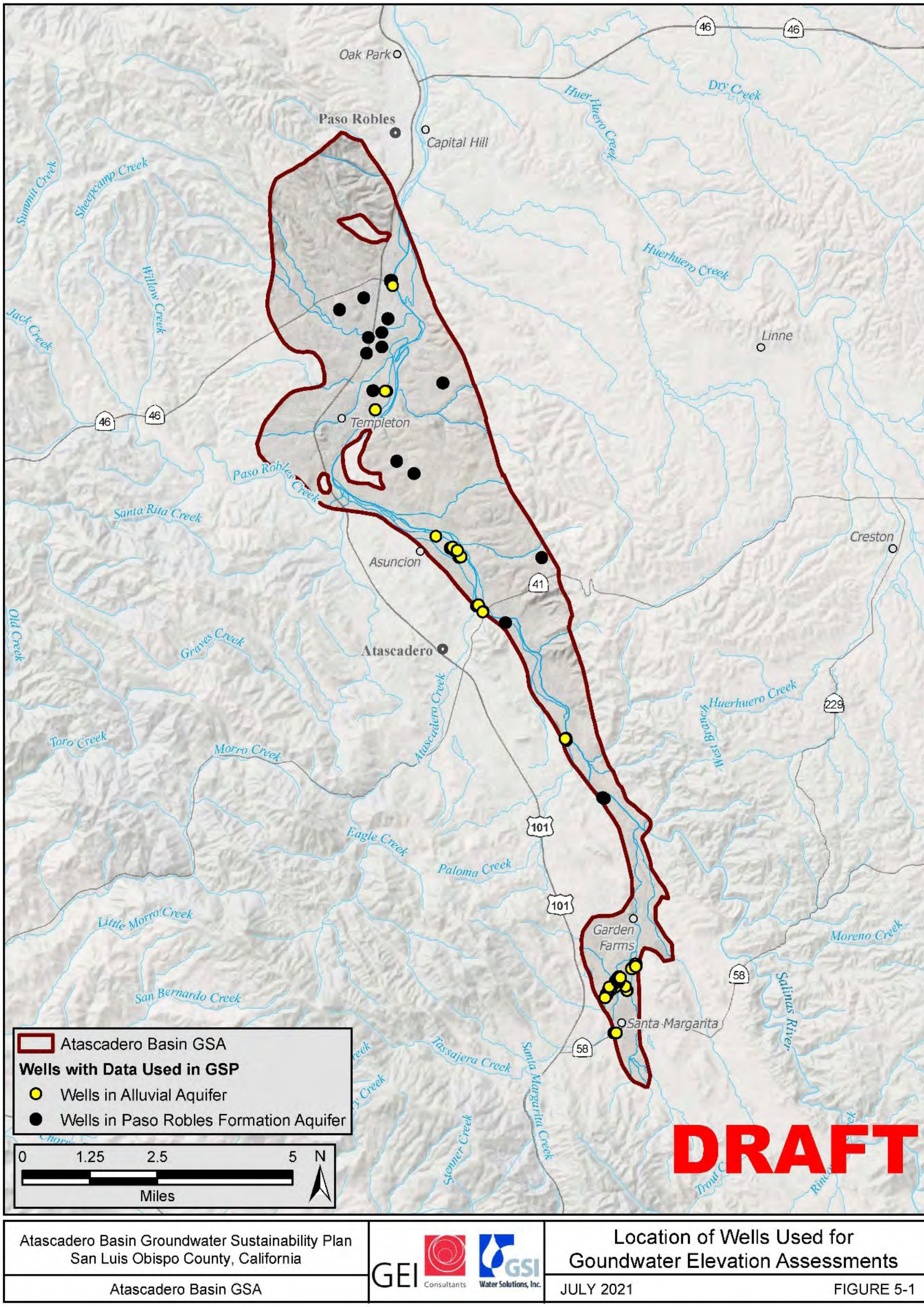


Figure 5-1. Location of Wells used for the Groundwater Elevation Assessments

The set of wells used in the groundwater elevation assessment were selected based on the following criteria:

- The wells have groundwater elevation data for 1997, and/or 2011, and/or 2015, and/or 2017
- Sufficient information exists to assign the well to either the Alluvial Aquifer or Paso Robles Formation Aquifer
- Groundwater elevation data were deemed representative of static conditions

Additional information on the monitoring network is provided in Section 7 – Monitoring Networks.

Based on available data, the following information is presented in subsequent subsections.

- Groundwater elevation contour maps for spring 1997, 2011, 2015, and 2017
- Groundwater elevation contour maps for fall 2017
- A map depicting the change in groundwater elevation between 1997 and 2011 (Paso Robles Formation Aquifer only)
- A map depicting the change in groundwater elevation between 2011 and 2015 (Paso Robles Formation Aquifer only)
- A map depicting the change in groundwater elevation between 2015 and 2017 (Paso Robles Formation Aquifer only)
- Hydrographs for select wells with publicly available data
- Assessments of horizontal and vertical groundwater gradients

5.1.1 *Alluvial Aquifer*

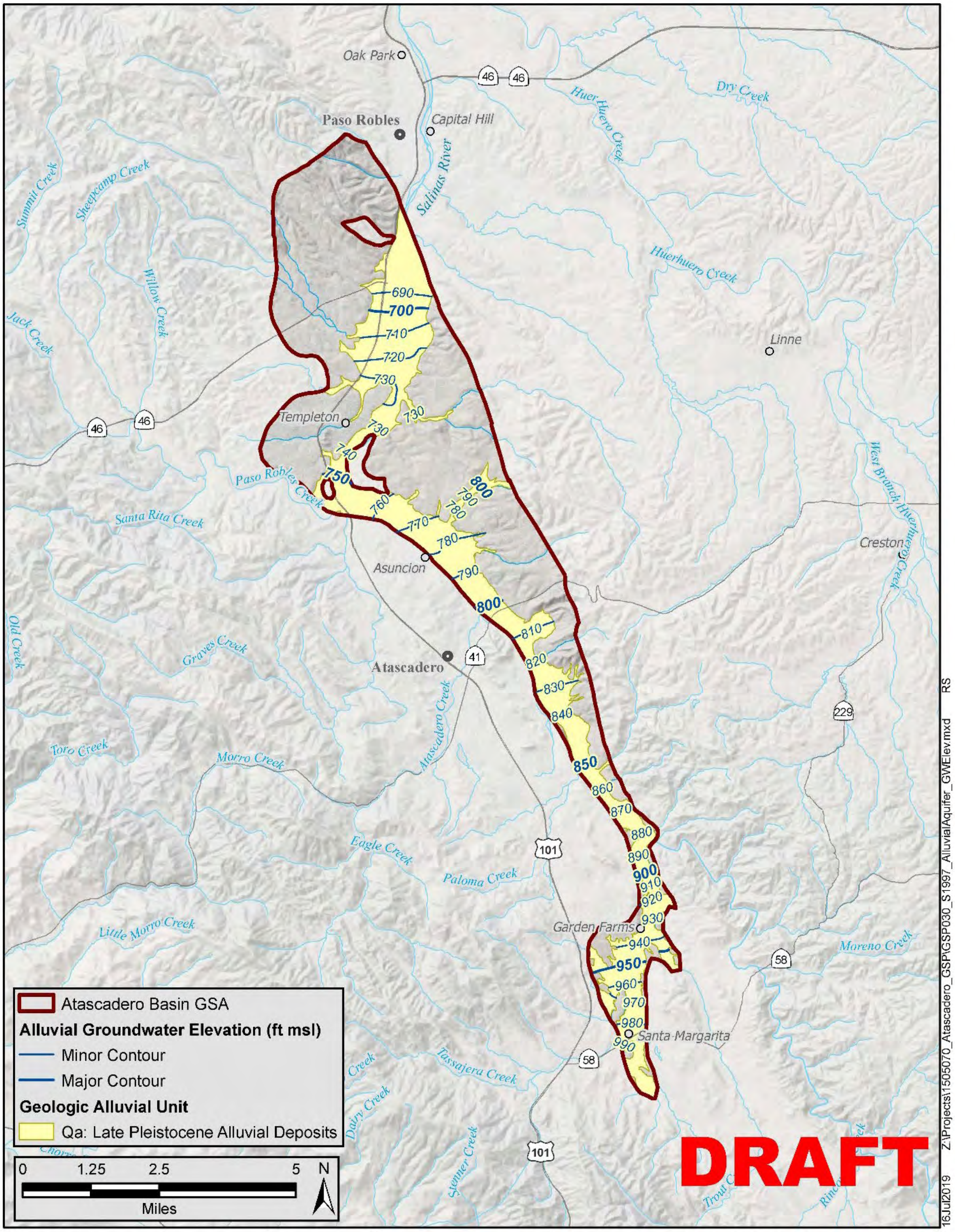
Water levels in wells in the Alluvial Aquifer are relatively stable, exhibiting little seasonal fluctuation and rapid recovery with any substantial rainfall. Because the water table is recharged rapidly immediately following any substantial stream runoff, alluvial water levels show no long-term decline. The locations of the non-confidential alluvial wells used in the groundwater elevation assessment are shown in Figure 5-1.

5.1.1.1 Alluvial Aquifer Groundwater Elevation Contours and Horizontal Groundwater Gradients

Groundwater elevation data for spring of 1997, 2011, 2015, 2017, and fall of 2017 for the Alluvial Aquifer were contoured to assess historical and current spatial variations, groundwater flow directions, and horizontal groundwater gradients. Data from public and private wells were used for contouring. The contours are based on groundwater elevation measurements from the non-confidential wells shown on Figure 5-1 and additional wells subject to confidentiality agreements not shown on the figure. Contour maps were generated using a computer-based contouring program and checked/modified by a qualified hydrogeologist. Groundwater elevation data deemed unrepresentative of static conditions or obviously erroneous were not used for contouring.

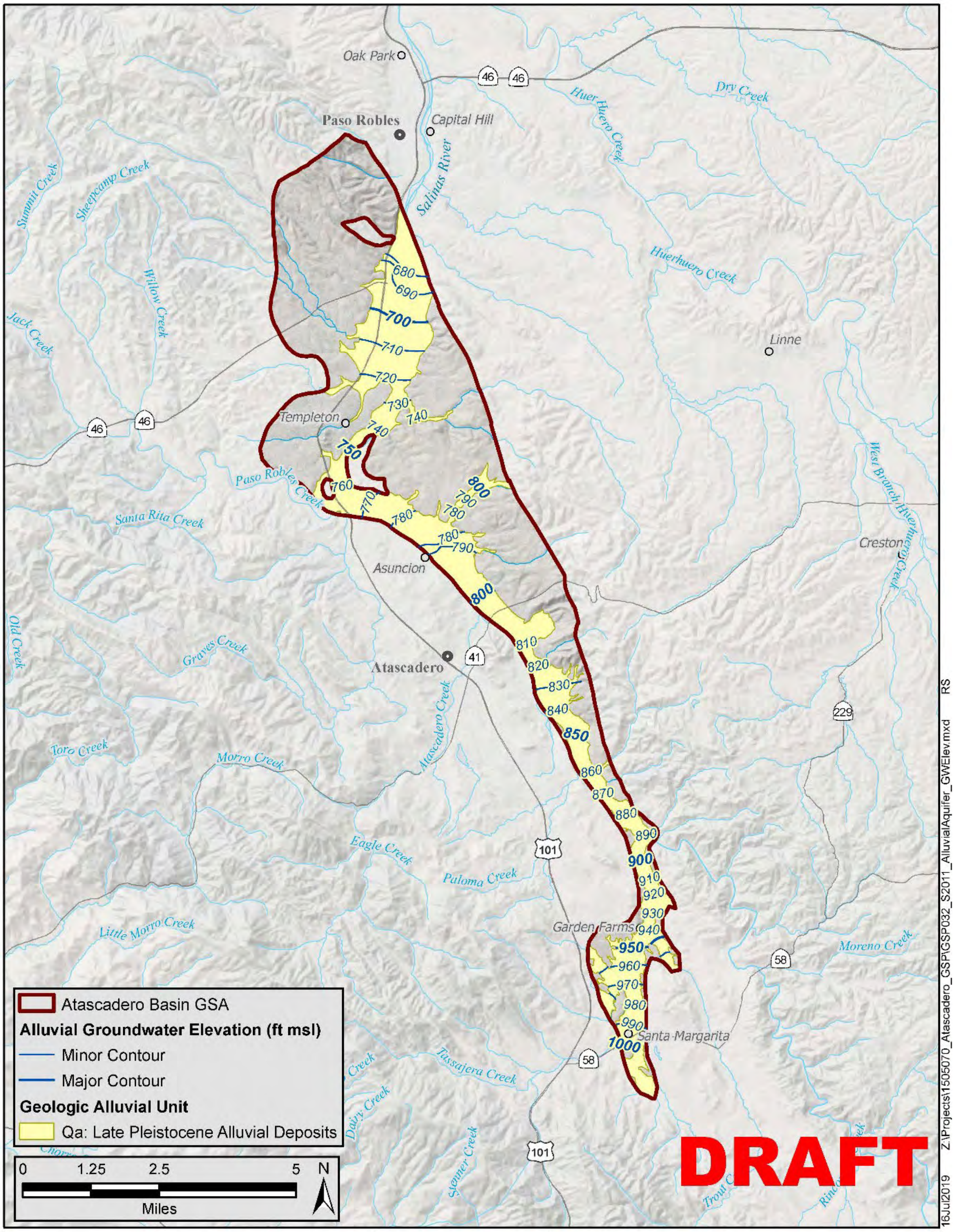
Historical groundwater elevation contours for the Alluvial Aquifer are shown on Figure 5-2 (spring 1997) and Figure 5-3 (spring 2011). Current groundwater elevation contours for the Alluvial Aquifer are shown on Figure 5-4 (spring 2015), Figure 5-5 (spring 2017), and Figure 5-6 (fall 2017). For each of the time periods depicted, alluvial groundwater elevations range from approximately 1,000 ft/msl in the Santa Margarita area to approximately 660 ft/msl in the north where the Salinas River exits the Basin. A comparison of alluvial groundwater elevations between the five time periods depicted shows that alluvial groundwater elevations were generally higher in spring 2011 than in spring 1997, were generally the lowest in spring 2015, and were approximately equal between spring 2011 and spring 2017. These observations align with the historical precipitation record (discussed further, below) and demonstrate the ability of the alluvial aquifer to recharge rapidly following any substantial rainfall. Unsurprisingly, alluvial groundwater elevations were generally slightly higher in spring 2017 than in fall 2017.

Groundwater flow in the Alluvial Aquifer generally follows the alignment of the creeks and the Salinas River. Overall, groundwater in the Alluvial Aquifer flows generally to the north and northwest, parallel to flow in the Salinas River. Throughout the historical and current periods, the overall alluvial hydraulic gradient generally approximates the topographic profile of the Salinas River or its tributaries (generally between 0.002 – 0.007 feet). Areas of steepened hydraulic gradient and areas of flattened hydraulic gradient are apparent due to localized pumping depressions and infiltration basin operations. These are most notable in the Atascadero and Templeton areas.



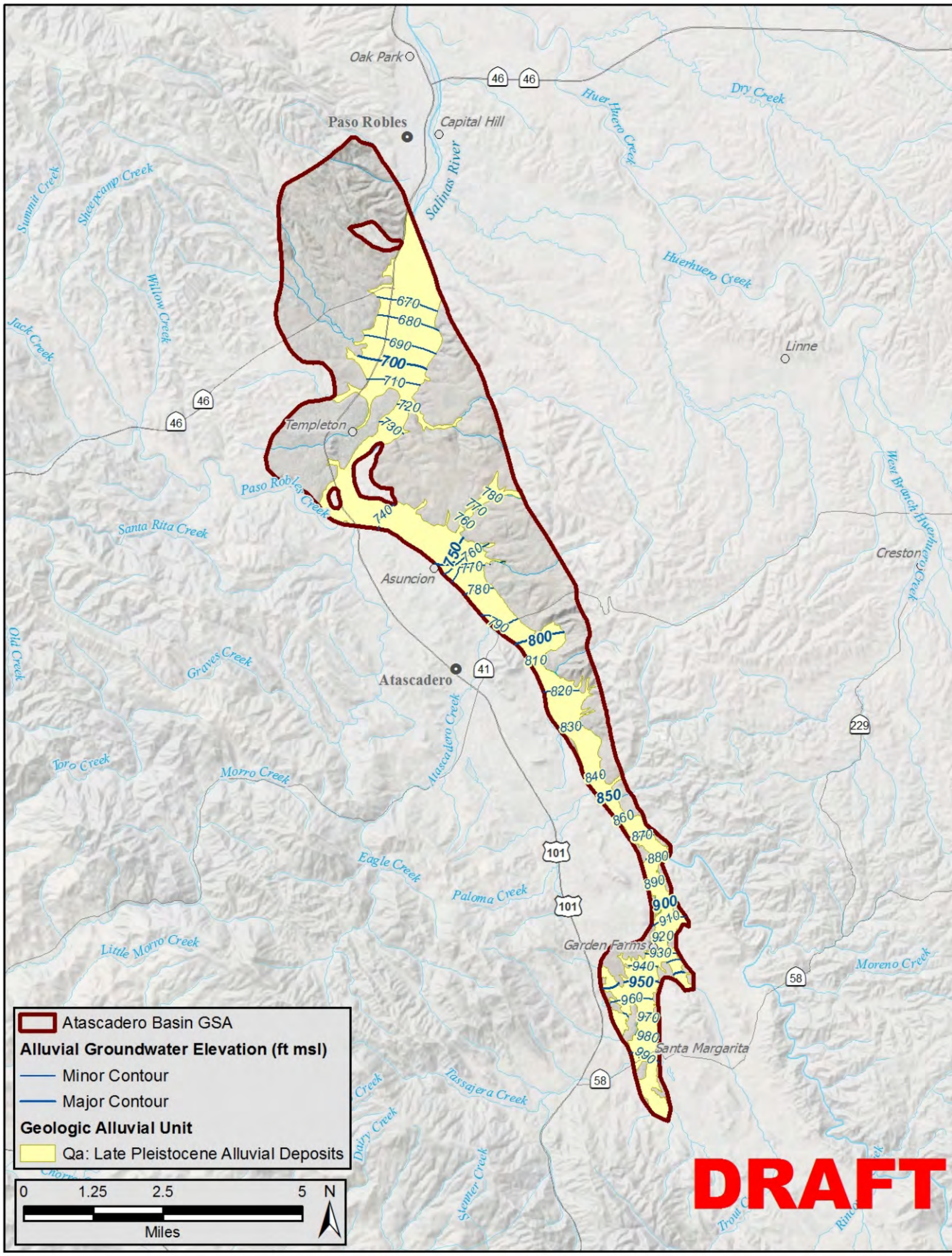
Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Spring 1997 Alluvial Aquifer Groundwater Elevation Contours	
Atascadero Basin GSA		JULY 2021	FIGURE 5-2

Figure 5-2. Spring 1997 Alluvial Aquifer Groundwater Elevation Contours



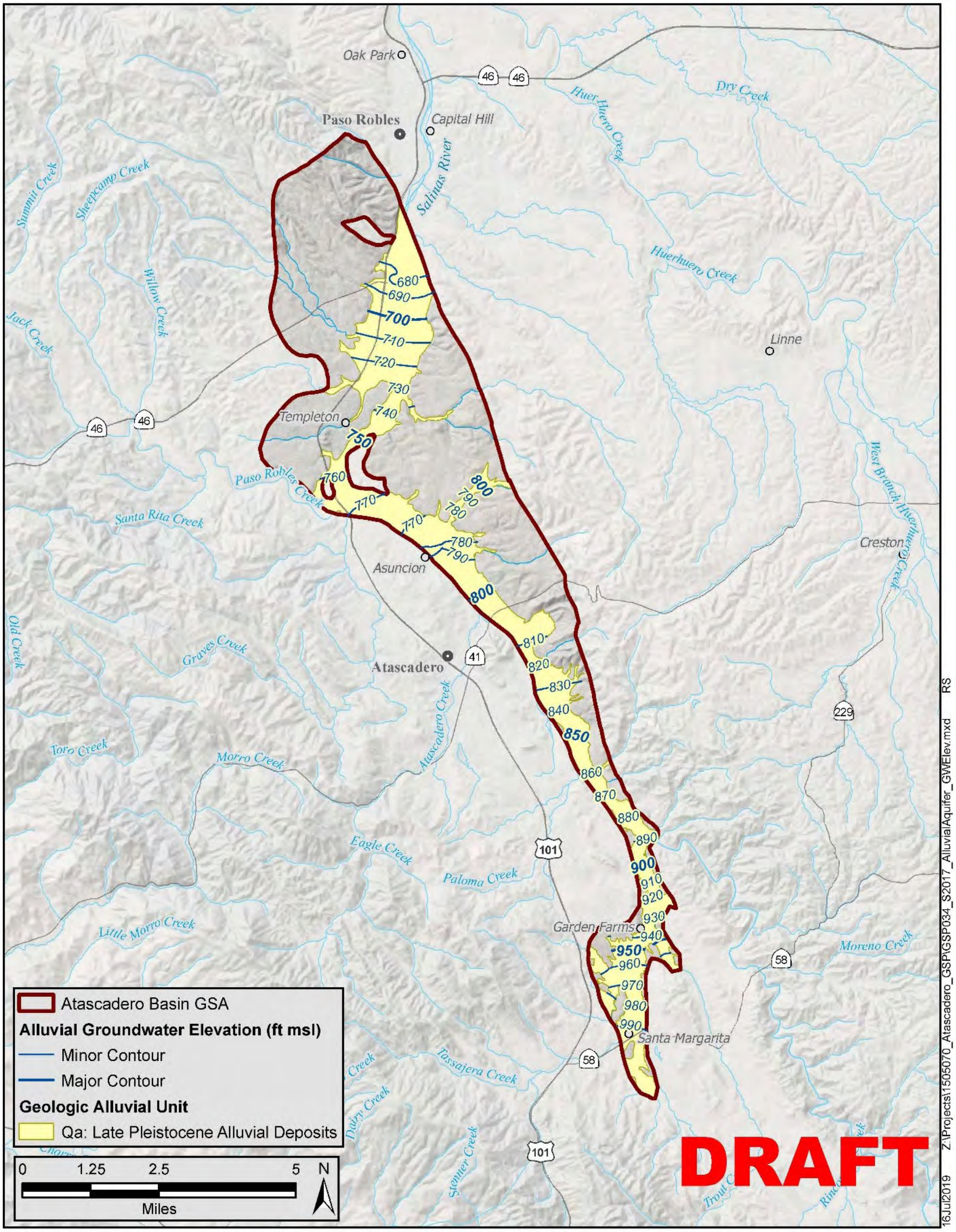
Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Spring 2011 Alluvial Aquifer Groundwater Elevation Contours
Atascadero Basin GSA		JULY 2021 FIGURE 5-3

Figure 5-3. Spring 2011 Alluvial Aquifer Groundwater Elevation Contours



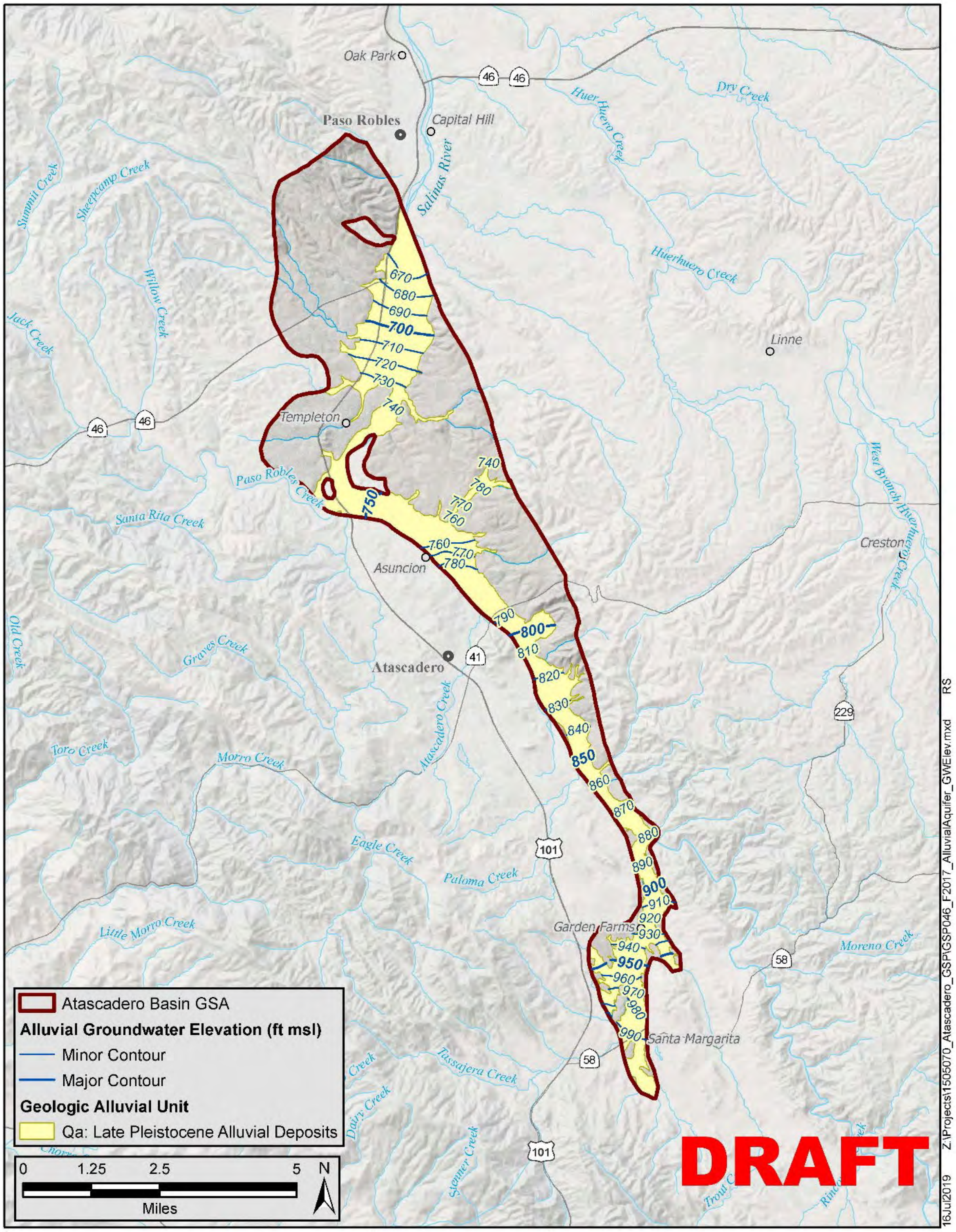
Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Spring 2015 Alluvial Aquifer Groundwater Elevation Contours	
Atascadero Basin GSA		OCTOBER 2019	FIGURE 5-4

Figure 5-4. Spring 2015 Alluvial Aquifer Groundwater Elevation Contours



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Spring 2017 Alluvial Aquifer Groundwater Elevation Contours
Atascadero Basin GSA		JULY 2021 FIGURE 5-5

Figure 5-5. Spring 2017 Alluvial Aquifer Groundwater Elevation Contours



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Fall 2017 Alluvial Aquifer Groundwater Elevation Contours
Atascadero Basin GSA		JULY 2021 FIGURE 5-6

Figure 5-6. Fall 2017 Alluvial Aquifer Groundwater Elevation Contours

5.1.1.2 Alluvial Aquifer Hydrographs

Appendix 5A includes seven hydrographs for wells in the Alluvial Aquifer. These wells were chosen because they have sufficient periods of record to identify trends and/or responses to climatic conditions, they are distributed throughout the Basin, and they have publicly available, non-confidential data.

The hydrographs show periods of climatic variations grouped by the following designations: drought, wet period, or variable. Precipitation data were reviewed and analyzed to determine the occurrence and duration of wet and dry periods for the Basin. Precipitation data from the Atascadero MWC Station #34 was used for this analysis because it is representative of conditions in the Basin and has the longest period of record of any station in the Basin (1916 to present). Figure 5-7 shows total annual precipitation by water year and cumulative departure from average as recorded at Atascadero MWC Station #34 for 1968 through 2018. Mean annual precipitation is 17.5 inches for the period of record 1916 to present.

For wells that are located in close proximity to the Salinas River the hydrographs also show the elevation of the adjacent Salinas River thalweg (deepest part of the river channel, in cross section) and periods when water was present in the Salinas River (called "Live Stream" periods[24]).

The alluvial hydrographs show no discernable long-term trends. Although the hydrographs typically show declining water levels in response to drought periods, they also demonstrate the ability of the alluvial aquifer to fully recharge during wet periods. Alluvial groundwater elevations are typically higher in spring than in the fall and generally fluctuate by 30 feet or less annually.

[24] San Luis Obispo County monitors the Salinas River at seven locations to determine "Live Stream" status. The seven monitoring locations are: Highway 58 Bridge, Highway 41 Bridge, Immediately upstream of Graves Creek, Templeton Bridge, Paso Robles 13th St. Bridge, Wellsona Crossing, and the San Miguel Bridge.

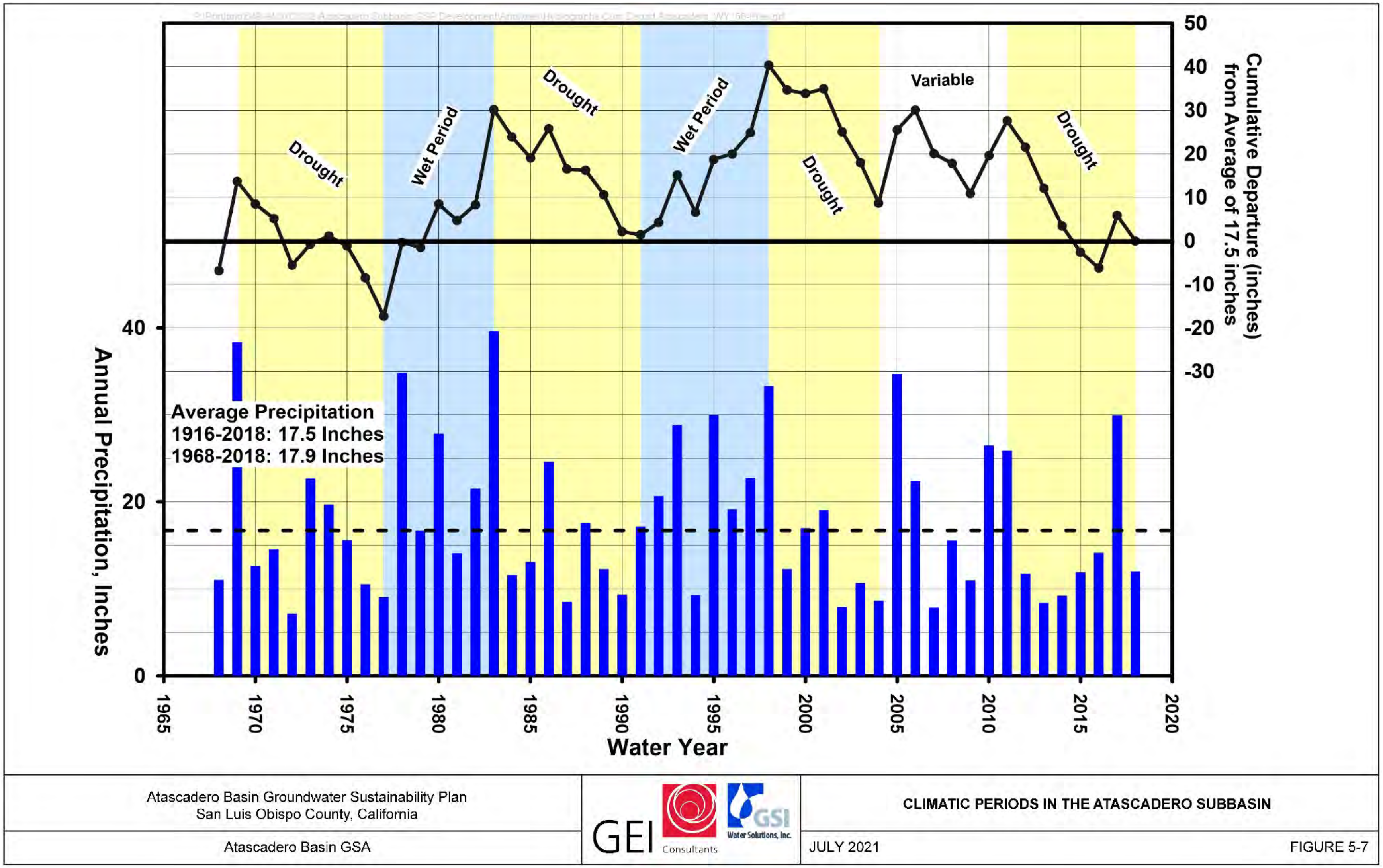


Figure 5-7. Climatic Periods in the Atascadero Basin

This page left blank intentionally.

5.1.2 *Paso Robles Formation Aquifer*

Locations of the non-confidential Paso Robles Formation Aquifer 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 in the Basin.

5.1.2.1 Paso Robles Formation Aquifer Groundwater Elevation Contours and Horizontal Groundwater Gradients

Groundwater elevation data for spring of 1997, 2011, 2015, 2017, and fall of 2017 for the Paso Robles Formation Aquifer were contoured to assess historical and current spatial variations, groundwater flow directions, and horizontal groundwater gradients. Data from public and private wells were used for contouring. The contours are based on groundwater elevation measurements from the non-confidential wells shown on Figure 5-1 and additional wells subject to confidentiality agreements not shown on the figure. Contour maps were generated using a computer-based contouring program and checked/modified by a qualified hydrogeologist. Groundwater elevation data deemed unrepresentative of static conditions or obviously erroneous were not used for contouring.

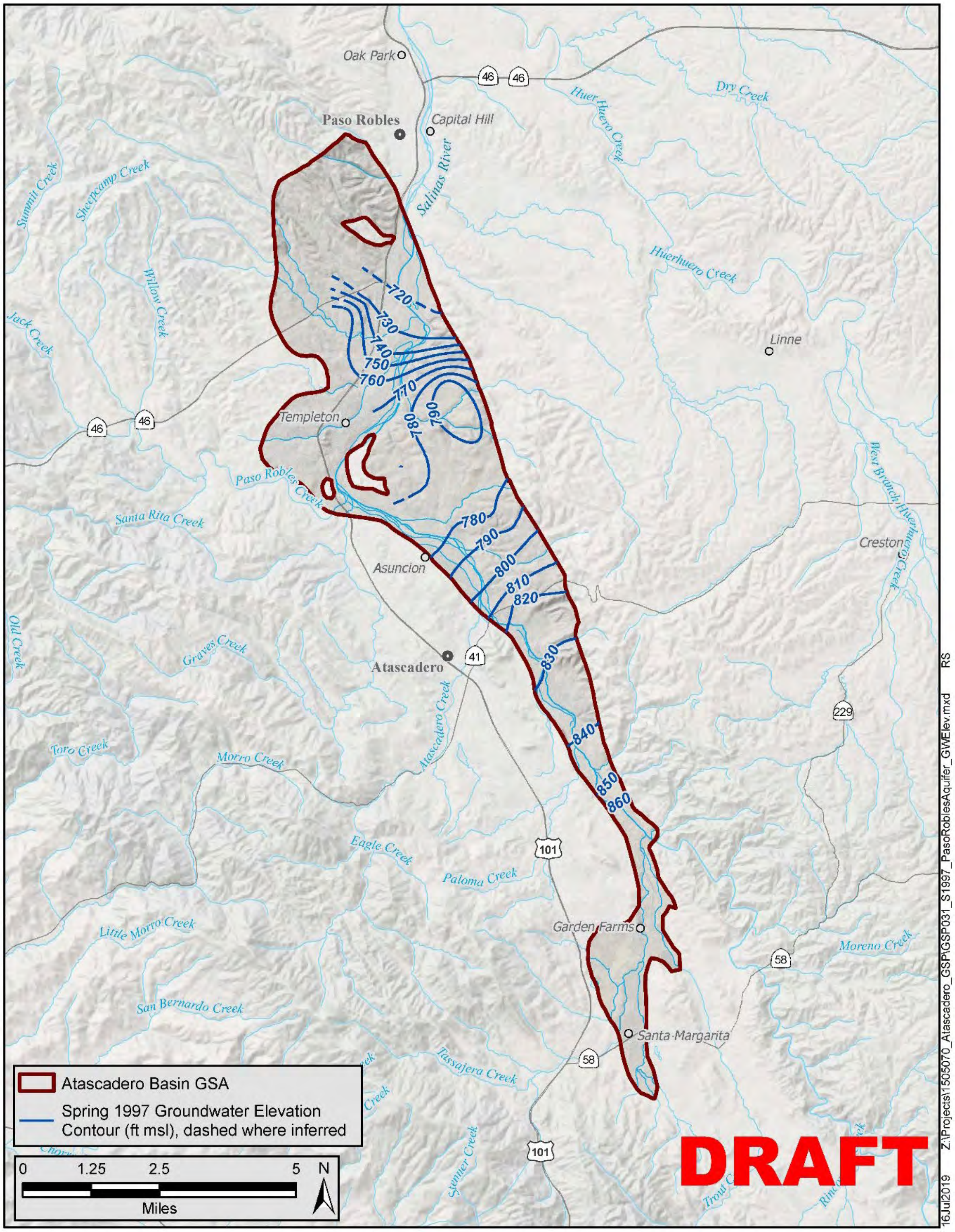
Figures 5-8 and 5-9 show contours of historical groundwater elevations in the Paso Robles Formation Aquifer for spring of 1997 and 2011, respectively. Spring 1997 groundwater elevations in the Paso Robles Formation Aquifer ranged from approximately 870 ft/msl in the south to approximately 730 ft/msl in the northern part of the Basin. Spring 1997 groundwater flow direction in the Paso Robles Formation Aquifer is generally to the north-northwest with hydraulic gradients ranging from approximately 0.02 to 0.001 ft/ft. A pumping trough is evident in the area northeast of Templeton as well as an area of elevated water levels in the northeastern part of the Basin.

Spring 2011 groundwater elevations in the Paso Robles Formation Aquifer ranged from approximately 870 ft/msl in the south to approximately 685 ft/msl in the northern part of the Basin. Spring 2011 groundwater flow direction in the Paso Robles Formation Aquifer is generally to the north-northwest with hydraulic gradients ranging from approximately 0.01 to 0.002 ft/ft. A slight pumping trough is evident in the northern part of Templeton near the junction of Highway 101 and Highway 46 West.

Figures 5-10, 5-11, and 5-12 show contours of current groundwater elevations in the Paso Robles Formation Aquifer for spring 2015, spring 2017, and fall 2017, respectively. The spring 2015 groundwater elevations in the Paso Robles Formation Aquifer ranged from approximately 821 ft/msl in the south to approximately 689 ft/msl in the middle of a significant pumping depression in the Atascadero area (Figure 5-10). Groundwater flow directions in the Paso Robles Formation Aquifer were generally radially inward towards the Atascadero area pumping depression in spring 2015 except for in the north part of the Basin where flow direction was generally toward the northwest. Hydraulic gradients ranged from approximately 0.01 ft/ft, in close proximity to the pumping depression, to 0.0006 ft/ft elsewhere in the Basin. The spring 2015 contours indicate pumping influences in the Templeton area as well, although not as significant as those in the Atascadero area.

The spring 2017 groundwater elevations in the Paso Robles Formation Aquifer ranged from approximately 860 ft/msl in the south to approximately 660 ft/msl in the northern part of the Basin. Similar to spring 2011, the spring 2017 groundwater flow direction in the Paso Robles Formation Aquifer is generally to the north-northwest with hydraulic gradients ranging from approximately 0.02 to 0.001ft/ft. The spring 2017 contours appear to show slight pumping influences in the Atascadero and Templeton areas.

Fall 2017 groundwater elevations in the Paso Robles Formation Aquifer ranged from approximately 860 ft/msl in the south to approximately 680 ft/msl in the northern part of the Basin. Fall 2017 groundwater flow direction in the Paso Robles Formation Aquifer is generally to the north-northwest with hydraulic gradients ranging from approximately 0.01 to 0.002 feet. Pumping troughs are evident in the Templeton and Atascadero areas.



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Spring 1997 Paso Robles Formation Aquifer Groundwater Elevation Contours
Atascadero Basin GSA		JULY 2021 FIGURE 5-8

Figure 5-8. Spring 1997 Paso Robles Formation Aquifer Groundwater Elevation Contours

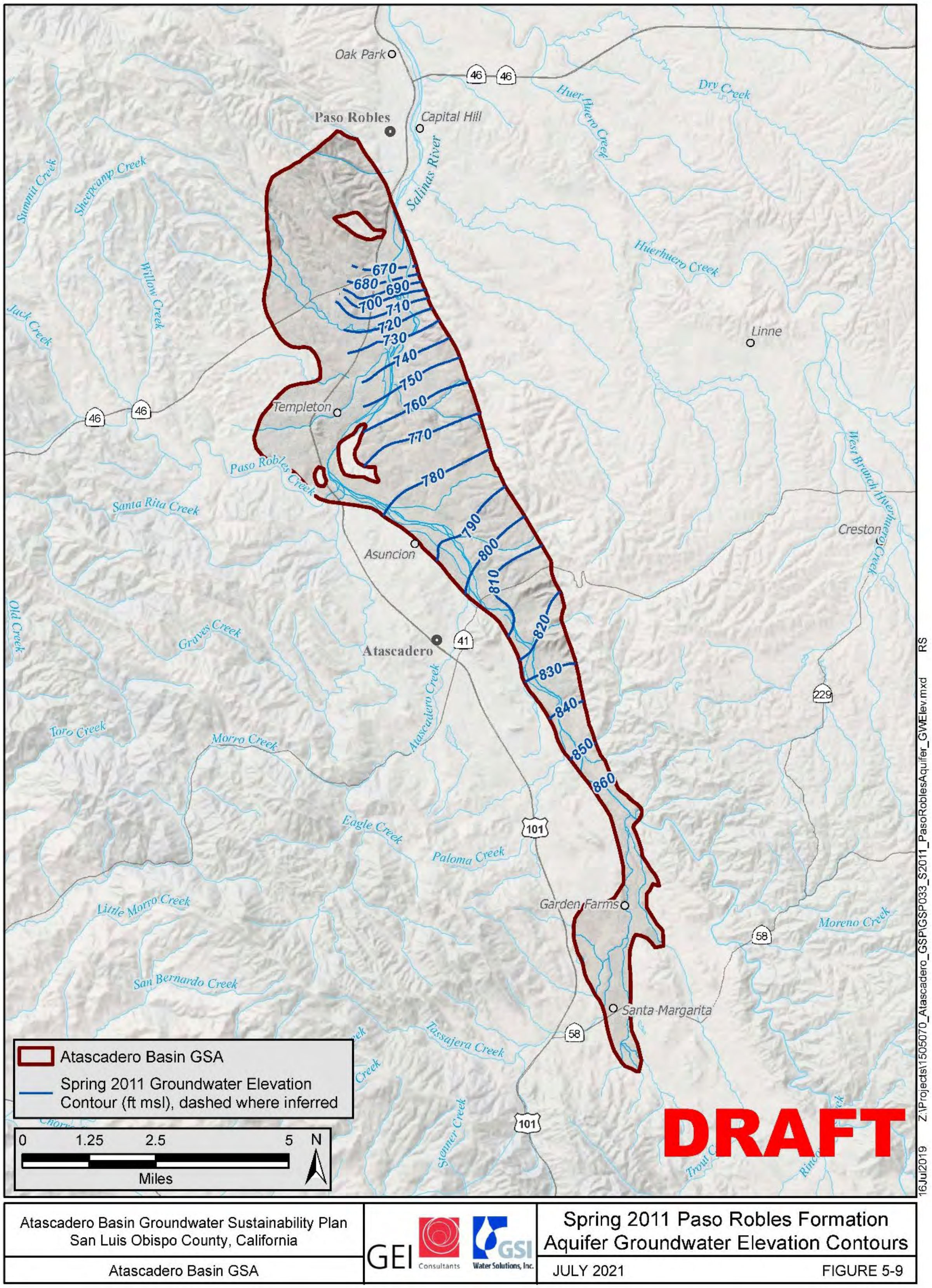


Figure 5-9. Spring 2011 Paso Robles Formation Aquifer Groundwater Elevation Contours

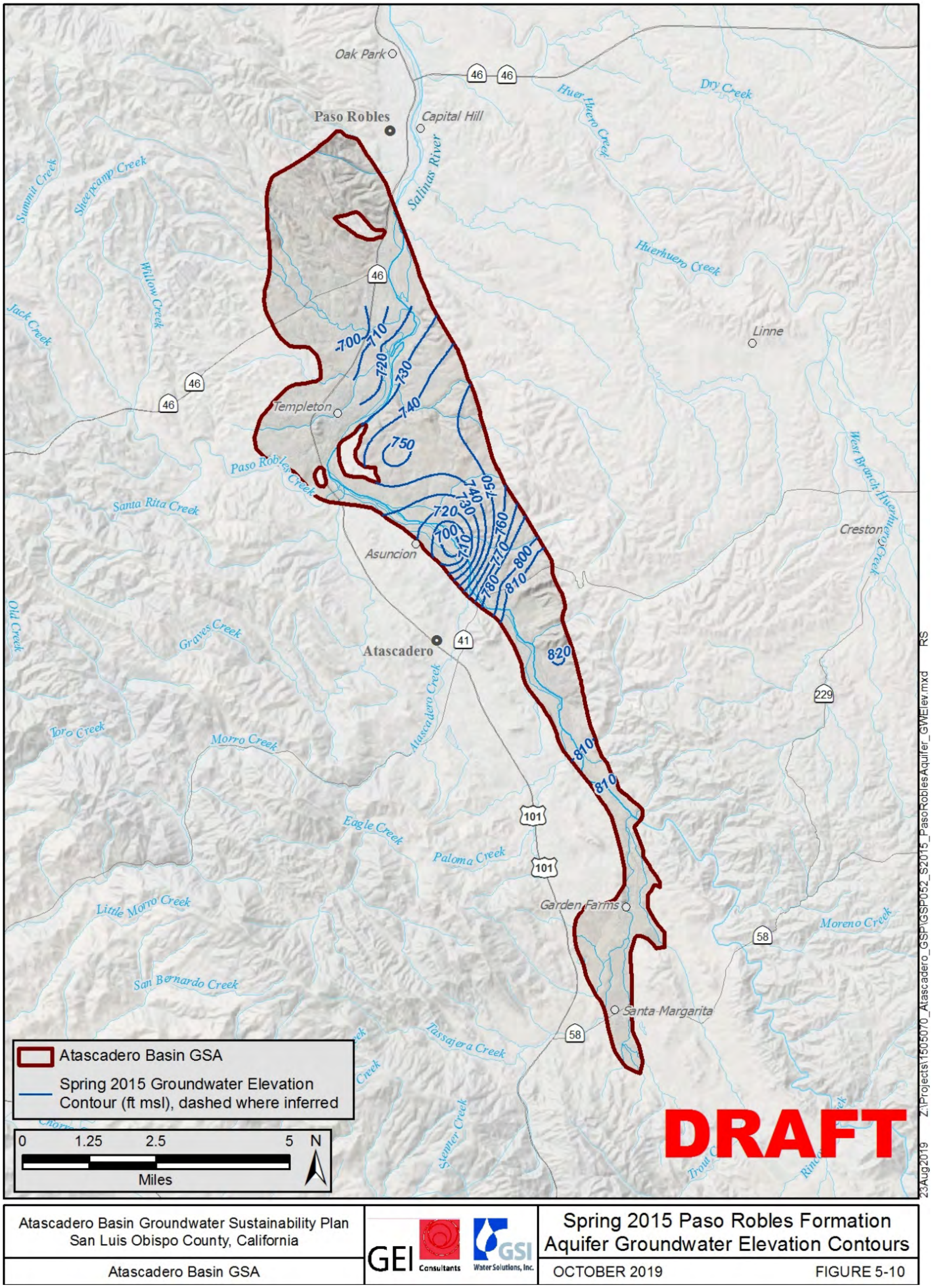
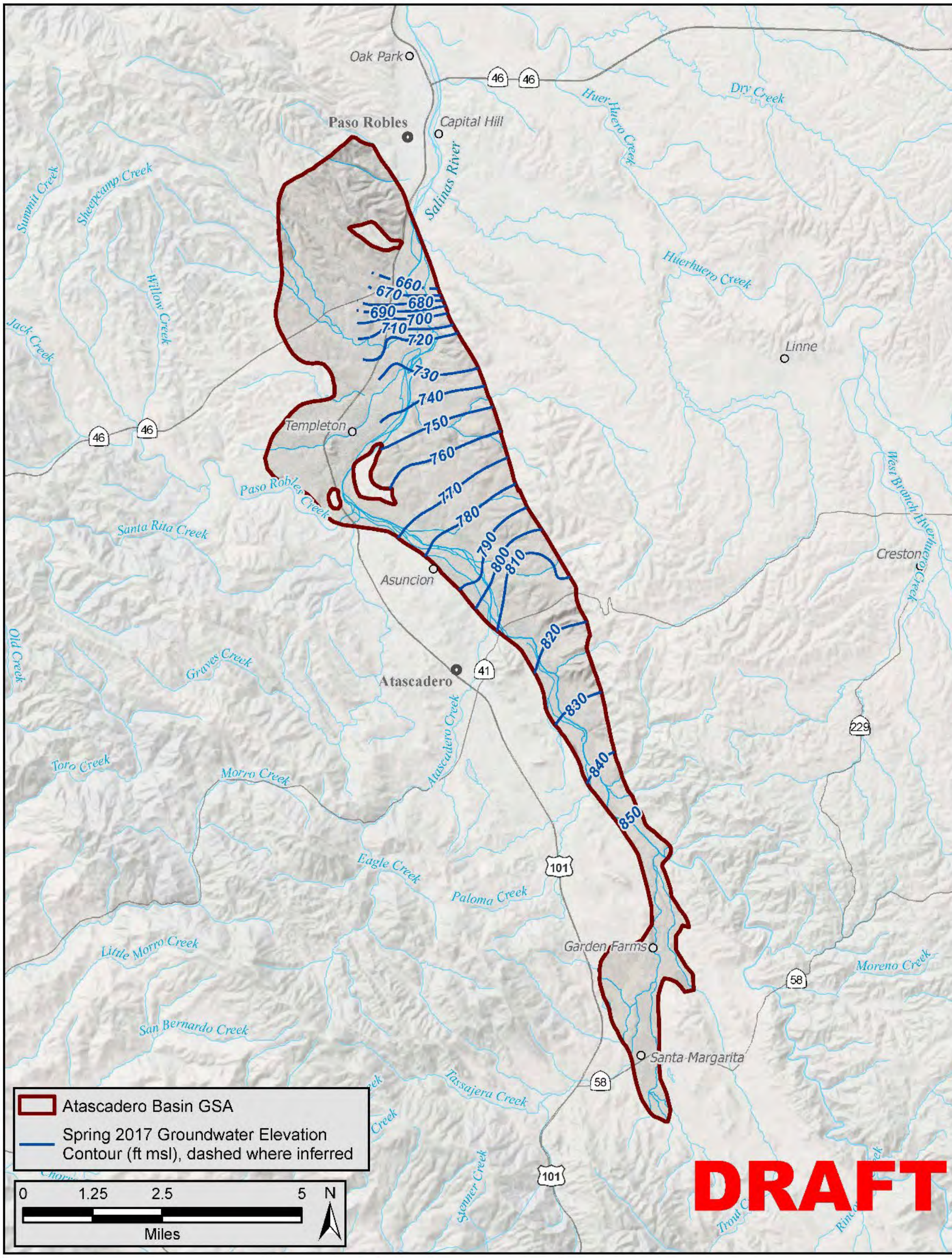
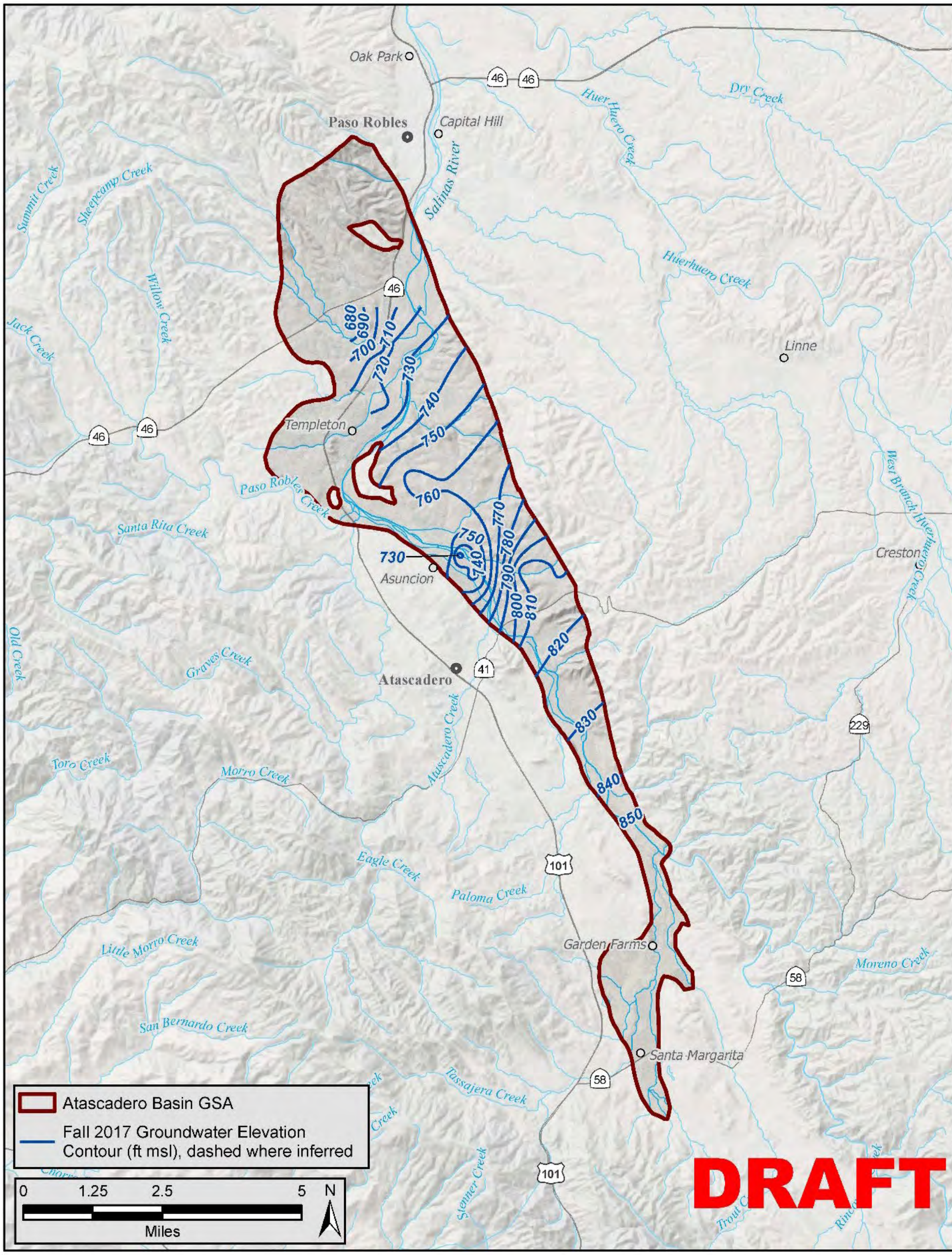


Figure 5-10. Spring 2015 Paso Robles Formation Aquifer Groundwater Elevation Contours



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Spring 2017 Paso Robles Formation Aquifer Groundwater Elevation Contours
Atascadero Basin GSA		JULY 2021 FIGURE 5-11

Figure 5-11. Spring 2017 Paso Robles Formation Aquifer Groundwater Elevation Contours



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Fall 2017 Paso Robles Formation Aquifer Groundwater Elevation Contours
Atascadero Basin GSA		JULY 2021 FIGURE 5-12

Figure 5-12. Fall 2017 Paso Robles Formation Aquifer Groundwater Elevation Contours

5.1.2.2 Paso Robles Formation Aquifer Changes in Groundwater Elevations

Figure 5-13 depicts the change in spring groundwater elevations in the Paso Robles Formation Aquifer between 1997 and 2011. Groundwater elevations are generally lower in 2011 than 1997 in the area east of Templeton and in the area near the intersection of Highway 101 and Highway 46 West (by as much as 45 feet). The decline in water levels in the northern part of the Basin is inferred to be related to increased agricultural pumping in the bedrock areas west of the Basin which may be resulting in decreased subsurface recharge to the Basin from the northwest. Groundwater elevations are higher in 2011 than 1997 in the Atascadero area north of the Highway 41 bridge by as much as 5 feet. The increase in water levels may be related to reductions in groundwater pumping in the area.

Figure 5-14 depicts the change in spring groundwater elevations in the Paso Robles Formation Aquifer between 2011 and 2015 and Figure 5-15 depicts the change in spring groundwater elevation between 2015 and 2017. Together, these effectively cover the time period of the recent drought. Groundwater elevations were significantly lower in 2015 than 2011 throughout the Basin, most notably in the Atascadero area. The relatively large decrease in water elevations in the Atascadero area are likely related to consistent groundwater production through the drought period coupled with an interruption of imported surface water delivery from the NWP[25] (John Neil, per. comm., August 23, 2019).

Groundwater elevations in the Paso Robles Formation Aquifer generally increased between spring 2015 and spring 2017, most significantly in the Atascadero area (Figure 5-15). This recovery to 2011 water levels in the Atascadero area is likely related to decreased groundwater production in 2015 and 2016, percolation of a nearly full allocation of NWP water in 2015, and above average precipitation in 2017.

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. The Basin has generally very good coverage in its existing groundwater monitoring network. However, the northwest end of the Basin, especially the area north of Highway 46, does not. A better understanding of water levels in the Paso Robles Formation in this area is important to the future understanding of the groundwater conditions in the north end of the Basin. Expanding the monitoring network and acquiring more groundwater elevation data will allow the GSA to refine and modify this GSP in the future based on a more complete understanding of Basin conditions. There are many existing private wells in the northwest area so there may be opportunities to bring one or more of them into the monitoring program through an outreach program. This is discussed further in Section 8 – Sustainable Management Criteria.

---

[25] The Nacimiento Water Project construction was completed by the San Luis Obispo County Flood Control and Water Conservation District in early 2010, and participating agencies, including City of Paso Robles, Templeton CSD, and Atascadero MWC, have been taking deliveries of these imported surface water supplies from Nacimiento Reservoir to manage the Basin with imported water to augment the natural Basin supplies, especially during drought periods.

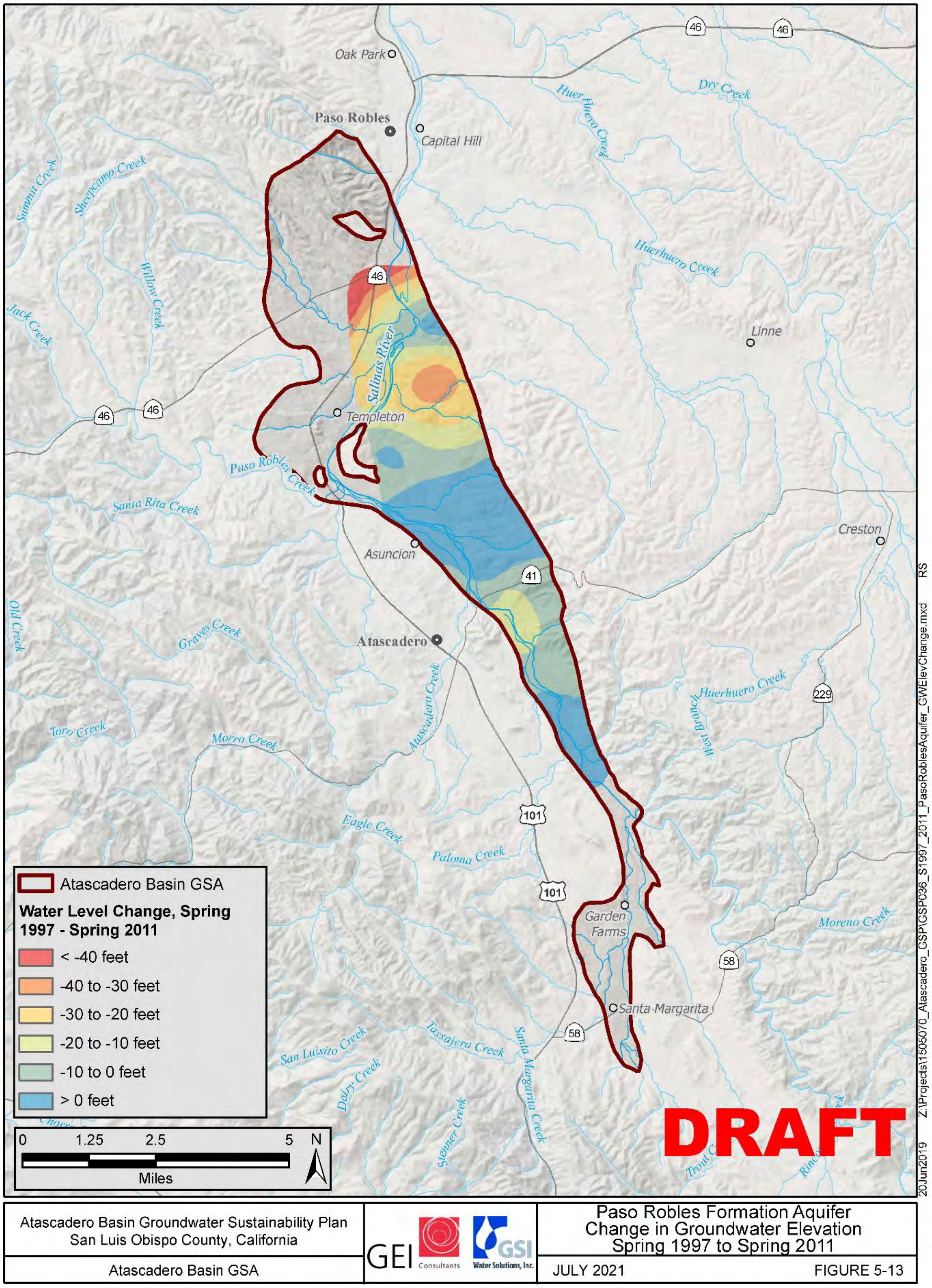
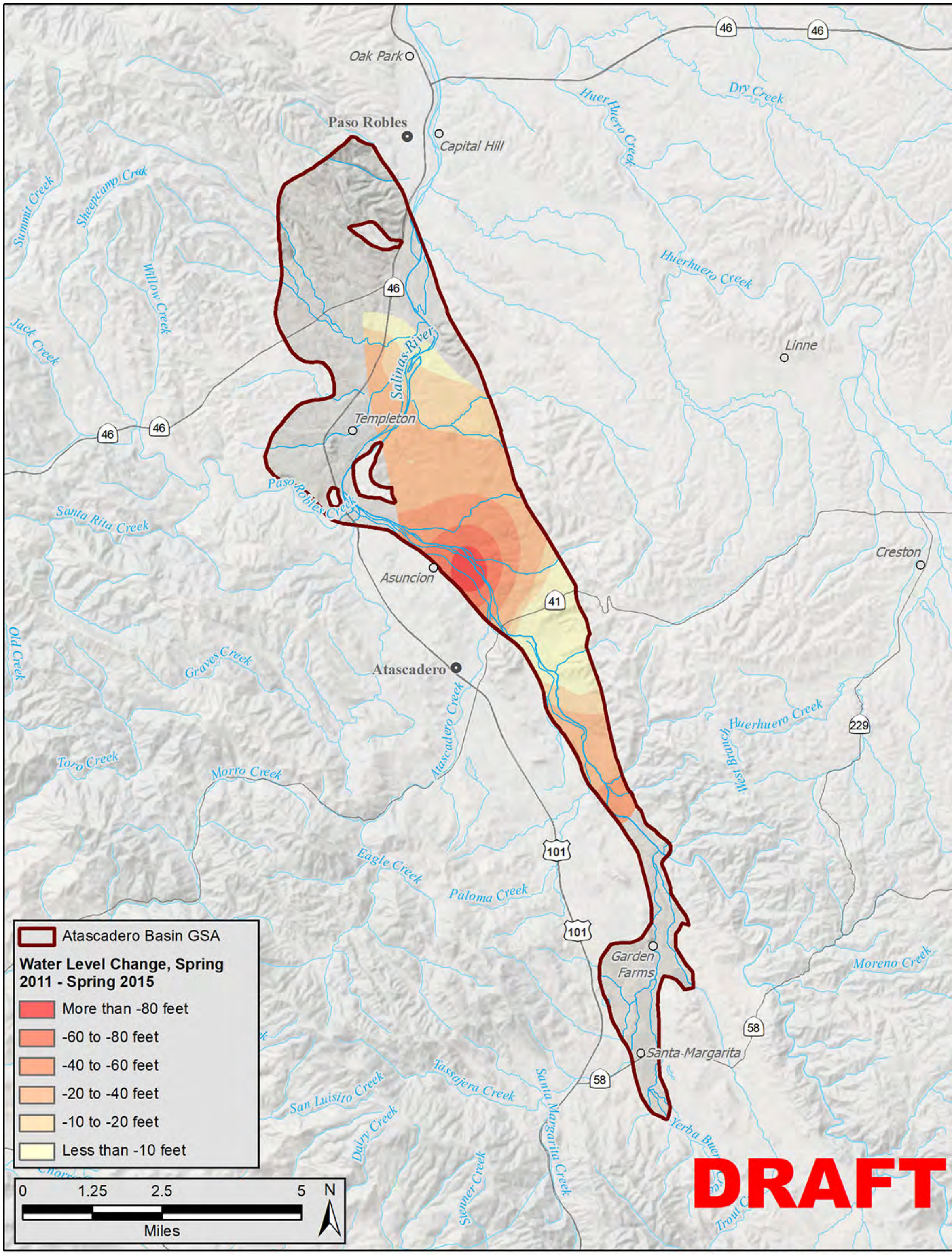
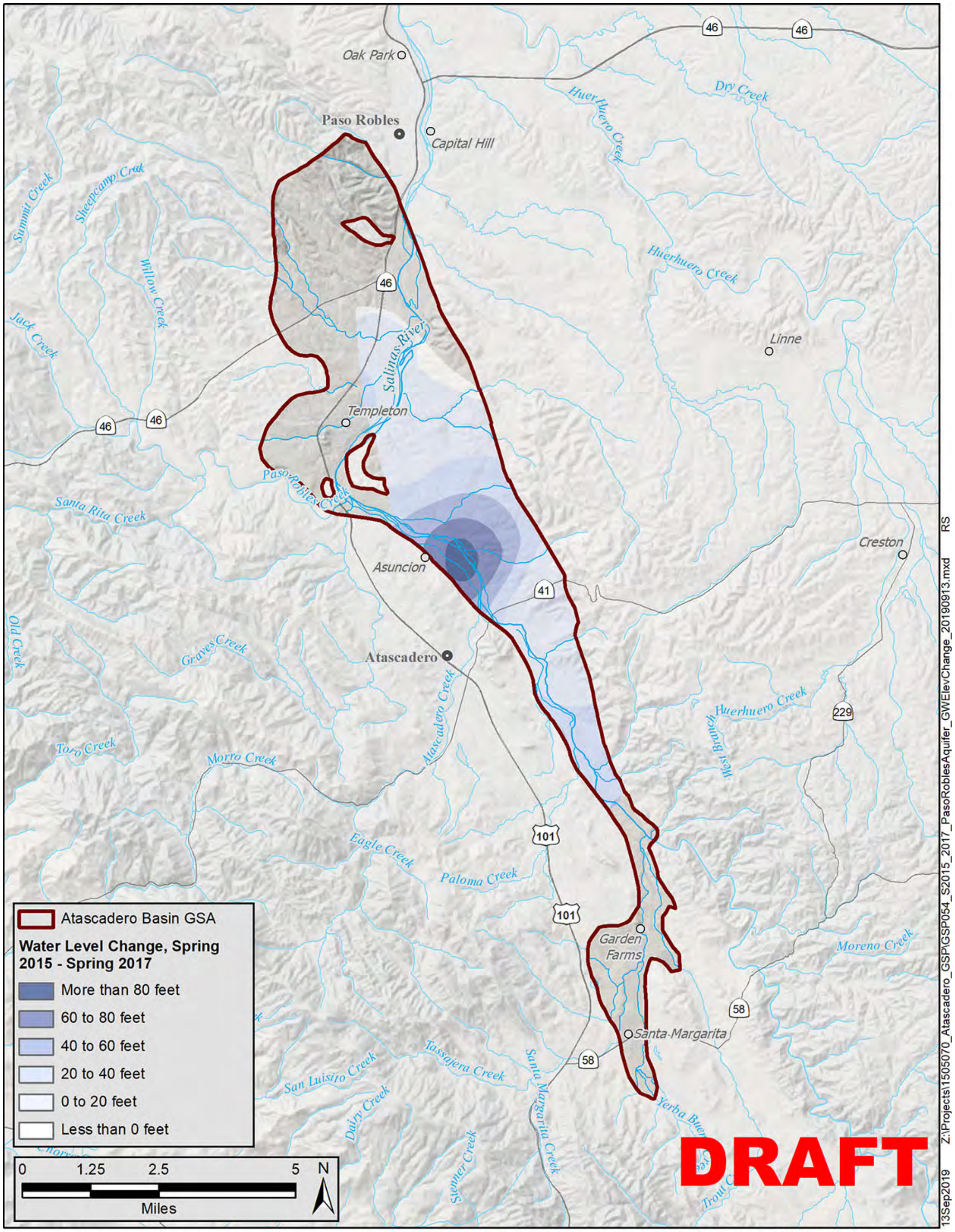


Figure 5-13. Paso Robles Formation Aquifer Change in Groundwater Elevation – Spring 1997 to Spring 2011



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Paso Robles Formation Aquifer Change in Groundwater Elevation Spring 2011 to Spring 2015
Atascadero Basin GSA		OCTOBER 2019 FIGURE 5-14

Figure 5-14. Paso Robles Formation Aquifer Change in Groundwater Elevation – Spring 2011 to Spring 2015



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Paso Robles Formation Aquifer Change in Groundwater Elevation Spring 2015 to Spring 2017
Atascadero Basin GSA		OCTOBER 2019 FIGURE 5-15

Figure 5-15. Paso Robles Formation Aquifer Change in Groundwater Elevation – Spring 2015 to Spring 2017

5.1.2.3 Paso Robles Formation Aquifer Hydrographs

Appendix 5A includes 10 hydrographs for wells in the Paso Roble Formation Aquifer. These wells were chosen because they have sufficient periods of record to identify trends and/or responses to climatic conditions, they are distributed throughout the Basin, and they have publicly available, non-confidential data.

Similar to the Alluvial Aquifer hydrographs, the Paso Robles Formation Aquifer hydrographs show periods of climatic variations grouped by the following designations: drought, wet period, or variable (Figure 5-7). Generally, the hydrographs illustrate the overall stability of water levels throughout the Basin. All hydrographs but three demonstrate long-term stability of water levels, albeit with some showing seasonal fluctuations as much as 100 feet. The three exceptions include well 27S/12E-17B02 and 27S/12E-17E01, which are both located west of the intersection of Highway 101 and Highway 46 West, and well 27S/12E-22M01, which is located east of the Salinas River in the Templeton area. As discussed earlier, it is likely that the decline in water levels in the area near the intersection of Highway 101 and Highway 46 West is due to reduced subsurface inflow to the Basin as a result of increased agricultural activity in the bedrock regime to the west. Although well 27S/12E-22M01, east of Templeton, has shown a decline in water levels since the late 1990s, current water elevations are higher than water elevations prior to the 1980s, and have also shown an overall stability in the past decade.

5.1.3 *Vertical Groundwater Gradients*

Limited data has been located that can be used to analyze the vertical groundwater gradients. Vertical groundwater gradients can be estimated from nested or clustered wells. Previous hydrologic studies of the Basin 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 et. al. 2005). The lack of nested or clustered monitoring wells in the Basin is a data gap that will be addressed further in Section 7 – Monitoring Network.

5.2 Change in Groundwater Storage

Changes in groundwater storage for the Alluvial Aquifer and Paso Robles Formation Aquifer are addressed in Section 6 – Water Budget.

5.3 Seawater Intrusion

Seawater intrusion is not an applicable sustainability indicator for the Basin. The Basin 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.

Direct measurements of subsidence have not been made in the Basin using extensometers or repeat benchmark calibration; however, interferometric synthetic aperture radar (InSAR) has been used in the area to remotely map subsidence. This technology uses radar images taken from satellites that are used to create maps of changes in land surface elevation. One study done in the area shows that a localized area east of Highway 101 and the Salinas River had a downward displacement of 1 to 2 inches between spring 1997 and fall 1997 (Valentine, D. W. et al. 2001). A second InSAR study completed for the time period of May 2015 to August 2016 showed 0 to 3 inches of downward displacement in the Basin (NASA JPL 2018). It should be noted that neither study indicated that the change in ground surface elevation is attributed to extraction of groundwater.

Subsidence as a sustainability indicator will be addressed further in Section 8 – Sustainable Management Criteria.

5.5 Interconnected Surface Water

The spatial extent of interconnected surface water in the Basin was evaluated using water level data from confidential and non-confidential Alluvial Aquifer and Paso Robles Formation Aquifer wells adjacent to the Salinas River[26]. In accordance with the SGMA emergency regulations §351 (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". The interconnected surface water analysis consisted of comparing average springtime water level elevations[27] in wells adjacent to the Salinas River with the elevation of the adjacent Salinas River thalweg. In cases where average springtime water levels were greater than the elevation of the adjacent Salinas River thalweg the stream reach was considered as potentially 'gaining'. In cases where average springtime water levels were below the adjacent thalweg elevation the stream reach was considered 'losing' and potentially 'disconnected'.

Paso Robles Formation Aquifer water levels were further evaluated based on their occurrence within confined or semi-confined zones of the aquifer or within areas known to be in direct

---

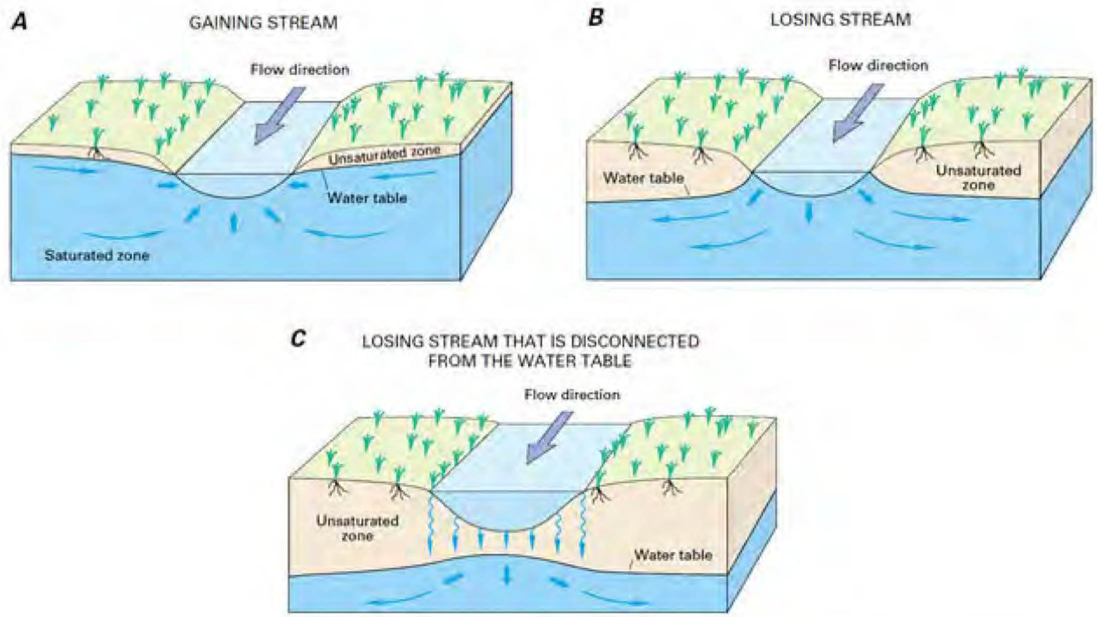
[26] The interconnected surface water analysis was restricted to the Salinas River, which is the only significant surface water body in the Subbasin.

[27] Average springtime water elevations were selected for the analysis because they represent the most commonly observed annual high water elevation over the period of record and because they generally correspond with periods of flow (or "Live Stream" events) in the Salinas River. As stated in Section 4 – Basin Setting, the Salinas River is ephemeral, and during most of the year, it either runs dry or loses water to the underlying aquifers.

communication with the overlying Alluvial Aquifer. Proximity to wastewater percolation and NWP infiltration basins was also considered in the analysis.

It is important to recognize that the results of these analyses reflect conditions that occur occasionally, in response to precipitation events. They are not representative of long-term average conditions. Figure 5-16 is a schematic illustrating types of interconnected and disconnected surface waters. In this figure, both diagrams A and B represent interconnected surface waters (‘gaining’ and ‘losing’, respectively) and diagram C shows disconnected ‘losing’ surface water.

The analysis outlined above resulted in identification of four reaches of the Salinas River that occasionally ‘gain’ water from the Alluvial Aquifer and four reaches that occasionally ‘lose’ water to the Alluvial Aquifer, one of which, located in the area just south of the city of Paso Robles, is likely also ‘disconnected’. These identified reaches account for approximately 7.5 miles of the Salinas River course within the Basin, leaving approximately 8 miles of river with unknown interconnected surface water status. The results of the interconnected surface water analysis, for the Alluvial Aquifer are shown on Figure 5-17.

