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LOS MOLINOS SUBBASIN (5-021.56) GROUNDWATER SUSTAINABILITY PLAN ANNUAL REPORT – 2023

SUBMITTED BY

TEHAMA COUNTY
FLOOD CONTROL AND WATER CONSERVATION DISTRICT

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GROUNDWATER SUSTAINABILITY AGENCY

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
AEM	Airborne electromagnetic
AF	acre-feet
AFY	acre-feet per year
AMSL	above mean sea level
Tehama County GSA	Tehama County Flood Control and Water Conservation District Groundwater Sustainability Agency
DWR	Department of Water Resources
eWRIMS	Electronic Water Rights Information Management System
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
InSAR	Interferometric Synthetic Aperture Radar
MO	Measurable Objective
MT	Minimum Threshold
PMA	projects and management action
RMS	representative monitoring site
RMSE	root-mean-squared error
SI	sustainability indicator
SGM	Sustainable Groundwater Management
SGMA	Sustainable Groundwater Management Act
SMC	sustainable management criteria
Subbasin	Los Molinos Subbasin
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
UR	undesirable result
UWMP	Urban Water Management Plan
WY	Water Year

EXECUTIVE SUMMARY

The Los Molinos Subbasin (Subbasin) (5-021.56) Annual Report was prepared on behalf of the Tehama County Flood Control and Water Conservation District Groundwater Sustainability Agency (Tehama County GSA) to fulfill the statutory requirements set by the Sustainable Groundwater Management Act (SGMA) legislation (§10728) and the Groundwater Sustainability Plan (GSP) regulations (§354.40 and §356.2) developed by the California Department of Water Resources (DWR). The regulations mandate the submission of an Annual Report to DWR by April 1st after the reporting year, which spans the water year (WY) from October 1st to September 30th. This Annual Report includes information from the recent WY 2023 for the Los Molinos Subbasin, located within Tehama County, as shown in **Figure ES-1.**

Measured conditions in the Subbasin are in compliance with Minimum Thresholds (MTs) for all applicable sustainability indicators (SIs). An MT is a quantitative value that represents the groundwater conditions measured at a representative monitoring site (RMS) that, when exceeded individually or in combination with MTs at other monitoring sites, may cause an undesirable result(s) (UR) in the Subbasin per DWR's definition. If groundwater levels are lower than the value of the Measurable Objectives (MO) for that site, they are moving in the direction of the MT. On the contrary, for the groundwater quality Sustainable Management Criteria (SMC), as the value of the Total Dissolved Solids (TDS) concentrations increase from the MO established for that site, they are moving in the direction of the MT. The SIs and SMC, including MTs, are summarized in **Table ES-1.** Note that seawater Intrusion is not an applicable SI in this Subbasin. Each SI is measured at the RMS.

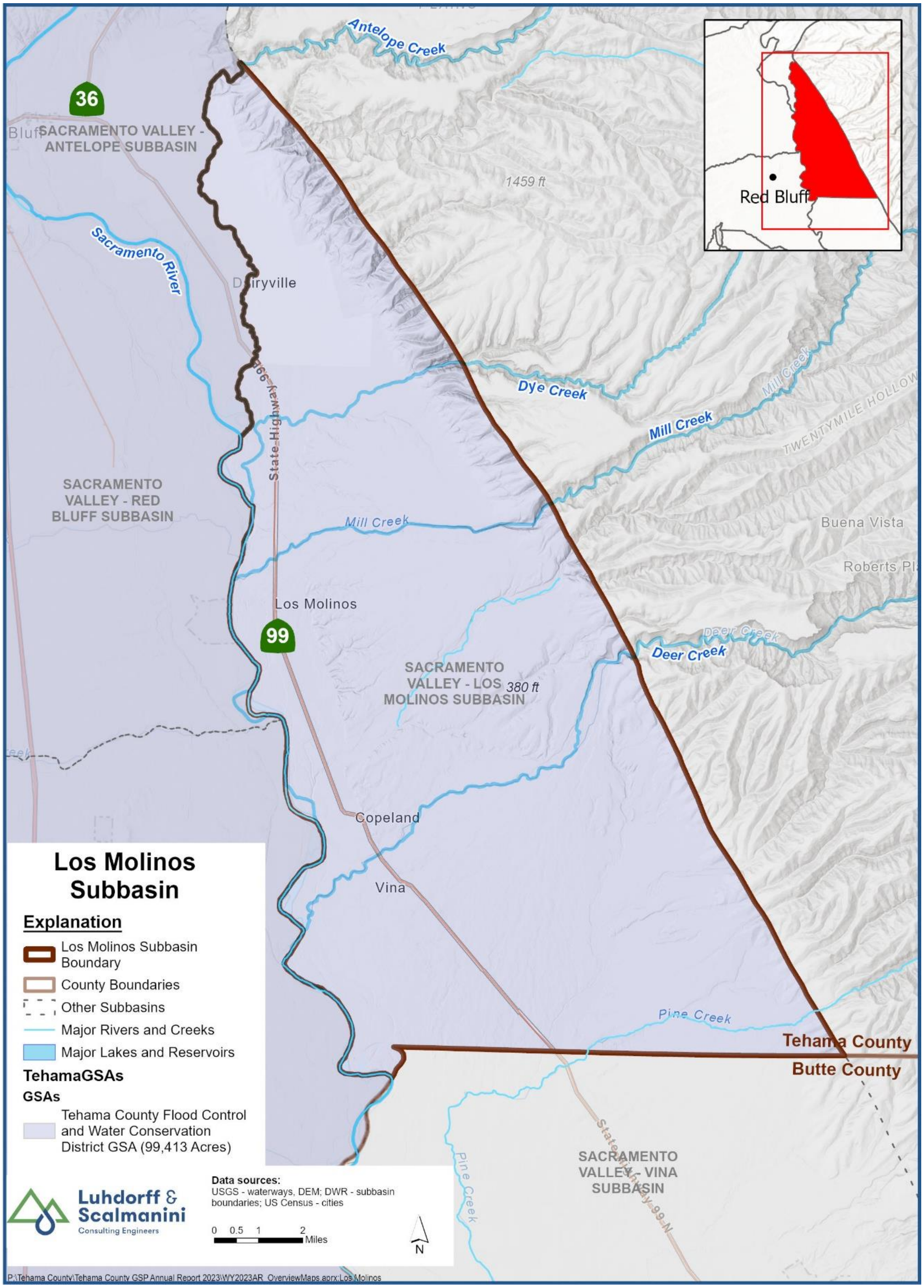

Figure ES-1. Los Molinos Subbasin and Groundwater Sustainability Agency Boundaries

Table ES-1. Sustainability Indicator Summary

2023 Status	Undesirable Result Identification	MO Definition	MT Definition
Chronic Lowering of Groundwater Levels			
No indication of undesirable results There were no RMS wells with spring or fall 2023 groundwater level measurement below the MT.	25% of groundwater elevations measured at same RMS wells exceed the associated MT for two consecutive measurements.	**Upper & Lower Aquifer:** Spring 2015 groundwater elevation minus five feet (for wells with increasing or no groundwater trends) or projected Spring 2042 groundwater elevation minus five feet for wells with declining groundwater elevations.	**Upper Aquifer:** Spring groundwater elevation where less than 10% or less than 20% of domestic wells could potentially be impacted. **Lower Aquifer:** Spring groundwater elevation minus 20 to 120 feet.
Reduction of Groundwater Storage			
No indication of undesirable results There were no RMS wells with spring or fall 2023 groundwater level measurement below the MT.	Same as the chronic lowering of groundwater levels.	**Upper & Lower Aquifer:** Amount of groundwater storage when groundwater elevations are at their measurable objective.	**Upper & Lower Aquifer:** Amount of groundwater in storage when groundwater elevations are at their minimum threshold.
Degraded Water Quality			
No indication of undesirable results There were no RMS wells that exceeded the MT in WY 2023.	At least 25% of RMS exceed the minimum threshold for water quality for two consecutive years at each well where it can be established that GSP implementation is the cause of the exceedance.	**Upper & Lower Aquifer:** California lower limit secondary MCL concentration for TDS of 500 mg/L measured at RMS wells.	**Upper & Lower Aquifer:** TDS concentration of 750 mg/L at all RMS wells.

Table ES-1. Sustainability Indicator Summary			
2023 Status	**Undesirable Result Identification**	**MO Definition**	**MT Definition**
Land Subsidence			
No indication of undesirable results No InSAR pixel exceeded MT in WY 2023.	50% of RMS exceed the minimum threshold over a 5-year period that is irreversible and is caused by lowering of groundwater elevations.	One foot over 20 years (Zero inelastic subsidence, in addition to any measurement error). If InSAR data are used, the measurement error is 0.1 feet and any measurement 0.1 feet or less would not be considered inelastic subsidence.	Two feet over 20 years (i.e., no more than 0.5 feet of cumulative subsidence over a five-year period (beyond the measurement error), solely due to lowering of groundwater elevations.
Depletion of Interconnected Surface Water			
No indication of undesirable results There were no RMS wells with spring or fall 2023 groundwater level measurement below the MT.	25% of groundwater elevations measured at RMS wells drop below the associated threshold during two consecutive years in the Upper Aquifer.	Same as the chronic lowering of groundwater levels.	Same as the chronic lowering of groundwater levels.

Notes:

TDS is the primary water quality constituent of concern.

MO = Measurable Objective, MT = Minimum Threshold, RMS = representative monitoring site, mg/L = milligrams per liter; MCL = Maximum Contaminant Level; SMCL = Secondary Maximum Contaminant Level.

Current Groundwater Level and Storage Conditions

The current groundwater conditions in the Subbasin are characterized by groundwater elevations that have remained above the MO and corresponding MT and remain within the Subbasin's established margin of operational flexibility for each RMS well in both Spring 2023 and Fall 2023. Importantly, none of the RMS wells experienced a decline below the MT for 24 consecutive months, hence avoiding undesirable results as defined in the GSP.

Groundwater elevations are, on average, 80 feet above the MT throughout the Subbasin, and on average, 10 feet above the MO in Spring 2023 and 8 feet above the MO in Fall 2023. Elevations are mostly near or slightly higher than those observed in recent years. This positive trend is attributed to the ongoing recovery in groundwater conditions, facilitated by increased precipitation which was able to meet evapotranspiration demands.

Fluctuations in groundwater levels and storage within the Subbasin are influenced by the balance between aquifer recharge and extraction. Groundwater levels serve as a proxy for estimating changes in groundwater storage, with observed patterns closely mirroring those in the broader Sacramento Valley. In years characterized by drought and low precipitation, diminished surface water supplies lead to increased extraction and reduced recharge, causing a decline in groundwater storage.

Contrastingly, WY 2023, classified as a Wet WY, marked an increase in cumulative groundwater storage, totaling approximately 22,000 acre-feet (AF) in the Upper and Lower Aquifer. For context, in the past 33 years, the largest decrease in groundwater storage is estimated to be -66,000 AF, and the highest increase was estimated to be 80,000 AF. **Figure ES-2** shows groundwater pumping, as well as annual and cumulative changes in groundwater storage from WY 1990 to WY 2023.

