Third Annual Report Water Year 2023
for the
Santa Ynez River Valley Groundwater Basin
Bulletin 118 Basin No. 3-15
Central Management Area
Groundwater Sustainability Agency

CMA

Central Management Area

FINAL
March 25, 2024

STETSON
ENGINEERS INC.

WATER RESOURCE PROFESSIONALS
SERVING CLIENTS SINCE 1957

COVER PHOTOGRAPHS

Front Cover: Stable Diffusion artificial image based on the prompt of "Buellton, Central Management Area, storm cloud, water, rain, Santa Ynez Groundwater Basin, hillside, topography."

Back Cover: National Agriculture Imagery Program (NAIP) natural color orthographic photo mosaic of Central Management Area photographed on May 21, 2022.

SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN

CENTRAL MANAGEMENT AREA

Third Annual Report, Water Year 2023

March 25, 2024

FINAL

APPROVED

MARCH 25, 2024

BY THE COMMITTEE OF THE

SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN

CENTRAL MANAGEMENT AREA GROUNDWATER SUSTAINABLITY AGENCY

Santa Ynez River Valley Groundwater Basin

Central Management Area

Groundwater Sustainability Agency Committee

Water Year 2023 (October 2022-September 2023)

City of Buellton

John Sanchez, Council Member

David Silva, Council Member (Alternate)

Santa Ynez River Water Conservation District

***Art Hibbits**, Director - Left June 27, 2023*

Cynthia Allen, Director
(Alternate) October 1, 2022 - June 27, 2023
Appointed as Representative June 27, 2023

Steve Jordan, Director (Alternate)
Appointed June 27, 2023

Santa Barbara County Water Agency

Joan Hartmann, District 3 Supervisor

Meighan Dietenhofer, County Staff (Alternate)

GSA Member Agency Staff Representatives:

Matthew Young, Santa Barbara County Water Agency

***Marliez Diaz**, Santa Barbara County Water Agency*

Matthew C. Scrudato, Santa Barbara County Water Agency

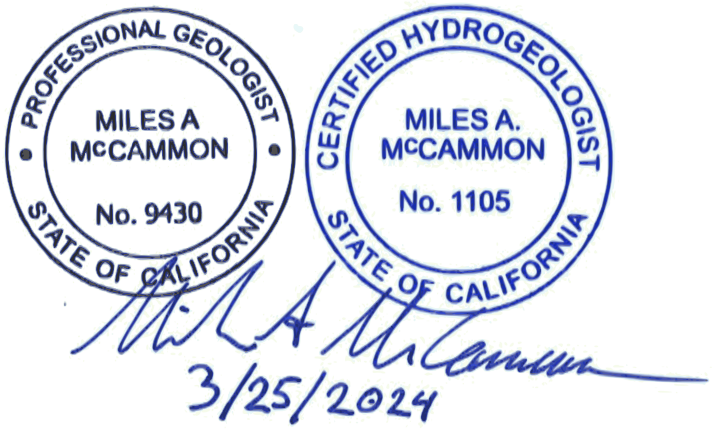
Rose Hess, PE, City of Buellton

William J. Buelow, PG, Santa Ynez River Water Conservation District, GSA Coordinator

Italicized and gray indicates former committee members or staff representatives.

PREPARERS

Stetson Engineers:



Curtis Lawler, PE (Project Manager)

Miles McCammon, CHG, PG

Scott Lowrie

Noah Wasserman

John Gowan

Cece Cambri

Additional Thanks:

Allan Richards, PE
(Principal, Stetson Engineers)

Ali Shahroody, PE
(Principal, Stetson Engineers)

ACKNOWLEDGMENTS

The Central Management Area Groundwater Sustainability Agency Committee and Stetson Engineers Inc. would like to thank and acknowledge the many stakeholders, entities, and private citizens who have contributed their time and expertise to develop this Third Annual Report.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTENTIONALLY LEFT BLANK

LIST OF APPENDICES

Chapter 1: General Information

Appendix 1-A: Portions of Sustainable Groundwater Management Act Statute and Regulations Specific to Annual Report Requirements. Effective August 15, 2016. 4 pg.

Chapter 2: Basin Conditions

No Appendices

Chapter 3: Groundwater Hydrographs and Contours

Appendix 3-A: Groundwater Level Hydrographs for Assessing Chronic Decline in Groundwater Levels, Central Management Area. 6 pg.

Appendix 3-B: Groundwater Level Hydrographs for Assessing Surface Water Depletion, Central Management Area. 5 pg.

Chapter 4: Water Use and Available Surface Water

No Appendices

Chapter 5: Groundwater Storage

No Appendices

Chapter 6: Progress Towards GSP Implementation and Sustainability

Appendix 6-A: Groundwater Quality, Central Management Area. 7 pg.

List of Acronyms and Abbreviations

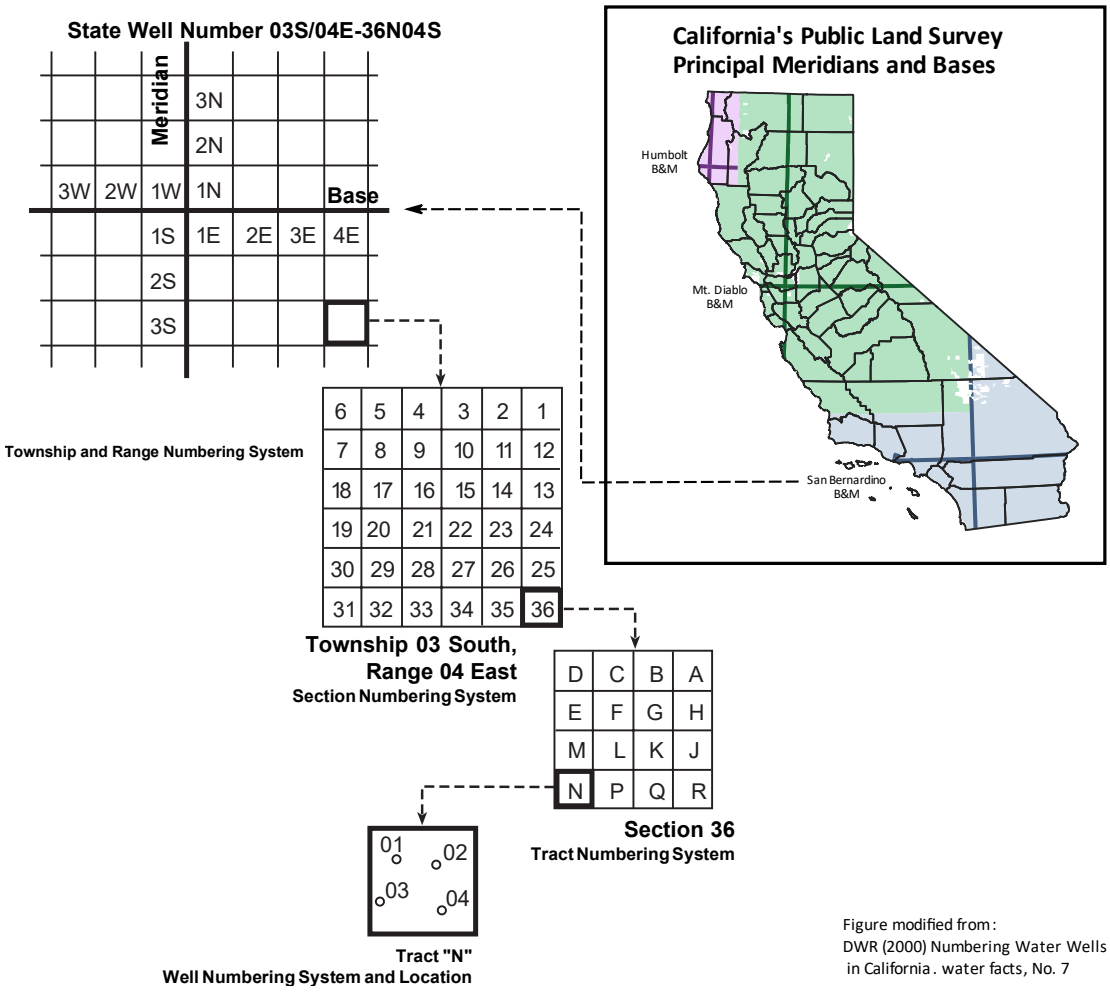
AF	acre-feet
AFY	acre-feet per year
CCR	California Code of Regulations
CCWA	Central Coast Water Authority
CEQA	California Environmental Quality Act
CGPS	Continuous Global Positioning System
CIMIS	California Irrigation Management Information System
CMA	Central Management Area
COMB	Cachuma Operation and Maintenance Board
CSD	Community Services District
CWC	California Water Code
DBID	Database Identification Number
DWR	Department of Water Resources
EMA	Eastern Management Area
ET	Evapotranspiration
FY	Fiscal Year (July 1 through June 30)
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
InSAR	Interferometric Synthetic Aperture Radar
mg/L	milligrams per liter
NAIP	National Agriculture Imagery Program
PRISM	Parameter-elevation Regressions on Independent Slopes Model
RMW	Representative Monitoring Well
RWQCB	Regional Water Quality Control Board
SFB	Space Force Base
SGMA	Sustainable Groundwater Management Act
SWP	State Water Project
SWRCB	State Water Resources Control Board
SYRA	Santa Ynez River Alluvium

SYRVGB	Santa Ynez River Valley Groundwater Basin
SYRWCD	Santa Ynez River Water Conservation District
USBR	United States Bureau of Reclamation
USGS	United States Geological Survey
VSFB	Vandenberg Space Force Base
VVCSD	Vandenberg Village Community Services District
WMA	Western Management Area
WR	Water Rights Order
WY	Water Year (October 1 through September 30)

WELL NUMBERING DESCRIPTION

The California Department of Water Resources (DWR) assigns a unique State Well Number based on the public land grid published by the Bureau of Land Management (BLM) Cadastral survey grid. The State Well Number includes the township, range, and section numbers in which a well is located. Each section in the public land grid is further subdivided into sixteen 40-acre tracts, which are assigned a letter designation as shown on the following page. Because all wells in the Santa Ynez River Valley Groundwater Basin use the San Bernardino ("S") baseline and meridian, the reference to the baseline and meridian is generally omitted from the well numbers identified in this report. Much of the land is former Mexican Land grant land and not covered by the BLM Cadastral survey, so the naming is based on other interpolated grids.