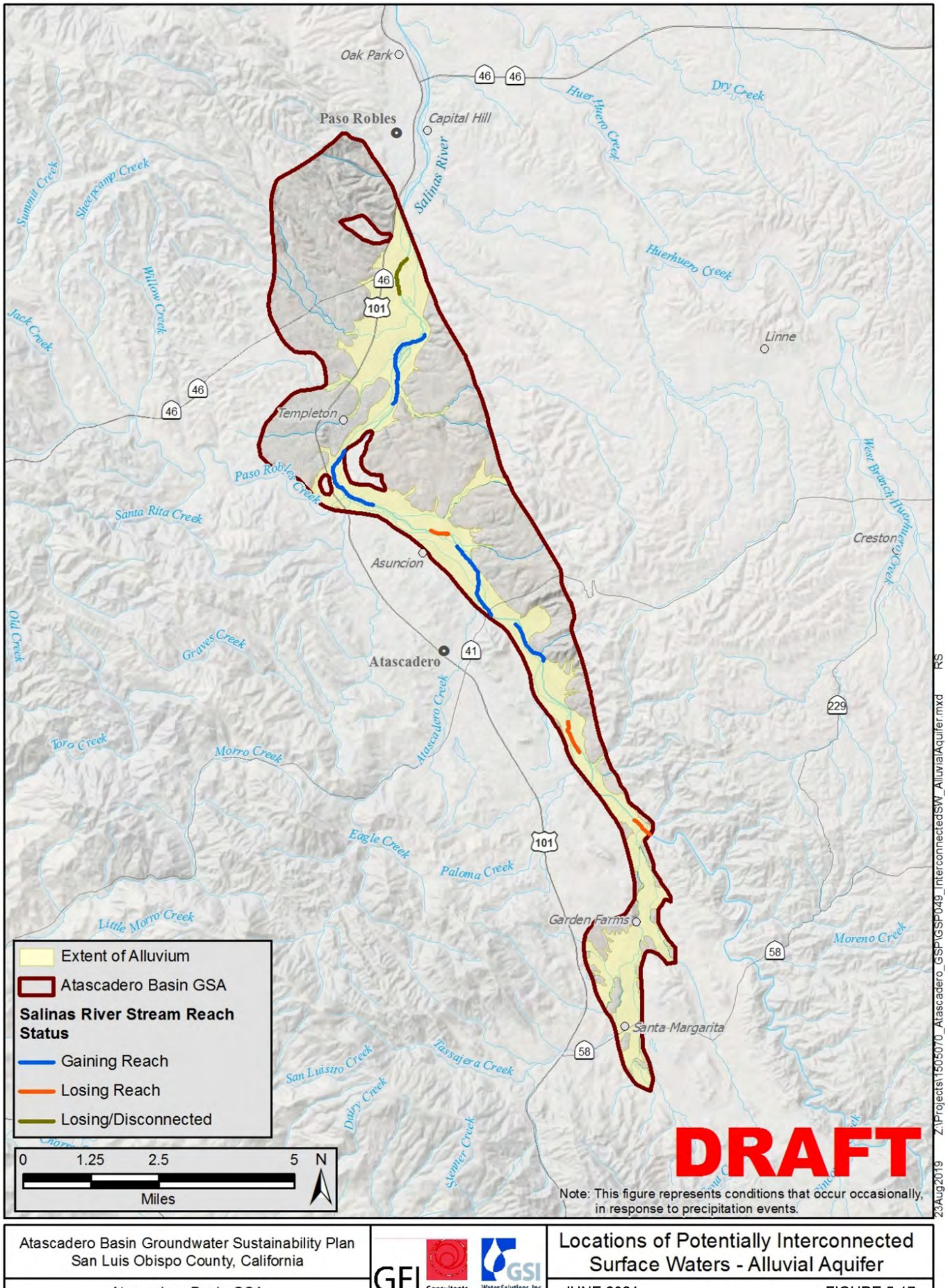


Adopted from USGS, 1999

Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	**INTERCONNECTED AND NON-INTERCONNECTED SURFACE WATERS SCHEMATIC**
Atascadero Basin GSA		OCTOBER 2019 FIGURE 5-16

Figure 5-16. Interconnected and Non-Interconnected Surface Waters Schematic

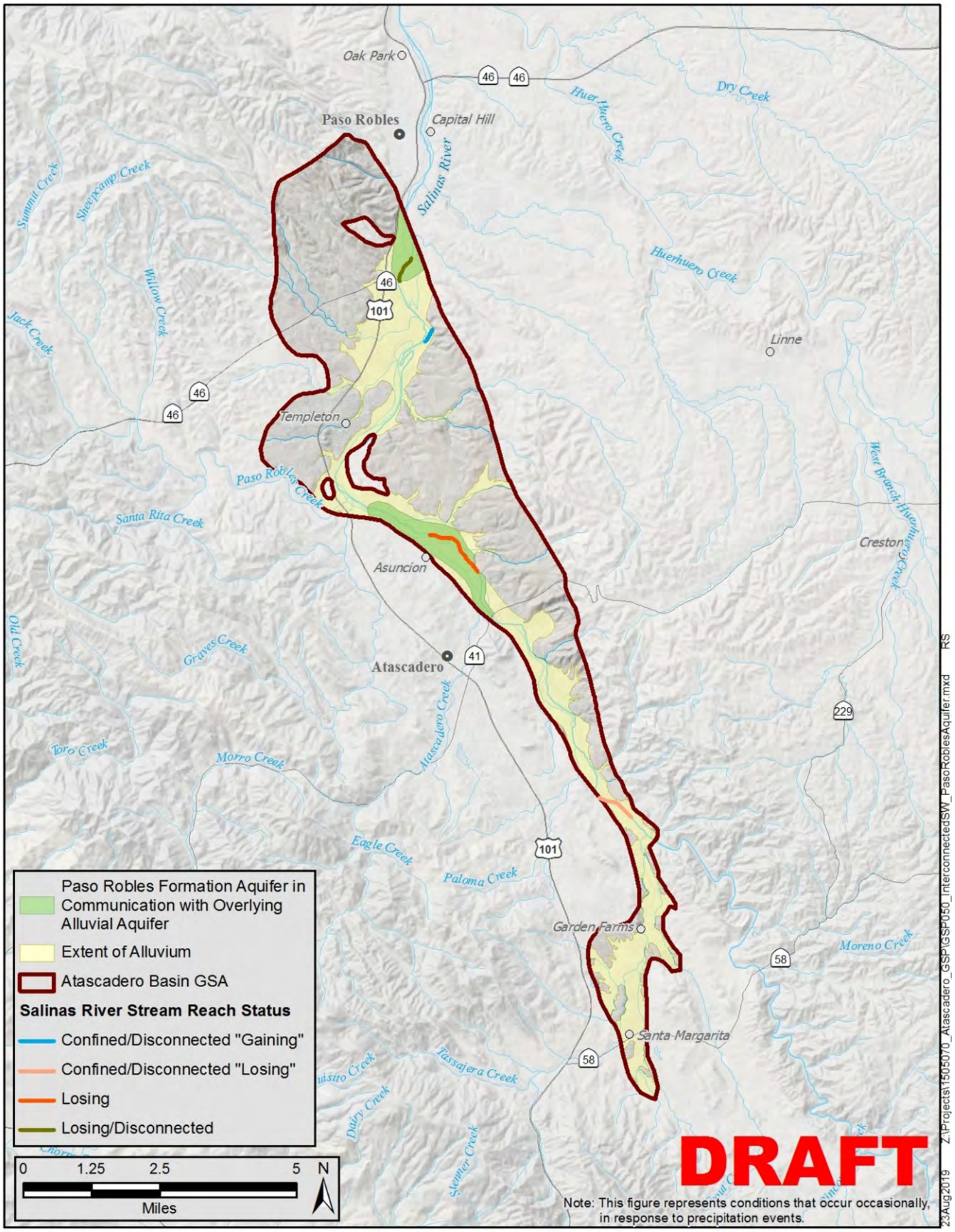
This page left blank intentionally.



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Locations of Potentially Interconnected Surface Waters - Alluvial Aquifer
Atascadero Basin GSA		JUNE 2021 FIGURE 5-17

Figure 5-17. Locations of Potentially Interconnected Surface Waters – Alluvial Aquifer

The Paso Robles Formation Aquifer water level analysis resulted in identification of one ‘losing’ reach of the Salinas River, located downstream of the Highway 41 bridge where the Paso Robles Formation is known to be in direct communication with the overlying Alluvial Aquifer, and one ‘losing’/‘disconnected’ reach, located in the area just south of the city of Paso Robles. Water levels in the Paso Robles Formation Aquifer were also analyzed for two areas where the aquifer is confined. In one of these areas, in the Templeton area, the average springtime water levels are higher than the elevation of the adjacent Salinas River thalweg; however, this relationship is because of the presence of a documented clay aquitard in this area (Torres 1979). Despite the elevation of the potentiometric surface in the Paso Robles Formation Aquifer at or above the thalweg, the aquifer is fully disconnected because of the documented confining clay layer. A second area analyzed within the assumed confined zone of the Paso Robles Formation Aquifer, located near the Atascadero State Hospital, shows water levels that are well below the elevation of the adjacent Salinas River thalweg. It is assumed that groundwater in the Paso Robles Formation Aquifer is disconnected from the Salinas River in this area. The results of the interconnected surface water analysis, for the Paso Robles Formation Aquifer are shown on Figure 5-18.



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Locations of Potentially Interconnected Surface Waters - Paso Robles Formation	
Atascadero Basin GSA		JUNE 2021	FIGURE 5-18

Figure 5-18. Locations of Potentially Interconnected Surface Waters – Paso Robles Formation

5.5.1 *Depletion of Interconnected Surface Water*

Groundwater withdrawals are balanced by a combination of reductions in groundwater storage and changes in the rate of exchange across hydrologic boundaries. In the case of surface water depletion, this rate change could be due to reductions in rates of groundwater discharge to surface water, and increased rates of surface water percolation to groundwater. Variation in rates of groundwater discharge to surface water or surface water percolation to groundwater occur naturally throughout any given year, as driven by the natural hydrologic cycle, but they can also be affected by anthropogenic actions. The potential for depletion of interconnected surface waters in the Basin is discussed further in Section 6 – Water Budgets.

5.6 Potential Groundwater Dependent Ecosystems

The SGMA emergency regulations §351.16 require identification of groundwater dependent ecosystems within the Basin. The Natural Communities Commonly Associated with Groundwater (NCCAG) dataset (DWR 2018) was utilized to identify the spatial extent of potential GDEs in the Basin. In accordance with the SGMA emergency regulations §351 (o), "groundwater dependent ecosystems refers to ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface." In areas where the water table is sufficiently high, groundwater discharge may occur as evapotranspiration (ETo) from phreatophyte vegetation within these GDEs. The NCCAG dataset identifies a concentration of potential GDEs in the southern part of the Basin and several potential GDEs in the Templeton area. The overall distribution of potential GDEs within the Basin, as specified in the NCCAG dataset, is shown in Figure 5-19. There has been no verification that the locations shown on this map constitute GDEs. Additional field reconnaissance is necessary to verify the existence and extent of these potential GDEs. Appendix 5B describes methods that may be relied upon to improve the understanding of the extent and type of potential GDEs in the Basin (in progress).

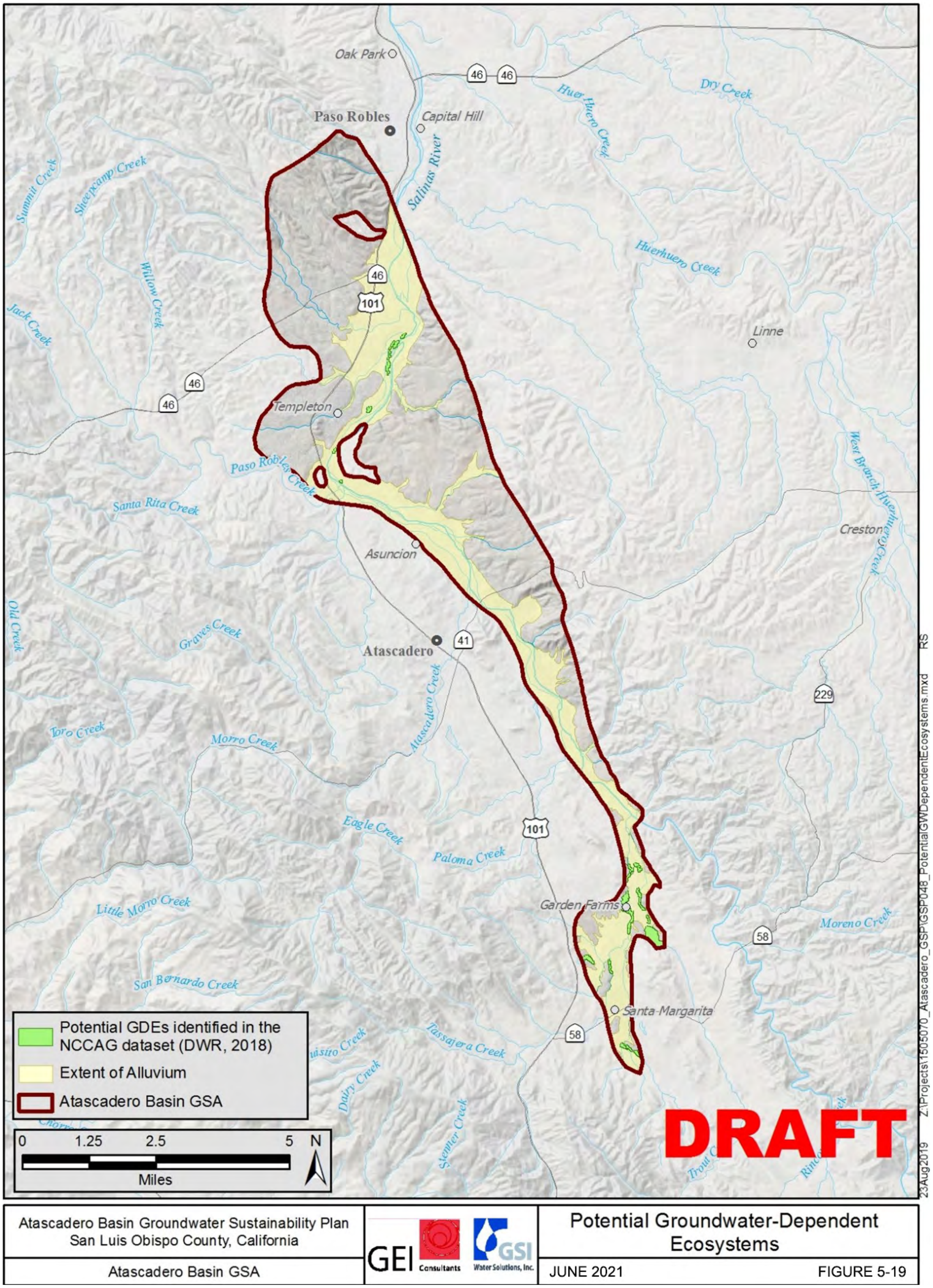


Figure 5-19. Potential Groundwater-Dependent Ecosystems

5.7 Groundwater Quality Distribution and Trends

Groundwater quality samples have been collected and analyzed throughout the Basin for various studies and programs and are collected on a regular basis for compliance with regulatory programs. A broad survey of groundwater quality sampling was conducted for the Paso Robles Groundwater Basin Study, Phase I (Fugro and Cleath 2002), and historical groundwater quality data were compiled for use in the SNMP (RMC 2015). In addition to the cited, published studies, water quality data surveyed for this GSP were collected from:

- The California Safe Drinking Water Information System (SDWIS), a repository for public water system water quality data
- The National Water Quality Monitoring Council water quality portal (this includes data from the recently decommissioned U.S. Environmental Protection Agency's STORET database, the USGS, and other federal and state entities [Note: in the Basin the agencies include USGS, CEDEN, and Central Coast Ambient Monitoring Program])
- State Water Board GeoTracker GAMA database

The main source of recharge to the Basin is the percolation of streamflow from the Salinas River, which drains the Cretaceous-age granitic rocks and Cretaceous and Tertiary-age sedimentary beds of the northwestern La Panza Range. This recharge, typically a calcium and magnesium bicarbonate water, has the greatest influence on water quality in the basin (Fugro and Cleath 2002). Significant inflow from Santa Margarita, Atascadero, and Paso Robles creeks also provides recharge to the Basin. Santa Margarita Creek (including Trout, Yerba Buena, and upper Santa Margarita creeks) water quality is typically magnesium-calcium-bicarbonate, whereas Atascadero and Paso Robles creek waters are typically calcium-bicarbonate (Fugro and Cleath 2002).

In general, the quality of groundwater in the Basin is good. Water quality trends in the Basin are dominantly stable, with some areas of improving water quality and few significant trends of ongoing deterioration of water quality. The distribution, concentrations, and trends of several major water quality constituents are presented in the following sections.

5.7.1 *Groundwater Quality Suitability for Drinking Water*

Groundwater in the Basin is generally suitable for drinking water purposes. Groundwater quality data was evaluated from the SDWIS and GeoTracker GAMA datasets. The data reviewed includes 4,500 samples from 149 wells in the Basin, collected between June 1953 and June 2019. Drinking water standards 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. Water quality standard exceedances in the Basin include exceedance of the MCL for nitrate, which equaled or exceeded the standard in 108 samples out of 1,959 samples (with 98 of the exceedances occurring in 1 well), and exceedance of the SMCL for total dissolved solids, which equaled or exceeded the standard in 24 samples from 11 wells out of 1,148 samples. Gross alpha samples from two wells exceeded the corresponding MCL in three out of 363 samples collected and selenium samples from two different wells exceeded the corresponding MCL in three out of 380 samples collected. Sulfate samples from three wells exceeded the corresponding SMCL in four out of 645 samples collected. The most common water quality exceedances observed in the Basin are exceedance of the MCL for arsenic, which equaled or exceeded the standard in 214 out of 983 samples (with 193 of the exceedances occurring in 1 well), and exceedance of the SMCL for iron, which equaled or exceeded the standard in 131 out of 1,021 samples (with 109 of the exceedances occurring in 1 well). In the case of public water supply systems, these water quality exceedances are effectively mitigated with seasonal well use and water blending practices to reduce the constituent concentrations to below their respective water quality standard.

5.7.2 *Groundwater Quality Suitability for Agricultural Irrigation*

Groundwater in the Basin is generally suitable for agricultural purposes, with some restrictions as described below. The primary water quality constituents of interest for evaluating agricultural irrigation uses are the sodium adsorption ratio, electrical conductivity (EC), sodium, boron, and chloride. Groundwater quality data was evaluated from the SDWIS and GeoTracker GAMA datasets. The data reviewed includes over 4,300 samples from 164 wells in the Basin, collected between June 1953 and June 2019. Approximately a quarter of the samples evaluated show no restriction for use in agricultural irrigation, based on evaluation of the above parameters. EC results from over 500 water samples taken from wells located throughout the Basin indicate that some caution should be used if irrigating salt sensitive crops. In general, seasonal monitoring of root zone soil salinity may be advisable to identify and prevent any developing soil salinity accumulation. Results of 77 water samples indicate some caution should be used if irrigating trees and vines due to potential sodium ion toxicity. Ten samples from four wells located in the northern part of the Basin indicate severe restriction for tree and vine irrigation due to potential sodium ion toxicity. Results of 284 water samples indicate some caution should be used if irrigating trees and vines due to potential chloride ion toxicity. The majority of these water samples were taken from wells located in the northern part of the Basin. None of the water samples indicate severe irrigation restrictions due to potential chloride ion toxicity. Results of 12 water samples taken from four wells located in the northern part of the Basin indicate slight to moderate restrictions for irrigation of vegetable and field crops and severe restrictions for tree and vine crops due to potential boron ion toxicity. Results of 120 water samples suggest potential soil water infiltration restrictions as indicated by a combination of sodium adsorption ratio and EC parameters. Seventeen water samples taken from 13 wells indicate potentially severe soil water infiltration restrictions. All but one of these wells are located in the northern part of the Basin, the other is located in the Santa Margarita area.

5.7.3 *Distribution and Concentrations of Point Sources of Groundwater Constituents*

Potential point sources of groundwater quality degradation were identified using the State Water Board Geotracker website. Waste Discharge permits were also reviewed from on-line regional State Water Board websites. Table 5-1 summarizes information from these websites for open/active sites. Figure 5-20 shows the locations of these potential groundwater contaminant point sources and the locations of completed/case closed sites. Based on available information there are no mapped ground-water contamination plumes at these sites.

Table 5-11. Potential Point Sources of Groundwater Contamination

Site ID/ Site Name	Site Type	Constituent(s) of Concern	Status
SL0607989492 – Pipeline- Santa Margarita to Tassajara Creek	Cleanup Program Site	Crude Oil	Open – Verification Monitoring
T0607900001 – Chevron (Former BP)	LUST Cleanup Site	Gasoline, MTBE, TBA/Other Fuel Oxygenates	Open – Eligible for Closure as of 10/26/2018
T10000009038 – Firestone Walker Brewing Company	Cleanup Program Site	PCE, TCE, Vinyl Chloride, Other Chlorinated Hydrocarbons	Open - Remediation

Notes: LUST – Leaking Underground Storage Tank, MTBE – Methyl Tertiary Butyl Ether, TBA – Tertiary Butyl Alcohol, PCE – Tetrachloroethylene, TCE – Trichloroethylene

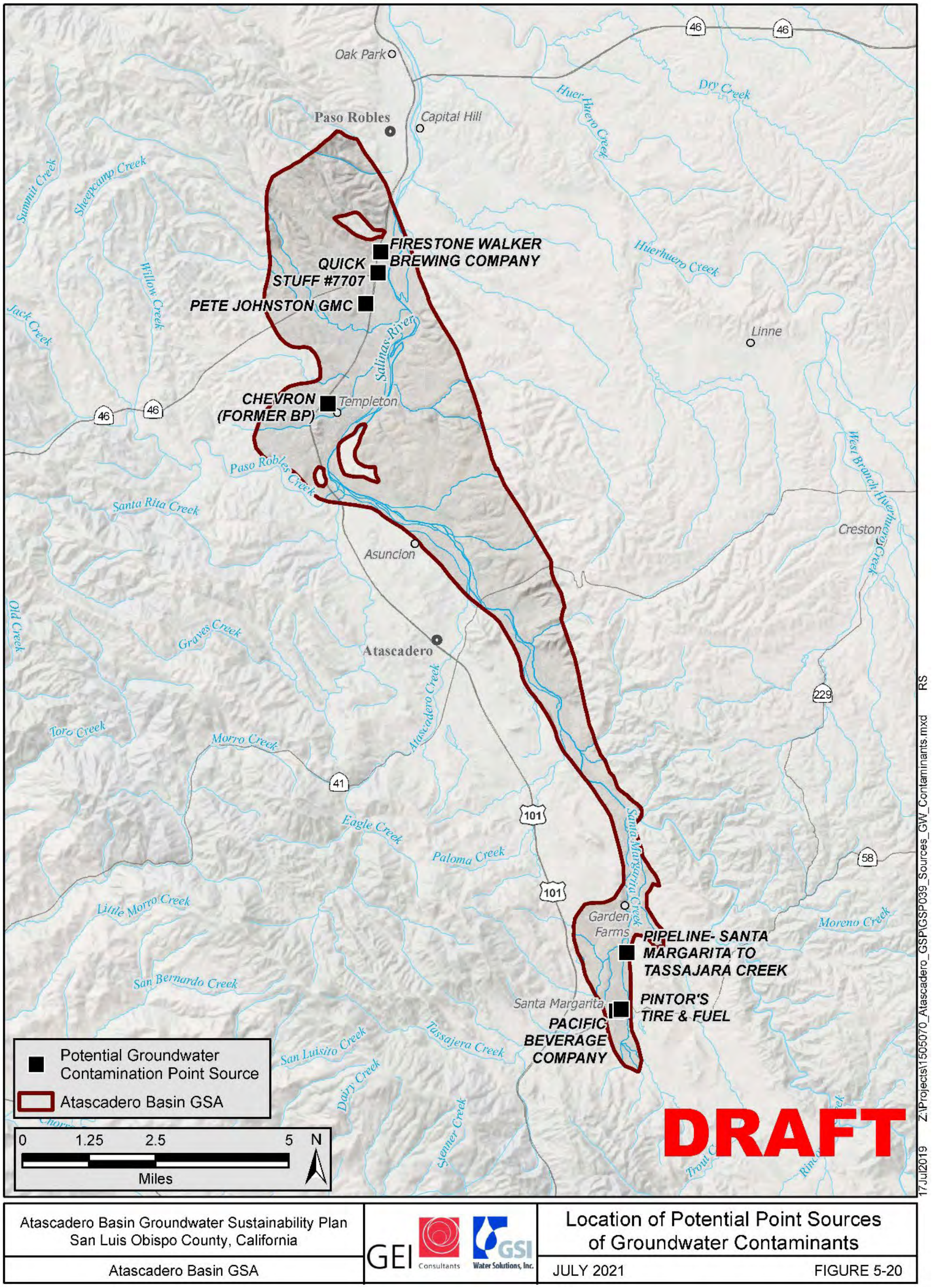


Figure 5-20. Location of Potential Point Sources of Groundwater Contaminants

5.7.4 *Distribution and Concentrations of Diffuse or Natural Groundwater Constituents*

The distribution and concentration of several constituents of concern are discussed in the following subsections. Groundwater quality data was evaluated from the SDWIS and GeoTracker GAMA datasets. The data reviewed includes 4,500 samples from 149 wells in the Basin, collected between June 1953 and June 2019. Each of the constituents are compared to their drinking water standard, if applicable, or their Regional Water Quality Control Board, Basin Plan Median Groundwater Quality Objective (RWQCB Objective) (CCRWQCB 2017). This GSP focuses only on constituents that might be impacted by groundwater management activities. The constituents discussed below 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.

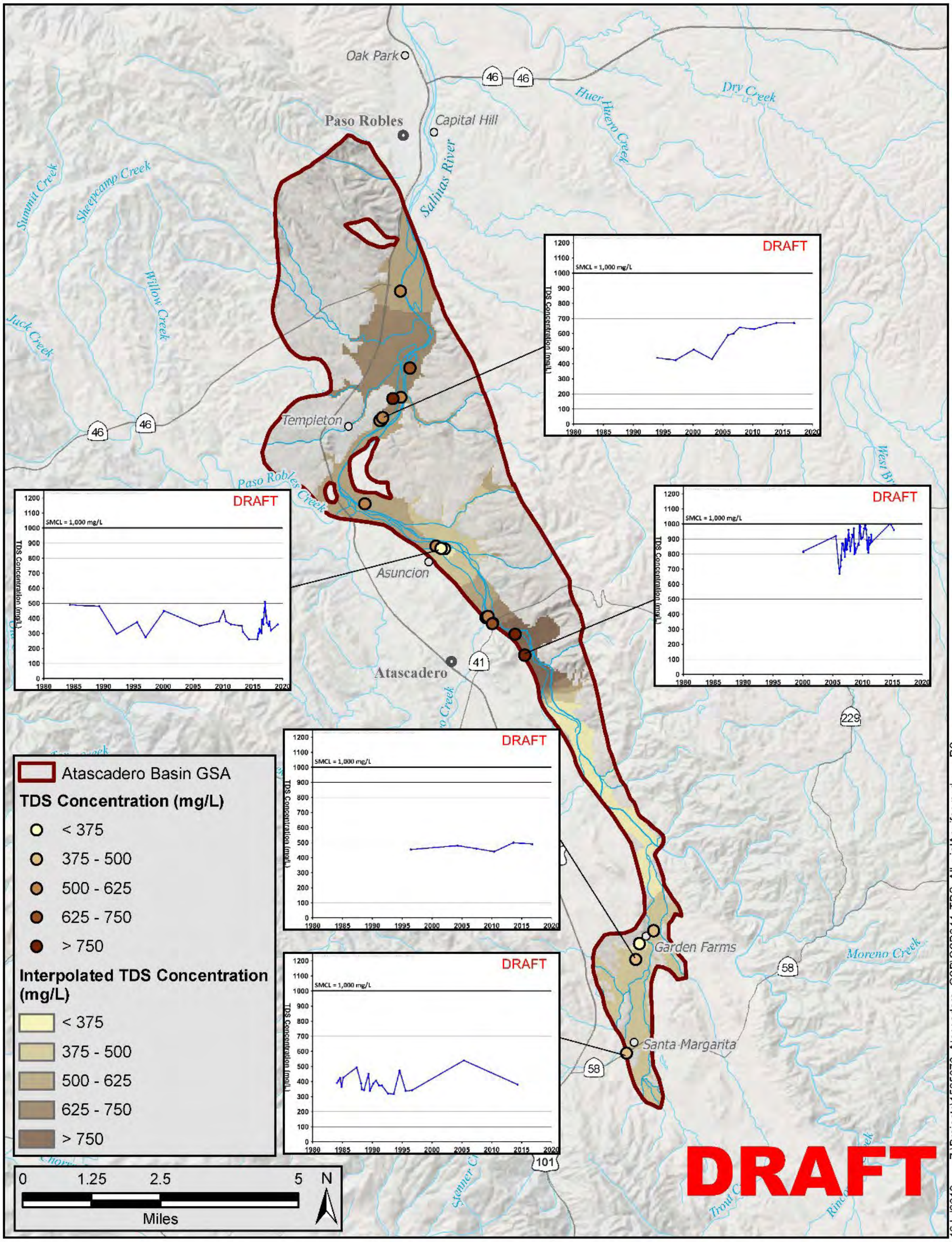
5.7.4.1 Total Dissolved Solids

TDS is defined as the total amount of mobile charged ions, including minerals, salts or metals, dissolved in a given volume of water and is commonly expressed in terms of milligrams per liter (mg/L). TDS is a constituent of concern in groundwater because it has been detected at concentrations greater than its RWQCB Objectives of 550 mg/L in the Atascadero area and 730 mg/L in the Templeton area. The TDS SMCL has been established for color, odor and taste, rather than human health effects. This SMCL includes a recommended standard of 500 mg/L, an upper limit of 1,000 mg/L and a short-term limit of 1,500 mg/L. TDS water quality results ranged from 187 to 1,000 mg/L with an average of 600 mg/L in the Alluvial Aquifer and ranged from 300 to 2,090 mg/L with an average of 615 mg/L in the Paso Robles Formation Aquifer.

Fugro and Cleath (2002) identified a slight trend of increasing TDS in alluvial and shallow Paso Robles Formation deposits along the Salinas River in the central portion of the Basin. This trend continues today, with the most visible trend of increasing TDS occurring in alluvial wells located in the Salinas River valley just downstream of both the city of Atascadero's and Templeton CSD's wastewater percolation ponds. There is also a trend of increasing TDS in Paso Robles Formation wells in the northwestern part of the Basin. This could be related to increased pumping in the northwestern highland areas within and adjacent to the Basin which may be resulting in decreased subsurface recharge to the Basin from the northwest. There are also some areas in the Basin with decreasing TDS concentrations. Several wells located in the Salinas River valley just downstream of NWP infiltration basins have shown decreasing TDS concentrations in response to introduction of NWP water.

The distribution and trends of TDS concentrations in the Alluvial Aquifer and the Paso Robles Formation Aquifer are shown on Figures 5-21 and 5-22, respectively. 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.

Surface water samples have been collected from Atascadero Creek, about 1 mile upstream of its confluence with the Salinas River (located outside of the Basin), and from the Salinas River, about 1 mile upstream of the Highway 41 bridge (located within the Basin). Water samples from the Atascadero Creek site showed TDS levels ranging from 50 to 1,146 mg/L and averaging 497 mg/L, based on 120 sampling events between April 1999 and December 2012. Water samples from the Salinas River site showed TDS levels ranging from 74 to 777 mg/L and averaging 355 mg/L, based on 68 sampling events between February 1999 and June 2012. Concentrations of TDS in these surface water analyses do not show any long-term trends. The concentrations are generally higher in the summer and fall months, during times of typically lower stream flow, and lower in winter and spring months, during times of higher stream flow.



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	TDS Regional Distribution and Trends Alluvial Aquifer
Atascadero Basin GSA		JULY 2021 FIGURE 5-21

Figure 5-21. TDS Regional Distribution and Trends – Alluvial Aquifer

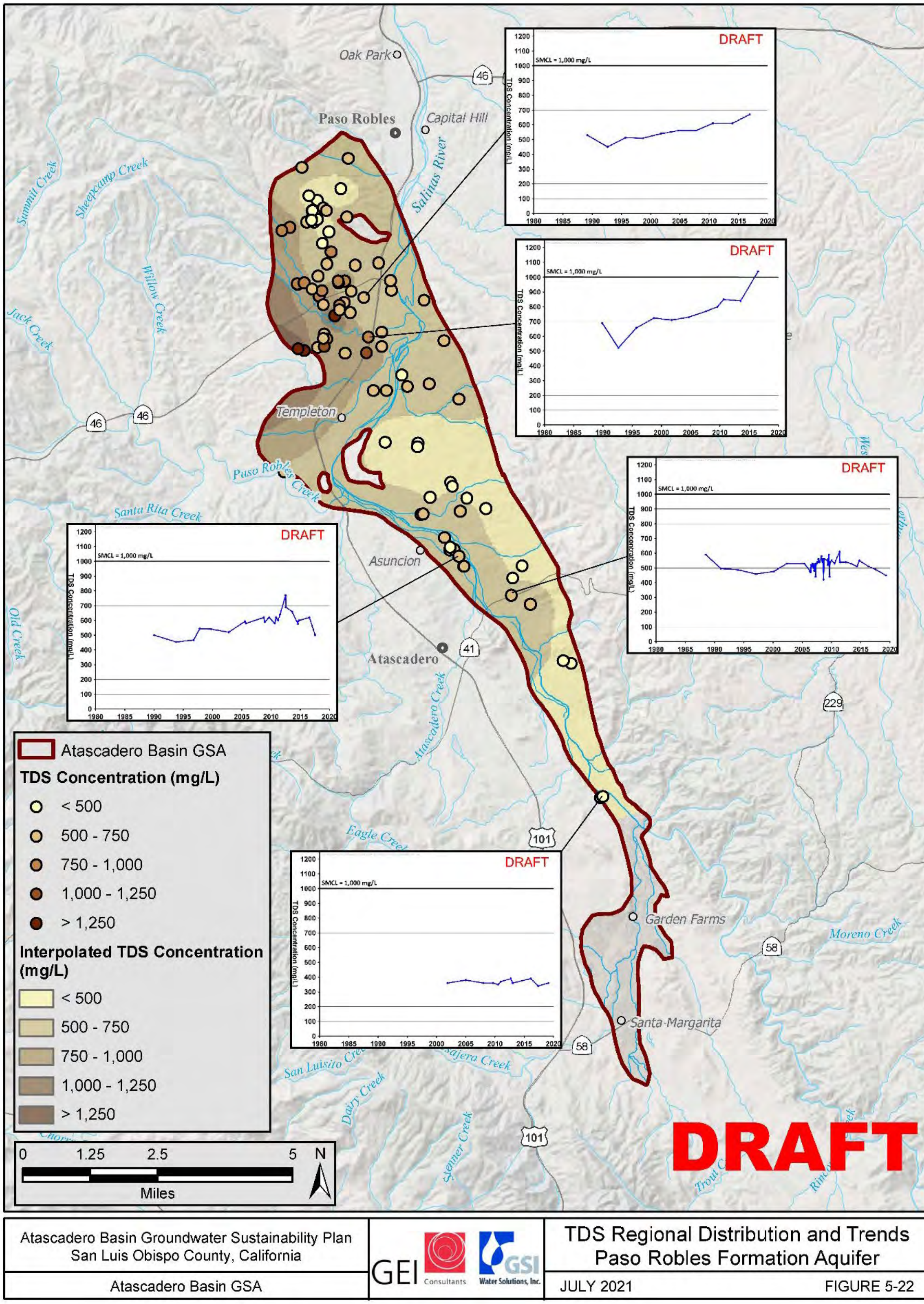


Figure 5-22. TDS Regional Distribution and Trends – Paso Robles Formation Aquifer

5.7.4.2 Chloride

Chloride is a constituent of concern in groundwater because it has been detected at concentrations greater than its Basin Objectives of 70 mg/L in the Atascadero area and 100 mg/L in the Templeton area. The Chloride SMCL has been established at 250 mg/L for taste, rather than human health effects. Chloride water quality results ranged from 4.8 to 392 mg/L with an average of 92 mg/L in the Alluvial Aquifer and ranged from 7.7 to 244 mg/L with an average of 76 mg/L in the Paso Robles Formation Aquifer.

Fugro and Cleath (2002) identified a slight trend of increasing chlorides in alluvial and shallow Paso Robles Formation deposits along the Salinas River in the central portion of the Basin. This trend continues today, with the most visible trend of increasing chloride occurring in alluvial wells located in the Salinas River valley just downstream of both the city of Atascadero's and Templeton CSD's wastewater percolation ponds. There is also a slight trend of increasing chloride in Paso Robles Formation wells in the northwestern part of the Basin. Similar to TDS, this could be related to increased pumping in the northwestern highland areas within and adjacent to the Basin which may be resulting in decreased subsurface recharge to the Basin from the northwest. Elsewhere within the Basin, many wells exhibit stable or slightly decreasing chloride concentrations. Several wells located in the Salinas River valley just downstream of NWP infiltration basins have shown decreasing chloride concentrations in response to introduction of NWP water.

The distribution and trends of chloride concentrations in the Alluvial Aquifer and the Paso Robles Formation Aquifer are shown on Figures 5-23 and 24, respectively. 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.

Surface water samples have been collected from Atascadero Creek, about 1 mile upstream of its confluence with the Salinas River (located outside of the Basin), and from the Salinas River, about 1 mile upstream of the Highway 41 bridge (located within the Basin). Water samples from the Atascadero Creek site showed chloride levels ranging from 13 to 97 mg/L and averaging 67 mg/L, based on 38 sampling events between April 1999 and December 2012. Water samples from the Salinas River site showed chloride levels ranging from 11 to 100 mg/L and averaging 53 mg/L, based on 23 sampling events between February 1999 and June 2012. Concentrations of chloride in these surface water analyses do not show any long-term trends. The concentrations are generally higher in the summer and fall months, during times of typically lower stream flow, and lower in winter and spring months, during times of higher stream flow.

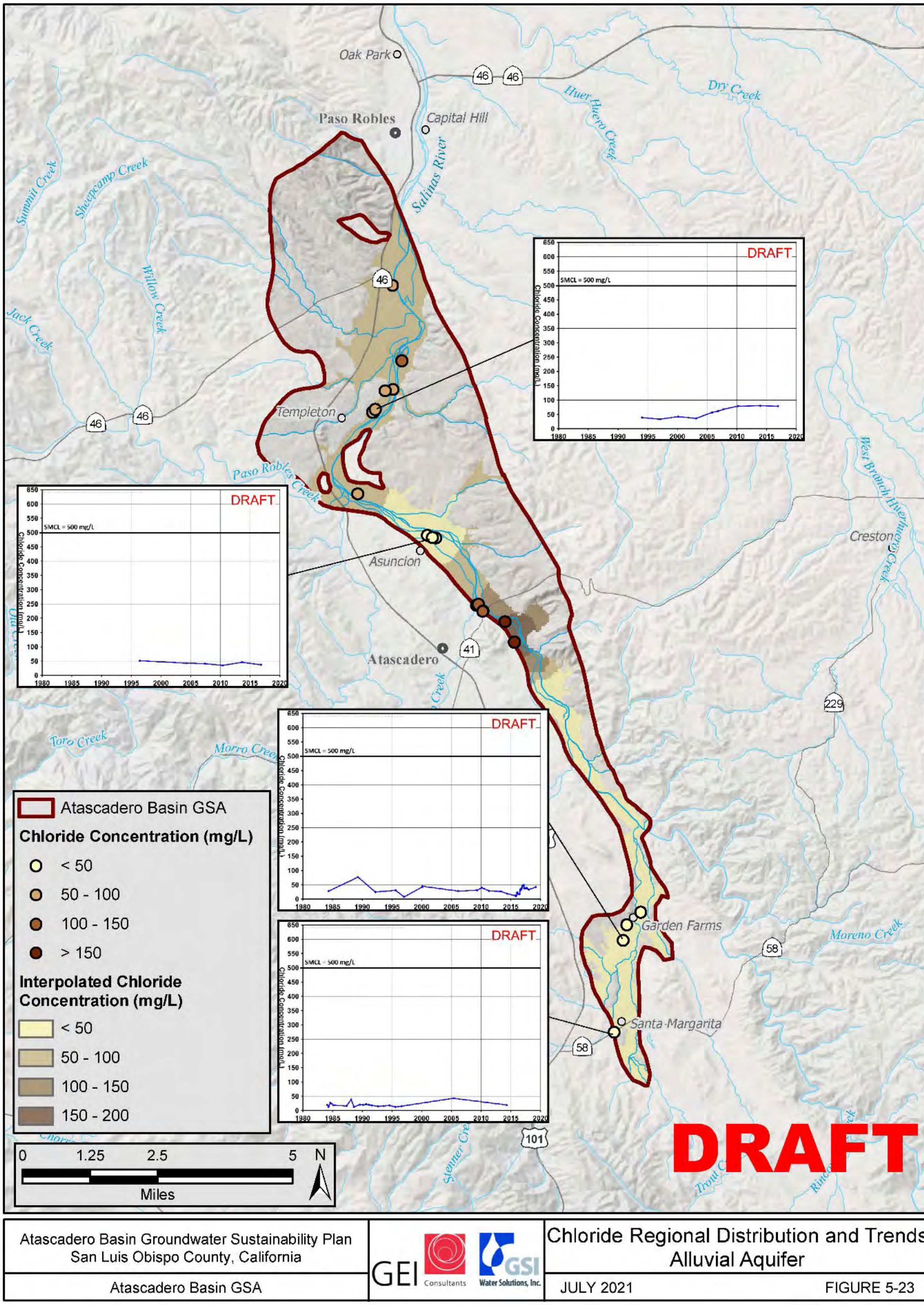


Figure 5-23. Chloride Regional Distribution and Trends – Alluvial Aquifer

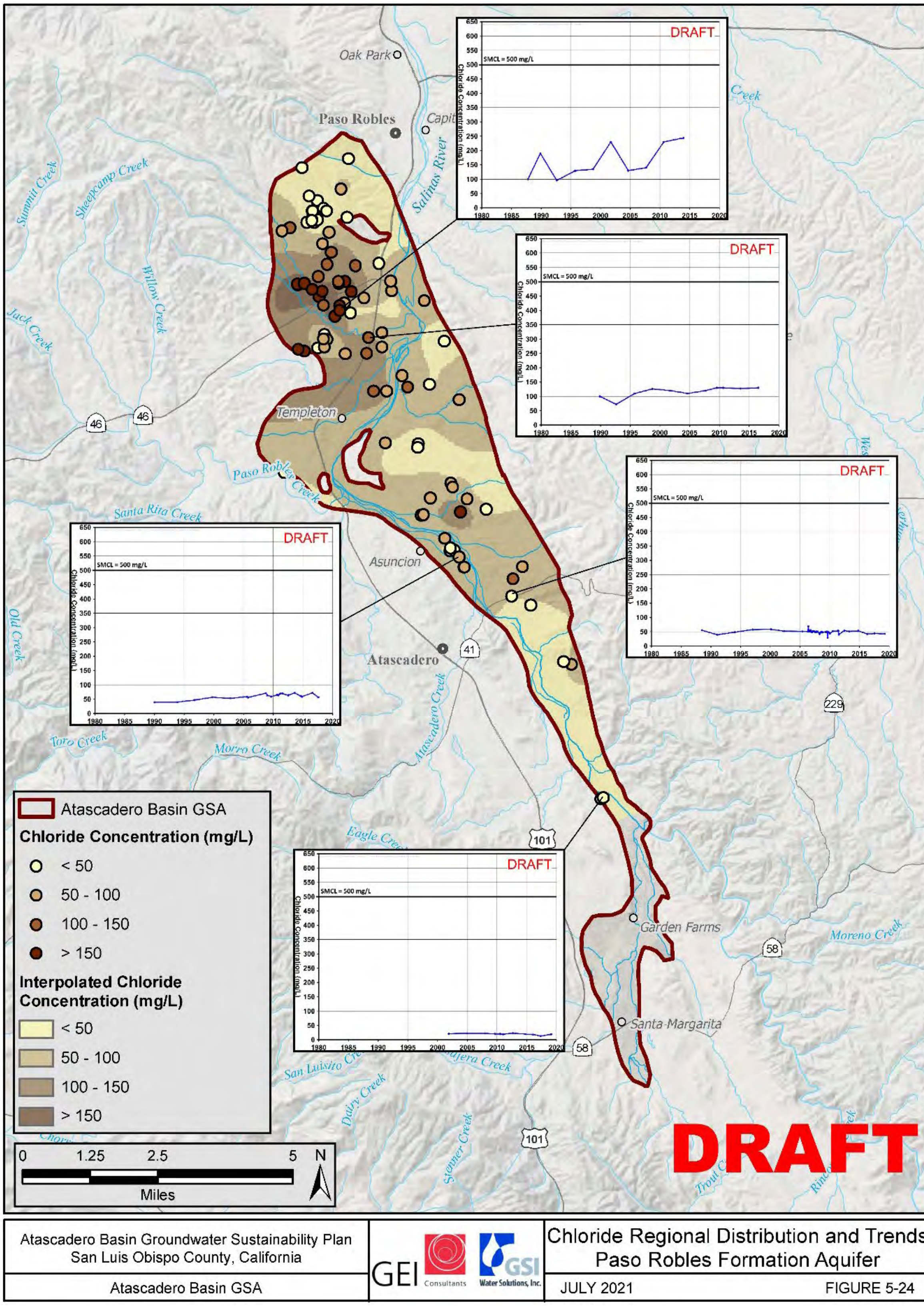


Figure 5-24. Chloride Regional Distribution and Trends – Paso Robles Formation Aquifer

5.7.4.3 Nitrate

Nitrate is a widespread contaminant in California groundwater. High levels of nitrate in groundwater are associated with agricultural activities, septic systems, confined animal facilities, landscape fertilizers and wastewater treatment facilities. Nitrate is the primary form of nitrogen detected in groundwater. It is soluble in water and can easily pass through soil to the groundwater table. Nitrate can persist in groundwater for decades and accumulate to high levels as more nitrogen is applied to the land surface each year.

Nitrate is a constituent of concern in groundwater because it has been detected at concentrations greater than its Basin Objectives of 2.3 mg/L (as N) in the Atascadero area and 2.7 mg/L (as N) in the Templeton area. The Nitrate MCL has been established at 10 mg/L (as N). Overall, nitrate water quality results ranged from non-detect to 18 mg/L (as N) with an average of 1.3 mg/L (as N) in the Alluvial Aquifer and ranged from non-detect to 22 mg/L (as N) with an average of 4.2 mg/L (as N) in the Paso Robles Formation Aquifer.

Nitrate concentrations in the Alluvial Aquifer were relatively high in the 1990's (2.2 mg/L [as N] on average), declined in the 2000's (1.2 mg/L [as N] on average), continued to decline and reached a low of 0.5 mg/L (as N) on average in 2015. Nitrate concentrations in the Alluvial Aquifer have since increased and are back at levels seen in the 2000's. Nitrate concentrations in the Paso Robles Formation Aquifer were climbing throughout the 1990's (3.4 mg/L [as N] on average) and the 2000's (4.9 mg/L [as N] on average), then began to decline and reached a low of 1.8 mg/L (as N) on average in 2014. Similar to the Alluvial Aquifer, nitrate concentrations in the Paso Robles Formation Aquifer have since increased and are now back at levels seen in the 1990's. The distribution and trends of Nitrate concentrations in the Alluvial Aquifer and the Paso Robles Formation Aquifer are shown on Figures 5-25 and 5-26, respectively. 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 MCL to increase above the MCL.

Surface water samples have been collected from Atascadero Creek, about 1 mile upstream of its confluence with the Salinas River (located outside of the Basin), and from the Salinas River, about 1 mile upstream of the Highway 41 bridge (located within the Basin). Water samples from the Atascadero Creek site showed nitrate levels ranging from 0.03 to 0.4 mg/L (as N) and averaging 0.1 mg/L (as N), based on 30 sampling events between May 1999 and December 2012. Water samples from the Salinas River site showed nitrate levels ranging from 0.2 to 1 mg/L (as N) and averaging 0.6 mg/L (as N), based on 23 sampling events between February 1999 and June 2012. Concentrations of nitrate in the Salinas River show a decreasing trend over the period of record. Concentrations of nitrate in Atascadero Creek do not show any long-term trends. In general, the concentrations are higher in the summer and fall months, during times of typically lower stream flow, and lower in winter and spring months, during times of higher stream flow.

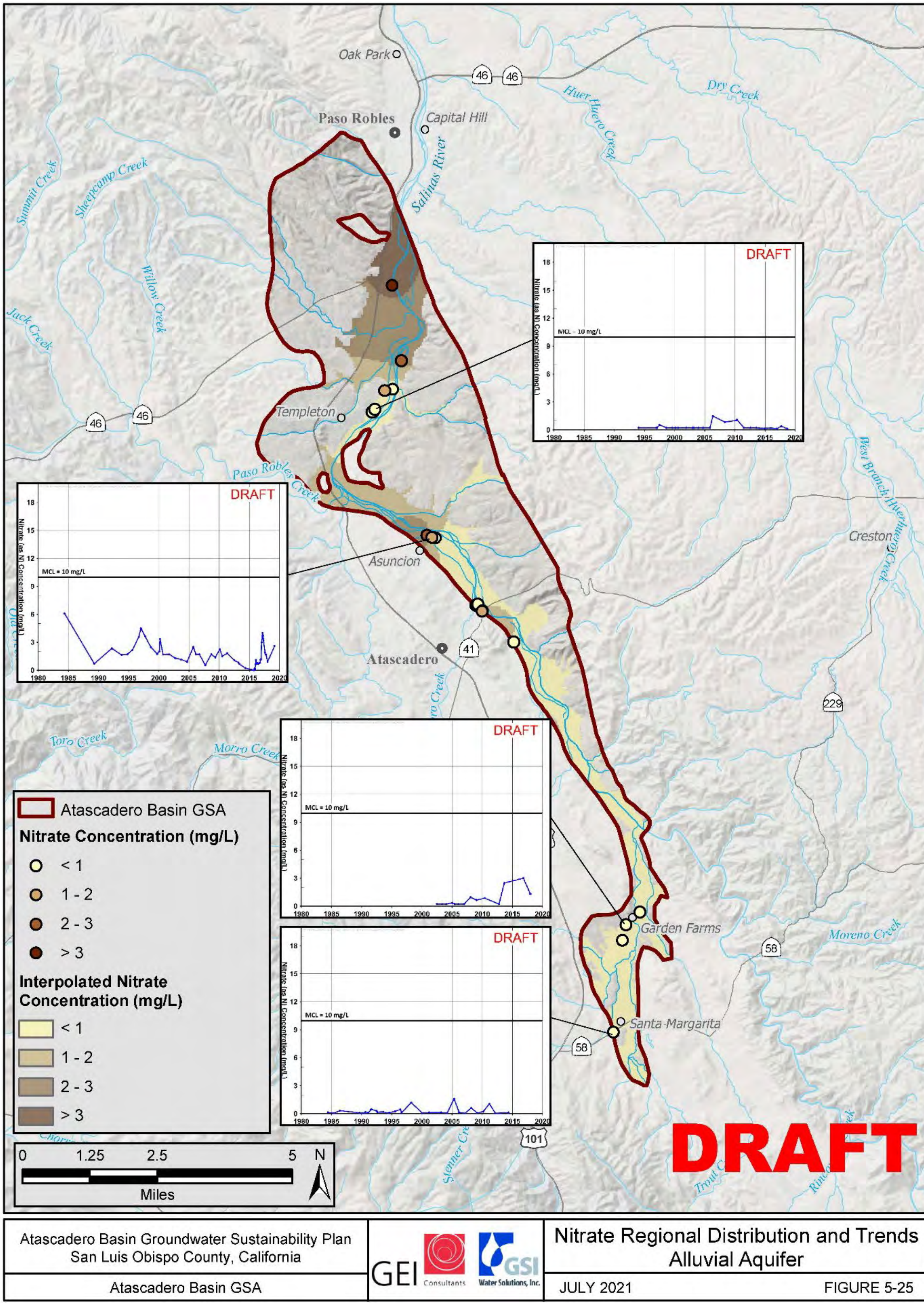


Figure 5-25. Nitrate Regional Distribution and Trends – Alluvial Aquifer

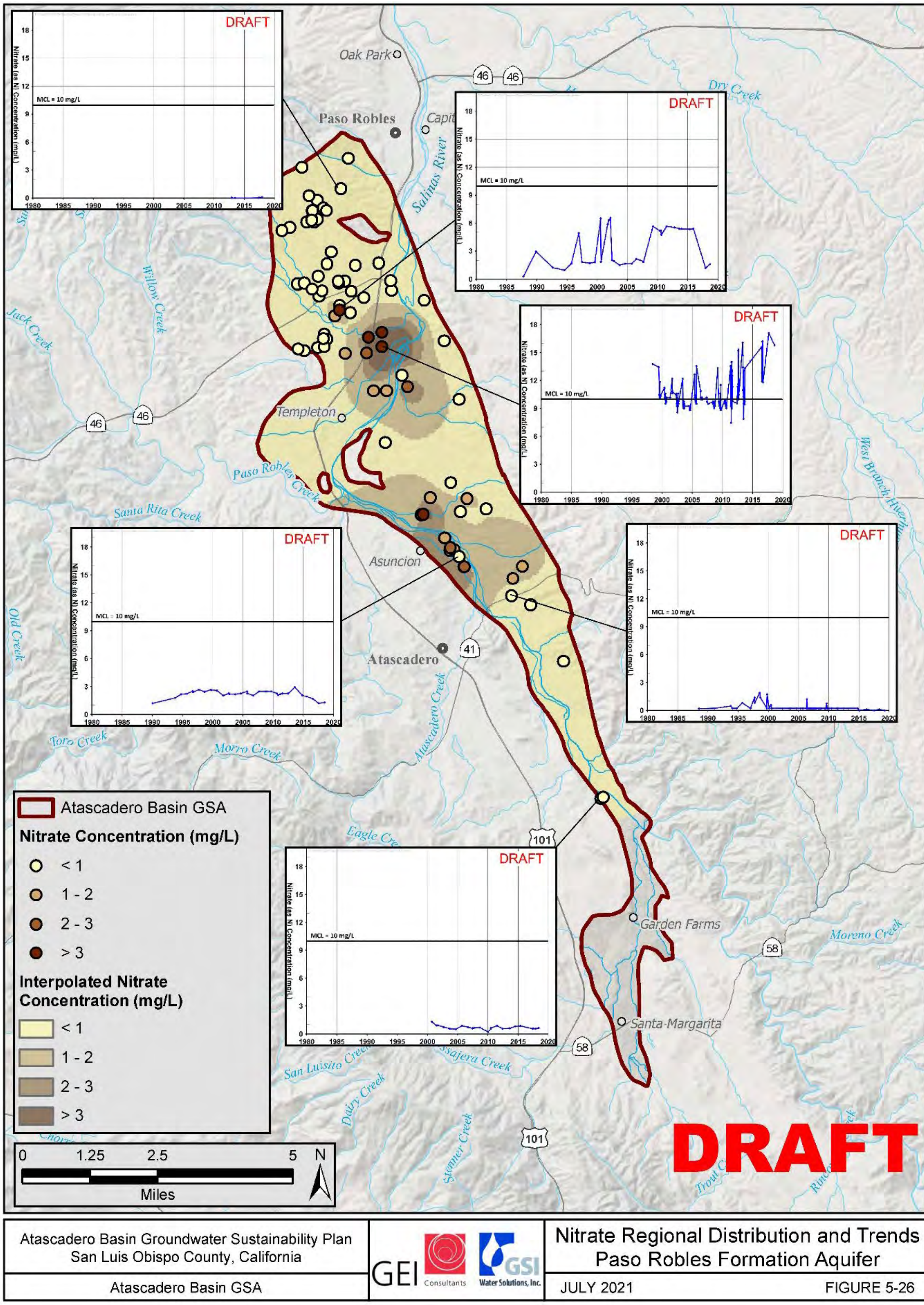


Figure 5-26. Nitrate Regional Distribution and Trends – Paso Robles Formation Aquifer

5.7.4.4 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. Boron has been detected at concentrations greater than its Basin Objective of 300 micrograms per liter (ug/l). Boron water quality results ranged from non-detect to 520 ug/l with an average of 74 ug/l in the Alluvial Aquifer and ranged from non-detect to 1,100 ug/l with an average of 104 ug/l in the Paso Robles Formation Aquifer.

Boron concentrations in the Alluvial Aquifer have been relatively consistent throughout the period of record. Boron concentrations in the Paso Robles Formation Aquifer have generally remained steady or declined slightly over the period of record. Sustainability projects and management actions implemented as part of this GSP are not anticipated to directly cause boron concentrations in groundwater in a well to increase.

Surface water samples have been collected from Atascadero Creek, about 1 mile upstream of its confluence with the Salinas River (located outside of the Basin), and from the Salinas River, about 1 mile upstream of the Highway 41 bridge (located within the Basin). Water samples from the Atascadero Creek site showed boron levels ranging from 52 to 220 ug/l and averaging 97 ug/l, based on 41 sampling events between May 1999 and December 2012. Water samples from the Salinas River site showed boron levels ranging from 61 to 170 ug/l and averaging 109 ug/l, based on 20 sampling events between September 1999 and June 2012. Concentrations of boron in these surface water analyses do not show any long-term trends. The concentrations are generally higher in the summer and fall months, during times of typically lower stream flow, and lower in winter and spring months, during times of higher stream flow.

5.7.4.5 Sodium

Sodium is an unregulated constituent and therefore does not have a regulatory standard. However, sodium is a constituent of concern because elevated sodium concentrations in water can damage crops and affect plant growth. Sodium has been detected at concentrations greater than its Basin Objectives of 65 mg/L in the Atascadero area and 75 mg/L in the Templeton area. Sodium water quality results ranged from 8.5 to 130 mg/L with an average of 46 mg/L in the Alluvial Aquifer and ranged from 14 to 281 mg/L with an average of 57 mg/L in the Paso Robles Formation Aquifer.

Sodium concentrations in the Alluvial Aquifer and Paso Robles Formation Aquifer have been relatively consistent throughout the period of record. Sustainability projects and management actions implemented as part of this GSP are not anticipated to directly cause boron concentrations in groundwater to increase.

Surface water samples have been collected from Atascadero Creek, about 1 mile upstream of its confluence with the Salinas River (located outside of the Basin), and from the Salinas River, about 1 mile upstream of the Highway 41 bridge (located within the Basin). Water samples from the Atascadero Creek site showed sodium levels ranging from 17 to 51 mg/L and averaging 41 mg/L, based on 37 sampling events between April 1999 and December 2012. Water samples from the

Salinas River site showed sodium levels ranging from 19 to 74 mg/L and averaging 48 mg/L, based on 20 sampling events between September 1999 and June 2012. Concentrations of sodium in these surface water analyses do not show any long-term trends. The concentrations are generally higher in the summer and fall months, during times of typically lower stream flow, and lower in winter and spring months, during times of higher stream flow.

5.7.4.6 Other Constituents

Other constituents found in exceedance of their respective regulatory standard include arsenic, iron, gross alpha, manganese, selenium, and sulfate. Each of these exceedances occurred in samples from a small number of wells, indicating isolated occurrences of these elevated constituent concentrations rather than widespread occurrences, affecting the entire Basin. Isolated concentrations of arsenic, iron, gross alpha, and sulfate in the Basin have been relatively consistent throughout the period of record. Selenium concentrations have generally declined since 2007. There are not enough data to determine the trend of the elevated manganese concentrations in the Basin. Sustainability projects and management actions implemented as part of this GSP are not anticipated to directly cause concentrations of any of these constituents in groundwater to increase.

6. Water Budgets

This chapter summarizes the estimated water budgets for the Atascadero Area Groundwater Sub-basin of the Salinas Valley Basin (Basin), including information required by the SGMA Regulations and information that is important for developing an effective GSP 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. The regulations require that the water budgets be reported in graphical and tabular formats, where applicable.

6.1 Overview of Water Budget Development

This section is subdivided into three sections: historical, current, future water budgets. Within each section, a surface water budget and groundwater budget are presented. Water budgets were developed using computer models of the Basin hydrogeologic conditions. Before presenting the water budgets, a brief overview of the models is presented. Appendix 6A provides additional information about the models and compares previously reported water budgets to the water budgets developed for this GSP.

The water budgets reported herein are for the Basin defined in Section 1.2 – Description of Atascadero Basin and depicted on Figure 1-1.

The safe yield of a groundwater basin is the volume of pumping that can be extracted from the basin on a long-term basis without creating a chronic and continued lowering of groundwater levels and groundwater in storage volumes. The safe yield is not a fixed constant value, but is a dynamic value that fluctuates over time as the balance of the groundwater inputs and outputs change; thus, the calculated safe yield of the Basin will be estimated and likely modified with each future update of the GSP.

Safe yield is not the same as sustainable yield. 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.” An undesirable result is one or more of the following effects on the six sustainability indicators:

1. Chronic lowering of groundwater levels in the aquifer(s)
2. Significant and unreasonable reduction of groundwater in storage
3. Significant and unreasonable degradation of water quality
4. Sea water intrusion

5. Significant and unreasonable land subsidence that interferes with surface land uses
6. Depletion of interconnected surface water that has significant and unreasonable adverse impacts on beneficial uses of surface water

Defining the safe yield of a groundwater basin provides a starting point for later establishing sustainable yield by considering each of the six sustainability indicators listed above.

Section 354.18 of the SGMA Regulations requires development of water budgets for both groundwater and surface water that provide an accounting of the total volume of water entering and leaving the basin. To satisfy the requirements of the regulations, a surface water budget was prepared for the Atascadero Basin and an integrated groundwater budget was developed for each water budget period for the combined inflows and outflows for the two principal aquifers – Alluvial Aquifer (including the Salinas River alluvial aquifer and associated tributaries; Section 4 – Basin Setting) and Paso Robles Formation Aquifer. Groundwater is pumped from both aquifers for beneficial use.

Figure 8-1. Groundwater Level Minimum Thresholds and Measurable Objectives

presents a general schematic diagram of the hydrologic cycle. The water budgets include the components of the hydrologic cycle.

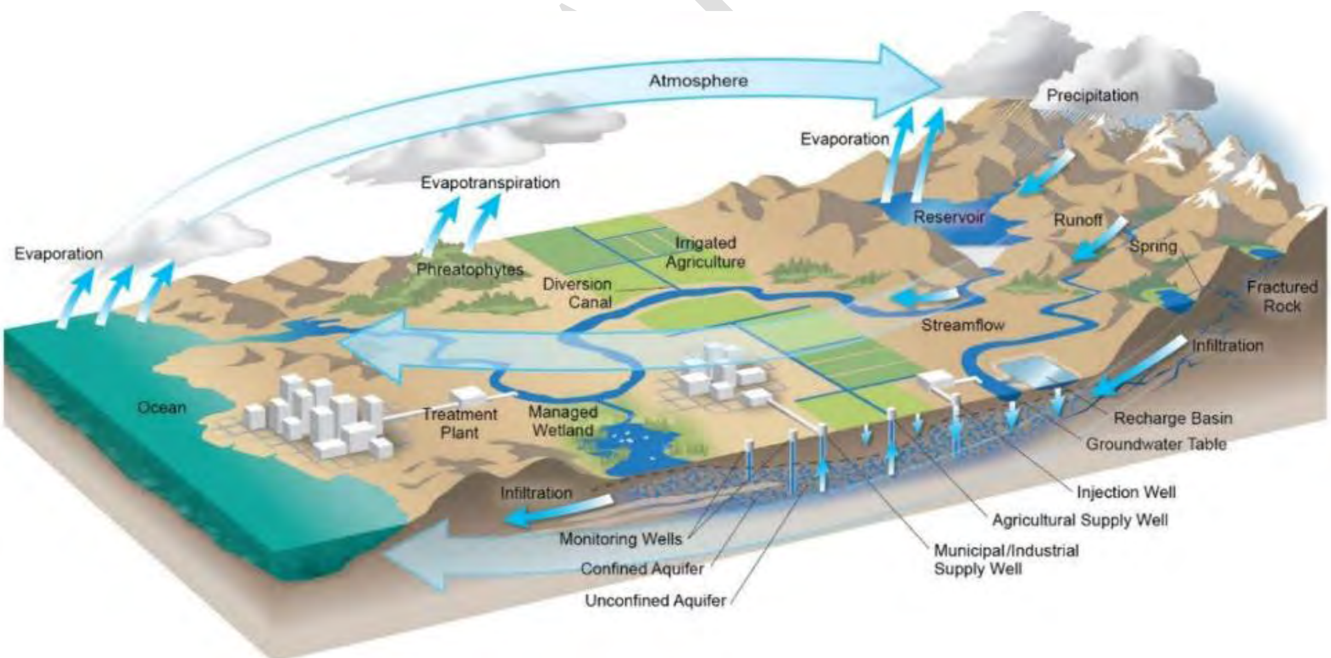


Figure 6-1. Hydrologic Cycle (Source: DWR 2016a)

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 and accounting of total surface water and groundwater inflows (recharge) and outflows (discharge) from the Basin, including:

Surface Water Inflows:

- Runoff of precipitation and reservoir releases into streams and rivers that enter the Basin from the surrounding watershed
- Imported surface water (e.g., NWP)

Surface Water Outflows:

- Streamflow exiting the Basin
- Percolation of streamflow to the groundwater system
- Evaporation

Groundwater Inflows:

- Recharge from precipitation
- Subsurface groundwater inflow
- Irrigation return flow (water not consumed by crops/landscaping)
- Percolation of surface water from streams
- Percolation of treated wastewater from disposal ponds
- Percolation of imported surface water (e.g., NWP)

Groundwater Outflows:

- Evapotranspiration
- Groundwater pumping
- Subsurface outflows to the adjoining, downgradient groundwater basins
- Groundwater discharge to surface water

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 Basin 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 et. al. (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 2014; 2016). These models were developed for SLOFCWCD. The domain of these models encompasses an area that includes both the Paso Robles Subbasin and the Basin as well as a portion of the Salinas Valley – Upper Valley Aquifer Subbasin north of the Monterey County line[28]. 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 et. al. 2005)
- Paso Robles Groundwater Basin Model Update (GSSI 2014)
- Refinement of the Paso Robles Groundwater Basin Model and Results of Supplemental Water Supply Options Predictive Analysis (GSSI 2016)

The GSSI 2016 version of the basin model was updated by Montgomery & Associates (M&A; 2020) for the Paso Robles Subbasin GSP. Because the model domain of the basin model encompasses the entirety of the original Paso Robles Basin (Fugro and Cleath;2002), the basin model simulates groundwater flow conditions and water budgets for both the Paso Robles and the Atascadero subbasins.

The M&A (2020) basin model update included updating the GSSI 2016 basin model by incorporating hydrologic data for the period 2012 through 2016 into the models. Appendix 6A includes a brief summary of the model update process, including:

- A summary of data sources used for the update (Table 6A-1 in Appendix 6A)
- A summary of modifications made to the basin model to address computational refinements, data processing issues, and conceptual application of the model codes

The updated versions of the basin models are referred to herein collectively as the “GSP model”. The GSP model has been utilized for both the Atascadero Basin GSP and the Paso Robles Subbasin GSP as the model domain covers large portions of both basins.

Numerous sources of raw data were used to update the basin models for the GSP. Examples of raw data include metered pumping and deliveries from the Atascadero MWC, Templeton CSD, and the city of Paso Robles, precipitation data obtained from weather stations in the Basin, and crop acreage from the office of the San Luis Obispo County Agricultural Commissioner, among many others. Data sources are listed in Appendix 6A, Table 6A-1. Raw data were compiled, processed, and used to develop model input files. Model results were used to develop estimates of the

[28] The domain of the Fugro 2005 model and subsequent model updates completed by GSSI (2014 and 2016) were designed to encompass the area defined as the Paso Robles Groundwater Basin by Fugro in 2002. The 2002 Fugro study defined the lateral and vertical extent of the Paso Robles Groundwater Basin, which included a portion north of the Monterey County line and identification of the Atascadero Subbasin (Basin) as a hydrogeologically distinct portion of the basin. The basin extents defined by Fugro (2002) varies slightly from the basin extents defined in the current DWR Bulletin 118 (DWR 2016b).

individual inflow and outflow components of the surface water and groundwater budgets. Thus, all 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 Basin hydrogeologic conditions, and earlier versions of the basin models. The GSP model gives insight into how the complex hydrologic processes are operating in the Basin. During previous studies, available data and a peer-review process were used to calibrate the basin model to Basin 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 this GSP, calibration of the model was reviewed and found to be similar to the previous model. The groundwater flow model module of the GSP model does not cover the northwestern upland portion of the Atascadero Basin (as defined by DWR Bulletin 118, DWR 2016) so groundwater processes have not been modeled in this area, yet, the watershed model does include this area so contributing surface and subsurface flows from this upland area have been incorporated into the GSP model; therefore, use of the GSP model was considered appropriate for development of the Atascadero Basin GSP.

Projections made with the GSP model have uncertainty due to limitations in available data and 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 (Section 9 – Project Management Actions).

New data will be collected and/or refined throughout the early implementation of this GSP (after adoption by the GSA). The information will be used to recalibrate and potentially expand the domain of the GSP model, and perhaps develop a stand-alone, Atascadero Basin-specific groundwater flow model rather than continued utilization of the coupled Paso Robles Subbasin/Atascadero Basin model. New hydrologic data and a calibrated model will be used to simulate impacts from proposed sustainability management actions, and possible water resource improvement projects, to monitor 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. 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 latest drought period began. Estimates and assumptions 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 2016a):

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

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

6.3.1.1 Historical Local Imported Supplies

As described in Section 4.7.1 – Groundwater Recharge Areas, the NWP regional raw water transmission facility delivers water from Lake Nacimiento to communities in San Luis Obispo County, including Atascadero MWC, Templeton CSD, and the city of Paso Robles. Templeton CSD has an allocation of 406 AFY of NWP water and began taking deliveries in 2011. A total of 74 acre-feet was taken by Templeton CSD in 2011 and constitutes the only NWP deliveries in the historical period. Atascadero MWC and the city of Paso Robles began taking deliveries in 2012 and 2013, respectively (these deliveries will be discussed further in Section 6.4 – Current Water Budget). Within the Basin, all three municipal purveyors utilize their imported NWP water to recharge the Basin via percolation ponds or direct discharge located in the Alluvium adjacent to the Salinas River[29]. Table 6-1 summarizes the annual average, minimum, and maximum values for the imported NWP water during the historical base period.

6.3.1.2 Historical Local Supplies

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

[29] The city of Paso Robles utilizes their NWP allocation in two ways: treatment in a package water treatment plant and applying directly to the ground surface on the alluvial gravels of the Salinas River floodplain in the north end of the Basin. The treated portion of NWP water is used outside of the Basin and is therefore not considered.

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

Surface Water Inflow Component	Average	Minimum[2]	Maximum[2]
Inflow to Basin including the Salinas River and Tributaries[1]	90,600	1,400	407,800
Imported (NWP)	2	0	74
Total	90,600		

Notes:
All values in acre-feet
[1] Tributaries include Santa Margarita, Paloma, Atascadero, Graves, and Paso Robles creeks.
[2] Minimum and maximum values are not totaled because the values for each component may have occurred in different years.

The estimated average annual total inflow from these sources over the historical base period is about 90,600 AF. The largest component of this average inflow is releases and flow in the Salinas River. The large difference between the minimum and maximum inflows reflects the difference between dry and wet years in the Basin.

6.3.1.3 Historical Surface Water Outflows

The estimated annual average total surface water outflow leaving the Basin as flow in the Salinas 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 Basin

Surface Water Outflow Component	Average	Minimum[1]	Maximum[1]
Salinas River Outflow from Basin	83,500	300	380,600
Streamflow Percolation	7,100	1,100	27,200
NWP Percolation	2	0	74
Total	90,600		

Notes:
All values in acre-feet
[1] Minimum and maximum values are not totaled because the values for each component may have occurred in different years.

The estimated average annual total outflow from these sources over the historical base period is about 90,600 AF. The largest component of this average outflow is the Salinas River. The large difference between the minimum and maximum outflows reflects the difference between dry and wet years in the Basin.

6.3.1.4 Historical Surface Water Budget

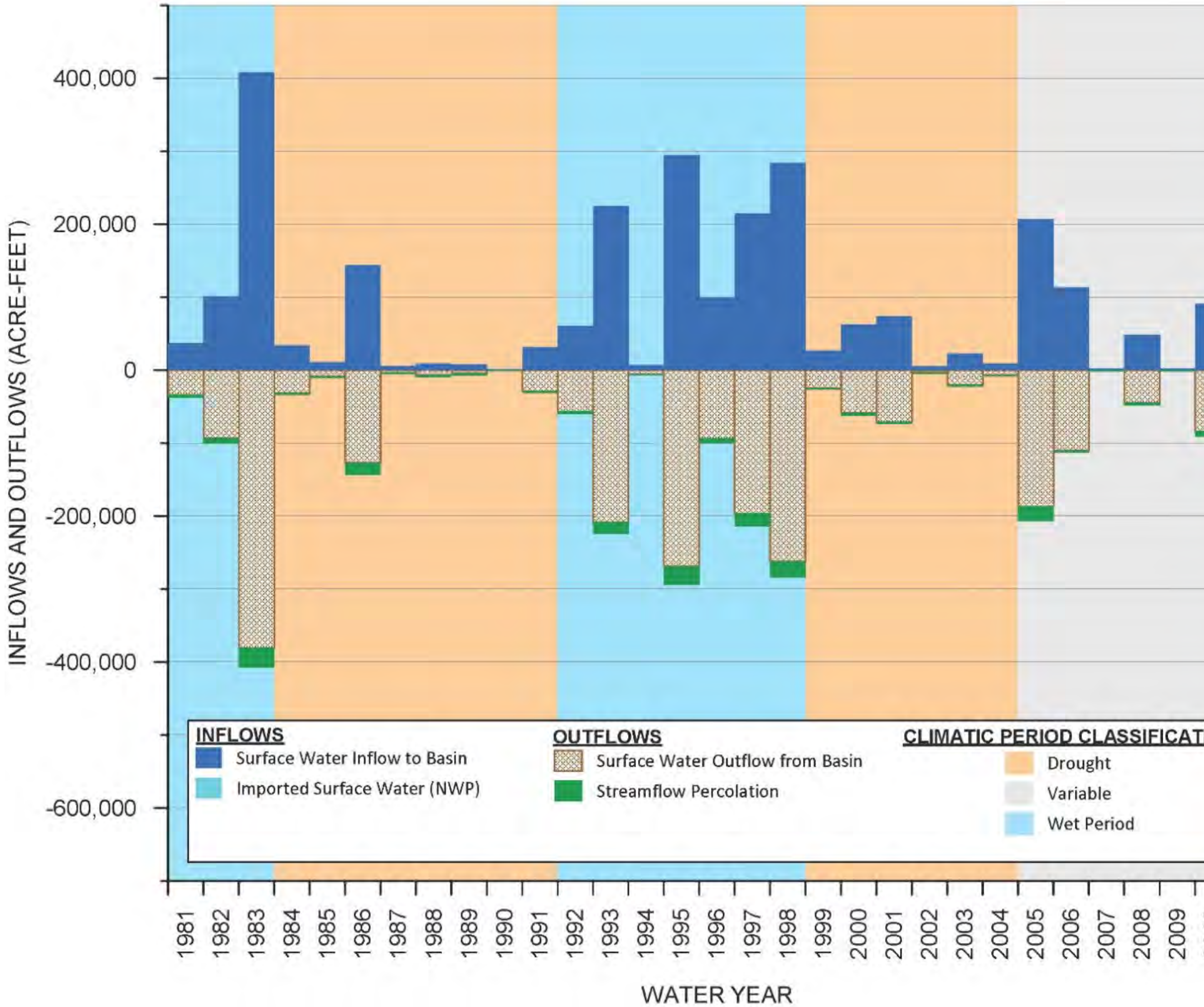


Figure 6-2 summarizes the historical surface water budget for the Basin.

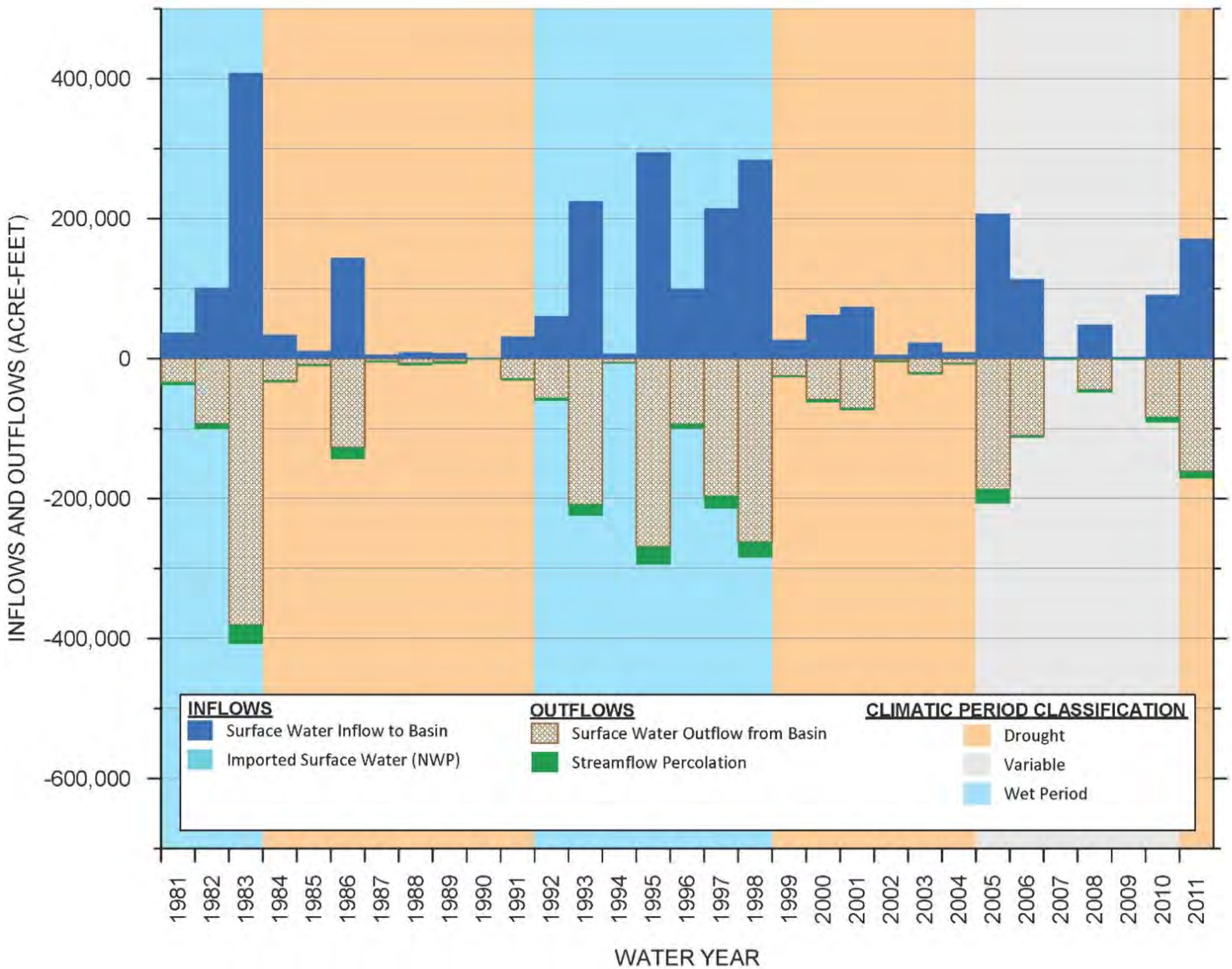


Figure 6-2. Historical (1981-2011) Surface Water Inflows and Outflows

This page left blank intentionally.