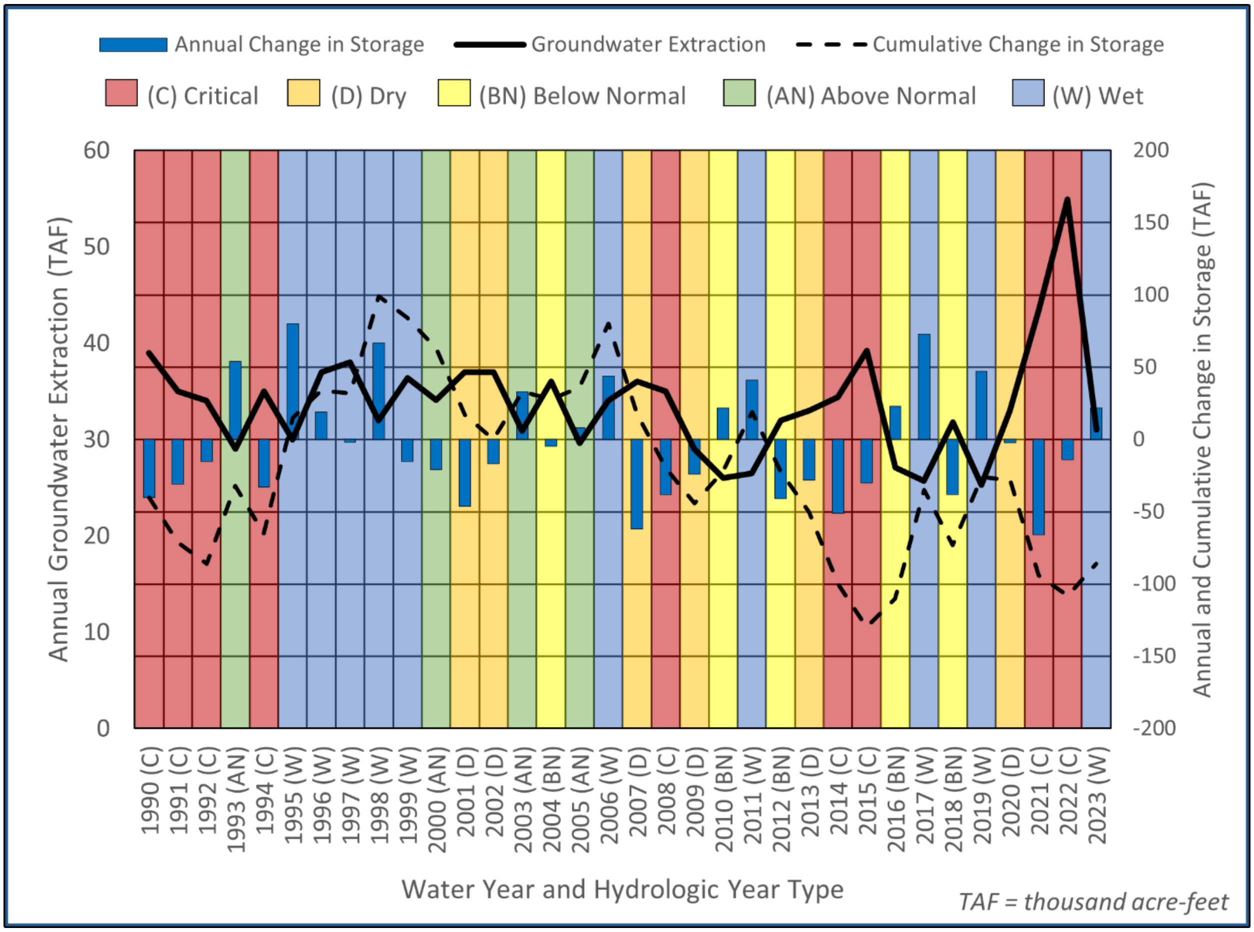

Figure ES-2. Groundwater Pumping, Annual and Cumulative Change in Storage from WY 1990 to WY 2023

Water Use

Groundwater extraction was approximately 31,000 AF in WY 2023, lower than the 54,900 AF extracted in WY 2022. The annual volume of surface water delivered to the Subbasin from surface water features such as Mill Creek and Deer Creek was about 24,000 AF in WY 2023, lower than the 33,000 AF delivered in WY 2022. The decrease in groundwater extraction in WY 2023 compared to WY 2022 is attributed to increased precipitation in WY 2023, where increased precipitation was able to meet evapotranspiration demands. Despite wet conditions in WY 2023, surface water use decreased slightly from WY 2023 compared to WY 2022.

Groundwater provides the majority (57%) of the water for agriculture in the Subbasin, and surface water is the source for the remainder (43%). Groundwater also met the demand for municipal and rural residential users. The volume of groundwater and surface water used on an annual basis within the Subbasin is summarized directly from measured and reported groundwater pumping and surface water diversions when available; however, a water budget approach has been used to estimate the remaining unmeasured volume of groundwater extraction. **Table ES-2** provides a summary of water use by water sector. Numbers are rounded to the nearest 100 except for totals which are rounded to the nearest 1,000.

Table ES-2. Total Water Use by Water Use Sector				
Sector	WY 2023 (AF)			
	Groundwater	Surface Water	Total	Total Irrigated Area (acres)
Agricultural	30,000	24,000	**53,000**	**16,000**
Municipal	300	0	**300**	**0**
Rural Residential	40	0	**40**	**0**
Total	**31,000**	**24,000**	**54,000**	**16,000**

GSP Implementation Progress

Since the previous Annual Report (Tehama County GSA, 2023), the Tehama County GSA coordinated with stakeholders to seek funding through DWR's Sustainable Groundwater Management Grant (SGM) Program for projects and management actions (PMAs) previously identified in the GSP. DWR has awarded a grant of approximately 2 million dollars to the Los Molinos Subbasin in September 2023. Additionally, several actions by the Tehama County GSA continue to fulfill GSP requirements, such as monitoring groundwater levels and quality, updating the Data Management System (DMS), and annual reporting to DWR.

Also, since the previous Annual Report, DWR issued an "incomplete" determination and has provided corrective actions to the Los Molinos Subbasin GSP. The Tehama County GSA acknowledges and is addressing the one key recommended corrective action listed in the DWR's **GSP determination letter** (https://sgma.water.ca.gov/portal/service/gspdocument/download/9961) including:

1) The GSA must provide more detailed explanation and justification regarding the selection of the SMC for groundwater levels, particularly URs and MTs, and quantitatively describe the effects of those criteria on the interests of beneficial uses and users of groundwater.

The Tehama County GSA is in the process of resubmitting a revised GSP to address the deficiencies. The revised GSP is due by April 23, 2024. This revision process and the implementation of future projects to address recommended corrective actions are mostly funded by the Sustainable Groundwater Management (SGM) Implementation Grant. The ongoing implementation of PMAs, outlined in **Section 5** of this report, aims to effectively improve conditions in the subbasin and eventually achieve sustainability.

1 GENERAL INFORMATION §356.2(A)

The Annual Report for the Los Molinos Subbasin (Subbasin) (5-021.56) was prepared on behalf of the Tehama Flood Control and Water Conservation District and the Tehama County Control and Water Conservation District Groundwater Sustainability Agency (Tehama County GSA) to fulfill the statutory requirements of the Sustainable Groundwater Management Act (SGMA) legislation (§10728) and regulatory requirements developed by the California Department of Water Resources (DWR) included in the Groundwater Sustainability Plan (GSP) regulations (§354.40 and §356.2). The regulations require the Groundwater Sustainability Agencies (GSAs) to submit an Annual Report to DWR by April 1st following the reporting year, which spans the water year (WY) from October 1st to September 30th. This Annual Report is the third Annual Report submitted on behalf of the Subbasin and includes data for the most recent WY 2023. Public seeking information on Los Molinos Subbasin and GSP Implementation, Technical Advisory Committee meeting schedules and recordings, and other resources should visit the **Tehama County GSA** (https://tehamacountywater.org/gsa/).

1.1 Report Contents

This report is the third Annual Report prepared for the Los Molinos Subbasin GSP submitted in January 2022. The first Annual Report included data elements for the first reporting year, WY 2021, as well as a "bridge year," WY 2020. The second and third Annual Reports contain data only for the current reporting year, WY 2022 and WY 2023, respectively. Data elements presented in this report refer to WY 2023, the 12-month period spanning October 2022 through September 2023 unless otherwise noted. Pursuant to GSP regulations, the Annual Report includes:

- Groundwater Elevation Data
- Water Supply and Use
- Change in Groundwater Storage
- GSP Implementation Progress

1.2 Subbasin Setting

The Subbasin is a 155 square mile (99,400 acre) area on the eastern side of Tehama County. The Subbasin is managed by the Tehama County GSA.

The Subbasin is shown in **Figure 1-1** and **Figure 1-2**. The Subbasin lies in the northern portion of the Sacramento Valley Groundwater Basin, **Figure 1-1**. The Subbasin's northern boundary is the Antelope Subbasin, the western boundary is the Antelope, Red Bluff, and Corning subbasins, the southern boundary is the Vina Subbasin, and the eastern boundary is the Cascade Mountain Range (DWR, 2018), **Figure 1-2**. Several surface water features are located in the Subbasin, including the Antelope, Dye, Mill, and Deer Creeks. Groundwater generally flows from northeast to southwest.