There are other well reference identifiers found in this text. The USGS 15-digit well number based on degrees, minutes, and seconds of latitude (6 digits) and longitude (7 digits) and sequential number (2 digits) are also shown on wells that are part of the USGS databases. The database management system for this project (sywater.info) additionally assigns a 4-digit unique database identification number (DBID) for each well. DWR also assigns a California Groundwater Elevation Monitoring (CASGEM) number.

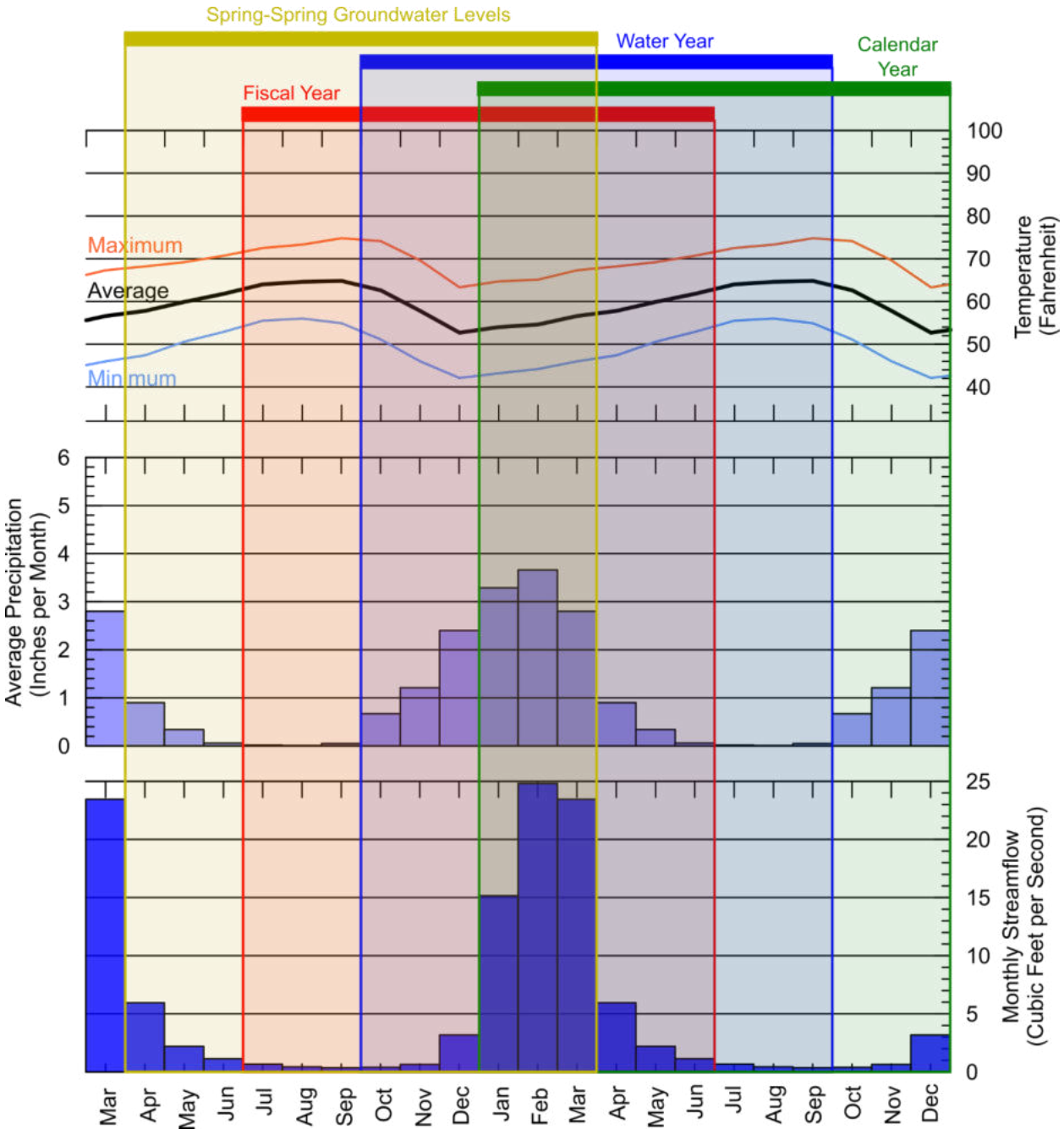


California Department of Water Resources' Numbering System for Water Wells

WATER YEAR DESCRIPTION

Several different annual periods are used in managing Santa Ynez River Valley Groundwater Basin water resources: Water Year, Calendar Year, Fiscal Year and Water Year (July – June), and Spring-Spring Groundwater measurements. For the Sustainable Groundwater Management Act, Water Years are based on the period from October 1st to September 30th, (CWC Section 10721(aa)) which combines the early winter months at the end of a Calendar Year with the remainder of the winter months in the early part of the subsequent Calendar Year, better representing the year on a seasonal basis. Calendar Years are the traditional and commonly used annual period from January 1st to December 31st which starts and ends near the winter solstice. The Santa Ynez River Water Conservation District (SYRWCD) utilizes a Fiscal Year and Water Year (CWC Section 75507(a)) based on the annual period from July 1st to June 30th. Annual spring high groundwater levels are typically evaluated from March of one year to –March of a subsequent year. Finally, the Santa Barbara County Flood Control District annual hydrology reports use a September 1st to August 31st reporting year. The Figure below shows how most of these annual periods compare with the average monthly precipitation at Lompoc and the average monthly stream flow in Salsipuedes Creek at the stream gage.

- Water Year: October 1st to September 30th
- Calendar Year: January 1st to December 31st
- Fiscal Year/ Water Year (SYRWCD): July 1st to June 30th
- Water Year (Flood Control District): September 1st to August 31st
- Spring-Spring Groundwater Levels: March to March



Temperature and Precipitation are National Oceanic & Atmospheric Administration
Climate Normals 1991- 2020 at LOMPOC, CA US, station code USC00045064.

Streamflow is the United States Geological Survey
Average Monthly Flow for 1991 - 2020 at Salsipuedes Creek Near Lompoc, station code 11132500.

EXECUTIVE SUMMARY

This is the third annual report for the Central Management Area (CMA). This report describes changes within the CMA and progress for Water Year (WY) 2023. WY 2023 started on October 1, 2022, and ended on September 30, 2023.

The CMA is the center area in the Santa Ynez River Valley Groundwater Basin (SYRVGB). The SYRVGB is in Santa Barbara County, within the Central Coast Region of California. The Department of Water Resources DWR identifies the SWRVGB as basin number 3-15. The SYRVGB has three management agencies: Western (WMA), Central (CMA), and Eastern (EMA). DWR designated the SYRVGB as a medium-priority groundwater basin. The CMA Groundwater Sustainability Agency (GSA) is implementing the Sustainable Groundwater Management Act (SGMA) law, which is overseen by the DWR.

WY 2023 was the first complete water year following the submittal of the Groundwater Sustainability Plan (GSP) to DWR on January 18, 2022. The CMA GSP indicated that the current CMA conditions are sustainable. The CMA GSP established sustainable management criteria for measuring progress toward groundwater sustainability. The CMA GSP recommended projects and management actions. These projects help maintain sustainability, avoid undesirable results, and avoid unsustainable groundwater conditions. DWR approved the GSP for the CMA on January 18, 2024.

WY 2023 was the first wet year in the CMA following eleven years of drought. The largest reservoir on the Santa Ynez River, Lake Cachuma, spilled for the first time since WY 2011.

The estimated sustainable yield of the CMA is estimated to be 2,800 acre-feet per year (AFY). Sustainable yield is the long-term average over the period of record. The total estimated groundwater storage change in the CMA during WY 2023 is a gain of 200 acre-feet (AF). The estimated total groundwater production in the CMA during WY 2023 was about 3,550 AF. Total use includes all water types including groundwater, surface water (surface and underflow), and imported water. The total estimated water use is about 7,580 AF.

The CMA has organized this Third Annual Report into the following chapters:

- General information (including Basin location) – Chapter 1
- Hydrologic conditions – Chapter 2
- Groundwater elevation data (including contours, with hydrographs as an appendix) – Chapter 3
- Water supply data (including groundwater extraction data) – Chapter 4
- Groundwater storage data – Chapter 5
- Progress towards GSP implementation and sustainability – Chapter 6.