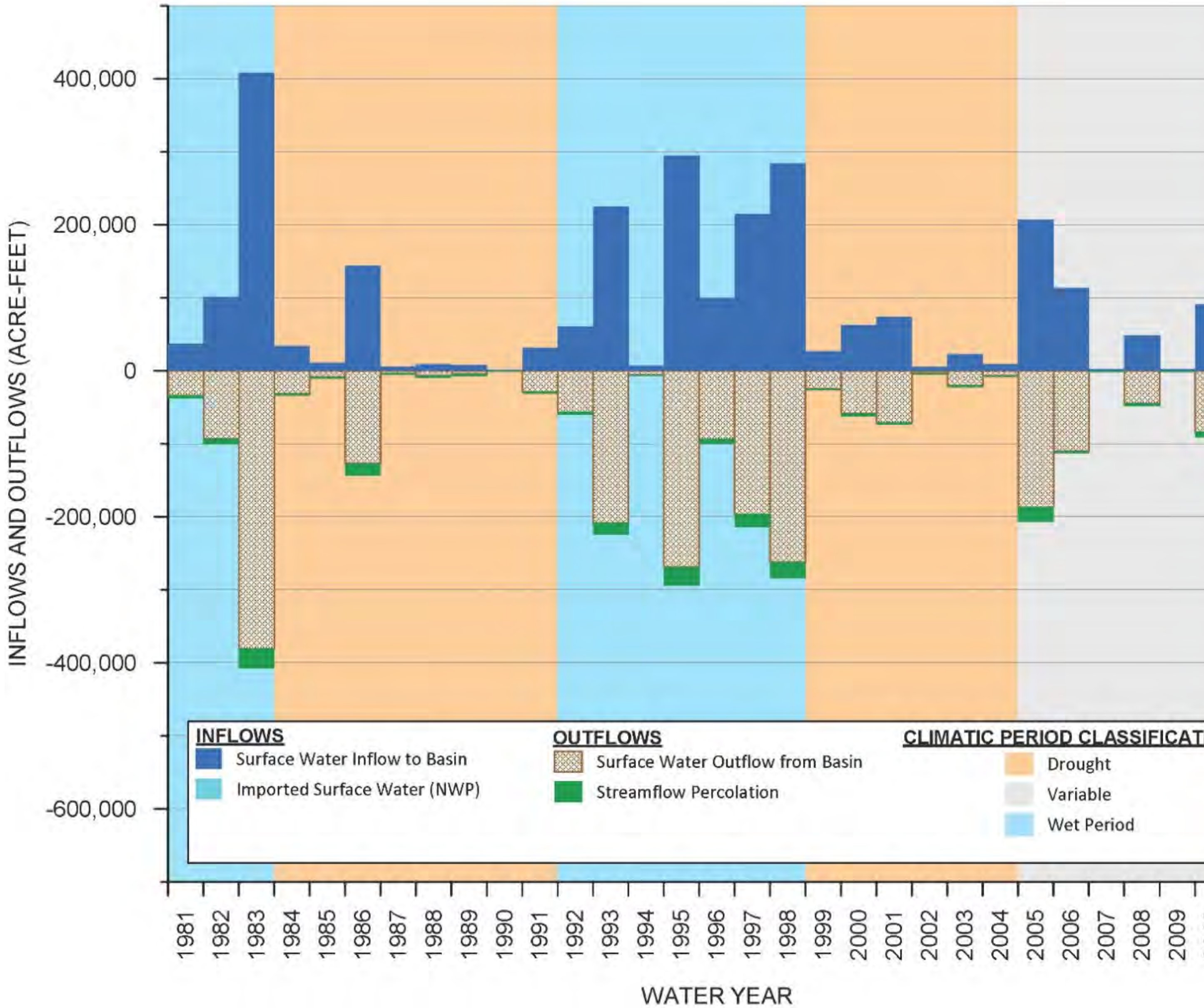


Figure 6-2 shows the strong correlation between precipitation and streamflow in the Basin. In wet periods, shown with a blue background, surface water inflows and outflows are large. In contrast, in dry periods, shown with an orange background, surface water inflows and outflows are small.

6.3.2 *Historical Groundwater Budget*

Groundwater, including production from both the Alluvial Aquifer (Salinas River underflow) and the Paso Robles Formation Aquifer, supplied virtually all of the water used in the Basin 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 Basin, imported surface water percolation, wastewater treatment plant 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 6A-1 in Appendix 6A.

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

Groundwater Inflow Component[1]	Average	Minimum[2]	Maximum[2]
Streamflow Percolation	7,100	1,100	27,200
Agricultural Irrigation Return Flow	1,200	500	2,700
Deep Percolation of Direct Precipitation	3,700	100	13,000
Subsurface Inflow into Basin	2,300	0	5,400
Wastewater Pond Percolation	2,000	1,570	2,540
NWP Percolation	2	0	74
Urban Irrigation Return Flow	1,200	100	2,800
Total	17,500		

Notes:
All values in acre-feet
[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
[2] Minimum and maximum values are not totaled because the values for each component may have occurred in different years.

For the historical base period, estimated total average groundwater inflow ranged from 5,700 to 49,800 AFY, with an average annual inflow of 17,500 AF. The largest groundwater inflow component is streamflow percolation, which accounts for approximately 41 percent of the total annual average inflow. 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, subsurface flow out of the Basin, and riparian evapotranspiration. On occasion, the minimum subsurface outflows were negative during the historical base period. 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 Basin

Groundwater Outflow Component	Average	Minimum[1]	Maximum[1]
Total Groundwater Pumping	15,300	11,900	20,400

Subsurface Flow Out of Basin	300	-500	1,400
Riparian Evapotranspiration	500	500	500
Total	16,100		

Notes:
All values in acre-feet
[1] Minimum and maximum values are not totaled because the values for each component may have occurred in different years.

The largest groundwater outflow component from the Basin 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 Basin

Water Use Sector	Average	Minimum[1]	Maximum[1]
Agricultural	5,500	2,100	12,900
Municipal	8,900	4,900	12,000
Rural Domestic	300	200	500
Small Public Water Systems	600	600	700
Total	15,300		

Notes:
All values in acre-feet
[1] Minimum and maximum values are not totaled because the values for each component may have occurred in different years.

Municipal and agricultural pumping were the largest components of total groundwater pumping, accounting for about 58 and 36 percent of total pumping over the historical base period, respectively. In general, agricultural pumping decreased and municipal pumping increased over the historical base period. Rural-domestic, and small commercial pumping account for 2 and 4 percent, 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 and tabulated in Appendix 6B. Figure 6-3 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 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. The net result was a loss of groundwater from storage. In contrast, wet conditions prevailed in the early 1980s and 1992 through 1998, as shown by blue areas on Figure 6-3 and Figure 6-4, and one wet year in 2005. During these wet periods, the amount of recharge and streamflow percolation was relatively high. The net result was a gain of groundwater in storage. The period from 2006 through 2010 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, compared to the prior 15 years. 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 decreased in the early 1990s, corresponding with a period when irrigation of alfalfa and pasture acreage declined and irrigated vineyard acreage increased (Fugro and Cleath 2002). The transition from alfalfa and pasture to vineyard resulted in a net decrease in groundwater pumping because the irrigation demand per acre of vineyards is significantly less than the per-acre demand for alfalfa and pasture. This decrease in pumping contributed to the increase in groundwater in storage during the 1990s.

Over the 31-year historical base period, a net gain of groundwater storage of about 42,300 AF occurred. The average annual groundwater storage gain was approximately 1,400 AFY.

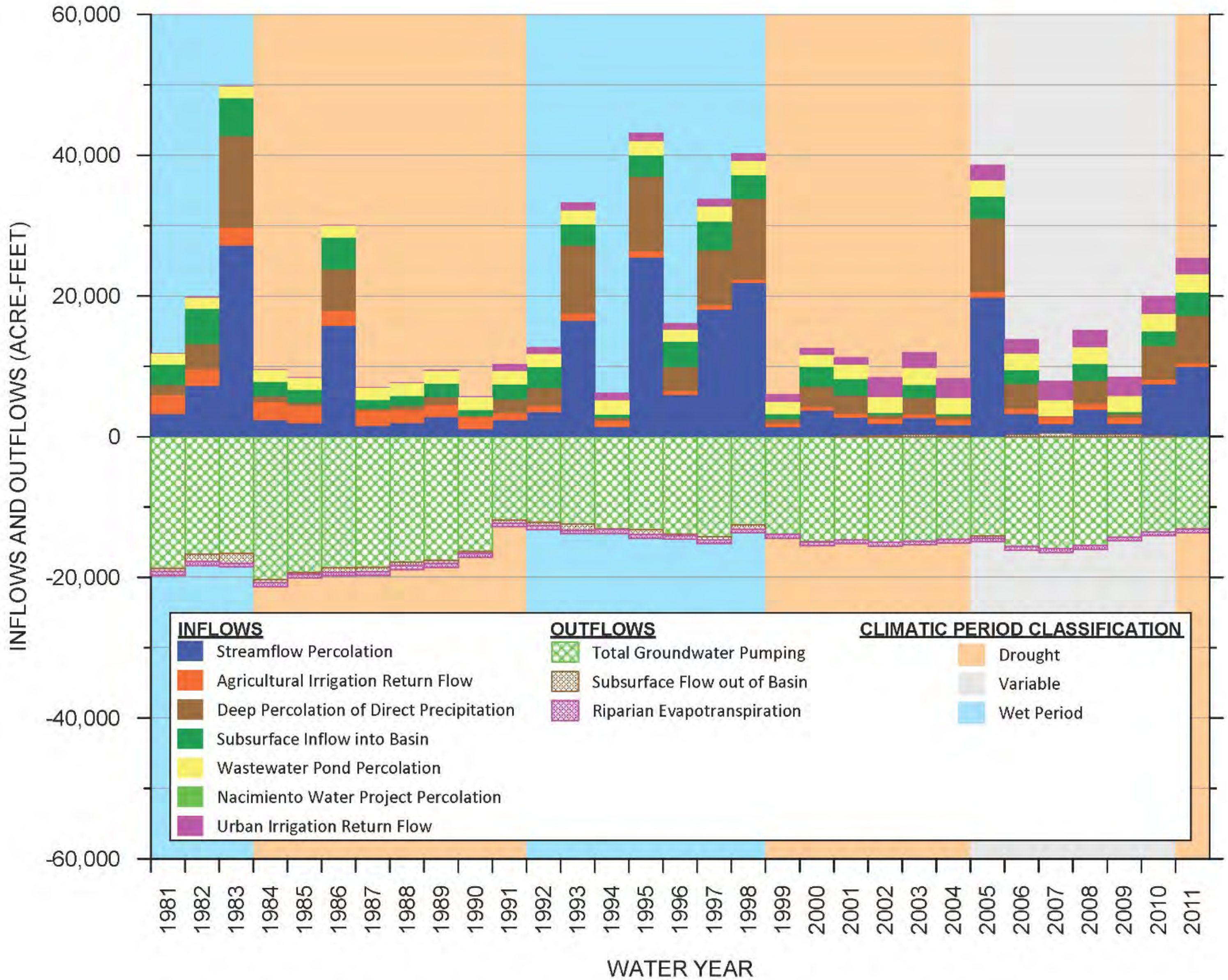


Figure 6-3. Historical (1981-2011) Groundwater Inflows and Outflows

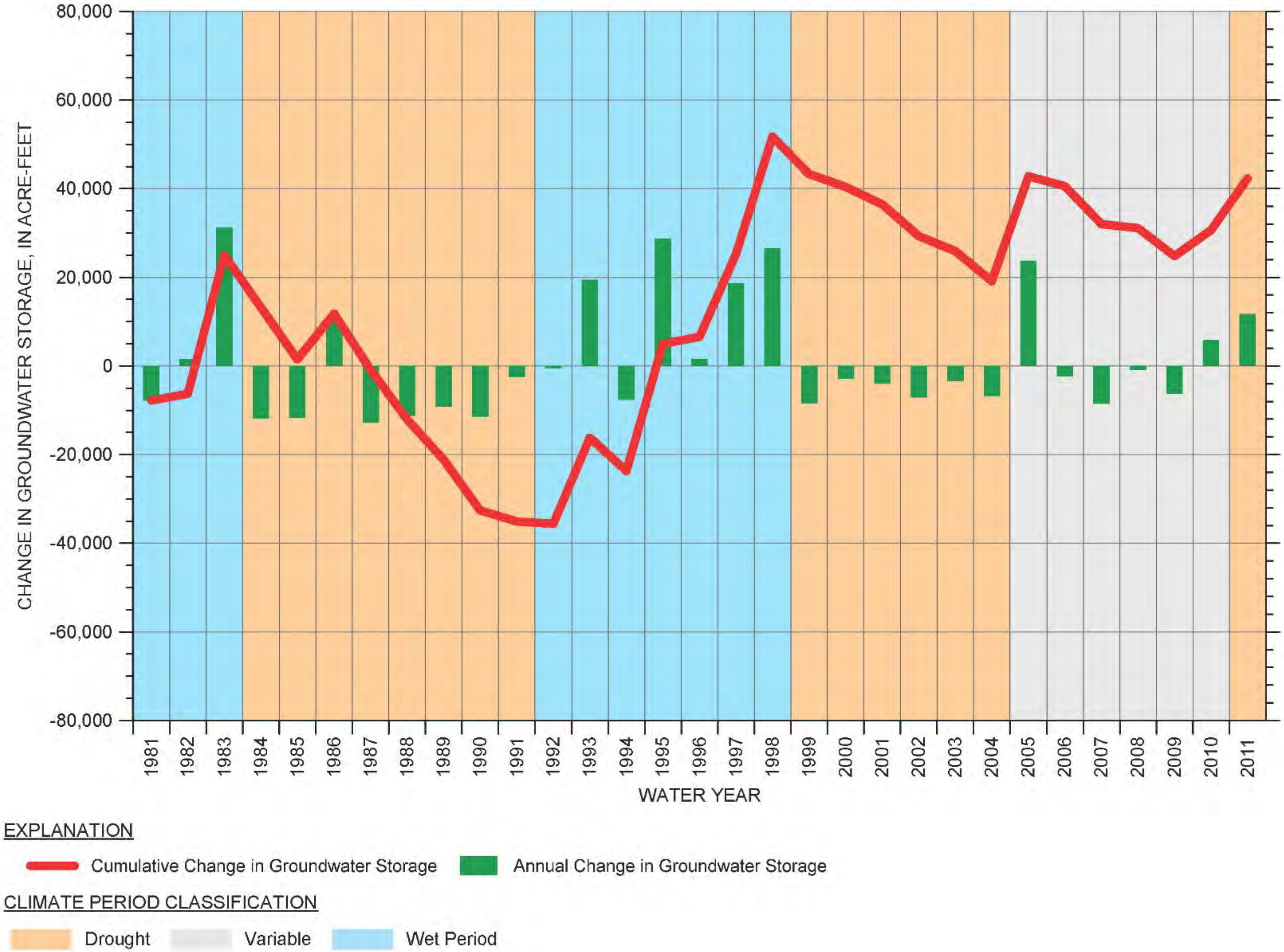


Figure 6-4. Historical (1981-2011) Annual and Cumulative Change in Groundwater Storage

6.3.2.4 Historical Water Balance of the Basin

The computed long-term increase of groundwater in storage indicates that total groundwater inflow exceeded the total outflow in the Basin from 1981 through 2011. As summarized in Table 6-5, total groundwater pumping averaged approximately 15,300 AFY during the historical base period.

Section 354.18(b)(7) of the SGMA Regulations requires a quantification of sustainable yield for the Basin for the historical base period. Sustainable yield is the maximum quantity of groundwater, 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. The historical safe yield was estimated by summing the estimated average groundwater storage increase of 1,400 AFY with the estimated total average amount of groundwater pumping of 15,300 AFY for the historical base period. This results in a historical safe yield of about 16,700 AFY. This estimated value reflects historical climate, hydrologic and water resource conditions and provides insight into the amount of groundwater pumping that could be sustained in the Basin to maintain a balance between groundwater inflows and outflows.

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 GSP, the period 2012 to 2016 was selected as the time period for the current water budget. In part, the 2012 to 2016 time period was selected because it corresponds with the current water budget period utilized in the Paso Robles Subbasin GSP and it is believed that not only is this time period representative of basin conditions, but the use of the Paso Robles Subbasin GSP model is the best available information and tool for groundwater sustainability planning purposes in the Atascadero Basin.

The current water budget period corresponds to a drought period when annual precipitation averaged about 60 percent of the historical average and streamflow percolation averaged about 19 percent of the historical average. As a result, the current water budget period represents an extreme drought condition in the Basin and is not representative of long-term Basin conditions needed for sustainability planning purposes. 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

Imported surface water from the NWP was utilized by Atascadero MWC, Templeton CSD, and the city of Paso Robles to recharge the Basin via percolation in the Alluvium adjacent to the Salinas River during the current water budget period. In addition to Templeton CSD, which began taking NWP water during the historical based period (Section 6.3.1.1 – Historical Local Imported Supplies), Atascadero MWC and the city of Paso Robles began taking deliveries of NWP water in 2012 and 2013, respectively. Utilization of NWP water peaked in 2015 at 4,792 AF during the height of the latest drought, providing recharge to the Basin. Table 6-6 summarizes the annual average, minimum, and maximum values for the imported NWP water during the current water budget period.

6.4.1.2 Current Local Supplies

Local surface water supplies include surface water flows that enter the Basin from precipitation runoff within the watershed and Salinas River inflow to the Basin (including releases from the Salinas Reservoir), 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 Basin

Surface Water Inflow Component	Average	Minimum[2]	Maximum[2]
Inflow to Basin including the Salinas River and Tributaries[1]	5,600	1,300	9,000
Imported (NWP)	2,158	731	4,792
Total	7,800		

Notes:
All values in acre-feet
[1] Tributaries include Santa Margarita, Paloma, Atascadero, Graves, and Paso Robles creeks
[2] Minimum and maximum values are not totaled because the values for each component may have occurred in different years.

The estimated average total inflow from both precipitation runoff and reservoir releases over the current water budget period was approximately 7,800 AFY, or about 9 percent of the average annual 90,600 AFY inflow during 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 Basin as flow in the Salinas River and percolation into the groundwater system over the current base period is summarized in Table 6-7. Reductions in surface water outflow for the current water budget period were similar to those reported above for the surface water inflows.

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

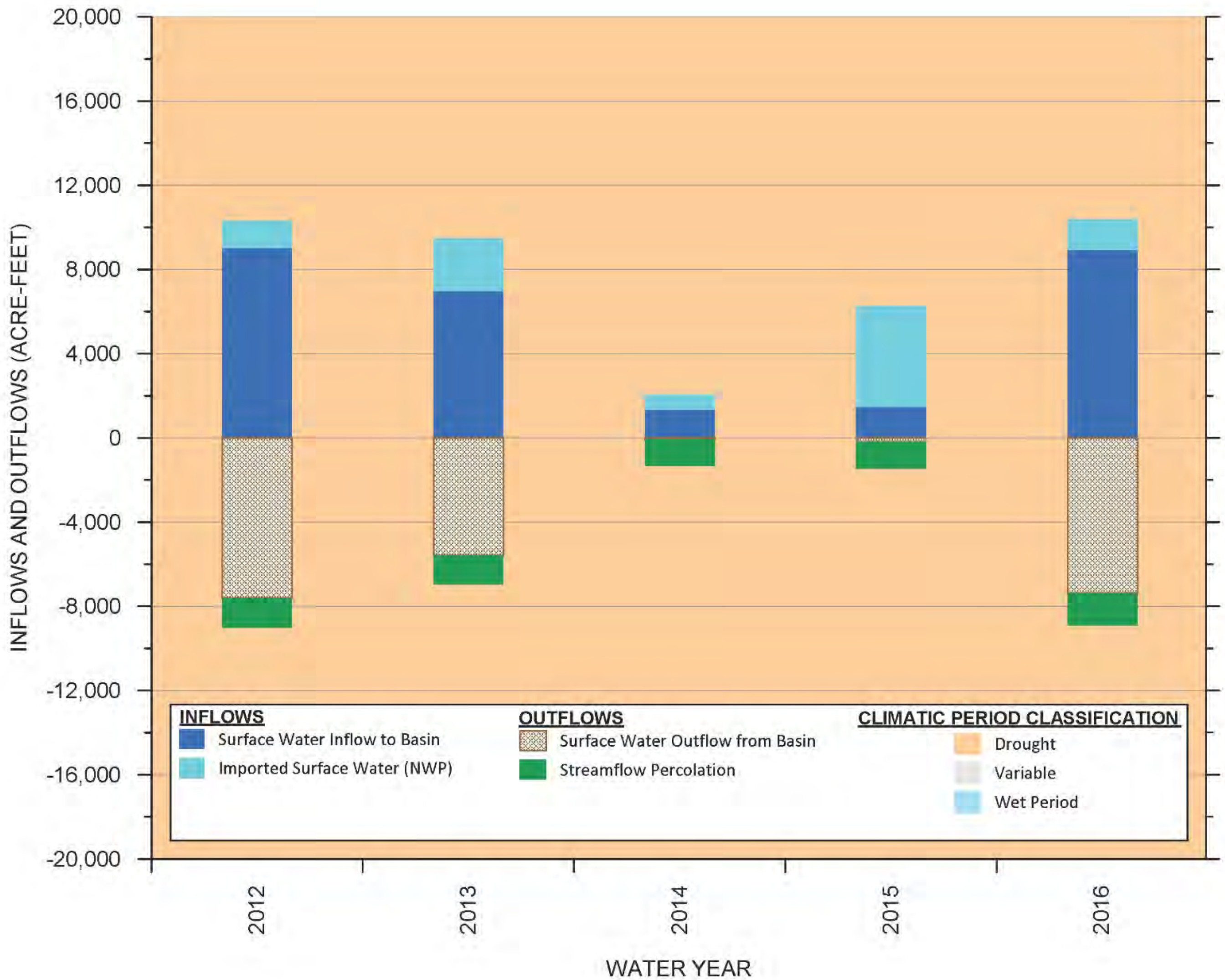
Surface Water Outflow Component	Average	Minimum[1]	Maximum[1]
Salinas River Outflow from Basin	4,200	100	7,600
Streamflow Percolation	1,400	1,200	1,500
NWP Percolation	2,158	731	4,792
Total	7,800		

Notes:
All values in acre-feet
[1] Minimum and maximum values are not totaled because the values for each component may have occurred in different years.

6.4.1.4 Current Surface Water Budget

Figure 6-5 summarizes the current surface water budget for the Basin. Figure 6-5 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



This page left blank intentionally.

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 Basin, imported surface water percolation, 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 Basin

Groundwater Inflow Component[1]	Average	Minimum[2]	Maximum[2]
Streamflow Percolation	1,400	1,200	1,500
Agricultural Irrigation Return Flow	1,000	700	1,200
Deep Percolation of Direct Precipitation	600	300	1,400
Subsurface Inflow into Basin	400	0	1,200
Wastewater Pond Percolation	2,520	2,460	2,570
NWP Percolation	2,158	731	4,792
Urban Irrigation Return Flow	2,700	2,400	2,900
Total	10,800		

Notes:
All values in acre-feet
[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
[2] Minimum and maximum values are not totaled because the values for each component may have occurred in different years.

For the current water budget period, estimated total average groundwater inflow ranged from 8,900 AFY to 13,000 AFY, with an average inflow of 10,800 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 62% 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 and urban irrigation return flows, which together account for approximately 34% 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 20% 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 16% 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 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 Basin

Groundwater Outflow Component	Average	Minimum[1]	Maximum[1]
Total Groundwater Pumping	12,900	11,400	14,500
Subsurface Flow Out of Basin	-200	-300	-100
Riparian Evapotranspiration	500	500	500
Total	13,200		

Notes:
All values in acre-feet
[1] Minimum and maximum values are not totaled because the values for each component may have occurred in different years.

For the current water budget period, estimated total average groundwater outflows ranged from 11,800 to 14,700 AFY, with an average annual outflow of 13,200 AF. A notable observation from a comparison of the historical (Table 6-4) and current groundwater outflows is:

- Total annual average groundwater pumping was about 16% lower during the current water budget period.

The largest groundwater outflow component from the Basin 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 from Basin

Water Use Sector	Average	Minimum[1]	Maximum[1]
Agricultural	2,600	2,200	3,100
Municipal	9,200	7,800	10,800
Rural Domestic	500	500	500
Small Public Water Systems	600	600	600
Total	12,900		

Notes:
All values in acre-feet
[1] Minimum and maximum values are not totaled because the values for each component may have occurred in different years.

For the current water budget period, estimated total average groundwater pumping ranged from 11,400 to 14,500 AFY, with an average pumping of 12,900 AFY. Municipal pumping was the largest component of total groundwater pumping and accounts for about 72 percent of total pumping during the current water budget period. Agricultural, rural-domestic, and small commercial pumping account for 20, 4, and 5 percent, 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 53% less during the current water budget period when compared to the historical period (decrease of 2,900 AFY).
- Total annual average municipal groundwater pumping was about 4% higher during the current water budget period when compared to the historical period (increase of 340 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

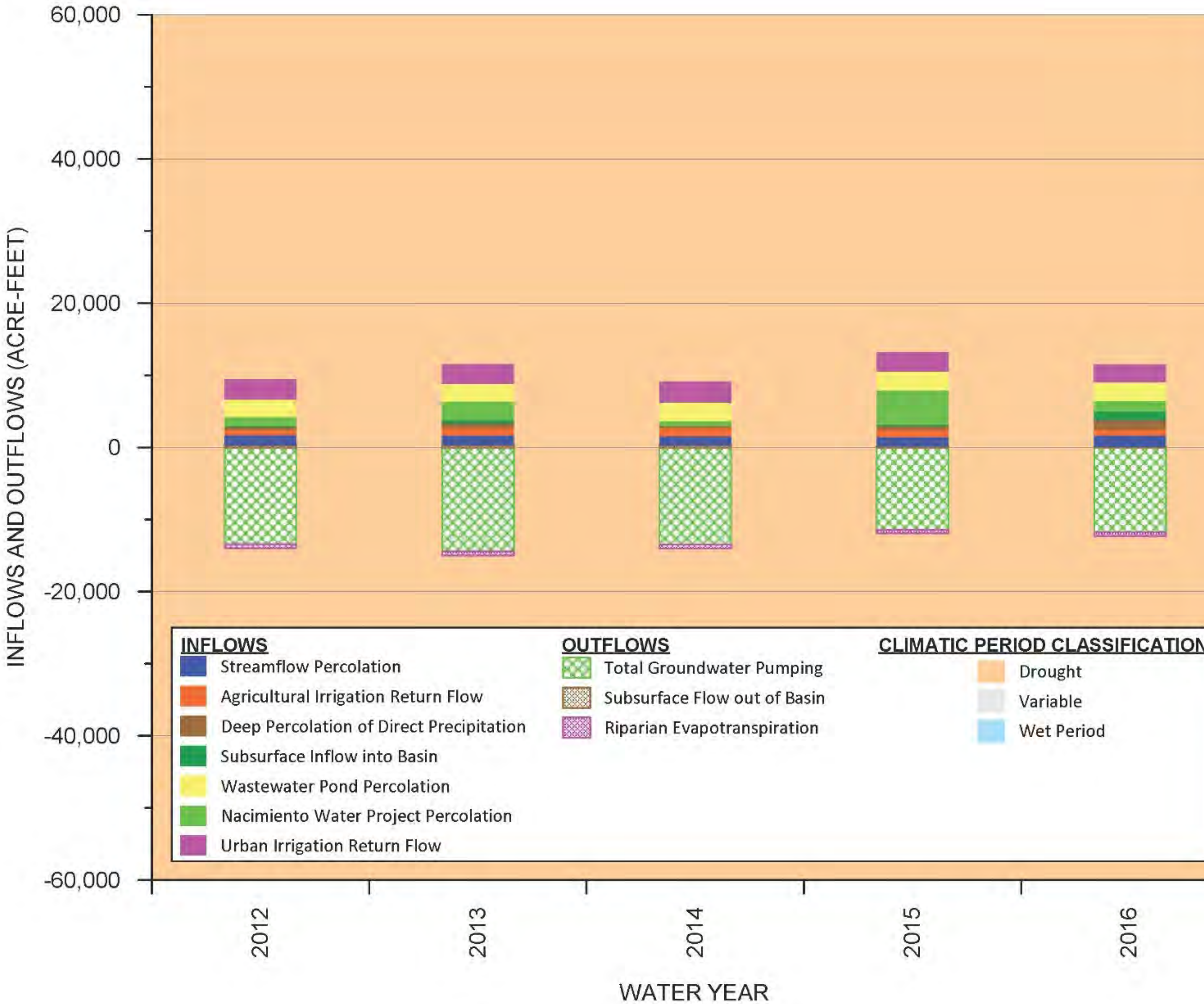


Figure 6-6. This graph shows inflow and outflow components for every year of the current water budget period. Inflow components are graphed above the zero line and outflow components are graphed below the zero line. Groundwater outflow by pumping (green crosshatched bars) includes pumping from all water 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.

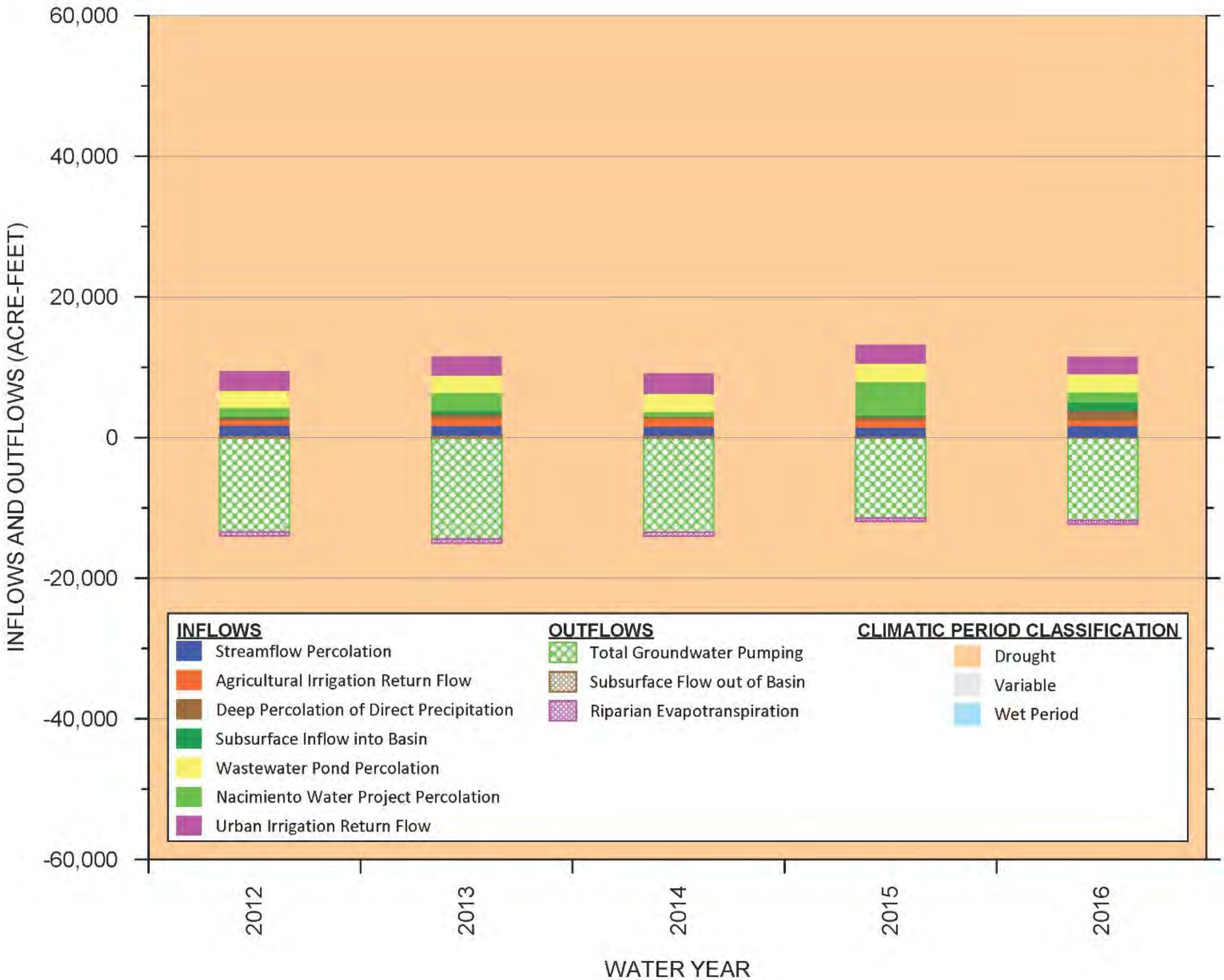


Figure 6-6. Current (2012-2016) Groundwater Inflows and Outflows

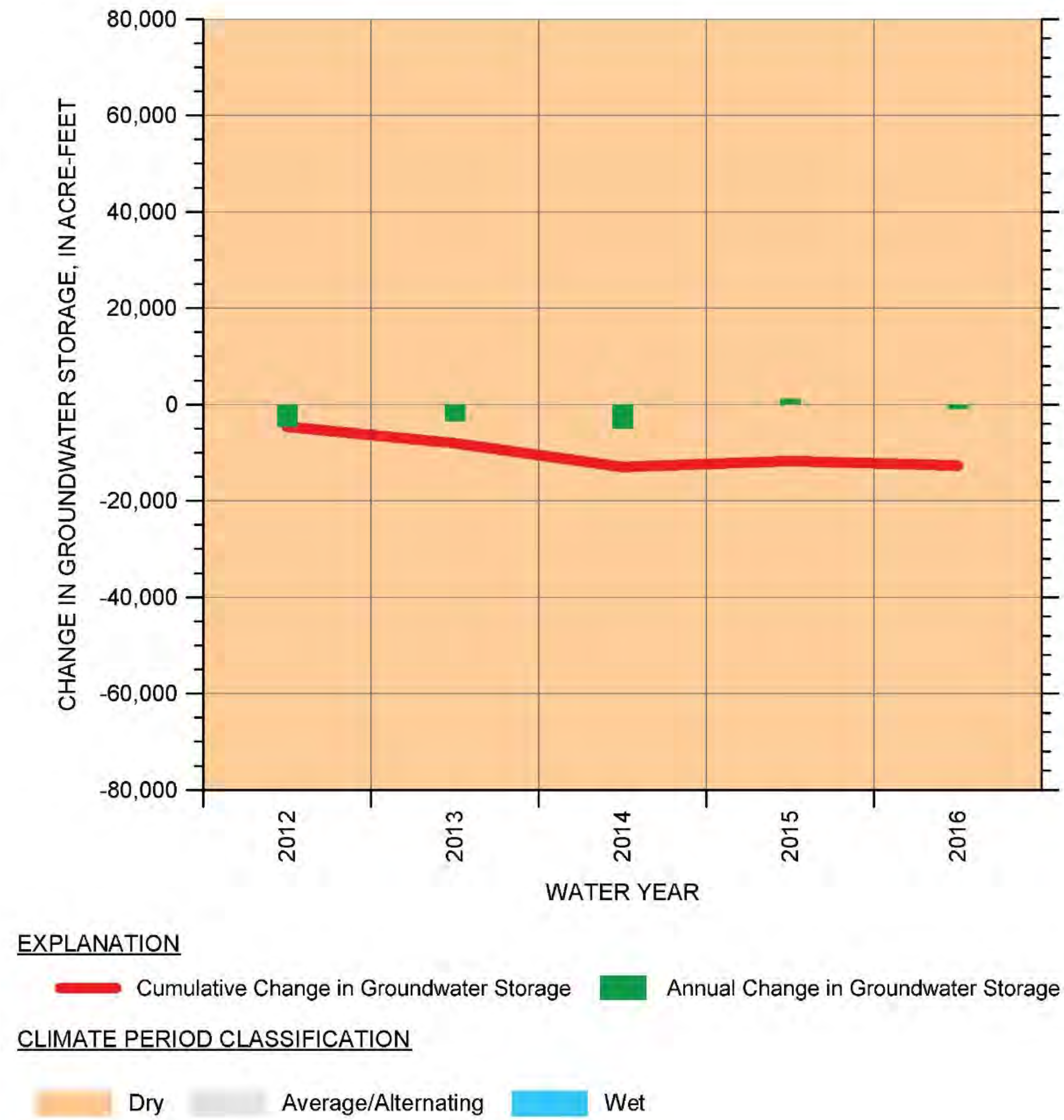


Figure 6-7. Current (2012-2016) Annual and Cumulative Change in Groundwater Storage

The current groundwater budget is strongly influenced by the drought. During the current water budget period, the amounts of streamflow percolation and percolation of direct precipitation were very low, and the average amount of total pumping was only slightly less than the historical water budget period. Percolation of imported surface water from the NWP, which had barely come online in the final year of the historical water budget period, played a significant role in mitigating the effects of the recent drought. Over the 5-year current water budget period, an estimated net loss of groundwater in storage of about 12,600 AF occurred (Figure 6-7). The annual average groundwater storage loss, or the difference between outflow and inflow to the Basin, was approximately 2,500 AFY.

6.4.2.4 Current Water Balance

The 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 12,900 AFY during the current period. A quantification of the safe yield for the Basin during the current time period is be estimated by subtracting the average groundwater storage deficit (2,500 AFY) from the total average amount of groundwater pumping (12,900 AFY) to yield about 10,400 AFY. Due to the drought conditions, the current water budget period is 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 2022 to 2042. 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 36 years of historical precipitation, evapotranspiration, and streamflow data. Therefore, the future water budget is based on 36 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.

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 within Monterey County and the Paso Robles Subbasin.

However, information provided for the future water budget only pertains to the Atascadero Basin (Figure 1-1), thus do not include areas within Monterey County or the Paso Robles Subbasin.

6.5.1.1 Future Municipal Water Demand and Wastewater Discharge Assumptions

Future municipal water demands, and wastewater discharge were estimated for Atascadero MWC, Templeton CSD, and the city of Paso Robles based on the following available planning documents:

- Atascadero MWC 2015 UWMP (MKN & Associates 2016)
- Templeton CSD Water Supply Buffer Model 2019 Update (Templeton CSD 2019)
- Paso Robles 2015 Urban Water Management Plan (Todd Groundwater 2016)

Portions of Atascadero MWC's, Templeton CSD's, and the city of Paso Robles' future groundwater demand[30] will be offset by imported NWP water. Total municipal demand in the Basin is projected to increase from about 10,500 AFY in 2020 to about 12,900 AFY in 2042.

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 based on the planning documents listed above for Atascadero MWC and Templeton CSD[31]. Wastewater discharge as a percentage of water demand was calculated separately for each water provider. Total wastewater discharge in the Basin is projected to increase from about 2,300 AFY in 2020 to about 3,100 AFY in 2042.

Future municipal water demands and/or wastewater discharge volumes will be adjusted during the implementation of the GSP should they be found to differ from the volumes used in the GSP model.

6.5.1.2 Future Agricultural and other Non-Municipal Water Demand 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 agricultural irrigation water demand. For the GSP, the most recent crop acreage data was obtained from the office of the San Luis Obispo County Agricultural Commissioner. To account for irrigation efficiency in the future water budget, the reported crop coefficient information from GSSI (GSSI, 2016) was used.

Projections for agricultural irrigation water demand are not available. Agricultural water demand was assumed to increase at a 1 percent annual growth rate. This assumed growth rate is considered

[30] Note that the city of Paso Robles operates production wells in both the Basin and the Paso Robles Subbasin. Only the portion produced from the Basin is included here.
[31] The city of Paso Robles wastewater discharge occurs outside the Basin (within the Paso Robles Subbasin) and is therefore not included.

a conservative estimate. Total agricultural groundwater demand in the Basin is projected to increase from about 2,800 AFY in 2020 to about 3,400 AFY in 2042.

Projections for rural domestic wells and smaller commercial groundwater users, were also not available. Water demand for these users was assumed to increase at a 1 percent annual growth rate. Total rural domestic and smaller commercial user’s groundwater demand in the Basin is projected to increase from about 1,300 AFY in 2020 to about 1,600 AFY in 2042.

Future agricultural and/or other non-municipal water demands will be adjusted during the implementation of the GSP should they be found to differ from the volumes used in the GSP model.

6.5.1.3 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 Basin. 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 Atascadero 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 model domain. 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 evapotranspiration, 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. The future agricultural irrigation water demand assumptions (Section 6.5.1.2 – Future Agricultural and other Non-Municipal Water Demand Assumptions) were incorporated into this analysis. 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 6-month periods. The groundwater model was extended and modified to simulate the period 2020 to 2042. Starting groundwater levels for the future simulation were set to groundwater levels at the end of Water Year 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 Basin was computed using the modified watershed model.

Future groundwater recharge and streamflow are specified in the groundwater model as repeating average time-series, based on average monthly calculation of 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 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. Table 6-11 and Notes:
All values in acre-feet
[1] Tributaries include Santa Margarita, Paloma, Atascadero, Graves, and Paso Robles creeks

Table 6-12 summarize the average components of the projected surface water budget.

Table 6-11. Projected Future Annual Surface Water Inflows to Basin

Surface Water Inflow Component	Average
Inflow to Basin including the Salinas River and Tributaries[1]	96,400
Imported (NWP)	2,600
Total	99,000

Notes:
All values in acre-feet
[1] Tributaries include Santa Margarita, Paloma, Atascadero, Graves, and Paso Robles creeks

Table 6-12. Projected Future Annual Surface Water Outflows from Basin

Surface Water Outflow Component	Average
Salinas River Outflow from Basin	92,000
Streamflow Percolation	4,400
NWP Percolation	2,600
Total	99,000

Notes:
All values in acre-feet

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 6-13 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 6-13.

Table 6-13. Projected Future Annual Groundwater Inflows to Basin

Groundwater Inflow Component1	Average
Streamflow Percolation	4,400
Agricultural Irrigation Return Flow	900
Deep Percolation of Direct Precipitation	3,700
Subsurface Inflow into Basin	1,600
Wastewater Pond Percolation	2,800
NWP Percolation	2,600
Urban Irrigation Return Flow	1,900
Total	18,000

Notes:
All values in acre-feet
[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

The total average annual groundwater inflow is 500 AF greater during the future period than during the historical base period. Although, annual stream percolation is projected to be 2,700 AF less during the future period than during the historical base period, the increased imported surface water percolation nearly makes up for it. Lesser increases in urban irrigation return flow and wastewater percolation offset minor reductions in agricultural irrigation return flow and subsurface inflow between the historical base period and the projected future 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 6-14 summarizes projected annual groundwater outflows.

Table 6-14. Projected Future Annual Groundwater Outflow from Basin

Groundwater Outflow Component	Average
Total Groundwater Pumping	16,400
Subsurface Flow Out of Basin	200
Riparian Evapotranspiration	600
Total	17,200

Note:
All values in acre-feet

The total average annual groundwater outflow is estimated to be 1,100 AF greater during the future period than during the historical base period. Future total annual groundwater pumping is projected to increase by about 1,100 AF compared to the historical base period.

6.5.3.3 Future Safe Yield

The projected future groundwater budget shows the Basin to be generally in balance, with projected groundwater inflows of about 18,000 AFY and projected groundwater outflows of about

17,200 AFY. The projected future surplus indicates an average annual increase in groundwater in storage of 800 AFY. A calculated annual volume for the projected future safe yield of the Basin was estimated by adding the average groundwater storage surplus of 800 AFY to the total projected future average amount of groundwater pumping of 16,400 AFY, therefore the future safe yield for the Basin is estimated to be approximately 17,200 AFY.

The estimated future safe yield of 17,200 AFY is 500 AFY greater than the estimated safe yield for the historic base period. This close comparison of safe yield values between the two periods indicates that projected future climate change is not expected to have a substantial impact on the safe yield.

The primary reason that the average safe yield increases in the future compared to the historical period, even coupled with the assumed climate change modifiers and increased projected pumping from all users, is the added beneficial component of increased future use of the NWP water. However, as demonstrated by the projected cumulative change in storage curve presented on Figure 6-8, the benefits of increased NWP utilization is expected to be overtaken by the assumed 1 percent annually increasing pumping demands by the year 2034.

The cumulative change of groundwater in storage is projected to remain well above zero by the year 2042, however its downward trend in later years suggests the possibility of a groundwater storage deficit in the distant future (well beyond 2042) without further mitigation measures.

It is likely that the 1 percent annual growth rate assumption for non-municipal pumping is overly conservative. Adjusting this to a lower or a flat growth rate at some future date would be one such potential mitigation measure. Regardless, the imported NWP supply augments the natural basin recharge components and provides the municipal purveyors a water resource management tool that allows for effective management of the Basin for the foreseeable future.

The calculated safe yield of the Basin is a reasonable estimate of the long-term pumping that can be maintained without a long-term lowering of groundwater levels. The sustainable yield of the Basin, which will be estimated after an assessment of the sustainable management criteria and identification of potential undesirable results, will be estimated later. Sustainable yield looks to the presence or absence of undesirable results, not strictly inflows and outflows. The definitive sustainable yield can only be determined once undesirable results have been shown to have not occurred. The sustainable yield estimate may be revised in the future as new data become available during GSP implementation.

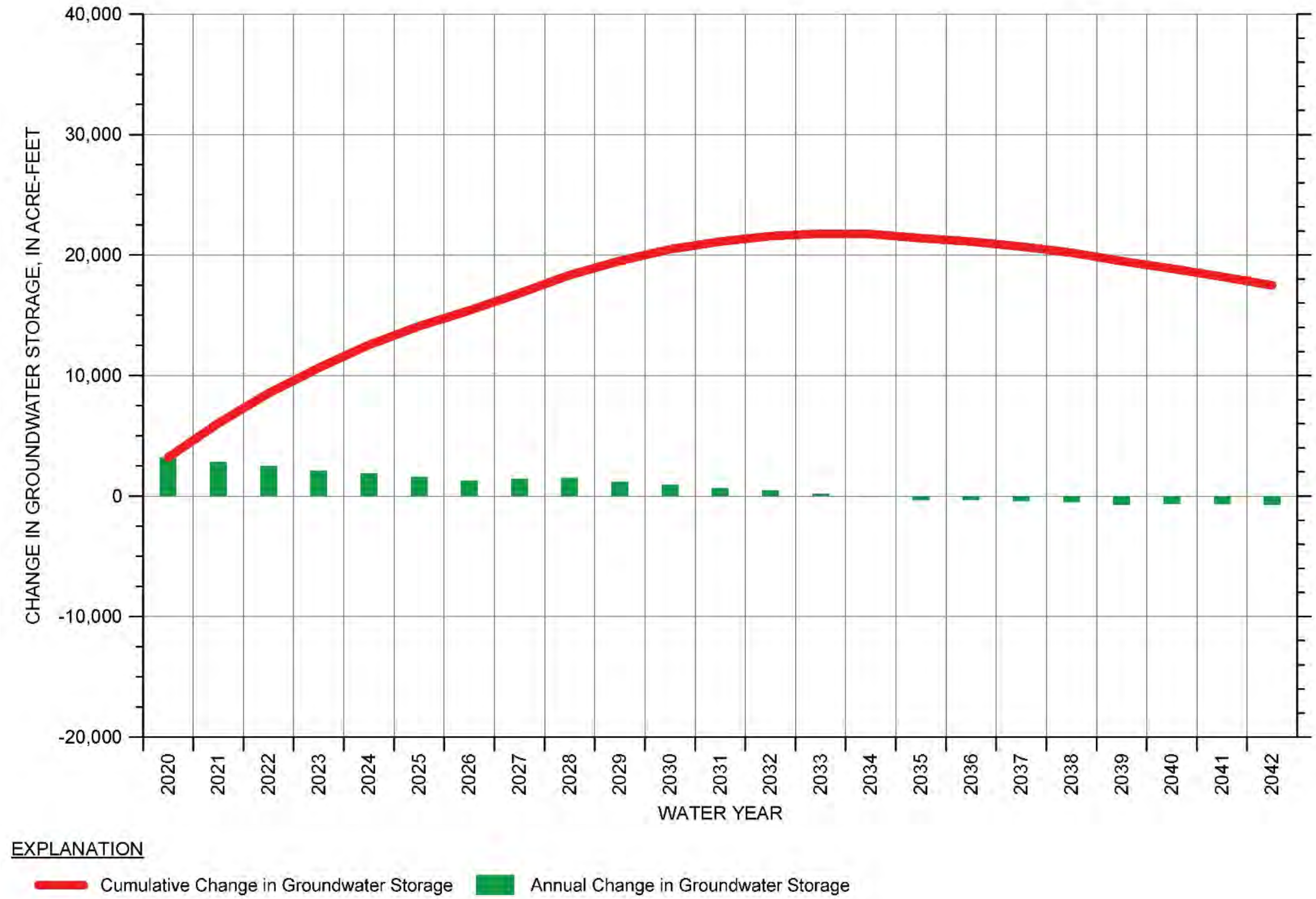


Figure 6-8. Projected Future Cumulative Change in Groundwater Storage

This page left blank intentionally.

7. Monitoring Networks

This section describes the monitoring networks that exist and improvements to the monitoring networks that will be developed for the basin identified by the DWR in its Bulletin 118 (DWR 2016) as Basin No. 3-004.11, Atascadero Area Groundwater Sub-basin of the Salinas Valley Basin (Basin) as part of GSP implementation. This section 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 section 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 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 Atascadero Basin GSA's 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 Basin 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 Section 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 Basin:

- Chronic lowering of groundwater levels
- Reduction in groundwater storage
- Degraded water quality

- Land subsidence
- Depletion of interconnected surface water

The Basin 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, were not publicly accessible because of confidentiality agreements, or could not be easily inferred, could not be used in the current groundwater monitoring network.

The approach for establishing the monitoring network for the Basin 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. This section 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 Basin setting and sustainable management criteria specific to that area. At this time, management areas have not been defined for the Basin. 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 Basin are described in Sections 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
- USGS NWIS

- DWR Online System for Well Completion Reports (OSWCR)
- DWR SGMA Data Viewer
- DWR CASGEM
- City of Paso Robles, Atascadero MWC, and Templeton CSD for public drinking water supply wells and associated monitoring wells
- Environmental consulting reports for the Santa Margarita to Tassajara Creek Pipeline cleanup (Geotracker site ID: SL0607989492)

These data sources resulted in a dataset of nearly 200 wells, each analyzed using the following steps to assess whether they would be included in the 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 2017 or later. All the groundwater level monitoring data available for the Basin that met this criterion were provided by SLOFCWCD (a subset of which is included in CASGEM) or the environmental consulting reports for the Santa Margarita to Tassajara Creek Pipeline cleanup, for a total of 114 wells.
2. Prioritize Wells with Known Well Completion Information: Wells without enough information to determine principal aquifer of completion were removed. This excluded nine wells.
3. Remove Confidential Wells: Many of the wells in the SLOFCWCD groundwater level monitoring network are subject to confidentiality agreements. An effort has been made to reach out to confidential well owners and offer them the opportunity to opt in to the GSP groundwater level monitoring network. Several wells have been added to the GSP monitoring network as a result of this effort. 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. The groundwater level data that met this criterion resulted in a total of 85 wells.
4. Additional Wells: Include Additional Wells and/or Water Level Data Provided by Atascadero MWC and Templeton CSD. This resulted in the addition of the Templeton CSD Selby monitoring well, for a total of 86 wells.
5. Remaining Wells: The remaining 86 wells were scored in terms of their total number of historical water elevation records, data quality[32], and in terms of their spatial distribution within the Basin and their spatial distribution relative to other candidate wells completed in the same principal aquifer. Wells with a greater number of high-quality historical water

[32] Historical water elevation data were inspected for obvious pumping effects or otherwise suspect data. These suspect data were flagged for removal.

elevation records were prioritized over those with fewer records or wells with lower quality data. In cases where multiple high-scoring wells completed in the same principal aquifer are located in close proximity, only the highest-scoring well, based on number of high-quality water elevation records, was retained. In addition to these considerations, wells that are included in the CASGEM network were prioritized over other wells and three sets of paired vertical-gradient monitoring wells were included, despite a couple of them being in close proximity to other high-scoring wells. This selection process resulted in a GSP groundwater level monitoring network consisting of 26 wells (12 completed in the Alluvial Aquifer; 14 completed in the Paso Robles Formation Aquifer).

The wells in the GSP groundwater level monitoring network are listed in Table 7-1 and shown on Figure 7-1.

A subset of wells from the GSP groundwater level monitoring network has been selected as Representative Monitoring Sites (RMS). RMS are defined in the SGMA regulations as a subset of monitoring sites that are representative of conditions in the Basin. These RMS wells are evaluated in terms of sustainable management criteria in Section 8 – Sustainable Management Criteria. The groundwater level RMS network is indicated in Table 7-1 and shown on Figure 7-2.

All but two wells in the GSP groundwater level monitoring network are part of the SLOFCWCD monitoring network. None of these wells are subject to confidentiality agreements and therefore the data 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 2017, 2018, or 2019 in all wells.

Table 7-1. Groundwater Level Monitoring Network

Well ID	Well Depth (feet)	Screen Interval(s) (feet bgs)	Reference Point Elevation (feet AMSL)	First Date Measured	Last Date Measured	Years Measured (years)	Number of Measure -ments	Aquifer	RMS Well (y/n)	Int. SW Well (y/n)
27S/12E-09N02*	85	44-85	721	4/16/1996	4/5/2019	23	32	Qa	Y	Y
27S/12E-21XX6	61	31-51	754.2	4/30/2017	4/5/2019	2	5	Qa		Y
27S/12E-29H03	65	35-55	753.0	4/16/1996	4/5/2019	23	33	Qa	Y	Y
28S/12E-04J02	86	21-86	795.8	3/29/1965	4/10/2019	54	96	Qa	Y	Y
28S/12E-04J04	70	30-70	802.4	4/1/1996	4/8/2019	23	37	Qa		
28S/12E-05AX2	60	25-55	796.2	10/24/2016	4/1/2019	3	6	Qa	Y	Y
28S/12E-10R04	75	46-75	820	4/27/1984	4/11/2019	35	56	Qa	Y	Y
28S/12E-14K04	105	50-100	835	4/21/1989	4/18/2019	30	41	Qa	Y	Y
28S/12E-25B03	120	100-120	867.8	5/25/1971	10/19/2018	47	95	Qa	Y	Y
29S/13E-19H04*	57	29-49	1005	4/6/1998	3/29/2019	21	43	Qa	Y	
E11W-26B	35	10-35	1,003.0	6/30/1999	11/29/2017	18	18	Qa	Y	
Templeton CSD Selby Well	50	25-50	764.5	2/21/1997	4/6/2020	23	2	Qa	Y	Y
27S/12E-17B02	400	200-360, 380-400	828.3	9/29/1989	4/5/2019	30	46	QTp	Y	
27S/12E-17E01*	310	190-300	842.4	10/4/1988	4/5/2019	31	60	QTp	Y	
27S/12E-20A02	205	105-195	776	10/4/1988	4/5/2019	31	51	QTp	Y	
27S/12E-20R01*	230	110-230	771	4/6/1998	4/5/2019	21	36	QTp	Y	
27S/12E-21XX5	360	110-140, 180-250, 300-360	752.5	4/30/2017	4/5/2019	2	5	QTp		Y
27S/12E-22M01	550	pump @ 300[1]	850.5	3/30/1965	3/29/2019	54	99	QTp	Y	
27S/12E-33F01	340	140-340	880	6/15/1969	3/29/2019	50	99	QTp		
27S/12E-33G01	460	200-460	892	11/14/1973	3/29/2019	46	79	QTp	Y	
27S/12E-XXXX1	650	260-420, 440-640	723.2	4/30/2017	4/5/2019	2	4	QTp		Y
28S/12E-04J05	360	145-190, 210-360	803.1	4/3/1995	4/1/2019	24	41	QTp		Y
28S/12E-04J06*	153	93-153	800.5	4/1/1996	4/1/2019	23	37	QTp	Y	
28S/12E-10A03	500	157-500	808.3	6/30/1972	4/8/2019	47	75	QTp	Y	Y
28S/12E-11K02*	603	300-600	882	4/5/1993	4/9/2019	26	46	QTp	Y	
28S/13E-31F02	310	55-300	884.3	11/26/1974	10/8/2018	44	67	QTp	Y	Y

This page left blank intentionally.

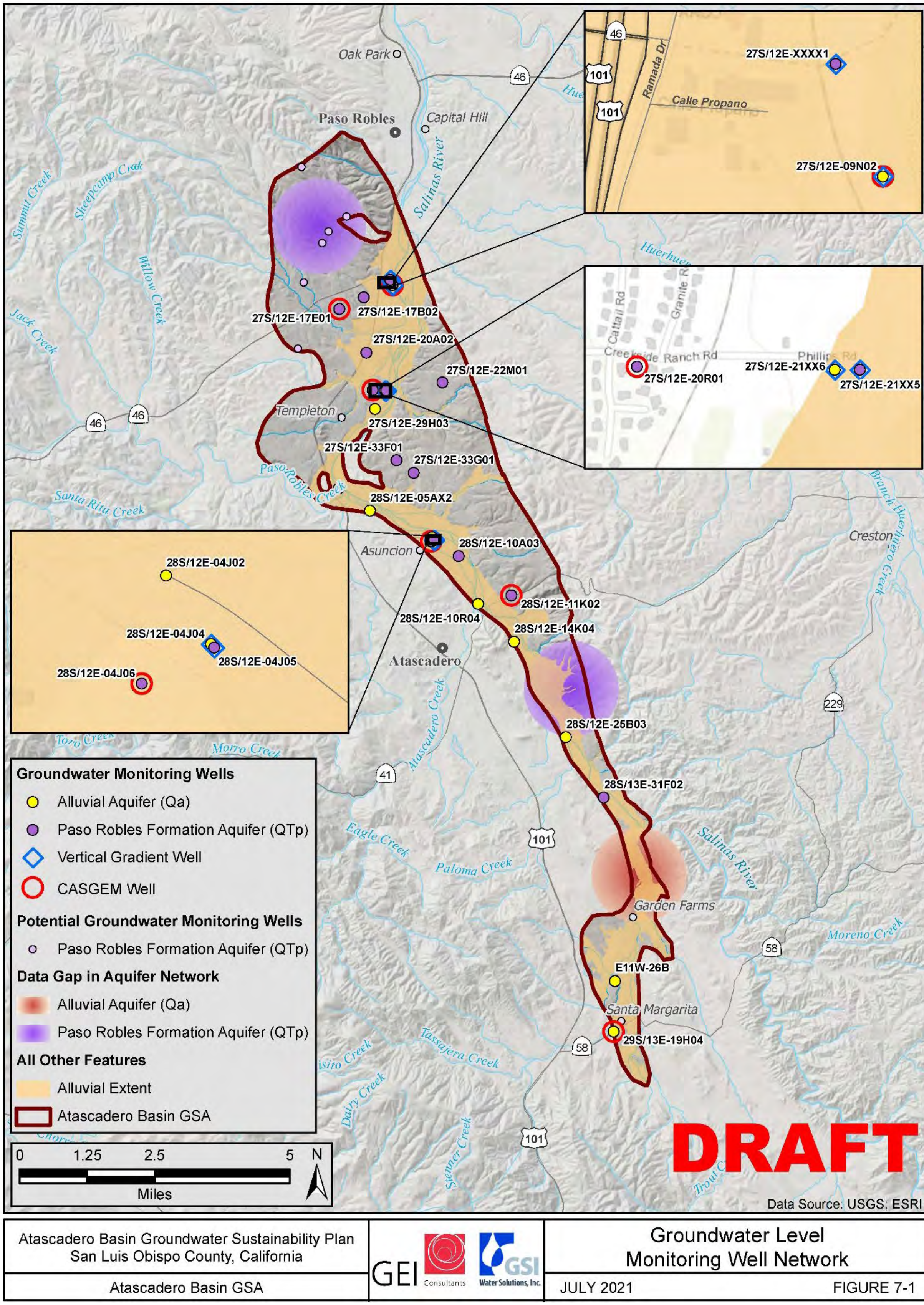
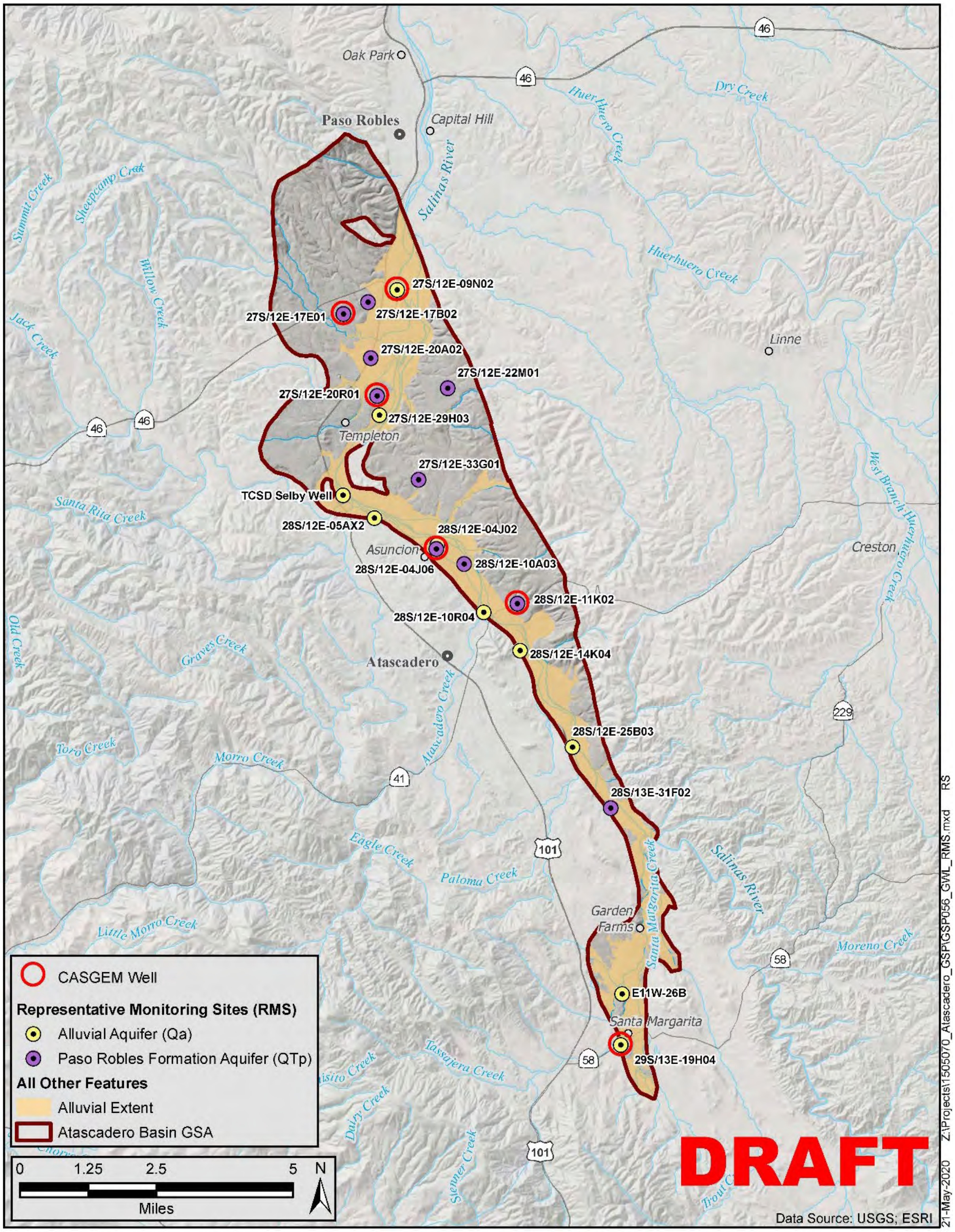


Figure 7-1. Groundwater Level Monitoring Network



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Groundwater Level Representative Monitoring Sites (RMS)
Atascadero Basin GSA		JULY 2021 FIGURE 7-2

Figure 7-2. Groundwater Level Representative Monitoring Sites

7.2.1 *Groundwater Level Monitoring Network Data Gaps*

The GSA identified data gaps using guidelines in the SGMA regulations and BMPs published by DWR on monitoring networks (DWR 2016). Table 7-2 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.

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 five wells per 100 square miles from various cited studies. The Basin is 31 square miles, which equates to 1.6 wells at a median density of five wells per 100 square miles. The monitoring network of 11 wells in the Alluvial Aquifer and 14 wells in the Paso Robles Formation Aquifer is many times greater than the recommended range cited in the BMP (0.1 – 3.1 wells).

Although the existing GSP groundwater level monitoring network satisfies the requirements cited in the BMP, there are two data gap areas identified, based on professional judgement, in the Paso Robles Formation Aquifer and one data gap area identified in the Alluvial Aquifer, as shown on Figure 7-1. The Paso Robles Formation Aquifer data gap in the northwest area of the Basin occurs in an area with many existing private agricultural supply and domestic supply wells. Several of these wells are currently enrolled in the Irrigated Lands Regulatory Program (ILRP, *see* Section 7.4 – Water Quality Monitoring Network) and may be good candidates to bring into the GSP groundwater level monitoring program through an outreach program that will be initiated during GSP implementation. The five most recently sampled ILRP wells (all sampled since 2018) and one USGS well are shown as potential Paso Robles Formation Aquifer monitoring wells on Figure 7-1.

The other Paso Robles Formation Aquifer data gap area located to the south and the single Alluvial Aquifer data gap area located near Garden Farms both occur in areas where existing confidential SLOFCWCD monitoring network wells are located. These confidential wells cannot be shown on the map. However, the GSA will reach out to these confidential well owners and offer them the opportunity to opt in to the GSP groundwater level monitoring network during GSP implementation.

A program to increase monitoring frequency may be considered during GSP implementation to better determine seasonal high and low groundwater elevations and monitor groundwater response to recharge and other activities[33]. One method to increase monitoring frequency is to install continuous dataloggers in existing and new monitoring wells.

The reference point elevations (RPE's) for each GSP groundwater level monitoring well listed in Table 7-1 were taken from the SLOFCWCD monitoring program database, where available, or were estimated using the 10-meter USGS National Elevation Dataset (also known as, NED 10) in a Geographic Information System (also known as, GIS). The accuracies of these RPE's are unknown. The elevations of

33 Atascadero MWC and Templeton CSD both measure groundwater levels in their wells on a weekly basis, but only the April and October data are reported to the SLOFCWCD groundwater monitoring program.

these RPE's should be determined to within 0.1-foot NAVD88[34] accuracy by a professional land surveyor during GSP implementation.

Although well completion reports are available online via DWR's OSWCR, the well completion report (WCR) identification numbers are unknown for many of the wells in the GSP groundwater level monitoring network and therefore it is not possible to always identify the associated WCRs. The known WCRs, with redacted ownership information, are provided in Appendix 7A.

Groundwater level data must be sufficient to identify changes in groundwater flow directions and gradients. Groundwater contour maps are presented in Section 5 – Groundwater Conditions, for both the Alluvial Aquifer and the Paso Robles Formation Aquifer. 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. Continued use of confidential wells/groundwater level data is expected to be sufficient for preparation of future groundwater contour maps.

[34] NAVD88 – North American Vertical Datum of 1988.

Table 7-2. 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.	14 wells in the Paso Robles Formation Aquifer; and 12 wells in the Alluvial Aquifer.	Minor data gaps: two data gap areas identified based on professional judgement in the Paso Robles Formation Aquifer and one data gap area identified in the Alluvial Aquifer
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).	Current GSP network of 26 wells plus additional wells in the SLOFCWCD monitoring network is sufficient for mapping all of these areas.	Some data used to prepare groundwater elevation maps in the GSP are confidential. Continued use of confidential wells/groundwater level data is expected to be sufficient for preparation of future groundwater 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).	All 26 wells in the existing monitoring network have been monitored twice a year, in spring (April[35]) and fall (October).	Seasonal monitoring is the protocol for SLOFCWCD (Appendix 7B); 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 GSP network of 26 wells plus additional wells in the SLOFCWCD monitoring network is sufficient for mapping all of these areas.	Some data used to prepare groundwater elevation maps in the GSP are confidential. Continued use of confidential wells/groundwater level data is expected to be sufficient for preparation of future groundwater contour maps.
Well density must be adequate to determine changes in storage.	Current GSP network of 26 wells plus additional wells in the SLOFCWCD monitoring network is sufficient for mapping all of these areas.	None.
Data must be able to demonstrate the interconnectivity between shallow groundwater and surface water bodies, where appropriate.	Current Interconnected Surface Water network of 14 wells plus 3 confidential wells in the SLOFCWCD monitoring network is sufficient for mapping these areas.	There are no surface water gaging stations in the Basin. The potential need for installation of surface water gaging station(s) along the Salinas River within the Basin to aid in determining gaining/losing reaches may be evaluated during GSP implementation.

[35] Although the Monitoring Networks and Identification of Data Gaps BMP calls for collection of groundwater levels in the middle of March, the only available spring data for many of the GSP groundwater level monitoring wells were from the month of April (as available from the SLOFCWCD monitoring program database). The April data is considered representative of spring conditions in the Basin.

Best Management Practice (DWR 2016a)	Current Monitoring Network	Data Gap
Data must be able to map the effects of management actions, i.e., managed aquifer recharge.	Current GSP network of 26 wells plus additional wells in the SLOFCWCD monitoring network is sufficient for mapping all of these areas.	Additional monitoring wells may be 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.	Current GSP network of 26 wells plus additional wells in the SLOFCWCD monitoring network is sufficient for mapping all of these areas.	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.	Current GSP network of 26 wells plus additional wells in the SLOFCWCD monitoring network is sufficient for mapping all of these areas.	Network may be expanded in accordance with the data gaps identified above.

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 7B.

Atascadero MWC and Templeton CSD measure groundwater levels in their wells on a weekly basis. It is likely that these more frequently measured data will be incorporated during GSP implementation. The GSA may consider use of automated groundwater level data loggers in the GSP groundwater level monitoring network wells. 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. The groundwater level monitoring BMP recommends more frequent monitoring in certain areas, including shallow, unconfined aquifers, in areas of rapid recharge, and in areas of greater withdrawal rates. 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 may 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 Section 8 – Sustainable Management Criteria. The GSP groundwater level monitoring network identified in Section 7.2 – Groundwater Level Monitoring Network, is central to the monitoring network used to create historical groundwater elevation contour maps and change in groundwater elevation maps for each principal aquifer (Section 5 – Groundwater Conditions). However, there are several additional wells used for these analyses that are subject to confidentiality agreements or otherwise do not meet the criteria for inclusion in the GSP groundwater level monitoring network as specified in Section 7.2. As described in Section 5, a total of approximately 128 wells (depending on year) were used for these groundwater elevation analyses. Of these wells, 95 are not subject to confidentiality agreements. The locations of these non-confidential wells are shown on Figure 5-1 and are listed in Appendix 7C.

7.3.1 *Groundwater Storage Monitoring Data Gaps*

Data gaps in the groundwater storage monitoring network are the same as the data gaps identified for the groundwater level monitoring network discussed in Section 7.2.1 – Groundwater Level Monitoring Network Data Gaps.

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 7B. 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 Section 5 – Groundwater Conditions, there are no known contaminant plumes in the Basin, 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 Basin are described in Section 3 – Description of GSP Area, and groundwater quality distribution and trends are described in Section 5 – Groundwater Conditions. Constituents of concern were identified in Section 5 based on comparison to drinking water standards and levels that could impact crop production. As described in Section 8 – Sustainable Management Criteria, separate minimum thresholds are set for agricultural constituents of concern and drinking water constituents of concern. Therefore, 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, domestic wells associated with the ILRP, and monitoring wells associated with open/active State Water Board Geotracker contamination sites (Section 5). Constituents of concern for crop health will be assessed at agricultural supply wells.

The GSP groundwater quality monitoring network includes 54 public water supply wells that were identified by reviewing data from the State Water Board DDW. Wells were selected that were sampled for at least one of the constituents of concern during 2015 or more recently. These 54 wells are listed in Table 7-3 and shown on Figure 7-3. There are 28 public water supply wells that are completed in the Paso Robles Formation Aquifer and 26 public water supply wells completed in the Alluvial Aquifer[36].

The agricultural supply wells and associated domestic supply wells included in the GSP groundwater monitoring network were identified by reviewing data from the ILRP that are stored in the State Water Board's Geotracker/GAMA database. Wells were selected that were sampled in 2012 or more recently. There are 54 ILRP properties in the groundwater quality monitoring network with a total of 73 wells. Of these 73 wells, 24 are assumed to be domestic supply wells based on their Geotracker/GAMA ID and the other 49 are assumed to be agricultural supply wells. Although well completion information is unknown for the ILRP wells, 68 are assumed to be completed in the Paso Robles Formation Aquifer, based on the surficial geology at the well locations. The remaining five wells are assumed to be completed in the Alluvial Aquifer based on their proximity to the Salinas River. These well completions will be confirmed

[36] Three of these 26 public water supply wells do not have available well completion information but based on location are assumed to be completed in the Alluvial Aquifer. These well completions will be confirmed during GSP implementation.

during GSP implementation. The agricultural supply wells and associated domestic supply wells are listed in Table 7-3 and shown on Figure 7-3.

The GSP groundwater quality monitoring network also includes 55 monitoring wells associated with open/active State Water Board Geotracker contamination sites. All of these wells are completed in the Alluvial Aquifer. These wells are sampled for various water quality constituents as determined by each site's monitoring plan including constituents of concern for drinking water. These monitoring wells will be included in the GSP groundwater quality monitoring network at least until the parent State Water Board Geotracker contamination site(s) are closed[37]. The State Water Board Geotracker monitoring wells are listed in Table 7-3 and shown on Figure 7-3.

[37] In the event of State Water Board Geotracker site closure(s) the GSA may endeavor to retain certain monitoring wells in the GSP groundwater quality monitoring network if agreement(s) with the well owner(s) can be coordinated.