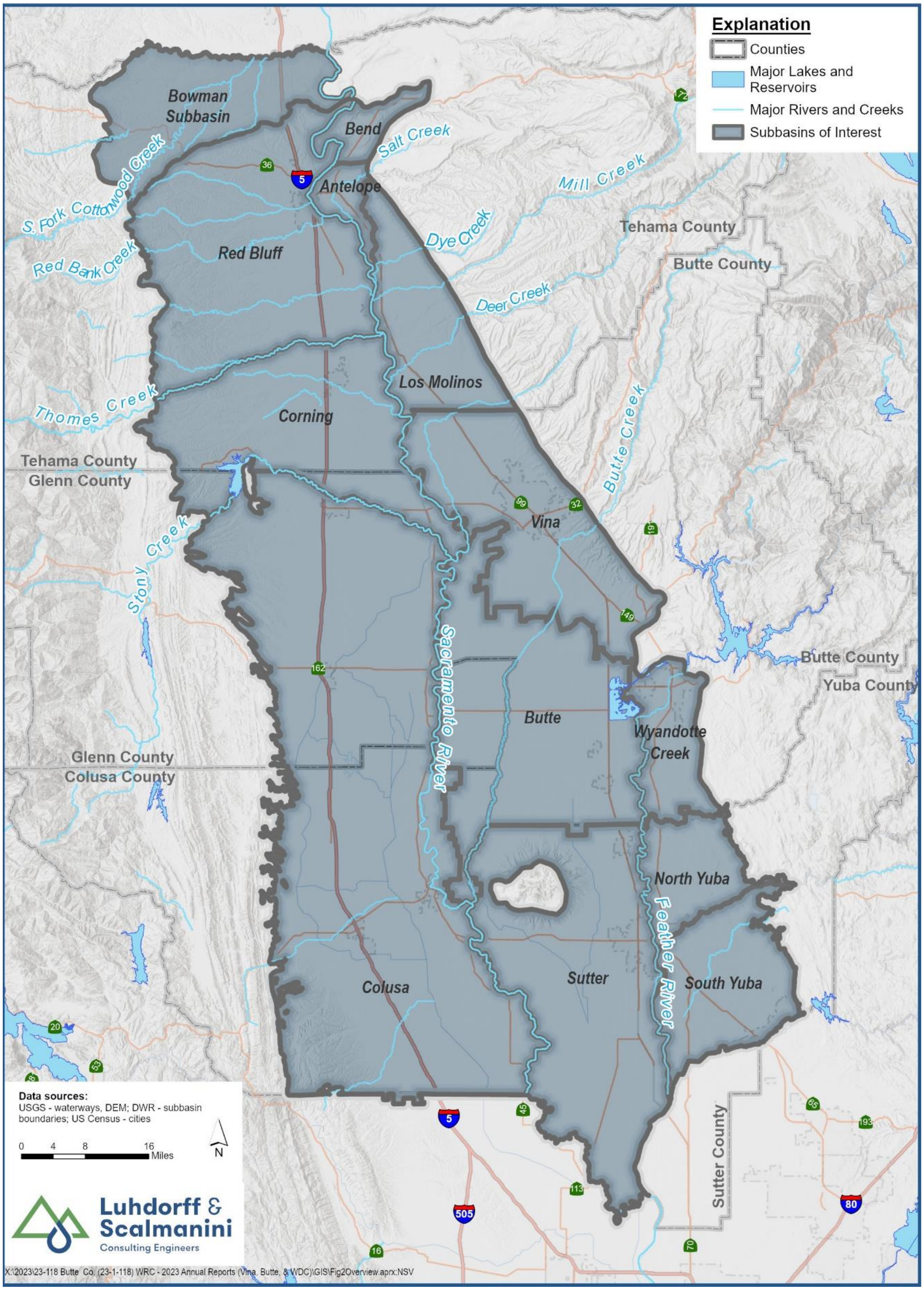

Figure 1-1. Subbasins in the North Sacramento Valley

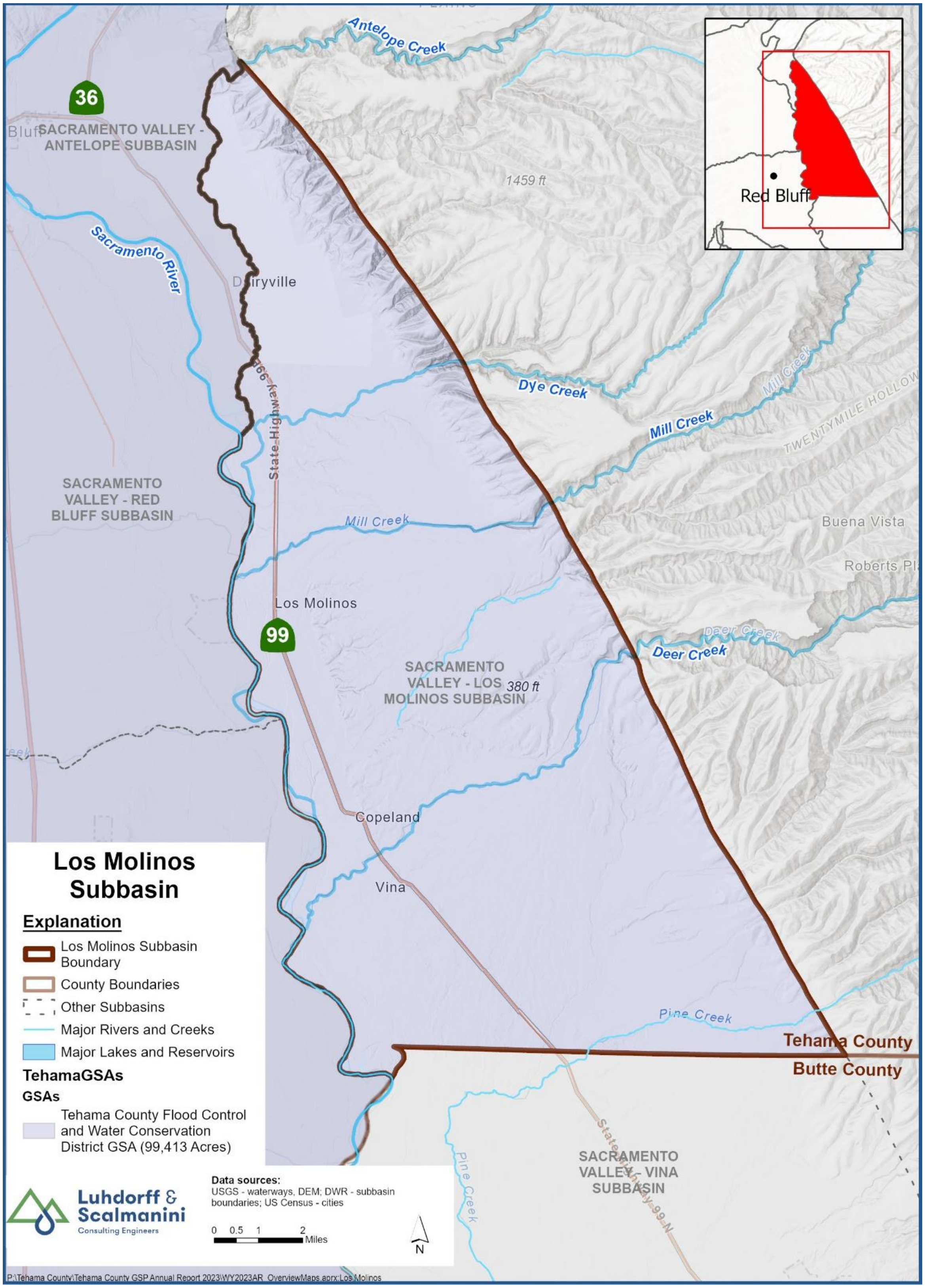

Figure 1-2. Bowman Subbasin and Groundwater Sustainability Agency Boundaries

The Los Molinos GSP estimates the sustainable yield of the Subbasin to be 28,0000 acre-feet (AF), based on historical groundwater pumping averages of 16,000 AFY and an annual decrease in storage of 99,000 AFY (Tehama County GSA, 2021). Water use in the Subbasin is dominated (98%) by agriculture. Municipal and household water use accounts for <1% of water used in the Subbasin. Groundwater constitutes the majority (57%) of the Subbasin's water supplies, with surface water comprising the remaining portion (43%).

2 GROUNDWATER ELEVATIONS §356.2(B)(1)

Groundwater elevations in the Subbasin typically fluctuate seasonally between and within water years, particularly in groundwater-dependent areas or during drought years when groundwater is used to compensate for diminished surface water supplies. Seasonal fluctuations of groundwater levels occur in response to groundwater pumping and recovery, land and water use activities, recharge, and natural discharge. Sources of recharge into the groundwater system include precipitation, applied irrigation water, and seepage from local creeks and rivers.

Groundwater pumping for irrigation typically occurs from April to September, although depending on the timing of rainfall, it may shift earlier and/or later into the season. Consequently, groundwater levels are usually highest in the spring and lowest during the irrigation season in the summer months. Fall groundwater measurements (typically measured in October) provide an indication of groundwater conditions after the primary irrigation season.

Groundwater levels in the Subbasin are monitored in representative monitoring site (RMS) wells that were selected in the GSP to represent localized groundwater conditions for specified areas of the Subbasin. RMS wells include a mixture of domestic wells, irrigation wells, and dedicated observation wells. In total, there are nine (9) RMS wells used to monitor conditions in the Upper and Lower Aquifer. For WY 2023, one (LM-1U) of the nine RMS wells was not available for monitoring, and an alternate was identified for monitoring (LM-1UR). This new well is anticipated to be designated as an RMS well in the 5-year update. The well is identified in **Figure 2-3** and **Table 5-2**. **Appendix A** includes hydrographs depicting groundwater elevations in the RMS wells and their approximate locations. Sustainable management criteria (SMC), described in **Appendix B**, are assigned for groundwater levels at the RMS wells.

Certain RMS wells measured by DWR and Tehama County are equipped with data loggers and pressure transducers, which continuously monitor and record hourly changes in groundwater levels. These and the remaining wells in the network are measured by hand at least two times each year in March and October. Data from groundwater level monitoring wells is available from DWR's online SGMA Data Viewer tool (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer).

Spring and Fall 2023 groundwater elevation measurements for RMS wells in the Upper Aquifer and Lower Aquifer systems are summarized in **Table 5-2**. Groundwater elevation data in the Subbasin is collected by DWR and Tehama County and is publicly available from DWR's online SGMA Data Viewer tool (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer). The groundwater level monitoring methods are consistent with the protocols described in the Los Molinos GSP. Depending on the well, groundwater elevations are measured using steel tape, electric sounder, or pressure transducers. The accuracy of groundwater level measurements is typically either 0.01 feet or 0.1 feet, depending on the equipment used.

The following sub-sections provide a summary of groundwater elevations and conditions during WY 2023 through the presentation and description of groundwater elevation contours (**Section 2.1**) and hydrographs of groundwater elevations (**Section 2.2; Appendix A**).

2.1 Groundwater Elevation Contour Maps – §356.2(b)(1)(A)

Groundwater elevation contour maps for Spring and Fall 2023 were prepared for the Upper and Lower Aquifers, as shown in **Figures 2-1** through **2-4**. Spring contours are intended to generally represent seasonal high groundwater elevations (shallower depth to water), while fall contours are intended to generally represent seasonal low groundwater elevations (deeper depth to water). Groundwater elevation contours were developed by creating a continuous groundwater elevation surface based on available monitoring well data using the kriging interpolation method. Questionable groundwater elevation measurements were excluded, and minor adjustments to the contours were made based on professional judgment.

The contour maps of the Upper and Lower Aquifers (**Figures 2-1 and 2-4** each show that groundwater elevations are generally higher in the northern and eastern areas of the Subbasin versus the southern and western areas, indicating a general gradient – and thus groundwater flow – from the northeast to the southwest. The contour maps illustrate several general features of the groundwater flow system in the Bowman Subbasin, including:

- Overall, northeast to southwest groundwater flow is consistent with recharge from the Sierra Nevada Mountain Range.
- Movement of water towards the Sacramento River in both the fall and the spring.
- The higher concentration of contours in the southwestern portion of the Subbasin indicates a steeper gradient and could suggest higher groundwater flow. Nonetheless, the contours are consistent with the current understanding of recharge coming from the Sierra Nevada Mountain Range foothills. New sources of information and data may improve understanding of this area.

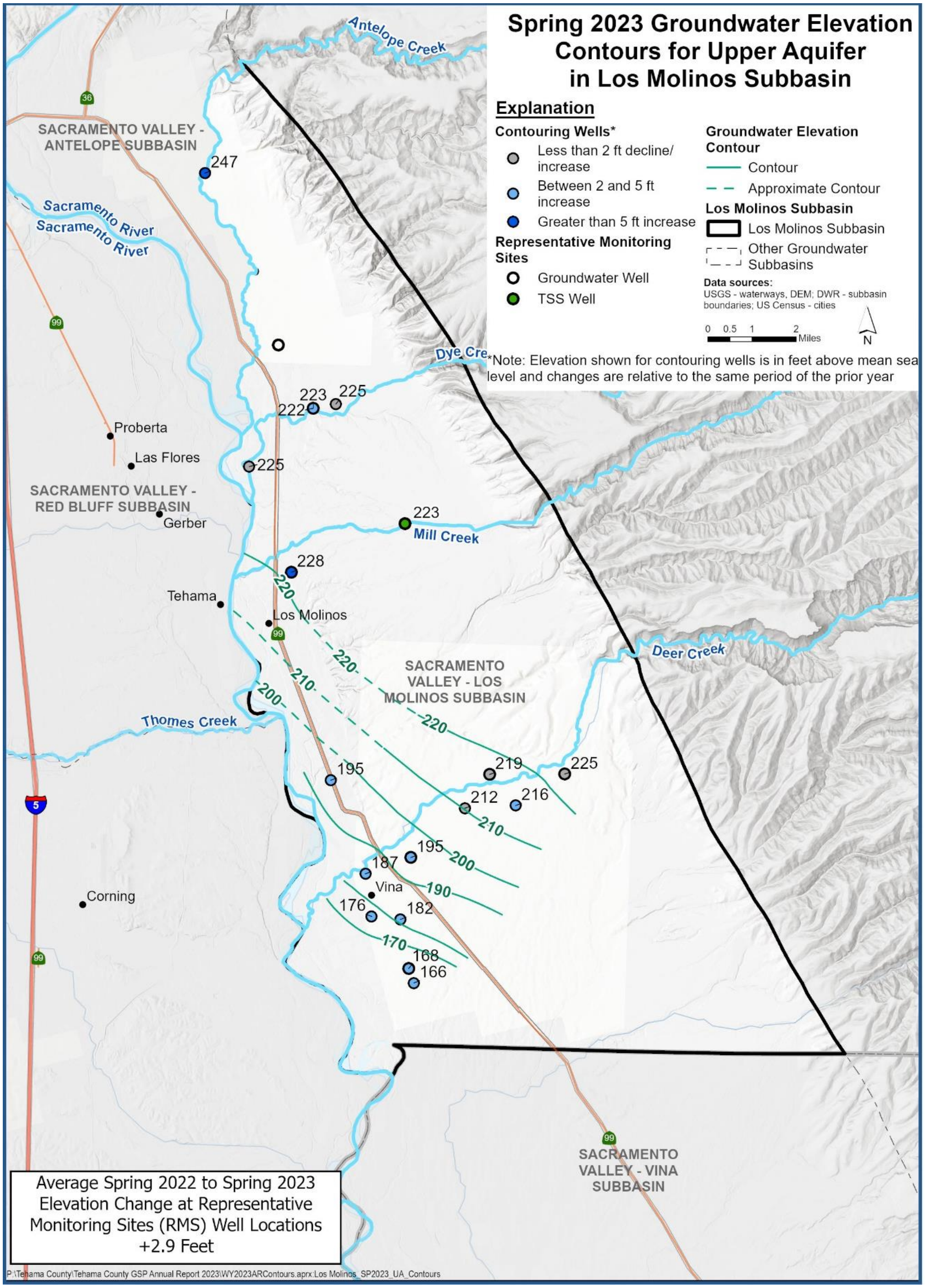

Figure 2-1. Subbasin Contours of Equal Groundwater Elevation for the Upper Aquifer, Spring 2023 (Seasonal High)