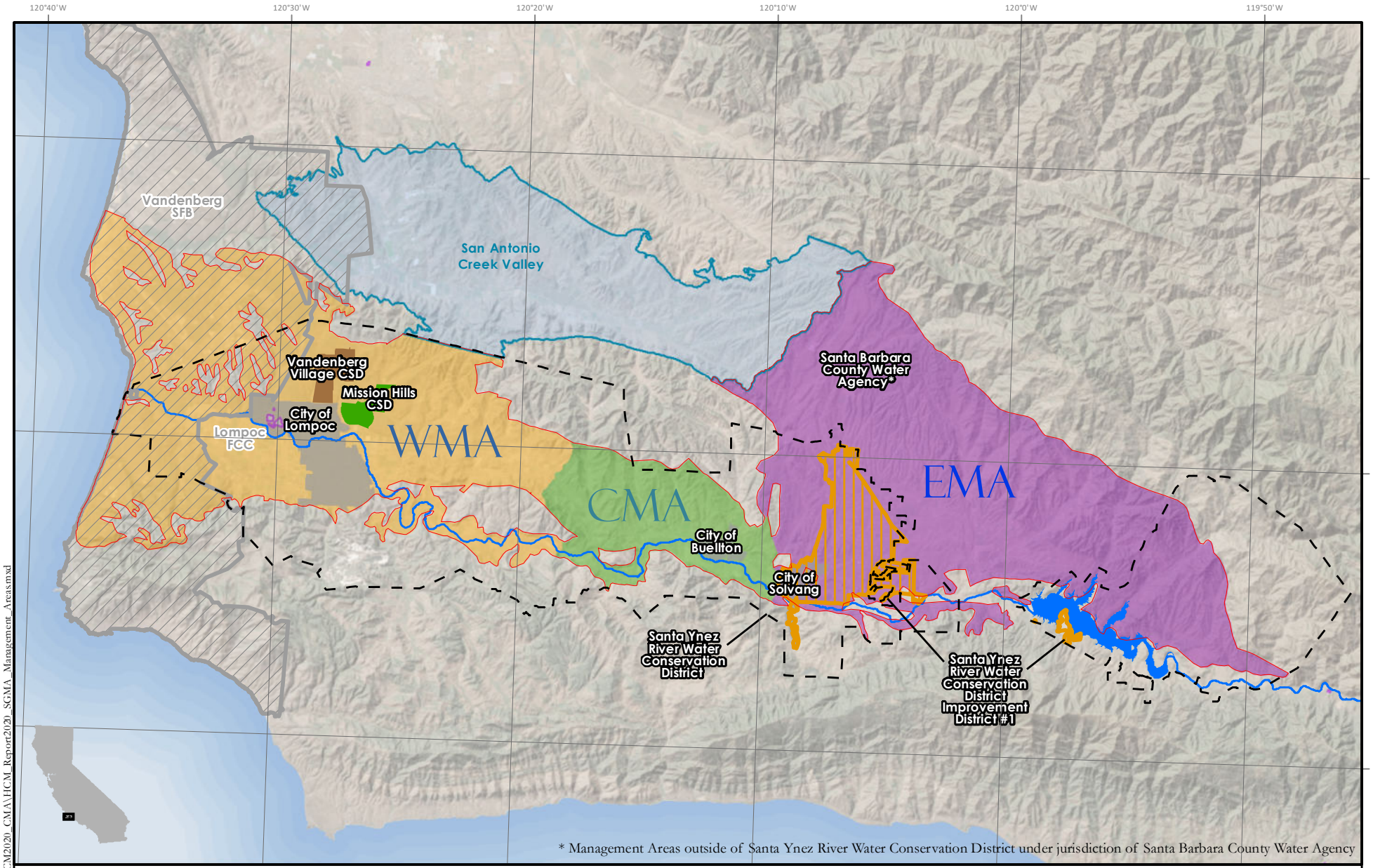
CHAPTER 1: GENERAL INFORMATION

The Central Management Area (CMA) Groundwater Sustainability Agency (GSA) is the responsible local agency for complying with Sustainable Groundwater Management Act (SGMA)[1] requirements in the central portion of the Santa Ynez River Valley Groundwater Basin (SYRVGB). Following the adoption of the Sustainable Groundwater Management Plan (GSP) for the CMA on January 3, 2022, the CMA GSP is required to submit an annual report every April 1st.[2] This third annual report for the CMA is prepared in coordination with the two other management areas within the SYRVGB and covers the water year 2023 (October 1, 2022 – September 30, 2023). **Figure 1-1** shows the location of all three management areas of the SYRVGB[3] and **Figure 1-2** shows the areas managed by the constituent public member agencies of the CMA: the City of Buellton, the Santa Ynez River Water Conservation District, and the Santa Barbara County Water Agency

The SYRVGB is a groundwater basin located in central Santa Barbara County in the central coast region of California (Figure 1-1) which encompasses an area of approximately 133.7 square miles (85,595.5 acres), located within the larger Santa Ynez watershed. This area is geographically diverse, with east-west trending ranges of low mountains and hills interspersed with small to medium-sized valleys and perpendicular north and south-trending canyons that drain out of the mountains and hills.

In the SYRVGB there are eight public water agencies participating in SGMA, three of them in the CMA. **Table 1-1** summarizes the extent and member agencies of all three Management Areas of the SYRVGB. To be consistent with the California legislature's findings that "Groundwater resources are most effectively managed at the local or regional level"[4] the SYRVGB public water agencies divided the SYRVGB into three local management areas based on the geography and extent of local aquifers.

1 CWC Section 10720 et seq. and 23 CCR § 350 et seq.
2 CWC Section 10728, 23 CCR § 351(d), § 355.8, 353.4, 354.40, 355.6(b), 355.8, 356, 356.2.
3 23 CCR § 356.2(a) "[…] location map depicting the basin covered by the report."
4 Sustainable Groundwater Management Act, Uncodified Findings (a)(6)



Document Path: I:\jn\2710\HCM2020_CMA\HCM_Report2020_SGMA_Management_Areas.mxd

STETSON ENGINEERS INC.

Western Management Area (WMA)
Central Management Area (CMA)
Eastern Management Area (EMA)

SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN
(DWR BULLETIN 118 BASIN NO. 3-105)
AND SGMA MANAGEMENT AREA BOUNDARIES

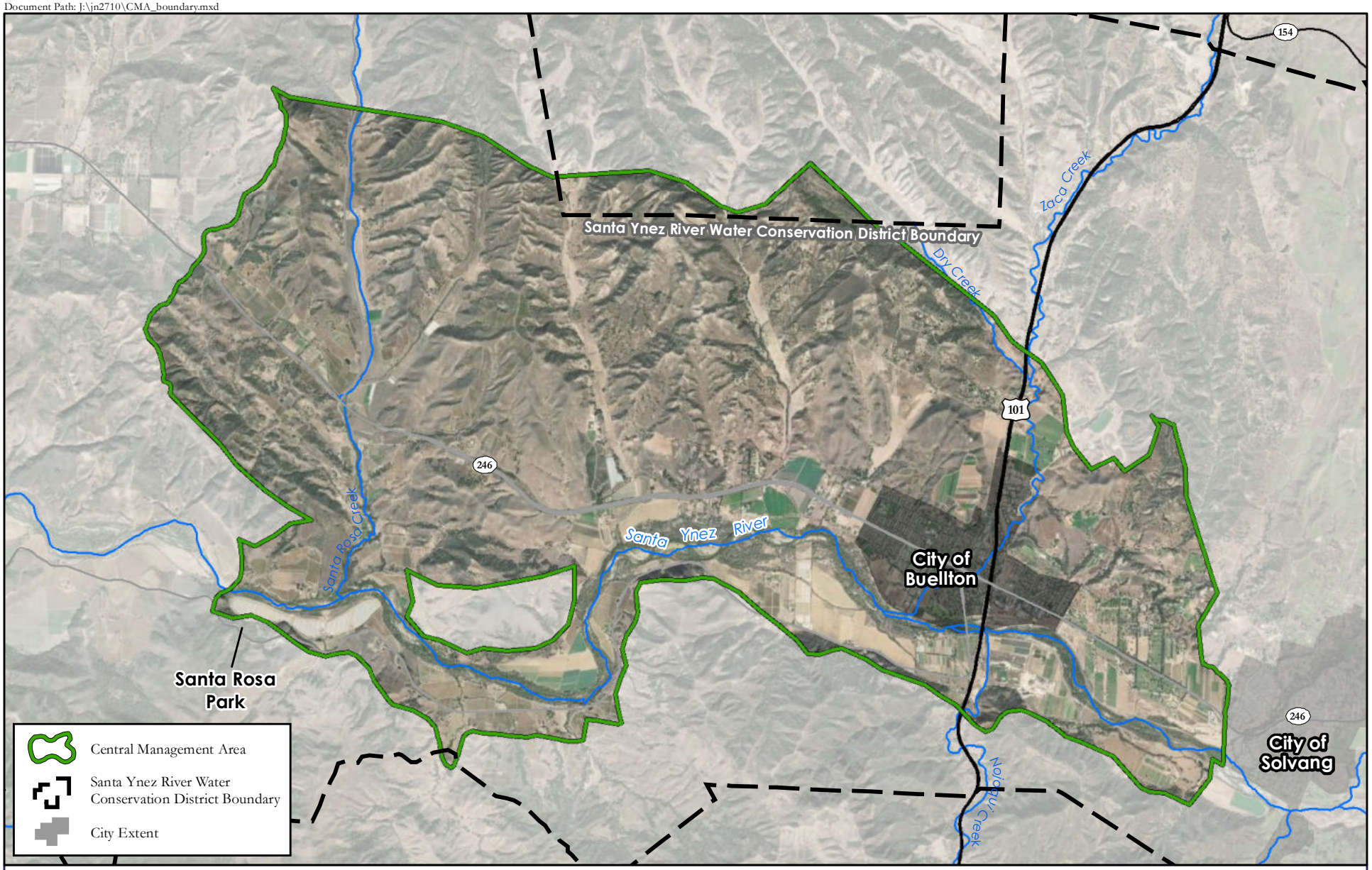
0 2 4 Miles

N

Sources:
NAIP (2018)
USGS National Elevation Dataset, 2002
Groundwater basin boundary from DWR Bulletin 118, 2018

FIGURE 1-1

Document Path: J:\jn2710\CMA_boundary.mxd



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

CENTRAL MANAGEMENT AREA BOUNDARY

SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN
GROUNDWATER SUSTAINABILITY AGENCY