Table 7-3. Groundwater Quality Monitoring Network

Well ID	Type of Well	Well Depth (feet)	Screen Interval(s)	First Sampling Event Date	Last Sampling Event Date	Number of Sampling Events	Assumed Aquifer
Atascadero MWC-1B	PWS	65	50-65	5/22/2007	5/14/2019	83	Qa
Atascadero MWC-2A	PWS	105	50-100	1/31/2000	7/19/2018	77	Qa
Atascadero MWC-3A	PWS	75	46-75	2/7/1984	5/5/2014	44	Qa
Atascadero MWC-4	PWS	86	21-85	5/10/1984	5/9/2019	109	Qa
Atascadero MWC-5	PWS	90	20-90	3/12/1985	4/11/2019	125	Qa
Atascadero MWC-5A	PWS	100	50-100	2/3/1994	5/14/2019	149	Qa
Atascadero MWC-13A	PWS	330	210-310	9/12/2000	6/7/2018	28	Qa
Atascadero MWC-16	PWS	72	37-72	3/9/1995	11/27/2018	90	Qa
Atascadero MWC-19	PWS	115	35-105	3/7/1995	11/27/2018	86	Qa
Atascadero State Hosp - WELL 01 (1953)	PWS	--	--	10/31/1988	6/6/2019	717	Qa
Atascadero State Hosp - WELL 02 (1968) - STANDBY	PWS	120	40-120	7/12/1989	6/6/2019	810	Qa
Atascadero State Hosp - WELL 03 (1969)	PWS	--	20-77	7/12/1989	3/14/2019	867	Qa
Atascadero State Hosp - WELL 04	PWS	--	--	4/15/2003	3/14/2019	609	Qa
CSA23 Well-3	PWS	49.5	30-49.5	1/24/1992	6/17/2019	734	Qa
CSA23 Well-4	PWS	57	29-49	7/29/1997	6/17/2019	136	Qa
Garden Farms 1	PWS	80	40-80	4/9/1987	2/25/2019	28	Qa
Garden Farms 2	PWS	127	--	1/15/2002	2/28/2018	26	Qa
Garden Farms 3	PWS	80	55-80	8/19/2002	2/25/2019	12	Qa
Paso Robles-Thunderbird 10	PWS	210	60-210	10/8/1984	11/1/2018	114	Qa
Paso Robles-Thunderbird 13	PWS	130	70-130	9/11/1985	11/1/2018	101	Qa
Paso Robles-Thunderbird 17	PWS	130	70-130	6/22/1993	2/12/2019	65	Qa
Paso Robles-Thunderbird 23	PWS	140	90-140	10/7/1998	11/1/2018	53	Qa
SANTA LUCIA SCHOOL - WELL 01	PWS	--	--	9/18/2002	11/7/2019	136	Qa
Templeton CSD-Creekside River Well	PWS	61	31-51	6/10/2008	5/14/2019	335	Qa
Templeton CSD-Platz Well 02	PWS	85	44-85	4/17/1985	10/29/2018	69	Qa
Templeton CSD-Smith River Well	PWS	65	35-55	1/12/1994	10/29/2018	95	Qa
ALMIRA WATER ASSOCIATION - WELL 02	PWS	--	--	12/10/1987	12/23/2019	397	QTp
Atascadero MWC-6A	PWS	480	240-470	4/2/2002	11/19/2018	31	QTp
Atascadero MWC-7	PWS	500	157-500	4/24/1989	11/6/2018	85	QTp

Well ID	Type of Well	Well Depth (feet)	Screen Interval(s)	First Sampling Event Date	Last Sampling Event Date	Number of Sampling Events	Assumed Aquifer
Atascadero MWC-8A	PWS	425	140-415	9/14/2004	2/14/2019	39	QTp
Atascadero MWC-9A	PWS	400	155-420	6/4/2001	11/6/2018	48	QTp
Atascadero MWC-10	PWS	550	192-550	4/18/1989	11/27/2018	77	QTp
Atascadero MWC-12	PWS	603	300-600	7/6/1988	4/16/2019	101	QTp
Atascadero MWC-25	PWS	400	155-355	4/5/2011	5/9/2019	26	QTp
Atascadero MWC-26	PWS	500	160-490	4/5/2011	2/26/2019	28	QTp
LOS ROBLES MOBILE HOME ESTATES - WELL 01	PWS	--	102-184	1/2/2002	7/1/2019	407	QTp
LOS ROBLES MOBILE HOME ESTATES - WELL 02	PWS	--	125-240	1/2/2002	7/1/2019	447	QTp
LOS ROBLES MOBILE HOME ESTATES - WELL 03	PWS	--	115-185	1/2/2002	7/1/2019	397	QTp
PASO ROBLES CHEVROLET CADILLAC - WELL 01	PWS	--	--	10/27/2003	8/13/2019	131	QTp
SANTA YSABEL RANCH MWC - WELL 01, RESERVIOR WELL	PWS	--	145-315	6/30/2004	7/3/2019	402	QTp
SANTA YSABEL RANCH MWC - WELL 02, RANCH HOUSE WELL	PWS	--	140-410	6/30/2004	7/3/2019	433	QTp
Templeton CSD-Bonita Well 01	PWS	245	140-240	4/11/1989	7/11/2017	56	QTp
Templeton CSD-Claussen Well 01	PWS	310	190-300	10/13/1987	10/29/2018	61	QTp
Templeton CSD-Cow Meadows	PWS	290	120-290	6/16/1998	10/29/2018	229	QTp
Templeton CSD-Creekside Deep Well	PWS	360	110-360	5/20/2008	5/14/2019	311	QTp
Templeton CSD-Davis Well	PWS	230	110-230	3/9/1990	5/7/2019	57	QTp
Templeton CSD-Fortini Well	PWS	400	200-400	2/27/1989	10/29/2018	66	QTp
Templeton CSD-Platz Well 04	PWS	650	260-640	5/19/2009	10/29/2018	35	QTp
Templeton CSD-Saunders Well	PWS	280	160-280	3/11/2003	10/29/2018	28	QTp
Templeton CSD-Silva Well 01	PWS	205	105-195	3/14/2003	10/29/2018	128	QTp
WALNUT HILLS MUTUAL WATER CO - WELL 01	PWS	--	120-240	10/27/2003	8/13/2019	131	QTp
WALNUT HILLS MUTUAL WATER CO - WELL 04	PWS	--	--	6/4/2009	4/16/2019	232	QTp
WALNUT HILLS MUTUAL WATER CO - WELL 05	PWS	--	--	5/19/2010	5/19/2010	1	QTp
WALNUT HILLS MUTUAL WATER CO - WELL 07	PWS	--	--	7/31/2018	12/12/2019	267	QTp
SL0607989492-B10-2	MW	--	--	9/30/2005	10/4/2011	25	Qa
SL0607989492-B10-3	MW	--	--	9/30/2005	10/4/2011	25	Qa
SL0607989492-B1-1A	MW	--	--	12/14/2006	10/24/2012	24	Qa
SL0607989492-B1-2	MW	--	--	12/15/2006	10/11/2011	12	Qa

Well ID	Type of Well	Well Depth (feet)	Screen Interval(s)	First Sampling Event Date	Last Sampling Event Date	Number of Sampling Events	Assumed Aquifer
SL0607989492-B1-3	MW	--	--	12/14/2006	10/24/2012	24	Qa
SL0607989492-B5-2	MW	--	--	10/5/2005	10/24/2012	30	Qa
SL0607989492-E10W-40A	MW	--	--	9/30/2005	10/25/2012	31	Qa
SL0607989492-E10W-41A	MW	--	--	9/30/2005	10/25/2012	31	Qa
SL0607989492-E11W-26B	MW	--	--	10/4/2005	12/4/2015	35	Qa
SL0607989492-E1W-1	MW	--	--	12/14/2006	10/24/2012	24	Qa
SL0607989492-E1W-2	MW	--	--	12/14/2006	10/24/2012	24	Qa
SL0607989492-E1W-4A	MW	--	--	12/14/2006	10/24/2012	24	Qa
SL0607989492-E3W-22	MW	--	--	10/5/2005	12/4/2015	29	Qa
SL0607989492-E3W-24	MW	--	--	10/5/2005	10/24/2012	30	Qa
SL0607989492-E5W-8	MW	--	--	10/5/2005	10/24/2012	24	Qa
SL0607989492-E5W-9	MW	--	--	10/5/2005	10/24/2012	30	Qa
SL0607989492-E9W-33C	MW	--	--	10/3/2005	10/25/2012	30	Qa
SL0607989492-P-1A	MW	--	--	10/21/2009	10/31/2011	57	Qa
SL0607989492-P-1B	MW	--	--	10/21/2009	10/31/2011	57	Qa
SL0607989492-P-2A	MW	--	--	10/21/2009	10/31/2011	57	Qa
SL0607989492-P-2B	MW	--	--	10/21/2009	10/31/2011	55	Qa
SL0607989492-S11-B12	MW	--	--	10/4/2005	10/24/2012	30	Qa
SL0607989492-S11-B13	MW	--	--	10/4/2005	10/24/2012	30	Qa
SL0607989492-S11-B14	MW	--	--	12/13/2006	12/13/2006	6	Qa
SL0607989492-S11-B17	MW	--	--	10/4/2005	10/25/2012	30	Qa
SL0607989492-S11-B18	MW	--	--	10/5/2005	12/4/2015	35	Qa
SL0607989492-S11-B20	MW	--	--	10/4/2005	10/25/2012	24	Qa
SL0607989492-S11-B6	MW	--	--	10/3/2005	10/25/2012	36	Qa
SL0607989492-S11-B9	MW	--	--	10/4/2005	12/4/2015	35	Qa
SL0607989492-S1-B3	MW	--	--	12/14/2006	10/24/2012	24	Qa
SL0607989492-S1-B4	MW	--	--	12/14/2006	10/24/2012	24	Qa
SL0607989492-S3-B1	MW	--	--	10/4/2005	10/24/2012	24	Qa
SL0607989492-S3-B2	MW	--	--	10/5/2005	10/24/2012	24	Qa
SL0607989492-S9-B1	MW	--	--	10/3/2005	10/25/2012	30	Qa
SL0607989492-S9-B2	MW	--	--	10/3/2005	10/25/2012	30	Qa

Well ID	Type of Well	Well Depth (feet)	Screen Interval(s)	First Sampling Event Date	Last Sampling Event Date	Number of Sampling Events	Assumed Aquifer
SL0607989492-S9-B3	MW	--	--	10/3/2005	10/25/2012	30	Qa
T0607900001-MW-10	MW	--	27-47	11/28/2001	4/20/2018	313	Qa
T0607900001-MW-11	MW	--	25-45	11/28/2001	1/13/2011	48	Qa
T0607900001-MW-12	MW	--	20-40	11/28/2001	2/13/2017	192	Qa
T0607900001-MW-13	MW	--	25-45	11/28/2001	1/12/2011	48	Qa
T0607900001-MW-14	MW	--	19-35	9/20/2002	2/13/2017	194	Qa
T0607900001-MW-15	MW	--	19-35	9/20/2002	12/15/2009	137	Qa
T0607900001-MW-16	MW	--	20-35	5/16/2003	1/12/2011	98	Qa
T0607900001-MW-17	MW	--	19-26	5/16/2003	1/12/2011	136	Qa
T0607900001-MW-18	MW	--	20-35	5/16/2003	1/12/2011	145	Qa
T0607900001-MW-2	MW	--	25-40	11/28/2001	2/13/2017	250	Qa
T0607900001-MW-3	MW	--	16.5-46.5	11/28/2001	1/13/2011	39	Qa
T0607900001-MW-4	MW	--	30-40	11/28/2001	1/13/2011	39	Qa
T0607900001-MW-5	MW	--	27-47	11/28/2001	2/13/2017	229	Qa
T0607900001-MW-6	MW	--	29-39	11/28/2001	1/13/2011	211	Qa
T0607900001-MW-7	MW	--	25-45	8/30/2002	1/13/2011	59	Qa
T0607900001-MW-8	MW	--	29-44	11/28/2001	1/12/2011	38	Qa
T10000009038-MW1	MW	--	45-60	4/7/2016	12/7/2018	146	Qa
T10000009038-MW2	MW	--	45-60	4/7/2016	7/26/2016	98	Qa
T10000009038-MW3	MW	--	45-60	4/7/2016	7/26/2016	98	Qa
MSPR-01	MW	--	--	7/19/2005	8/11/2014	2	QTp
S-MS-H04	MW	235	--	11/27/2012	11/27/2012	1	QTp
S-MS-SV01	MW	--	--	11/8/2012	11/8/2012	1	QTp
AGL020000598-FLETCHER DOM	Dom	--	--	3/26/2013	6/14/2013	2	Qa
AGL020027483-VAQUERO DW	Dom	--	--	12/27/2012	12/12/2017	4	Qa
AGL020000508-DW	Dom	--	--	10/16/2012	6/14/2017	3	QTp
AGL020000648-MAIN_D/I	Dom	--	--	1/7/2014	6/2/2014	2	QTp
AGL020001003-HOME DOMESTIC	Dom	--	--	12/12/2012	10/26/2017	4	QTp
AGL020001035-DW	Dom	--	--	12/11/2012	6/24/2013	2	QTp
AGL020001087-PRIMARY AW DW	Dom	--	--	12/12/2012	10/26/2017	4	QTp
AGL020001433-COBBLE C HOME #	Dom	--	--	12/17/2012	12/17/2012	1	QTp

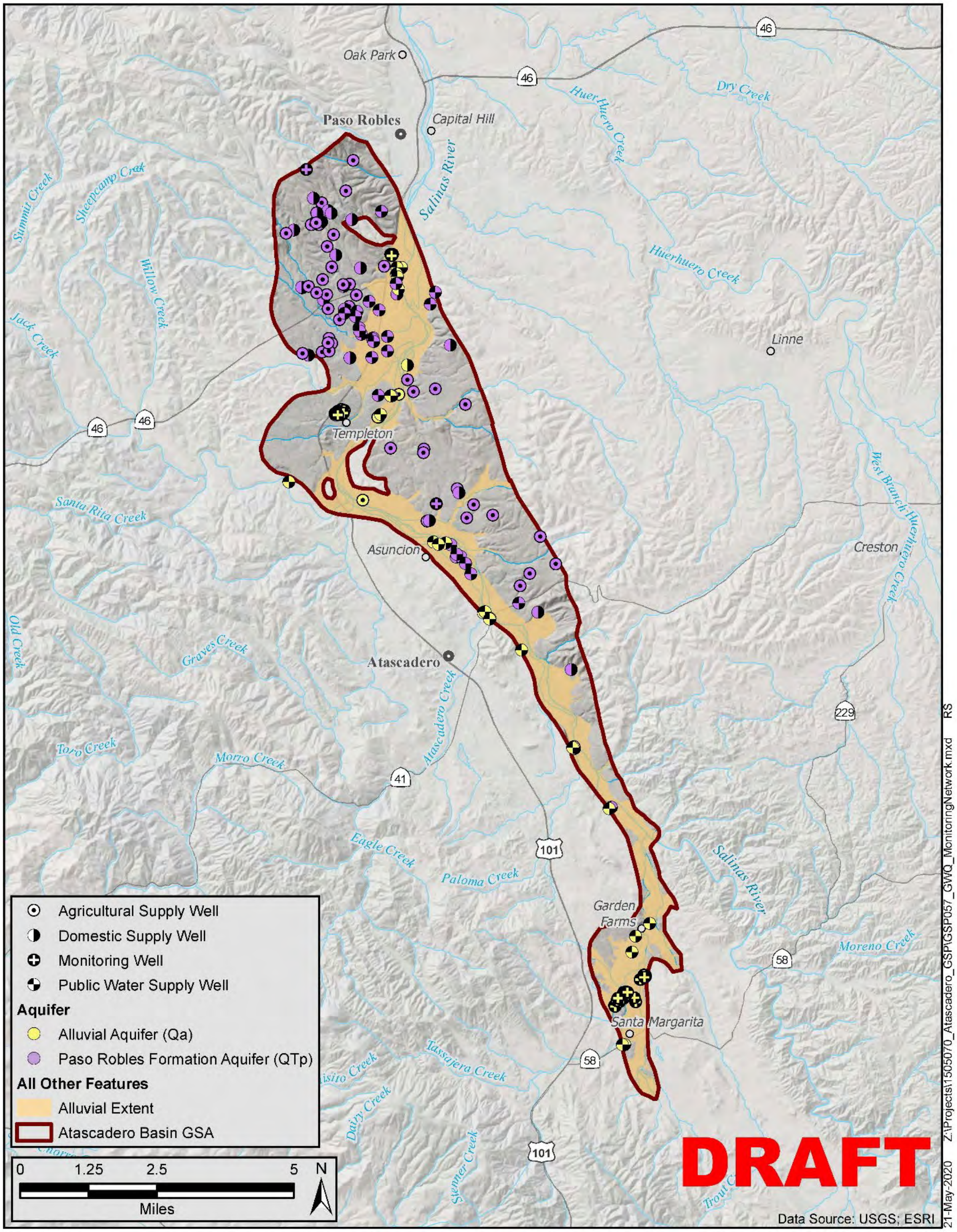
Well ID	Type of Well	Well Depth (feet)	Screen Interval(s)	First Sampling Event Date	Last Sampling Event Date	Number of Sampling Events	Assumed Aquifer
AGL020002826-DOM/AG WELL	Dom	--	--	12/10/2012	6/4/2013	2	QTp
AGL020003068-DW	Dom	--	--	1/22/2013	6/4/2013	2	QTp
AGL020003461-WINERY DOM	Dom	--	--	7/28/2014	7/28/2014	1	QTp
AGL020005112-DW	Dom	--	--	10/16/2012	4/6/2016	2	QTp
AGL020005225-DW AW	Dom	--	--	9/24/2013	12/7/2017	5	QTp
AGL020007294-DW	Dom	--	--	12/4/2012	12/12/2017	4	QTp
AGL020012109-HOME WELL #1	Dom	--	--	12/11/2012	5/27/2013	2	QTp
AGL020015262-AVR DW	Dom	--	--	9/25/2012	11/27/2017	3	QTp
AGL020019682-DW AW	Dom	--	--	10/15/2013	6/17/2014	2	QTp
AGL020027467-BLACKSETH DW	Dom	--	--	12/27/2012	11/29/2017	4	QTp
AGL020027660-DOM WELL	Dom	--	--	12/16/2016	9/24/2017	4	QTp
AGL020028468-AOK DOM	Dom	--	--	6/21/2017	10/30/2017	3	QTp
AGL020028474-KCV DOM 1	Dom	--	--	6/21/2017	10/30/2017	2	QTp
AGL020028474-KCV DOM 2	Dom	--	--	6/21/2017	10/30/2017	2	QTp
AGL020028474-KCV DOM 3	Dom	--	--	6/21/2017	10/30/2017	2	QTp
AGL020035786-MAINCOPIA_DOM	Dom	--	--	1/11/2019	1/11/2019	1	QTp
AGL020000598-FLETCHER IRR	Ag	--	--	3/26/2013	6/14/2013	2	Qa
AGL020003146-RIVER	Ag	--	--	6/8/2015	12/12/2017	3	Qa
AGL020027481-RIVER WELL	Ag	--	--	4/18/2016	9/21/2017	4	Qa
AGL020000484-ROOS-HOMESTEAD	Ag	--	--	11/27/2012	12/12/2017	4	QTp
AGL020000508-AW	Ag	--	--	10/16/2012	6/14/2017	3	QTp
AGL020001000-LAGO FOSSIL	Ag	--	--	12/12/2012	10/26/2017	4	QTp
AGL020001035-AW	Ag	--	--	12/11/2012	6/24/2013	2	QTp
AGL020001138-PRIMARY AW	Ag	--	--	5/14/2013	12/19/2017	4	QTp
AGL020001433-JACK CREEK WELL	Ag	--	--	12/17/2012	12/17/2012	1	QTp
AGL020001433-WHALE ROCK #1	Ag	--	--	12/17/2012	1/17/2018	4	QTp
AGL020001744-BARN WELL	Ag	--	--	10/31/2013	12/8/2017	3	QTp
AGL020001744-POND WELL	Ag	--	--	10/31/2013	12/8/2017	3	QTp
AGL020002320-PRIMARY WELL	Ag	--	--	11/12/2012	6/17/2013	3	QTp
AGL020002364-AG WELL	Ag	--	--	11/28/2012	9/25/2017	4	QTp
AGL020002753-OLEA WELL	Ag	--	--	1/31/2013	12/28/2017	3	QTp

Well ID	Type of Well	Well Depth (feet)	Screen Interval(s)	First Sampling Event Date	Last Sampling Event Date	Number of Sampling Events	Assumed Aquifer
AGL020002801-PROPERTY WELL	Ag	--	--	1/15/2013	9/29/2017	4	QTp
AGL020002926-AW DW	Ag	--	--	2/26/2013	12/12/2017	4	QTp
AGL020003068-AW	Ag	--	--	1/15/2013	11/28/2017	5	QTp
AGL020003146-BARN	Ag	--	--	6/8/2015	12/12/2017	3	QTp
AGL020003461-AG WELL	Ag	--	--	12/11/2012	12/19/2017	3	QTp
AGL020004031-POMAR RIDGE	Ag	--	--	12/3/2012	5/24/2017	3	QTp
AGL020004709-IRR1	Ag	--	--	6/8/2015	12/5/2017	4	QTp
AGL020004789-IRRIGATION	Ag	--	--	3/8/2018	6/8/2018	2	QTp
AGL020005112-AW 1	Ag	--	--	10/16/2012	10/16/2012	1	QTp
AGL020007196-DWS NEW	Ag	--	--	11/16/2012	4/20/2018	3	QTp
AGL020007294-AW	Ag	--	--	12/4/2012	12/12/2017	4	QTp
AGL020007507-ONLY WELL	Ag	--	--	12/17/2013	9/29/2017	3	QTp
AGL020007659-YRLY WTR SAMPLE	Ag	--	--	9/24/2012	4/26/2017	3	QTp
AGL020007709-AG WELL	Ag	--	--	12/5/2012	12/12/2017	4	QTp
AGL020012109-WELL #1	Ag	--	--	12/11/2012	6/21/2017	3	QTp
AGL020012322-WELL 1	Ag	--	--	11/13/2012	10/16/2017	4	QTp
AGL020012322-WELL 2	Ag	--	--	11/13/2012	10/16/2017	4	QTp
AGL020012842-AG WELL	Ag	--	--	11/28/2012	9/25/2017	4	QTp
AGL020013302-WELL 1	Ag	--	--	12/5/2012	10/3/2017	3	QTp
AGL020015262-AVR IRR	Ag	--	--	9/25/2012	11/27/2017	3	QTp
AGL020017182-AG WELL	Ag	--	--	2/28/2013	9/25/2017	4	QTp
AGL020017862-ANDERSON	Ag	--	--	1/3/2013	12/8/2017	3	QTp
AGL020018782-BELLETTO	Ag	--	--	5/28/2015	10/11/2017	3	QTp
AGL020022602-WELL	Ag	--	--	4/28/2014	9/25/2017	3	QTp
AGL020023442-WELL	Ag	--	--	4/28/2014	10/13/2014	2	QTp
AGL020025242-PRIMARY AG	Ag	--	--	12/16/2014	8/25/2015	2	QTp
AGL020027472-JAVADI - CAT 1	Ag	--	--	6/20/2016	11/29/2017	4	QTp
AGL020027483-VAQUERO IW	Ag	--	--	12/27/2012	12/12/2017	4	QTp
AGL020027660-AG WELL	Ag	--	--	12/16/2016	9/24/2017	4	QTp
AGL020027743-PRIMARY AG	Ag	--	--	8/25/2015	10/30/2017	4	QTp
AGL020027968-J DUSI WELL 1	Ag	--	--	4/14/2016	4/14/2016	1	QTp

Well ID	Type of Well	Well Depth (feet)	Screen Interval(s)	First Sampling Event Date	Last Sampling Event Date	Number of Sampling Events	Assumed Aquifer
AGL020028424-WELL	Ag	--	--	9/25/2017	9/25/2017	1	QTp
AGL020028474-KCV PRIMARY AG	Ag	--	--	6/21/2017	10/31/2017	2	QTp
AGL020035655-ARBORMAIN_IRR	Ag	--	--	11/16/2018	11/16/2018	1	QTp

Notes: PWS – public water supply well, MW – monitoring well, Dom – domestic well, Ag – agricultural supply well, Qa – Alluvial Aquifer, QTp – Paso Robles Formation Aquifer; LOS – Level of Severity

This page left blank intentionally.



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Groundwater Quality Monitoring Well Network
Atascadero Basin GSA		JULY 2021 — FIGURE 7-3

Figure 7-3. Groundwater Quality Monitoring Well Network

7.4.1 *Groundwater Quality Monitoring Data Gaps*

Because the GSP groundwater quality monitoring network is based on existing supply wells, there are no spatial data gaps in the network. Table 7-4 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.

Table 7-4. Summary of Groundwater Quality Monitoring, Best Management Practices, and Data Gaps

Best Management Practices (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 54 municipal wells, 73 IRLP wells, and 55 monitoring wells associated with open/active State Water Board Geotracker contamination sites within the GSP 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 is 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 for some wells 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 agricultural, domestic, 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 may be developed. Water quality network will be evaluated and augmented if necessary.

This page left blank intentionally.

7.4.2 *Groundwater Quality Monitoring Protocols*

Water quality samples are currently being collected according to State Water Board and ILRP requirements and according to the monitoring plans associated with open/active State Water Board Geotracker contamination sites. 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 7B and incorporated herein as monitoring protocols. These protocols will continue to be followed during GSP implementation for the groundwater quality monitoring.

7.5 Land Subsidence Monitoring Network

The sustainability indicator for land subsidence is evaluated by monitoring land subsidence using interferometric synthetic-aperture radar (InSAR) data. As described in Section 5 – Groundwater Conditions, land subsidence is monitored in the Basin by measuring ground elevation using microwave satellite imagery. This data is currently provided by DWR, covers the most recent 3 years of subsidence data (2015-2018), and is adequate to identify areas of recent subsidence. The GSA 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 Basin 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 GSA 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 monitoring indicates subsidence is occurring at a rate greater than the minimum thresholds, then additional investigation and monitoring may be warranted. In this case, the GSA would implement a study to assess if the observed subsidence can be correlated to groundwater elevations, and whether a reasonable causality can be established. The GSA will also consider subsidence surveys published by the USGS in assessing land subsidence across the Basin if they become available.

7.6 Interconnected Surface Water Monitoring Network

As discussed in Section 5 – Groundwater Conditions, the spatial extent of interconnected surface water in the Basin was evaluated using water level data from confidential and non-confidential Alluvial Aquifer and Paso Robles Formation Aquifer wells adjacent to the Salinas River. The GSP groundwater level monitoring network (Table 7-1 and Figure 7-2) contains all of the non-confidential wells used to evaluate interconnected surface water. As discussed in Section 7.2 – Groundwater Level Monitoring Network, an effort has been made to reach out to confidential well owners and offer them the opportunity to opt in to the GSP groundwater level monitoring network. Several wells have been added to the GSP monitoring network as a result of this effort and the

GSA will continue to make this effort during implementation. Regardless, as was done for the analysis in Section 5 – Groundwater Conditions, water level data from the confidential wells will continue to be utilized for evaluations of interconnected surface water in the Basin. In accordance with the assessment of wells discussed in Section 7.2, nine Alluvial Aquifer wells and five Paso Robles Aquifer wells were identified that meet the criteria for inclusion in the GSP groundwater level monitoring network for monitoring shallow groundwater levels adjacent to the Salinas River. These monitoring wells are indicated in Table 7-1 and shown on Figure 7-4.

7.6.1 *Interconnected Surface Water Monitoring Data Gaps*

The existing GSP groundwater level monitoring network provides good coverage to evaluate interconnected surface water in both principal aquifers within the Basin. The network is of sufficient density and spatial distribution especially when coupled with three additional existing confidential wells in the SLOFCWCD groundwater level monitoring network. The potential need for an increased frequency of water level measurements, especially in spring months, to capture annual maximum groundwater levels will be evaluated during GSP implementation.

Although the county of San Luis Obispo (county) records releases from the Salinas Reservoir (upstream of the Basin) and completes "Live Stream" surveys (as described in Section 5 – Groundwater Conditions) and there is an active USGS stream gaging station in the city of Paso Robles (USGS Station 11147500), there are no surface water gaging stations in the Basin. The potential need for installation of surface water gaging station(s) along the Salinas River within the Basin to aid in determining gaining/losing reaches will be evaluated during GSP implementation.

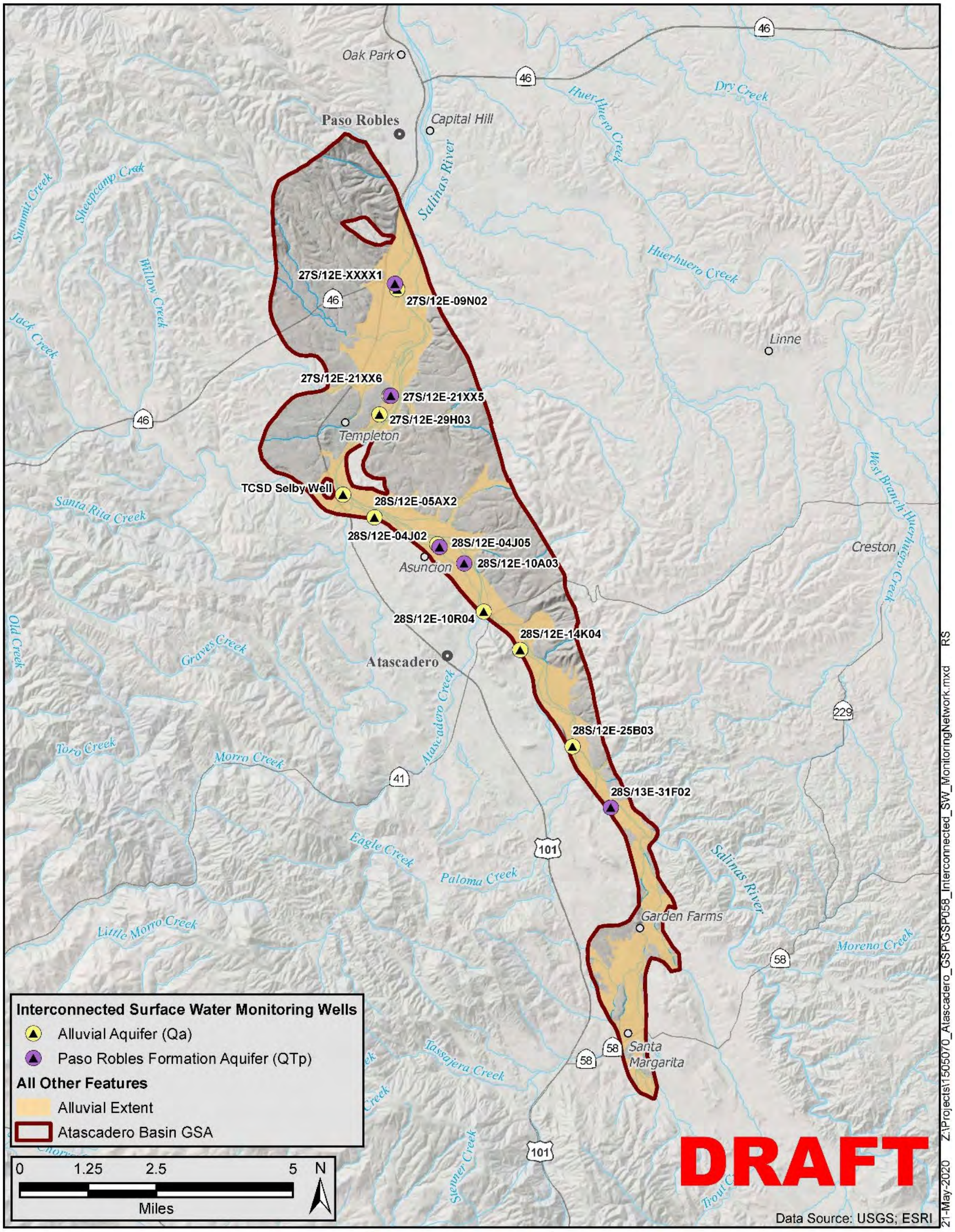
7.6.2 *Interconnected Surface Water Monitoring Protocols*

Water level monitoring will be conducted in accordance the protocols described in the water level monitoring network section of this section.

7.7 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 data management system (DMS):

- Article 3, Section 352.6: Each Agency shall develop and maintain a DMS that is capable of storing and reporting information relevant to the development or implementation of the GSP and monitoring of the Basin.
- Article 5, Section 354.40: Monitoring data shall be stored in the DMS 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.



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Interconnected Surface Water Monitoring Well Network	
Atascadero Basin GSA		JULY 2021	FIGURE 7-4

Figure 7-4. Interconnected Surface Water Monitoring Well Network

SGMA-related data for the Atascadero Basin will be incorporated into the county-wide DMS currently under development for the county as part of another project. The Atascadero Basin GSA and entities that collect and report data within the Basin will have access and authorization to enter their data into the San Luis Obispo County DMS.

The data and information stored in the DMS will be presented on a web-based map viewer that displays data relevant to SGMA implementation, GSP development, and annual reporting to the DWR. The map viewer accommodates data within and outside of GSA monitoring networks. The types of data visualized on the map and available via the map's navigation menu are listed in Table 7-5.

Table 7-5. Map Viewer Navigation

Menu Navigation	Description
Groundwater Levels	Water level data and associated wells with well completion reports.
Groundwater Storage	GSA groundwater storage monitoring network sites.
Water Quality	Water quality well and station data for greater than 100 constituents (e.g., Magnesium).
Land Subsidence	Subsidence data from extensometers and other stations plus InSAR data.
Interconnected Surface Water	Data related to the interconnected surface water sustainability indicator such as proximity wells, river and stream gages, precipitation stations, and more.
Seawater Intrusion	Sites (primarily wells) tracking the SGMA seawater intrusion sustainability indicator. This data set is not applicable to the Atascadero Basin, but will be present in the San Luis Obispo County DMS.
Hydrogeologic Conceptual Model (HCM)	Data useful for development of a hydrogeoglogic conceptual model of the basin including suitability of soil for recharge, geologic maps, and fault maps.
Boundaries	GSA and other relevant boundaries.

Data sources used to populate the DMS are listed on Table 7-6. Categories marked with an 'X' indicate datasets that are publicly accessible. Data are 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 will be loaded into the database and checked for errors and missing data. Error tables will be 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.

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)	Water quality
DWR (CASGEM)	X	X		X			
San Luis Obispo County	X	X		X			
SRWCB Geotracker	X	X		X			
Geotracker GAMA	X						X

8. Sustainable Management Criteria (§ 354.22-30)

This section defines the conditions that constitute sustainable groundwater management, discusses the process by which the Atascadero Basin (Basin) will characterize undesirable results, and establishes minimum thresholds and measurable objectives for each sustainability indicator.

This is the fundamental section that defines sustainability in the Basin, and it addresses significant regulatory requirements. The measurable objectives, minimum thresholds, and undesirable results presented in this section define the future sustainable conditions in the Basin and guide the GSAs to actions that will achieve these future conditions.

This section presents the data and methods used to develop Sustainable Management Criteria (SMC) and demonstrate how they influence beneficial uses and users. The SMC presented in this section 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 SMC. Due to uncertainty in the hydrogeologic conceptual model, these SMC are considered initial criteria and will be reevaluated and potentially modified in the future as new data become available.

The SMC are grouped by sustainability indicators. The following five sustainability indicators are applicable in the Basin:

1. Chronic lowering of groundwater elevations levels
2. Reduction in groundwater storage
3. Degraded water quality
4. Land subsidence
5. Depletion of interconnected surface water

The sixth SMC, sea water intrusion, is not applicable in the Basin.

To retain an organized approach, this section 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 SMC 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 €, §354.34 (g)(3))
- How undesirable results were developed, including:
  - The criteria defining when and where the effects of the groundwater conditions because 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))

8.1 Definitions

SGMA regulations and legislation contain several new terms relevant to the SMC. These terms are defined below using the definitions included in 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 SMC.

- **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 5 years, set by an Agency as part of a GSP
  - Interim milestones are targets such as groundwater elevations that will be achieved every 5 years to demonstrate progress towards sustainability.

- **Management area** refers to an area within a basin for which the GSP may identify different minimum thresholds, measurable objectives, monitoring, or projects/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 RMS. Minimum thresholds are indicators of where an unreasonable condition might occur. For example, a groundwater elevation might be a minimum threshold if lower groundwater elevations would result in a significant and unreasonable reduction in groundwater storage.
- **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 Basin are listed on page 1.
- **Uncertainty** refers to a lack of understanding of the Basin setting that significantly affects an Agency's ability to develop SMC and appropriate projects/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** Section 10721 of SGMA states that 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.*

Section § 354.26 of the SGMA regulations states, “The criteria used to define when and where the effects of the groundwater conditions cause undesirable results …shall be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the Basin.”

8.2 Current Atascadero Basin SGMA Prioritization

Prior to the 2016 Basin Boundary Modification Process, the Atascadero Basin was considered part of the Paso Robles Basin, and had a high priority designation and subject to a condition of critical overdraft. As a result of being part of the Paso Robles Basin, the Atascadero subarea was subject to SGMA. Through the Basin Boundary Modification (BBM) process, DWR formally identified the Atascadero Basin as a separate basin from the Paso Robles Basin.

The Atascadero Basin currently has a very low priority based on the 2019 DWR Basin Prioritization. The SGMA 2019 Basin Prioritization process was conducted to reassess the priority of the groundwater basins following the 2016 Basin boundary modification, as required by the Water Code. For the SGMA 2019 Basin Prioritization, DWR followed the process and methodology developed for the CASGEM 2014 Basin Prioritization, adjusted as required by SGMA and related legislation. The following components are used to determine the basin prioritization:

1. The population overlying the basin or subbasin
2. The rate of current and projected growth of the population overlying the basin or subbasin
3. The number of public supply wells that draw from the basin or subbasin
4. The total number of wells that draw from the basin or subbasin
5. The irrigated acreage overlying the basin or subbasin
6. The degree to which persons overlying the basin or subbasin rely on groundwater as their primary source of water
7. Any documented impacts on the groundwater within the basin or subbasin, including overdraft, subsidence, saline intrusion, and other water quality degradation
8. Any other information determined to be relevant by the department, including adverse impacts on local habitat and local streamflows

The 2019 Basin Prioritization identifies the Atascadero Basin as very low priority and that it is being managed in a sustainable manner. The Sustainability Goal for the Basin is to continue managing the Basin in a sustainable manner using historic management strategies and actions to develop minimum thresholds for each sustainability indicator applicable in the Basin.

8.3 Sustainability Goal

> **§ 354.24 Sustainability Goal**
>
> Each Agency shall establish in its Plan a sustainability goal for the basin that culminates in the absence of undesirable results within 20 years of the applicable statutory deadline. The Plan shall include a description of the sustainability goal, including information from the basin setting used to establish the sustainability goal, a discussion of the measures that will be implemented to ensure that the basin will be operated within its sustainable yield, and an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon.

As described in Section 8.2 – Current Atascadero Basin SGMA Prioritization, the Atascadero Basin is a low-priority basin because groundwater has been and continues to be sustainably managed. Although not required by SGMA regulations, the Basin's water managers determined that this was a good time to continue their proactive management of the Atascadero Basin and to prepare a GSP. Consistent with DWR's determination that the Basin is in a sustainable condition, the water managers' goal is to continue to manage the Basin sustainably. The sustainability goal is provided below:

> The goal of the Atascadero Basin GSP is to sustainably manage groundwater resources over the long term for the benefit of Basin stakeholders. This GSP outlines the approach using information developed for this GSP to achieve a sustainable groundwater resource and continue to avoid undesirable results throughout the 20-year SGMA implementation horizon and beyond, while meeting the water supply needs of Basin stakeholders. In adopting this GSP, it is the express goal of the GSA to balance the needs of all groundwater uses and users in the Basin. We have been and will continue to integrate projects and management actions with the natural system in the Basin to operate the Basin sustainably.

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, when appropriate, to ensure the Basin is operated to maintain its sustainable yield and sustainability. These management actions and conceptual projects may include (note – projects/management actions will be developed in future chapters):

- 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
- NWP Delivery to northern portion of the Basin
- Expansion of Salinas Dam

The management actions and conceptual projects are designed to maintain sustainability for 20 years by one or more of the following means:

- Educating stakeholders and prompting changes in behavior to improve chances of maintaining 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 Basin to offset groundwater pumping

8.4 Process for Establishing Sustainable Management Criteria and Undesirable Results

8.4.1 *Sustainable Management Criteria*

SMC for the Basin were developed using information from public input, received in public surveys, public meetings, comment forms; hydrogeologic analysis of Basin conditions; and meetings with GSA staff and Executive Committee members. The process built on the Atascadero Basin GSA participants long history of involving interested parties – including rural residents, farmers, local cities, and the county – in public meetings focused on groundwater resource planning.

The general process for establishing SMC and conditions constituting undesirable results in the Basin included:

- Holding a series of public outreach meetings that outlined the GSP development process and introduced stakeholders to SMC.

- 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 Basin. A summary of the survey results is included in Appendix 8A.
- Analyzing survey results to assess preferences and trends relevant to SMC. Survey results and public comments from outreach meetings were analyzed to assess if different areas in the Basin had different preferences for what constitutes and undesirable result in the Basin and how minimum thresholds and measurable objectives are established.
- Combining survey results, outreach efforts, and hydrogeologic data to describe undesirable results and 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 SMC were held in the Basin.
- Reviewing public input on preliminary SMC with GSAs.

8.5 Chronic Lowering of Groundwater Levels Sustainability Indicator

This section presents and describes the SMC for chronic lowering of groundwater levels by first describing the significant and unreasonable conditions in the Basin that would constitutes an undesirable result. Then minimum thresholds and measurable objectives are summarized for each well in the groundwater level representative monitoring network that will protect the Basin against the undesirable result condition. These criteria are described for each element required by SGMA regulations included as subsections below.

8.5.1 *Undesirable Results*

8.5.1.1 Criteria for Defining Undesirable Results

The chronic lowering of groundwater elevation undesirable result is a quantitative combination of groundwater elevation minimum threshold exceedances. For chronic lowering of groundwater elevations, an exceedance is defined by the annual average (e.g., spring and fall) water level below the well's defined minimum threshold. For the Atascadero Basin, the groundwater elevation undesirable result is:

> Over the course of 2 years, no more than two exceedances for the groundwater elevation minimum thresholds within a defined area of the Basin for any single principal 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.

8.5.1.2 Potential Causes of Undesirable Results

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 Basin-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 of the Basin may result in excessive localized drawdowns and undesirable results. Additionally, increased pumping outside and west of the Basin may reduce subsurface inflow to the Basin which could lead to undesirable results in the Basin.
- Extensive drought. Minimum thresholds were established based on historical groundwater elevations and reasonable estimates of future groundwater elevations. Extensive droughts may lead to excessively low groundwater elevations and undesirable results.

8.5.1.3 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 percent exceedances is reasonable if the exceedances are spread out across the Basin. 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.

8.5.2 *Locally Defined Undesirable Results*

Significant and unreasonable groundwater levels in the Basin are those that:

1. Impact ability of existing domestic wells of average depth to produce adequate water for domestic purposes
2. Causes significant financial burden to those who rely on the groundwater Basin
3. Interfere with other SGMA sustainability indicators

8.5.3 *Information and Methodology Used to Establish Measurable Objectives and Minimum Thresholds*

> **Chronic Lowering of Groundwater Levels.** 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. Minimum thresholds for chronic lowering of groundwater levels shall be supported by the following:
>
> (A) The rate of groundwater elevation decline based on historical trends, water year type, and projected water use in the basin.
>
> (B) Potential effects on other sustainability indicators.
>
> *– § 354.28 Minimum Thresholds (c)(1)*

The information used for establishing the chronic lowering of groundwater levels measurable objective and minimum thresholds includes:

- Information on the public definition of significant and unreasonable conditions and preferred current and future groundwater elevations, gathered from the SMC 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

The specific methodology used in establishing minimum thresholds recognizes that the Basin is currently being sustainably managed and provides a quantitative measure at each groundwater level representative monitoring well to ensure that groundwater levels continue to be sustainably managed throughout the plan implementation period. For each well, the following procedure was applied:

1. Identify historic high and historic low groundwater levels.
2. The minimum thresholds represent historic low groundwater measured in each well.
3. This mid-point between historic high and historic low was established as the measurable objective for each well.
4. Using data for the past 20 years (2000-2019) a trend line was established and projected to 2042.
5. If the 2042 projection for each well falls below measurable objective, this is an indicator that projects/management actions may be required in this area of the Basin to reverse the

trend and achieve the measurable objective by 2042. If this is the case, interim milestones were set at 5-year targets between 2022 and 2042.

6. If the trend line projection instead falls above the measurable objective, then interim milestones were not established, and area specific projects/management actions will likely not be required in these areas of the Basin.

This methodology for setting Minimum Thresholds and Measurable Objectives is illustrated in Figure 8-1. The methodology for setting interim milestones is shown on Figure 8-2.

8.5.4 *Measurable Objective*

8.5.4.1 Methodology for setting Measurable Objectives

Methodology for setting measurable objectives is described in Section 8.5.3 – Information and Methodology Used to Establish Measurable Objectives and Minimum Thresholds.

8.5.4.2 Alluvial Aquifer Measurable Objectives

Measurable Objectives for Alluvial Aquifer wells are listed in Table 8-1. Maps showing the location of each of the RMS representing the Alluvial Aquifer are included in Appendix 8B. Appendix 8B also includes the well hydrograph for each will with the draft minimum threshold, measurable objective, and if needed, interim milestones.

8.5.4.3 Paso Robles Formation Aquifer Measurable Objective

Measurable Objectives for Paso Robles Formation wells are listed in Table 8-1. Maps showing the location of each of the RMS representing the Paso Robles Formation Aquifer are included in Appendix 8C. Appendix 8C also includes the well hydrograph for each well with the draft minimum threshold, measurable objective, and if needed, interim milestones.

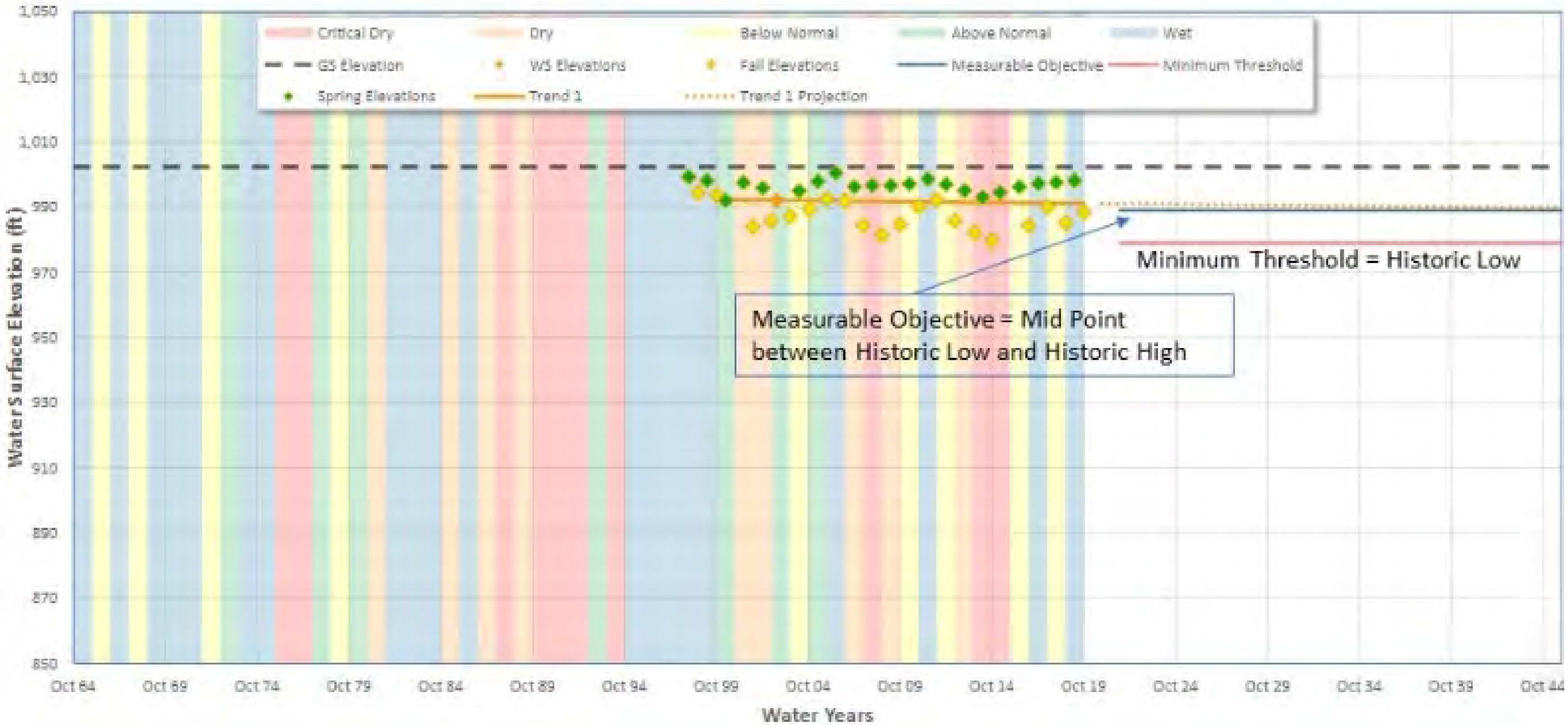


Figure 8-1. Groundwater Level Minimum Thresholds and Measurable Objectives

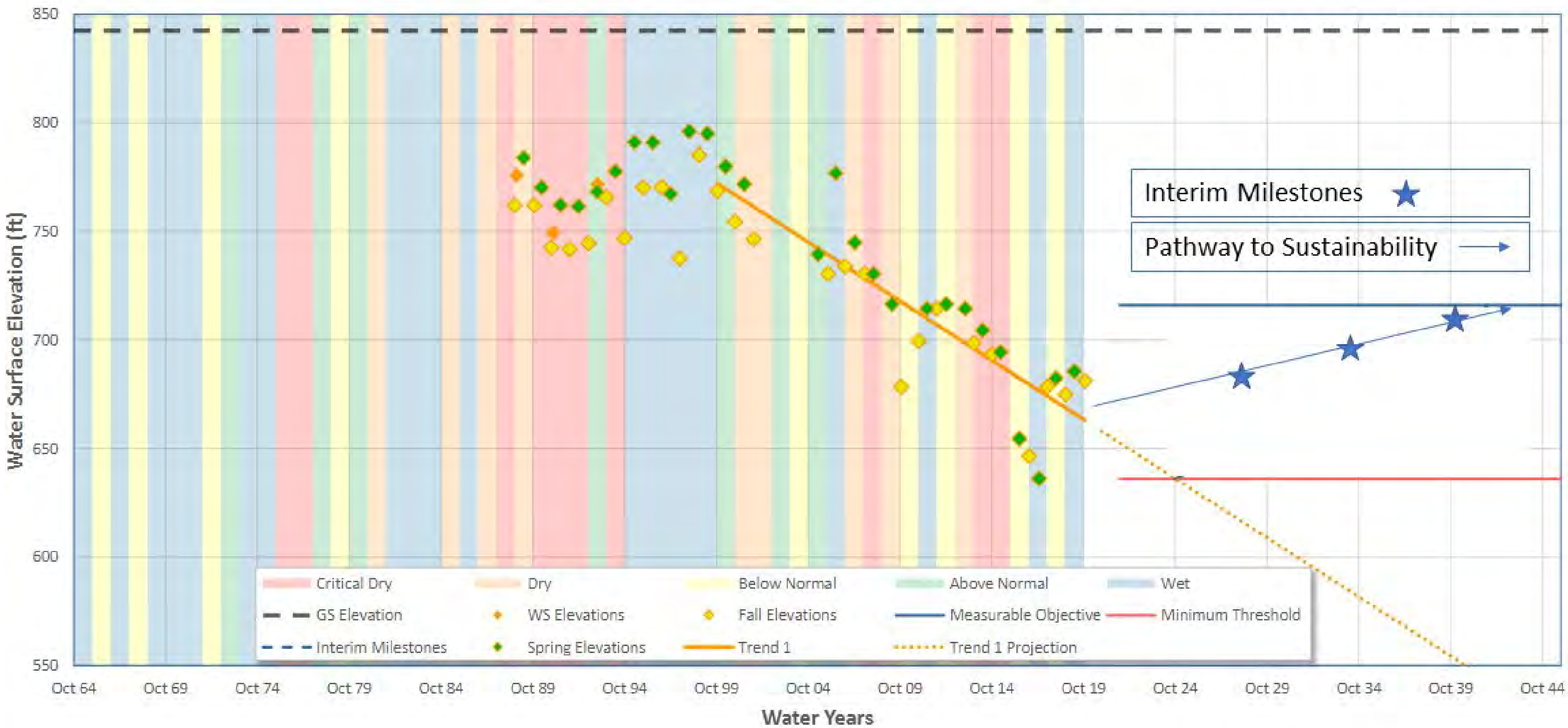


Figure 8-2. Groundwater Level Interim Milestones

Table 8-1. Groundwater Levels Sustainable Management Criteria

Aquifer	Well ID	Well Name	State Well Number	Well Depth (ft)	Ground Surface Elevation (ft)	Reference Point Elevation (ft)	Screen Interval Range (ft btoc)	Water Surface Elevation Range (ft. msl)	2000-2020 Trend Results (ft/year)	Proposed MT (ft)	Proposed MO (ft)	Interim Milestones				Comments
												2027	2032	2037	2042	
Alluvial Aquifer (Qa)	001946-PASO-0182	PASO-0182	27S12E09N002M	85	721	721	44-85	658.0 - 696.8	0.127	658	677	NA	NA	NA	NA	
Alluvial Aquifer (Qa)	002125-27S/12E-21XX6	27S/12E-21XX6		61	754.18	754.18	31-51	725.4 - 738.2	2.919	725	731	NA	NA	NA	NA	Data only from 2017 to present, not shown on map
Alluvial Aquifer (Qa)	002134-27S/12E-29H03	27S/12E-29H03	27S12E29H003M	65		753	35-55	709.6 - 739.3	0.119	709	724	NA	NA	NA	NA	
Alluvial Aquifer (Qa)	002014-28S/12E-04J04	28S/12E-04J04	28S12E04J004M	70	802.37	802.4	30-70	729.3 - 793.8	0.65	729	761	NA	NA	NA	NA	
Alluvial Aquifer (Qa)	002023-28S/12E-05AX2	28S/12E-05AX2		60	796.21	796.2	25-55	774.9 - 783.1	0.253	774	778	NA	NA	NA	NA	Data only from 2017 to present, not shown on map
Alluvial Aquifer (Qa)	001996-28S/12E-04J02	28S/12E-04J02	28S12E04J002M	86	801.99	795.8	21-86	742.0 - 785.7	0.675	742	764	754	756	758	764	
Alluvial Aquifer (Qa)	001995-28S/12E-10R04	28S/12E-10R04	28S12E10R004M	75	825.02	820	46-75	770.9 - 804.5	0.344	770	787	785	783	785	787	
Alluvial Aquifer (Qa)	001993-28S/12E-14K04	28S/12E-14K04	28S12E14K004M	105	838.78	835	50-100	785.8 - 817.0	0.091	785	801	NA	NA	NA	NA	
Alluvial Aquifer (Qa)	002033-28S/12E-25B03	28S/12E-25B03	28S12E25B003M	120	866.78	867.8	100-120	832.8 - 857.1	0.106	832	844	NA	NA	NA	NA	
Alluvial Aquifer (Qa)	002053-SL0607989492	SL0607989492	E11W-26B	35	1002.97	1003	Oct-35	977.5 - 990.0	0.032	977	980	NA	NA	NA	NA	
Alluvial Aquifer (Qa)	001710-PASO-0263	PASO-0263	29S13E19H004M	57	1002.5	1005	29-49	979.8 - 1000.7	0.054	979	989	NA	NA	NA	NA	
Alluvial Aquifer (Qa)		TCSD Selby Well		50		764.5	25-50									No water level data to display
Paso Robles Formation Aquifer (Qtp)	002126-27S/12E-17B02	27S/12E-17B02	27S12E17B002M	400	828.31	828.3	200-360 380-400	570.3 - 782.3	0.409	570	676	NA	NA	NA	NA	
Paso Robles Formation Aquifer (Qtp)	001707-PASO-0328	PASO-0328	27S12E17E001M	310	842.4	842.4	190-300	636.1 - 796.1	5.448	636	716	620	652	684	716	
Paso Robles Formation Aquifer (Qtp)	002132-27S/12E-20A02	27S/12E-20A02	27S12E20A002M	205	779.35	776	105-195	698.0 - 755.0	1.242	698	726	702	700	713	726	
Paso Robles Formation Aquifer (Qtp)	001926-PASO-0283	PASO-0283	27S12E20R001M	230	771	771	110-230	673 - 747	0.787	673	710	NA	NA	702	710	
Paso Robles Formation Aquifer (Qtp)	002078-27S/12E-22M01	27S/12E-22M01	27S12E22M001M	550	854.15	850.5	pump @ 300'	679.0 - 810.7	1.846	679	745	731	736	741	745	Low of water surface range driven by historical data. MT selected from more current data
Paso Robles Formation Aquifer (Qtp)	002083-27S/12E-33G01	27S/12E-33G01	27S12E33G001M	460	901.46	892	200-460	678.3 - 783.2	0.898	678	730	NA	NA	NA	NA	
Paso Robles Formation Aquifer (Qtp)	001708-PASO-0317	PASO-0317	28S12E04J006M	153	800.51	800.5	93-153	709.2 - 791.3	0.83	709	750	NA	744	746	750	
Paso Robles Formation Aquifer (Qtp)	002001-28S/12E-10A03	28S/12E-10A03	28S12E10A003M	500	810.95	808.3	157-500	631.1 - 793.0	1.331	631	712	NA	NA	NA	NA	
Paso Robles Formation Aquifer (Qtp)	001927-PASO-0399	PASO-0399	28S12E11K002M	603	820	882	300-600	180 - 766	0.328	707	736	NA	NA	NA	NA	Water surface range driven by data prior to 1981, possibly inaccurate
Paso Robles Formation Aquifer (Qtp)	002002-28S/13E-31F02	28S/13E-31F02	28S13E31F002M	310	878.54	884.3	55-300	785.7 - 873.2	0.851	786	829	NA	NA	823	829	
Paso Robles Formation Aquifer (Qtp)	002124-27S/12E-21XX5	27S/12E-21XX5		360	752.46	752.5	110-140 180-250 300-360	661.1 - 737.5	10.874	661	699	NA	NA	NA	NA	Lack of fall data likely contributes to extreme trend, not shown on map
Paso Robles Formation Aquifer (Qtp)	002082-27S/12E-33F01	27S/12E-33F01	27S12E33F001M	340	882.13	880	140-340	689.8 - 790	0.916	689	739	NA	NA	NA	NA	Not shown on map
Paso Robles Formation Aquifer (Qtp)		27S/12E-XXXX1		650		723.2	260-420 440-640									No water level data to display
Paso Robles Formation Aquifer (Qtp)	002016-28S/12E-04J05	28S/12E-04J05	28S12E04J005M	360	803.13	803.1	145-190 210-360	696.8 - 795.0	1.132	697	746	NA	NA	737	746	Not shown on map

This page left blank intentionally.

8.5.5 *Minimum Thresholds*

Methodology for setting minimum thresholds is described in Section 8.5.3 – Information and Methodology Used to Establish Measurable Objectives and Minimum Thresholds.

8.5.5.1 Alluvial Formation

Minimum Thresholds for Alluvial Aquifer wells are listed in Table 8-1 and SMC hydrographs for each Alluvial Formation well is provided in Appendix 8B.

8.5.5.2 Paso Robles Formation

Minimum Thresholds for Paso Robles Formation wells are listed in Table 8-1 and SMC hydrographs for each Paso Robles Formation well is provided in Appendix 8C.

8.5.5.3 Minimum Threshold Impacts on Domestic Wells

Impacts to domestic wells by fluctuating groundwater levels have not been reported in the Basin. Given that minimum thresholds have been set at the lowest groundwater levels historically measured in each representative monitoring well, we do not expect these levels to have a negative impact on domestic wells in the future. A reliable database of existing domestic wells including number, location and depth of wells was not available for direct comparison against minimum threshold values established in the representative monitoring network for this initial GSP. This data gap will be filled during the implementation period through implementation of a private well survey and registration program. More information on this program is provided in Section 8.5.2 – Locally Defined Undesirable Results.

8.5.5.4 Relation to Other Sustainability Indicators

Since minimum thresholds were derived by reviewing historic water level data for each well and represent the historic low levels experienced in the past at each of these well locations, it is unlikely that conflicts between wells or between other sustainability indicators will occur since conflicts have not been observed in the past based on our understanding of groundwater Basin conditions described in the early sections of this GSP.

Groundwater Storage: Thresholds set to maintain consistent levels over time that are at or below the sustainable yield so should not adversely affect storage.

Seawater Intrusion: Due to the location of the Atascadero Basin, seawater intrusion is not applicable.

Degraded Water Quality: Since groundwater levels will be maintained, there will be no degradation of water quality through upwelling of poor-quality water. Changes in gradients could cause poor quality water flowing towards supply wells This is dependent on changes in groundwater gradients and not levels themselves.

Subsidence: A significant and unreasonable condition for subsidence is permanent pumping induced subsidence that substantially interferes with surface land use. Subsidence is caused by dewatering and compaction of clay-rich sediments in response to lowering groundwater levels. Land surface subsidence occurs when groundwater levels drop below historic low levels in an area of the Basin and if compressible clays are also present at depth in the same areas experience groundwater level declines. Because groundwater levels minimum thresholds at representative monitoring wells are being set at, but not below historic groundwater level lows in the Basin, land surface subsidence will not be triggered in the Atascadero Basin even if vulnerable clay material is present at depth.

Depletion of Interconnected Surface Water: Section 5 – Groundwater Conditions and Section 6 – Water Budgets, describe and quantify surface water inflow and outflow to the Basin as well as steam flow gain and depletion that has occurred historically. Groundwater levels measured at representative monitoring wells will serve as a proxy for depletion of interconnected surface water, and in addition, where available stream flow gages will continue to measure surface water inflow and outflow allowing for direct measurement of surface water gains and losses to the groundwater systems based on future hydrologic and pumping conditions in the Basin.

8.5.5.5 Effects on Neighboring Basins

The Atascadero Basin is hydrologically separated from Paso Robles Basin by the Rinconada fault. Groundwater levels in the Atascadero Basin are not expected to impact the Paso Robles Basin, but the two basins will work together to ensure no adverse effects.

8.5.5.6 Effects on Beneficial Users and Land Users

Ag Users: Minimum Thresholds could limit pumping in the basins and therefore limit crop production and economic growth.

Urban Land Uses and Users: Limits groundwater production in the Basin and may limit urban growth.

Domestic Land Uses and Users: Threshold protects most domestic wells and therefore should have positive benefit. However, some of the shallowest wells may necessitate owners drill deeper wells. May limit non-de minimis groundwater uses.

Ecological Land Uses and Users: Threshold protects ecological habitats as they are set to avoid long term declines and impacts.

8.5.5.7 Relevant Federal, State, or Local Standards

There are no relevant standards to lowering of groundwater levels.

8.5.5.8 Method for Quantitative Measurement of Minimum Threshold

Groundwater levels will be directly measured from existing or new monitoring wells included in the Representative Monitoring Network. Monitoring will meet the requirements outlined in the technical and reporting standards under SGMA regulations.

8.5.5.9 Interim Milestones

Interim milestones will be directly measured from existing or new monitoring wells included in the Representative Monitoring Network. Monitoring will meet the requirements outlined in the technical and reporting standards under SGMA regulations.

8.6 Reduction in Groundwater Storage – SMC

This section presents SMC for management of groundwater storage in the Basin. By way of context, the water budget analysis completed in Section 6 – Water Budgets, quantified the groundwater budget and calculated cumulative change in Basin storage for the historical water budget period 1981 to 2011, the current budget period 2012 to 2016 and the future/projected water budget period of through 2042. In summary, cumulative change in groundwater storage for the historical period increased by 43,200 AF, decreased by 12,600 AF during the current budget period which included the most recent drought and then is projected to increase by 18,000 AF through the projected future water budget in 2042. The Basin has and is projected to continue to be very healthy from the groundwater storage perspective and the SMC presented in this section provide the criteria by which successful sustainable groundwater management will be determined.

8.6.1 *Undesirable Results*

8.6.1.1 Criteria for Establishing Undesirable Results

The reduction in groundwater storage undesirable result is a quantitative combination of reduction in groundwater storage minimum threshold exceedances. There is only one reduction in groundwater storage minimum threshold because groundwater storage is a basin-wide determination. Therefore, no minimum threshold exceedances are allowed and the “reduction in groundwater storage undesirable” result is:

> During average hydrologic conditions, and as a long-term average over all hydrologic conditions, there shall be no reduction in groundwater storage below the historical low in cumulative groundwater storage that occurred during the historical water budget period in the early 1990’s.

8.6.1.2 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 groundwater level SMC that is used as proxy for reduction in groundwater storage 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 Basin 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.

8.6.1.3 Effects on Beneficial Users and Land Use

The practical effect of this GSP for protecting against 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 beneficial users and uses of groundwater are protected from undesirable results. Pumping at the long-term sustainable yield during dry years would likely temporarily lower groundwater elevations and reduce the amount of groundwater in storage. Such short-term impacts, due to drought, are anticipated in SGMA and management actions should contain sufficient flexibility to accommodate reductions in groundwater in storage by ensuring periods of declines in groundwater levels or storage are offset by increases in groundwater levels or storage during normal or wet periods. Prolonged reductions in the amount of groundwater in storage could lead to undesirable results affecting beneficial users and uses of groundwater. During dry periods, groundwater pumpers may be temporarily impacted by temporary reductions in the amount of groundwater in storage drops and lower water levels in their wells.

8.6.2 *Locally defined Significant and Unreasonable Conditions*

As stated in Section 8.4.1 – Sustainable Management Criteria, the locally defined undesirable result for groundwater storage conditions is:

> During average hydrogeologic conditions, and as a long-term average over all hydrogeologic conditions, there shall be no reduction in groundwater storage below the historical low in cumulative groundwater storage that occurred during the historical water budget period in the early 1990's.

Groundwater storage conditions that are considered significant and unreasonable would include any instance in which cumulative groundwater storage drops below the lowest level in the historic record, -36,000 AF (Figure 8-3).

8.6.3 *Minimum Thresholds*

> **Reduction of Groundwater Storage.** 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.
>
> – *§ 354.28 Minimum Thresholds (c)(2)*

Figure 8-3 shows that the minimum threshold is the historical low in cumulative groundwater storage that occurred in the early 1990's at -36,000 AF. At this time in the Basin alfalfa (a high-water using crop) was one of the predominate crops grown. Over time beginning in the 1990's the alfalfa was converted to vineyards that have a much lower water requirement.

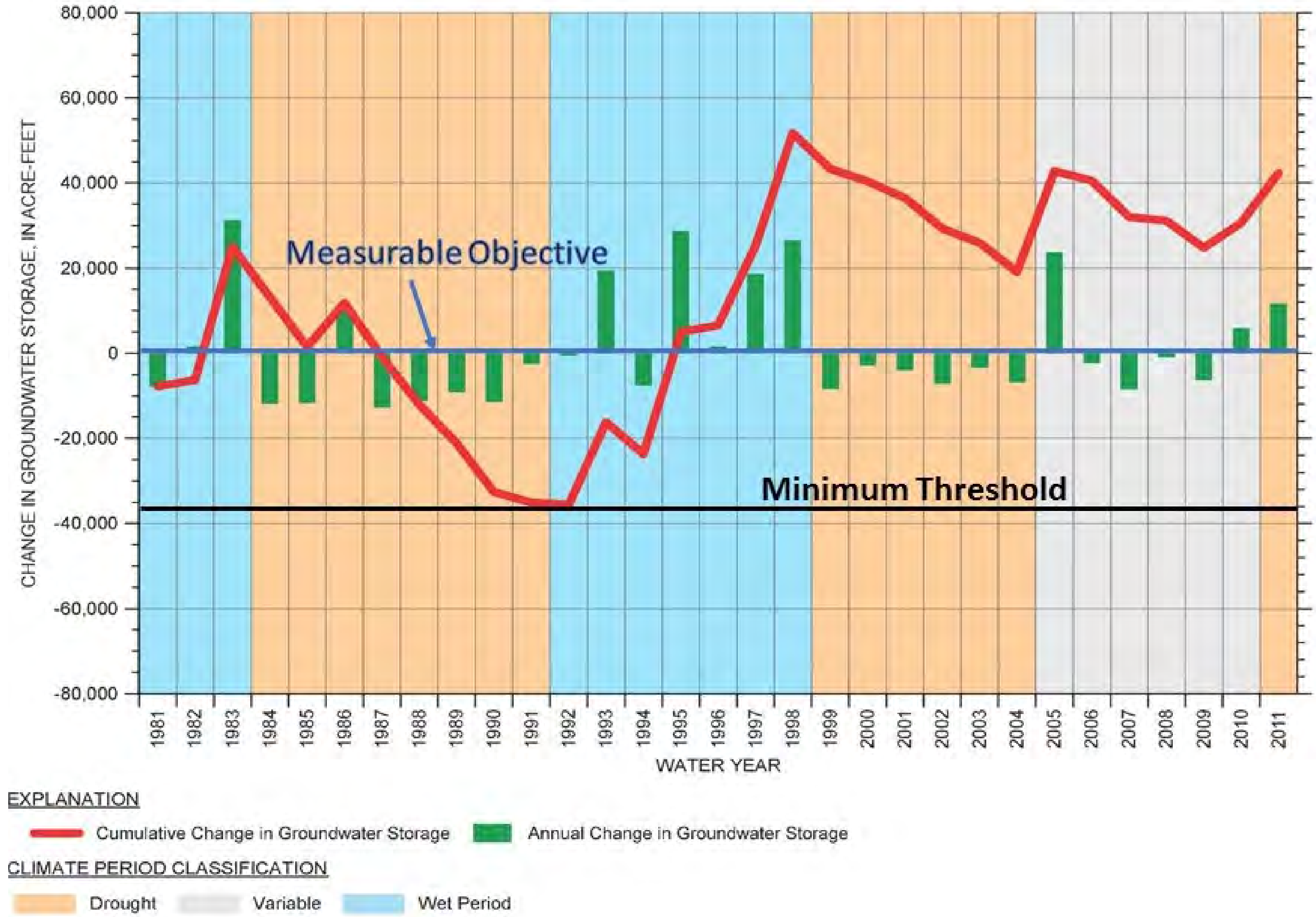


Figure 8-3. Minimum Threshold and Measurable Objective for Atascadero Basin

This page left blank intentionally.

8.6.3.1 Information Used and Methodology for Establishing Reduction in Storage Minimum Thresholds

Information used in establishing the minimum threshold includes the following information presented and described in Section 6 – Water Budgets:

- Cumulative change in Basin storage through the historical water budget period
- Cumulative change in Basin storage through the current budget period
- Cumulative change in Basin storage projected through the projected future water budget
- SMC developed for groundwater levels described in Section 8.3 – Sustainability Goal
- Safe yield estimates of the Basin presented in Section 6 – Water Budgets
- Results of public/stakeholder survey in the Basin (Appendix 8A)

Tracking changes in cumulative groundwater storage will be performed by the GSA each year and reported in annual reports. This will be accomplished by following this methodology:

1. For first annual report, update Figure 8-3 – Sustainability Goal, to show cumulative storage change through 2022
2. Continue to update cumulative change in storage each year by calculating change in the Basin each year by comparing the average spring and fall groundwater levels measures from each of the wells within the representative monitoring well with the average values from the previous year.
3. Calculate the volumetric storage difference between the contoured groundwater elevations for both years and multiplying by the best available estimate of specific yield values for the Basin material.
4. Report cumulative Basin storage in relation to minimum threshold in each annual report.

8.6.3.2 Relationship Between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators

Chronic Lowering of Groundwater Levels: Both groundwater level minimum thresholds and groundwater storage minimum thresholds are based on the consistent methodology of using historical lows encountered in the Basin (Figure 8-3). The key data for computations of groundwater storage changes each year are the well levels measured at each of the groundwater levels representative monitoring wells.

Seawater Intrusion: Due to the location of the Atascadero Basin, seawater intrusion is not applicable.

Degraded Water Quality: Because groundwater storage will be managed within the historical range, it is not expected that the minimum threshold value chosen will have a negative impact on groundwater quality within the Basin.

Subsidence: Because both groundwater levels and groundwater storage will be managed above the historic low levels encountered in the Basin, the GSA is protecting against any future land surface subsidence. However, the GSA has established thresholds and will continue to monitor for subsidence within the Basin.

Depletion of Interconnected Surface Water: Both groundwater level minimum thresholds and groundwater storage minimum thresholds are based on the consistent methodology of using historical lows encountered in the Basin. Measurables objectives for both are set as midway points between historic low and historic high values. For this reason, negative impacts to surface water flow and the habitat it supports is not anticipated under this GSP.

8.6.3.3 Effect of Minimum Threshold on Neighboring Basin

Thresholds for groundwater level and groundwater storage between Atascadero's only neighboring subbasin, Paso Robles Basin, are not in conflict. In addition, the two basins are largely hydrogeological separated preventing subsurface inflows and outflow as detailed in Section 4 – Basin Setting and Section 5 – Groundwater Conditions.

8.6.3.4 Effect on Beneficial Uses and Users

Thresholds and objectives are set to protect and ensure adequate water supply for public water supply and agriculture and habitat protection.

8.6.3.5 Relation to State, Federal, and Local Standards

To our knowledge, there are no state, federal, or local standards relevant to the management of groundwater storage above the defined minimum threshold in the Atascadero Basin.

8.6.3.6 Methods for Quantitative Measurement of Minimum Threshold

Refer to Section 8.6.3.1 – Information Used and Methodology for Establishing Reduction in Storage Minimum Thresholds.

8.6.4 *Measurable Objective*

The Measurable Objective for the Atascadero Basin is set at a net zero change in cumulative groundwater storage (Figure 8-3).

8.6.4.1 Method for Setting Measurable Objective

Information used in establishing the measurable objective includes the following information presented and described in Section 6 – Water Budgets:

- Cumulative change in Basin storage through the historical water budget period
- Cumulative change in Basin storage through the current budget period
- Cumulative change in Basin storage projected through the projected future water budget

- SMC developed for groundwater levels described in Section 8.3 – Sustainability Goal
- Safe yield estimates of the Basin were presented in Section 6 – Water Budgets
- Results of public/stakeholder survey in the Basin. (Appendix 8A)

Recognizing the Basin has been managed sustainably based on review of past and projected future trends in groundwater levels and Basin storage, it was agreed that setting the measurable objective at zero net change in cumulative groundwater storage for the period beginning in 1981 and extending through 2042 is acceptable because this period includes a wide range of hydrologic year types covering the range that could likely be encounter in the future and also takes into account anticipated impacts on the water budget caused by climate change in the Basin.

8.6.4.2 Interim Milestones

Interim milestones have not been established for this initial GSP because cumulative groundwater storage is currently above the measurable objective value and is projected to stay above based on the future projected water budget presented in Chapter 6 – Water Budgets. If, during the implementation period, cumulative groundwater storage drops below the measurable objective and is approaching the minimum thresholds, then interim milestones will be established along with projects/management actions to achieve the measurable objective by 2042.

8.7 Seawater Intrusion SMC

Due to the location of the Atascadero Basin, the seawater intrusion SMC is not applicable.

8.8 Degraded Water Quality Sustainable Management Criteria

Under SGMA, the purpose of the degraded water quality SMC is to prevent any degradation in groundwater quality as a result of groundwater management under the GSP. SGMA is not intended to serve as impetus to improve water quality within the Basin. The Atascadero Basin is considered sustainable by the DWR and current water quality is not considered degraded. For these reasons, the SMC in this section are set to maintain current conditions in the Basin from potential degradation as a result of groundwater management under this GSP.

In setting SMCs, water quality constituents were identified to be addressed in annual reporting under the GSP. Constituents were identified based on 1) exceedances of regulatory drinking water standards 2) exceedances of thresholds set by Basin-wide water quality programs, and 3) frequency and extend of threshold exceedances. For a constituent to be addressed as a part of this GSP, it must have had multiple historical exceedances of thresholds governing water quality in the Basin, have the potential to affect beneficial use/uses, and/or being of regional concern in the Basin. Constituents with one threshold exceedance or few intermittent exceedances, along with constituents only found at isolated sites, were not addressed in this GSP. Identified constituents were based on information from:

- Title 22 Regulations
- Water Quality Control Plan for the Central Coast Basin (WQCP) (RWQCB 2019)
- Geotracker GAMA database
- Irrigated Lands Regulatory Program

The WQCP (RWQCB 2019), along with this GSP, identify the primary beneficial uses/users of water in the Basin being drinking water supply (public and private) and agriculture. Groundwater use for drinking water purposes is protected under the Title 22 regulations. Agricultural use of groundwater is protected under the WQCP and the ILRP. Within the ILRP, groundwater quality as a result of agricultural use is monitored through the Central Coast Agriculture Coalition (CCAC). The CCAC, under the purview of the ILRP, samples all domestic and irrigation wells within the Basin for impacts due to agricultural use. Additional uses of groundwater are protected under the WQCP. These programs are in place to protect groundwater quality in the Basin and monitoring and reporting under said programs will be used in development of annual reports and monitoring as part of the GSP implementation.

Constituents to be addressed as part of GSP implementation and reporting were selected from the aforementioned Basin-wide water quality programs and are identified below.

Title 22 Drinking Water Regulations

- Arsenic
- Gross Alpha
- Nitrate (as N)
- Selenium
- Selenium
- *Chloride (SMCL)*
- *Sulfate (SMCL)*
- *Iron (SMCL)*
- *Manganese (SMCL)*
- *Total Dissolved Solids (TDS)*

WQCP Water Quality Objectives

- Boron
- Chloride
- Nitrate (as N)
- Sulfate
- Sodium
- TDS

Some constituents are monitored under both the Title 22 and the WQCP. When addressing SMCs, monitoring sites will be assessed only for the constituents associated with the regulatory program associated with each well. For instance, public supply and domestic wells will be assessed based on the Title 22 drinking water MCLs. Irrigation wells shall be assessed based on the Water Quality Objectives (WQOs) of the WQCP.

The Geotracker GAMA database was queried in review of historical water quality concerns for the region. Regulatory exceedances were identified for other constituents within the Basin, but these were minor or at isolated sites. These constituents will only be monitored through their applicable regulatory program, but the GSA is aware of their presence. If increased degradation of water quality is observed, constituents monitored under this GSP will be re-assessed.

As discussed in Section 5 – Groundwater Conditions, there are no known contaminant plumes within the Basin. Active Geotracker sites will be monitored through the Geotracker program. If contaminant plumes are discovered in the future, the GSA will assess the effects of GSP implementation, including projects/management actions, on Geotracker sites.

8.8.1 *Undesirable Results*

Based on SGMA regulations, an undesirable result for degraded water quality is based on a quantitative combination of groundwater quality minimum threshold exceedances. Undesirable results occur when minimum threshold exceedances result in significant or unreasonable conditions in the Basin. Undesirable results were identified to protect groundwater for the two main beneficial uses of groundwater in the Basin, agriculture and water supply. For the Atascadero Basin, the undesirable result is:

> On average for any year, an increase in groundwater quality minimum threshold exceedances at 10 percent of the representative monitoring sites, in relation to 2015 Basin conditions, as a result of projects and management actions implemented as part of the GSP.

8.8.1.1 Locally Defined Significant and Unreasonable Conditions

The defined degraded water quality undesirable result was based on the locally defined significant and unreasonable conditions for the Basin. These were determined based on state and federal drinking water and groundwater regulations, public input and surveys, and discussions with the GSA. Significant and unreasonable conditions as a result of GSP implementation were identified as:

> An increase in constituent concentrations that may result in:
>
> 1) reduced public water supply capacity or significant increase in costs for public or private water supply
> 2) reduced crop production.

8.8.1.2 Potential Causes of Undesirable Results

Changes to Groundwater Pumping within the Basin: Changes to the location and rate of groundwater pumping within the Basin as a result of GSP implementation may cause changes in groundwater elevations and flow. Changes in flow may cause Constituents of Concern (COCs) of higher concentrations to migrate toward water supply wells. Increased pumping may also cause increased concentrations of COCs such as TDS.

Groundwater Recharge: Increased groundwater recharge through GSP implementation may increase local groundwater elevation and effect groundwater flow patterns. This could potentially cause migration of COCs towards supply wells. Furthermore, recharged water may contain COC levels that adversely affect groundwater and could potentially interact with native groundwater or the aquifer matrix to mobilize contaminants, such as arsenic, not previously found in groundwater.