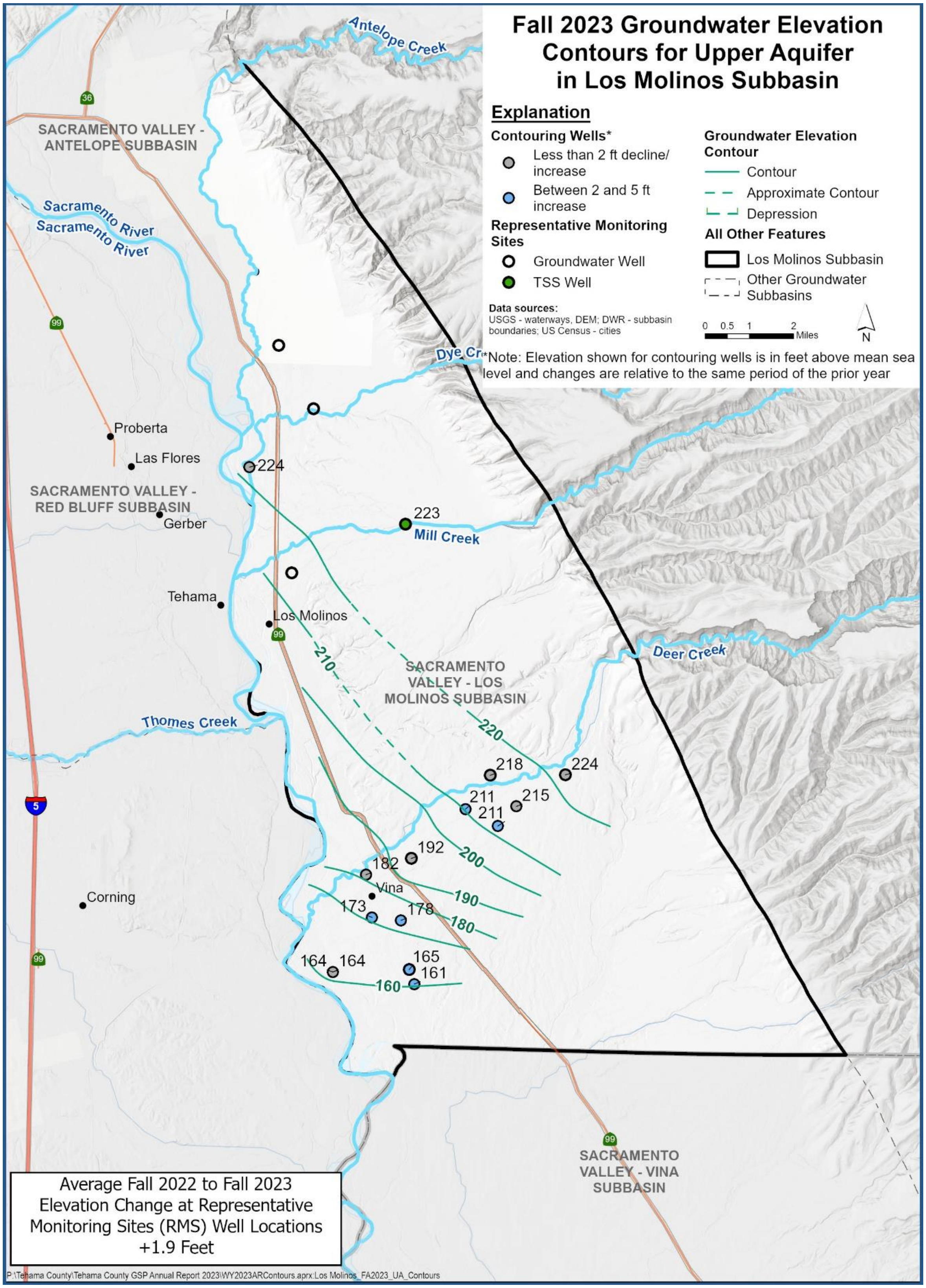

Figure 2-2. Subbasin Contours of Equal Groundwater Elevation for the Upper Aquifer, Fall 2023 (Seasonal Low)

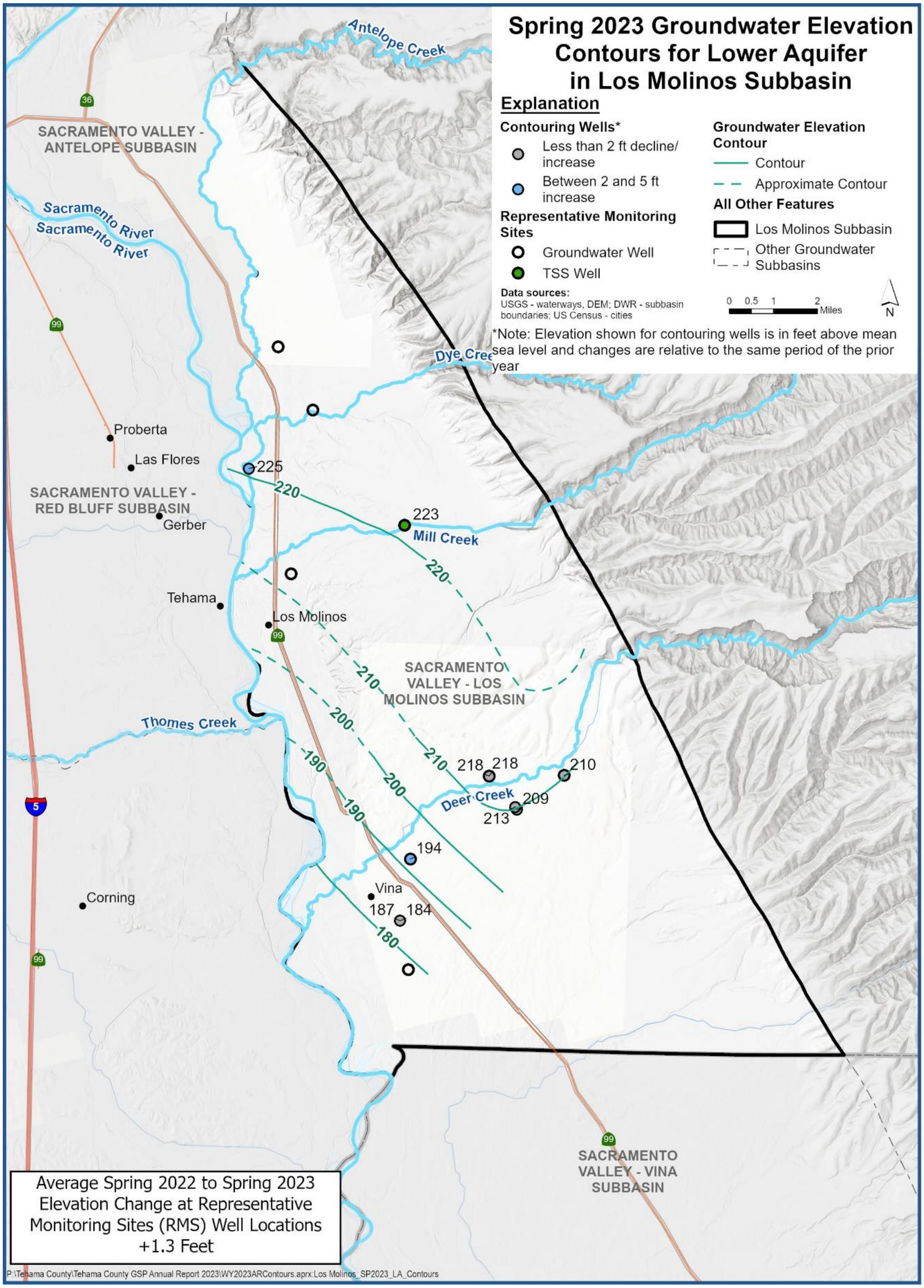

Figure 2-3. Subbasin Contours of Equal Groundwater Elevation for the Lower Aquifer, Spring 2023 (Seasonal High)

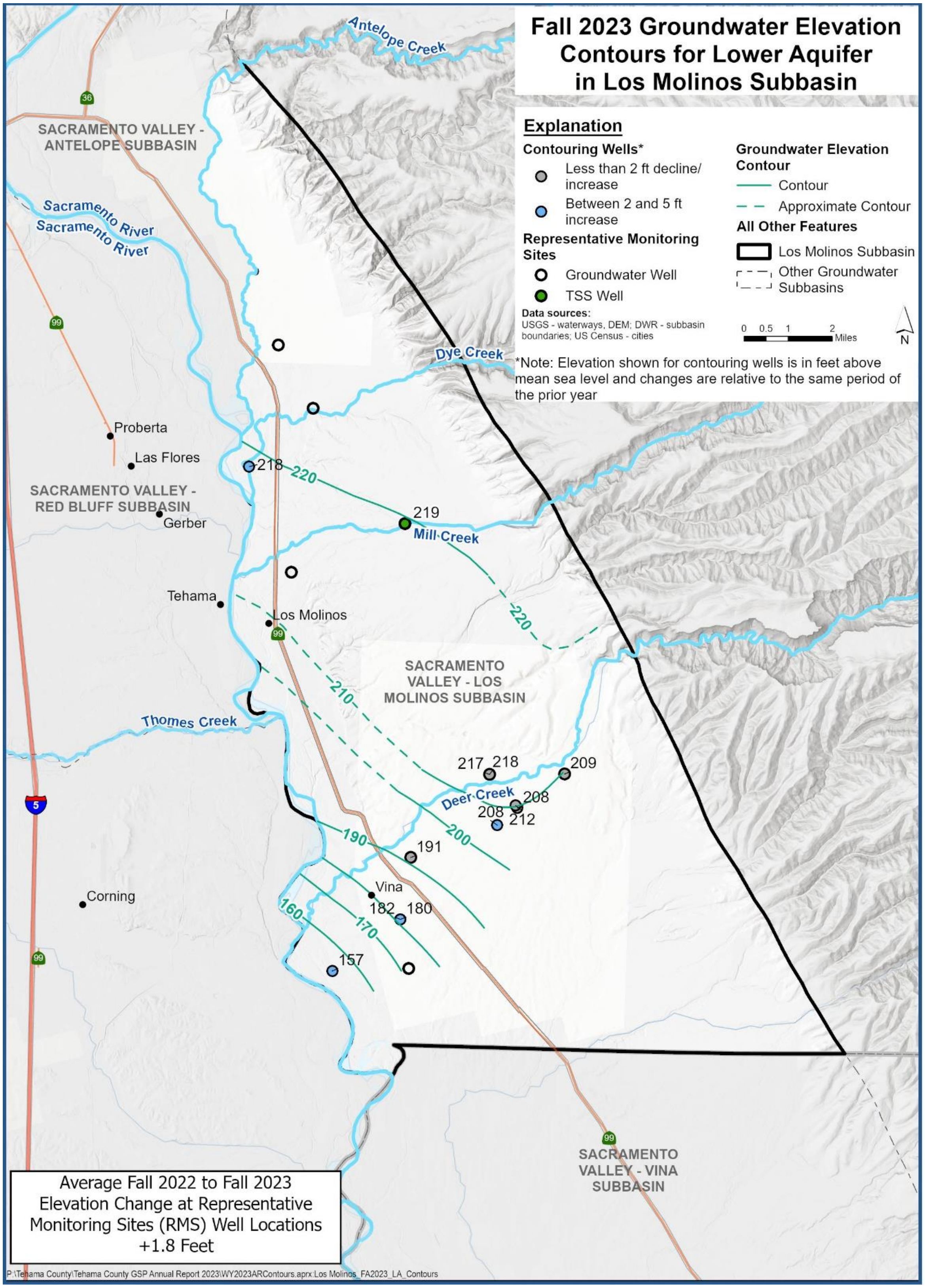

Figure 2-4. Subbasin Contours of Equal Groundwater Elevation for the Lower Aquifer, Fall 2023 (Seasonal Low)

2.2 Hydrographs of Groundwater Elevations – §356.2(b)(1)(B)

Groundwater elevation hydrographs for each RMS well are presented in **Appendix A**. **Appendix B** provides an explanation of the SMC terminology defined in Section 3 of the GSP (e.g., Minimum Threshold [MT], Measurable Objective [MO], Interim Milestone [IM]). **Table 5-1** summarizes the MOs, MTs, and identification of undesirable results for WY 2023, and **Table 5-2** contains a summary of the Spring 2023 (Seasonal High) and Fall 2023 (Seasonal Low) groundwater elevations measured at each well. **Table 5-2** also summarizes the established MO and MT for groundwater elevations, the changes in groundwater elevations from WY 2022 to WY 2023, and the differences between the 2023 groundwater elevations and the MO.