0 0.5 1 Miles

N

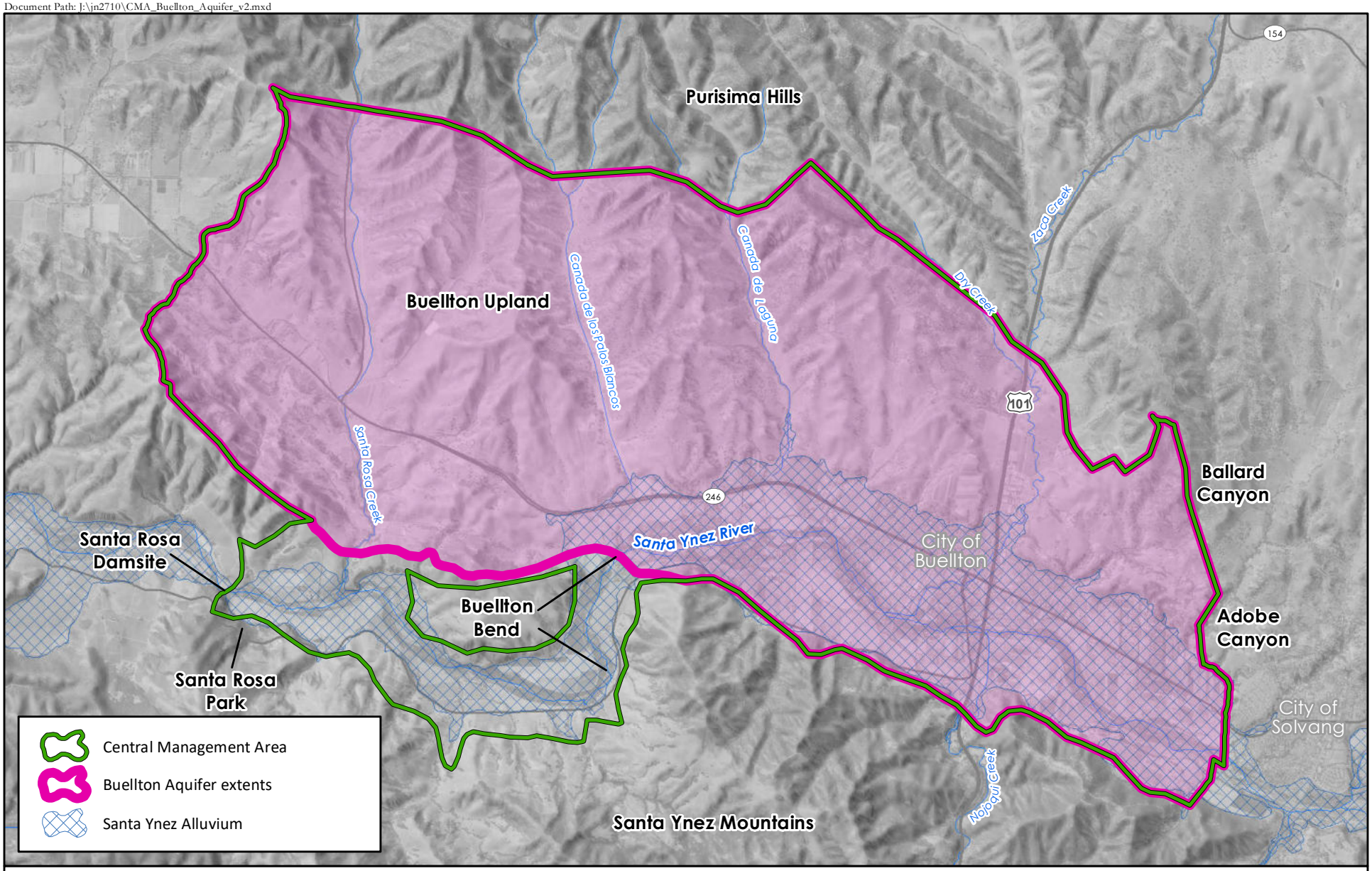
FIGURE 1-2

Table 1-1
Management Areas of the Santa Ynez River Valley Groundwater Basin

Management Area	Physical Description	Committee Member Agencies
WMA Santa Ynez River Valley Groundwater Basin Western Management Area Groundwater Sustainability Agency	133.7 square miles • Santa Ynez River alluvium west of Santa Rosa Park to the Lompoc Narrows • Lompoc Plain • Lompoc Terrace • Burton Mesa • Lompoc Upland • Santa Rita Upland.	• City of Lompoc • Vandenberg Village Community Services District • Mission Hills Community Services District • Santa Ynez River Water Conservation District • Santa Barbara County Water Agency (non-voting member)
CMA Santa Ynez River Valley Groundwater Basin Central Management Area Groundwater Sustainability Agency	32.8 square miles • Santa Ynez River alluvium east of Santa Rosa Park to just west of the City of Solvang • Buellton Upland	• City of Buellton • Santa Ynez River Water Conservation District • Santa Barbara County Water Agency (non-voting member)
EMA Santa Ynez River Valley Groundwater Basin Eastern Management Area Groundwater Sustainability Agency	150.9 square miles • Santa Ynez River alluvium from City of Solvang east • Santa Ynez Upland	• City of Solvang • Santa Ynez River Water Conservation District, Improvement District No.1 • Santa Ynez River Water Conservation District • Santa Barbara County Water Agency

The CMA is bordered on the west by the Western Management Area (WMA), on the north by the Purisima Hills, on the east by the Eastern Management Area (EMA), and the south by hills along the Santa Ynez River floodplain. The CMA has one aquifer, the "Buellton Aquifer." The Buellton Aquifer consists of the Paso Robles and Careaga Sand Formations. These two formations are located in a wide geologic syncline fold that in places extends below the underflow of the Santa Ynez River. **Figure 1-3** shows where this aquifer is located within the extent of the CMA.

Document Path: J:\jn2710\CMA_Buellton_Aquifer_v2.mxd



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

EXTENTS OF THE BUELLTON AQUIFER
CENTRAL MANAGEMENT AREA

0 0.5 1 Miles

N

FIGURE 1-3

Surface water drains to the Pacific Ocean through the Santa Ynez River and its tributaries. The State Water Resources Control Board (SWRCB) administers Santa Ynez River water, including both surface water and underflow of the Santa Ynez River and the fully allocated surface water rights. Upstream reservoirs are operated by the United States Bureau of Reclamation (USBR) which physically controls the flows of the Santa Ynez River. USBR conducts releases to meet downstream surface water rights and for the benefit of fish. The SGMA statute excludes the CMA from altering the surface water rights of the Santa Ynez River.[5] The SWRCB Orders for the Cachuma Project include coordination of releases from the Cachuma Reservoir for underflow alluvial storage and replenishment, which includes portions of the Santa Ynez Alluvium upstream of the Lompoc Narrows.

The water in the CMA Santa Ynez Alluvium is in a "known and definite channel"[6] of high permeability river sediments underneath or adjacent to the Santa Ynez River. These sediments fill a river channel historically cut into relatively impermeable older geological units. In most places in the CMA, this older geology consists of the silts and clays of the Monterey Formation. In the western portions of the CMA this channel over the silts and clays is physically disconnected from the groundwater aquifers by over two miles of bedrock (Stetson 2022). In the eastern part of the CMA, the high permeability alluvium in the channel partially overlies the groundwater aquifer, however, the groundwater aquifer is relatively impermeable compared to the alluvium. Conditions are consistent with the SWRCB's tests for a subterranean stream and underflow (Stetson 2023).[7] Rapid response of water levels in the shallow alluvium to Santa Ynez surface water releases is characteristic of wells located within the underflow of the Santa Ynez River (Stetson 2023). Releases of surface water for the downstream users under SWRCB Order WR 2019-0148 are conveyed through the surface flow and underflow of the Santa Ynez River.

5 CWC Section 10720.5 (b) "Nothing in this part, or in any groundwater management plan adopted pursuant to this part, determines or alters surface water rights or groundwater rights under common law or any provision of law that determines or grants surface water rights."

6 CWC Section 10721 (g) "Groundwater" means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.

7 See the 1999 State Water Board's Decision 1639 (In the Matter of Application 29664 of Garrapata Water Company) and subsequent rulings such as North Gualala Water Company v. State Water Resources Control Board (2006).

The CMA is a diverse area divided into two subareas[8] based on more homogeneous hydrogeologic and topographic characteristics. The two subareas are the Buellton Upland and the Santa Ynez River Alluvium. **Figure 1-4** shows the locations and extents of the subareas and **Table 1-2** summarizes the sizes of each subarea.

Table 1-2
Summary of CMA Subareas by Area

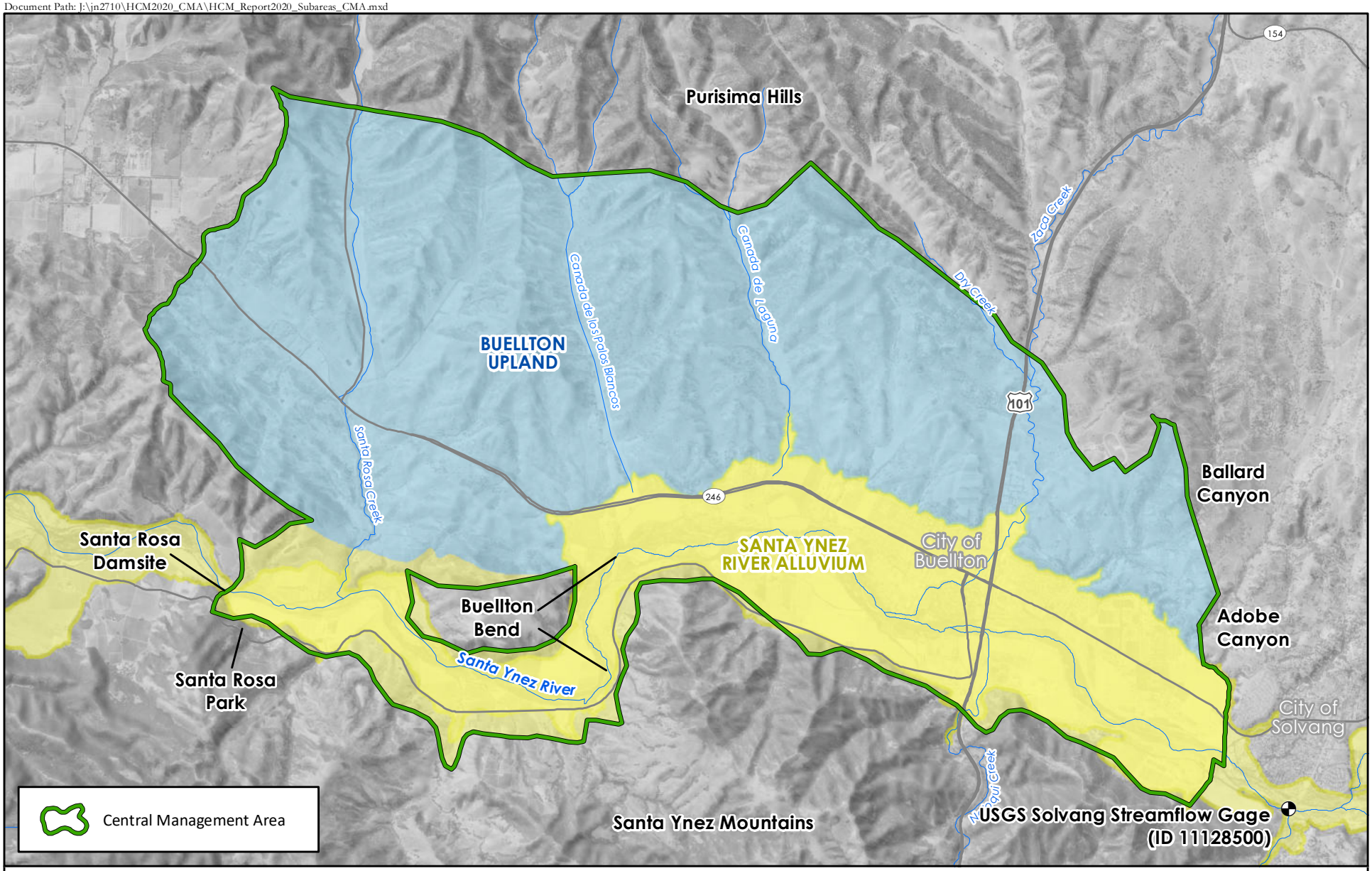
CMA Subarea	Acres [A]	Square Miles
Buellton Upland	14,220	22.2
Santa Ynez River Alluvium	6,800	10.6
Total	**21,020**	**32.8**

[A] Rounded to the nearest ten acres.