Adverse effects to water quality as a result of GSP implementation of projects/management actions shall be monitored by the individual projects/management actions as described in Section 9 – Projects and Management Actions.

8.8.1.3 Effects on Beneficial Users or Land Use

As determined by this GSP, undesirable results were established to reduce or eliminate degradation of water quality within the Basin prior to implementation of management actions. This limits the impact of undesirable results on beneficial groundwater users within the Basin. However, potential effects of undesirable results include:

- Increased water treatment costs for public and domestic supply wells to offset increased constituent levels
- Reduced crop production or irrigation costs

Due to the conservative nature of the undesirable result as defined in the GSP, projects/ management actions would be implemented to address any degradation in water quality likely before any of the above effects are realized.

8.8.2 *Minimum Thresholds*

> **Degraded Water Quality.** The minimum threshold for degraded water quality shall be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality as determined by the Agency that may lead to undesirable results. 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. In setting minimum thresholds for degraded water quality, the Agency shall consider local, state, and federal water quality standards applicable to the basin.
>
> – *§ 354.28 Minimum Thresholds (c)(4)*

Minimum thresholds were established for each RMS for both the Alluvial Aquifer and the Paso Robles Formation Aquifer. Minimum thresholds were established for the constituents discussed above and are listed, along with applicable regulatory standards, Table 8-2.

Table 8-2. Minimum Thresholds for Identified Constituents

Constituent	Units	MCLs	WQO
TDS	mg/L	*1,000**	550
Chloride	mg/L	*250*	70
Nitrate (as N)	mg/L	10	2.3
Sulfate	mg/L	*250*	85
Boron	mg/L	NA	0.3
Sodium	mg/L	NA	65
Arsenic	mg/L	0.01	
Iron	mg/L	*0.3*	
Gross Alpha	pCi/L	15	
Manganese	mg/L	*0.05*	
Selenium	mg/L	0.05	

<u>Notes</u>: NA - Not Applicable
* recommended level of 500 upper limit of 1,000
Secondary MCL

Minimum thresholds were established for each RMS well based the on regulatory programs protecting beneficial uses of groundwater in the Basin: Title 22 drinking water MCLs and WQOs from the WQCP. Minimum thresholds were assigned based on well type and the regulatory program responsible for monitoring at the well site. For all public supply wells, monitoring is conducted through the Title 22 drinking water program and thresholds were set at drinking water MCLs. For monitoring wells, domestic wells, and irrigation wells, monitoring is conducted under the ILRP CCAC guidelines. For irrigation and monitoring wells, the minimum threshold was set at the WQOs. Since domestic wells are used for water supply purposes, minimum thresholds were set at drinking water MCLs even though monitoring is under the ILRP.

Monitoring of the RMS locations shall be conducted by the associated monitoring programs as frequencies dictated by said programs. The GSA will review results and reports generated by these programs as it pertains to the degraded water quality SMCs and sustainable management under this GSP. Results will be summarized in the annual reports. Should minimum threshold exceedances be observed and result in an undesirable result, the GSA shall further investigate whether the minimum threshold exceedances were a result of GSP implementation and if further action by the GSA is required.

8.8.2.1 Paso Robles Formation Aquifer

Minimum threshold groups and monitoring entities for degraded water quality at the RMS locations for the Paso Robles Formation Aquifer are presented in Table 8-3. Minimum threshold groups denote the constituents and MCLs assessed for this GSP, as discussed in Section 8.8.2 – Minimum Thresholds. A total of 27 public supply wells, 41 irrigation wells, and 13 domestic wells were identified as RMS sites for the Paso Robles Formation Aquifer, as discussed in Section 5 – Groundwater Conditions.

Table 8-3. Minimum Threshold and RMS Wells for the Paso Robles Formation Aquifer

Well ID	Type of Well	Minimum Threshold Group	Monitoring Entity
Atascadero MWC-6A	PWS	Title 22	DDW
Atascadero MWC-7	PWS	Title 22	DDW
Atascadero MWC-8A	PWS	Title 22	DDW
Atascadero MWC-9A	PWS	Title 22	DDW
Atascadero MWC-10	PWS	Title 22	DDW
Atascadero MWC-12	PWS	Title 22	DDW
Atascadero MWC-25	PWS	Title 22	DDW
Atascadero MWC-26	PWS	Title 22	DDW
Templeton CSD-Bonita Well 01	PWS	Title 22	DDW
Templeton CSD-Claussen Well 01	PWS	Title 22	DDW
Templeton CSD-Cow Meadows	PWS	Title 22	DDW
Templeton CSD-Creekside Deep Well	PWS	Title 22	DDW
Templeton CSD-Davis Well	PWS	Title 22	DDW
Templeton CSD-Fortini Well	PWS	Title 22	DDW
Templeton CSD-Platz Well 04	PWS	Title 22	DDW
Templeton CSD-Saunders Well	PWS	Title 22	DDW
Templeton CSD-Silva Well 01	PWS	Title 22	DDW
LOS ROBLES MOBILE HOME ESTATES - WELL 01	PWS	Title 22	DDW
LOS ROBLES MOBILE HOME ESTATES - WELL 02	PWS	Title 22	DDW
LOS ROBLES MOBILE HOME ESTATES - WELL 03	PWS	Title 22	DDW
SANTA YSABEL RANCH MWC - WELL 01, RESERVIOR WELL	PWS	Title 22	DDW
SANTA YSABEL RANCH MWC - WELL 02, RANCH HOUSE WELL	PWS	Title 22	DDW
WALNUT HILLS MUTUAL WATER CO - WELL 01	PWS	Title 22	DDW
ALMIRA WATER ASSOCIATION - WELL 02	PWS	Title 22	DDW
PASO ROBLES CHEVROLET CADILLAC - WELL 01	PWS	Title 22	DDW
WALNUT HILLS MUTUAL WATER CO - WELL 04	PWS	Title 22	DDW
WALNUT HILLS MUTUAL WATER CO - WELL 07	PWS	Title 22	DDW
AGL020003068-AW	Irrigation	WQO	ILRP
AGL020005225-DW AW	Domestic	Title 22	ILRP
AGL020000484-ROOS-HOMESTEAD	Irrigation	WQO	ILRP

Well ID	Type of Well	Minimum Threshold Group	Monitoring Entity
AGL020000508-AW	Irrigation	WQO	ILRP
AGL020001000-LAGO FOSSIL	Irrigation	WQO	ILRP
AGL020001138-PRIMARY AW	Irrigation	WQO	ILRP
AGL020001433-WHALE ROCK #1	Irrigation	WQO	ILRP
AGL020001744-BARN WELL	Irrigation	WQO	ILRP
AGL020001744-POND WELL	Irrigation	WQO	ILRP
AGL020002364-AG WELL	Irrigation	WQO	ILRP
AGL020002753-OLEA WELL	Irrigation	WQO	ILRP
AGL020002801-PROPERTY WELL	Irrigation	WQO	ILRP
AGL020002926-AW DW	Irrigation	WQO	ILRP
AGL020003146-BARN	Irrigation	WQO	ILRP
AGL020003461-AG WELL	Irrigation	WQO	ILRP
AGL020004031-POMAR RIDGE	Irrigation	WQO	ILRP
AGL020004709-IRR1	Irrigation	WQO	ILRP
AGL020004789-IRRIGATION	Irrigation	WQO	ILRP
AGL020007196-DWS NEW	Irrigation	WQO	ILRP
AGL020007294-AW	Irrigation	WQO	ILRP
AGL020007507-ONLY WELL	Irrigation	WQO	ILRP
AGL020007659-YRLY WTR SAMPLE	Irrigation	WQO	ILRP
AGL020007709-AG WELL	Irrigation	WQO	ILRP
AGL020012109-WELL #1	Irrigation	WQO	ILRP
AGL020012322-WELL 1	Irrigation	WQO	ILRP
AGL020012322-WELL 2	Irrigation	WQO	ILRP
AGL020012842-AG WELL	Irrigation	WQO	ILRP
AGL020013302-WELL 1	Irrigation	WQO	ILRP
AGL020015262-AVR IRR	Irrigation	WQO	ILRP
AGL020017182-AG WELL	Irrigation	WQO	ILRP
AGL020017862-ANDERSON	Irrigation	WQO	ILRP
AGL020018782-BELLETTO	Irrigation	WQO	ILRP
AGL020022602-WELL	Irrigation	WQO	ILRP
AGL020025242-PRIMARY AG	Irrigation	WQO	ILRP
AGL020027472-JAVADI - CAT 1	Irrigation	WQO	ILRP
AGL020027483-VAQUERO IW	Irrigation	WQO	ILRP
AGL020027660-AG WELL	Irrigation	WQO	ILRP
AGL020027743-PRIMARY AG	Irrigation	WQO	ILRP
AGL020027968-J DUSI WELL 1	Irrigation	WQO	ILRP

Well ID	Type of Well	Minimum Threshold Group	Monitoring Entity
AGL020028424-WELL	Irrigation	WQO	ILRP
AGL020028474-KCV PRIMARY AG	Irrigation	WQO	ILRP
AGL020035655-ARBORMAIN_IRR	Irrigation	WQO	ILRP
AGL020000508-DW	Domestic	Title 22	ILRP
AGL020001003-HOME DOMESTIC	Domestic	Title 22	ILRP
AGL020001087-PRIMARY AW DW	Domestic	Title 22	ILRP
AGL020005112-DW	Domestic	Title 22	ILRP
AGL020007294-DW	Domestic	Title 22	ILRP
AGL020015262-AVR DW	Domestic	Title 22	ILRP
AGL020027467-BLACKSETH DW	Domestic	Title 22	ILRP
AGL020027660-DOM WELL	Domestic	Title 22	ILRP
AGL020028468-AOK DOM	Domestic	Title 22	ILRP
AGL020028474-KCV DOM 1	Domestic	Title 22	ILRP
AGL020028474-KCV DOM 2	Domestic	Title 22	ILRP
AGL020028474-KCV DOM 3	Domestic	Title 22	ILRP
AGL020035786-MAINCOPIA_DOM	Domestic	Title 22	ILRP

Notes:

PWS – Public Water Supply
DDW – Division of Drinking Water

8.8.2.2 Alluvial Aquifer

Minimum threshold groups and monitoring entities for degraded water quality at the RMS locations for the Alluvial Aquifer are presented in Table 8-4. Minimum threshold groups denote the constituents and MCLs assessed for this GSP, as discussed in Section 8.8.2 – Minimum Thresholds. A total of 26 public supply wells, 12 monitoring wells, two irrigation wells, and one domestic well were identified as RMS sites for the Alluvial Aquifer, as discussed in Section 5 – Groundwater Conditions.

Table 8-4. Minimum Threshold and RMS Wells for the Alluvial Aquifer

Well ID	Type of Well	Minimum Threshold Group	Monitoring Entity
Atascadero MWC-1B	PWS	Title 22	DDW
Atascadero MWC-2A	PWS	Title 22	DDW
Atascadero MWC-4	PWS	Title 22	DDW
Atascadero MWC-5	PWS	Title 22	DDW
Atascadero MWC-5A	PWS	Title 22	DDW
Atascadero MWC-13A	PWS	Title 22	DDW
Atascadero MWC-16	PWS	Title 22	DDW
Atascadero MWC-19	PWS	Title 22	DDW
Atascadero State Hosp - WELL 02 (1968) -	PWS	Title 22	DDW
CSA23 Well-3	PWS	Title 22	DDW
CSA23 Well-4	PWS	Title 22	DDW
Garden Farms 1	PWS	Title 22	DDW
Garden Farms 3	PWS	Title 22	DDW
Paso Robles-Thunderbird 10	PWS	Title 22	DDW
Paso Robles-Thunderbird 13	PWS	Title 22	DDW
Paso Robles-Thunderbird 17	PWS	Title 22	DDW
Paso Robles-Thunderbird 23	PWS	Title 22	DDW
Templeton CSD-Creekside River Well	PWS	Title 22	DDW
Templeton CSD-Platz Well 02	PWS	Title 22	DDW
Templeton CSD-Smith River Well	PWS	Title 22	DDW
Atascadero State Hosp - WELL 03 (1969)	PWS	Title 22	DDW
Garden Farms 2	PWS	Title 22	DDW
Atascadero State Hosp - WELL 01 (1953)	PWS	Title 22	DDW
Atascadero State Hosp - WELL 04	PWS	Title 22	DDW
SANTA LUCIA SCHOOL - WELL 01	PWS	Title 22	DDW
T0607900001-MW-10	MW	WQO	ILRP
T0607900001-MW-12	MW	WQO	ILRP
T0607900001-MW-14	MW	WQO	ILRP
T0607900001-MW-2	MW	WQO	ILRP
T0607900001-MW-5	MW	WQO	ILRP
T10000009038-MW1	MW	WQO	ILRP
T10000009038-MW2	MW	WQO	ILRP
T10000009038-MW3	MW	WQO	ILRP
SL0607989492-E11W-26B	MW	WQO	ILRP
SL0607989492-E3W-22	MW	WQO	ILRP
SL0607989492-S11-B9	MW	WQO	ILRP
SL0607989492-S11-B18	MW	WQO	ILRP
AGL020003146-RIVER	Irrigation	WQO	ILRP
AGL020027481-RIVER WELL	Irrigation	WQO	ILRP
AGL020027483-VAQUERO DW	Domestic	Title 22	ILRP

Notes: PWS – Public Water Supply; DDW – Division of Drinking Water

8.8.2.3 Information Used and Methodology for Establishing Water Quality Minimum Thresholds

Information used for establishing the degraded groundwater quality thresholds include:

- Historical Groundwater Quality: Water quality data analyzed from public water supply, domestic water supply, irrigation, and monitoring wells within the Basin via the GAMA database and DDW.
- Federal and state drinking water standards (Title 22)
- Water Quality Control Plan (RWQCB 2019)
- Irrigated Lands Reporting Program
- Feedback form GSA staff and public

8.8.2.4 Relationship Between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators

Minimum thresholds for each COC were set based on the regulatory standards for drinking water quality and for:

- **Groundwater Levels:** Water quality minimum thresholds may impact groundwater levels in the Basin by affecting groundwater pumping and recharge activities. Exceedances of water quality minimum thresholds may reduce pumping in some areas of the Basin, leading to stabilization of water levels regionally. Minimum thresholds will also limit the water types acceptable for recharge, as they must meet the minimum thresholds identified in this section. Overall, water quality minimum thresholds should not have a negative impact on water levels as they do not promote increased pumping.
- **Groundwater Storage:** Groundwater quality minimum thresholds will not impact groundwater storage within the Basin as they do not promote increased pumping within the Basin. Water quality minimum thresholds will not impact pumping in relation to the sustainable yield of the Basin.
- **Seawater Intrusion:** This sustainability indicator is not applicable to this Basin.
- **Subsidence:** Water quality minimum thresholds will not promote activities that could lead to subsidence within the Basin and will therefore not result in an exceedance of the subsidence minimum thresholds or significant and unreasonable conditions.
- **Depletion of Interconnected Surface Water:** Water quality minimum thresholds will not impact interconnected surface waters as they will not promote increased pumping within the Basin. Therefore, water quality minimum thresholds will not cause significant and unreasonable conditions with relation to interconnected surface water.

8.8.2.5 Effect of Minimum Thresholds on Neighboring Basins

A hydrologic barrier to flow exists between the Atascadero Basin and the Paso Robles Basin. This barrier would restrict groundwater from flowing into the neighboring basin. Furthermore, minimum thresholds are established to maintain water quality in the Basin above regulatory standards for drinking water and WQOs for the region. No other groundwater basins neighbor the Atascadero Basin.

8.8.2.6 Effect on Beneficial Uses and Users

Agricultural Uses and Users: Minimum thresholds for water quality were established based on the WQOs outlined in the Water Quality Control Plan (RWQCB 2019) for the region. These WQOs set limits for constituents that may adversely affect crop production. Since the minimum thresholds will hold water quality in the Basin above these WQOs, they will not adversely affect agricultural use.

Urban/Public Water Supply Use and Users: Minimum thresholds for water quality were set as the state and federal drinking water standards. The number of minimum thresholds required for an undesirable result to occur in the Basin limits the number of wells that can exceed federal and state standards. This will maintain a level of water quality in the Basin that will benefit urban use and public water supply.

Domestic Water Supply Use and Users: Minimum thresholds for water quality were set as the state and federal drinking water standards. The number of minimum thresholds required for an undesirable result to occur in the Basin limits the number of wells that can exceed federal and state standards. This will maintain a level of water quality in the Basin that will benefit domestic use and users.

8.8.2.7 Relation to State, Federal, or Local Standers

Minimum thresholds were established based on the state and federal drinking water standards. Local standards for water quality, as identified in the Water Quality Control Plan (RWQCB 2019) were incorporated as well.

8.8.2.8 Method for Quantitative Measurement of Minimum Thresholds

Minimum thresholds will be assessed at all sites identified as a RMS. Water quality sampling shall be conducted by the regulatory program associated with the RMS well (Title 22, ILRP) and reviewed by the GSA when published for annual reporting requirements.

8.8.3 *Measurable Objectives*

Measurable objectives were set at levels above the minimum thresholds established for each RMS location, as described in Section 8.8.2.1 – Paso Robles Formation Aquifer and Section 8.8.2.2 – Alluvial Aquifer, for both the Paso Roble Formation and Alluvial Aquifer. As these levels are above either regulatory standards, this will maintain conditions in the Basin and will not adversely impact beneficial uses and users of groundwater in the Basin.

8.8.3.1 Methods for Setting Measurable Objectives

Measurable objectives were set above state and federal drinking water standards as well as WQOs as defined in the Water Quality Control Plan (RWQCB 2019) or current conditions. Measurable objectives will maintain water quality within the Basin to support beneficial use.

8.8.3.2 Interim Milestones

Interim milestones are set as milestones as a GSA moves toward sustainable management of the groundwater Basin. The Atascadero Basin is currently considered sustainable by the DWR. As the minimum thresholds and measurable objectives for degraded water quality are set to maintain current conditions and support beneficial use of groundwater, interim milestones are not required. If through implementation of the GSP, degraded water quality is observed and projects/management actions are required, interim milestones will be re-assessed to provide a path to reach sustainability. This re-assessment of Basin conditions and modifications to this plan would occur during the 5-year update.

8.9 Land Subsidence SMC

Section 5 – Groundwater Conditions, explains that there is no evidence that land subsidence caused by groundwater extraction exists within the Basin. Because the following conditions exist within the Atascadero Basin:

- Groundwater level minimum thresholds are set at historical low groundwater level
- Measurable objectives for groundwater levels are set significantly above historic low levels
- Basin storage is projected to increase during the implementation period

land subsidence caused by groundwater extractions is not projected and therefore, SMC are not established in this initial GSP. The GSA will continue to review InSAR data and monitoring groundwater levels within the groundwater levels RMS. If groundwater levels drop unexpectedly or InSAR indicates that subsidence is being detected in the Basin, then land subsidence SMCs will be established in a future update to this GSP.

- **Land Subsidence:** Gradual settling of land surface caused by compaction of subsurface materials due to lowering of groundwater elevations form pumping.
- **Land Surface Fluctuation:** Periodic or annual measurement of the ground surface. Lowering levels may not indicate long term subsidence.

8.9.1 *Undesirable Results*

Based on SGMA regulations, undesirable results for land subsidence is a result of a quantitative combination of land subsidence minimum threshold exceedances. While historical land surface fluctuations are observed, there is no historical evidence of land subsidence within the Basin.

Based on the lack of historical subsidence and the locally defined significant and unreasonable conditions, the undesirable result for land subsidence in the Atascadero Basin was established as:

> Observed subsidence within the Basin, as a result groundwater management under this GSP, that interferes with critical infrastructure or surface land use.

In order for land subsidence to be considered an undesirable result, it must impact critical infrastructure and it must be as a result of groundwater management under the GSP. To determine if subsidence minimum threshold exceedances have triggered an undesirable result, they must be observed with water level minimum threshold exceedances below historic levels and impacts to infrastructure. If undesirable results for land subsidence are observed, the GSA shall assess what projects/management actions are required.

8.9.2 *Locally Defined Significant and Unreasonable Conditions*

The locally defined significant and unreasonable conditions for land subsidence was determined based on historic subsidence data, SGMA regulations, public input and surveys, and discussion with the GSA. Locally defined significant and unreasonable conditions are:

> Permanent land subsidence, as a result of groundwater management under the GSP, that adversely effects critical infrastructure or land use.

8.9.2.1 Potential Causes of Undesirable Results

Land subsidence undesirable results, as described in this GSP, as a result of groundwater management under SGMA would be likely caused by changes in groundwater pumping in the Basin. Increased pumping or shifts in the location of pumping, that cause groundwater levels to decline past historic lows could cause land subsidence that impacts critical infrastructure. This is considered unlikely, however, as management under this GSP shall keep groundwater levels above historic lows.

8.9.2.2 Effects on Beneficial Users and Land Use

Potential effects on beneficial users and land due to observed undesirable results would be damaging critical infrastructure that would limit use and adversely affecting surface land uses. However, groundwater management under this GSP aims to protect against undesirable results. Maintaining groundwater levels above historic lows, and a lack of historical subsidence in the Basin, make it unlikely that beneficial uses or users will be affected.

8.9.3 *Minimum Thresholds*

> **Land Subsidence.** 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. Minimum thresholds for land subsidence shall be supported by the following:
>
> (A) Identification of land uses and property interests that have been affected or are likely to be affected by land subsidence in the basin, including an explanation of how the Agency has determined and considered those uses and interests, and the Agency's rationale for establishing minimum thresholds in light of those effects.
>
> (B) Maps and graphs showing the extent and rate of land subsidence in the basin that defines the minimum threshold and measurable objectives.
>
> *– § 354.28 Minimum Thresholds (c)(5)*

As the Basin has not historically seen subsidence, the minimum threshold for land subsidence shall be any observed subsidence as a result of groundwater management. Land subsidence shall be monitored using InSAR data provided by the DWR. The minimum threshold for land subsidence under this GSP is:

> Measured subsidence, using InSAR data, between June of 1 year and June of the subsequent year shall be no more than 0.1 foot in any 1-year and a cumulative 0.5 foot in any 5-year period, as a result of groundwater management under the GSP, and shall not result in long-term permanent subsidence.

8.9.3.1 Information Used a Methodology for Establishing Subsidence Minimum Thresholds

Minimum thresholds were established based on historical subsidence in the Basin, accuracy and availability of subsidence data, and the locally defined significant and unreasonable conditions that may affect beneficial uses. As there is no historical evidence of subsidence in the Basin, the minimum threshold was set as any observed long-term subsidence as a result of groundwater management under the GSP.

Monitoring for land subsidence shall be done using the InSAR data provided by DWR. InSAR, or interferometric synthetic aperture radar, is land surface elevation data collected via satellite and provides regional changes in land surface elevation. As defined by DWR, the error associated with InSAR data collected between June 2015 and June 2018 are (GSP, Paso Robles Basin, 2020):

1. 0.052 feet with a 95% confidence level between InSAR and continuous GPS data
2. 0.048 feet with 95% confidence interval for measurement accuracy when converting raw InSAR data to the maps provided by DWR

For the purpose of this GSP, the errors for InSAR data is considered the sum of errors 1 and 2 for a total error of 0.1 feet. Therefore, observed changes in land surface of 0.1 feet or greater will be considered potential subsidence. As described previously, land surface elevations may fluctuate naturally. For this reason, subsidence shall be monitored at the same location and same date year to year, to reduce the influence of general fluctuations in land surface elevations.

If any subsidence is observed, there must be a correlation to lowering groundwater levels for a minimum threshold to be exceeded. Since there is no historical evidence of subsidence within the Basin, groundwater levels would need to drop below historic lows for pumping for subsidence to occur. Minimum thresholds for subsidence shall be evaluated by lowering land surface elevations by 0.1 feet and a decline in water levels below historic lows (or a groundwater levels minimum threshold exceedance).

8.9.3.2 Relationship Between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators

Minimum thresholds for subsidence will have the following impacts on other minimum thresholds and sustainability indicators:

- **Groundwater Levels:** Subsidence minimum thresholds will not directly impact the groundwater levels SMC. However, a groundwater levels minimum threshold exceedance may result in a subsidence minimum threshold exceedance, as lowering of groundwater levels could result in subsidence.
- **Groundwater Storage:** Subsidence minimum thresholds will not impact groundwater storage SMC. If subsidence due to lowering groundwater levels is observed, any changes to pumping in the Basin would likely serve to improve groundwater storage as well.
- **Seawater Intrusion:** This sustainability indicator is not applicable to this Basin.
- **Degraded Water Quality:** Subsidence minimum thresholds will not impact the degraded water quality SMC.
- **Depletion of Interconnected Surface Water:** Subsidence minimum thresholds will not impact the interconnected surface water SMC. Pumping will not increase as a result of the subsidence sustainability indicator and should not affect or cause depletion of interconnected surface water.

8.9.3.3 Effect on Neighboring Basins

As the subsidence minimum thresholds are set to avoid long-term subsidence that may damage infrastructure, there is not anticipated to be any effect on the neighboring Paso Robles Basin.

8.9.3.4 Effects on Beneficial Users and Uses

There are no anticipated effects on beneficial users and uses of groundwater as a result of the subsidence minimum thresholds. In the event that minimum threshold exceedances result in undesirable results, there could be damage to infrastructure associated with beneficial use of groundwater.

8.9.3.5 Relation to State, Federal, or Local Standards:

There are no federal, state, or local regulations related to subsidence.

8.9.3.6 Method for Quantitative Measurement of Minimum Threshold

Minimum thresholds will be assessed using InSAR data, provided by DWR, to determine the measured change in elevation data from year to year. If a change of elevation greater than 0.1 feet is observed, groundwater levels for that year will be assessed to determine if levels dropped below historic lows and if subsidence may be caused by groundwater management.

8.9.4 *Measurable Objectives*

The measurable objective for subsidence within the Basin is maintaining historical rates as a result of groundwater management. Since there has not been historical subsidence in the Basin, the measurable objective is managing subsidence at a rate of 0 feet/year as a result of groundwater management.

8.9.4.1 Method for Setting MO

Measurable objectives were set based on historical records showing no history of subsidence in the Basin. Measurable objectives shall be monitored using the DWR InSAR data.

8.9.4.2 Interim Milestones

Since the measurable objective is to maintain current subsidence rates, and there is no historical evidence of subsidence in the Basin, interim milestones are not necessary to reach sustainability. Should a minimum threshold exceedance occur, interim milestones shall be addressed in the next GSP update to identify a path to reach the measurable objective.

8.10 Depletion of Interconnected Surface Water SMC

Natural hydraulic connections can exist between shallow groundwater systems and some surface water bodies. These surface water bodies can be gaining (receiving water from groundwater) or losing (contributing water to groundwater). These interflow relationships can change in magnitude and direction across wet and dry cycles and in response to changes in surface water operations or groundwater management practices.

The Salinas River is significant to the management of groundwater in the Basin. The Salinas River is ephemeral, and during most of the year loses water to the shallow alluvial aquifer. A complete description and quantification of the stream/aquifer interaction is included in Sections 5 – Groundwater Conditions, Section 6 – Water Budget, and Section 7 Monitoring Networks. The water budget shows that stream depletion is highly variable depending on rainfall events and the hydrologic year type. In wetter years, when flows in the Salinas River are high there is greater amounts of recharge from the river to the groundwater system. In drier years, when flows in the Salinas River are low, there is less stream recharge to the groundwater system. In both cases the amount of recharge to the groundwater system is small compared to the volume of surface water flowing down the river and out the northern boundary of the Basin.

As described in Section 3.6.3.1 – Salinas River Live Stream Requirements (1972), the Salinas River is also under the 'Live Stream Requirement' by the State Water Board regarding the operation of Salinas Reservoir 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 from the Salinas Dam.

These two factors including highly variable hydrology and Salinas Dam operations to meet the Live Stream Reequipment control the flows in the Salinas River. This has been the case for past conditions and is expected to continue in the future. The highly variable hydrologic conditions and the Live Stream Requirement dictating reservoir releases to the river culminate in streambed infiltration resulting in higher groundwater levels in the Alluvial Aquifer.

Because of the relationship between groundwater levels in the Alluvial Aquifer and Depletions of Interconnected Surface Water, the Chronic Lower of Groundwater Levels will be used as a proxy for Depletions of Interconnected Surface Water.

8.10.1 *Undesirable Results*

The undesirable result for depletions of interconnected surface water is a result that causes significant and unreasonable adverse effects on beneficial uses of interconnected surface water within the Atascadero Basin over the planning and implementation horizon of this GSP.

8.10.1.1 Criteria for Defining Undesirable Results

The information used for establishing the of the criteria for defining undesirable results for the chronic lowering of groundwater levels (proxy for Depletion of Interconnected Surface Water) is described in Section 8.5.1.1 – Criteria for Defining Undesirable Results.

8.10.1.2 Potential Causes of Undesirable Results

The information used for establishing the of the criteria for defining potential causes of undesirable results for the chronic lowering of groundwater levels (proxy for Depletion of Interconnected Surface Water) is described in Section 8.5.1.2 – Potential Causes of Undesirable Results.

8.10.1.3 Effects on Beneficial Users and Land Use

If depletions of interconnected surface water were to reach undesirable results, the adverse effects could potentially include reduced ability of surface water flows to meet in-stream flow requirements. Fisheries, riparian habitat, and recreational opportunities within the Atascadero could also be impacted if groundwater pumping significantly reduces stream flows below the minimum thresholds.

8.10.2 *Locally Defined Significant and Unreasonable Conditions*

Significant and unreasonable groundwater level depletions in the Basin are those that significantly reduces stream flows below the minimum thresholds or interfere with SGMA sustainability indicators.

8.10.3 *Information Used a Methodology for Establishing Depletion of Interconnected Surface Water Measurable Objectives and Minimum Thresholds*

The information used for establishing the chronic lowering of groundwater levels measurable objective and minimum thresholds (our proxy for Depletion of Interconnected Surface Water) is described in Section 8.5.3 – Information and Methodology Used to Establish Measurable Objectives and Minimum Thresholds.

8.10.4 *Measurable Objectives*

The Measurable Objective for the chronic lowering of groundwater levels measurable objective and minimum thresholds (our proxy for Depletion of Interconnected Surface Water) is described in Section 8.5.4 – Measurable Objectives.

8.10.4.1 Method for Setting Measurable Objective

The method for setting the Measurable Objective for the chronic lowering of groundwater levels measurable objective in the Alluvial Aquifer (our proxy for Depletion of Interconnected Surface Water) is described in Section 8.5.4.2 – Alluvial Aquifer Measurable Objectives.

8.10.5 *Minimum Thresholds*

The information used for establishing the minimum thresholds for the chronic lowering of groundwater levels for the Alluvial Aquifer (proxy for Depletion of Interconnected Surface Water) is described in Section 8.5.5.1 – Alluvial Formation.

Depletions of Interconnected Surface Water. 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. The minimum threshold established for depletions of interconnected surface water shall be supported by the following:

(C) The location, quantity, and timing of depletions of interconnected surface water.

(D) A description of the groundwater and surface water model used to quantify surface water depletion. If a numerical groundwater and surface water model is not used to quantify surface water depletion, the Plan shall identify and describe an equally effective method, tool, or analytical model to accomplish the requirements of this Paragraph.

– § 354.28 Minimum Thresholds (c)(6)

8.10.5.1 Information Used for Establishing Depletion of Interconnected Surface Water Minimum Thresholds

Information used to establish the minimum threshold includes the following:

- Historic groundwater levels in the Alluvial Aquifer
- Historic stream flow records
- Analysis of riparian habitat including estimation of rooting depth
- Distribution of monitoring wells screened in the Alluvial Aquifer

8.10.5.2 Relationship Between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators

The information used for establishing the relationship of minimum thresholds to other sustainability indicators of groundwater levels (proxy for Depletion of Interconnected Surface Water) is described in Section 8.5.5.4 – Relation to Other Sustainability Indicators.

8.10.5.3 Effect on Neighboring Basins

The Salinas River flows through the Atascadero Basin to the Paso Robles Basin. The Live Stream Requirement includes the Salinas River downstream of the Atascadero Basin. We do not expect any changes in depletion of interconnected surface waters in the future conditions relative to historic conditions, and do not expected to impact the Paso Robles Basin, but the two basins will coordinate to ensure no adverse effects.

8.10.5.4 Relation to State, Federal, or Local Standards:

The State Water Board enforces the Live Stream Requirement on the Salinas River as described in Section 3.6.3.1 – Salinas River Live Stream Requirements (1972).

8.10.5.5 Method for Quantitative Measurement of Minimum Threshold

The information used for establishing the method for quantitative measurement of minimum threshold for groundwater levels (proxy for Depletion of Interconnected Surface Water) is described in Section 8.5.5.8 – Method for Quantitative Measurement of Minimum Threshold.

8.10.5.6 Interim Milestones

The information used for establishing interim milestones groundwater levels (proxy for Depletion of Interconnected Surface Water) is described in Section 8.5.5.9 – Interim Milestones.

8.11 Management Areas

No Management Areas have been established in the Basin. For planning purposes, concepts for future management areas provided.

8.11.1 *Future Management Area Concept*

The Atascadero Basin is considered sustainable by DWR. There is not current need to have management areas. Future designation of management areas may be developed based on the existence of a geologic and geographic divides in the Basin that result in different conditions or management actions to achieve sustainability.

8.11.1.1 Minimum Thresholds and Measurable Objectives

Established to ensure groundwater levels remain above historic water levels in each management are to maintain historical groundwater conditions. Groundwater quality will not be degraded due to poor quality water moving into productive aquifers.

8.11.1.2 Monitoring

A more expansive monitoring network might reveal the need for management areas, but at this time no management areas are planned.

8.11.2 *How Management areas will avoid undesirable results*

The Atascadero Basin is considered sustainable by DWR. There is not current need to have management areas.

8.11.3 *Management*

The Atascadero Basin is considered sustainable by DWR. There is not current need to have management areas.

9. Projects and Management Actions

The participating agencies of the Atascadero Basin GSA agree to work together to protect the groundwater resources of the Atascadero Basin (Basin) to meet the current and future beneficial uses in the Basin by developing a GSP that conforms with the requirements of the SGMA.

The hydrologic conditions and hydrogeologic setting of the Basin and ongoing proactive water management have demonstrated the resilient nature of the Basin and avoidance of groundwater overdraft conditions. As a result, the DWR has designated the Basin as very low basin priority that is being sustainably managed.

This section describes the projects and management actions that will be developed and implemented in the Basin to continue to sustainably operate the Basin in accordance with §354.42 and §354.44 of the SGMA regulations.

Because the Basin is currently being managed sustainably, as evidenced by historic groundwater levels in the Basin, there are no projects or management actions that are required to achieve sustainability. Some future projects and management actions may assist in improving the understanding of the groundwater system to enhance the overall water management capability in the Basin to continually meet existing and new requirements and accountability for improved and more efficient water management.

The projects and management actions outlined below will be implemented with an as-needed, adaptive-management approach, with decisions based largely on funding availability and identified need at the time. The projects and management actions identified in this section are supported by the adaptive management strategy described in Section 10 – Groundwater Sustainability Plan Implementation, which allow for the GSA to respond to unexpected changes in conditions so that potential future undesirable results can be avoided.

9.1 Summary of Projects

Because the Basin is currently managed sustainably there are no projects that are required to achieve sustainability. However, there are some projects that are desired to fill existing data gaps and to enhance the GSA's understanding of the Basin.

9.1.1 *Supplement the Monitoring Network*

The existing monitoring network and Representative Monitoring Network are presented in Section 7 – Monitoring Networks. This section identified the existing monitoring networks (for groundwater levels and groundwater quality) satisfy the requirements of the guidelines in the GSP regulations and Best Management Practices (BMPs) published by DWR on monitoring networks (DWR, 2016). Section 7 also identified some data gaps and plans to fill those data gaps which are outlined below. The initial priority to fill the data gaps includes identifying existing wells that can be added to the monitoring network. Where existing wells cannot be identified or permission provided by well owners for their wells to be added to the monitoring network, new dedicated monitoring wells may be constructed to fill the data gaps

9.1.1.1 Groundwater Level Monitoring Improvements

The San Luis Obispo County Flood Control and Water Conservation District (county) 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. Routine monitoring of groundwater levels is conducted by the county in the Basin. The monitoring network also includes private wells in the Basin that are monitored under confidentiality agreements. These wells are not shown on GSP maps and figures.

The existing GSP groundwater level monitoring network satisfies the requirements cited in DWR's BMP. However, hydrogeologists working with the GSA have identified two areas in the Basin where the network could be enhanced. These data gaps are in the Paso Robles Formation Aquifer and Alluvial Aquifer in locations where existing private agricultural and domestic supply wells exist.

The GSA will take the initial steps to fill these data gaps by reaching out to the private well owners in these areas to assess their willingness to participate in the monitoring program and the suitability of their well(s) for inclusion in the monitoring network. Notices will also be placed on the project website to inform the public and other agencies regarding the expansion of the monitoring network. The GSA will investigate incorporating existing wells into the monitoring network to the extent that they meet the needs and requirements of the monitoring program.

This activity will be completed within the first 5 years of implementation to supplement the existing monitoring network. This activity will continue to improve the understanding of aquifer conditions, support development of the groundwater model, and monitor groundwater conditions. This activity supports the development of the best available information in the basin and helps reduce the uncertainty of the basin setting and groundwater conditions.

Because this activity focuses on using existing wells there are no permitting or regulatory processes required. The GSA will plan to get permission from the well owners to allow their information to be included in the voluntary network so the data from the well may be shared with the public, otherwise the information will be collected under the confidentiality agreement.

A portion of this activity will be directed by the purveyors in the Basin, or the county as part of their normal operations, so there is no anticipated additional cost for the identification of potential wells to be considered. Additional consulting support will be needed to evaluate the specific wells to add to the network, assessing the suitability of the well (proximity to others, aquifer, well depth, screen intervals, etc), contacting the owners, and incorporating the new wells into the network. This activity will be directed and paid for by the GSA and may have costs ranging from $50,000 to $100,000 over the 5-year period.

9.1.1.2 Groundwater Quality Monitoring Improvements

The GSP groundwater quality monitoring network is based on existing supply wells and there are no spatial data gaps in the network. There is adequate spatial coverage in the network for both principal aquifers to assess impacts to beneficial uses and users. The primary data gap is that well depth and construction information for many wells in the monitoring network is unknown. The GSA will try to fill this data gap by trying to match wells included in the groundwater quality monitoring network with well logs.

This activity supports the development of the best available information in the basin and helps reduce the uncertainty of the basin setting and groundwater quality conditions by providing additional understanding of the water quality withing the primary aquifers. This activity will be completed within the first 5 years of implementation for the wells currently in the groundwater quality monitoring network. Because this activity focuses on using existing wells there are no permitting or regulatory processes required. This activity will be directed by the purveyors in the Basin, or the county as part of their normal operations, so there is no anticipated additional cost for this activity. Additional consulting support will be needed to evaluate the specific well logs to add to the wells included in the groundwater quality network. This activity will be directed and paid for by the GSA and may have costs ranging from $20,000 to $50,000 over the 5-year period.

9.1.1.3 Identify New Monitoring Wells for Incorporation into the Groundwater Level Monitoring Network

The GSA will investigate the need for new monitoring wells on an as-needed basis, to the extent existing wells cannot fill groundwater level data gaps. These wells can fill gaps spatially, with depth, or gaps related to GDEs and surface water/groundwater interaction. Additionally, the wells may provide locations to assist in aquifer testing and may provide additional locations for water quality monitoring. The GSA will evaluate the need for new monitoring wells in the very shallow subsurface to improve the understanding of GDEs and surface water/groundwater interaction.

This activity will be completed within the first 5 years of implementation to supplement the existing monitoring network to continue improving the understanding of aquifer conditions. This activity supports the development of the best available information in the basin and helps reduce the uncertainty of the basin setting and groundwater conditions by filling data gaps in the basin setting and monitoring basin conditions

This activity will be directed and paid for by the GSA and may have costs ranging from $100,000 to $250,000 over the 5-year period. Because this activity focuses on new wells there will be some permitting or regulatory processes required. Notices will also be placed on the project website to inform the public and other agencies regarding the potential expansion of the monitoring network.

9.1.2 *Develop a Groundwater Model*

A groundwater model will need to be developed specific to the Basin and surrounding watersheds to improve the basin understanding to support ongoing sustainable management of the Basin. The model will need to reflect the latest groundwater basin boundaries identified in the 2016 Basin Boundary Modification. The model should account for the water demands of the beneficial users in the Basin and represent surface and subsurface inflows from the surrounding watersheds. The model should correlate with the model used in the adjacent Paso Robles Subbasin to reflect boundary conditions between the two basins.

Once developed, the model with be the primary technical tool in overall groundwater management, including supporting GSP updates and implementation. Scheduled within the first 5 years of implementation, the GSA will lead development of the model. The model will be updated as needed, but no less than every 5 years, to maintain an accurate representation of groundwater management activities and their impact on the groundwater resources within the Basin.

This activity will be completed within the first 5 years of implementation to continue improving the understanding of aquifer conditions and management considerations in the Basin and assess and potentially refine the sustainable management criteria. This activity supports the development of the best available information in the basin and helps reduce the uncertainty of the basin setting and groundwater conditions.

There are no regulatory or permitting requirements to develop the groundwater model. This activity will be directed and funded by the GSA and may have costs ranging from $200,000 to $300,000. Actual costs to develop the groundwater model will need to be refined based on developing the modeling goals and objectives.

Notices will also be placed on the project website to inform the public and other agencies regarding the development of the groundwater model.

9.2 Summary of Management Actions

The stakeholders of the Basin have actively managed the Basin for many years prior to and following the signing of the SGMA in 2014. Currently the Basin is identified as a very low priority basin based on the 2019 DWR Basin Prioritization. As a result of the Basin status and ongoing groundwater management activities, implementation of many of the actions identified in this GSP will occur on an as-needed basis during the first 5 years of implementation to maintain the sustainable groundwater conditions of the Basin.

In general, basin-wide management actions will apply to all areas within the Basin 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; and annual reports and GSP updates. Area-specific management actions may be implemented in those areas experiencing persistent issues that may not support the continuing sustainable management of the Basin. An adaptive management approach will be implemented to identify the specific actions necessary to meet local needs and support basin-wide sustainable groundwater management.

9.2.1 *Basin-Wide Management Actions*

The GSA will take the initial steps on the Basin-wide management actions associated with monitoring and reporting information associated with implementation of the GSP described below.

To inform stakeholders and interested parties of these activities, notices will be included in billing statements issued by water purveyors. Those individuals not receiving water from one of the waters providers in the Basin will be contacted by mail. This approach has been used during the development of the GSP. Additionally, a notice will be placed on the project website to inform the public and other agencies regarding the status of these activities.

This activity will be completed on an as-needed basis throughout the first 5 years of implementation. This activity supports the development and distribution of the best available information in the basin and helps inform other agencies, basin stakeholders and interested parties.

There are no permitting requirements associated with this activity. This activity will be directed by the purveyors in the Basin, or the county as part of their normal operations, so there is no anticipated additional cost for this activity. Information regarding GSP implementation will be included in bills for customers within the boundaries of water purveyors. For landowners outside of the boundaries will be contacted by mail. During previous groundwater management activities, including the preparation of this GSP, Atascadero MWC has sent out information to those property owners outside the purveyor boundaries in the Atascadero Basin, and will continue to do that during the first 5-year implementation period.

9.2.1.1 Monitoring, Reporting, and Outreach

Monitoring, reporting, and outreach reflect the core functions that the GSAs need to provide to comply with SGMA regulations. The GSAs will direct the monitoring programs outlined in Section 7 – Monitoring Networks, to track Basin conditions related to the five sustainability indicators that are applicable to the Basin. Data from the monitoring programs will be routinely evaluated to ensure sustainability is maintained or to identify whether undesirable results are on the horizon. Data will be maintained in the DMS. Data from the monitoring program will be used by the GSA to guide decisions on management actions in the Basin. Data will be used to prepare annual reports to Basin stakeholders and the DWR. The reports will provide information to guide decisions on projects that may affect the Basin. Reports will comply with DWR submittal requirements and will be signed by a GSA authorized party. Data will be organized and available to the public to document Basin conditions relative to Sustainable Management Criteria (Section 8 – Sustainable Management Criteria).

9.2.1.2 De Minimis Self-Certification

De minimis extractor means a person who extracts, for domestic purposes, 2 acre-feet or less per year. During the first 5 years of implementation if it is determined that the current estimates of de minimis extractions may not represent the pumping amounts, the GSA will consider developing a process to allow *de minimis* basin extractors to self-certify that they extract 2 acre-feet or less per year for domestic purposes. If needed this activity will be directed and paid for by the GSA and may have costs ranging up to $50,000 over the 5-year period.

9.2.1.3 Non-De Minimis Extraction and Reporting Program

The GSA will adopt water duty factors representative of various land uses within the basin to estimate groundwater extractions. These duty factors will be developed using metered data from properties with representative land uses. During the first 5 years of implementation if it is determined that the current estimates of pumping for non-de minimis extractions may not represent the actual pumping amounts, the GSA will consider developing a process to refine this information. If needed this activity will be directed and paid for by the GSA and may have costs ranging up to $50,000 over the 5-year period.

9.2.1.4 Annual Reports (SGMA Regulation §356.2)

Annual reports will be submitted to DWR starting on April 1, 2022. The purpose of the report is to provide monitoring and total groundwater use data to DWR, compare monitoring data to the sustainable management criteria, and to report on management actions and projects implemented to maintain sustainability. Annual reports will be available to Basin stakeholders.

9.2.1.5 5-Year GSP Updates and Amendments (SGMA Regulation §356.2)

In accordance with SGMA regulatory requirements (§356.4), 5-year GSP assessment reports will be provided to DWR starting in 2027. The GSA will evaluate the GSP at least every 5 years to assess whether it is maintaining the sustainability goal in the Basin. The assessments 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.

9.2.1.6 Develop Public Data Portals and Coordinate on Data

The Basin is included in the county-wide Groundwater DMS being developed for San Luis Obispo County to manage data collected and used to support groundwater management activities in the groundwater basins located within the county. The DMS is needed to meet SGMA requirements (§352.6). The DMS will be used to store collected data needed to support the management and reporting for the Basin. The DMS will need regular updates of the data collected for the Basin.

This activity is scheduled to be completed on a regular basis, anticipated to be twice a year, to enter water level and other data into the DMS to keep it current to support various reporting requirements.

9.2.1.7 Continued Groundwater Dependent Ecosystems Evaluation

GDEs are defined in the GSP regulations as “ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface.” A process was performed to identify potential GDEs, as separate from vegetation that may receive water supplies from other sources.

The analysis was based on the best available science, including the NCCAG database and information on the local near surface hydrogeologic conditions as well as the connectivity between rivers and streams and the shallow aquifer. Rooting depths of the nearby vegetation was also considered in the GDE evaluation.

Scheduled within the first 5 years of implementation, the GSAs will consider analyzing a combination of shallow groundwater level data and remote sensing data on vegetative cover to further analyze any relationship between lower groundwater levels and reduced GDE health.

9.2.1.8 Estimation of Groundwater Uses

Metering groundwater production has been avoided due to the high initial and ongoing costs and the limited benefits of metering compared to available methods for estimating production. However, while domestic use can be estimated based on population and per-capita use, and agricultural use can be estimated based on crop type, self-supplied groundwater uses can be more difficult to estimate.

The initial approach is to conduct a study using existing metered wells at selected agricultural locations of various crop types to assess the accuracy of agricultural groundwater use. These estimates could utilize CIMIS data from the Atascadero Station (Station 163) to refine these estimates.

9.2.2 *Specific Management Actions*

Area-specific management actions may be implemented to target a localized area or aquifer to continue to meet local needs while supporting sustainable operation of the Basin. Some of the management actions listed below may be implemented as-needed based on implementation of the adaptive management approach.

9.2.2.1 Supplemental Supplies from Nacimiento Water Project

Several of the water purveyors within the Basin entered Water Delivery Entitlement Contracts with the county to participate in the NWP. The NWP annual water supply allocations listed previously in Table 3-2 are for the purveyors in the Basin. As described in Section 6 – Water Budgets, during the current water budget period, representing the 2012 to 2016 period, the deliveries from the NWP ranged from 730 to 4,790 acre-feet per year and averaged 2,160 acre-feet per year. If needed in dry years, additional deliveries from the NWP up to the existing allocations could be imported to support groundwater pumping from the alluvial aquifer. The city of Paso Robles utilizes their NPW allocation in both the Atascadero Basin and the Paso Robles

Subbasin. Only that portion of the NWP allocation used in the Atascadero Basin will be considered as this potential supply.

This activity is part of normal operations and will be implemented annually by each NWP Partner throughout GSP implementation. This activity provides the greatest opportunity in the Basin to provide additional water supplies into the Basin to support sustainable groundwater management. This activity uses existing facilities and operations, so no additional permitting or regulatory processes are required. This activity will be directed by the NWP Partners in the Basin and is part of their normal operating costs, so there is no anticipated additional cost for this activity. The actual operations will be documented and reported to DWR, other agencies, and the public in the GSP annual reports.

9.3 Projects and Management Actions Implementation

The Basin will implement projects and management actions under an adaptive management strategy when opportunity and funding are available. The GSA developed the two matrices below to support the decision-making process for initiation of projects and management action. Table 9-2 provides a summary of the status, criteria for implementation, the potential range of costs and the benefits of each project and management action. Table 9-3 summarizes how each project and management action will address the sustainability indicators for the Atascadero Basin.

Table 9-2. Projects and Actions Implementation Matrix

Activity	Status	Implementation Timing/Criteria for Implementation	Range of Costs	Accrual of Benefits
PROJECTS				
Supplement the Monitoring Network	Ongoing	As needed	Considered to occur within existing operational costs of the water purveyors. Additional costs for specific activities are listed below	Continuous improvement of monitoring network to support understanding of basin conditions
Groundwater Levels	Ongoing	Near-term. To occur within first 5 years	Additional costs could range $50,000 to $100,000 over first 5 years	Fill groundwater level monitoring data gaps
Groundwater Quality	Ongoing	Near-term. To occur within first 5 years	Additional costs could range $20,000 to $50,000 over first 5 years	Improve understanding of water quality in principal aquifers
New Monitoring Well Identification and installation	As Needed	Near-term. To occur within first 5 years	Additional costs could range $100,000 to $250,000 over first 5 years	Fill groundwater level monitoring data gaps
Develop a Groundwater Model	Planned	Near-term. To occur within the first 5 years	$200,000 to $300,000	Provide updates to first GSP update. Continually benefits from updated information to improve groundwater management
MANAGEMENT ACTIONS (BASINWIDE)				
De Minimis Self Certification	Planned	Near-term. To occur within the first 5 years	Up to $50,000 over first 5 years of implementation	Improve understanding of groundwater pumping amounts in Basin
Non-De Minimis Extraction and Reporting Program	Planned	Near-term. To occur within the first 5 years	Up to $50,000 over first 5 years of implementation	Improve understanding of groundwater pumping amounts in Basin
Annual Reports	Planned to comply with SGMA requirements.	Near-term. To occur each year	Estimated at $70,000 for initial annual report. Less than that for following years	Provide annual updates of continued sustainable management of Basin

5-Year GSP Updates and Amendments	Planned to comply with SGMA requirements.	Near-term. To occur within the first 5 years	Estimated at $250,000 to $300,000.	Provide updated state of the basin and documentation of sustainable groundwater management of Basin
Develop Public Data Portals and Coordinate on Data	Ongoing	Near-term. To occur Each year	Considered to occur within existing operational costs	Continuous throughout GSP implementation. Evaluated through coordination activities and improvements to data management
Continued GDE Evaluation	Planned	Near-term. To occur within the first 5 years	$50,000 to $100,000 over first 5 years	Improve understanding GDE's in basin and surface water-groundwater interaction
Estimation of Groundwater Uses	Planned	Near-term. To occur within the first 5 years	Less than $50,000 over first 5 years	Improve understanding of groundwater pumping amounts in Basin
MANAGEMENT ACTIONS (AREA-SPECIFIC)				
Supplemental Supplies from NWP	Ongoing	To occur each year as part of normal operations; may be modified to address drought conditions	Considered to occur within existing operational costs	Continuous throughout GSP implementation

Table 9-3 Adaptive Management Strategy by Sustainability Indicator

Activity	Chronic Lowering of Groundwater Levels and Change in Groundwater Storage	Degraded Water Quality	Land Subsidence	Depletion of Interconnected Surface Water
PROJECTS				
Supplement the Monitoring Network	Continuation of existing monitoring network to continue improving the understanding of aquifer conditions and groundwater movement to monitor for meeting sustainable management criteria	Continuation of groundwater level monitoring to support analysis related to other sustainability indicators	Continuation of groundwater level monitoring to support analysis related to other sustainability indicators	Continuation of existing monitoring network to continue improving the understanding of aquifer conditions and groundwater movement to monitor for meeting sustainable management criteria
Groundwater Levels	Further improvement of monitoring network to better understand aquifer conditions	Further improvement of monitoring network to support analysis related to other sustainability indicators	Further improvement of monitoring network to support analysis related to other sustainability indicators	Further improvement of monitoring network to support analysis related to other sustainability indicators
Groundwater Quality	Not applicable	Further improvement of monitoring network to better understand aquifer conditions	Not applicable	Not applicable
New Monitoring Well Identification	Further improvement of monitoring network in order to better understand aquifer conditions	Further improvement of monitoring network to support analysis related to other sustainability indicators	Further improvement of monitoring network to support analysis related to other sustainability indicators	Further improvement of monitoring network to support analysis related to other sustainability indicators
Develop a Groundwater Model	Atascadero Basin groundwater model will improve the understanding of the basin and groundwater management	The groundwater model will improve the improve the ability to manage quality changes driven by upwelling or changes in flow direction	The groundwater model will improve the improve the ability to manage groundwater levels, which influences the risk of subsidence	The groundwater model will improve the improve the ability to understand and manage surface water depletions

MANAGEMENT ACTIONS (BASINWIDE)				
De Minimis Self Certification	Improves the understanding of groundwater production, improving the ability to manage groundwater levels	Not applicable	Improves the understanding of groundwater production, improving the ability to manage groundwater levels, which influences the risk of subsidence	Improves the understanding of groundwater production, improving the ability to manage groundwater levels, and the related depletions
Non-De Minimis Extraction and Reporting Program	Improves the understanding of groundwater production, improving the ability to manage groundwater levels	Not applicable	Improves the understanding of groundwater production, improving the ability to manage groundwater levels, which influences the potential for subsidence	Improves the understanding of groundwater production, improving the ability to manage groundwater levels, and the related depletions
Annual Reports	Openness and transparency of GSP showing continued sustainable management	Openness and transparency of GSP showing continued sustainable management	Openness and transparency of GSP showing continued sustainable management	Openness and transparency of GSP showing continued sustainable management
5-Year GSP Updates and Amendments	Continued and improved sharing of data across organizations, including data to support indicators	Continued and improved sharing of data across organizations, including data to support indicators	Continued and improved sharing of data across organizations, including data to support indicators	Continued and improved sharing of data across organizations, including data to support indicators
Develop Public Data Portals and Coordinate on Data	Improved data maintenance, data access, data sharing, and transparency	Improved data maintenance, data access, data sharing, and transparency	Improved data maintenance, data access, data sharing, and transparency	Improved data maintenance, data access, data sharing, and transparency
Continued GDE Evaluation	Improves the understanding of how GDEs relate to the groundwater aquifer accessed by pumping. May allow for refinement of how GDEs are incorporated into the criteria	Not applicable	Not applicable	Improvement in the understanding of the interaction of deep and shallow groundwater conditions may benefit understanding of depletions
Estimation of Groundwater Uses	Improves the understanding of groundwater production, improving the ability	Not applicable	Improves the understanding of groundwater production, improving the	Improves the understanding of groundwater production, improving the

	to manage groundwater levels		ability to manage groundwater levels, which influences the risk of subsidence	ability to manage groundwater levels, and the related depletions
MANAGEMENT ACTIONS (AREA-SPECIFIC)				
Supplemental Supplies from NWP	Provides operational flexibility to manage groundwater levels in the Basin to meet sustainable management criteria	Provides operational flexibility to manage groundwater levels in the Basin to meet sustainable management criteria	Provides operational flexibility to manage groundwater levels in the Basin to meet sustainable management criteria	Provides operational flexibility to manage groundwater levels in the Basin to meet sustainable management criteria

10. Groundwater Sustainability Plan Implementation

This section is intended to serve as a conceptual roadmap for the Atascadero Basin GSA to start implementing the GSP over the first 5 years and discusses implementation effects in accordance with the SGMA regulations sections 354.8(f)(2) and (3).

The implementation plan provided in this chapter is based on current understanding of Atascadero Basin (Basin) conditions and includes consideration of projects and management actions included in Section 9 – Projects and Management Actions, as well as other actions that are needed to successfully implement the GSP including the following:

- GSP implementation, administration, and management
- Reporting, including annual reports and 5-year evaluations and updates
- Adaptive management strategies
- Funding
- Evaluation of Effects

10.1 GSP Implementation, Administration, and Management

The Basin was actively managed for many years prior to the signing of the SGMA in 2014 and is currently a very low priority basin based on the 2019 DWR Basin Prioritization. As a result of the Basin status and ongoing groundwater management activities, implementation of much of the GSP will occur on an as-needed basis to maintain the sustainable groundwater conditions of the Basin.

Several projects and management actions are scheduled to be fully or partially completed within the first 5 years:

- Identify existing wells for incorporation into the groundwater level monitoring network
- Identify and install new dedicated monitoring wells for incorporation into the groundwater level monitoring network to fill data gaps
- Refine our understanding of the relationship between groundwater levels and GDE health, which may include the installation of very shallow monitoring wells near potential GDEs
- Develop a groundwater model for the Basin
- Continue to utilize imports from the NWP to continue sustainable management of the Basin
- Improve public access to groundwater data
- Implement adaptive management activities if a triggering event occurs, as described in

Section 10.3 – Adaptive Management Strategies

To meet the requirements of SGMA, implementation of the GSP will require additional effort and coordination among the GSA Forming Parties and Participating Parties in the Basin. As described in Section 2.2 – Agency Organization and Management Structure, the Atascadero Basin GSA is comprised of four forming parties and six participating parties.

Forming Parties

- City of Atascadero
- City of Paso Robles
- County of San Luis Obispo
- Templeton Community Services District

Participating Parties

- Atascadero Mutual Water Company
- Atascadero State Hospital
- SMR Mutual Water Company
- Santa Ysabel Ranch Mutual Water Company
- Walnut Hills Mutual Water Company
- Garden Farms Water District

The GSP calls for GSAs to routinely provide information to the public about GSP implementation and ongoing sustainable management of the Basin. 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 Basin features and monitoring information.

10.2 Reporting

Reporting to be performed as part of GSP implementation includes development of annual reports and development of 5-year evaluations, which could lead to updates of the GSP.

10.2.1 *Annual Reports*

Annual reports must be submitted by April 1st of each year following GSP adoption, except years when 5-year or periodic assessments are submitted. The GSA will compile information relevant to annual reports and the Basin Point of Contact will coordinate collection of information and submit a single annual report for the Basin to DWR.

Annual reports will be developed to address current needs in the Basin and the requirements of SGMA. Modifications may include additional information and presentation of data over the prior water year (October 1 – September 30). An annual groundwater fact sheet will be developed for dissemination of information to the public.

Annual reports are anticipated to include three key sections: General Information, Basin Conditions, and Implementation Progress.

10.2.1.1 General Information

General information will include an executive summary that highlights the key content of the annual report. As part of the executive summary, this section will include a map of the Basin, a description of the sustainability goal, a description of GSP projects and their progress, as well as an annual update to the GSP implementation schedule. Key required components include:

- Executive Summary
- Map of the Atascadero Basin

10.2.1.2 Basin Conditions

Basin conditions will describe the current groundwater conditions and monitoring results in the Basin. This section will include an evaluation of how conditions have changed over the previous year and will compare groundwater data for the water year to historical groundwater data. Pumping data, effects of project implementation (if applicable), surface water deliveries total water use, and groundwater storage data will be included. Key required components include:

- Groundwater level data from the monitoring network, including contour maps of seasonal high and seasonal low levels maps for the principal aquifers
- Hydrographs of groundwater elevation data at RMS
- Groundwater extraction data by water use sector
- Surface water supply availability and use data by water use sector and source
- Total water use data
- Change in groundwater in storage, including maps for the aquifer
- Subsidence rates and associated survey data

10.2.1.3 Implementation Progress

Progress toward successful GSP implementation will be included in the annual report. This section of the annual report will describe the progress made toward achieving interim milestones as well as implementation of projects and management actions. Key required components include:

- GSP implementation progress, including proposed changes to the GSP
- Progress toward maintaining the Basin sustainability goal

Development of annual reports will begin following the end of the water year, September 30, and will include an assessment of the previous water year. The assessment will be submitted to DWR on April 1st of the following calendar year. The 2021 annual report covering water year 2021 will be submitted by the GSA by April 1, 2022. Five annual reports for the Basin will be submitted to DWR between 2022 and 2026, prior to the first 5-year assessment to this GSP, which is to be submitted to DWR in January 2027.

10.2.2 *Five-Year Evaluation Reports*

An evaluation of the GSP and progress toward meeting the approved sustainability goals will occur at least every 5 years and with every amendment to the GSP. A written 5-year evaluation report (or periodic evaluation report) will be prepared and submitted to DWR. The information to be included in the evaluation reports are provided in the sections below.

10.2.2.1 Sustainability Evaluation

A Sustainability Evaluation will contain a description of current groundwater conditions for each applicable sustainability indicator and will include a discussion of overall sustainability in the Basin. Progress toward achieving interim milestones and measurable objectives will be included, along with an evaluation of status relative to minimum thresholds. If any of the adaptive management triggers are found to be met during this evaluation, a plan for implementing adaptive management as described in the GSP will be included.

10.2.2.2 Plan Implementation Progress

A Plan Implementation Progress section will describe the current status of project and management action implementation and whether any adaptive management actions have been implemented since the previous report. An updated project implementation schedule will be included, along with any new projects developed to support the sustainability goal of the GSP and a description of any projects that are no longer included in the GSP. The benefits of projects and management actions that have been implemented will be described and updates on projects and management actions that are underway at the time of the report will be documented.

10.2.2.3 Reconsideration of GSP Elements

As additional monitoring data are collected, land uses and community characteristics change, and GSP projects and management actions are implemented, it may become necessary to reconsider elements of this GSP and revise the GSP as appropriate. GSP elements to be reassessed may include basin setting, management areas, undesirable results, minimum thresholds, and measurable objectives. If appropriate, a revised GSP completed at the end of the 5-year assessment period will include revisions informed by the outcomes of the monitoring network and changes in the Basin, including changes to groundwater uses or supplies, and outcomes of project implementation.

10.2.2.4 Monitoring Network Description

A description of the monitoring network will be provided. An assessment of the monitoring network's function will be included, along with an analysis of data collected to date. If data gaps are identified, the GSP will be revised to include a method for addressing these data gaps, along with an implementation schedule for addressing gaps and a description of how the GSA will incorporate updated data into the GSP.

10.2.2.5 New Information

New information available since the last 5-year evaluation or GSP amendment will be described and evaluated. If the new information should warrant a change to the GSP, this will also be included, as described previously in Reconsideration of GSP Elements.

10.2.2.6 Regulations or Ordinances

A summary of the regulations or ordinances related to the GSP that have been implemented by DWR or others since the previous report will be provided. The report will include a discussion of any required updates to the GSP.

10.2.2.7 Legal or Enforcement Actions

Legal or enforcement actions taken by the GSA in relation to the GSP will be summarized, including an explanation of how such actions support sustainability in the Basin.

10.2.2.8 Plan Amendments

A description of amendments to the GSP will be provided in the 5-year evaluation report, including adopted amendments, recommended amendments for future updates, and amendments that are underway.

10.2.2.9 Coordination

Ongoing coordination will be required among the GSA Forming Parties and Participating Parties, as well as between the GSA and GSAs in Paso Robles Subbasin. The 5-year evaluation report will describe coordination activities between these entities such as meetings, joint projects, or data collection and sharing and groundwater modeling efforts.

10.2.2.10 Reporting to Stakeholders and the Public

Significant outreach activities associated with the GSP assessment and resultant updates will be documented in the 5-year evaluation report.

10.3 Adaptive Management Strategies

As part of implementation, adaptive management strategies will be considered for implementation if designated trigger events occur. Triggers for implementation of adaptive management allow for a variety of actions, ranging from coordination and monitoring to management of groundwater extractions and recharge. Triggering events are based on monitoring results and are set in relation to the sustainable management criteria described in Section 8 – Sustainable Management Criteria.

10.3.1 *Adaptive Management Triggers*

The purpose of this adaptive management approach is for the GSA to take necessary action to investigate the cause of observed groundwater level declines below expected levels for the season and annual hydrologic conditions and provide a framework for response to prevent reaching the minimum threshold. Adaptive management will also occur should other sustainability indicators approach minimum thresholds, even though local management levels are not defined for these other indicators. For other indicators, adaptive management is triggered when minimum thresholds are exceeded, even if not in the percentages or timing defined as undesirable results.

10.3.2 *Trigger Response*

The minimum thresholds established in Section 8 – Sustainable Management Criteria, will be used to establish triggers for responses. The GSA will flag the representative monitoring site where the exceedance is observed and bring the flagged monitoring site to the attention of the Executive Committee. The Executive Committee will consider the results of an investigation of the exceedance performed by the GSA to determine if it is a locally driven change in conditions, or representative of a long-term, Basin-wide change in conditions. The Executive Committee will advise the GSA on a recommended course of action which may include working with water managers near the site. The GSA will take the action it determines to be necessary, including corrective action, additional study, or management modification, if any, in the area influencing the monitoring site.

10.3.3 *Corrective Actions*

Recognizing that the Basin has been operated sustainably, it is not anticipated the significant corrective actions will be needed to maintain ongoing sustainable groundwater management. Some initial corrective actions to better understand or mitigate impacts may include increased monitoring frequency, coordination and information sharing with overlying land use planning agencies or other water management entities to determine the cause of exceedances.

Additional corrective actions to address declining groundwater levels that have not reached the minimum thresholds may include localized actions such as delivering more NWP allocations up to the full allocation amount, implementing demand management measures, or modifying municipal pumping operations to mitigate impacts to private users. In some extreme cases, halting or reducing groundwater pumping in the depths and areas influenced by the representative monitoring site may be considered until conditions recover.

Given the current, historical, and projected sustainable nature of the Basin and given the cost associated with developing detailed response plans, details of these adaptive management actions will be further developed only if conditions suggest a reasonable potential for implementation of such strategies.

The corrective action or information gathering will be deemed successful in returning the Basin to sustainable conditions when monitoring indicates that conditions are above the local management level or minimum threshold, or that the issue was a result of localized conditions.

10.3.4 *Public Notice and Outreach*

Public notice of exceedances of the local management level or minimum threshold at an individual monitoring site will first be made via a web page or public data portal, to the extent developed at that time. Notice will also be provided as an agenda item at associated Forming Parties' or Participating Parties' board or city council meeting or Executive Committee meeting. Actions taken regarding discussion of the cause or corrective action to be taken to improve conditions will be considered during the GSA Executive Committee meetings. Additionally, any exceedances relative to the minimum thresholds and status compared to the other sustainable management criteria will be reported to DWR in annual reports under this GSP, which will be publicly available following submission to DWR.

10.3.5 *Permitting and Regulatory Process*

Implementation of this adaptive management strategy itself is not anticipated to require permitting or regulatory approvals. However, actions or projects resulting from a need to improve conditions relative to the local management level or minimum threshold will be subject to the appropriate permitting and regulatory processes, if any, and will be addressed on a case-by-case basis.

10.3.6 *Adaptive Management Strategy Benefits*

The primary benefit anticipated as a result of this adaptive management strategy is continued sustainable groundwater management and maintaining the sustainability goals established for this GSP. Expected benefits also include continued cooperative management of groundwater conditions among the GSA participants. Benefits will be evaluated based on observed groundwater conditions following implementation of this adaptive management strategy and evaluation of long-term conditions at, or improved relative to, the local management level or minimum threshold. An additional benefit of the adaptive management strategy is avoidance of high-cost, restrictive management efforts unless clearly needed as indicated by data and analysis of the data.

10.3.7 *Adaptive Management Responsibilities*

Implementation of the adaptive management strategy will be conducted by the GSA. The Forming and Participating Parties will inform the Executive Committee of exceedances of the minimum thresholds and will provide analysis, as needed, to the Executive Committee to identify the cause for the exceedance, whether it is localized or indicative of long-term, regional trends, and the corrective actions, if any, needed to return conditions to those above the local management level. The Executive Committee acts in an advisory role in the effort. The Forming and Participating Parties will take into consideration the Executive Committee's recommendation when implementing actions.

10.3.8 *Status and Timing*

This adaptive management strategy will commence as monitoring activities described in this GSP begin for the purpose of assessing conditions relative to the established sustainable management criteria. If exceedances of the local management level or minimum threshold occur, the management process described above will take place and corrective action or additional study will be initiated by the GSA and put in place until conditions are improved. The accrual of benefits is expected to be continuous throughout the GSP implementation timeframe.

10.3.9 *Legal Authority*

The GSA adopting this GSP is responsible for the sustainable management of groundwater based on the power and authority granted under the Water Code. As such, the adopting GSA has the authority to take action deemed appropriate within its legal authority to maintain sustainable groundwater conditions within the Basin.

10.3.10 *Costs*

Costs associated with this adaptive management strategy include staff time, consultant costs, contractor costs, transportation costs for in-person meetings (if necessary), monitoring and data collection, and actions associated with corrective management. Given the nature of adaptive management, including the broad range of actions that could be taken, these costs cannot be estimated at this time. GSA participants are expected to perform the monitoring and data collection tasks associated with GSP implementation and absorb these costs into their ongoing operations budgets.

10.3.11 *Technical Justification*

Management of sustainability indicators relative to the established sustainable management criteria is crucial to maintain sustainable conditions within the Basin. It is anticipated that Basin conditions will fluctuate around the established measurable objectives and that long-term trends will demonstrate continued sustainable conditions throughout the Basin across sustainability indicators. This adaptive management strategy outlines a uniform procedure for the GSA to follow in the unprecedented event that collected measurements indicate conditions may be approaching local management levels or minimum thresholds, which protect against undesirable results. With a procedure in place to guide the GSA, early detection and correction of unsustainable conditions is likely to occur.

10.3.12 *Reducing Uncertainty*

This adaptive management strategy addresses uncertainty by providing a flexible framework to address potential exceedances of local management levels and minimum thresholds should conditions within the Basin change as a result of unforeseen circumstances.

10.4 Funding

Implementation of this GSP is estimated to cost approximately between $100,000 and $200,000 per year for the first 5 years of implementation. The development of the initial groundwater model is estimated to total $200,000 to $300,000. Estimates of future annual implementation costs including model updates will be developed during future updates of the GSP. The costs of specific projects and management actions will like vary year by year based in part on needed adaptive management activities and may potentially add between zero dollars to $300,000 per year or more. Some of these costs are already being incurred through existing groundwater management efforts by GSA participants in their existing operational budgets.

10.4.1 *GSP Development Funds*

Development of this GSP was partially funded through a Proposition 1 Sustainable Groundwater Planning Grant from DWR, along with in-kind contributions from the Forming and Participating Parties in the process. The implementation of the GSP, including projects and management actions, will be funded through available grant funding as well as existing revenue streams provided by the Parties.

10.4.2 *GSP Implementation Funding Support*

As described above, there are substantial costs associated with GSP implementation for the Basin, including costs within the first 5 years of implementation. Some of these costs are already being incurred through existing groundwater management. While the GSA in the Basin has the powers and authority to impose fees and assessments, other funding sources will be sought by the GSA to reduce the local financial burden. Examples of available other funding sources include various state grant programs through DWR and the State Water Board and federal sources such as the Reclamation grant programs.

San Luis Obispo County, the city of Paso Robles, Templeton CSD, and Atascadero MWC have been successful in pursuing past grant funding, such as through DWR's Local Groundwater Assistance Fund, IRWMP implementation and planning grant programs, and Sustainable Groundwater Planning Grant programs. The continued availability of state and federal grant funding to implement this GSP will aid in continued sustainable groundwater management of the Basin. The GSA will track and pursue grant opportunities to fund groundwater sustainability activities and local water infrastructure projects. These projects may include supporting the actions described in this section, or other relevant activities. The nature of projects included in grant applications will depend on the nature of the grant, including allowable projects and projects that are most likely to receive funding.

Implementation of management actions will vary by available funding programs and projects eligible to receive funding. As available outside funding opportunities are identified that fit the needs of the Basin relative to this GSP, the project proponent and the GSA will be notified of the potential to pursue funding. The appropriate entity will then be identified to develop the grant application and associated materials. Grant application materials will be prepared, and proper public notice and outreach will take place to provide opportunity for public comment as specified by the grant program identified. After the grant application is submitted and funding awards have been announced, the successful grant recipient will work with the funding agency to develop a grant agreement to receive funds and maintain funding eligibility. Proper noticing of activities or work products produced with the awarded grant funds will take place according to the grant agreement and funding program guidelines. Details regarding the implementation process for a project will vary by funding program and agreements in place between the funding agency and project proponent. Such activities will take place as funding opportunities are available and as grant agreements are active.

On an as-needed basis, the GSA will track and pursue appropriate funding opportunities through various outside funding sources to implement elements of this GSP. Tracking of outside grant opportunities will be on-going throughout GSP implementation and timing will be highly dependent on available funding programs as well as project status for which funds are being sought. Table 10-1 summarizes potential grant programs or local funding sources that may be used for GSP implementation along with an assessment of the likelihood that the funding source could be obtained to help fund GSP implementation.

Table 10-1. Potential Funding Sources for GSP Implementation

Funding Source	Likelihood
General Funds or Capital Improvement Funds (of Project Proponents)	**High** – General or capital improvement funds are set aside by agencies to fund general operations and construction of facility improvements. Depends upon agency approval.
Proposition 68 grant programs administered by various state agencies	**Medium** – Grant programs funded through Proposition 68, which was passed by California voters in June 2018, are expected to be applicable to fund GSP implementation activities. Grant programs are expected to be competitive. Round 3 is expected to be announced in summer 2021.
Integrated Regional Water Management implementation grants administered by DWR	**Medium** – Proposition 1 Round 2 IRWM Implementation Grants are expected to be announced in late 2021.
WaterSMART Program grants administered by Reclamation	**Medium** – Programs include Water and Energy Efficiency Grants (WEEG), Drought Response Program grants, Applied Science grants, and more. In 2021, $42M was awarded for WEEG projects alone. Examples of funded projects include canal lining/piping, municipal metering, supervisory control, and data acquisition (SCADA) systems, water storage, water recharge, well construction, and more. Funding is typically available annually or twice a year.
Regional Conservation Partnership Program grants administered by USDA Natural Resources Conservation Service	**Medium** –The 2018 Farm Bill established the Regional Conservation Partnership Program (RCPP) as a standalone program with $300M available annually. Once a lead agency executes an RCPP agreement producers and landowners can participate in RCPP funding. The announcement for the next round of RCPP Classic funding is expected to be released in summer 2021. Eligibility requirements will be included in funding announcement.
Water & Waste Disposal Loan & Grant Program administered by USDA	**Low** – Long-term, low-interest loans and grants available for drinking water systems, disposal, and storm water drainage in rural areas (population of 10,000 or less). Applications are accepted year-round.

10.5 GSP Implementation Effects

10.5.1 *Effects on Existing Land Use*

The projected water budget (Section 6 – Water Budgets) accounts for modest increases in municipal and agricultural water demands that include potential changes in land use but is not likely to limit planned 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.

10.5.2 *Effects on Water Supply*

GSP implementation will not significantly alter the existing water supply of the Basin. If entities decide to take their full NWP allocation as outlined in Chapter 9, the Basin's water supply could increase.

10.5.3 *Effects on Local and Regional Economy*

GSP implementation is not expected to impact economic conditions since the Basin is already operated sustainably.