Historically, groundwater levels have typically remained at or above their respective MOs in the Subbasin. The GSP also established IMs to provide numerical metrics for GSAs to track the Subbasin's conditions relative to the overall sustainability goal, ensuring that the groundwater management of the Subbasin remains sustainable.

Spring and Fall 2023 groundwater elevations were generally near or slightly higher than seasonal groundwater elevations in previous years. In WY 2023, the average seasonal high in the Upper Aquifer was 206 feet above mean sea level (AMSL), and the average seasonal low was 192 feet AMSL. In WY 2023, the average seasonal high in the Lower Aquifer was 209 feet AMSL, and the average seasonal low was 200 feet AMSL. In WY 2021, the average seasonal high was 200 feet AMSL, and in WY 2022, the average seasonal high was 202 feet AMSL. Increases in groundwater levels are generally expected to result from decreased groundwater extraction in WY 2023 relative to WY 2022, as well as increased recharge due to wet climate conditions.

All wells remained at or above the MO as of Spring 2023 and Fall 2023. All measured groundwater elevations remained above the corresponding MT of that RMS well, avoiding undesirable results related to groundwater levels as defined in the GSP. On average, groundwater levels in RMS wells were roughly 79.37 feet higher than MT elevations in Spring 2023 and 82.82 feet higher than MT elevations in Fall 2023. All measured groundwater levels remained within the Subbasin's margin of operational flexibility and above the MT's.

3 WATER SUPPLY AND USE

As required by §356.2, this section summarizes water supply and use in the Subbasin, categorized by groundwater extraction volume, surface water supply, and total supply. The total water available for use in the Subbasin was tabulated from groundwater extraction volumes reported in **Table 3-1** and the surface water supply reported in **Table 3-2**. The total water available is summarized in **Table 3-3** for WY 2023. Groundwater extraction volumes are either based on measured data or are estimates from a water use analysis based on 2023 land use data and climate conditions. The water use analysis methodology is discussed in **Appendix E**. Surface water use was estimated from historic deliveries when records were not available.

Table 3-1. Groundwater Use by Water Use Sector	
Sector	**WY 2023 (AF)**
Agricultural	30,000
Municipal	300
Rural Residential	40
Total	**31,000**

3.1 Groundwater Extraction – §356.2(b)(2)

Groundwater extraction in the Subbasin is summarized in **Table 3-1**. Groundwater extraction is obtained from pumping records where available, and the remaining groundwater extraction is estimated using the water use analysis approach described in the previous section and **Appendix E**.

The majority of the Subbasin relies on groundwater supplies for agricultural irrigation. In years characterized by drought and low precipitation, diminished surface water supplies lead to increased extraction and reduced recharge, causing a decline in groundwater storage. Contrastingly, in wet years, such as WY 2023, wet climate conditions help to increase and bolster groundwater storage.

Municipal water users extracted approximately 300 AF in the Subbasin in WY 2023. Municipal water supplies are measured and were provided by the Los Molinos Community Services District and the Los Molinos Mutual Water Company. The record of municipal supplies does not distinguish between urban and industrial water uses.

Rural residential water users rely on private domestic wells to meet their household water needs. Rural residential groundwater extraction was quantified based on average per capita water use and estimated population. The average per capita water use reported in the City of Red Bluff's 2020 Urban Water Management Plan (UWMP) 2020 water use (City of Red Bluff, 2020) is considered to be representative of the area. Water use in 2020 was 253 gallons per capita per day. Parcels were chosen within the Subbasin, except for those in municipal service areas. Residential parcels were selected based on Tehama County general plan zoning codes. Population estimates were derived from these zoning codes and average household sizes from the US census. The resulting population estimate was used to estimate residential groundwater pumping.

The total estimated groundwater extraction was approximately 31,000 AF in WY 2023, the majority of which was used to meet agricultural water demands (approximately 30,000 AF). The total groundwater extraction is about 2,000 AF less than the historical groundwater pumping average (34,000 AF; **Table 4-1**) and higher than 12,900 AF, which was the average annual extraction of the last four wet WYs on record (2006, 2011, 2017, and 2019). The decrease in groundwater extraction in WY 2023 (31,000 AFY) compared to WY 2022 (54,900 AFY) is attributed to increased precipitation in WY 2023, where increased precipitation was able to meet evapotranspiration demands. **Figure 3-1** shows the general areas where groundwater is applied in the Subbasin. About 99% of the total groundwater extraction was used by the agricultural sector, while the remaining <1% was used for municipal and rural residential water needs.

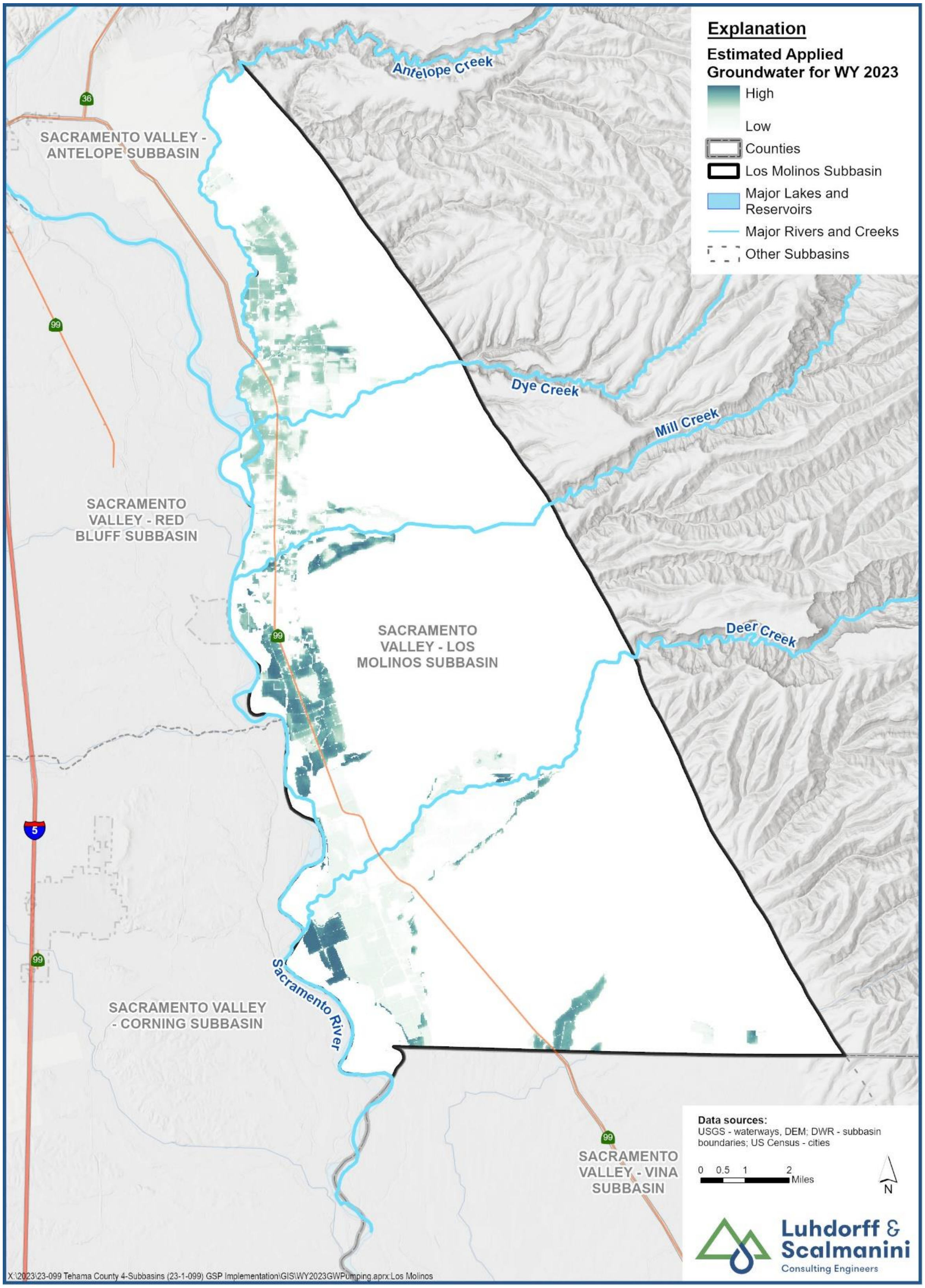

Figure 3-1. Estimated Applied Groundwater – WY 2023

3.2 Surface Water Supply – §356.2(b)(3)

Surface water supplies used or available for use in the Subbasin are summarized in **Table 3-2.** Surface water supplies are reported directly from water supplier records or collected from publicly available sources (water rights diversion records, etc.) where available. Missing surface water supply data was estimated based on available historical diversions data in similar water years.

Surface water provided about 45% of the agricultural water demand in the Subbasin for WY 2023. Diversions from surface water features such as Deer Creek and Mill Creek were accessed from the State Water Resource Control Board's (SWRCB) Electronic Water Rights Information Management System (eWRIMS; SWRCB, 2023). Data from eWRIMS on surface water delivery indicated which water rights holders in the Subbasin had made diversions during WY 2023. There are currently no surface water supplies for municipal use in the Los Molinos Subbasin. Total surface water diversions and deliveries for the Los Molinos Subbasin are estimated to be about 29,300 AF and 24,000 AF, respectively.

In contrast with the curtailments and reduced surface water supplies experienced in WY 2022, WY 2023 was a Wet WY. Despite wet conditions in WY 2023, surface water use decreased slightly from WY 2023 compared to WY 2022.

Table 3-2. Surface Water Use by Water Use Sector for WY 2023		
Sector	Diverted (AF)	Applied (AF)
Agricultural	29,300	24,000
Total	**29,300**	**24,000**

3.3 Total Water Use by Sector – §356.2(b)(4)

Groundwater supplied approximately 55% of the agricultural water demand in the Subbasin in WY 2023. Surface water supplied approximately 45% of the agricultural water demand in the Subbasin in WY 2023. The total water available for use in the Subbasin was tabulated from groundwater extraction volumes reported in **Table 3-1** and the surface water supply reported in **Table 3-2**. The total water available is summarized in **Table 3-3** for WY 2023. The results are either based on measured data or estimates, as described in the previous two sections.

Table 3-3. Total Water Use by Water Use Sector				
Sector	WY 2023 (AF)			
	Groundwater	Surface Water	Total	Total Irrigated Area (acres)
Agricultural	30,000	24,000	**53,000**	**16,000**
Municipal	300	0	**300**	**0**
Rural Residential	40	0	**40**	**0**
Total	**31,000**	**24,000**	**54,000**	**16,000**

3.4 Uncertainties in Water Use Estimates

Estimated uncertainties in the water budget components are presented in **Table 3-4**. The uncertainty of these water budget components is based on typical accuracies given in technical literature and the cumulative estimated accuracy of all inputs used to calculate the components.

Table 3-4. Estimated Uncertainty in Water Use Estimates

Water Budget Component	Data Source	Estimated Uncertainty (%)	Source
Groundwater Water			
Agricultural	Measurement	20%	Typical uncertainty from water balance calculation.
Municipal/Industrial	Measurement /Estimate	5%	Typical accuracy of municipal water system reporting.
Rural Residential	Calculation	15%	Estimated from per capita water use and Census information.
Surface Water			
Agricultural	Calculation	10%[1]	Estimated from Senate Bill 88 measurement accuracy standards.