Note: The Buellton Aquifer includes all the Buellton Upland and extends underneath a part of the Santa Ynez River Alluvium.

8 Subareas are like and based on the Santa Ynez River Water Conservation District Annual Report subareas, also used for managing pumping in much of the WMA and a portion of the EMA. Extents were adjusted to cover the entire Bulletin 118 Interim Update 2016 (DWR 2016a) basin boundary.

Document Path: J:\jn2710\HCM2020_CMA\HCM_Report2020_Subareas_CMA.mxd



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

SUBAREAS
CENTRAL MANAGEMENT AREA

0 0.5 1 Miles

N

Sources:
USGS National Elevation Dataset, 2002
NAIP (2018)

FIGURE 1-4

1.1 PURPOSE OF ANNUAL REPORT

The California legislature identified the following items to include in the SGMA annual reports (California Water Code [CWC] Section 10728):

> On the April 1 following the adoption of a groundwater sustainability plan and annually thereafter, a groundwater sustainability agency shall submit a report to the department containing the following information about the basin managed in the groundwater sustainability plan:
>
> (a) Groundwater elevation data.
>
> (b) Annual aggregated data identifying groundwater extraction for the preceding water year.
>
> (c) Surface water supply used for or available for use for groundwater recharge or in-lieu use.
>
> (d) Total water use.
>
> (e) Change in groundwater storage.
>
> *(Added by Stats. 2014, Ch. 346, Sec. 3. (SB 1168) Effective January 1, 2015.)*

Appendix 1-A includes the SGMA statute and regulations related to the required elements of this annual report. In general, the annual report is required to describe progress toward implementing the GSP and groundwater conditions over the year.

Earlier published reports by the CMA provide historical information before the start of WY 2023. The CMA GSP (adopted on January 5, 2022, submitted to DWR on January 18, 2022, and approved by DWR on January 18, 2024) covered historical data through May 2021. The First Annual Report in March 2022 covered conditions for WY 2021 (October 1, 2020 - September 30, 2021) and additional water use and change in storage information for WYs 2019 and 2020 (October 1, 2018 – September 30, 2020). The Second Annual Report in March 2023 covered conditions for WY 2022 (October 1, 2021 - September 30, 2022). This Third Annual Report covers conditions for WY 2023 (October 1, 2022 - September 30, 2023).

1.2 SUSTAINABILITY GOAL AND UNDESIRABLE RESULTS

The CMA GSP identified the following sustainability goal for the Basin:

> "The sustainability goal for the Santa Ynez River Valley Groundwater Basin is to manage groundwater resources in the WMA, CMA and EMA for the purpose of facilitating long-term beneficial uses of groundwater within the Basin. Beneficial uses of groundwater in the Basin include municipal, domestic, and agricultural and environmental supply. The sustainability goal is in part defined by the locally defined minimum thresholds and undesirable results. This GSP describes how the CMA GSA will maintain the sustainability of the Basin, and how the measures recommended in the GSP will achieve these objectives and desired conditions" (2022 CMA GSP, Section 3B.1 Sustainability Goal).

Under SGMA,[9] six indicators of sustainability were considered as part of the GSP.[10] The six sustainability indicators are listed as follows.

1. Chronic lowering of groundwater levels

2. Reduction of groundwater storage

3. Seawater intrusion (not applicable to CMA)

4. Degraded water quality

5. Land subsidence

6. Depletion of interconnected surface water

9 CWC Section 10721 (x), 23 CCR § 354.28(c), 23 CCR § 354.34(c),

10 23 CCR § 354.30(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.

1.3 NEW AND UPDATED PLANS, REPORTS, AND DATA OF NOTE DURING WATER YEAR 2023

Every year plans, reports, and data pertinent to the CMA are developed, updated, and released **Table 1-3** summarizes notable relevant reports and plans that were released during WY 2023 (October 1, 2022 – September 30, 2023) which provide information for use in updating future GSPs.

This CMA SGMA annual report uses the SGMA water year (October 1 to September 30) and includes data through September 30, 2023. One of the CMA member agencies, SYRWCD, produces an annual report (based on the July 1 to June 30 water year[11]) entitled "Engineering Investigation and Report upon Ground Water Conditions"[12] which covers related topics to this SGMA report. The SYRWCD report summarizes Santa Ynez River system conditions, basin surface water use, water purchased by contract, production within SYRWCD boundaries, expected future demand, and revenue from groundwater production. The SYRWCD's reports cover a different period than the SGMA annual reports and have a statute that defines groundwater differently. The SRWCD's 46th report (in April 2024) will include projections of surface water and groundwater use through June 30, 2025.

Table 1-3
New Reports and Data during the Water Year 2023

Calendar Year	Month	Report Title
2022	September	Santa Barbara County 2022 Groundwater Basins Summary Report.
2022	November	Indicators of Climate Change in California. Fourth Edition.
2022	December	InSAR Land Surveying and Mapping Services to DWR supporting SGMA - October 2022 update
2022	December	MPA Decadal Management Review. California's Marine Protected Area Network
2023	March	InSAR Land Surveying and Mapping Services to DWR supporting SGMA. January 2023 Update
2023	March	Second Annual Report Water Year 2022 for the Santa Ynez River Valley Groundwater Basin. Santa Ynez River Valley Groundwater Basin Western Management Area.
2023	March	Atlas of the Biodiversity of California. Second Edition.

11 CWC Section 75507 (a) "Water year" means July 1st of one calendar year to June 30th of the following calendar year.
12 CWC Section 75560 The district shall annually cause to be made an engineering investigation and report upon ground water conditions of the district.

Calendar Year	Month	Report Title
2023	March	Water Shortage Planning for Rural Communities and Sustainable Groundwater Management. Guidance for Sustainable Groundwater Management Act Implementation.
2023	April	Considerations for Identifying and Addressing Drinking Water Well Impacts. Guidance for Sustainable Groundwater Management Act Implementation.
2023	April	Forty-Fifth Annual Engineering and Survey Report on Water Supply Conditions of The Santa Ynez River Water Conservation District. A Summary of Findings for the Previous Water Year (2021-2022), Current Water Year (2022-2023), and Ensuing Water Year (2023-2024). FINAL April 28, 2023. Accepted by the Board of Directors of the Santa Ynez River Water Conservation District
2023	May	LAFCO 23-12. Resolution Of The Santa Barbara Local Agency Formation Commission Making Determinations And Approving The 2022 Countywide Municipal Service Review And Spheres Of Influence For Water, Wastewater, Recycled Water And Stormwater Services Agencies.
2023	June	WY 2022 Annual Monitoring Summary for The Biological Opinion for The Operation and Maintenance of The Cachuma Project on The Santa Ynez River in Santa Barbara County, California
2023	June	Consumer Confidence Report For 2022 Period - Printed June 2023. City Of Buellton Water System.
2023	June	City Of Buellton Annual Water Supply Report. June 2023.
2023	June	InSAR Land Surveying and Mapping Services to DWR supporting SGMA. April 2023 Update Technical Report
2023	July	Water Shortage Contingency Plan for City of Buellton
2023	August	Santa Ynez GSAs' Response to April 14, 2023, SWRCB Staff Comment Letter. RE: SANTA YNEZ VALLEY GROUNDWATER SUSTAINABILITY PLANS, GROUNDWATER BASIN NO. 3-015.
2023	October	Santa Barbara County 2023 Groundwater Basins Summary Report.
2023	October	A Guide to Annual Reports, Periodic Evaluations, & Plan Amendments. Groundwater Sustainability Plan Implementation.
2023	October	Santa Barbara County Hydrology Report. Precipitation, Rivers/Streams, & Reservoirs Water-Year 2023

CHAPTER 2: BASIN CONDITIONS

The water year type is a classification of how wet or dry basin conditions are due to weather during the year. This is a potential cause of changes to groundwater conditions, as measured through groundwater levels, storage, and water quality. This chapter updates the "Hydrologic Characteristics" subsection of the Hydrogeologic Conceptual Model section of the GSP through the end of WY 2023.

Table 2-1 summarizes the precipitation and the water year type for the recent years of WY 2015 through WY 2023.

Table 2-1
Annual Precipitation and Water Year Classification for CMA for Recent Years

Water Year	Buellton Fire Station		Hydrologic Year Type Classification USGS Gage 11132500 (Salsipuedes Creek)	
	Precipitation (in/year)	% of Average [A]	Percentile Rank	Water Year Type Classification
2015	7.01	42%	0%	Critically Dry
2016	10.68	64%	2%	Critically Dry
2017	20.36	123%	72%	Above Normal
2018	7.92	48%	5%	Critically Dry
2019	19.22	116%	78%	Above Normal
2020	15.44	93%	33%	Dry
2021	8.56	52%	49%	Below Normal
2022	9.51	57%	22%	Dry
2023	29.15	176%	93%	Wet

Years are color-coded as follows: yellow indicates dry and critically dry years (below 40 percentile); blue indicates wet years (above 80 percentile); unshaded indicates years that were either in the below normal or above normal years (40 to 80 percentile). Percentages and percentiles are calculated from the respective periods of record.
[A] The average is calculated as the mean of the period of record (WY1955-WY 2023).
Notes: CMA = Central Management Area; USGS = U.S. Geological Survey; SWRCB = State Water Resources Control Board; in/year = inches per year.
Source: Precipitation from Santa Barbara County - Flood Control District station #233 - Buellton Fire Station

2.1 PRECIPITATION

Within the CMA, direct annual average precipitation ranges from 16.6 inches per year in portions of Santa Rosa Creek up to 20.4 inches per year along the north side of the Santa Ynez River. **Figure 2-1** shows the average precipitation within the CMA and adjacent watershed.[1] Orthographic lift effects are the primary driver of precipitation within the CMA, and portions of the CMA at lower elevations generally receive less direct precipitation. **Table 2-2**, below, summarizes the annual average direct precipitation for the subareas of the CMA.