11. Notices and Communications

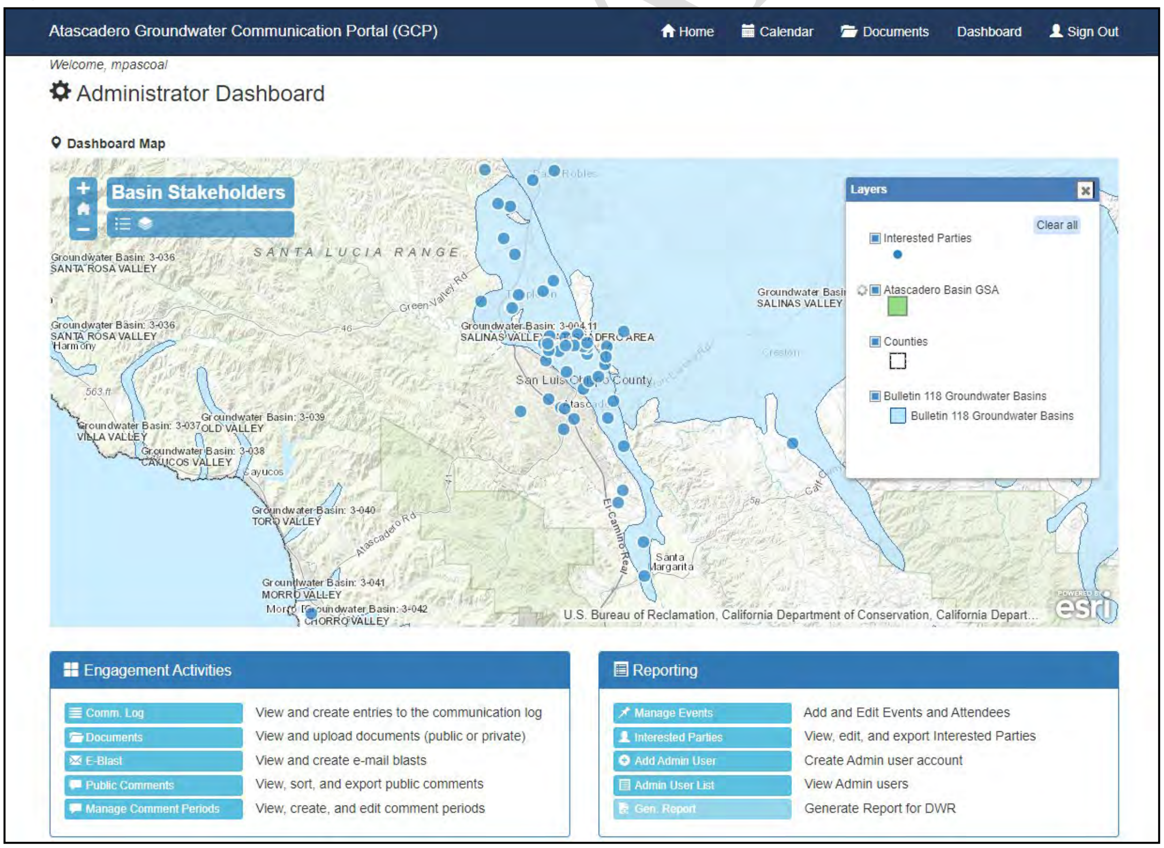
The Atascadero Basin began to conduct outreach almost immediately after SGMA was signed into law in September 2014. Local agencies launched a website, www.atascaderobasin.com (**Figure 11-1**) and started to solicit public input and educate stakeholders about the new law. Since that time, basin leadership dedicated their time and energy to support stakeholder engagement through multiple avenues:

- Built a robust interested parties list of 845 people
- Expanded the website to include a Communication Portal (**Figure 11-2**) used to display the meeting calendar, send e-blasts, store the interested parties list, publish draft sections of the GSP for public review, and collect public comments
- Produced and executed a Communication and Engagement Plan (**Appendix 11A**)
- Provided notices to water purveyor customers in the Basin with their water bills and provided two direct mailings to Basin residents located outside water purveyor boundaries (**Appendix 11B**)
- Conducted two stakeholder surveys to collect feedback regarding groundwater management in the basin (**Appendix 11C**)
- Published and distributed basin updates during the COVID-19 emergency period in the Spring and Summer of 2020 to keep stakeholders informed about how their participation may continue (**Appendix 11D**)
- Published 10 draft sections of the GSP and collected comments from interested parties and the public (**Appendix 11E**)
- Hosted 12 public meetings focused on SGMA implementation, including a public workshop focused on sustainable management criteria (**Appendix 11F**)
- Distributed e-mail notifications to the interested parties list when opportunities for public participation were available (**Appendix 11G**)

The outreach activities conducted to support GSP development are documented in Appendices A through F. Additionally, pre-SGMA groundwater management outreach efforts are attached as **Appendix 11H**.

Figure 11-1. Atascadero Basin Website

Figure 11-2. Atascadero Groundwater Communication Portal



12. Interagency Agreements

The Atascadero GSA directed the development of a single GSP that covers the entire Atascadero Basin so no interagency agreements are necessary to implement this GSP.

13. References

Section 1 – Intro to Atascadero Area GSP

California Department of Water Resources (DWR). 2016. California's Groundwater: Bulletin 118 Interim Update

Section 2 – Agency Information

California Department of Water Resources (DWR). 2016.

Section 3 – Description of GSP Area

Atascadero General Plan. 2025. City of Atascadero. Final Plan Update #3. July 1, 2016. Pg. II-2.

California Department of Water Resources (DWR). 1969. California DWR Well Standards.

_____. 2014.

_____.2016. California's Groundwater: Bulletin 118 Interim Update.

_____. 2018.

California UWMP Act. 2010.

California Senate. 2017. Bill 252 Requirements for New Wells. January 1, 2018.

California State Water Resources Control Board (State Water Board). 2018. Title 22 Drinking Water Program. California Code of Regulations.

Carollo. 2012.

Central Coast Regional Water Quality Control Board (CCRWQCB). 2017. Agricultural Order No. R3-2017-0002

City of Paso Robles. 2011. General Plan

_____. Urban Water Management Plan. 2016.

Countywide Water Conservation Program Resolution 2015-288. 2015.

GEI Consultants Inc., Fugro West Inc., CHG. 2011. Paso Robles Groundwater Basin Management Plan. March 2011.

MKN & Associates. 2016. Atascadero Mutual Water Company. 2015. 2016 Urban Water Management Plan.

Recycled Water Policy (RMC). 2015. State of California 2009 Recycled Water Policy.

Salinas River Live Stream Requirements. 1972. California State Water Resources Control Board.

Salt and Nutrient Management Plan for the Paso Robles Groundwater Basin. 2015. City of Paso Robles, San Miguel CSD, Templeton CSD, Heritage Ranch CSD, San Luis Obispo County, and Camp Roberts.

San Luis Obispo County. 2014.

______. 2015. Groundwater Export Ordinance.

______. 2016-2018. Resource Summary Report Volume I of II – Findings and Recommendations San Luis Obispo County General Plan Public Review Draft page 16. (https://www.slocounty.ca.gov/Departments/Planning-Building/Forms-Documents/General-Plan-Forms-and-Documents/Resource-Summary-Report/2016-2018-RSR-Revised-Clean.pdf)

______. 2017. Water Quality Control Plan for the Central Coastal Basin (Basin Plan). Updated September 2017

Santa Margarita Community Plan. 1996. https://www.slocounty.ca.gov/getattachment/0eb78520-fc61-412d-9974-282001b64407/Santa-MargaritaCommunity-Plan.aspx

Stream Agreement. 1972.

Templeton Community Plan. 2014. https://www.slocounty.ca.gov/Departments/Planning-Building/Forms-Documents/Plans/CommunityPlans/Templeton-Community-Plan.aspx

Todd Groundwater. 2016. City of Paso Robles 2016 UWMP.

Section 4 – Basin Setting

California Department of Water Resources (DWR). 1979. Ground Water in the Paso Robles Basin: prepared by the California Department of Water Resources, Southern District, for the San Luis Obispo County Flood Control and Water Conservation District.

______.2016. California's Groundwater: Bulletin 118 Interim Update. https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118

Campion, L.F., Chapman, R.H., Chase, G.W., and L.G. Youngs. 1983. "Resource Investigation of Low and Moderate – Temperature Geothermal Areas in Paso Robles, California"; California Division of Mines and Geology, Open File Report 83-11 SAC.

Dibblee, Jr., T.W. (1976), The Rinconada and Related Faults in the Southern Coast Ranges, California and Their Tectonic Significance, USGS Professional Paper 981.

Dibblee, Jr., T.W. and Minch, J.A. (2004a), Geologic Map of the Atascadero Quadrangle, San Luis Obispo County, California. Dibblee Geological Foundation Map DF-132, scale 1:24,000.

_____. (2004b), Geologic Map of the Estrella & Shandon Quadrangles, San Luis Obispo County, California. Dibblee Geological Foundation Map DF-138, scale 1:24,000.

_____. (2004c), Geologic Map of the Creston & Shedd Canyon Quadrangles, San Luis Obispo County, California. Dibblee Geological Foundation Map DF-136, scale 1:24,000.

_____.. (2004d), Geologic Map of the Lopez Mountain Quadrangle, San Luis Obispo County, California. Dibblee Geological Foundation Map DF-130, scale 1:24,000.

_____. (2004e), Geologic Map of the Paso Robles Quadrangle, San Luis Obispo County, California. Dibblee Geological Foundation Map DF-137, scale 1:24,000.

_____. (2004f), Geologic Map of the San Luis Obispo Quadrangle, San Luis Obispo County, California. Dibblee Geological Foundation Map DF-129, scale 1:24,000.

_____. (2004g), Geologic Map of the Santa Margarita Quadrangles, San Luis Obispo County, California. Dibblee Geological Foundation Map DF-133, scale 1:24,000.

_____. (2004h), Geologic Map of the Templeton Quadrangle, San Luis Obispo County, California. Dibblee Geological Foundation Map DF-135, scale 1:24,000.

Dibblee, Jr., T.W. and Minch, J.A. 2006a. Geologic Map of the Adelaida Quadrangle, San Luis Obispo County, California. Dibblee Geological Foundation Map DF-218, scale 1:24,000.

_____. 2006b. Geologic Map of the Morro Bay North Quadrangle, San Luis Obispo County, California. Dibblee Geological Foundation Map DF-215, scale 1:24,000.

_____. 2006c. Geologic Map of the Morro Bay South Quadrangle, San Luis Obispo County, California. Dibblee Geological Foundation Map DF-214, scale 1:24,000.

_____. 2006d. Geologic Map of the York Mountain Quadrangle, San Luis Obispo County, California. Dibblee Geological Foundation Map DF-217, scale 1:24,000.

Fugro West, Inc., and Cleath and Associates (2002), Final Report, Paso Robles Groundwater Basin Study: unpublished consultant report prepared for the county of San Luis Obispo Public Works Department, August 2002.

Fugro West, Inc., ETIC Engineering, and Cleath and Associates (2005), Final Report, Paso Robles Groundwater Basin Study: Phase II Numerical Model Development, Calibration, and Application. Prepared for the county of San Luis Obispo Public Works Department, February 2005.

Fugro Consultants, Inc. (2016), Technical Report Salinas Valley – Atascadero Area Basin Basin Boundary Modification Application. Prepared for Department of Water Resources. March 2016.

GeoSolutions (2000), Fault Investigation Report, Santa Ysabel Ranch, Santa Ysabel Road, Paso Robles Area, county of San Luis Obispo, California: unpublished consultant report prepared for Weyrich Development, LLC, March 31, 2000.

Torres, Gil (1979), Staff Report on Hydrogeologic Conditions Pertinent to Permit 5882 (Application 10216) of the city of San Luis Obispo, Diversion from Salinas River at Salinas Dam, San Luis Obispo County, in California State Water Resources Control Board, Prehearing engineering staff analysis for the protested application on tributaries to Salinas River (Salinas Dam to Nacimiento River) San Luis Obispo and Monterey Counties: typed document, Appendix B.

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). 2007. Soil Survey Geographic Database (SSURGO).

Section 5 – Groundwater Conditions

Central Coast Region State Water Resources Control Board (CCRWQCB). 2017. Water Quality Control Plan for the Central Coastal Basin. California Environmental Protection Agency, Regional Water Quality Control Board. September 2017.

California Department of Water Resources (DWR). 2016a

_____. 2018. Summary of the “Natural Communities Commonly Associated with Groundwater” Dataset and Online Web Viewer. https://gis.water.ca.gov/app/NCDatasetViewer/

Fugro West, Inc. and Cleath and Associates. 2002. Final Report, Paso Robles Groundwater Basin Study: unpublished consultant report prepared for the county of San Luis Obispo Public Works Department, August 2002.

Fugro West, Inc., ETIC Engineering, and Cleath and Associates (2005), Final Report, Paso Robles Groundwater Basin Study: Phase II Numerical Model Development, Calibration, and Application. Prepared for the county of San Luis Obispo Public Works Department, February 2005.

National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory (JPL). 2018. Raster Geographic Information System (GIS) dataset: Vertical Displacement Total since 20150531 to 20150831. Prepared for California Department of Water Resources. July 3, 2018.

RMC Water and Environment (RMC) (2015), Salt/Nutrient Management Plan for the Paso Robles Groundwater Basin – Final Report. May 2015.

Torres, Gil (1979), Staff Report on Hydrogeologic Conditions Pertinent to Permit 5882 (Application 10216) of the city of San Luis Obispo, Diversion from Salinas River at Salinas Dam, San Luis Obispo County, in California State Water Resources Control Board, Prehearing engineering staff analysis for the protested application on tributaries to

Salinas River (Salinas Dam to Nacimiento River) San Luis Obispo and Monterey Counties: typed document, Appendix B.

Valentine, D.W. et al. (2001), Use of InSAR to Identity Land Surface Displacements Caused by Aquifer System Compaction in the Paso Robles Area, San Luis Obispo County, California, March to August 1997. USGS Open File Report 00-447.

Section 6 – Water Budgets

Atascadero General Plan. 2025. City of Atascadero. Final Plan Update #3. July 1, 2016. Pg. II-2.

California Department of Water Resources (DWR). 2016a. Best Management Practices for the Sustainable Management of Groundwater – Water Budget BMP. December 2016.

_____. 2018, Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development. July 2018.

Fugro West, Inc., and Cleath and Associates. 2002. Final Report, Paso Robles Groundwater Basin Study: unpublished consultant report prepared for the county of San Luis Obispo Public Works Department, August 2002.

Fugro West, Inc., ETIC Engineering, and Cleath and Associates. 2005. Final Report, Paso Robles Groundwater Basin Study: Phase II Numerical Model Development, Calibration, and Application. Prepared for the county of San Luis Obispo Public Works Department, February 2005.

Geoscience Support Services, Inc. (GSSI). 2014. Paso Robles Groundwater Basin Model Update, December 2014.

_____. 2016. Refinement of the Paso Robles Groundwater Basin Model and Results of Supplemental Water Supply Options Predictive Analysis, December 2016.

MKN & Associates, (2016), 2015 Urban Water Management Plan for the Atascadero Mutual Water Company, Draft for Public Review: May 2016.

Montgomery and Associates (M&A) (2020), Paso Robles Subbasin Groundwater Sustainability Plan. Prepared for the Paso Robles Subbasin Cooperative Committee and the Groundwater Sustainability Agencies. November 13, 2019.

Templeton Community Services District (Templeton CSD). 2019. Water Supply Buffer Model 2019 Update.

Todd Groundwater (Todd). 2016. City of Paso Robles 2015 Urban Water Management Plan, Final: July 2016.

Section 7 – Monitoring Networks

California Department of Water Resources (DWR). 2016. California’s Groundwater: Bulletin 118 Interim Update.

Section 8 – Sustainable Management Criteria

California Department of Water Resources (DWR). 2017.

GSP, Paso Robles Basin. 2020.

Regional Water Quality Control Board (RWQCB). 2015.

_____. 2019. Water Quality Control Plan.

Salinas River Live Stream Requirements. 1972.

Appendix 2A – Memorandum of Agreement

This page left blank intentionally.

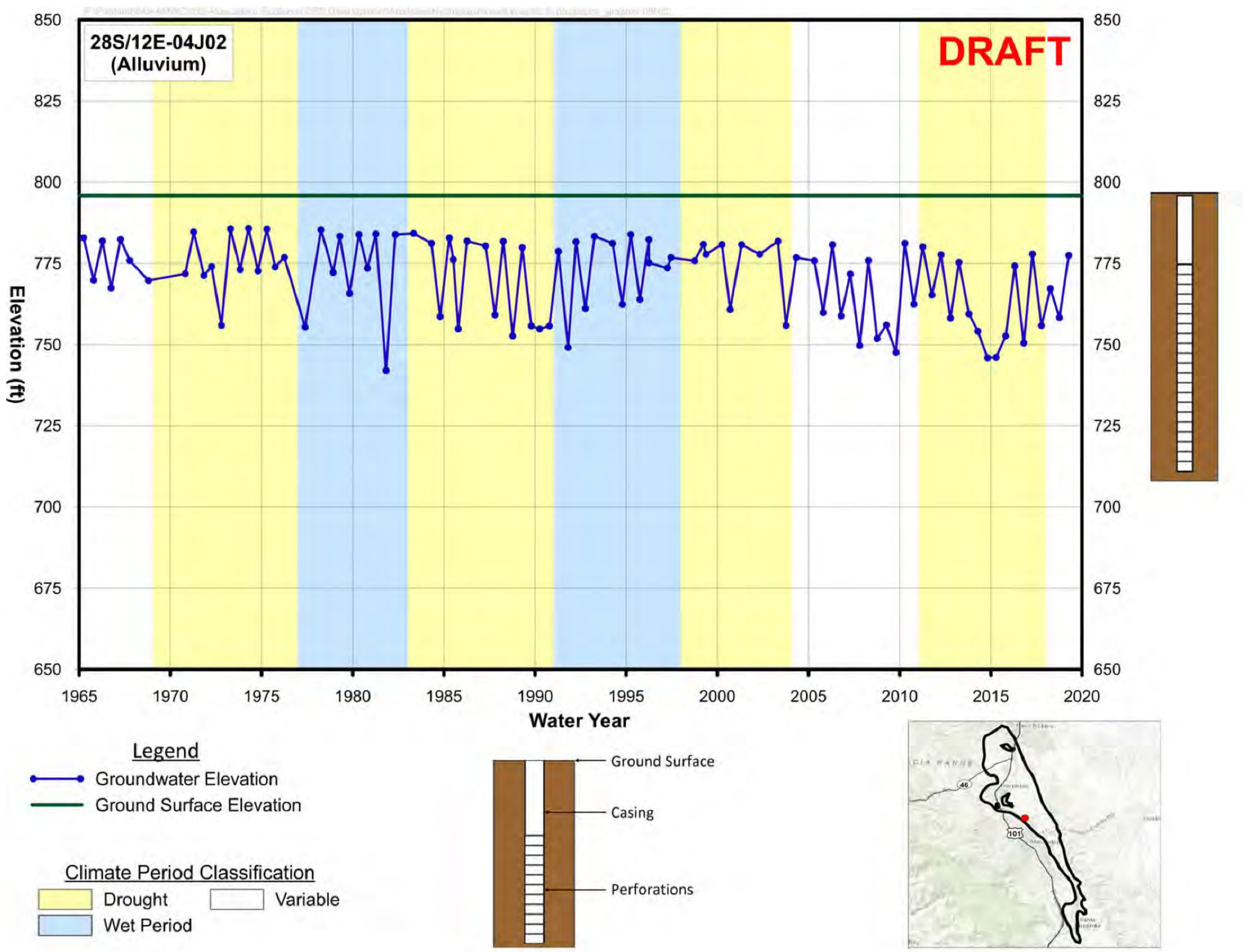
Appendix 3A – Groundwater Basin Management Plan

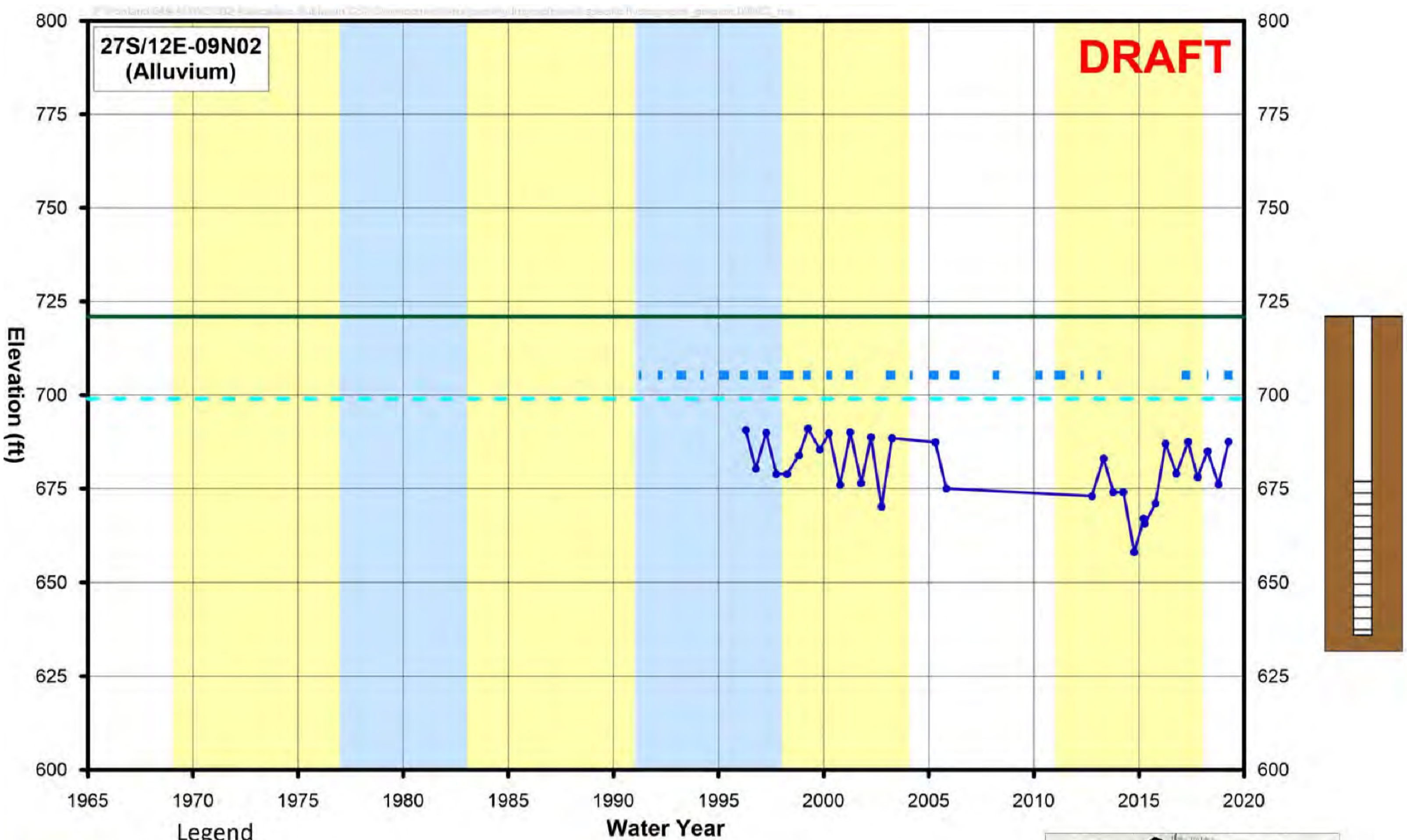
This page left blank intentionally.

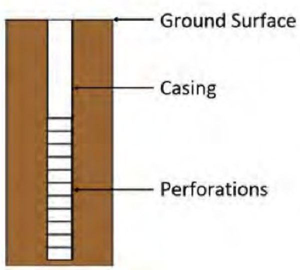
Appendix 5A – Hydrographs

This page left blank intentionally.

Alluvial Aquifer Hydrographs


28S/12E-04J02
(Alluvium)
DRAFT
Elevation (ft)
850
825
800
775
750
725
700
675
650
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Water Year
Legend
Groundwater Elevation
Ground Surface Elevation
Climate Period Classification
Drought
Variable
Wet Period
Ground Surface
Casing
Perforations
46
101





Legend

Groundwater Elevation

Ground Surface Elevation

Salinas River Thalweg Elevation

Climate Period Classification

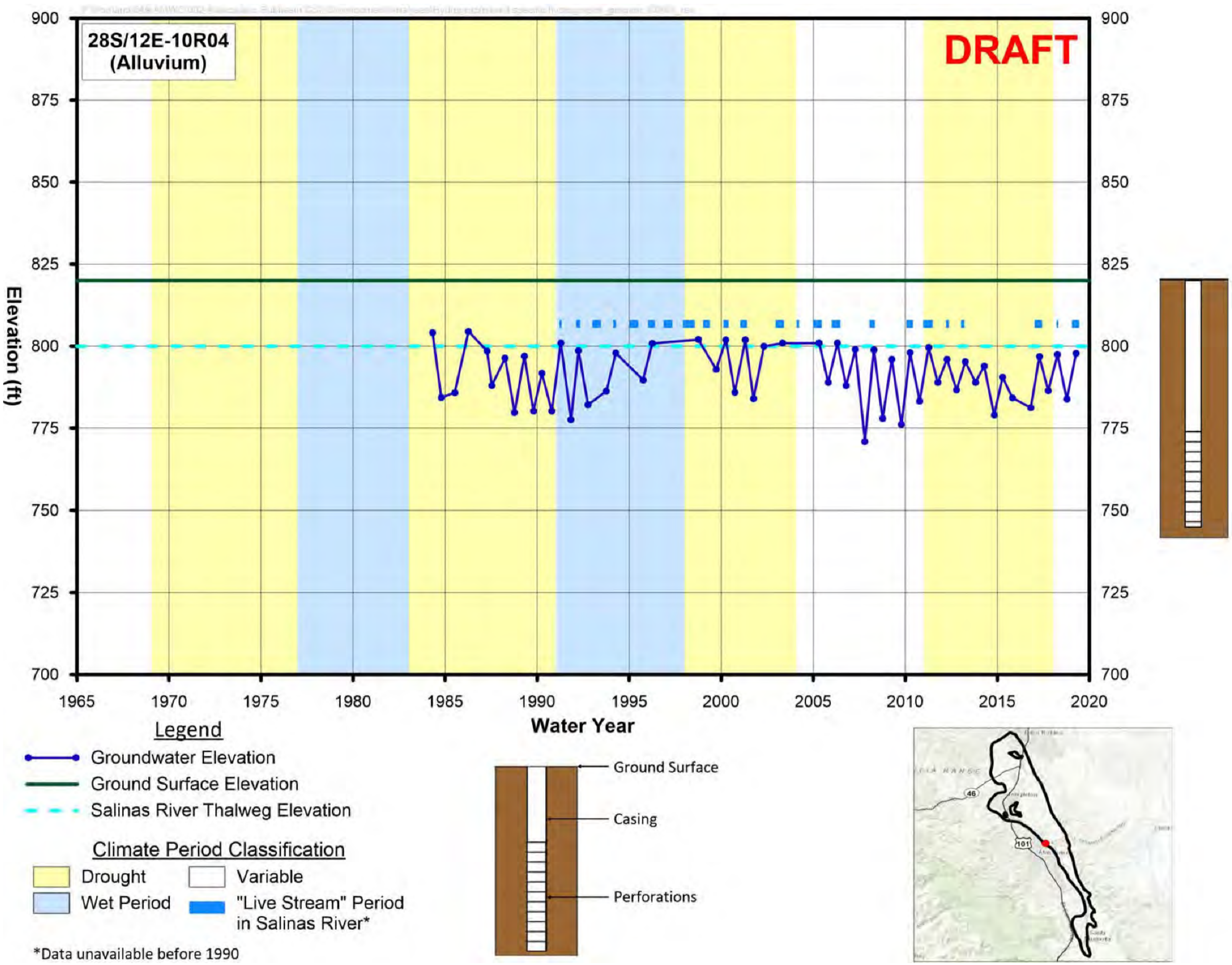
Drought

Variable

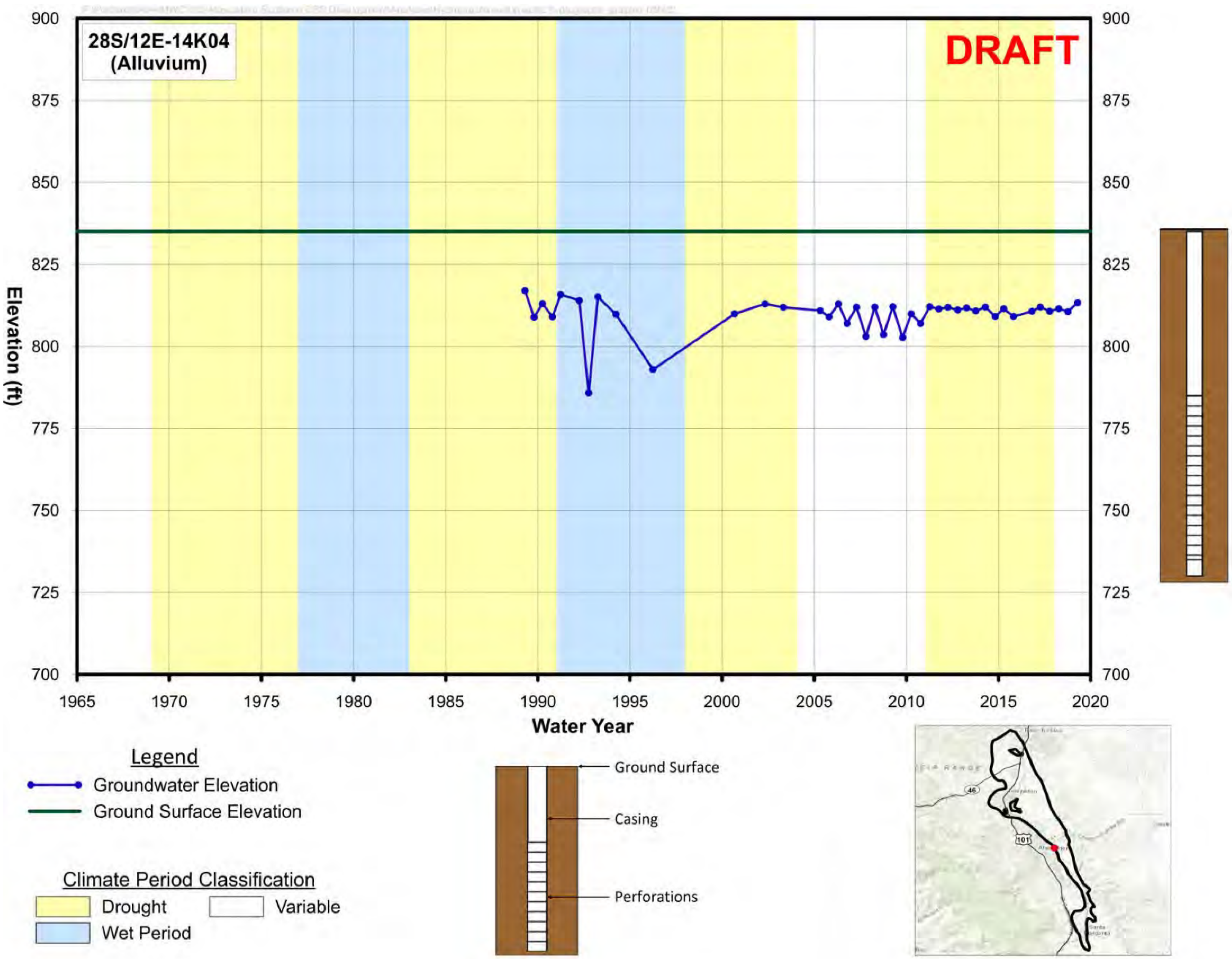
Wet Period

"Live Stream" Period in Salinas River*

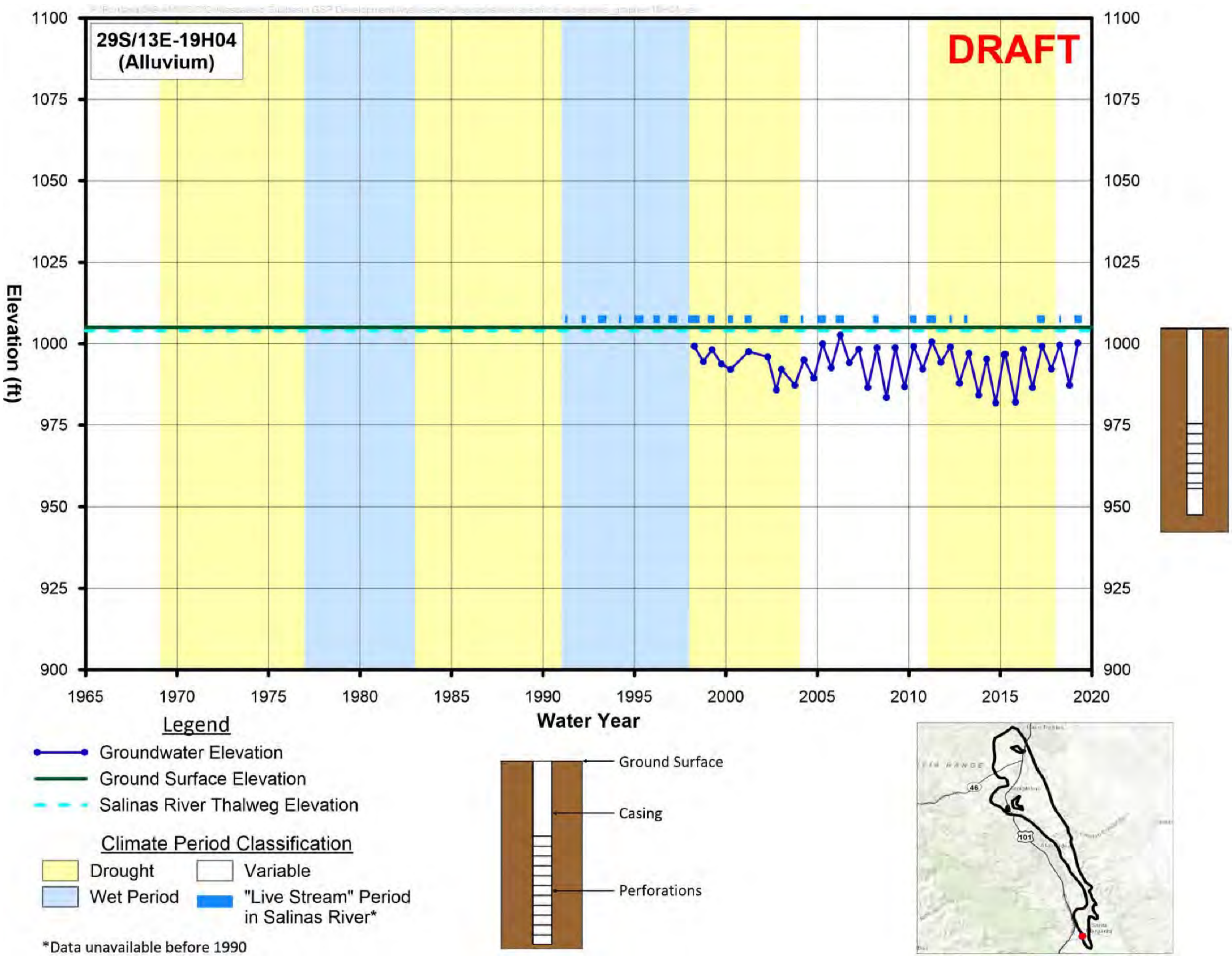
*Data unavailable before 1990



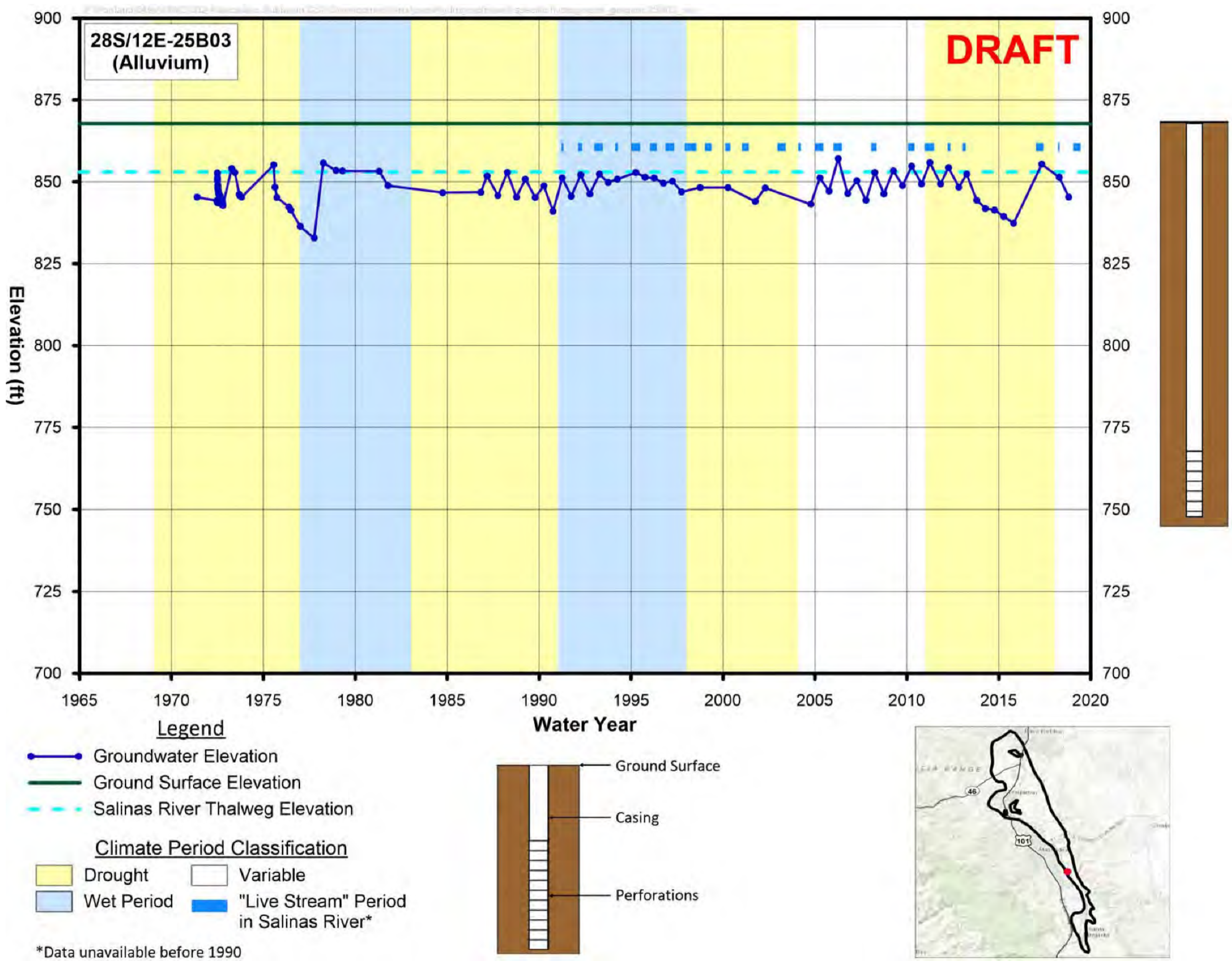
28S/12E-10R04
(Alluvium)
DRAFT
Elevation (ft)
900
875
850
825
800
775
750
725
700
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Water Year
Legend
Groundwater Elevation
Ground Surface Elevation
Salinas River Thalweg Elevation
Climate Period Classification
Drought
Wet Period
Variable
"Live Stream" Period
in Salinas River*
*Data unavailable before 1990
Ground Surface
Casing
Perforations

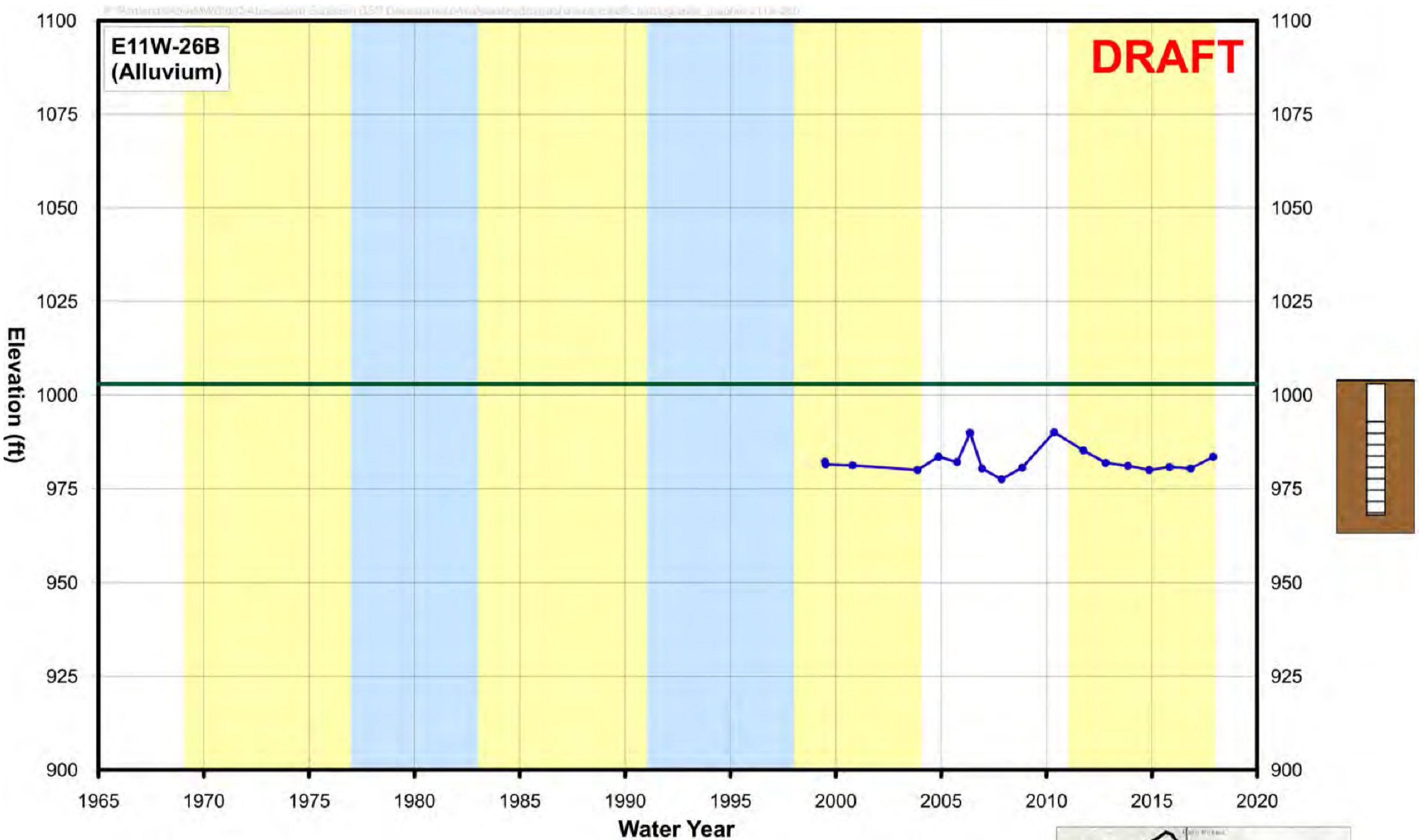


28S/12E-14K04
(Alluvium)
DRAFT
Elevation (ft)
900
875
850
825
800
775
750
725
700
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Water Year
Legend
Groundwater Elevation
Ground Surface Elevation
Climate Period Classification
Drought
Variable
Wet Period
Ground Surface
Casing
Perforations



29S/13E-19H04
(Alluvium)
DRAFT
Elevation (ft)
Water Year
1100
1075
1050
1025
1000
975
950
925
900
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Legend
Groundwater Elevation
Ground Surface Elevation
Salinas River Thalweg Elevation
Climate Period Classification
Drought
Variable
Wet Period
"Live Stream" Period in Salinas River*
*Data unavailable before 1990
Ground Surface
Casing
Perforations


28S/12E-25B03
(Alluvium)
DRAFT
900
875
850
825
800
775
750
725
700
Elevation (ft)
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Water Year
Legend
Groundwater Elevation
Ground Surface Elevation
Salinas River Thalweg Elevation
Climate Period Classification
Drought
Variable
Wet Period
"Live Stream" Period
in Salinas River*
*Data unavailable before 1990
Ground Surface
Casing
Perforations
46
101



Legend

Groundwater Elevation

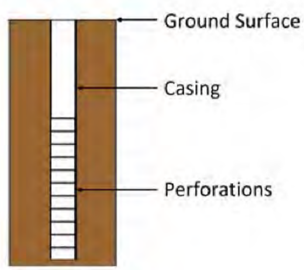
Ground Surface Elevation

Climate Period Classification

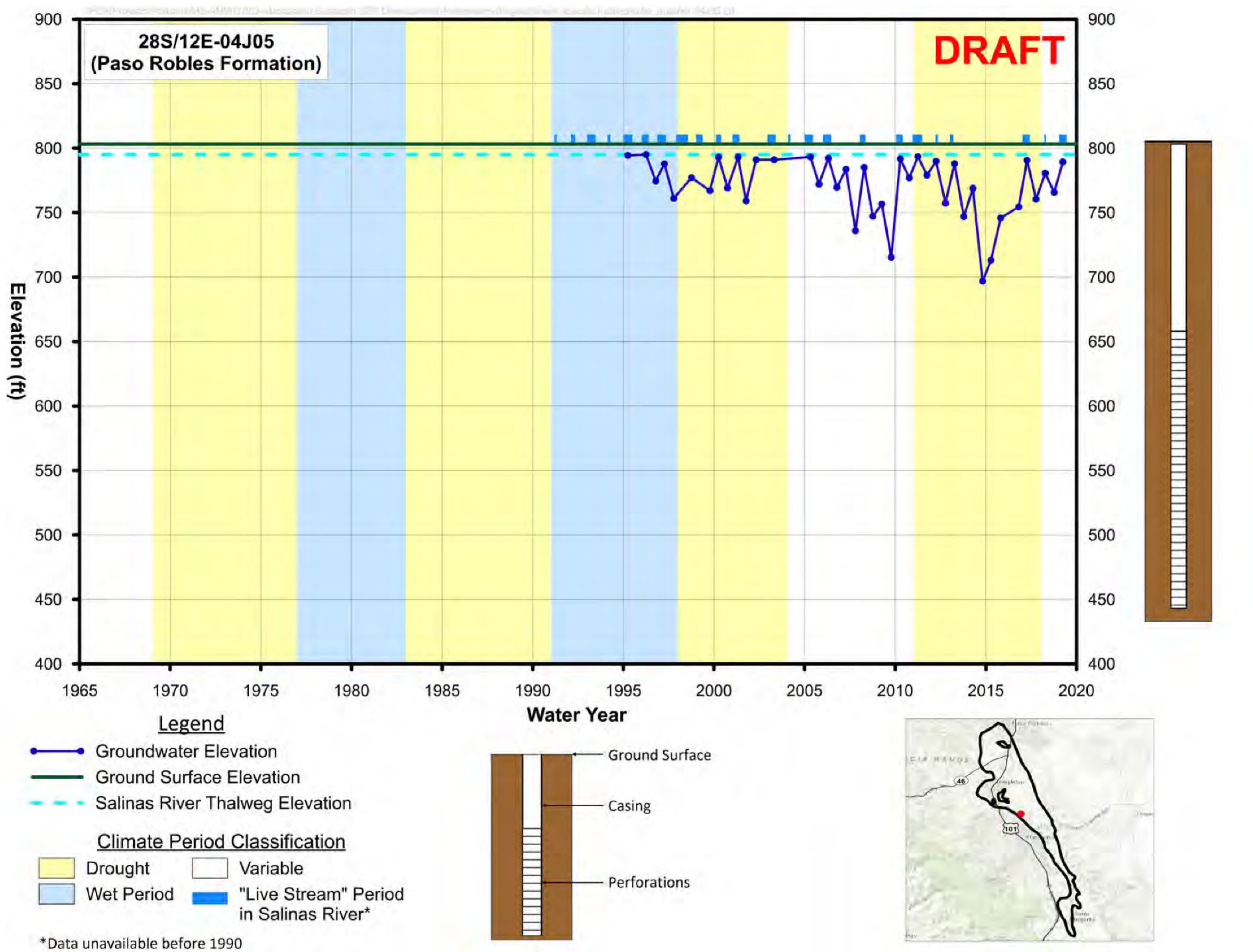
Drought

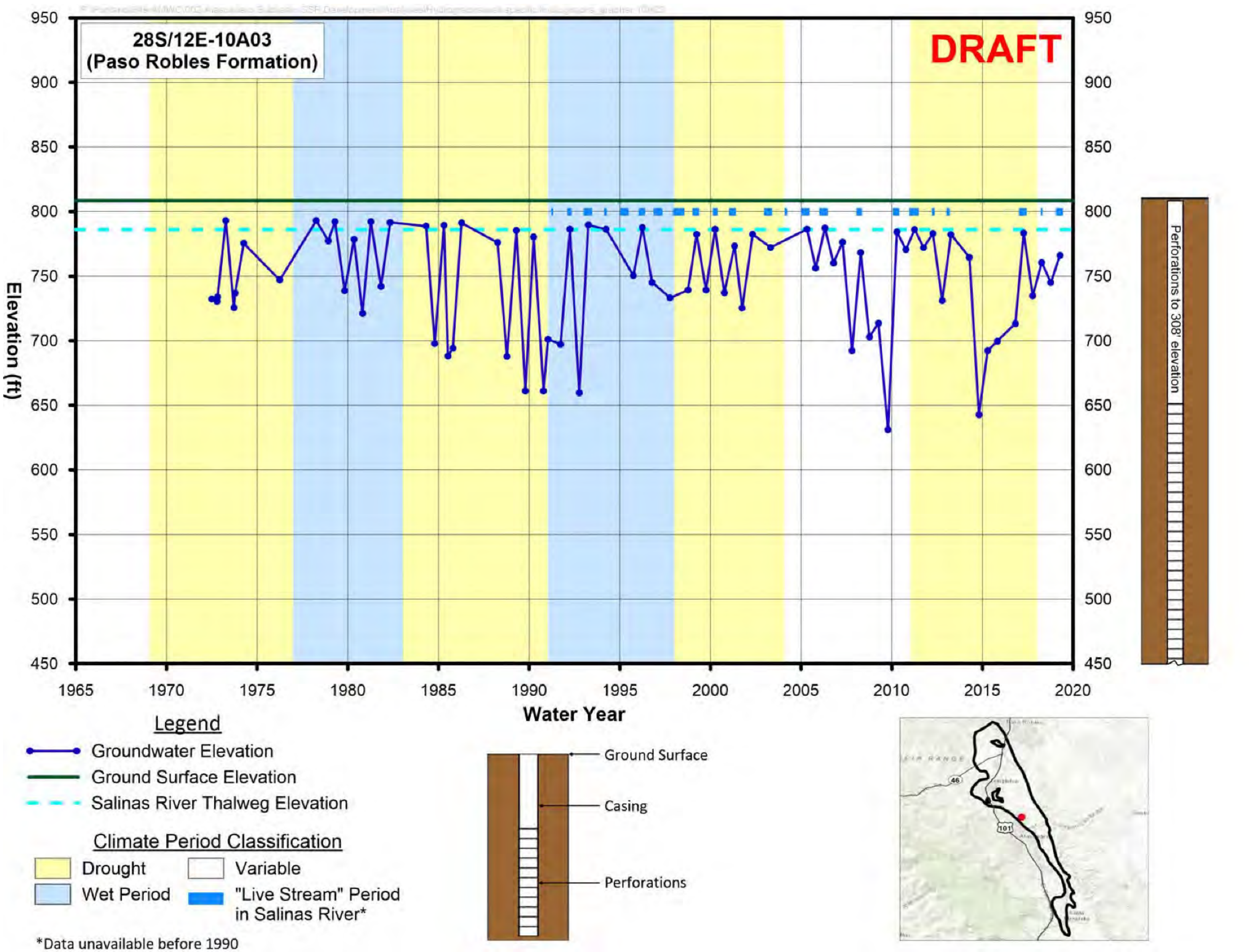
Variable

Wet Period

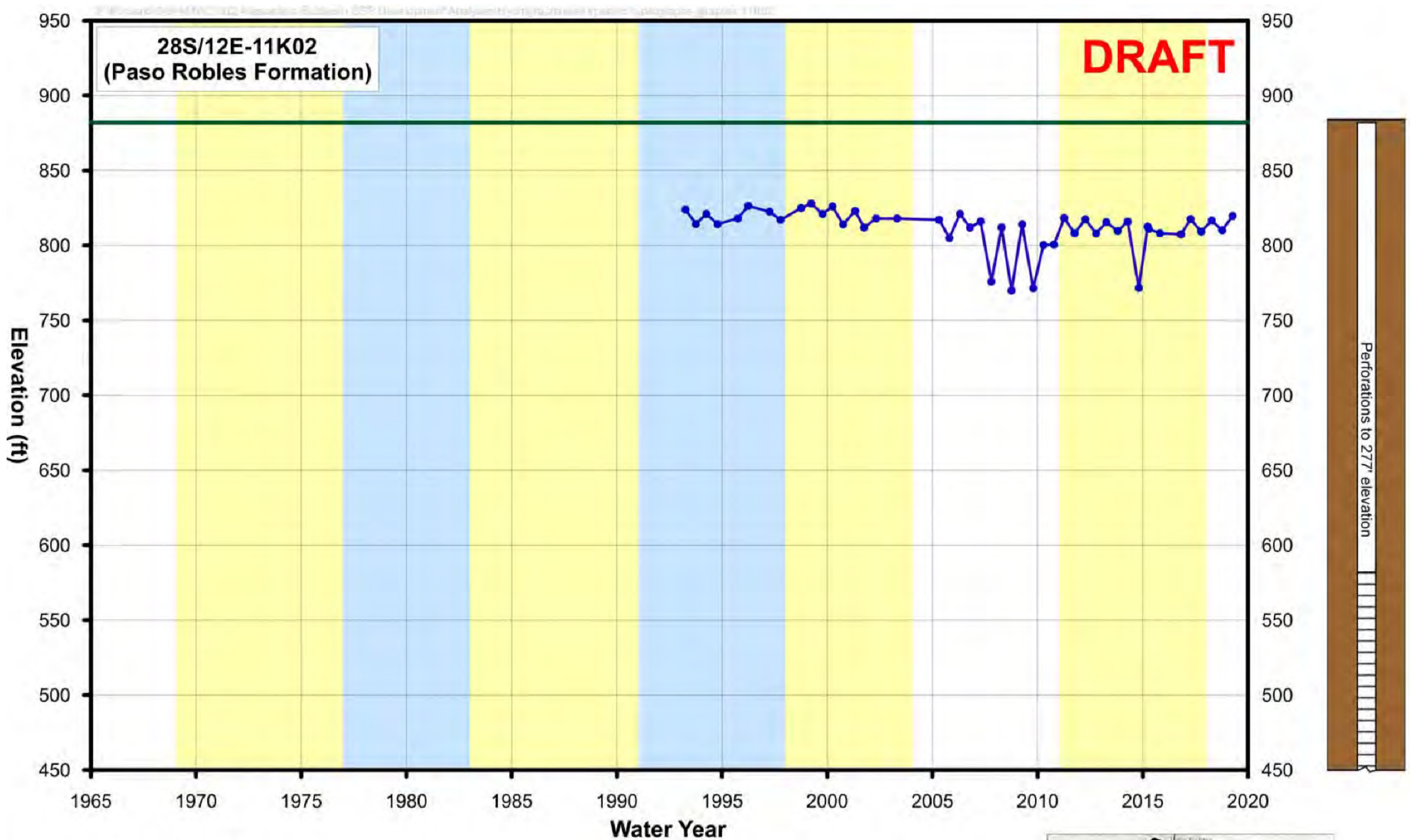


Paso Robles Formation Aquifer Hydrographs


28S/12E-04J05
(Paso Robles Formation)
DRAFT
Elevation (ft)
900
850
800
750
700
650
600
550
500
450
400
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Water Year
Legend
Groundwater Elevation
Ground Surface Elevation
Salinas River Thalweg Elevation
Climate Period Classification
Drought
Variable
Wet Period
"Live Stream" Period in Salinas River*
*Data unavailable before 1990
Ground Surface
Casing
Perforations



28S/12E-10A03
(Paso Robles Formation)
DRAFT
Elevation (ft)
Water Year
Perforations to 308' elevation
Legend
Groundwater Elevation
Ground Surface Elevation
Salinas River Thalweg Elevation
Climate Period Classification
Drought
Variable
Wet Period
"Live Stream" Period in Salinas River*
*Data unavailable before 1990
Ground Surface
Casing
Perforations



Legend

Groundwater Elevation

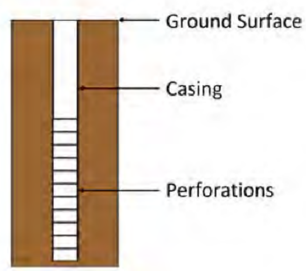
Ground Surface Elevation

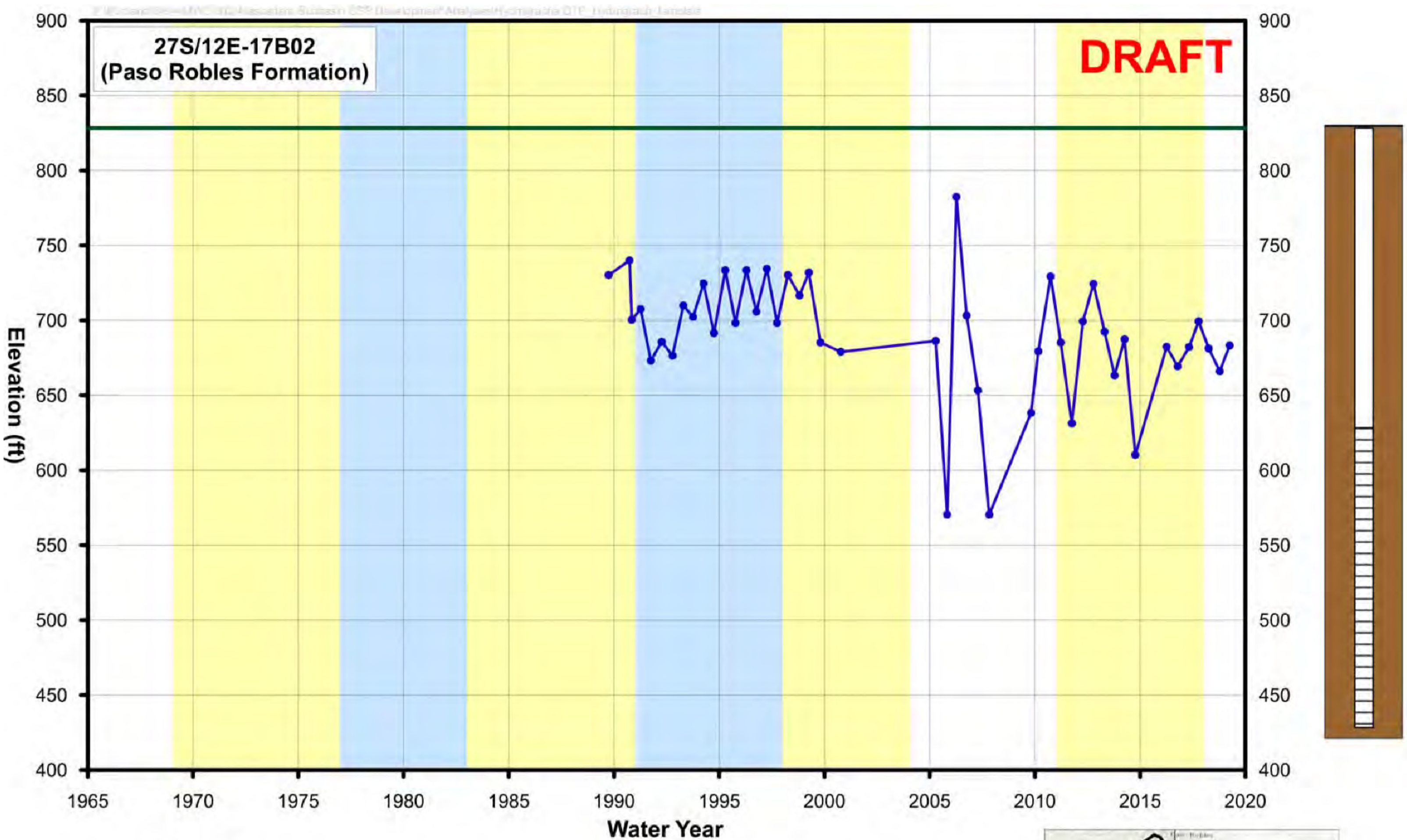
Climate Period Classification

Drought

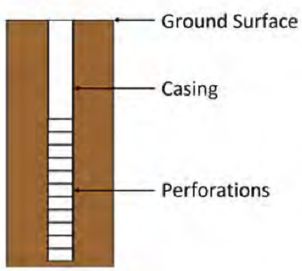
Variable

Wet Period



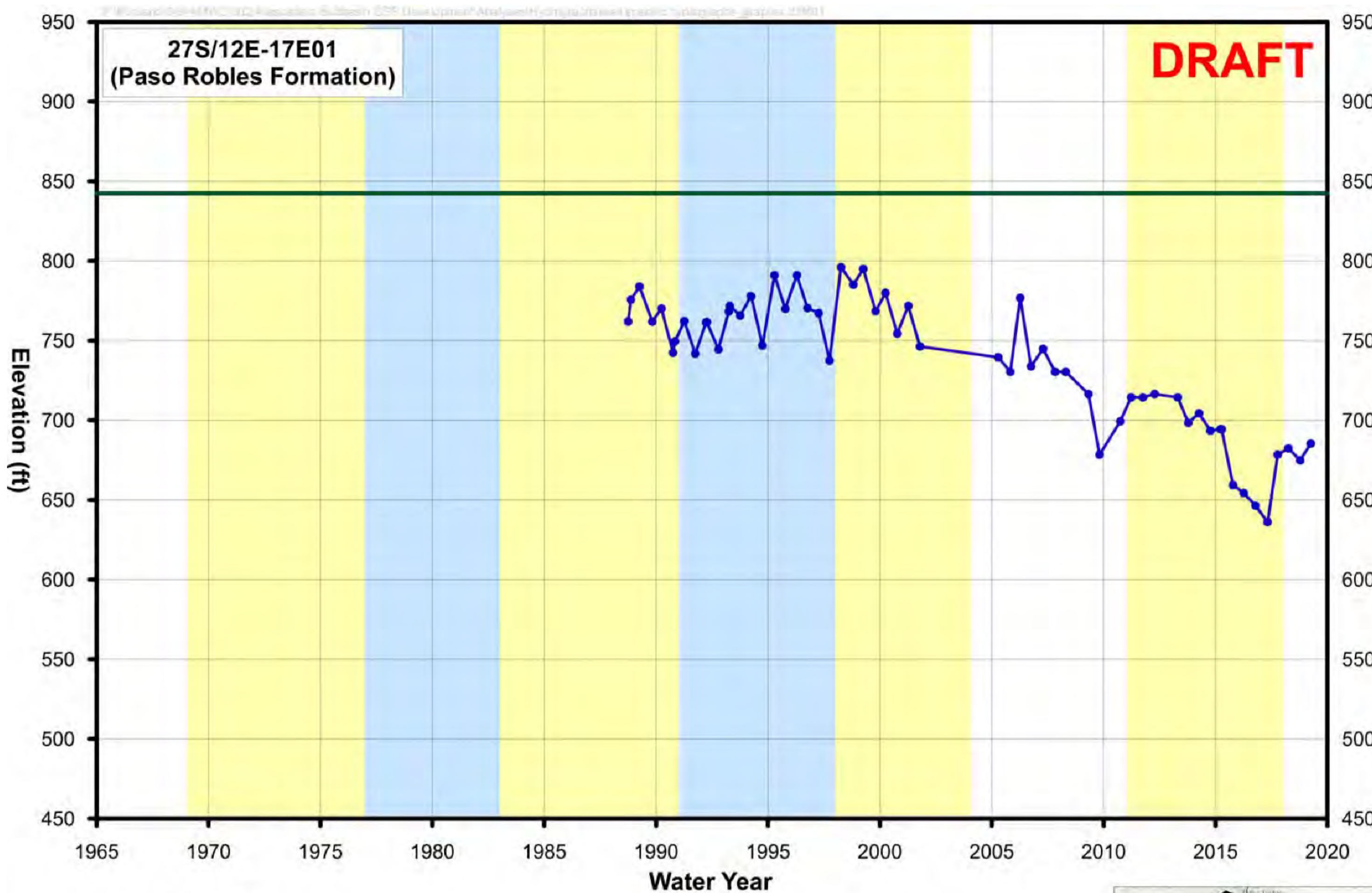


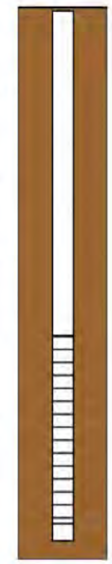
27S/12E-17B02
(Paso Robles Formation)
DRAFT
Elevation (ft)
Water Year
900
850
800
750
700
650
600
550
500
450
400
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Legend
Groundwater Elevation
Ground Surface Elevation
Climate Period Classification
Drought
Variable
Wet Period



Ground Surface
Casing
Perforations

46
101



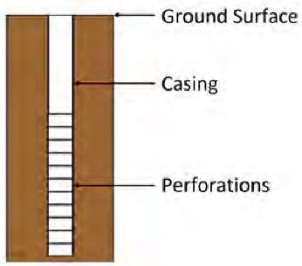


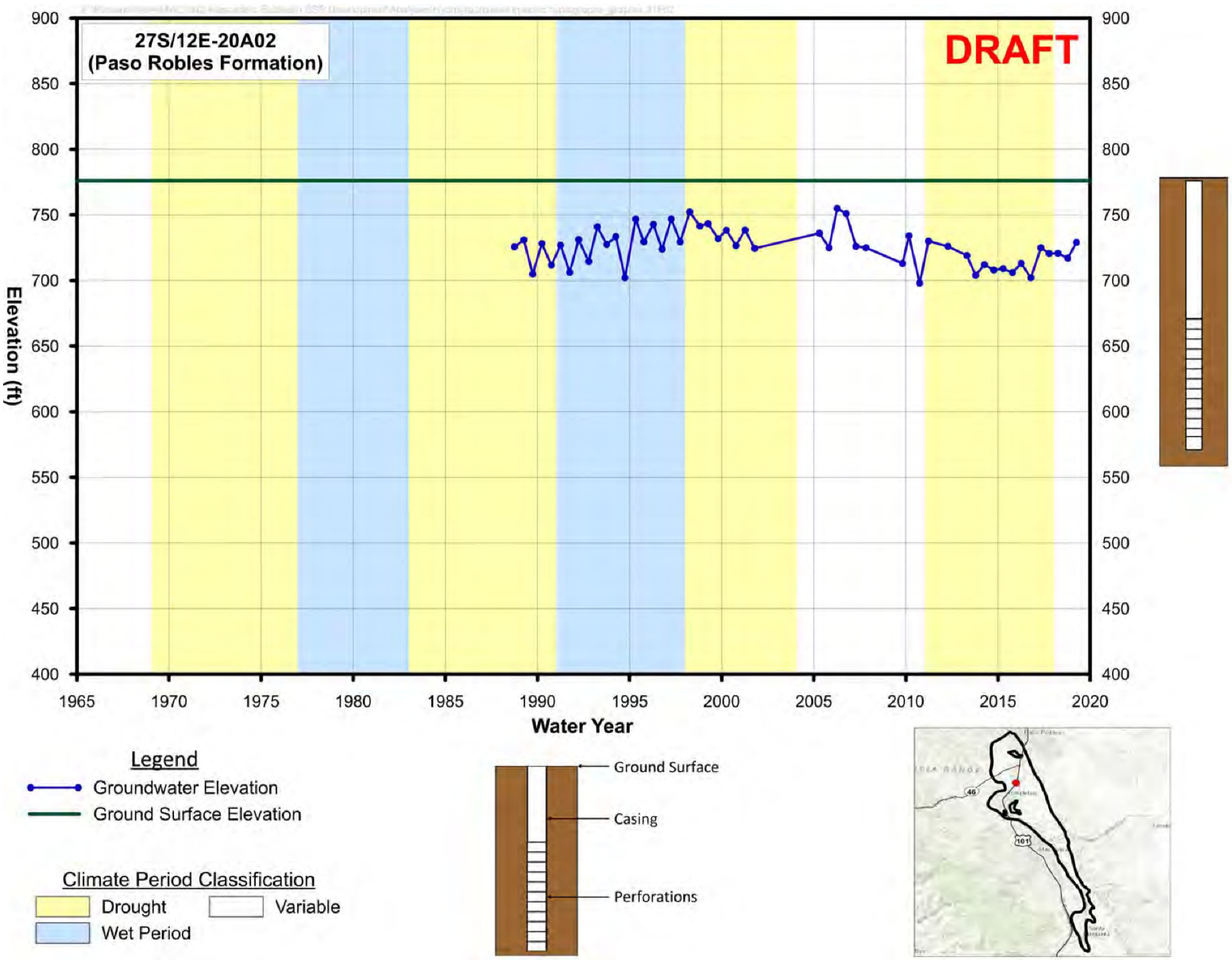
Legend

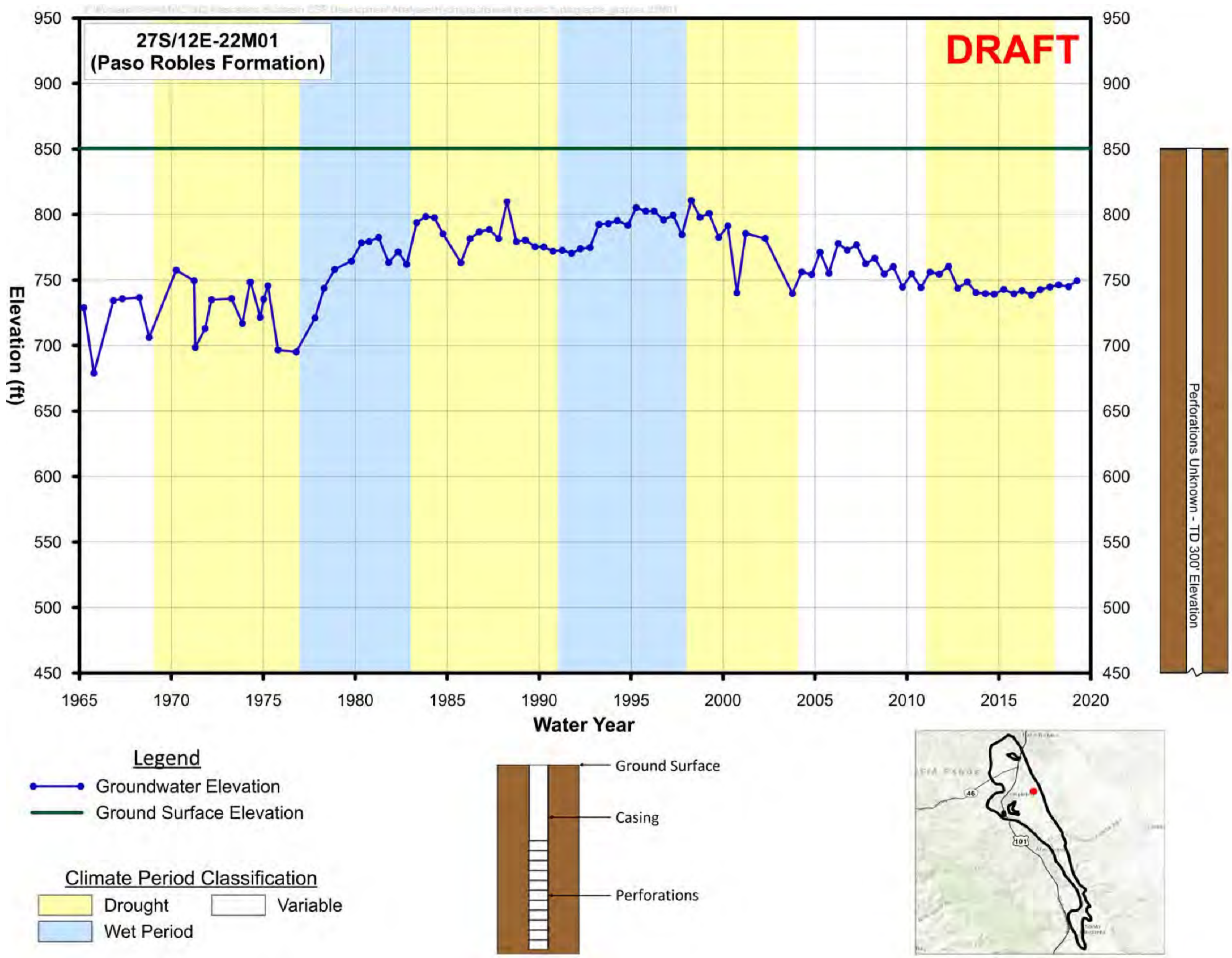
- Groundwater Elevation
- Ground Surface Elevation

Climate Period Classification

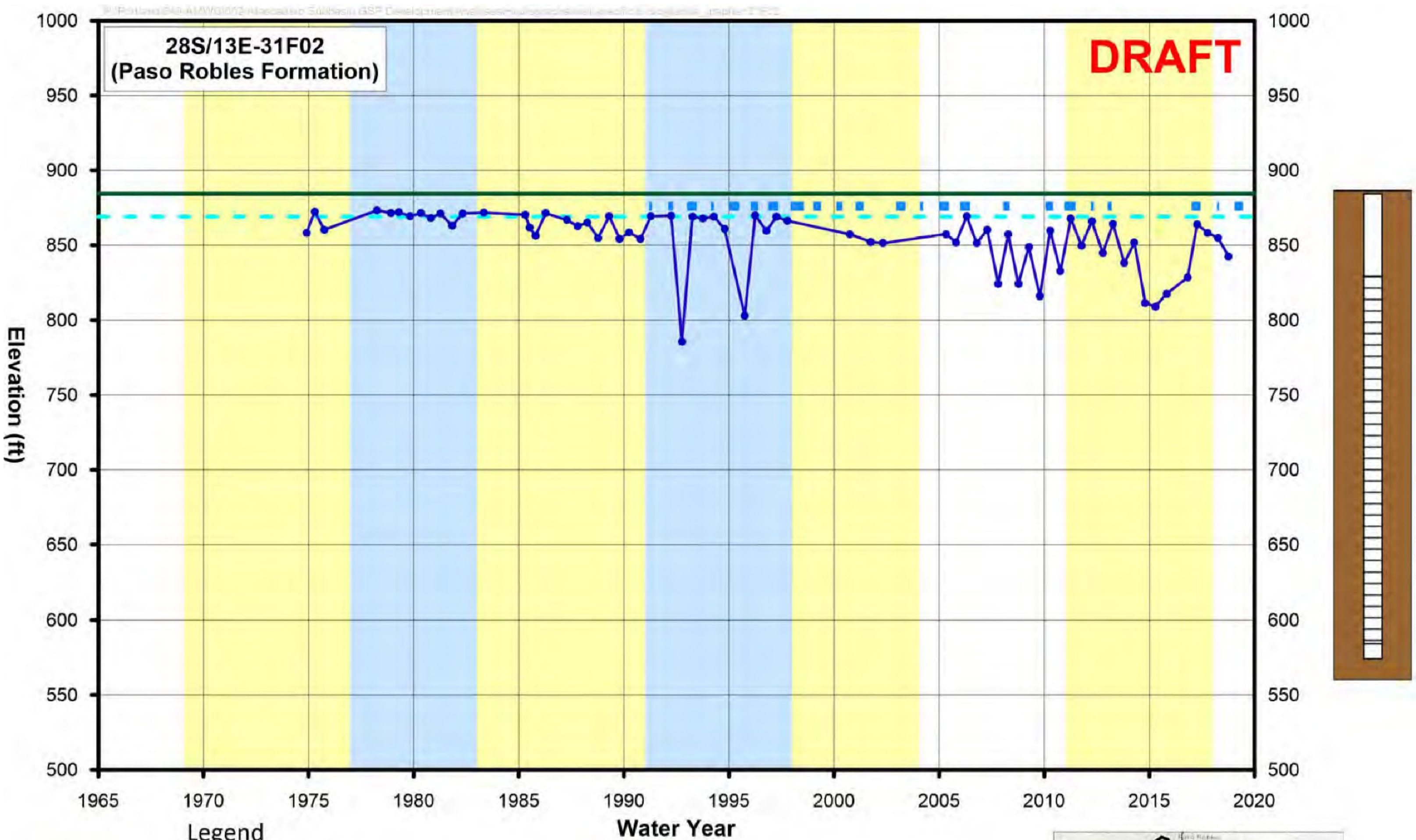
- Drought
- Variable
- Wet Period




27S/12E-20A02
(Paso Robles Formation)
DRAFT
Elevation (ft)
900
850
800
750
700
650
600
550
500
450
400
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Water Year
Legend
Groundwater Elevation
Ground Surface Elevation
Climate Period Classification
Drought
Variable
Wet Period
Ground Surface
Casing
Perforations



27S/12E-22M01
(Paso Robles Formation)
DRAFT
Elevation (ft)
Water Year
Perforations Unknown - TD 300' Elevation
Legend
Groundwater Elevation
Ground Surface Elevation
Climate Period Classification
Drought
Variable
Wet Period
Ground Surface
Casing
Perforations



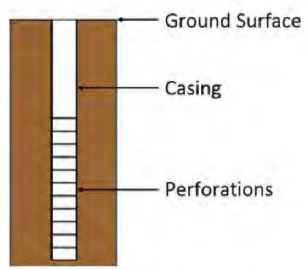
Legend

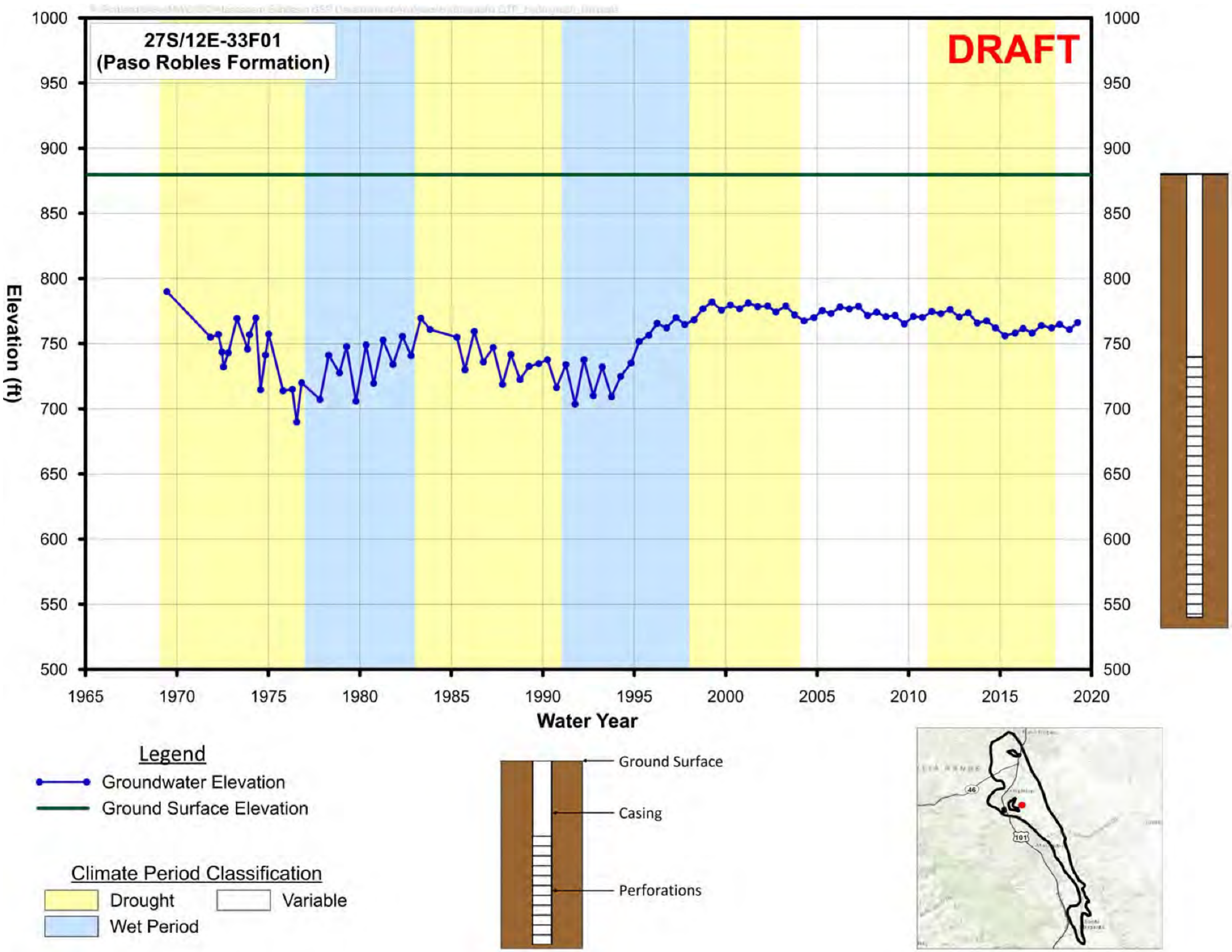
Groundwater Elevation
Ground Surface Elevation
Salinas River Thalweg Elevation

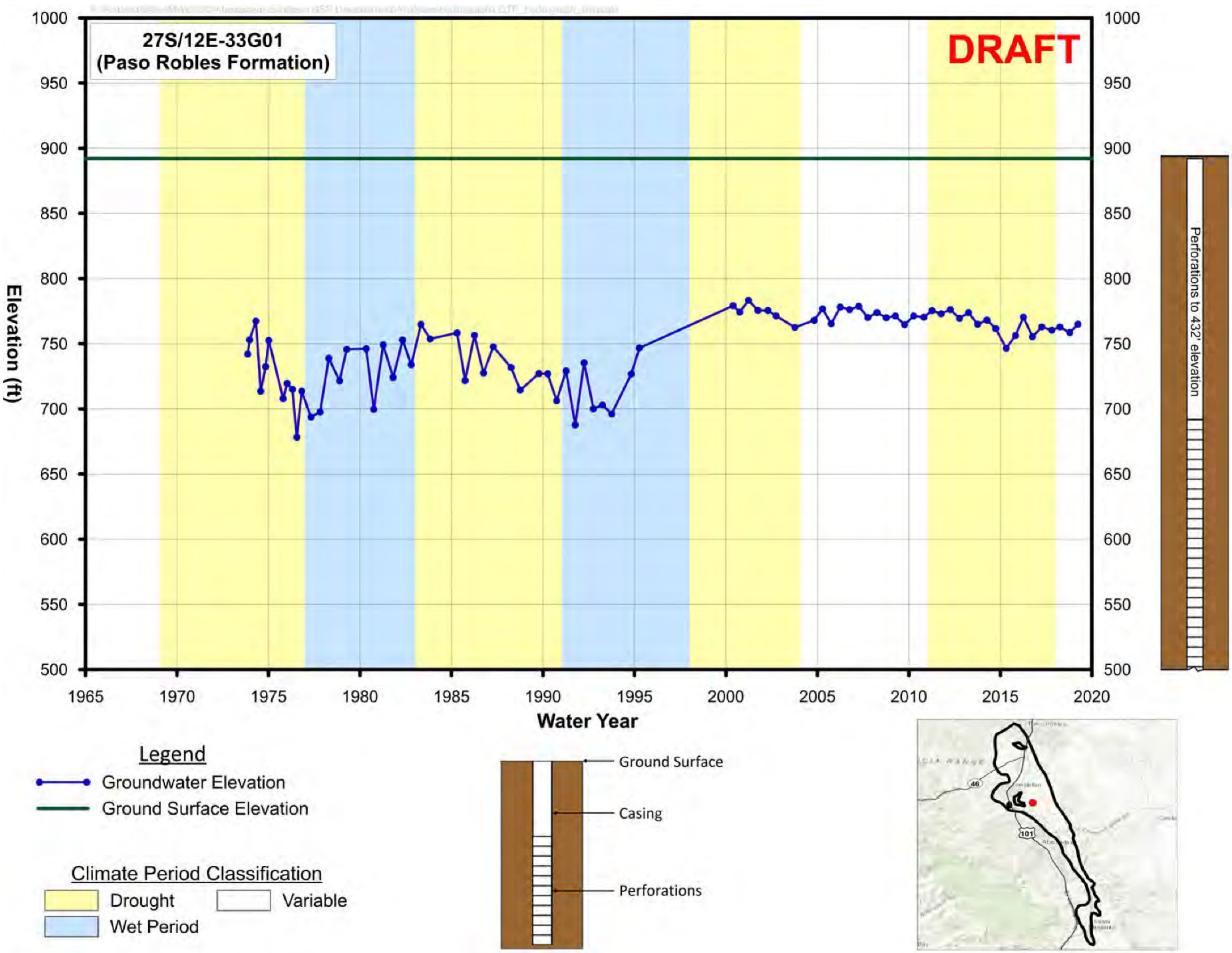
Climate Period Classification

Drought
Variable
Wet Period
"Live Stream" Period in Salinas River*

*Data unavailable before 1990




27S/12E-33F01
(Paso Robles Formation)
DRAFT
Elevation (ft)
Water Year
1000
950
900
850
800
750
700
650
600
550
500
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Legend
Groundwater Elevation
Ground Surface Elevation
Climate Period Classification
Drought
Variable
Wet Period
Ground Surface
Casing
Perforations



27S/12E-33G01
(Paso Robles Formation)
DRAFT
Elevation (ft)
Water Year
Perforations to 432' elevation
1000
950
900
850
800
750
700
650
600
550
500
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Legend
Groundwater Elevation
Ground Surface Elevation
Climate Period Classification
Drought
Variable
Wet Period
Ground Surface
Casing
Perforations
46
101

APPENDIX 5B

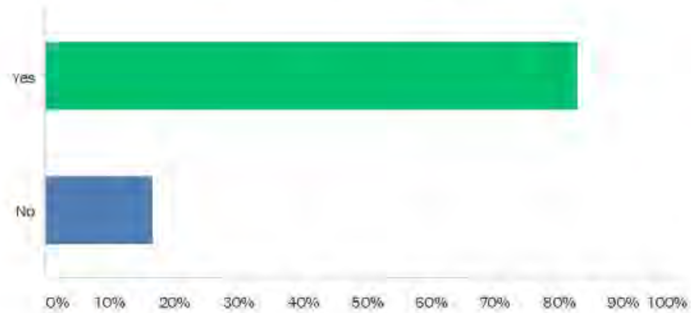
Groundwater Dependent Ecosystems tech memo (in progress)

This page left blank intentionally.