[1]*Higher uncertainty of 10-20% is typical for estimated surface water inflows, including un-gaged inflows from small watersheds into creeks that enter the Basin.*

4 GROUNDWATER STORAGE

Long-term fluctuations in groundwater levels and groundwater in storage occur when there is an imbalance between the volume of water recharged into the aquifer and the volume of water removed from the aquifer, either by extraction or natural discharge to surface water bodies. If, over a period of years, the amount of water recharged to the aquifer exceeds the amount of water removed from the aquifer, then groundwater levels will increase and groundwater storage increases (i.e., positive change in storage). Conversely, if, over time, the amount of water removed from the aquifer exceeds the amount of water recharged, then groundwater levels decline, and groundwater storage decreases. These long-term changes can be linked to various factors, including increased or decreased groundwater extraction or variations in recharge associated with wet or dry hydrologic cycles.

A review of the RMS well hydrographs (Appendix A) indicates that groundwater elevations are either relatively stable or showing a declining trend over time. Declines may be influenced by the significant percentage of water years since 2006 that have been dry (i.e., characterized as Below Normal, Dry, or Critical). Since groundwater storage is closely related to groundwater levels, measured changes in groundwater levels can serve as a proxy for and be utilized to estimate changes in groundwater storage. Changes in groundwater storage in the Subbasin follow a pattern typically seen in the majority of the Sacramento Valley. During normal to wet years, groundwater is withdrawn during the summer for irrigation and replenished during the winter through recharge of precipitation and surface water inflows, allowing groundwater storage to potentially rebound by the following spring. During dry years and drought conditions, this pattern is disrupted when more groundwater may be pumped to meet irrigation demand and less recharge may occur due to reduced precipitation, diminished or curtailed surface water supplies, and lower stream levels.

In WY 2023, a Wet WY, cumulative (Upper and Lower Aquifer) groundwater storage increased by approximately 22,000 AF. Decreased groundwater extraction in WY 2023 relative to WY 2022 contributed to the increase in groundwater storage, as well as increased recharge due to wet climate conditions. These and related factors, such as flood irrigation with surface water and increased stream flows, resulted in higher groundwater levels in Spring 2023 compared to Spring 2022.

The following sections present a summary of groundwater use and change in storage over time, along with a description of the uncertainty in storage change estimates.

4.1 Change in Groundwater Storage – §356.2(b)(5)(B)

Annual groundwater pumping, groundwater storage changes, and the cumulative change in storage over time are presented for WY 1990 through WY 2023 in **Table 4-1** and **Figure 4-1**. In contrast to WY 2022, WY 2023 was a Wet WY and saw a marked increase in groundwater storage, totaling approximately 22,000 AF in the Upper and Lower Aquifer. For context, in the past 33 years, the largest decrease in groundwater storage is estimated to be -66,000 AF, and the highest increase was estimated to be 80,000 AF.

The Tehama Integrated Hydrogeologic Model (TIHM; Tehama County GSA 2021) was used to estimate groundwater pumping, groundwater uptake, change in storage, and cumulative change in storage for WY 1990 through WY 2019. It should be noted that the groundwater model was not used to estimate storage changes for WY 2020 through WY 2023. Therefore, future updates to the model may result in different estimates for WY 2020 through WY 2023 groundwater storage changes. The approach of using measured groundwater elevation changes to estimate storage changes is considered reasonable and cost-effective for the purposes of the Annual Report. **Table 4-1** includes estimates of annual groundwater pumping, annual storage change, and cumulative storage change for WYs 1990-2023. Estimates of annual groundwater pumping for WYs 2022-2023 are described in **Section 3** and **Appendix E.** Change in annual storage and cumulative change in storage for WYs 2020-2023 was estimated based on the methods described in **Section 4.2**. Groundwater extractions for the entire period include pumping for agricultural, municipal, and rural residential purposes.

The annual and cumulative changes in groundwater storage are both calculated for the period from WY 2020 through WY 2023 based on the methodology described below in **Section 4.2**. This methodology differs from the methodology reported in the GSP; however, it is anticipated that the methodology described in **Section 4.2** will be utilized for future Annual Reports.

Table 4-1. Annual Groundwater Extraction and Change in Storage			
Water Year (Hydrologic Year Type)	Groundwater Extraction[1] (AF)	Annual Change in Storage (AF)	Cumulative Change in Storage (AF)
1990 (C)	39,000	-40,000	-40,000
1991 (C)	35,000	-31,000	-71,000
1992 (C)	34,000	-15,000	-86,000
1993 (AN)	29,000	54,000	-32,000
1994 (C)	35,000	-33,000	-65,000
1995 (W)	30,000	80,000	15,000
1996 (W)	37,000	19,000	34,000
1997 (W)	38,000	-2,000	32,000
1998 (W)	32,000	67,000	99,000
1999 (W)	36,400	-15,000	84,000
2000 (AN)	34,100	-21,000	63,000
2001 (D)	37,000	-46,000	17,000
2002 (D)	37,000	-17,000	0
2003 (AN)	30,900	33,000	33,000
2004 (BN)	36,000	-4,700	28,000
2005 (AN)	29,600	8,100	36,000
2006 (W)	34,000	44,000	80,000
2007 (D)	36,000	-62,000	18,000
2008 (C)	35,000	-38,000	-20,000
2009 (D)	29,000	-24,000	-44,000
2010 (BN)	26,000	22,000	-22,000
2011 (W)	26,500	41,000	19,000
2012 (BN)	32,000	-41,000	-22,000
2013 (D)	33,000	-28,000	-50,000
2014 (C)	34,400	-51,000	-100,000
2015 (C)[2]	39,200	-30,000	-130,000
2016 (BN)	27,100	23,000	-110,000
2017 (W)	25,700	73,000	-35,000
2018 (BN)	31,800	-38,000	-73,000
2019 (W)	25,300	47,000	-26,000
2020 (D)	33,000	-2,500	-28,000

Table 4-1. Annual Groundwater Extraction and Change in Storage			
Water Year (Hydrologic Year Type)	Groundwater Extraction[1] (AF)	Annual Change in Storage (AF)	Cumulative Change in Storage (AF)
2021 (C)[2]	43,500	-66,000	-94,000
2022 (C)[2]	54,900	-14,000	-108,000
2023 (W)	31,000	22,000	-86,000
Historic Averages (2000-2022)[3]			
2000-2022 (22 years)	34,000	-3,000	-18,000
W (9 years)	32,000	39,000	-34,000
AN (4 years)	31,000	19,000	25,000
BN (5 years)	31,000	-8,000	-40,000
D (6 years)	34,000	-30,000	-15,000
C (9 years)	39,000	-35,000	-79,000

Notes:

Positive values indicate inflows to the groundwater system, and negative values indicate outflows from the groundwater system.

GW = Groundwater

Water Year Types Classified According to the Sacramento Valley Water Year Index: AN = Above Normal, BN = Below Normal, C = Critical; D = Dry, W = Wet

*[1] Groundwater extraction and storage for WY 1990 through WY 2019 are from the Tehama Integrated Hydrologic Model (TIHM), groundwater extraction values for WY 2020 through WY 2023 are described in **Section 3** and **Appendix E**. Annual change in storage values for WY 2020 through WY 2023 were estimated using the method described in **Section 4**.*

[2] Indicated cutback year with reduced surface water supply availability.

[3] The historical average calculation covers the period from 2000 to 2022, excluding the current water year.

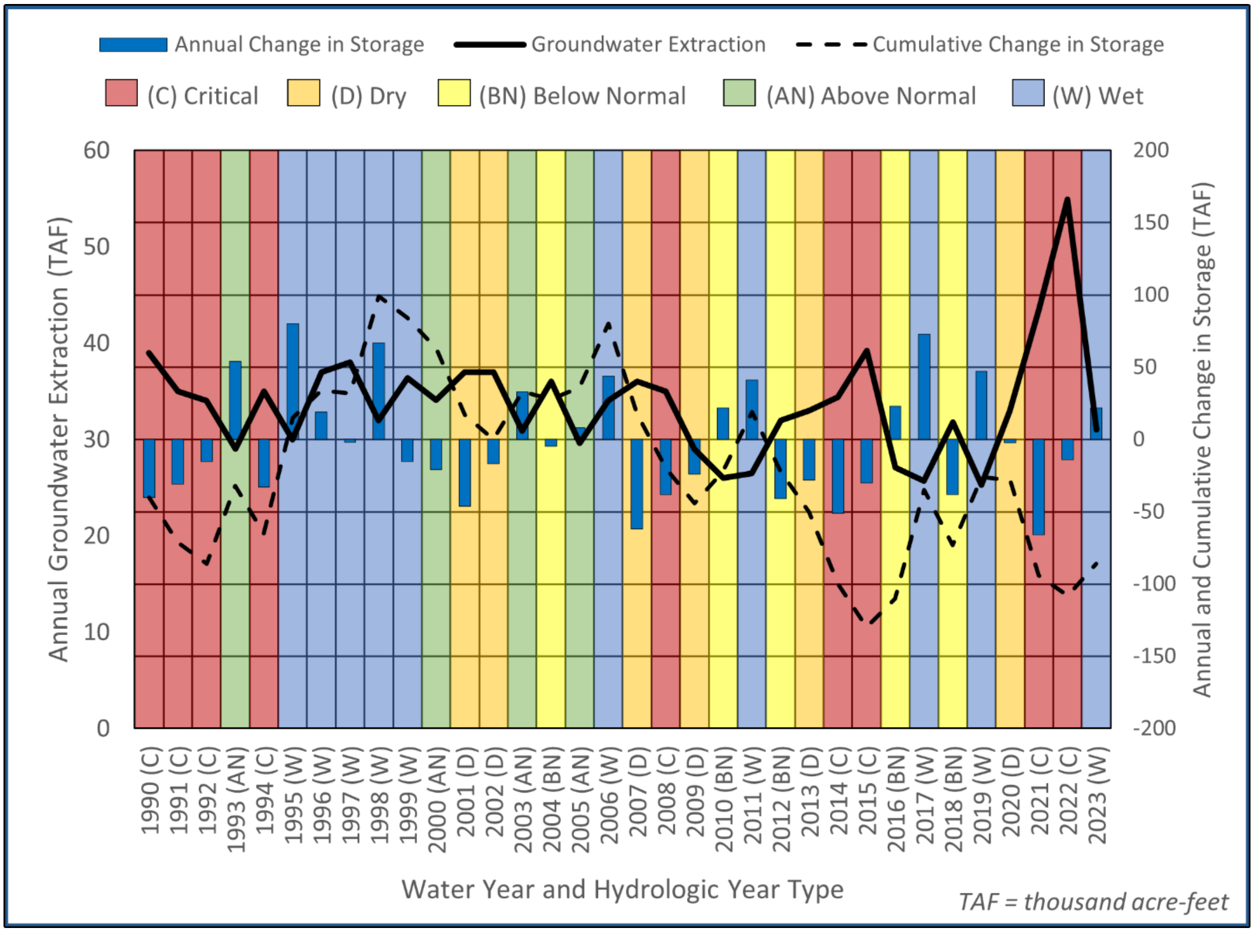

Figure 4-1. Groundwater Extraction and Change in Groundwater Storage from WY 1990 to WY 2023

4.2 Groundwater Storage Maps – §356.2(b)(5)(A)

The spatial distribution of estimated changes in groundwater storage in the Upper Aquifer for the period from Spring 2022 to Spring 2023 are shown in **Figure 4-2.** Since groundwater storage is closely related to groundwater levels, measured changes in groundwater levels can serve as a proxy for and be utilized to estimate changes in groundwater storage. Change in groundwater storage was estimated based on change in measured spring-to-spring groundwater levels at each RMS well. Change of groundwater levels from Spring 2022 to Spring 2023 at measured wells screened in the Upper Aquifer were interpolated to estimate the groundwater elevation change in areas where sufficient data was available. The estimated elevation change was multiplied by a spatially variable aquifer storage coefficient (0.0292 – 0.0551) available from the TIHM to estimate the groundwater storage change volume in the Upper Aquifer. The spatial extent of this estimate was limited to areas where measured groundwater levels were available (**Figure 4-1**). Therefore, an area-weighted adjustment was applied to the estimated storage to estimate the Subbasin-wide change in storage.