Table 2-2
Average Annual (1991-2020) Precipitation by CMA Subarea

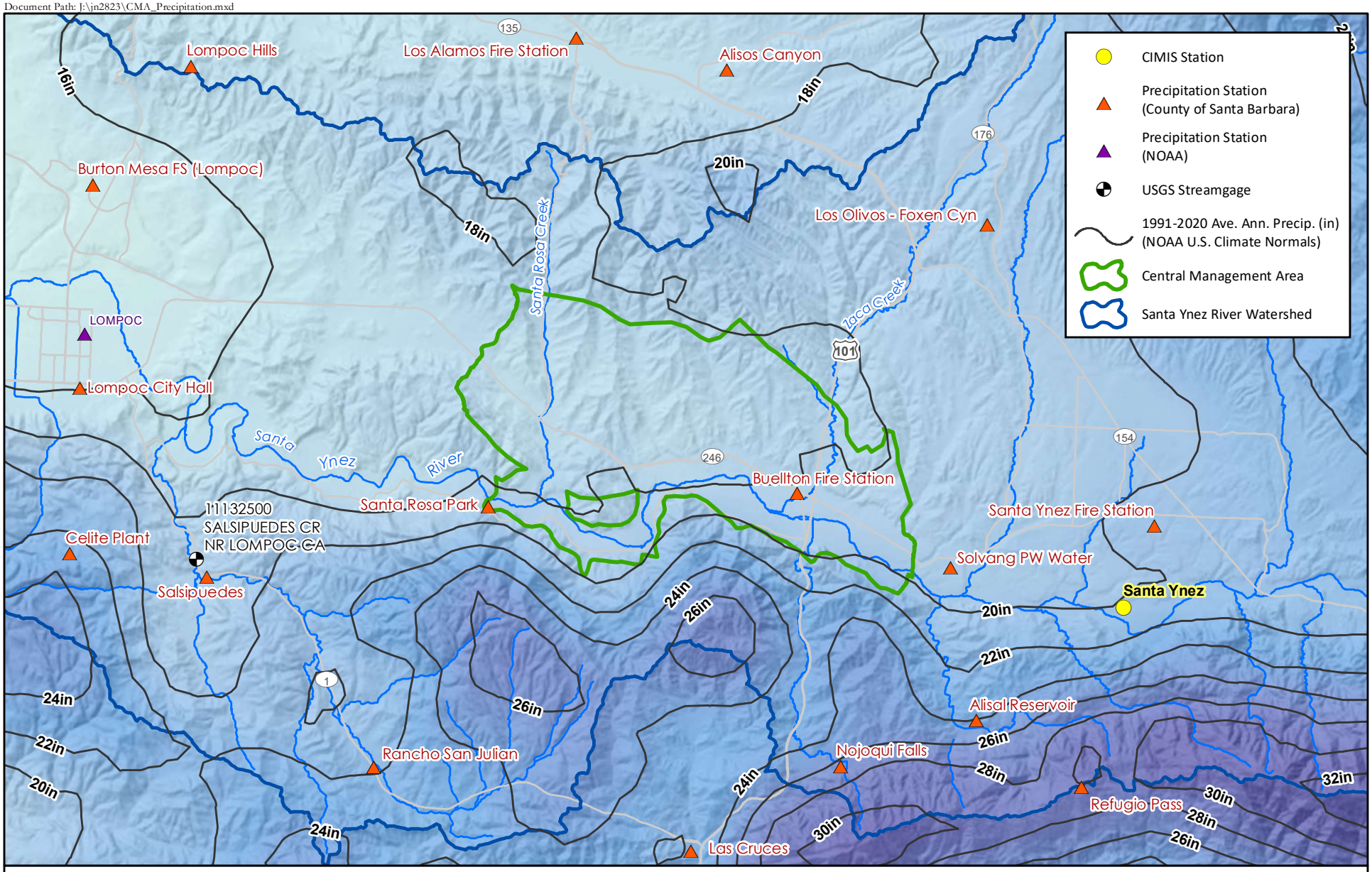
CMA Subarea	Size (Acres) [A]	Average Annual Precipitation Per Subarea (Average 1991-2020) inches per year		
		Average	Average Annual Minimum	Average Annual Maximum
Buellton Upland	14,220	17.5	16.6	18.5
Santa Ynez River Alluvium	6,800	18.5	17.3	20.4

[A] Rounded to the nearest ten acres.
Source: Derived from PRISM Climate Group (2021), Average Annual Precipitation 1991-2020.

The precipitation station at Buellton Fire Station is the primary gauge for precipitation within the CMA. Total precipitation during WY 2023 was 29.15 inches. **Figure 2-2** presents annual precipitation data from this station for WY 1955 to the present (WY 2023) and the cumulative departure from the mean (CDM). The CDM trends provide a representation of wet and dry periods within the overall period of record. On a CDM graph, a wet period is indicated with an upward trend over the years. Conversely, a downward trend on the graph indicates a dry period.

[1] Average conditions here are updated to include newly released data for the period 1991-2020, compared to the GSP (including GSP Figure 2a.3-2) which used available data for the period 1981-2010.

Document Path: J:\jn2823\CMA_Precipitation.mxd



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

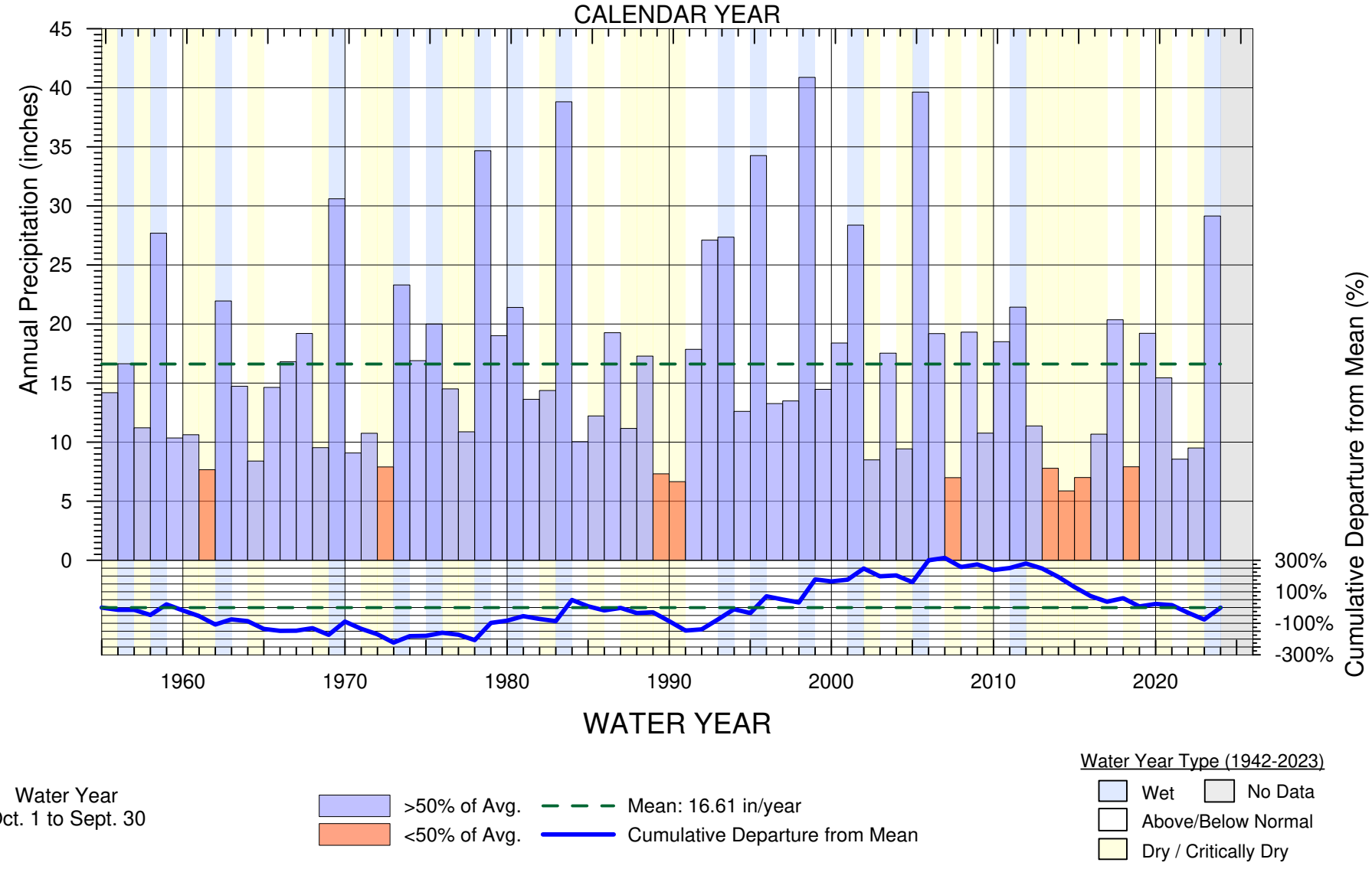
PRECIPITATION STATIONS AND ISOHYETALS
1991-2020 CLIMATE NORMALS
CENTRAL MANAGEMENT AREA

0 1.5 3 Miles

N

Source Imagery:
ESRI World Imagery (2018 Maxar)
NOAA (2020), WRCC (2020)

FIGURE 2-1



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

BUELLTON FIRE STATION PRECIPITATION AND CUMULATIVE DEPARTURE FROM MEAN WY 1955 - 2023

Source: Santa Barbara County (2023)
Precipitation Gage #233

FIGURE 2-2

I:\DATA\2823\Analyses\2023-12 WY23 Precipitation CDM Graphs\Fig 2-02 CMA_Buellton_Fire_Station_Precip_CDM WY2023.grf 1/26/2024 M. McCammon