Appendix 8A – Results of SMC Public Survey

Q1 Have you heard about the Sustainable Groundwater Management Act (SGMA) Groundwater Sustainability Plan (GSP) process?

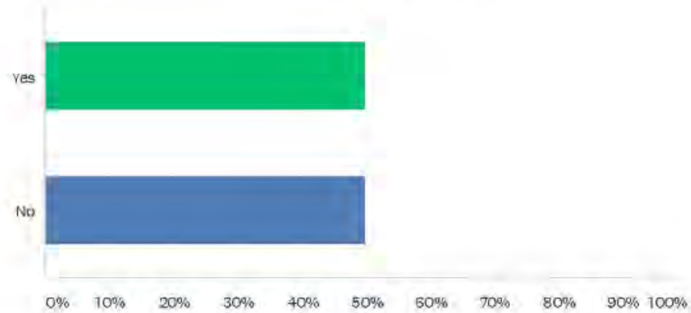
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	83.33%	15
No	16.67%	3
TOTAL		18

Q2 Have you been involved in other water supply public processes in the past?

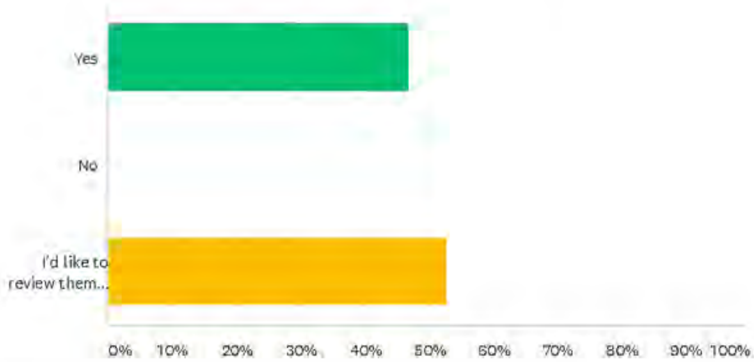
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	50.00%	9
No	50.00%	9
TOTAL		18

Q3 Would you like to provide input for the development of a sustainability goal, objectives, and thresholds for managing groundwater in the Atascadero Basin?

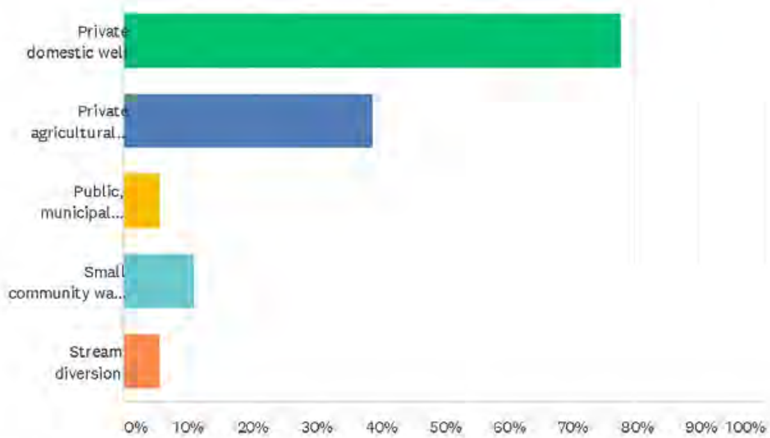
Answered: 17 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	47.06%	8
No	0.00%	0
I'd like to review them once developed	52.94%	9
TOTAL		17

Q4 Which water sources do you use? (select all that apply)

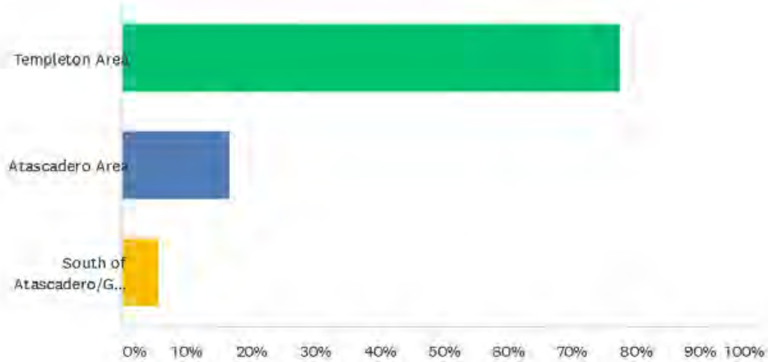
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
Private domestic well	77.78%	14
Private agricultural well	38.89%	7
Public, municipal supply	5.56%	1
Small community water system	11.11%	2
Stream diversion	5.56%	1
Total Respondents: 18		

Q5 Which geographic area do you live in or are most interested in from a water-use perspective?

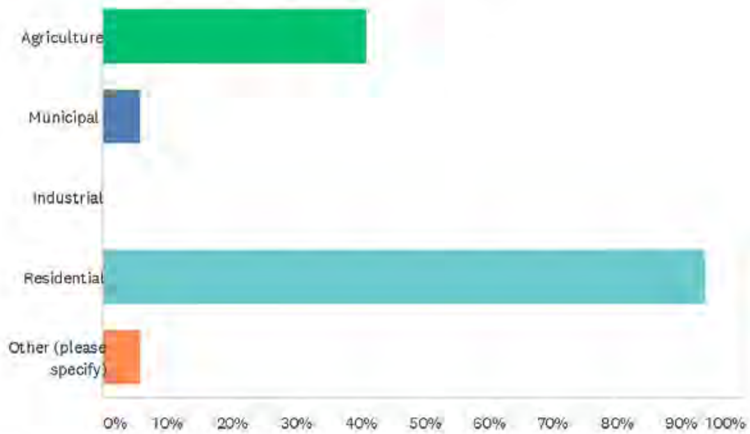
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
Templeton Area	77.78%	14
Atascadero Area	16.67%	3
South of Atascadero/Garden Farms/Santa Margarita	5.56%	1
TOTAL		18

Q6 If you pump groundwater, what do you use it for? (check all that apply)

Answered: 17 Skipped: 1

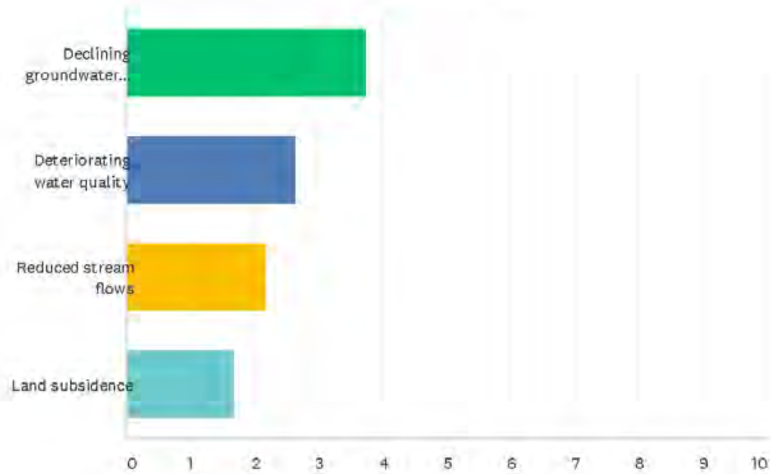


ANSWER CHOICES	RESPONSES	
Agriculture	41.18%	7
Municipal	5.88%	1
Industrial	0.00%	0
Residential	94.12%	16
Other (please specify)	5.88%	1
Total Respondents: 17		

#	OTHER (PLEASE SPECIFY)	DATE
1	Bed and Breakfast	11/10/2020 12:38 PM

Q7 Please rank the following potential impacts to groundwater based on your level of concern, with your impact of greatest concern at the top.

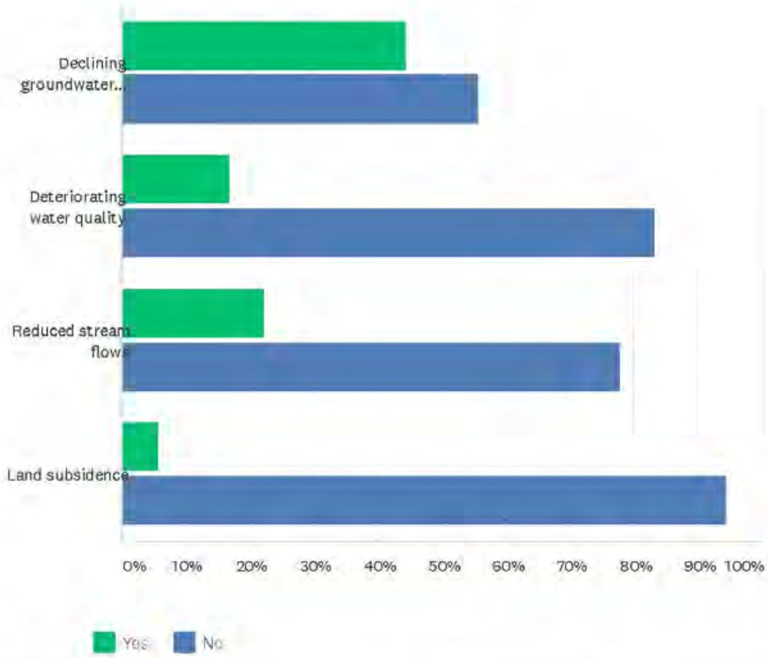
Answered: 18 Skipped: 0



	1	2	3	4	TOTAL	SCORE
Declining groundwater levels	81.25% 13	12.50% 2	6.25% 1	0.00% 0	16	3.75
Deteriorating water quality	12.50% 2	43.75% 7	37.50% 6	6.25% 1	16	2.63
Reduced stream flows	0.00% 0	35.29% 6	47.06% 8	17.65% 3	17	2.18
Land subsidence	16.67% 3	5.56% 1	5.56% 1	72.22% 13	18	1.67

Q8 Have you been impacted by the following?

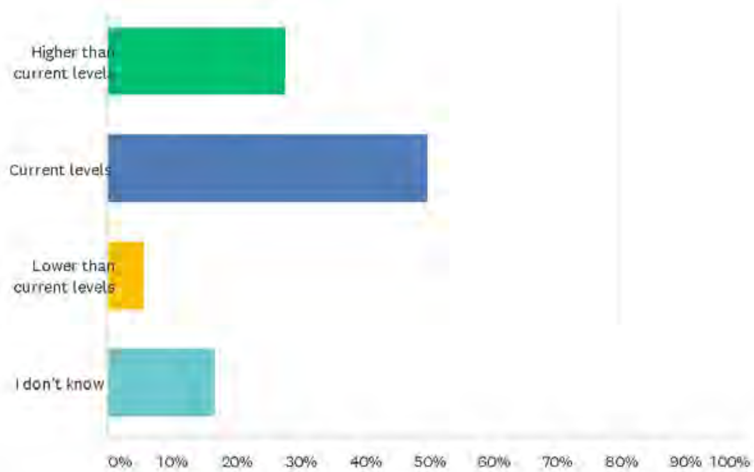
Answered: 18 Skipped: 0



	YES	NO	TOTAL
Declining groundwater levels	44.44% 8	55.56% 10	18
Deteriorating water quality	16.67% 3	83.33% 15	18
Reduced stream flows	22.22% 4	77.78% 14	18
Land subsidence	5.56% 1	94.44% 17	18

Q9 Typically, to increase groundwater levels either pumping needs to be reduced or new water supplies from outside the basin need to be developed, both of which have a cost. Knowing this, what do you feel are reasonable groundwater levels twenty years from now?

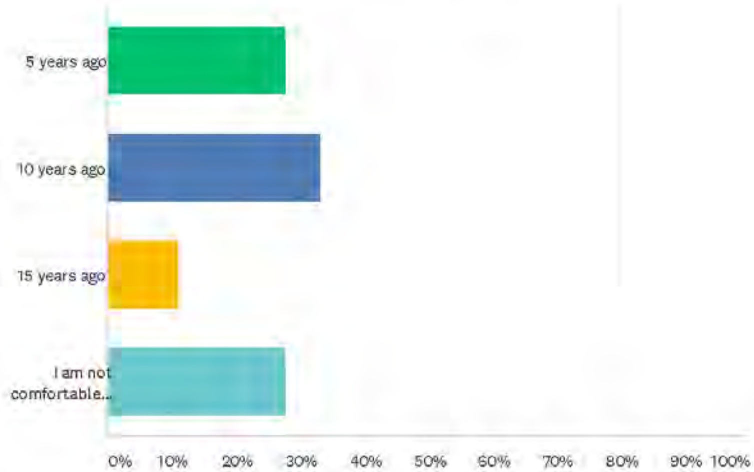
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
Higher than current levels	27.78%	5
Current levels	50.00%	9
Lower than current levels	5.56%	1
I don't know	16.67%	3
TOTAL		18

Q10 If the basin is maintained at higher than current levels, additional water must be imported, or pumping must be reduced. Assuming that higher groundwater levels will likely result in higher costs, please complete the following statement. I am comfortable with groundwater levels that would stabilize at levels seen: (select one)

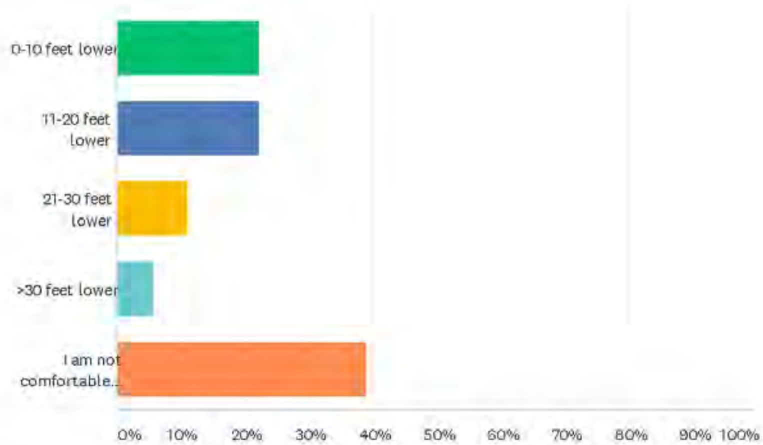
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
5 years ago	27.78%	5
10 years ago	33.33%	6
15 years ago	11.11%	2
I am not comfortable with groundwater levels higher than today	27.78%	5
TOTAL		18

Q11 If the basin is maintained at lower than current levels, domestic wells or local streams may be impacted. In your opinion, how much lower could groundwater levels drop before they are too low and become significant and unreasonable?

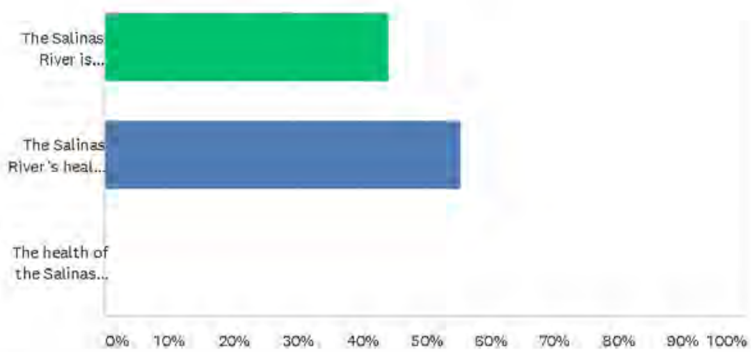
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
0-10 feet lower	22.22%	4
11-20 feet lower	22.22%	4
21-30 feet lower	11.11%	2
>30 feet lower	5.56%	1
I am not comfortable with groundwater levels lower than today	38.89%	7
TOTAL		18

Q12 Which statement best describes your opinion of the health (in terms of stream flow and water quality) of the Salinas River in the Atascadero Basin?

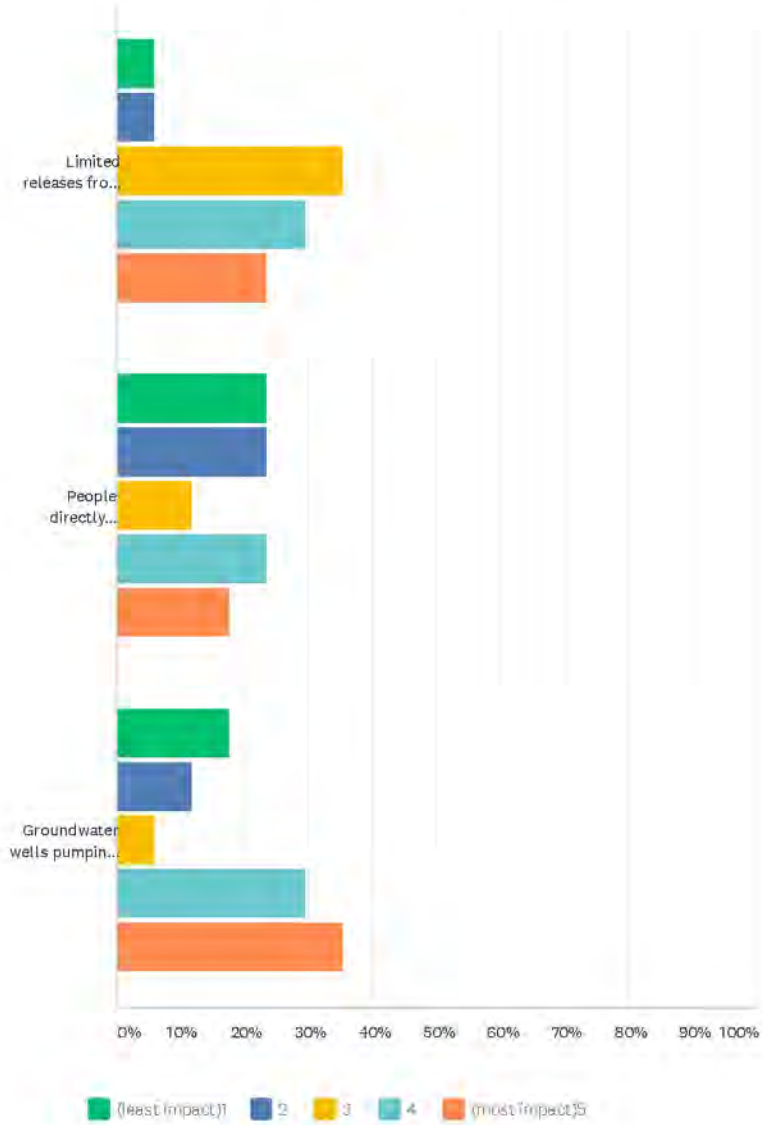
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
The Salinas River is relatively healthy	44.44%	8
The Salinas River's health could be improved if the cost was reasonable	55.56%	10
The health of the Salinas Rivers should be improved no matter what the cost	0.00%	0
TOTAL		18

Q13 Do you feel that the health of Salinas River in the Atascadero Basin is impacted by the following? Please indicate on a scale of 1 (least impact) to 5 (most impact):

Answered: 17 Skipped: 1

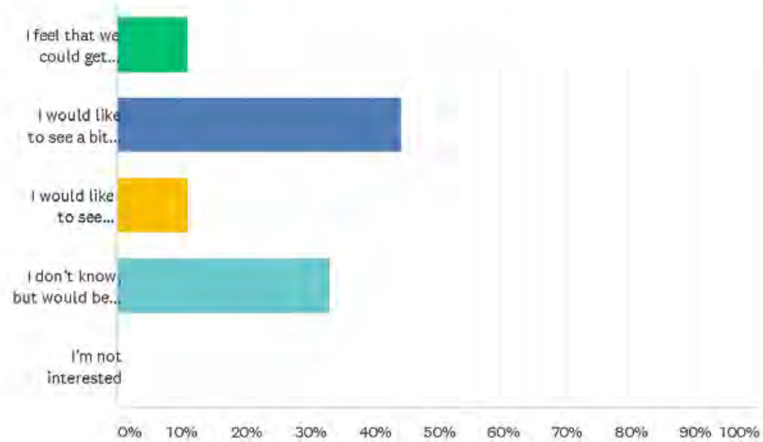


Atascadero Basin - SGMA Minimum Thresholds Survey

	(LEAST IMPACT)1	2	3	4	(MOST IMPACT)5	TOTAL	WEIGHTED AVERAGE
Limited releases from Santa Margarita Lake (Salinas Reservoir)	5.88% 1	5.88% 1	35.29% 6	29.41% 5	23.53% 4	17	3.59
People directly diverting water from the Salinas River in and upstream of the Atascadero Basin	23.53% 4	23.53% 4	11.76% 2	23.53% 4	17.65% 3	17	2.88
Groundwater wells pumping water from, or preventing water from getting to, the Salinas River or reducing surface water flows once in the river.	17.65% 3	11.76% 2	5.88% 1	29.41% 5	35.29% 6	17	3.53

Q14 Which statement best describes your opinion about the amount of groundwater stored in the Atascadero Basin?

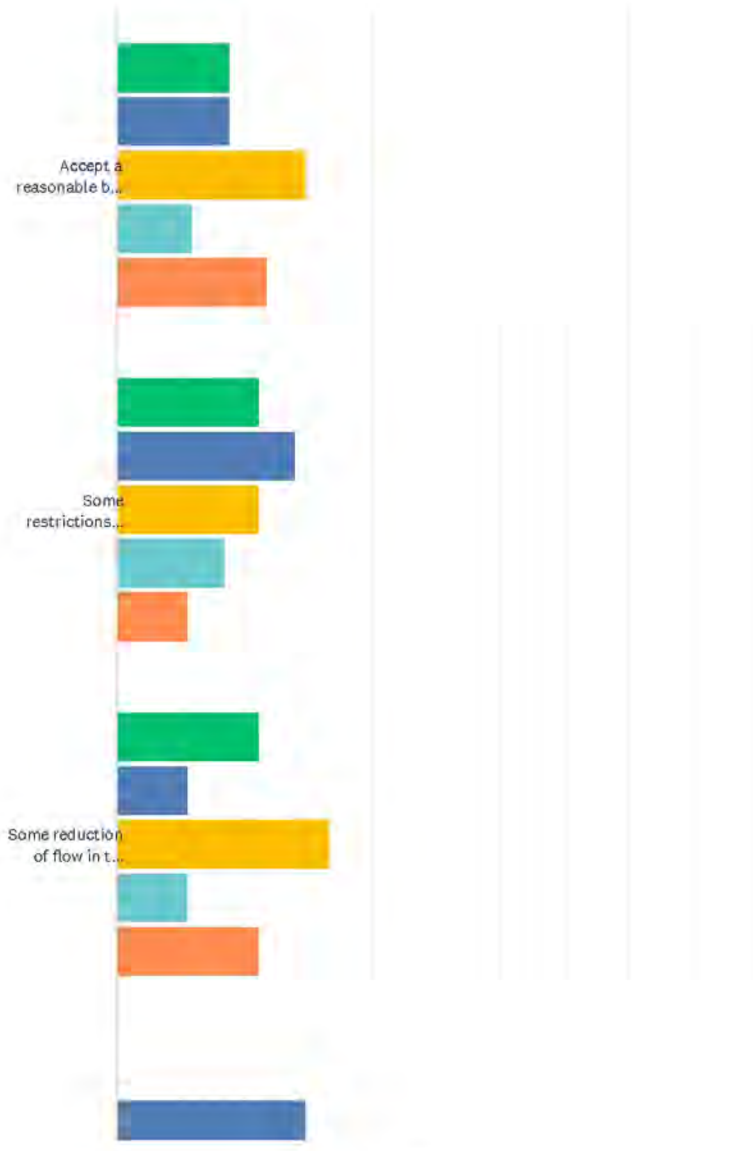
Answered: 18 Skipped: 0



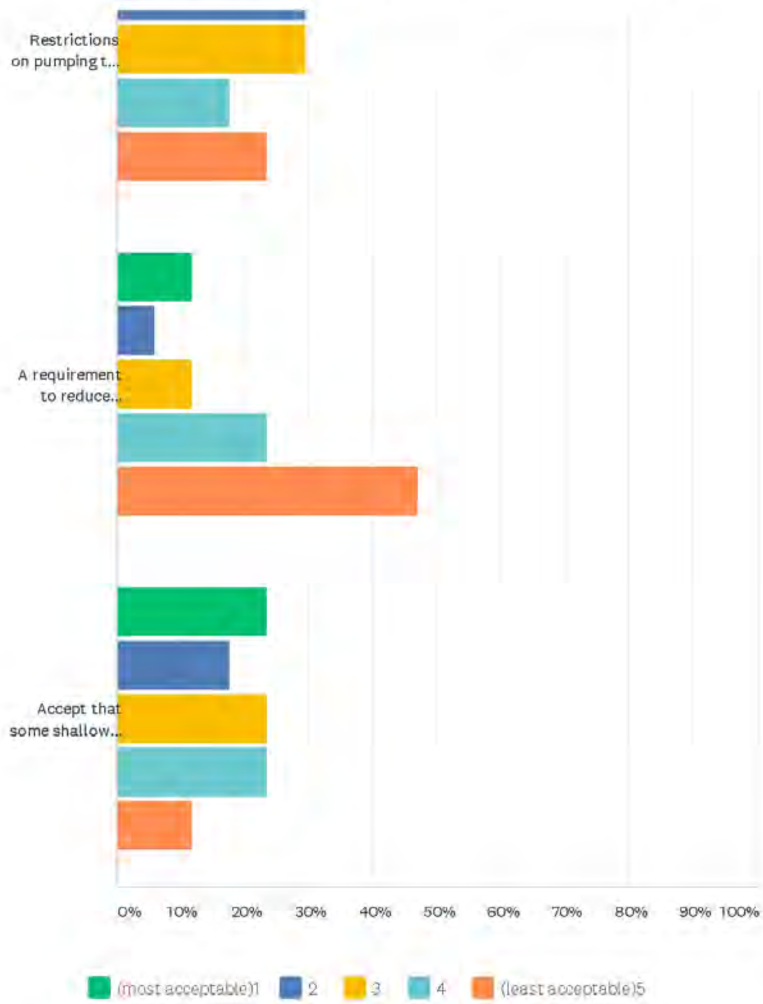
ANSWER CHOICES	RESPONSES	
I feel that we could get through another 3-year drought with the current amount of groundwater in the Basin	11.11%	2
I would like to see a bit more groundwater in the basin to provide additional safety during any 3-year drought	44.44%	8
I would like to see significantly more groundwater in the basin to get us through a drought even if it comes at significant costs	11.11%	2
I don't know, but would be interested in learning more about the health of our basin from a groundwater-storage perspective	33.33%	6
I'm not interested	0.00%	0
TOTAL		18

Q15 Maintaining sustainability in the Atascadero Basin may require some concessions in the future. 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 maintain sustainability?

Answered: 18 Skipped: 0



Atascadero Basin - SGMA Minimum Thresholds Survey



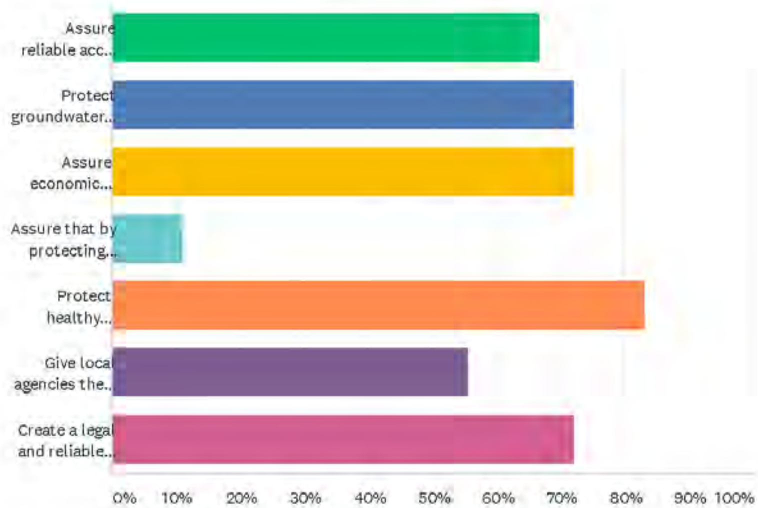
17 / 21

Atascadero Basin - SGMA Minimum Thresholds Survey

	(MOST ACCEPTABLE)1	2	3	4	(LEAST ACCEPTABLE)5	TOTAL	WEIGHTED AVERAGE
Accept a reasonable but stable lowering of future groundwater levels	17.65% 3	17.65% 3	29.41% 5	11.76% 2	23.53% 4	17	3.06
Some restrictions on pumping in dry years when groundwater levels might be low	22.22% 4	27.78% 5	22.22% 4	16.67% 3	11.11% 2	18	2.67
Some reduction of flow in the Salinas River	22.22% 4	11.11% 2	33.33% 6	11.11% 2	22.22% 4	18	3.00
Restrictions on pumping to maintain creek flows	0.00% 0	29.41% 5	29.41% 5	17.65% 3	23.53% 4	17	3.35
A requirement to reduce agricultural pumping in all years	11.76% 2	5.88% 1	11.76% 2	23.53% 4	47.06% 8	17	3.88
Accept that some shallow domestic wells may go dry and need to be deepened	23.53% 4	17.65% 3	23.53% 4	23.53% 4	11.76% 2	17	2.82

Q16 From your perspective, what are the biggest opportunities as a result of the SGMA process? Check all that apply.

Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
Assure reliable access of all the existing domestic wells in the basin to reliable groundwater resource	66.67%	12
Protect groundwater resources from all exports	72.22%	13
Assure economic vitality far into the future	72.22%	13
Assure that by protecting groundwater levels that no subsidence will occur	11.11%	2
Protect healthy groundwater levels balanced with annual recharge to protect water quality	83.33%	15
Give local agencies the power to protect groundwater from practices that might pollute groundwater	55.56%	10
Create a legal and reliable process for groundwater users to work together to protect the groundwater resources they rely upon to live, work, and prosper	72.22%	13
Total Respondents: 18		

Q17 What would be a successful outcome of the SGMA process from your perspective?

Answered: 10 Skipped: 8

#	RESPONSES	DATE
1	overlyers maintain current pumping capacity without restrictions.	11/24/2020 3:30 PM
2	Maintaining relatively stable ground water levels with minimal intervention	11/20/2020 5:15 PM
3	Manage consumption with flexible mandates	11/11/2020 4:52 PM
4	the above	11/10/2020 5:10 PM
5	More than adequate water resources for all businesses into the future.	11/10/2020 12:38 PM
6	The usage rate and recharge rate need to be balanced. The recharge rate should be calculated on a moving average so a single years impact doesn't affect policy.The ground water level needs to be calculated at various points throughout the basin.	11/2/2020 4:20 PM
7	A group would exist to solve problems as they occur	10/29/2020 10:55 AM
8	Stabilization at current levels ASAP and begin work on options that will begin increasing ground water levels.	10/29/2020 7:58 AM
9	Water for everyone equally.	10/28/2020 9:01 PM
10	protect the groundwater resource at sustainable levels while protecting existing uses and the environment	10/15/2020 10:52 AM

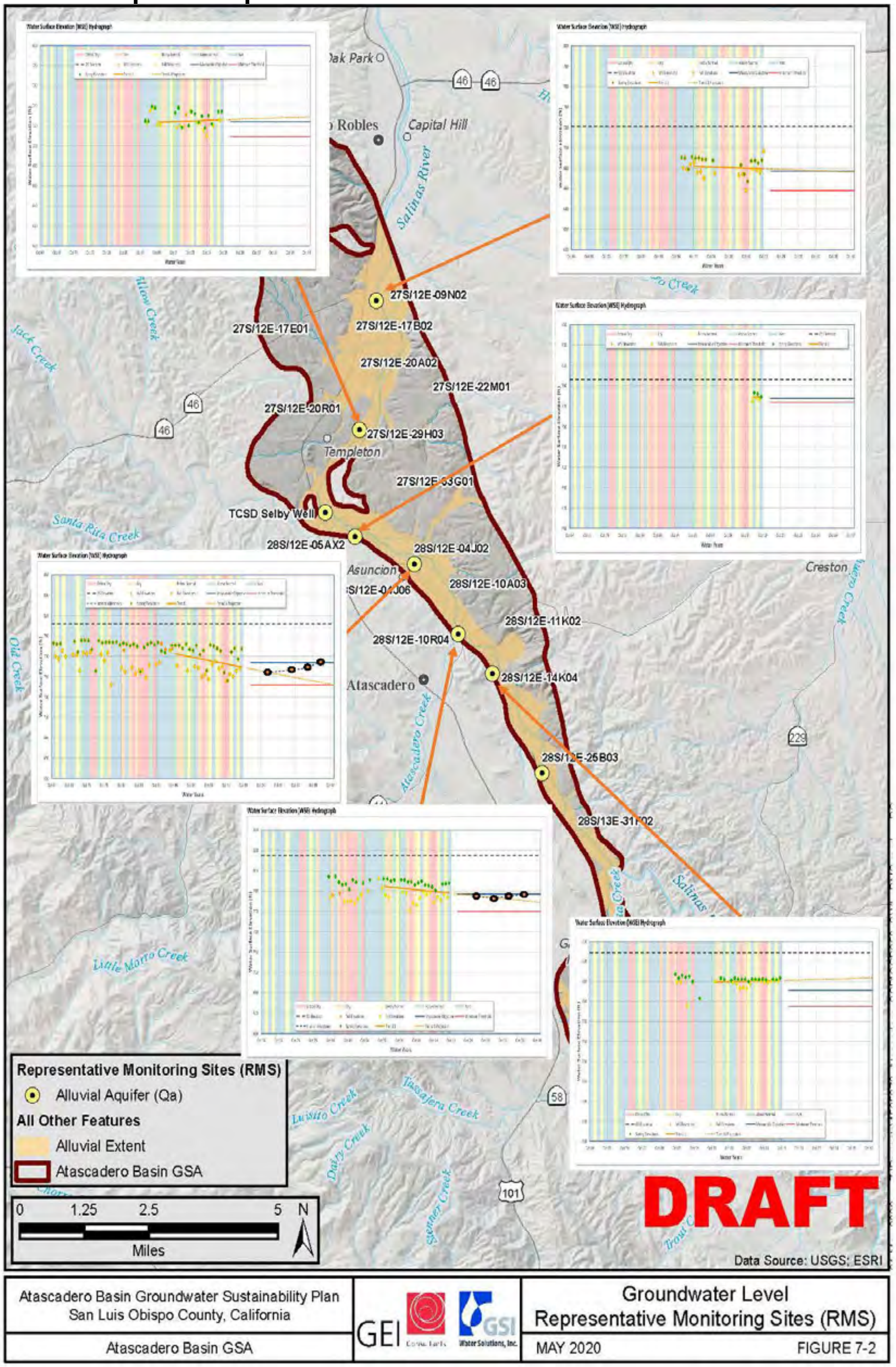
Q18 Please provide any other information, comments, or questions that you have regarding the SGMA process and development of Minimum Thresholds for the Atascadero Basin.

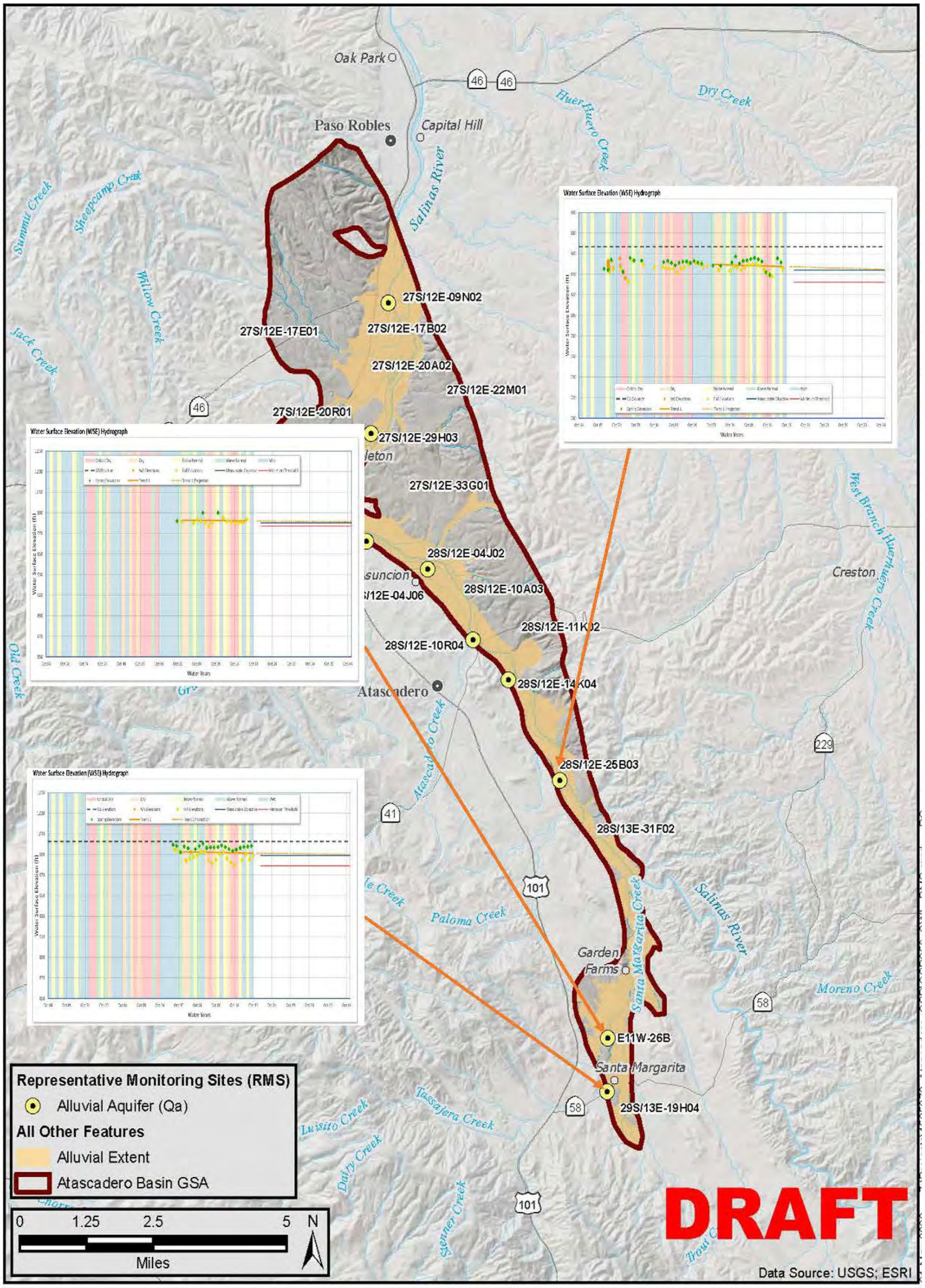
Answered: 5 Skipped: 13

#	RESPONSES	DATE
1	Thank you for the efforts to address this problem; now and into the future.	11/10/2020 12:38 PM
2	Being fair in a complex situation like this is difficult. As an example forcing someone to lower pumping from previous levels when that person has already spent major effort (and expense) to reduce usage below average consumption is not fair. So blanket requirements to cut pumping 20% penalizes those who have done well in the past. It's easy for someone who is terribly wasteful to cut 20%	11/8/2020 10:08 AM
3	I am getting info from the Paso water basin also. I would like to see a map that you can enlarge to see which basin I am in. Also with a little more explanation on the different colors. I live on Rocky Canyon Rd. and it seems that there is confusion on the boundaries between the two basins	10/28/2020 9:01 PM
4	This is another run at taking water rights from the people. 1816 water rights should not be taken.	10/15/2020 11:29 AM
5	This survey is flawed. Educate the public first and then ask their opinions. CCWQCB protects water quality very rigorously. The Salinas doesn't flow accept for the spring releases from the dam and the treatment plants. The alluvial aquifer does flow slowly. The tributary streams do flow and they have been reduced by climate change and human use. They are beyond the purview of SGMA and this GSP. After Paso Basin's experience with it's survey I thought you guys would do better. Alas.	10/15/2020 10:52 AM

Appendix 8B – Alluvial Aquifer Hydrographs

Alluvial Aquifer Map





Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Groundwater Level Representative Monitoring Sites (RMS)
Atascadero Basin GSA		MAY 2020 FIGURE 7-2

Alluvial Aquifer Hydrographs

Groundwater Level Report

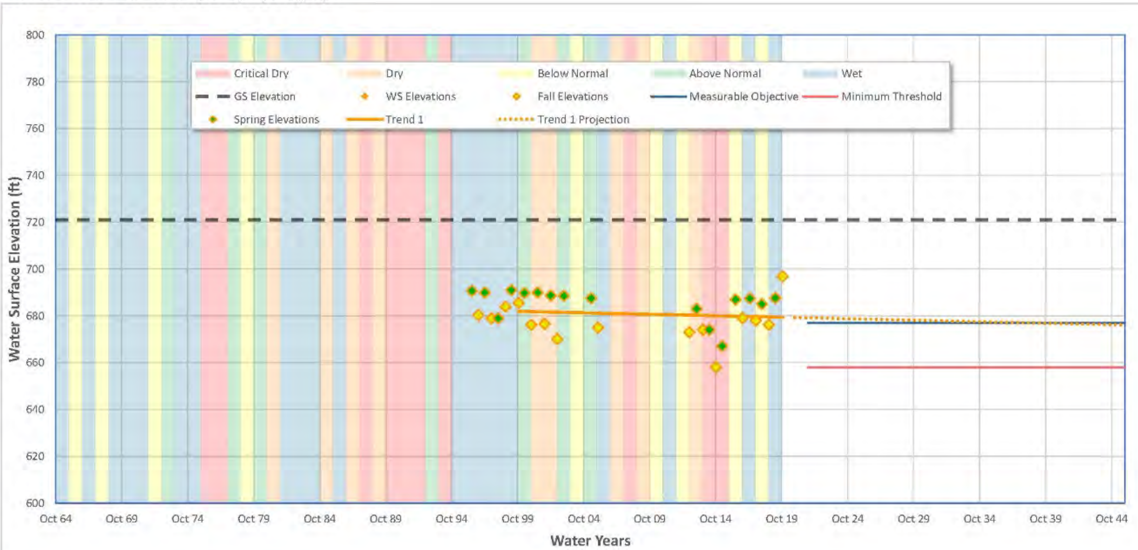
Date: 1/15/2021

Well Information	
Well ID	001946-PASO-0182
Alternate Name	PASO-0182
State Number	27S12E09N002M
CASGEM ID	355878N1206914W001
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5878
	Long:	-120.6914
Well Depth		92.00 ft
Ground Surface Elevation		721.00 ft
Ref. Point Elevation		721.00 ft
Screen Depth Range		-
Screen Elevation Range		-
Principal Aquifer		Quaternary Allivium
Well Period of Record		
Period-of-Record		1996..2020
WS Elev-Range	Min:	658.0 ft
	Max	696.8 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(0.127 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	658.0 ft
	Max	696.8 ft
2015 WS Elevations	Spring:	667.0 ft
	Fall:	-
Current WS Elevations	Spring:	687.5 ft
	Fall:	696.8 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	678.6 ft	-
2030	678.0 ft	-
2035	677.3 ft	-
2040	676.7 ft	-
2040	676.7 ft	-
2042	676.5 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	658.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	677.0 ft	Average of high and low wse

Groundwater Level Report

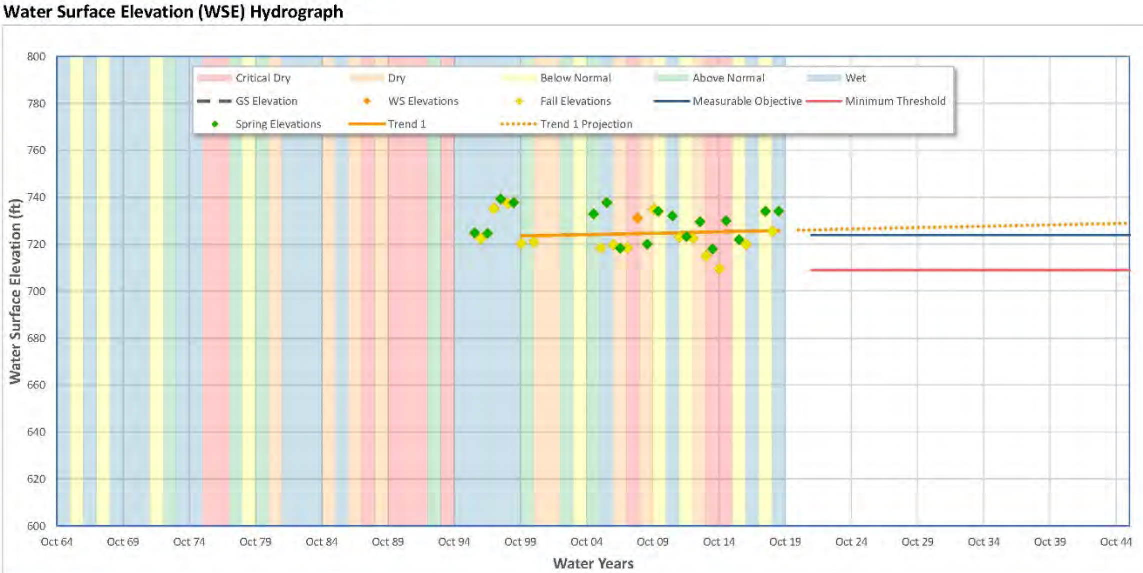
Date: 1/15/2021

Well Information	
Well ID	002134-27S/12E-29H03
Alternate Name	27S/12E-29H03
State Number	27S12E29H003M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5544
	Long:	-120.6961
Well Depth		65.00 ft
Ground Surface Elevation		-
Ref. Point Elevation		753.01 ft
Screen Depth Range		35 to 55 ft
Screen Elevation Range		718 to 698 ft
Principal Aquifer		Quaternary Allivium
Well Period of Record		
Period-of-Record		1996..2019
WS Elev-Range	Min:	709.6 ft
	Max	739.3 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	0.119 ft/yr
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	709.6 ft
	Max	739.3 ft
2015 WS Elevations	Spring:	730.0 ft
	Fall:	-
Current WS Elevations	Spring:	734.0 ft
	Fall:	725.5 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	726.6 ft	-
2030	727.2 ft	-
2035	727.8 ft	-
2040	728.4 ft	-
2040	728.4 ft	-
2042	728.6 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	709.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	724.0 ft	Mean of high and low WSE

Groundwater Level Report

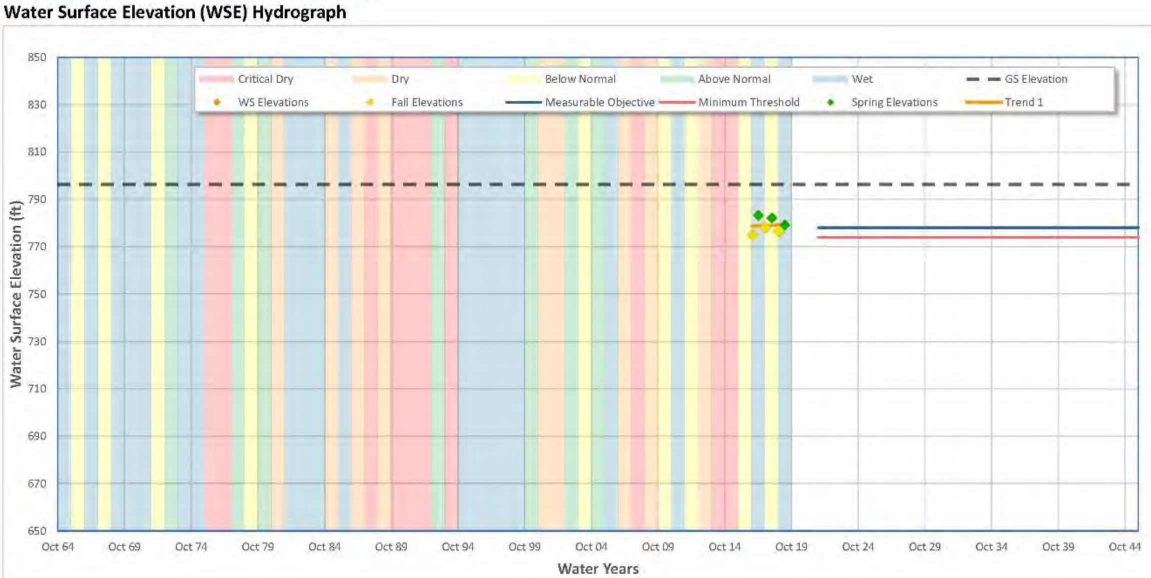
Date: 1/15/2021

Well Information	
Well ID	002023-28S/12E-05AX2
Alternate Name	28S/12E-05AX2
State Number	-
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Monitoring
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5269
	Long:	-120.6960
Well Depth		-
Ground Surface Elevation		796.21 ft
Ref. Point Elevation		796.21 ft
Screen Depth Range		-
Screen Elevation Range		-
Principal Aquifer		Quaternary Allivium
Well Period of Record		
Period-of-Record		2017..2019
WS Elev-Range	Min:	774.9 ft
	Max	783.1 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	0.253 ft/yr
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	774.9 ft
	Max	783.1 ft
2015 WS Elevations	Spring:	-
	Fall:	-
Current WS Elevations	Spring:	779.1 ft
	Fall:	776.4 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	780.9 ft	-
2030	782.1 ft	-
2035	783.4 ft	-
2040	784.7 ft	-
2040	784.7 ft	-
2042	785.2 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	774.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	778.0 ft	Mean of high and low WSE

Groundwater Level Report

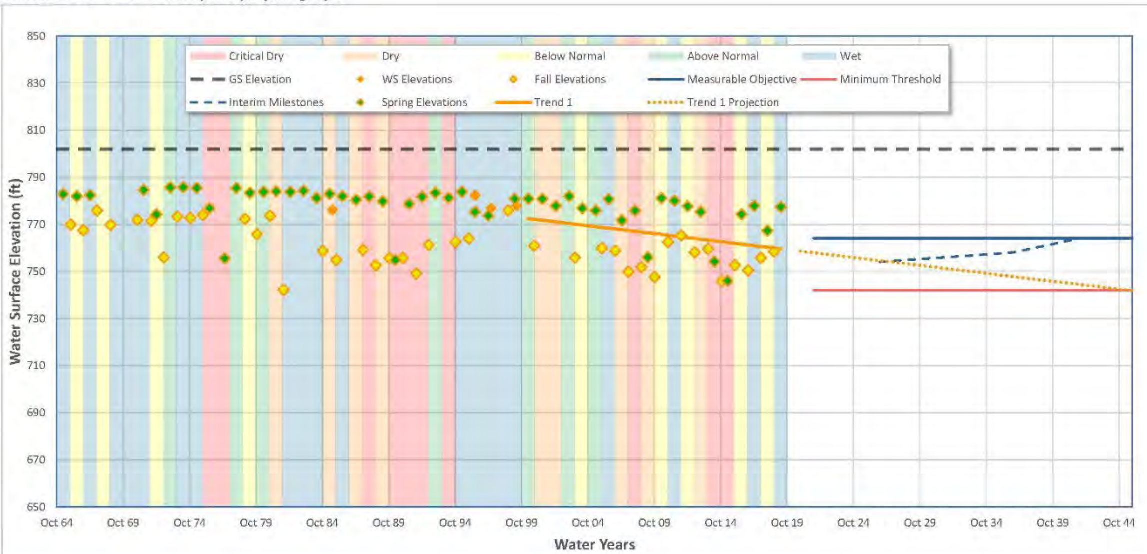
Date: 1/24/2021

Well Information	
Well ID	001996-28S/12E-04J02
Alternate Name	28S/12E-04J02
State Number	28S12E04J002M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5203
	Long:	-120.6761
Well Depth		85.00 ft
Ground Surface Elevation		801.99 ft
Ref. Point Elevation		795.83 ft
Screen Depth Range		21 to 86 ft
Screen Elevation Range		775 to 710 ft
Principal Aquifer		Quaternary Allivium
Well Period of Record		
Period-of-Record		1965..2019
WS Elev-Range	Min:	742.0 ft
	Max	785.7 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(0.675 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	742.0 ft
	Max	785.7 ft
2015 WS Elevations	Spring:	746.0 ft
	Fall:	752.6 ft
Current WS Elevations	Spring:	777.4 ft
	Fall:	758.3 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	755.2 ft	-
2030	751.8 ft	-
2035	748.5 ft	-
2040	745.1 ft	-
2040	745.1 ft	-
2042	743.7 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	742.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	764.0 ft	Mean of high and low WSE
IM	Interim Milestone	2027	754.0 ft	
IM	Interim Milestone	2032	756.0 ft	
IM	Interim Milestone	2037	758.0 ft	
IM	Interim Milestone	2042	764.0 ft	

Groundwater Level Report

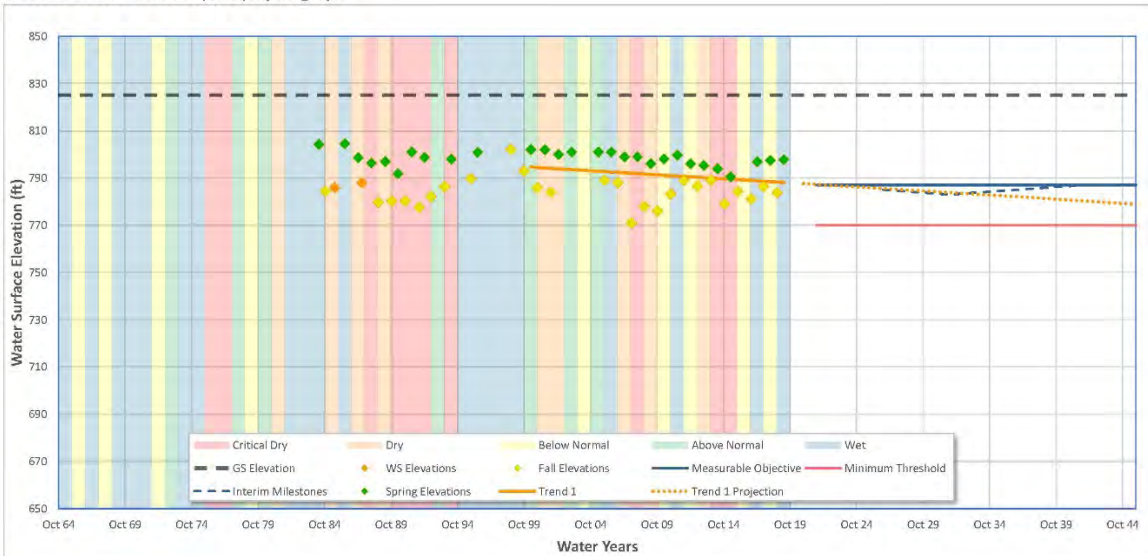
Date: 1/24/2021

Well Information	
Well ID	001995-28S/12E-10R04
Alternate Name	28S/12E-10R04
State Number	28S12E10R004M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5028
	Long:	-120.6605
Well Depth		75.00 ft
Ground Surface Elevation		825.02 ft
Ref. Point Elevation		820.00 ft
Screen Depth Range		46 to 75 ft
Screen Elevation Range		750 to 721 ft
Principal Aquifer		Quaternary Allivium
Well Period of Record		
Period-of-Record		1984..2019
WS Elev-Range	Min:	770.9 ft
	Max	804.5 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(0.344 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	770.9 ft
	Max	804.5 ft
2015 WS Elevations	Spring:	790.5 ft
	Fall:	784.2 ft
Current WS Elevations	Spring:	797.8 ft
	Fall:	783.8 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	785.8 ft	-
2030	784.1 ft	-
2035	782.4 ft	-
2040	780.7 ft	-
2040	780.7 ft	-
2042	780.0 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	770.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	787.0 ft	Mean of high and low WSE
IM	Interim Milestone	2027	785.0 ft	
IM	Interim Milestone	2032	783.0 ft	
IM	Interim Milestone	2037	785.0 ft	
IM	Interim Milestone	2042	787.0 ft	

Groundwater Level Report

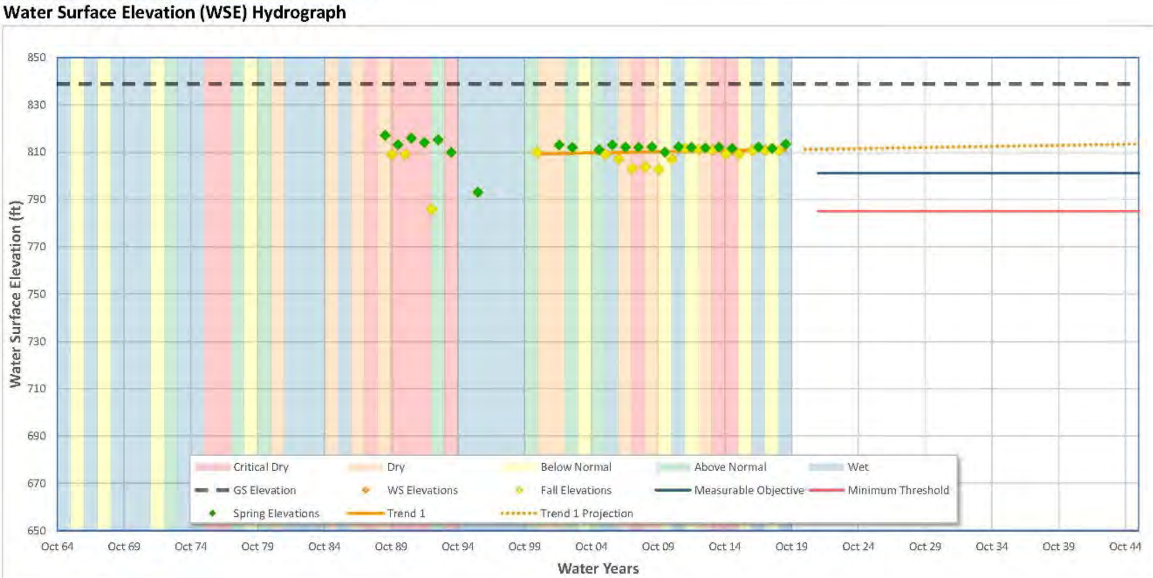
Date: 1/15/2021

Well Information	
Well ID	001993-28S/12E-14K04
Alternate Name	28S/12E-14K04
State Number	28S12E14K004M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.4929
	Long:	-120.6484
Well Depth		105.00 ft
Ground Surface Elevation		838.78 ft
Ref. Point Elevation		835.00 ft
Screen Depth Range		50 to 100 ft
Screen Elevation Range		770 to 720 ft
Principal Aquifer		Quaternary Allivium
Well Period of Record		
Period-of-Record		1989..2019
WS Elev-Range	Min:	785.8 ft
	Max	817.0 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	0.091 ft/yr
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	785.8 ft
	Max	817.0 ft
2015 WS Elevations	Spring:	811.5 ft
	Fall:	809.1 ft
Current WS Elevations	Spring:	813.3 ft
	Fall:	810.6 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	811.5 ft	-
2030	812.0 ft	-
2035	812.4 ft	-
2040	812.9 ft	-
2040	812.9 ft	-
2042	813.1 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	785.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	801.0 ft	Mean of high and low WSE

Groundwater Level Report

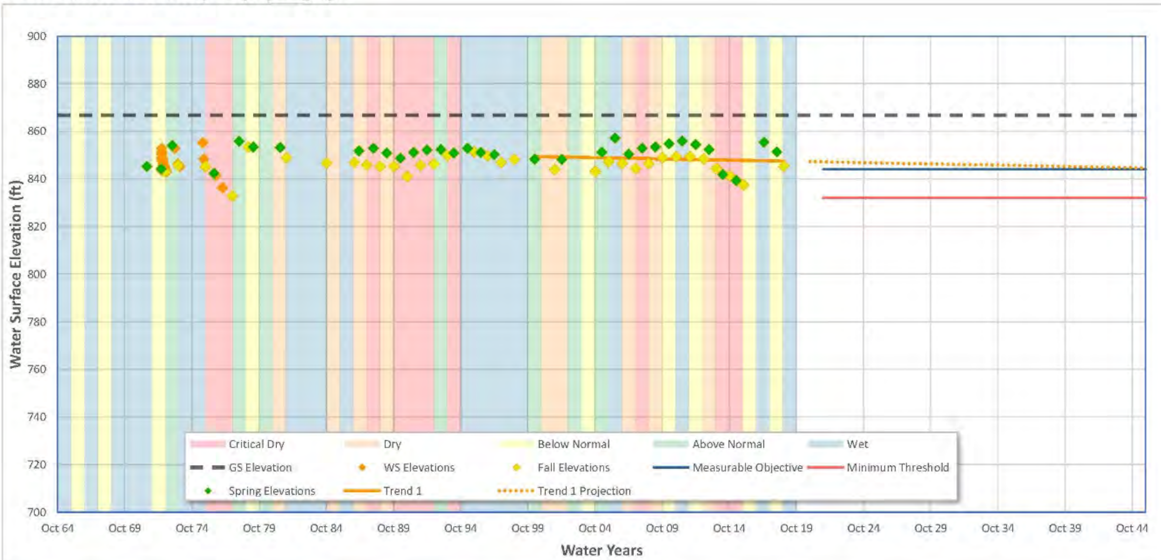
Date: 1/15/2021

Well Information	
Well ID	002033-28S/12E-25B03
Alternate Name	28S/12E-25B03
State Number	28S12E25B003M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.4676
	Long:	-120.6306
Well Depth		120.00 ft
Ground Surface Elevation		866.78 ft
Ref. Point Elevation		867.80 ft
Screen Depth Range		100 to 120 ft
Screen Elevation Range		768 to 748 ft
Principal Aquifer		Quaternary Allivium
Well Period of Record		
Period-of-Record		1971..2019
WS Elev-Range	Min:	832.8 ft
	Max	857.1 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(0.106 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	832.8 ft
	Max	857.1 ft
2015 WS Elevations	Spring:	839.4 ft
	Fall:	837.4 ft
Current WS Elevations	Spring:	851.4 ft
	Fall:	845.4 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	846.7 ft	-
2030	846.2 ft	-
2035	845.6 ft	-
2040	845.1 ft	-
2040	845.1 ft	-
2042	844.9 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	832.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	844.0 ft	Mean of high and low WSE

Groundwater Level Report

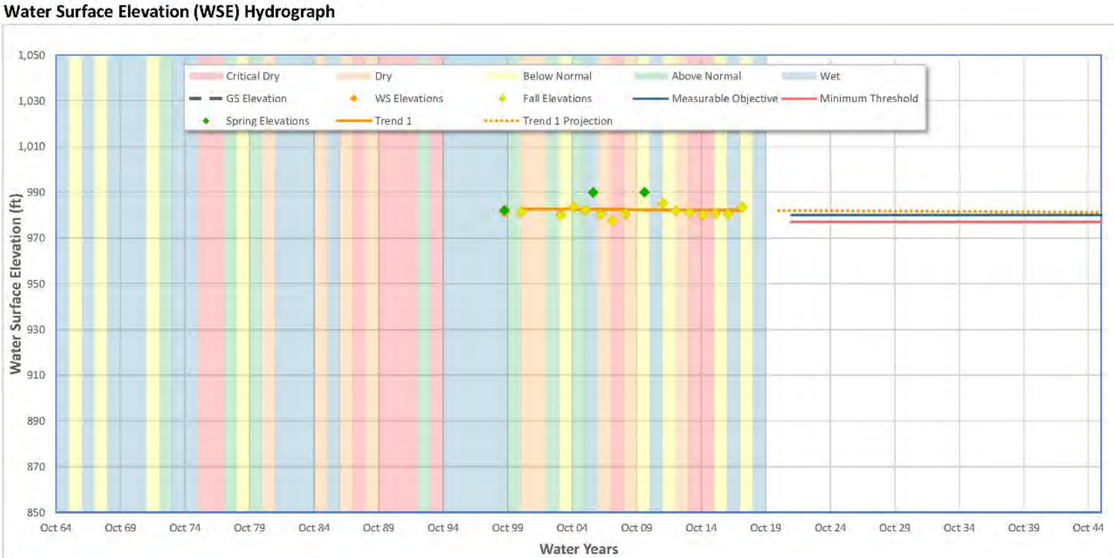
Date: 1/15/2021

Well Information	
Well ID	002053-SL0607989492
Alternate Name	SL0607989492
State Number	-
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Monitoring
Well Use	Observation
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.4025
	Long:	-120.6124
Well Depth		35.00 ft
Ground Surface Elevation		-
Ref. Point Elevation		1002.97 ft
Screen Depth Range		10 to 35 ft
Screen Elevation Range		993 to 968 ft
Principal Aquifer		Quaternary Allivium
Well Period of Record		
Period-of-Record		1999..2018
WS Elev-Range	Min:	977.5 ft
	Max	990.0 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(0.032 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	977.5 ft
	Max	990.0 ft
2015 WS Elevations	Spring:	-
	Fall:	980.8 ft
Current WS Elevations	Spring:	990.0 ft
	Fall:	983.5 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	981.8 ft	-
2030	981.7 ft	-
2035	981.5 ft	-
2040	981.4 ft	-
2040	981.4 ft	-
2042	981.3 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	977.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	980.0 ft	Mean of high and low WSE

Groundwater Level Report

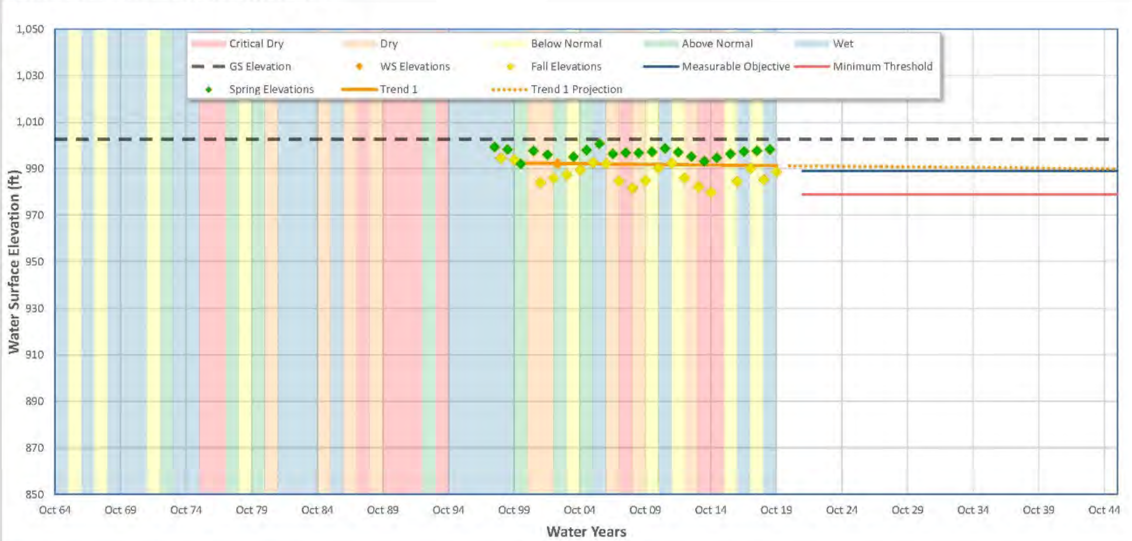
Date:	1/15/2021

Well Information	
Well ID	001710-PASO-0263
Alternate Name	PASO-0263
State Number	29S13E19H004M
CASGEM ID	353889N1206123W001
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.3889
	Long:	-120.6123
Well Depth		57.00 ft
Ground Surface Elevation		1002.50 ft
Ref. Point Elevation		1005.00 ft
Screen Depth Range		-
Screen Elevation Range		-
Principal Aquifer		Quaternary Allivium
Well Period of Record		
Period-of-Record		1998..2020
WS Elev-Range	Min:	979.8 ft
	Max	1000.7 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(0.054 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	979.8 ft
	Max	1000.7 ft
2015 WS Elevations	Spring:	994.6 ft
	Fall:	-
Current WS Elevations	Spring:	998.2 ft
	Fall:	988.6 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	991.0 ft	-
2030	990.7 ft	-
2035	990.4 ft	-
2040	990.1 ft	-
2040	990.1 ft	-
2042	990.0 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	979.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	989.0 ft	Mean of high and low WSE

Groundwater Level Report

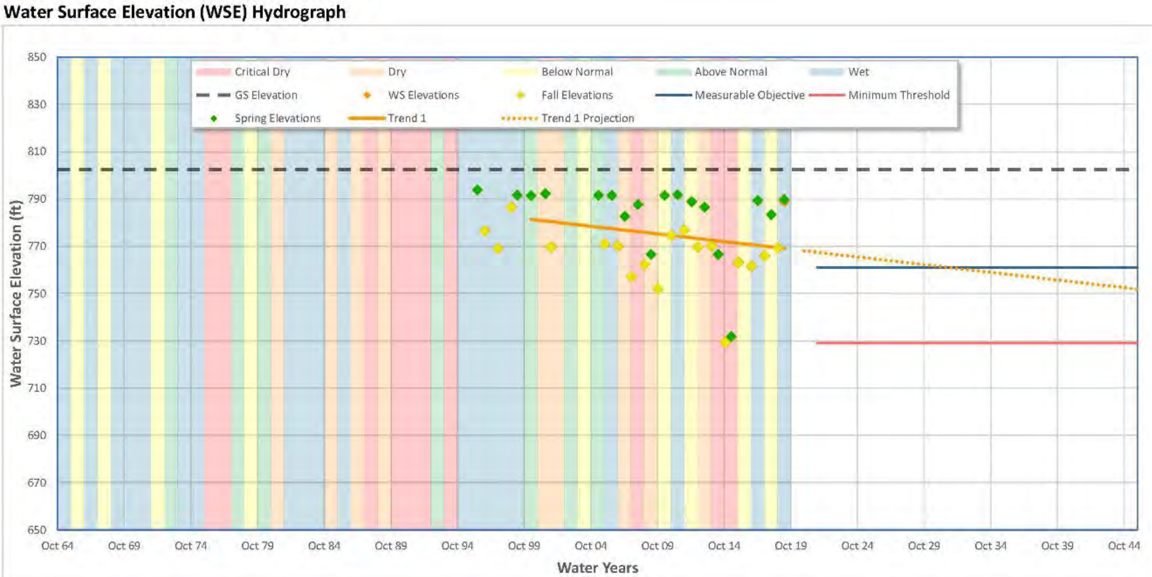
Date: 1/15/2021

Well Information	
Well ID	002014-28S/12E-04J04
Alternate Name	28S/12E-04J04
State Number	28S12E04J004M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Monitoring
Well Use	Observation
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5200
	Long:	-120.6750
Well Depth		70.00 ft
Ground Surface Elevation		802.37 ft
Ref. Point Elevation		802.37 ft
Screen Depth Range		30 to 70 ft
Screen Elevation Range		772 to 732 ft
Principal Aquifer		Quaternary Allivium
Well Period of Record		
Period-of-Record		1996..2019
WS Elev-Range	Min:	729.3 ft
	Max	793.8 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(0.650 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	729.3 ft
	Max	793.8 ft
2015 WS Elevations	Spring:	731.7 ft
	Fall:	763.1 ft
Current WS Elevations	Spring:	789.7 ft
	Fall:	769.3 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	764.8 ft	-
2030	761.5 ft	-
2035	758.3 ft	-
2040	755.0 ft	-
2040	755.0 ft	-
2042	753.7 ft	-

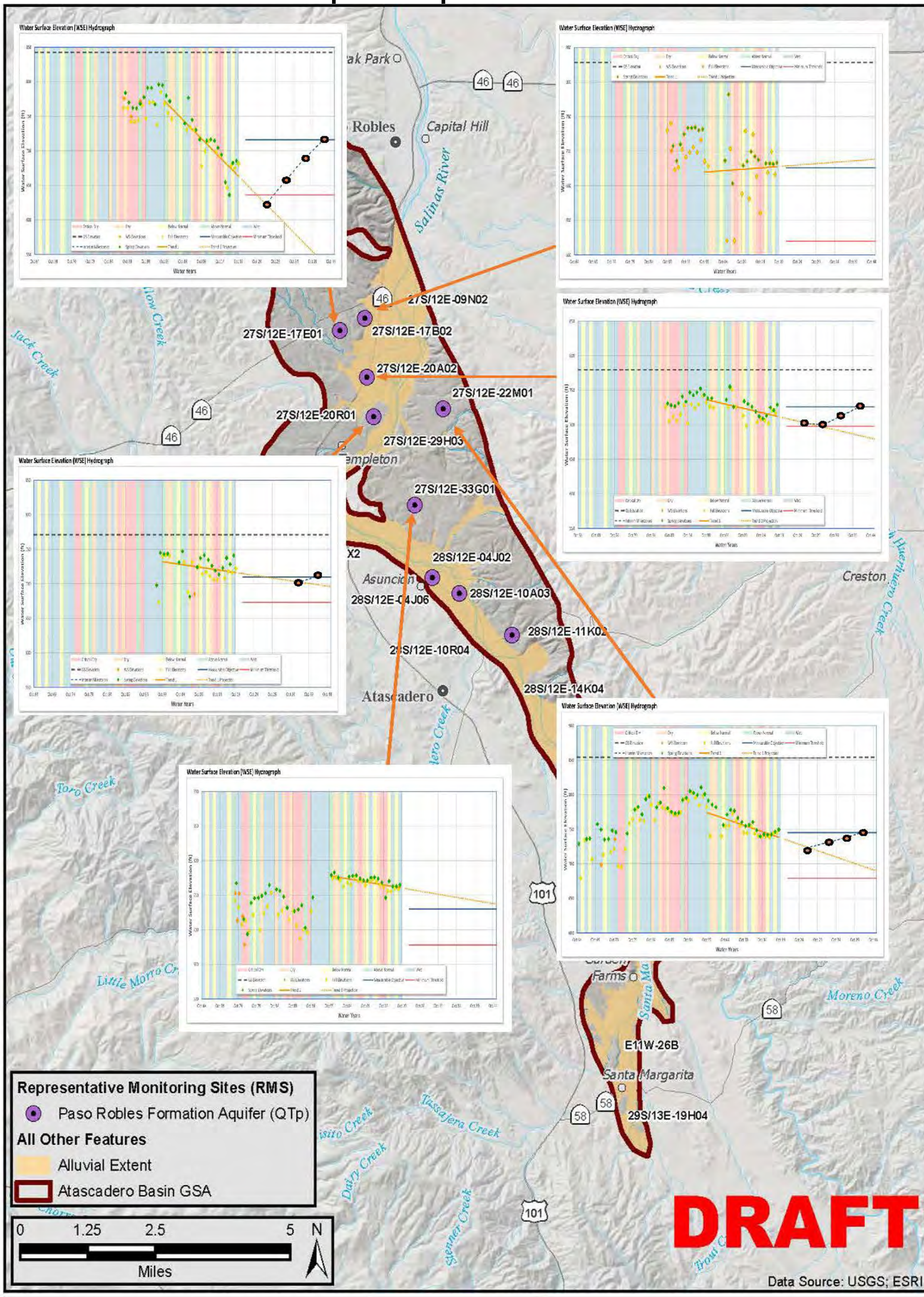
Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	729.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	761.0 ft	Mean of high and low WSE

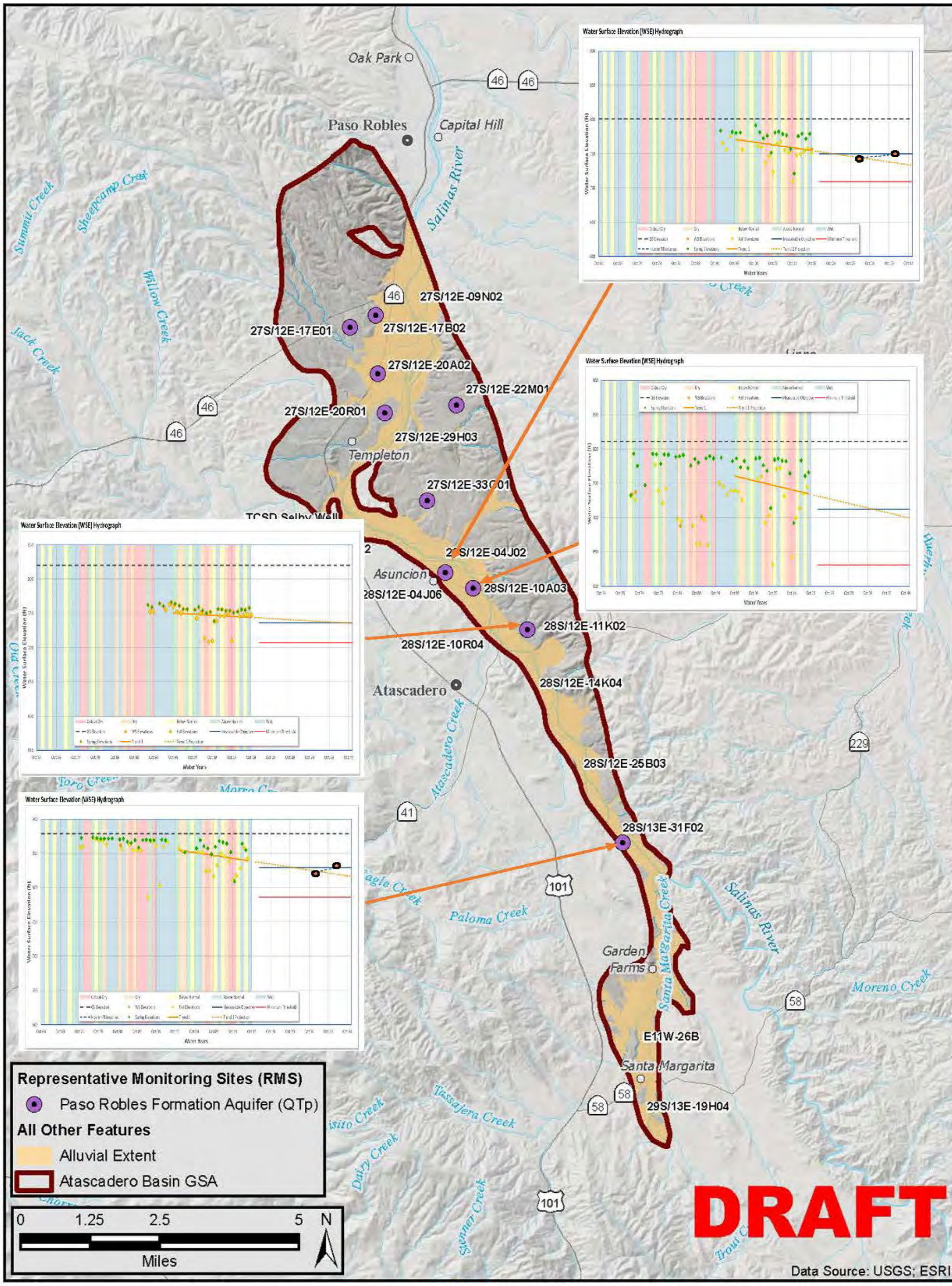
This page left blank intentionally.