Sufficient groundwater level data were not available to interpolate water level changes in the Lower Aquifer. Therefore, Lower Aquifer storage change was estimated using the Upper Aquifer storage change and the historical ratio of storage changes in the two aquifers for critical years. The summation of the changes in the Upper and Lower Aquifers provides the total groundwater storage change in the Subbasin.

Negative changes in storage values indicate lowering groundwater levels and depletion of groundwater storage, whereas positive changes in storage values represent rising groundwater levels and accretion of groundwater in storage. As shown in **Figure 4-2**, the change in storage within the Upper Aquifer from Spring 2022 to Spring 2023 was between 0.084 and 0.368 AF per acre. The western and a small area within the lower central portion of the Subbasin had a larger positive change in storage, while the surrounding portions of the subbasin experienced a lower positive change in storage. Total groundwater storage change in the Upper Aquifer was estimated to be approximately 19,000 AF between Spring 2022 and Spring 2023. Total groundwater storage change in the Lower Aquifer was estimated to be approximately 3,000 AF between Spring 2022 and Spring 2023.

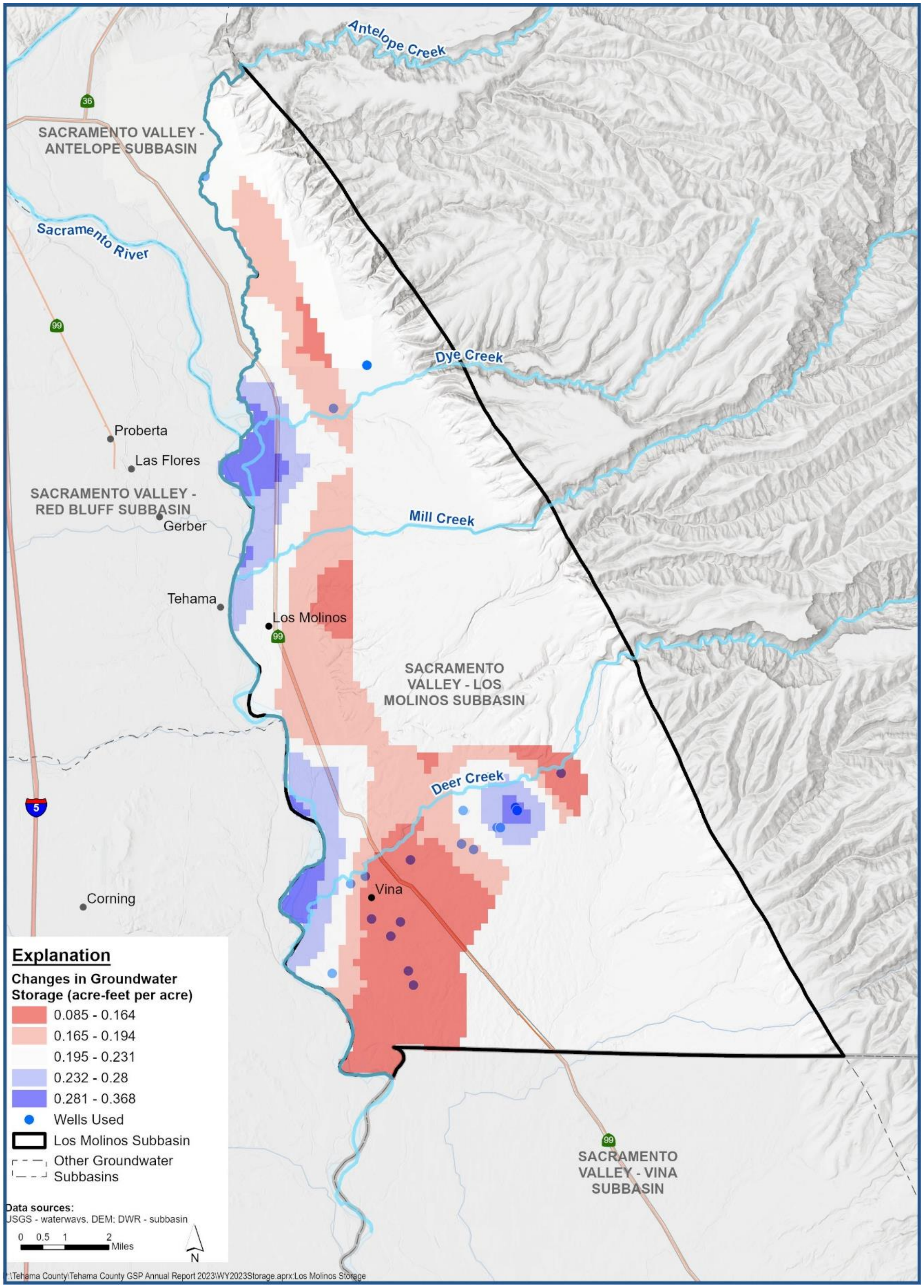

Figure 4-2. Change in Groundwater Storage from Spring 2022 to Spring 2023 in the Upper Aquifer

4.3 Uncertainty in Groundwater Storage Estimates

The uncertainty associated with the change in groundwater storage estimates depends in part on the underlying uncertainty of the groundwater level data, the representative area, and the calibrated storage coefficient parameter used to calculate the change in groundwater storage. As described in **Section 4.2**, the calibrated storage coefficient (0.0292 – 0.0551) from the TIHM was used to calculate the change in storage. Based on a comparison of storage change estimates from the TIHM for similar water year types, the calculated storage change is reasonable. Thus, the uncertainty of the estimated change in groundwater storage is typically 20-30% for integrated hydrologic models; therefore, the approach described in **Section 4.2** is considered to have similar uncertainty.

5 GSP IMPLEMENTATION PROGRESS – §356.2(B)(5)(C)

5.1 Main Activities of Water Year 2023

The main activities and updates since the previous Annual Report are as follows:

- The Tehama County GSA completed the WY 2023 Annual Report and other critical tasks.
- The Tehama County GSA coordinated a proposal seeking funding through DWR's SGM Grant Program. Coordination efforts included planning and refinement PMAs evaluating and ranking PMAs, and preparing and submitting the grant application. The grant application was submitted in December 2022, and a final award list was released by DWR in September 2023; results are summarized below in **Table 5-4**.
- An airborne electromagnetic (AEM) survey by DWR took place in the summer of 2022. The data collected provides a better understanding of aquifer characteristics and will help support future efforts to refine the current hydrogeologic conceptual model. Data is available at: https://data.cnra.ca.gov/dataset/aem.
- All sustainability indicators (SIs) are above their MTs (see summary **Table 5-1**).
- Progress has been made on three PMAs since the last Annual Report (**Table 5-4; Section 5.3**).

Several other actions continue in the Subbasin to fulfill the requirements of the GSP. These include:

- Monitoring and recording groundwater levels and groundwater quality.
- Maintaining and updating the Data Management System (DMS) with newly collected data.
- Annual reporting of Subbasin conditions and submission to DWR as required by SGMA.
- Ongoing intra- and inter-basin coordination.

Since the previous Annual Report, DWR has provided corrective actions to the Los Molinos Subbasin GSP. The Tehama County GSA acknowledges and is addressing the one key recommended corrective action listed in the DWR's **GSP determination letter**
(https://sgma.water.ca.gov/portal/service/gspdocument/download/9961) including:

1. The GSA must provide a more detailed explanation and justification regarding the selection of the sustainable management criteria for groundwater levels, particularly undesirable results and minimum thresholds, and quantitatively describe the effects of those criteria on the interests of beneficial uses and users of groundwater.

5.2 Progress Toward Achieving Interim Milestones

All SIs are in compliance with their MTs (see summary **Table 5-1**). An MT is the quantitative value that represents the groundwater conditions at an RMS site that, when exceeded individually or in combination with MTs at other monitoring sites, may cause an UR in the subbasin per DWR's definition. If groundwater levels are lower than the value of the MO for that site, they are moving in the direction of the MT. On the contrary, for the groundwater quality SMC, as the value of Total Dissolved Solids (TDS) concentrations increase from the MO established for that site, they are moving in the direction of the MT. Seawater Intrusion is not an applicable SI.

Groundwater elevations remained near the MOs in Spring and Fall of 2023; and avoided URs since less than 25% of wells fell below their MTs for two consecutive years, hence avoiding URs as defined in the GSP.

Overall, groundwater conditions in the Subbasin are on track to meet the first 5-year (2027) Interim Milestones for groundwater levels at each of the RMS wells. Groundwater elevations are all above the MTs throughout the Subbasin with elevations mostly near those observed in recent years **(Appendix A**). This positive trend is attributed to the ongoing recovery in groundwater conditions facilitated by increased precipitation to meet evapotranspiration demands in WY 2023. Spring and Fall 2023 groundwater elevations were above the MOs (**Table 5-2**). Spring 2024 groundwater conditions are expected to rebound.

Table 5-1. Sustainability Indicator Summary			
2023 Status	**Undesirable Result Identification**	**MO Definition**	**MT Definition**
Chronic Lowering of Groundwater Levels			
No indication of undesirable results There were no RMS wells with spring or fall 2023 groundwater level measurement below the MT.	25% of groundwater elevations measured at same RMS wells exceed the associated MT for two consecutive measurements.	**Upper & Lower Aquifer:** Spring 2015 groundwater elevation minus five feet (for wells with increasing or no groundwater trends) or projected Spring 2042 groundwater elevation minus five feet for wells with declining groundwater elevations.	**Upper Aquifer:** Spring groundwater elevation where less than 10% or less than 20% of domestic wells could potentially be impacted. **Lower Aquifer:** Spring groundwater elevation minus 20 to 120 feet.
Reduction of Groundwater Storage			
No indication of undesirable results There were no RMS wells with spring or fall 2023 groundwater level measurement below the MT.	Same as the chronic lowering of groundwater levels.	**Upper & Lower Aquifer:** Amount of groundwater storage when groundwater elevations are at their measurable objective.	**Upper & Lower Aquifer:** Amount of groundwater in storage when groundwater elevations are at their minimum threshold.
Degraded Water Quality			
No indication of undesirable results There were no RMS wells that exceeded the MT in WY 2023.	At least 25% of RMS exceed the minimum threshold for water quality for two consecutive years at each well where it can be established that GSP implementation is the cause of the exceedance.	**Upper & Lower Aquifer:** California lower limit secondary MCL concentration for TDS of 500 mg/L measured at RMS wells.	**Upper & Lower Aquifer:** TDS concentration of 750 mg/L at all RMS wells.

Table 5-1. Sustainability Indicator Summary			
2023 Status	**Undesirable Result Identification**	**MO Definition**	**MT Definition**
Land Subsidence			
No indication of undesirable results No InSAR pixel exceeded MT in WY 2023.	50% of RMS exceed the minimum threshold over a 5-year period that is irreversible and is caused by lowering of groundwater elevations.	One foot over 20 years (Zero inelastic subsidence, in addition to any measurement error). If InSAR data are used, the measurement error is 0.1 feet and any measurement 0.1 feet or less would not be considered inelastic subsidence.	Two feet over 20 years (i.e., no more than 0.5 feet of cumulative subsidence over a five-year period (beyond the measurement error), solely due to lowering of groundwater elevations.
Depletion of Interconnected Surface Water			
No indication of undesirable results There were no RMS wells with spring or fall 2023 groundwater level measurement below the MT.	25% of groundwater elevations measured at RMS wells drop below the associated threshold during two consecutive years in the Upper Aquifer.	Same as the chronic lowering of groundwater levels.	Same as the chronic lowering of groundwater levels.

Notes:

TDS is the primary water quality constituent of concern.

MO = Measurable Objective; MT = Minimum Threshold; RMS = representative monitoring site; mg/L = milligrams per liter; MCL = Maximum Contaminant Level; SMCL = Secondary Maximum Contaminant Level.