2.2 CLASSIFICATION OF WATER YEAR 2023

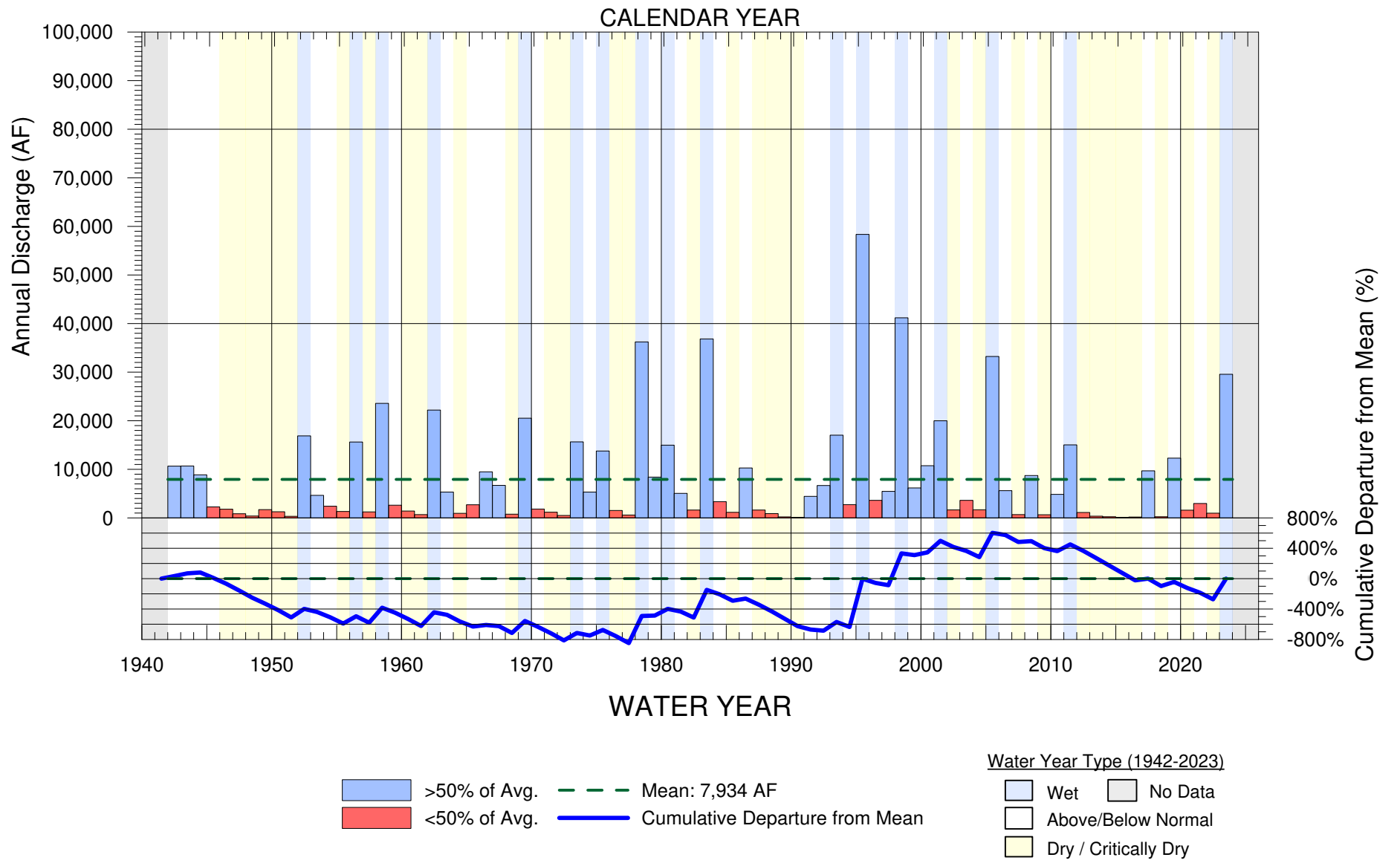
The CMA classified WY 2023 as a wet year based on the Water Year Type.[2] Conditions for recent years, WY 2015 through WY 2023 are summarized in Table 2-1. The basin was experiencing a historic drought before WY 2023. For the recent 10-year period WY 2014-2023, there were only three years, WYs 2017, 2019, and 2023 which were "Above Normal" or "Wet", and, before February 2023, Lake Cachuma had not spilled since WY 2011.

Water Year Type is a generalized characterization of the amount of water that is available in a year. It is a summary of general precipitation and streamflow conditions during the year. Salsipuedes Creek flows measured at the USGS stream gage (U.S. Geological Survey [USGS] gage 11132500) are used as the monitoring location for calculating water year types. The relative ranking in the period of record is used to classify the hydrologic year types into one of five categories: critically dry (bottom 20th percentile), dry (20th to 40th percentile), below normal (40th to 60th percentile), above normal (60th to 80th percentile), and wet (80th to 100th percentile).

The Salsipuedes Creek USGS streamflow gage is located on Salsipuedes Creek just below the confluence with El Jaro Creek and has a drainage area of 47.1 square miles (shown in Figure 2-1). The 82-year dataset for the Salsipuedes Creek stream gage spans 1942 through 2023 (in **Figure 2-3**) and represents unimpeded runoff due to the absence of upstream water diversions and storage reservoirs. The gage type, proximity, long history, and development of the Salsipuedes Creek are all contributing factors for selecting this as the indicator of CMA water year type.

Annual Salispuedes Creek flow data ordered by the amount of flow in each year is shown in **Figure 2-4**. WY 2023 is indicated in Figure 2-4 which shows that WY 2023 was a wet year compared to the period of record. The background colors on most time series figures in this report are derived from Figure 2-4 and likewise indicate the relative year type.

[2] All three Santa Ynez management areas classified WY 2023 as a wet year. WMA and CMA use the same method based on measured streamflow, described here. EMA uses a different method based on precipitation, described by DWR (2021).



STETSON ENGINEERS INC.

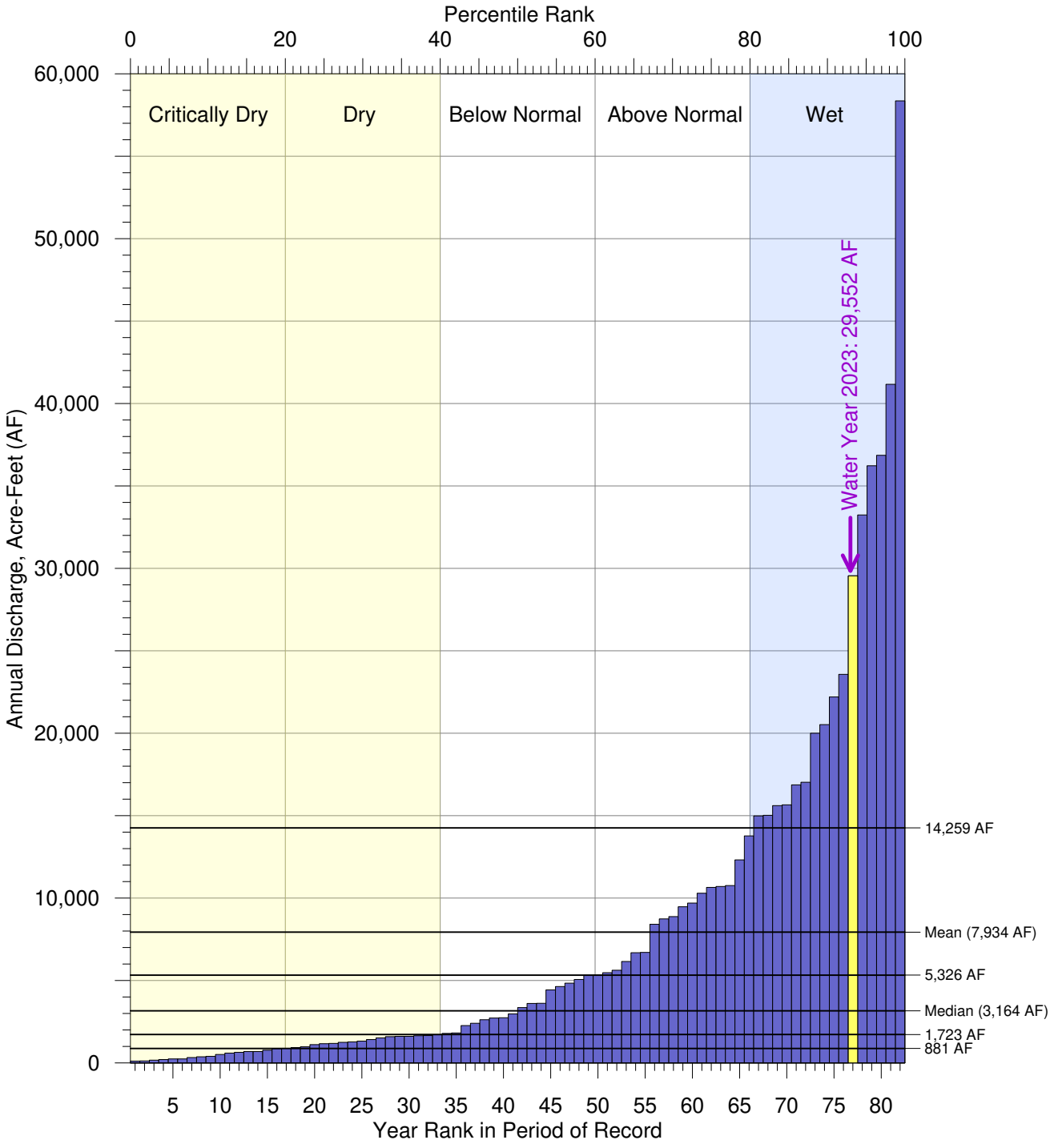
11132500 SALSIPUEDES CREEK NEAR LOMPOC
CUMULATIVE DEPARTURE FROM MEAN AND
PERIOD OF RECORD (WY 1942 - 2023)

Sources: USGS (2023) streamflow data

FIGURE 2-3

I:\DATA\2823\Analyses\2023-12 WY23 SW Flow Statistics\Salispuedes_CDM_WY23.grf 12/4/2023 M. McCammon

SANTA YNEZ RIVER ANNUAL FLOWS
11132500 SALSIPUEDES CREEK NEAR LOMPOC
PERIOD OF RECORD (WY 1942 - 2023)



Data Source: USGS (2023) streamflow data

WATER YEAR TYPE
SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN

STETSON ENGINEERS INC.

I:\DATA\2823\Analyses\2023-12 WY23 SW Flow Statistics\Salispuedes_Year_type_WY23.grf 1/26/2024 M. McCammon

INTENTIONALLY LEFT BLANK

CHAPTER 3: GROUNDWATER HYDROGRAPHS AND CONTOURS

Groundwater levels are a key indicator of sustainability in the basin. Groundwater levels directly impact the beneficial use of the Basin and correlate with or impact most of the groundwater sustainability indicators. The SGMA regulations require that GSP Annual Reports contain "...*groundwater elevation data from monitoring wells identified in the monitoring network [which] shall be analyzed and displayed*."[1]

The CMA assesses the following three SGMA sustainability indicators using groundwater level data:


Chronic lowering of groundwater levels


Reduction of groundwater storage (see Chapter 5)


Depletion of interconnected surface water

The full monitoring of the CMA was not implemented as of October 2022, the start of WY 2023. The CMA published the CMA GSP in January 2022, and it was approved by DWR in January 2024. The CMA is working on implementing the GSP (see Chapter 6). Implementing the recommendations from the CMA GSP will improve monitoring for this indicator.