Appendix 8C – Paso Robles Formation Aquifer Hydrographs

Paso Robles Formation Aquifer Map



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Groundwater Level Representative Monitoring Sites (RMS)
Atascadero Basin GSA		MAY 2020 FIGURE 7-2



Atascadero Basin Groundwater Sustainability Plan San Luis Obispo County, California	GEI Consultants / GSI Water Solutions, Inc.	Groundwater Level Representative Monitoring Sites (RMS)
Atascadero Basin GSA		MAY 2020 FIGURE 7-2

Paso Robles Formation Aquifer Hydrographs

Groundwater Level Report

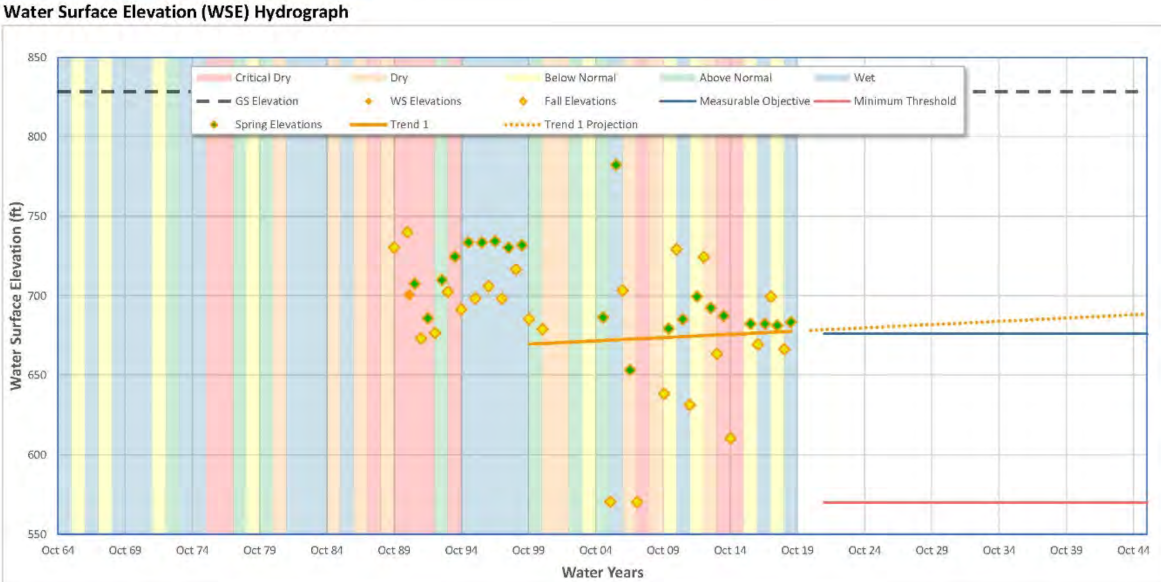
Date: 1/17/2021

Well Information	
Well ID	002126-27S/12E-17B02
Alternate Name	27S/12E-17B02
State Number	27S12E17B002M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5842
	Long:	-120.7007
Well Depth		400.00 ft
Ground Surface Elevation		828.31 ft
Ref. Point Elevation		828.31 ft
Screen Depth Range		200 to 400 ft
Screen Elevation Range		642 to 442 ft
Principal Aquifer		Paso Robles Formation
Well Period of Record		
Period-of-Record		1989..2019
WS Elev-Range	Min:	570.3 ft
	Max	782.3 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	0.409 ft/yr
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	570.3 ft
	Max	782.3 ft
2015 WS Elevations	Spring:	-
	Fall:	-
Current WS Elevations	Spring:	683.3 ft
	Fall:	666.2 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	680.2 ft	-
2030	682.3 ft	-
2035	684.3 ft	-
2040	686.4 ft	-
2040	686.4 ft	-
2042	687.2 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	570.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	676.0 ft	Mean of high and low WSE

Groundwater Level Report

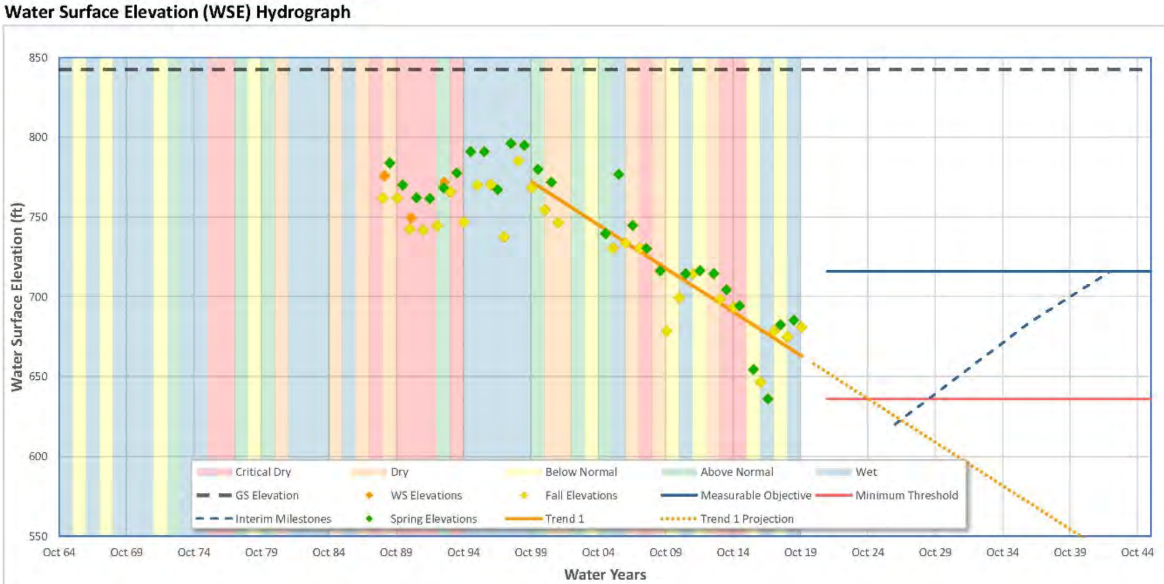
Date: 1/24/2021

Well Information	
Well ID	001707-PASO-0328
Alternate Name	PASO-0328
State Number	27S12E17E001M
CASGEM ID	355808N1207086W001
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5808
	Long:	-120.7086
Well Depth		310.00 ft
Ground Surface Elevation		842.40 ft
Ref. Point Elevation		842.40 ft
Screen Depth Range		-
Screen Elevation Range		-
Principal Aquifer		Paso Robles Formation
Well Period of Record		
Period-of-Record		1989..2020
WS Elev-Range	Min:	636.1 ft
	Max	796.1 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(5.448 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	636.1 ft
	Max	796.1 ft
2015 WS Elevations	Spring:	694.4 ft
	Fall:	-
Current WS Elevations	Spring:	685.4 ft
	Fall:	681.2 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	630.7 ft	-
2030	603.5 ft	-
2035	576.2 ft	-
2040	549.0 ft	-
2040	549.0 ft	-
2042	538.1 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	636.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	716.0 ft	Mean of high and low WSE
IM	Interim Milestone	2027	620.0 ft	
IM	Interim Milestone	2032	652.0 ft	
IM	Interim Milestone	2037	684.0 ft	
IM	Interim Milestone	2043	716.0 ft	

Groundwater Level Report

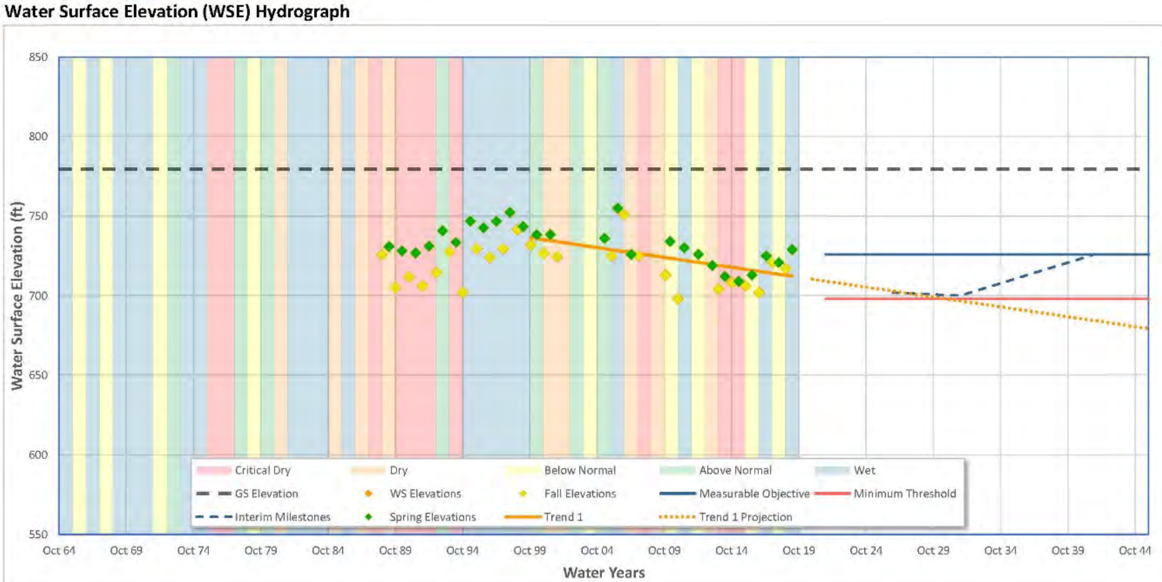
Date: 1/24/2021

Well Information	
Well ID	002132-27S/12E-20A02
Alternate Name	27S/12E-20A02
State Number	27S12E20A002M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5693
	Long:	-120.6994
Well Depth		205.00 ft
Ground Surface Elevation		779.35 ft
Ref. Point Elevation		776.00 ft
Screen Depth Range		105 to 195 ft
Screen Elevation Range		737 to 647 ft
Principal Aquifer		Paso Robles Formation
Well Period of Record		
Period-of-Record		1989..2019
WS Elev-Range	Min:	698.0 ft
	Max	755.0 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(1.242 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	698.0 ft
	Max	755.0 ft
2015 WS Elevations	Spring:	709.0 ft
	Fall:	706.0 ft
Current WS Elevations	Spring:	729.0 ft
	Fall:	717.0 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	704.2 ft	-
2030	697.9 ft	-
2035	691.7 ft	-
2040	685.5 ft	-
2040	685.5 ft	-
2042	683.0 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	698.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	726.0 ft	Maximum Water Surface Elevation
IM	Interim Milestone	2027	702.0 ft	
IM	Interim Milestone	2032	700.0 ft	
IM	Interim Milestone	2037	713.0 ft	
IM	Interim Milestone	2042	726.0 ft	

Groundwater Level Report

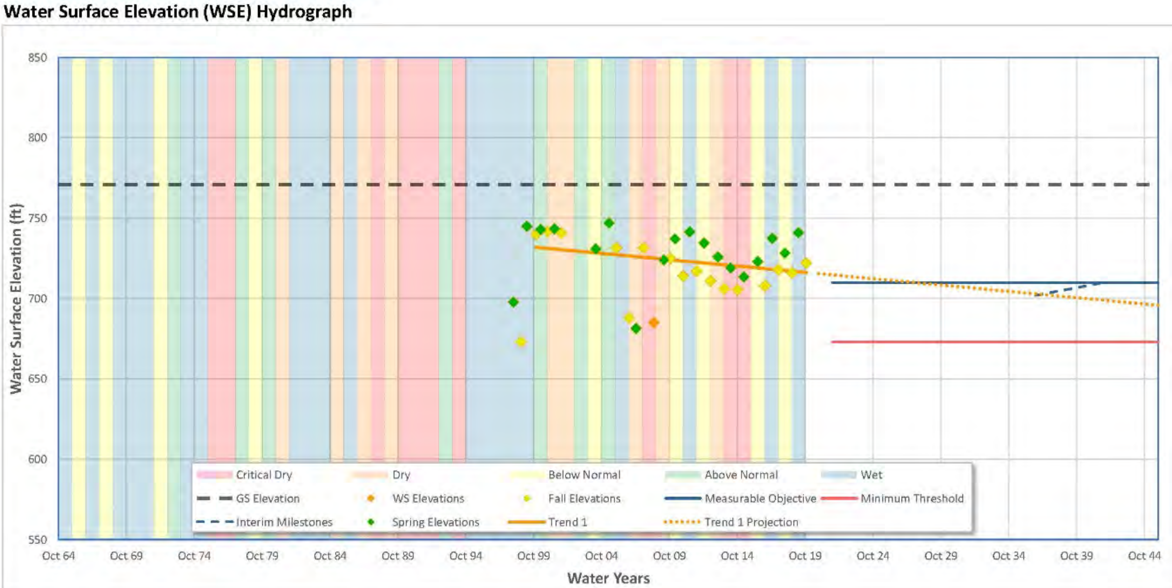
Date: 1/24/2021

Well Information	
Well ID	001926-PASO-0283
Alternate Name	PASO-0283
State Number	27S12E20R001M
CASGEM ID	355593N1206969W001
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5593
	Long:	-120.6969
Well Depth		230.00 ft
Ground Surface Elevation		771.00 ft
Ref. Point Elevation		771.00 ft
Screen Depth Range		-
Screen Elevation Range		-
Principal Aquifer		Paso Robles Formation
Well Period of Record		
Period-of-Record		1998..2020
WS Elev-Range	Min:	673.0 ft
	Max	747.0 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(0.787 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	673.0 ft
	Max	747.0 ft
2015 WS Elevations	Spring:	713.5 ft
	Fall:	-
Current WS Elevations	Spring:	741.0 ft
	Fall:	722.2 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	711.5 ft	-
2030	707.6 ft	-
2035	703.7 ft	-
2040	699.7 ft	-
2040	699.7 ft	-
2042	698.2 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	673.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	710.0 ft	Mean of high and low WSE
IM	Interim Milestone	2037	702.0 ft	
IM	Interim Milestone	2042	710.0 ft	

Groundwater Level Report

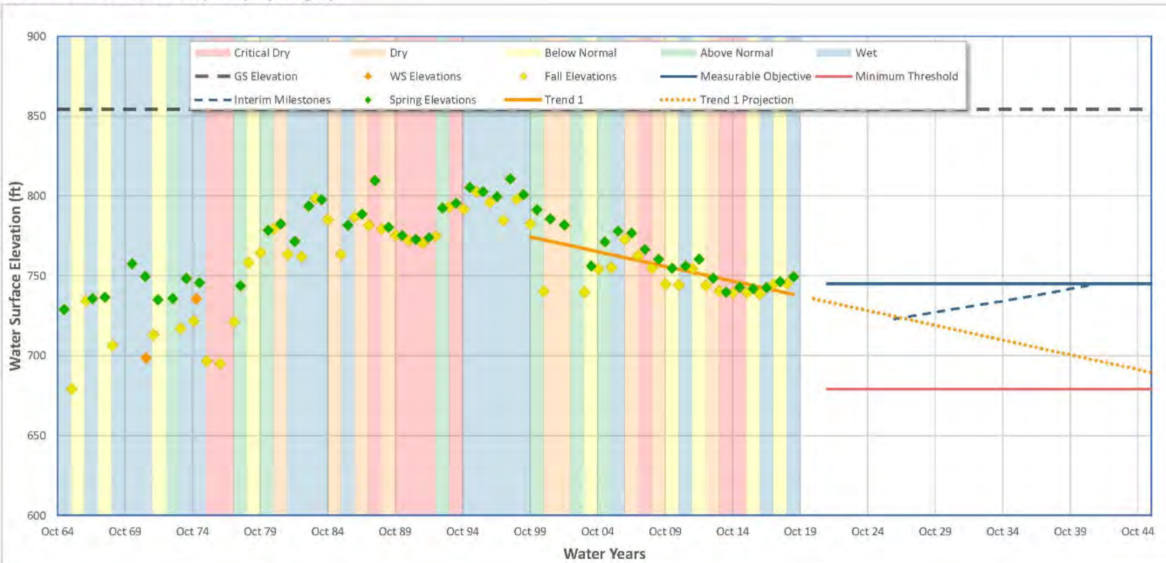
Date: 1/24/2021

Well Information	
Well ID	002078-27S/12E-22M01
Alternate Name	27S/12E-22M01
State Number	27S12E22M001M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Irrigation
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5620
	Long:	-120.6741
Well Depth		550.00 ft
Ground Surface Elevation		854.15 ft
Ref. Point Elevation		850.50 ft
Screen Depth Range		-
Screen Elevation Range		-
Principal Aquifer		Paso Robles Formation
Well Period of Record		
Period-of-Record		1965..2019
WS Elev-Range	Min:	679.0 ft
	Max	810.7 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(1.846 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	679.0 ft
	Max	810.7 ft
2015 WS Elevations	Spring:	742.9 ft
	Fall:	739.5 ft
Current WS Elevations	Spring:	749.4 ft
	Fall:	745.0 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	726.4 ft	-
2030	717.1 ft	-
2035	707.9 ft	-
2040	698.7 ft	-
2040	698.7 ft	-
2042	695.0 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	679.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	745.0 ft	Mean of high and low wse
IM	Interim Milestone	2027	723.0 ft	
IM	Interim Milestone	2032	730.0 ft	
IM	Interim Milestone	2037	737.0 ft	
IM	Interim Milestone	2042	745.0 ft	

Groundwater Level Report

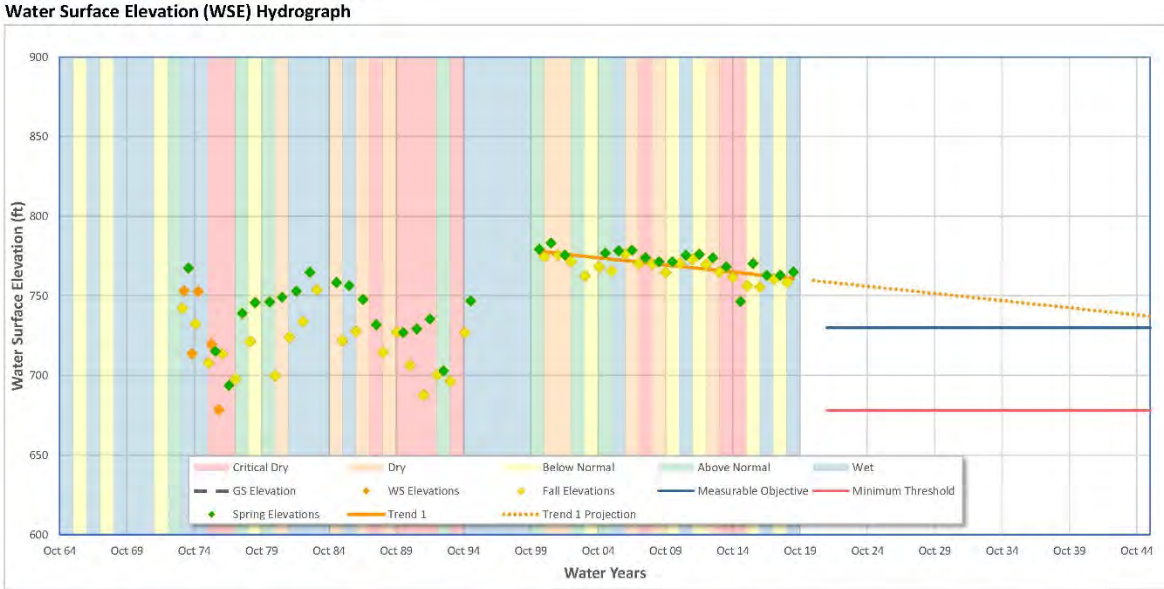
Date: 1/17/2021

Well Information	
Well ID	002083-27S/12E-33G01
Alternate Name	27S/12E-33G01
State Number	27S12E33G001M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Irrigation
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5374
	Long:	-120.6828
Well Depth		460.00 ft
Ground Surface Elevation		901.46 ft
Ref. Point Elevation		892.00 ft
Screen Depth Range		200 to 460 ft
Screen Elevation Range		680 to 420 ft
Principal Aquifer		Paso Robles Formation
Well Period of Record		
Period-of-Record		1974..2019
WS Elev-Range	Min:	678.3 ft
	Max	783.2 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(0.898 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	678.3 ft
	Max	783.2 ft
2015 WS Elevations	Spring:	746.4 ft
	Fall:	756.3 ft
Current WS Elevations	Spring:	765.0 ft
	Fall:	758.5 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	755.0 ft	-
2030	750.6 ft	-
2035	746.1 ft	-
2040	741.6 ft	-
2040	741.6 ft	-
2042	739.8 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	678.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	730.0 ft	Mean of high and low WSE

Groundwater Level Report

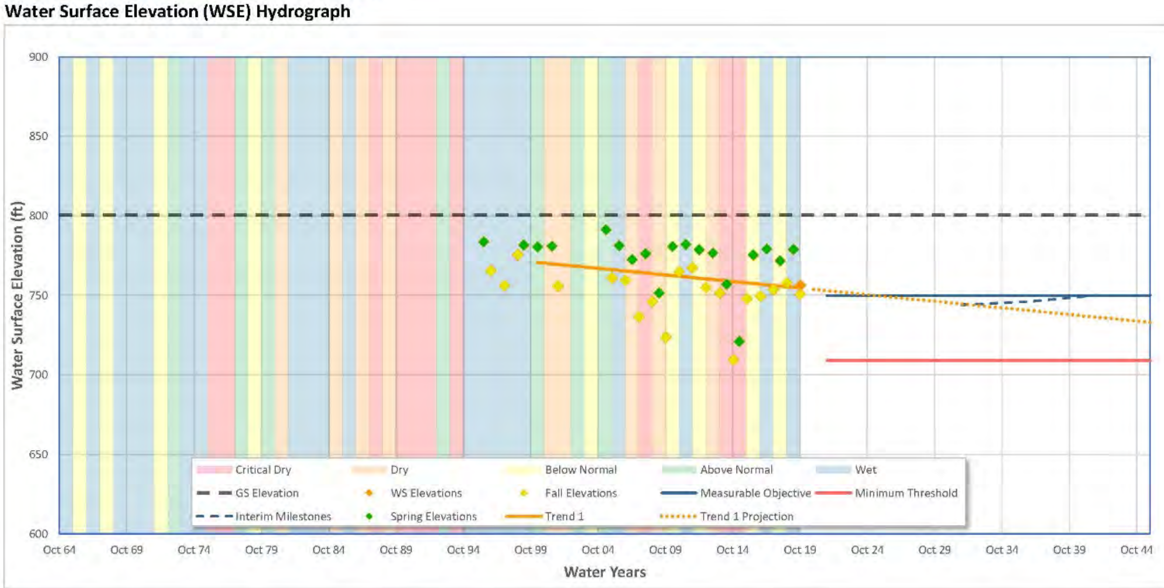
Date:		1/24/2021

Well Information	
Well ID	001708-PASO-0317
Alternate Name	PASO-0317
State Number	28S12E04J006M
CASGEM ID	355192N1206764W001
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Monitoring
Well Use	Observation
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5192
	Long:	-120.6764
Well Depth		153.00 ft
Ground Surface Elevation		800.51 ft
Ref. Point Elevation		800.51 ft
Screen Depth Range		-
Screen Elevation Range		-
Principal Aquifer		Paso Robles Formation
Well Period of Record		
Period-of-Record		1996..2020
WS Elev-Range	Min:	709.2 ft
	Max	791.3 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(0.830 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	709.2 ft
	Max	791.3 ft
2015 WS Elevations	Spring:	721.0 ft
	Fall:	747.9 ft
Current WS Elevations	Spring:	778.8 ft
	Fall:	750.6 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	749.5 ft	-
2030	745.4 ft	-
2035	741.2 ft	-
2040	737.1 ft	-
2040	737.1 ft	-
2042	735.4 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	709.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	750.0 ft	Mean of high and low WSE
IM	Interim Milestone	2032	744.0 ft	
IM	Interim Milestone	2037	746.0 ft	
IM	Interim Milestone	2042	750.0 ft	

Groundwater Level Report

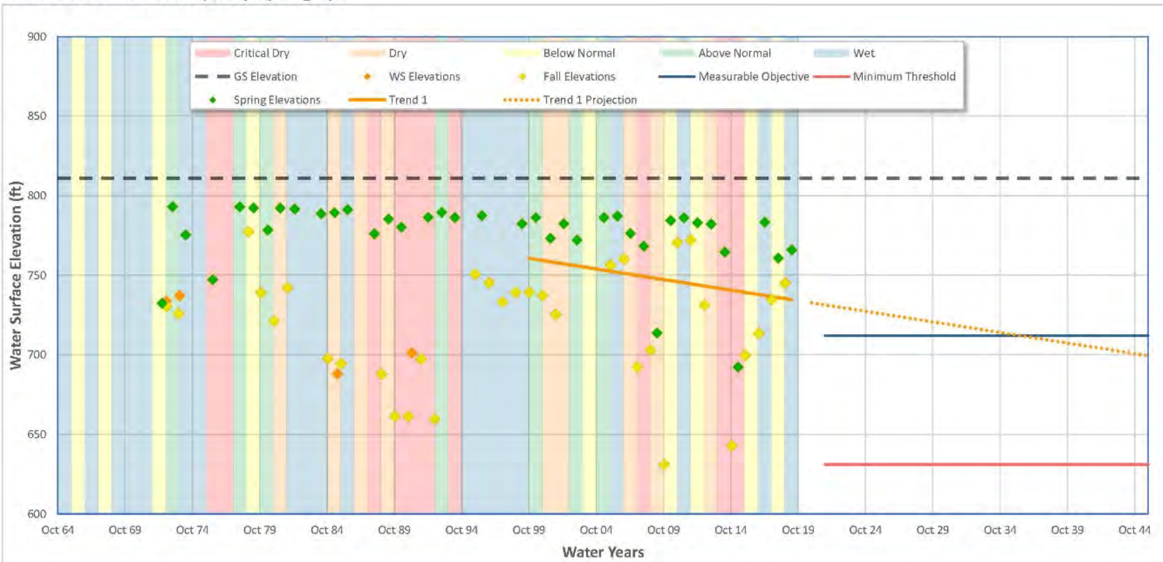
Date: 1/24/2021

Well Information	
Well ID	002001-28S/12E-10A03
Alternate Name	28S/12E-10A03
State Number	28S12E10A003M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Unknown
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5154
	Long:	-120.6673
Well Depth		500.00 ft
Ground Surface Elevation		810.95 ft
Ref. Point Elevation		808.29 ft
Screen Depth Range		157 to 500 ft
Screen Elevation Range		-
Principal Aquifer		Paso Robles Formation
Well Period of Record		
Period-of-Record		1972..2019
WS Elev-Range	Min:	631.1 ft
	Max	793.0 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(1.331 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	631.1 ft
	Max	793.0 ft
2015 WS Elevations	Spring:	692.3 ft
	Fall:	699.7 ft
Current WS Elevations	Spring:	765.9 ft
	Fall:	745.0 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	726.0 ft	-
2030	719.3 ft	-
2035	712.6 ft	-
2040	706.0 ft	-
2040	706.0 ft	-
2042	703.3 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	631.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	712.0 ft	Mean of high and low WSE

Groundwater Level Report

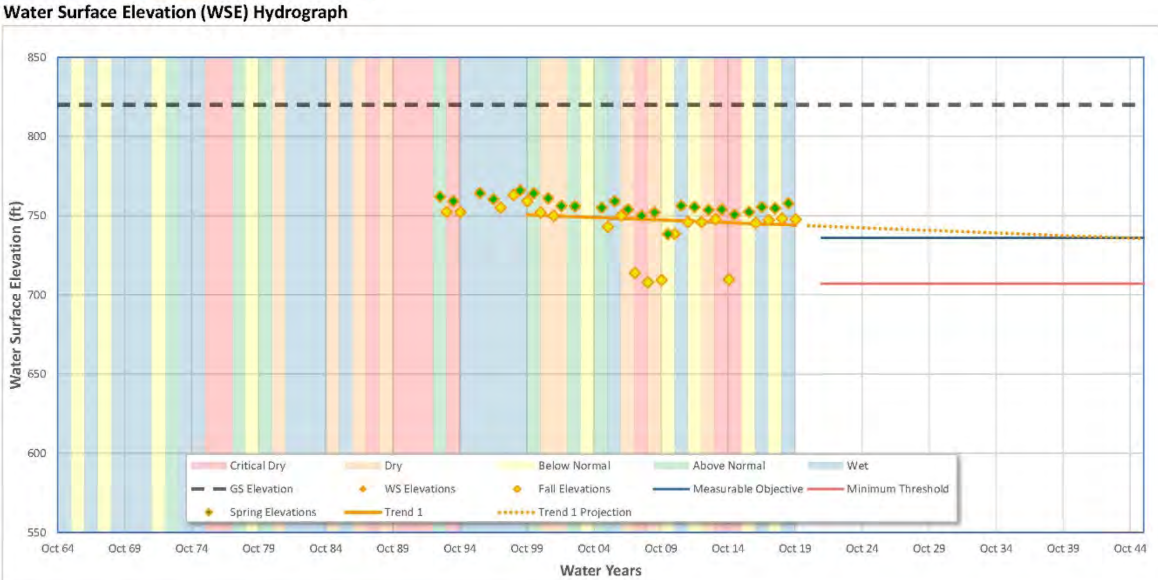
Date: 1/17/2021

Well Information	
Well ID	001927-PASO-0399
Alternate Name	PASO-0399
State Number	28S12E11K002M
CASGEM ID	355086N1206525W001
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5086
	Long:	-120.6525
Well Depth		603.00 ft
Ground Surface Elevation		820.00 ft
Ref. Point Elevation		882.00 ft
Screen Depth Range		-
Screen Elevation Range		-
Principal Aquifer		Paso Robles Formation
Well Period of Record		
Period-of-Record		1993..2020
WS Elev-Range	Min:	180.0 ft
	Max	766.0 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(0.328 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	180.0 ft
	Max	766.0 ft
2015 WS Elevations	Spring:	750.5 ft
	Fall:	-
Current WS Elevations	Spring:	757.6 ft
	Fall:	747.6 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	742.0 ft	-
2030	740.4 ft	-
2035	738.7 ft	-
2040	737.1 ft	-
2040	737.1 ft	-
2042	736.5 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	707.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	736.0 ft	Mean of high and low WSE

Groundwater Level Report

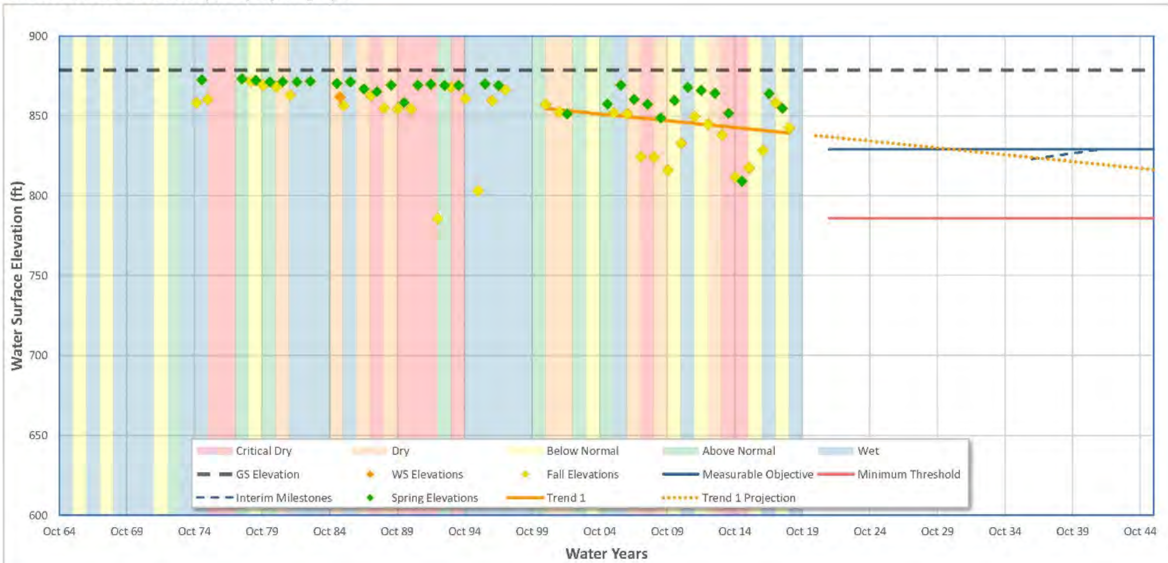
Date: 1/24/2021

Well Information	
Well ID	002002-28S/13E-31F02
Alternate Name	28S/13E-31F02
State Number	28S13E31F002M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Monitoring
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.4516
	Long:	-120.6176
Well Depth		310.00 ft
Ground Surface Elevation		878.54 ft
Ref. Point Elevation		884.30 ft
Screen Depth Range		55 to 300 ft
Screen Elevation Range		829 to 584 ft
Principal Aquifer		Paso Robles Formation
Well Period of Record		
Period-of-Record		1975..2019
WS Elev-Range	Min:	785.7 ft
	Max	873.2 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(0.851 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	785.7 ft
	Max	873.2 ft
2015 WS Elevations	Spring:	809.1 ft
	Fall:	817.5 ft
Current WS Elevations	Spring:	854.7 ft
	Fall:	842.5 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	833.4 ft	-
2030	829.1 ft	-
2035	824.9 ft	-
2040	820.6 ft	-
2040	820.6 ft	-
2042	818.9 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	786.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	829.0 ft	Mean of high and low wse
IM	Interim Milestone	2037	823.0 ft	
IM	Interim Milestone	2042	829.0 ft	

Groundwater Level Report

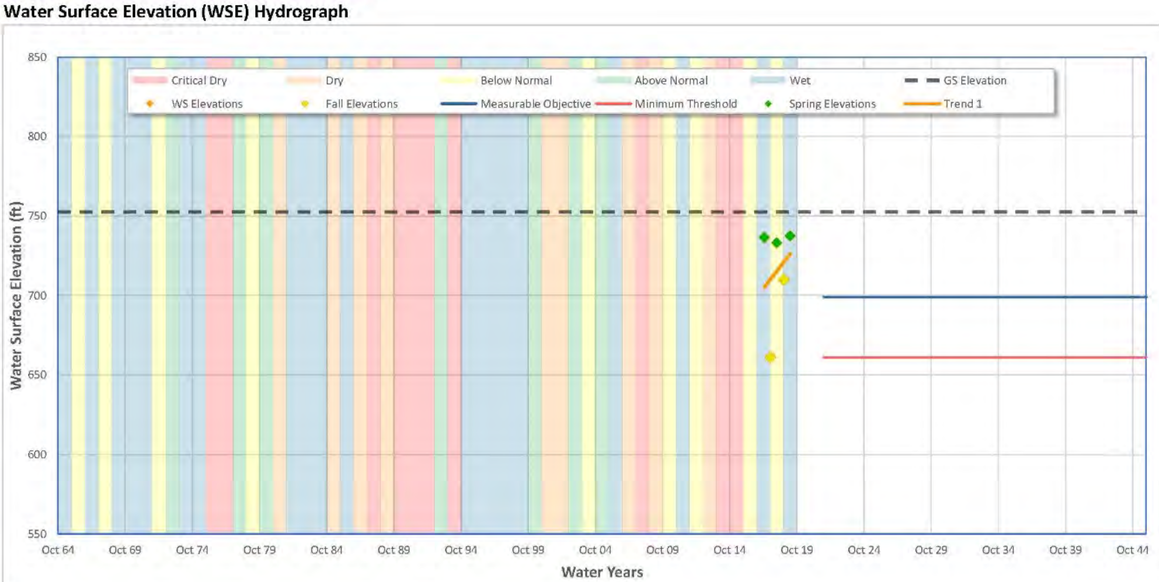
Date: 1/17/2021

Well Information	
Well ID	002124-27S/12E-21XX5
Alternate Name	27S/12E-21XX5
State Number	-
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5594
	Long:	-120.6925
Well Depth		360.00 ft
Ground Surface Elevation		752.46 ft
Ref. Point Elevation		752.46 ft
Screen Depth Range		110 to 360 ft
Screen Elevation Range		642 to 392 ft
Principal Aquifer		Paso Robles Formation
Well Period of Record		
Period-of-Record		2017..2019
WS Elev-Range	Min:	661.1 ft
	Max	737.5 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	10.874 ft/yr
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	661.1 ft
	Max	737.5 ft
2015 WS Elevations	Spring:	-
	Fall:	-
Current WS Elevations	Spring:	737.5 ft
	Fall:	710.0 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	796.8 ft	-
2030	851.2 ft	-
2035	905.6 ft	-
2040	960.0 ft	-
2040	960.0 ft	-
2042	981.7 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	661.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	699.0 ft	Maximum Water Surface Elevation

Groundwater Level Report

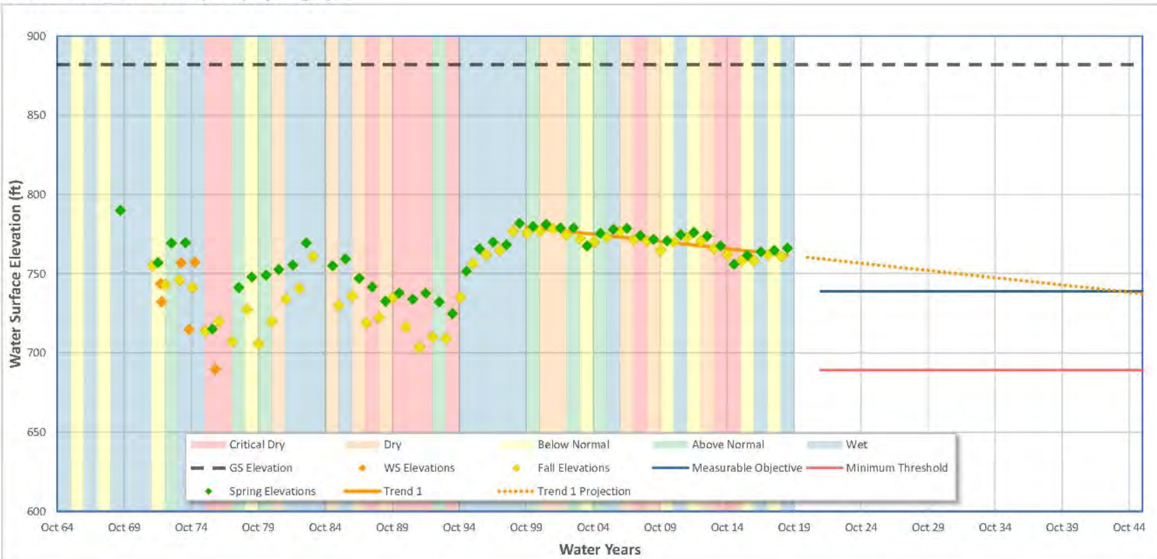
Date: 1/17/2021

Well Information	
Well ID	002082-27S/12E-33F01
Alternate Name	27S/12E-33F01
State Number	27S12E33F001M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Unknown
Well Use	Irrigation
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5407
	Long:	-120.6885
Well Depth		340.00 ft
Ground Surface Elevation		882.13 ft
Ref. Point Elevation		880.00 ft
Screen Depth Range		140 to 340 ft
Screen Elevation Range		711 to 511 ft
Principal Aquifer		Paso Robles Formation
Well Period of Record		
Period-of-Record		1969..2019
WS Elev-Range	Min:	689.8 ft
	Max	790.0 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(0.916 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	689.8 ft
	Max	790.0 ft
2015 WS Elevations	Spring:	756.0 ft
	Fall:	758.2 ft
Current WS Elevations	Spring:	766.2 ft
	Fall:	760.8 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	755.7 ft	-
2030	751.1 ft	-
2035	746.6 ft	-
2040	742.0 ft	-
2040	742.0 ft	-
2042	740.2 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	689.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	739.0 ft	Mean of high and low WSE

Groundwater Level Report

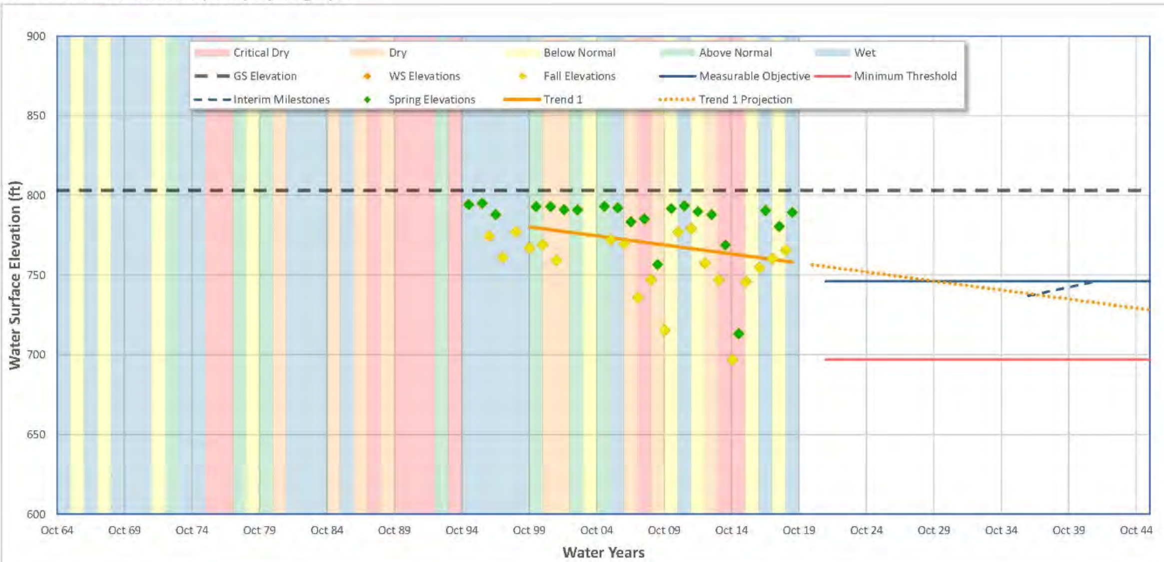
Date: 1/24/2021

Well Information	
Well ID	002016-28S/12E-04J05
Alternate Name	28S/12E-04J05
State Number	28S12E04J005M
CASGEM ID	-
Well Location	
County	San Luis Obispo
Basin	SALINAS VALLEY
Sub-Basin	ATASCADERO AREA
Management Area	-
Proveyor Agency	-
Well Type Information	
Well Type	Monitoring
Well Use	Municipal
Completion Type	Single

Well Coordinates/Geometry		
Location	Lat:	35.5200
	Long:	-120.6761
Well Depth		360.00 ft
Ground Surface Elevation		803.13 ft
Ref. Point Elevation		803.13 ft
Screen Depth Range		145 to 360 ft
Screen Elevation Range		-
Principal Aquifer		Paso Robles Formation
Well Period of Record		
Period-of-Record		1995..2019
WS Elev-Range	Min:	696.8 ft
	Max	795.0 ft

Trend Analysis		
Seasonal Data Method		Apr1/Oct1
Show Trend 1		All Data
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		Yes
Trend Results	Slope	(1.132 ft/yr)
Show Trend 2		None
Date Range	Start WY:	2000
	End WY:	2020
Extend Trend Line		No
Trend Results	Slope	-

Water Surface Elevation (WSE) Hydrograph



Sustainability Indicator Considerations

Observed WS Elevations		
Parameter		**Value**
WS Elevation Range	Min:	696.8 ft
	Max	795.0 ft
2015 WS Elevations	Spring:	713.0 ft
	Fall:	745.8 ft
Current WS Elevations	Spring:	789.3 ft
	Fall:	765.6 ft

Trend Projections		
Year	**Trend 1**	**Trend 2**
2025	750.8 ft	-
2030	745.1 ft	-
2035	739.5 ft	-
2040	733.8 ft	-
2040	733.8 ft	-
2042	731.6 ft	-

Sustainability Indicator Settings

Key	Threshold Type	Effect. Yr.	Value	Description
MT	Minimum Threshold	2022	697.0 ft	Minimum Water Surface Elevation
MO	Measureable Objective	2022	746.0 ft	Mean of high and low wse
IM	Interim Milestone	2037	737.0 ft	
IM	Interim Milestone	2042	746.0 ft	

Appendix 5B –Groundwater Dependent Ecosystems tech memo (in progress)

This page left blank intentionally

Appendix 6A Models and Comparison of Previous and Current Water Budgets

This page left blank intentionally

Appendix 6B Groundwater Inflows and Outflows for the Historical Base Period

This page left blank intentionally

Appendix 7A Known Well Completion Reports, With Redacted Ownership Information

This page left blank intentionally

Appendix 7B SLOFCWCD Monitoring and Reporting Protocols

This page left blank intentionally

Appendix 7C Locations of Non-Confidential Wells

This page left blank intentionally

Appendix 8A Results of SMC Public Survey

This page left blank intentionally

Appendix 8B Alluvial Aquifer Hydrographs

This page left blank intentionally

Appendix 8C Paso Robles Formation Aquifer Hydrographs

This page left blank intentionally

Appendix 11A Engagement Plan

This page left blank intentionally

Appendix 11B Direct Mail

This page left blank intentionally

Appendix 11C Surveys

This page left blank intentionally

Appendix 11D COVID Outreach

This page left blank intentionally

Appendix 11E Public Comments

This page left blank intentionally

Appendix 11F Meetings

This page left blank intentionally

Appendix 11G eBlasts

This page left blank intentionally

Appendix 11H Pre-SGMA Outreach

This page left blank intentionally

ATASCADERO BASIN
Groundwater
Sustainability Agency

TO: Executive Committee

FROM: GSA Staff/ John Neil, Atascadero Mutual Water Company

DATE: July 7, 2021

SUBJECT: Agenda Item 10.a, Proposition 1 Grant Progress Report

RECOMMENDED ACTION:

Receive report.

DISCUSSION:

The Proposition 1 Grant awarded to the GSA for the preparation of the Groundwater Sustainability Plan requires quarterly progress reports. Progress Report 7 for the period Q2 2021 is attached.

ATTACHMENTS:

A. Progress Report 07, Q2 2021

Sustainable Groundwater Management (SGM) GRANT PROGRAM

Grantee Name: Atascadero Mutual Water Company
Grant Agreement No.: 46-12646
Progress Report No.: 7
Reporting Period: 4/1/2021 TO 6/30/2021
Prepared: 7/1/2021

Project: Atascadero Basin Groundwater Sustainability Plan

1. Project or Component Description

Develop a SGMA-complaint Groundwater Sustainability Plan (GSP) for the Atascadero Area Groundwater Subbasin of the Salinas Valley Basin identified as Basin No. 3-004.11 in the Department of Water Resources' Bulletin 118 ("Atascadero Basin").

2. Project Progress

Budget Category (a): Grant Administration

- Updates on All Tasks (activities accomplished during the reporting period)
  - Milestones or Deliverables Completed/Submitted

Activity	% complete
Prepared & submitted Grant Amendment 01, approved by DWR	100
Prepared & submitted Invoice 01 to DWR	100
Revised Invoice 01 per DWR comments, provided compiled add'l backup information	100
Prepared & submitted Progress Report 02 to DWR covering 2019 Q2 – 2020 Q1	100
Prepared & submitted Invoice 02 to DWR covering 2019 Q2 – 2020 Q1	100
Prepared & submitted Progress Report 03 to DWR covering 2020 Q2	100
Prepared & submitted Invoice 03 to DWR covering 2020 Q2	100
Prepared Progress Report 04 to DWR covering 2020 Q3	100
Prepared Invoice 04 to DWR covering 2020 Q3	100
Prepared Progress Report 05 to DWR covering 2020 Q3	100
Prepared Invoice 05 to DWR covering 2020 Q3	100
Prepared Progress Report 06 to DWR covering 2021 Q1	80
Prepared Invoice 06 to DWR covering 2021 Q1	80
Prepared Invoices for GSA Participants pro-rata share of GSP development costs	100
Prepared Progress Report 07 to DWR covering 2021 Q2	70
Prepared Invoice 07 to DWR covering 2021 Q2	70

  - Impediments to Completion of Task
    - There are no anticipated impediments to the future completion of Category A tasks.
  - Describe activities that negatively or positively impacted the schedule and/or budget. If Change Orders (COs) have been approved, describe the reason for those and how the situation was resolved.

- Issues associated with the form of the information required by the DWR have been addressed. The amount of information submitted with Inv 03 and future invoices is far more manageable than that submitted with Invoices 01 & 02.

Budget Category (b): Stakeholder Engagement

- Updates on All Tasks (activities accomplished during the reporting period)
  - Milestones or Deliverables Completed/Submitted

Activity	% complete
GSA Executive Committee meeting, 04/03/2019	100
Developed and distributed stakeholder survey. The survey was mailed to every property owner in the Atascadero Basin who does not obtain water service from one of the GSA participant water purveyors.	100
Distributed Communication and Engagement Plan (C&E Plan) outline	100
Deployed version 1.0 of the Atascadero Basin Groundwater Communication Portal (GCP), which is linked to the www.atascaderobasin.com website. The GCP documents C&E Plan implementation; tracks stakeholders and interested parties, meetings, and; and collects public comments on draft documents. Full GCP Deployment will include reporting module and enhanced agency usability.	100
GSA Executive Committee meeting, 10/02/2019	100
Posted Sections 4 & 5 of the GSP on the www.atascaderobasin.com website for the public comment via the Atascadero Basin Groundwater Communication Portal (GCP), which is linked to the website.	100
Send notice re: cancelation of January 8, 2020 Executive Committee Meeting	100
Cancel April 1, 2020 Executive Committee due to Corona virus: noticed on website and GCP. Notify interested parties' list of meeting cancelation using GCP.	100
Reviewing options for Stakeholder outreach and coordination meeting in response to COVID-19 pandemic	100
Provide progress report to Executive Committee and post on GCP	100
Conduct Working Group meeting on June 24, 2020.	100
GSA Executive Committee meeting, July 1, 2020. Notify interested parties' list of meeting using GCP. The Executive Committee was a virtual meeting. Notice of the meeting was sent out to the 250 unique interested parties included in the Stakeholder list of the Groundwater Communication Portal. Posted Section 7 of the GSP on the www.atascaderobasin.com website for the public comment via the Atascadero Basin Groundwater Communication Portal (GCP), which is linked to the website.	100
Prepared draft of stakeholder notification post card and questionnaire in preparation of workshop on Sustainable Management Criteria to be held in November 2020 and compiled results.	100
GSA Executive Committee meeting, 10/07/2020	100
Hold stakeholder workshop on GSP Section 8 – Sustainable Management Criteria	100
Coordinate with Executive Committee staff on rescheduling the next EC meeting from January 6, 2021 to February 4 to allow time to consider comments made by the Water Board on the Paso Robles Basin GSP that may be applicable to the Atascadero Basin GSP. Post notice of rescheduled meeting on the communications portal.	100

GSA Executive Committee meeting, 02/04/2021	100
Posted Section 8, Sustainable Management Criteria on the communications portal for 45-day public comment period. The comment period closed on March 29, 2021. Several comments were received via the Groundwater Communication Portal, and others were provided outside the Portal.	100
GSA Executive Committee meeting, 04/07/2021	100
Assembled draft GSP sections into draft GSP	100
Submitted public draft of GSP to working group for review/comment	50
Prepare and distribute agenda for 07/07/2021 Executive Committee meeting	50

- Impediments to Completion of Task
  - The COVID19 pandemic restrictions have been lifted which will now in-person attendance at workshops and executive committee meetings.
- Describe activities that negatively or positively impacted the schedule and/or budget. If Change Orders (COs) have been approved, describe the reason for those and how the situation was resolved.
  - At this point, there is sufficient time in the project schedule to absorb the delays caused by the pandemic. We are working out the details of holding meetings via webinar due to the continued social distancing orders that are anticipated.

Budget Category (c): GSP Development

- Updates on All Tasks (activities accomplished during the reporting period)
  - Milestones or Deliverables Completed/Submitted

Activity	% complete
Circulated draft GSP Section 1 (Introduction) for stakeholder review and comment	100
Circulated draft GSP Section 2 (Agency Information) for stakeholder review and comment	100
Prepare draft GSP Section 3 (Description of Plan Area) for Executive Committee review and released for stakeholder review and comment	100
Prepare draft GSP Section 4 (Basin Setting) for working group and Executive Committee review prior to releasing section for stakeholder review and comment	100
Prepare draft GSP Section 5 (Groundwater Conditions) for working group review and Executive Committee review prior to releasing section for stakeholder review and comment	100
Obtain historical water quality data from municipal agencies in basin	100
Developed approach to groundwater dependent ecosystems evaluation	80
Review consultant task orders for the Phase 2 work, which includes preparation of the following sections of the GSP over the next three quarters and execute task orders: 6. Water Budget 7. Monitoring Network 8. Sustainable Management Criteria	100

9. Projects & Management Actions 10. Implementation Plan	
Prepare GSP Section 7 and forward administrative draft to working group for review and comment.	100
Prepare historical water budget for GSP Section 6 and forward administrative draft to working group for review and comment.	100
Develop assumptions for preparation of future water budget for GSP Section 6 and forward to working group for review and comment.	100
Develop outline of GSP Section 8 for review/workshop to be held at the July 1, 2020 Executive Committee meeting	100
Completed draft of GSP Section 6 and posted on the Communications Portal for 45-day public comment period.	100
Held stakeholder workshop on GSP Section 8 on November 18, 2020	100
Prepared draft of GSP Section 8 for review at February 4, 2021 Executive Committee meeting	100
Posted Section 8, Sustainable Management Criteria on the communications portal for 45-day public comment period. The comment period closed on March 29, 2021.	100
Prepared Section 9, Projects & Actions, and Section 10, Implementation Plan, for review by working group and Executive Committee at its meeting on 04/07/2021	100
Finalize public draft of GSP and distribute to Working Group for review/comment	75
Complete public draft of GSP and post on communications portal for public review/comment	50
Adopt GSP at the October 6 Executive Committee meeting	0

- Impediments to Completion of Task
  - There were delays in rolling-out some sections of the GSP due to the inability to hold workshops and public meetings as a result of the COVID-19 pandemic. The lifting of the pandemic restrictions will allow in-person meetings to resume.
- Describe activities that negatively or positively impacted the schedule and/or budget. If Change Orders (COs) have been approved, describe the reason for those and how the situation was resolved.
  - Progress is still being made on the various sections of the GSP. At this point, there is sufficient time in the project schedule to absorb the delays caused by the pandemic. The project schedule was updated to reflect this delay and was posted on the Portal and sent to interested parties.

3. Activities for next reporting period:

Insert general statement of what work is expected to be completed during the next invoice period. Or, insert a column in the table below that provides an estimated due date for the deliverables.

Budget Category (a): Grant Administration

Activity
Awaiting DWR approval of Invoice 06 submitted on 4/22/2021
Awaiting DWR approval of Progress Report 06 submitted on 4/22/2021
Prepare & Submit Progress Report 07 to DWR
Prepare & Submit Invoice 07 to DWR

Budget Category (b): Stakeholder Engagement

Activity
Hold July 7, 2021, Executive Committee meeting
Solicit input from the Working Group meeting in advance of July 7 Executive Committee meeting on the agenda and public draft of the GSP
Post a public draft of the GSP on the communications portal for a 60-day public review period

Budget Category (c): GSP Development

Activity
Incorporate comments on the public draft of the GSP into the final draft
Collect gaging data and begin to populate data management system
Complete groundwater dependent ecosystems initial assessment
Take the final draft of the GSP to the Executive Committee on 10/06/2021 for adoption
Submit GSP to DWR

Insert general statement of what work is expected to be completed during the next invoice period. Or, insert a column in the table below that provides an estimated due date for the deliverables.

4. Project Cost Update:

Estimated project costs incurred 04/01/2021 – 06/30/2021	$105,000
Total funding match billed through 3/31/2021	$586.067
Total grant share billed through 3/31/2021	$451,284
TOTAL	**$1,142,350**

5. Other Major Issues:

There are no major issues or hindrances to completing the GSP on time and within budget.

Appendix A

Status of Required Deliverables

	TABLE 1: Deliverable Table for Atascadero Basin Groundwater Sustainability Plan			
Budget Category Item#	Budget Category Work Items for Review	Estimated Due Date	% Of Work Complete	Date Submitted
(a)	Grant Administration			
	Invoices and associated backup documentation, Inv 06 (waiting for DWR approval)	Click or tap to enter a date.	90%	4/22/2021
	Progress Report 06 (waiting for DWR approval)		90%	4/22/2021
	Draft and Final Grant Completion Report	12/31/2021	30%	Click or tap to enter a date.
(b)	Stakeholder Engagement			
	Communication and Engagement Plan	Click or tap to enter a date.	100%	4/3/2019
	Atascadero Groundwater Communication Portal	Click or tap to enter a date.	100%	4/3/2019
(c)	GSP Development			
??	Executive Summary	7/7/2020	40%	Click or tap to enter a date.
Task 1	Section 1. Introduction to Atascadero Basin GSP	Click or tap to enter a date.	100%	4/3/2019

	TABLE 1: Deliverable Table for Atascadero Basin Groundwater Sustainability Plan			
Budget Category Item#	**Budget Category Work Items for Review**	**Estimated Due Date**	**% Of Work Complete**	**Date Submitted**
Task 2.1	Section 2. Agency Information	Click or tap to enter a date.	100%	4/3/2019
Task 2.2	Section 3. Description of Plan Area	Click or tap to enter a date.	100%	7/10/2019
Task 2.3	Section 4. Hydrogeologic Conceptual Model	Click or tap to enter a date.	100%	10/2/2019
Task 2.4	Section 5. Groundwater Conditions	Click or tap to enter a date.	100%	10/2/2019
Task 2.5	Section 6. Water Budget	Click or tap to enter a date.	100%	10/13/2020
Task 2.6	Section 7. Monitoring Networks	Click or tap to enter a date.	100%	7/8/2020
Task 2.7	Section 8. Sustainable Management Criteria	Click or tap to enter a date.	100%	2/4/2021
Task 2.8	Section 9. Projects and Management Actions	Click or tap to	100%	4/7/2021

	TABLE 1: Deliverable Table for Atascadero Basin Groundwater Sustainability Plan			
Budget Category Item#	**Budget Category Work Items for Review**	**Estimated Due Date**	**% Of Work Complete**	**Date Submitted**
		enter a date.		
Task 2.9	Section 10. Implementation Plan	Click or tap to enter a date.	100%	4/4/2021
Task 2.10	Section 11. Notice and Communications	7/7/2021	90%	Click or tap to enter a date.
Task 2.11	Section 12. Interagency Agreements	7/7/2021	90%	Click or tap to enter a date.
Task 2.12	Section 13. Reference List	7/7/2021	90%	Click or tap to enter a date.
Task 2.13	Draft GSP	7/7/2021	90%	Click or tap to enter a date.
Task 2.14	Final Draft GSP and associated GSP content	10/6/2021	70%	Click or tap to enter a date.

Sustainable Groundwater Management (SGM) GRANT PROGRAM

Appendix B

Stakeholder Outreach and Coordination Documentation

Provide a description of all outreach and stakeholder meetings/events conducted for the reporting period. Ensure that the activities described below provides enough justification of the costs included in the invoice (both reimbursement and cost share) especially if the Grant Agreement does not have separate deliverables to justify the costs. Information provided in this Appendix can include, but not be limited to, sign in sheets, agendas, meeting notes, copies of presentation materials, photos of meetings, etc.

These Events include:

- *April 7, 2021 Executive Committee Meeting*

ATASCADERO BASIN
Groundwater
Sustainability Agency

Executive Committee Meeting Agenda

Meeting Date: Wednesday, April 7, 2021

Meeting Time: 4:30 p.m.

Meeting Location: Virtual Meeting
Connect via web to attend:

https://zoom.us/j/95264108041?pwd=Y1ZJOG1nRUI1OUt8dVdCMiY3WTI0QT09

Meeting ID: 952 6410 8041
Passcode: 605626

Dial by your location
+1 669 900 9128 US (San Jose)
+1 346 248 7799 US (Houston)
+1 253 215 8782 US (Tacoma)
+1 646 558 8656 US (New York)
+1 301 715 8592 US (Washington DC)
+1 312 626 6799 US (Chicago)
Meeting ID: 952 6410 8041
Passcode: 605626

1. Call to Order
2. Roll Call
3. Pledge of Allegiance
4. Order of Business
   Executive Committee members may request to change the order of business.
5. Introductions
6. General Public Comments
   The Executive Committee invites members of the public to address the committee on any subject that is within the purview of the committee and that is not on today's agenda. Comments shall be limited to three minutes.

- *Screen Shot of Communications Portal showing GSO sections that were available for review and comment.*

Atascadero Groundwater Communication Portal (GCP)   Home   Calendar   Documents   Sign In

Welcome to the Atascadero Basin Groundwater Communication Portal

The County of San Luis Obispo, Templeton Community Service District, City of Atascadero, City of Paso Robles, Atascadero Mutual Water Company, and others have entered into a memorandum of agreement creating a groundwater sustainability agency (GSA) for the Atascadero Basin in accordance with the Sustainable Groundwater Management Act (SGMA) to prepare a groundwater sustainability plan (GSP).

The primary purpose of this Groundwater Communication Portal (GCP) is to facilitate communication with interested parties so they may participate in plan development.

Use the GCP to participate:

- View the calendar to see planned events
- Register for an event to receive updates if the event details change
- Sign up as an Interested Party to be notified when a new event or document is posted

The Executive Committee meets regularly to provide updates on GSP activities. Meetings are open to the public. Parties interested in the management of groundwater in the Atascadero Basin are encouraged to attend.

Register as interested party

Documents Open for Comment

- None

Comment Period Closed

- Atascadero DRAFT Communication and Engagement Plan
- Atascadero GSP DRAFT Section 1
- Atascadero GSP DRAFT Section 10
- Atascadero GSP DRAFT Section 2
- Atascadero GSP DRAFT Section 3
- Atascadero GSP DRAFT Section 4
- Atascadero GSP DRAFT Section 5
- Atascadero GSP DRAFT Section 6
- Atascadero GSP DRAFT Section 7
- Atascadero GSP DRAFT Section 8
- Atascadero GSP DRAFT Section 9

Comments on draft sections of the GSP are being collected through an online form. There is a 30 day or longer public comment period for each section. Use the button below to submit a comment during the public comment period for each section.

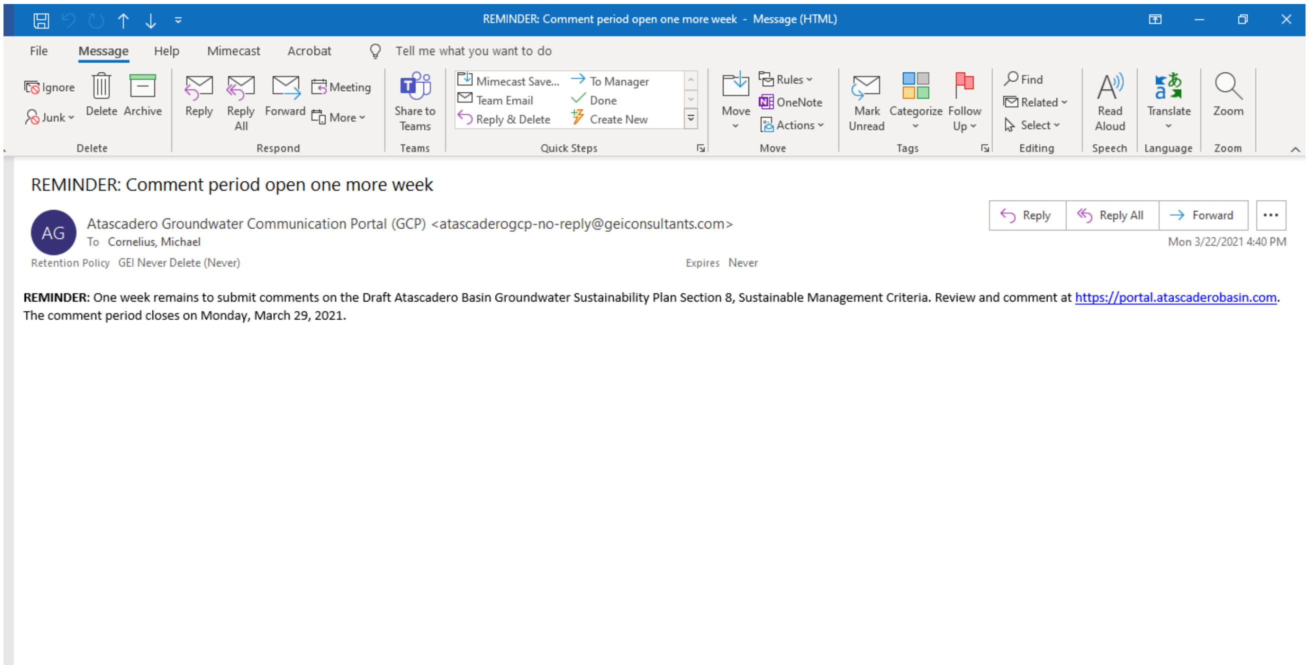
Submit Comment

- *The list of Attendees at the April 7, 2021, Executive Committee Meeting. List may not reflect all meeting participants because some join and drop off during the meeting.*

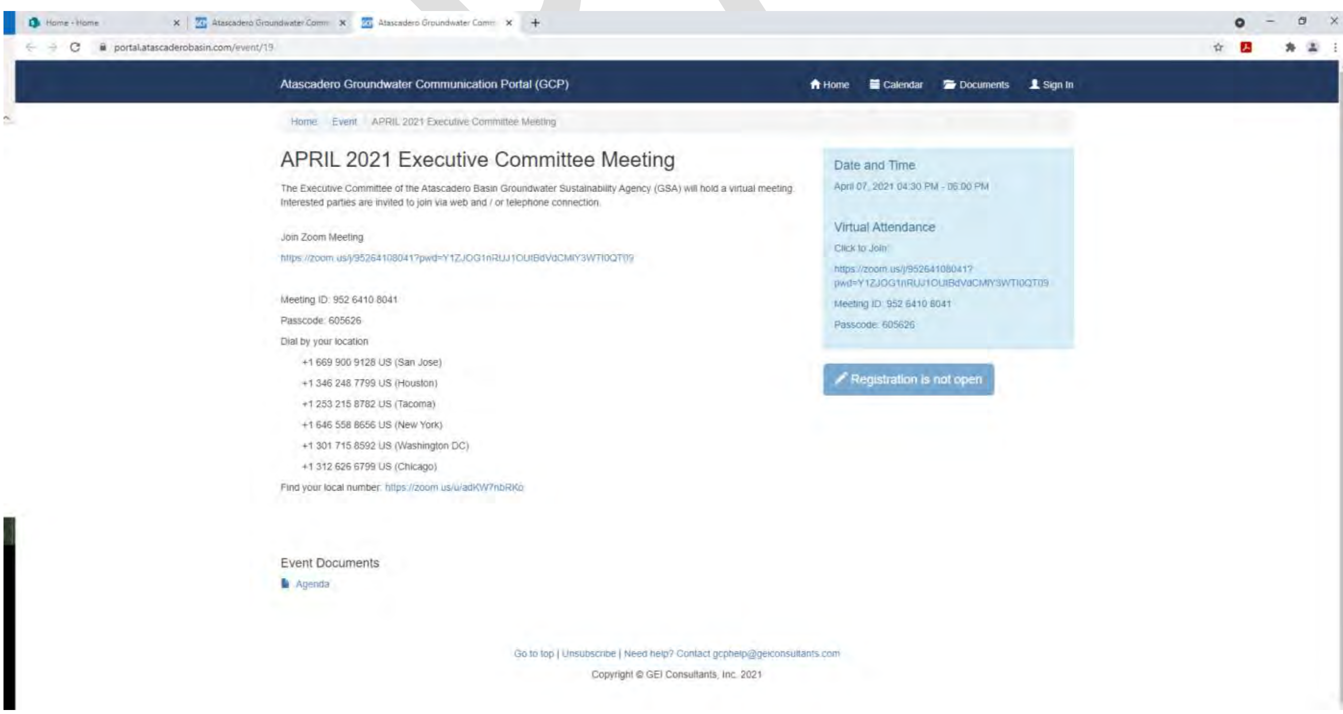
Name (Original Name)	User Email
Lydia Holland	lholland@geiconsultants.com
Mike Cornelius	
John Harmon	
Jeff Briltz	
Debbie Arnold	darnold@co.slo.ca.us
Angela Ford, County Public Works	
Navid Fardanesh	
Robert Jones	grigger@robertmjones.com
John Hollenbeck	
Susan Funk	susan.funk@charter.net
Rob Rossi	

February 11, 2021 Email blast from Atascadero Groundwater Communications Portal re: public comment periods on GSP Sections 9, Project & Management Actions, and Section 10, Implementation Plan.

- *March 22, 2021 Email blast from Atascadero Groundwater Communications Portal re: public comment periods on GSP Section 8 Sustainable Management Criteria. This is a second reminder that there is one more week to submit comments.*



- *Announcement from Atascadero Groundwater Communications Portal re: the April 7, 2021 Executive Committee Meeting*



- *Announcement from Atascadero Groundwater Communications Portal re: July 7, 2021 Executive Committee Meeting*

- *Email blast from Atascadero Groundwater Communications Portal re: July 7, 2021 Executive Committee Meeting*

- *July 7, 2021 Executive Committee Meeting*

Appendix C

GSP Development Activities

Provide a description of the GSP development activities conducted for the reporting period. Provide enough description to justify the costs included in the associated invoice for both reimbursement and cost share. Describe the decisions made, milestones achieved, etc. Also include any setbacks encountered along the way.

Section 9 – Project & Actions	Posted GSP Section 9 on the Communications Portal for a 45-day public comment period. The comment period ended on May 21, 2021.
Section 10 – Implementation Plan	Posted GSP Section 10 on the Communications Portal for a 45-day public comment period. The comment period ended on May 21, 2021.
GSP public draft	Submitted public draft of the complete GSP to the Working Group on June 22, 2021 for review and comment. Prepared agenda report for July 7, 2021, Executive Committee meeting. Incorporated public comments on various GSP sections into the public draft.

Appendix D

Project Photographs

Appendix E

Invoice Projections

Agreement Number: 4600012646						
PIN#: 3860-Po1-229						
$809,250	**Grant Share**		*italicized = actual*			
$850,758	**Funding Match**					
$1,660,008	**Total**					
Calendar Year		**Quarter 1** **Jan. 1 - Mar. 31**	**Quarter 2** **Apr. 1- Jun. 30**	**Quarter 3** **Jul. 1- Sep. 30**	**Quarter 4** **Oct. 1- Dec. 31**	**Total**
2019 Grant Share		*$90,829*	*$75,280*	*$60,153*	*$17,462*	*$243,724*
2019 Funding Match		*$379,962*	*$41,546*	*$31,993*	*$14,897*	*$468,398*
	Total	*$470,791*	*$116,826*	*$92,146*	*$32,359*	*$712,122*
2020 Grant Share		*$23,322*	*$52,815*	*$41,369*	*$44,158*	*$161,664*
2020 Funding Match		*$13,222*	*$27,924*	*$25,763*	*$24,744*	$91,653
	Total	*$36,544*	*$80,739*	*$67,132*	*$68,902*	*$253,317*
2021 Grant Share		$45,411	$70,000	$120,000	$100,000	$335,411
2021 Funding Match		$25,780	$35,000	$60,000	$50,000	$170,780
	Total	$71,191	$105,000	$180,000	$150,000	$506,191
					GRAND TOTAL	**$1,471,630**