5.2.1 *Chronic Lowering of Groundwater Levels and Reduction in Groundwater Storage SMC*

The reduction in groundwater storage SMC utilizes the chronic lowering of groundwater levels SMC as a proxy (**Table 5-1**). Thus, groundwater conditions related to storage and chronic lowering of groundwater levels are discussed together. Groundwater conditions in the Subbasin are on track to meet the first 5-year 2027 IMs for groundwater levels at each of the RMS wells. In WY 2023, all groundwater elevations were above the established MTs (as indicated in **Table 5-2**). **Table 5-2** shows measurements from WY 2023 for spring seasonal highs and fall seasonal lows, along with MOs and MTs. It also compares the WY 2023 measurements to those from WY 2022 and to the MOs. Higher water levels were observed in Spring 2023 compared to Spring 2022 due to wet conditions, which has helped to increase recharge and offset extraction, bolstering groundwater storage in the Subbasin.

Table 5-2 Measurable Objectives, Minimum Thresholds, and Seasonal Groundwater Elevations of Representative Monitoring Site Wells

Representative Monitoring Site (RMS) ID	Groundwater Elevation (feet above mean sea level)				Spring 2023 vs. MO	Fall 2023 vs. MO	Spring 2023 vs. Spring 2022 (seasonal high)	Fall 2023 vs. Fall 2022 (seasonal low)
	2023 Measurements		MO	MT				
	Spring (Seasonal High)	Fall (Seasonal Low)						
Upper Aquifer								
LM-1U	--	--	218.90	172.40	--	--	--	--
LM-1UR	--	--	NA	NA	NA	NA	--	--
LM-2U	227.90	--	219.90	174.40	8.00	--	7.50	--
LM-3U	218.30	217.71	205.80	163.40	12.50	11.91	0.03	1.05
LM-4U	193.89	192.45	182.70	118.40	11.19	9.75	2.12	2.22
LM-5U	168.41	164.71	157.10	114.40	11.31	7.61	5.00	3.50
LM-6U	222.73	--	NA	NA	NA	NA	4.32	--
Lower Aquifer								
LM-7L	193.19	191.21	183.10	68.40	10.09	8.11	2.25	1.80
LM-8L	209.90	209.03	196.30	96.40	13.60	12.73	-1.17	-0.06
LM-9L	223.47	--	NA	NA	NA	NA	0.87	--

MO = Measurable Objective, MT = Minimum Threshold,-- = Indicates Missing or Questionable Measurement, NA = Indicates non-determined MO, MT due to insufficient history

5.2.2 *Degraded Water Quality SMC*

The degraded water quality MT and MO are summarized in **Table 5-1**. TDS are the main constituent of concern in the Subbasin. TDS is measured at RMS wells throughout the Subbasin, and data was collected by the Tehama County GSA in 2024. For WY 2023, one (LM-1U) of the nine RMS wells was not available for monitoring, and an alternate was identified for sampling (LM-1UR). TDS ranged from 90 mg/L to 650 mg/L. Two of the wells were below the MO, but no wells exceeded the MT for TDS in 2024. A summary of groundwater quality monitoring data is available in **Appendix F**. Groundwater conditions are on track to avoid results related to water quality.

5.2.3 Land Subsidence SMC

The land subsidence MT and MO are summarized in **Table 5-1**. Interferometric Synthetic Aperture Radar (InSAR) data provided by DWR (DWR, 2024) was analyzed from October 2022 to October 2023 to track annual changes and from October 2015 to October 2023 to track net changes. Subsidence estimates based on InSAR methodology were reviewed and compared to continuous GPS measurements (Towill, 2023). The accuracy report found that a one-year measurement error, reported as a root-mean-squared error (RMSE), was approximately 0.025 feet. **Figure 5-1** shows a maximum vertical displacement between 0.017 feet and -0.026 feet that occurred within the Subbasin from October 2022 to October 2023. A positive change corresponds to a higher land surface elevation, and a negative change corresponds to a lower land surface elevation relative to a reference elevation. Groundwater conditions in the Subbasin are on track to meet the first 5-year (2027) IMs and avoid URs for land subsidence. Conditions indicate that there has not been any inelastic land subsidence during the reporting period.

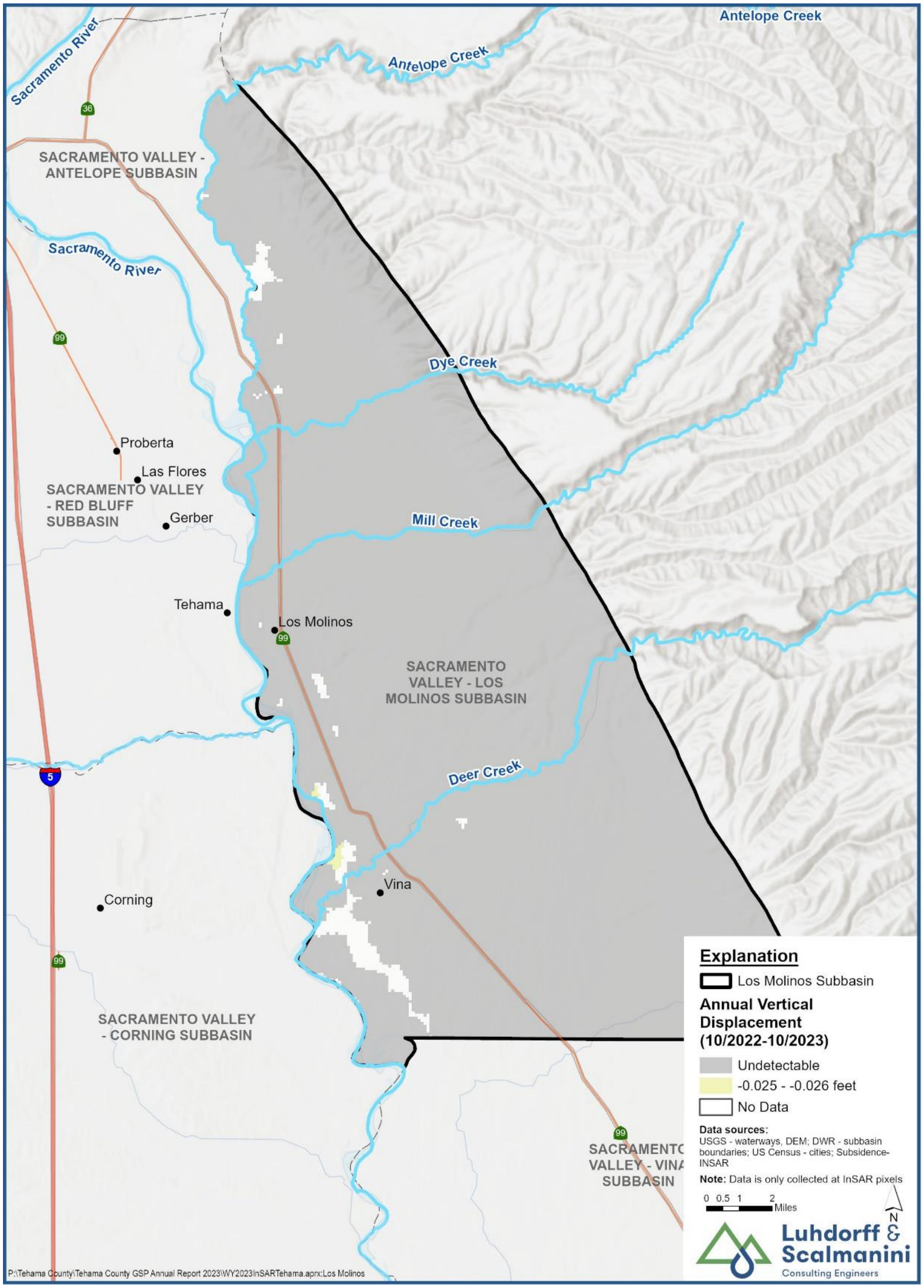

Figure 5-1. Change in Subsidence from 10/2022 to 10/2023

5.2.4 Depletion of Interconnected Surface Water SMC

The depletion of interconnected surface water SMC utilizes the chronic lowering of groundwater levels SMC as a proxy (**Table 5-1**). A subset of groundwater levels SMC RMS is used for this SMC (**Table 5-3**) and all groundwater elevations were above the established MTs. Groundwater conditions in the Subbasin are on track to meet the first 5-year 2027 IMs and to avoid URs for groundwater levels at each of the RMS wells.

Table 5-3 Measurable Objectives, Minimum Thresholds, Undesirable Results for Depletion of Interconnected Surface Water

State Well Number /Representative Monitoring Site (RMS) ID	Groundwater Elevation (feet above mean sea level)				Spring 2023 vs. MO	Fall 2023 vs. MO
	2023 Measurements		MO	MT		
	Spring (Seasonal High)	Fall (Seasonal Low)				
LM-1U	--	--	218.90	172.40	--	--
LM-1UR	--	--	--	--	NA	NA
LM-2U	227.90	--	219.90	174.40	8.00	--
LM-3U	218.30	217.71	205.80	163.40	12.50	11.91
LM-4U	193.89	192.45	182.70	118.40	11.19	9.75
LM-5U	168.41	164.71	157.10	114.40	11.31	7.61
LM-6U	222.73	--	--	--	NA	NA

MO = Measurable Objective, MT = Minimum Threshold, -- = Indicates missing or questionable measurements, NA = Indicates non-determined MO, MT due to insufficient history

5.3 Progress Toward PMA Implementation

The following sections summarize the Tehama County GSA’s progress towards implementing PMAs that were developed to manage groundwater conditions in the Subbasin and achieve the groundwater sustainability objectives described in the GSP. Projects as outlined in the GSP are provided below and summarized in **Table 5-4.** Updates on the status of management actions are described below and summarized in **Section 5-4** and **Table 5-5**.

Groundwater users in the Subbasin benefit from generally stable and shallow groundwater levels supported by the substantial recharge resulting from large volumes of surface water supplied throughout the Subbasin. Surface water supplies available to diverters in the Subbasin are used, when available, for irrigation and for the benefit of other recharge efforts and projects described in the GSP. Ongoing access to surface water supplies is crucial to preserving the sustainability of the Subbasin.

Table 5-4. Summary of Project Implementation Status			
GSP Section Reference	Project	Current Status	Notable Progress Since Last Annual Report
4.2	GSP Implementation, Outreach, and Compliance Activities	Funded	The DWR SGM Grant Program application submitted in December 2022 was funded during the planning phase.
4.2	Recharge Focused Projects	Funded	DWR SGM Grant Program application submitted in December 2022 was funded to plan and roll out recharge projects identified in the GSP.

Table 5-5. Summary of Management Actions			
GSP Section Reference	Project (Proponent)	Current Status	Notable Progress Since Last Annual Report
4.5.2.6	Well Management Program	In Progress	Program is in its second year, well inventory is in progress.

5.4 GSP Project Implementation Progress

5.4.1 GSP Implementation, Outreach, and Compliance Activities (GSP Section 4.2)

Advancements since the last Annual Report include securing funding from the DWR SGM Grant Program application submitted in December 2022. This project is currently active and includes the development of WY 2023 Annual Reports, outreach to the community, and coordinating GSP corrections.

5.4.2 Recharge Focused Projects (GSP Section 4.2)

Advancements have been made on this project since 2022, including securing funding from the DWR SGM Grant Program application submitted in December 2022. This project is currently in the planning phase.

5.5 GSP Management Action Implementation Progress

gaging monitoring plan, conducting a biological investigation to determine the locations of groundwater-dependent ecosystems, establishing a community domestic monitoring program, and expanding the groundwater level and quality network throughout the Subbasin.

5.6 GSP Management Action Implementation Progress

Below are Management Action Updates and their progress in implementation since the last Annual Report.

5.6.1 Well Management Program (GSP Section 4.5.2.6)

Tehama County GSA is in its second year of administering a well registration program that provides information about the location, number, and construction of wells. It will also eventually provide a source of funding for GSP implementation and a future well mitigation program.

6 CONCLUSIONS

The Tehama County GSA adopted and submitted the GSP to DWR in January 2022. Following the analyses of historical and current hydrogeological conditions presented in the GSP, the Tehama County GSA has been actively working on sustainable groundwater management in the Subbasin. As presented in **Section 5** of this report, recent progress made on activities applicable to the Tehama County GSA demonstrates the commitment of the Tehama County GSA to implement the GSP by allocating the necessary time and resources to achieve long-term sustainable management of the groundwater resources in the Los Molinos Subbasin.

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