[1] 23 CCR § 356.2(b)(1)

3.1 GROUNDWATER ELEVATION DATA AND HYDROGRAPHS

Figure 3-1 is a map of the locations of groundwater monitoring network wells. There are several wells included in the CMA monitoring network. Two appendices contain the groundwater level hydrographs[2]: **Appendix 3-A** which is Groundwater Level Hydrographs for Assessing Chronic Decline in Groundwater Levels, and **Appendix 3-B** which are Groundwater Level Hydrographs for Assessing Surface Water Depletion.

Several agencies collect groundwater level data in the CMA. In the CMA these agencies include Santa Barbara County Water Agency, the City of Buellton, and USBR.

The SGMA water year runs from October 1st through September 30th. Seasonal high data is the data from March and April 2023. Seasonal low data is the data from October 2023. While this fall collection of data is technically collected in WY 2024, it is less than a month after the end of the water year. The CMA GSA considers this fall data as representative of the seasonal low conditions for WY 2023.

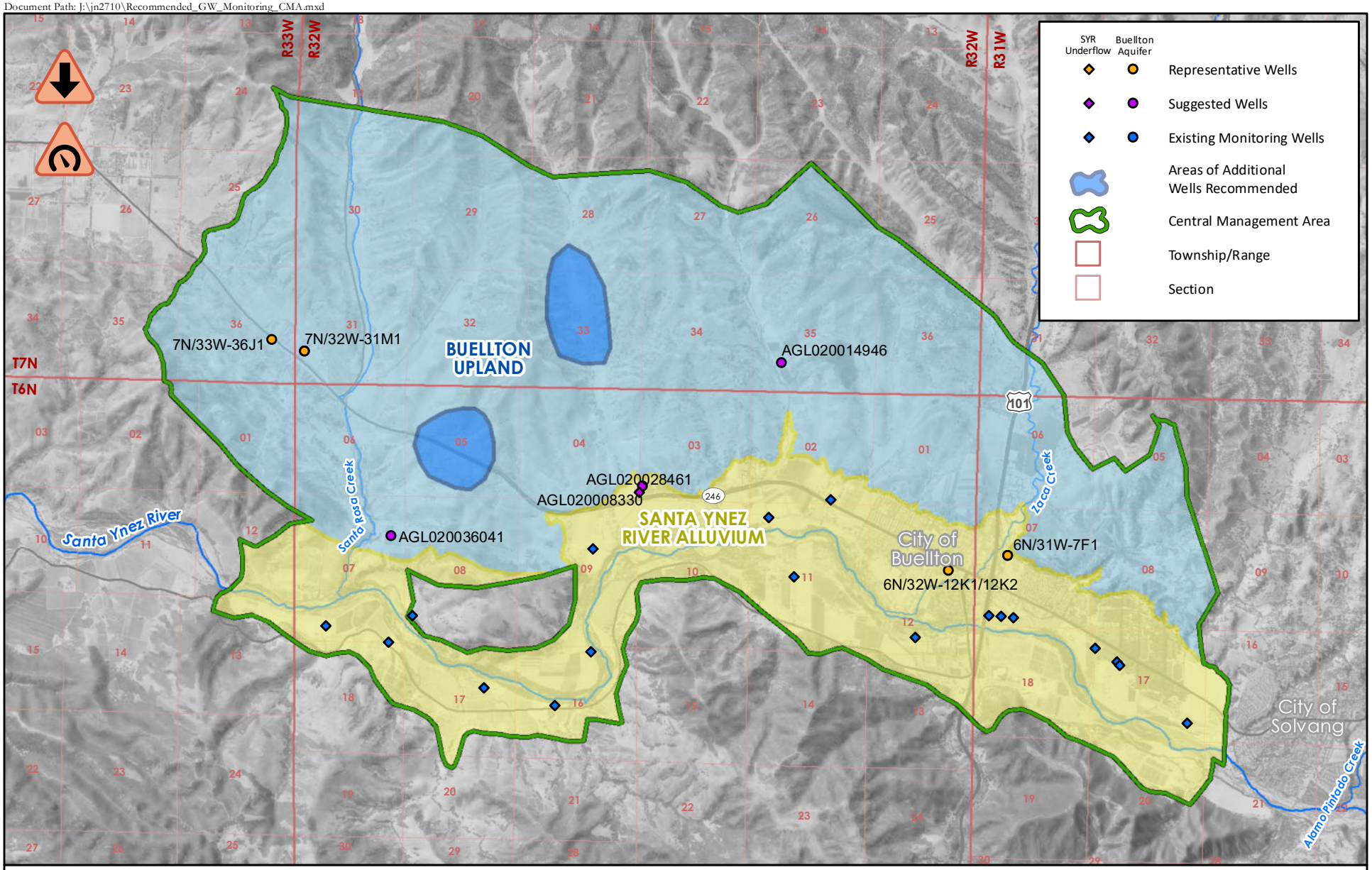
3.2 GROUNDWATER ELEVATION CONTOUR MAPS

This GSP Annual Report must contain "*...elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.*"[3] according to the SGMA regulations. This Third Annual Report includes Fall 2022 (**Figure 3-2**), Spring 2023 (**Figure 3-3**), and Fall 2023 (**Figure 3-4**) contour maps. These correspond to the seasonal high and seasonal low groundwater conditions.

The CMA developed six sets of groundwater elevation contours for WY 2023, including Fall 2022, Spring 2023, and Fall 2023 for the Buellton Aquifer and the river underflow. The Buellton Aquifer consists of the water-bearing Careaga Sand and Paso Robles Formations. River underflow occurs along the Santa Ynez River. SWRCB administers Santa Ynez River underflow as part of the river, so it is not a principal aquifer of the CMA.

2 23 CCR § 356.2(b)(1)(B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.
3 23 CCR § 356.2(b)(1)(A)

Document Path: J:\jn2710\Recommended_GW_Monitoring_CMA.mxd



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

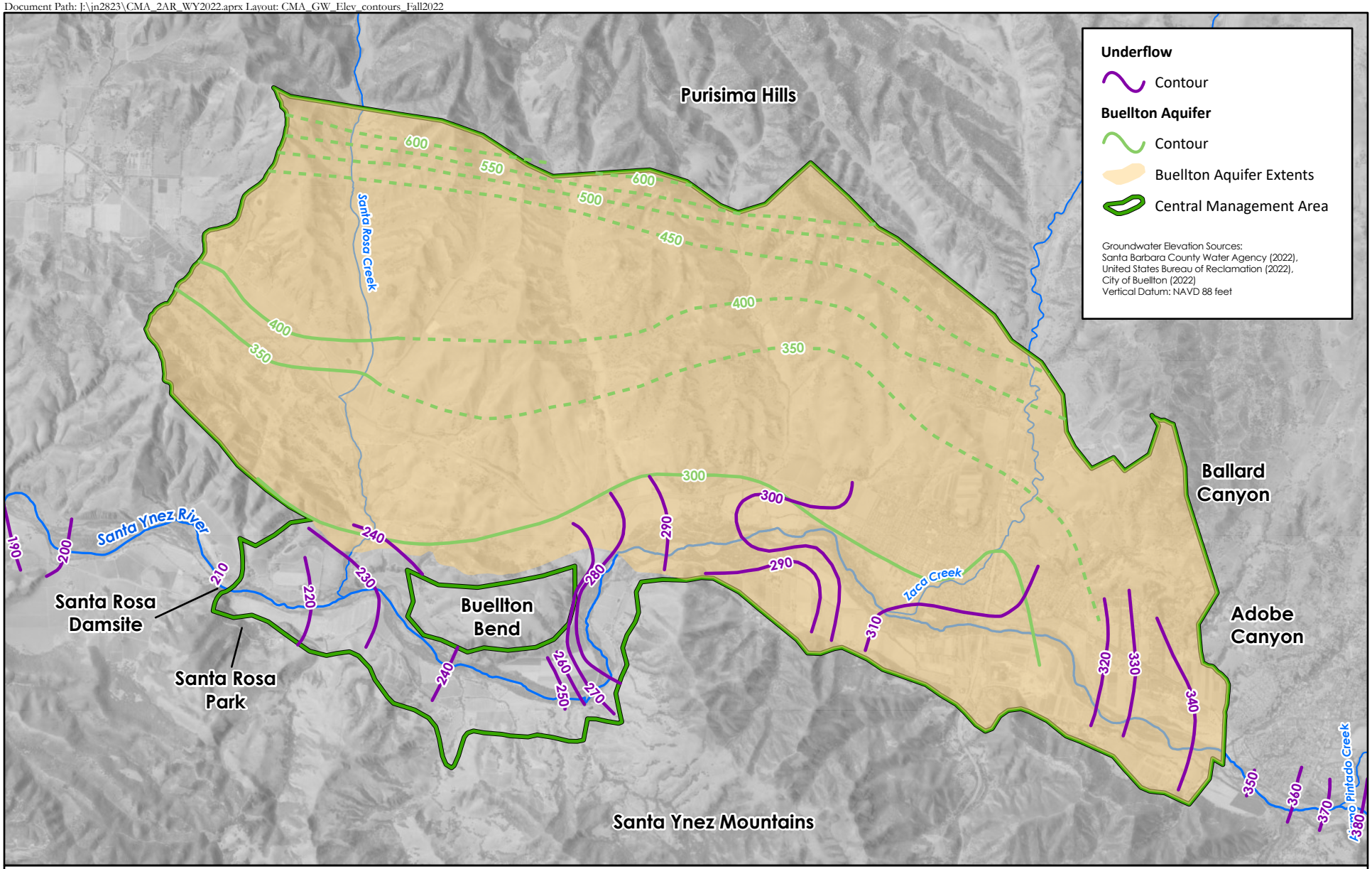
CMA MONITORING NETWORK AND REPRESENTATIVE MONITORING WELLS FOR GROUNDWATER LEVELS AND GROUNDWATER STORAGE

0 0.5 1 Miles

N

FIGURE 3-1

Document Path: J:\jn2823\CMA_2AR_WY2022.aprx Layout: CMA_GW_Eley_contours_Fall2022



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

GROUNDWATER AND UNDERFLOW ELEVATION CONTOURS
SEASONAL LOW
FALL 2022
CENTRAL MANAGEMENT AREA

WY2022 Annual Report

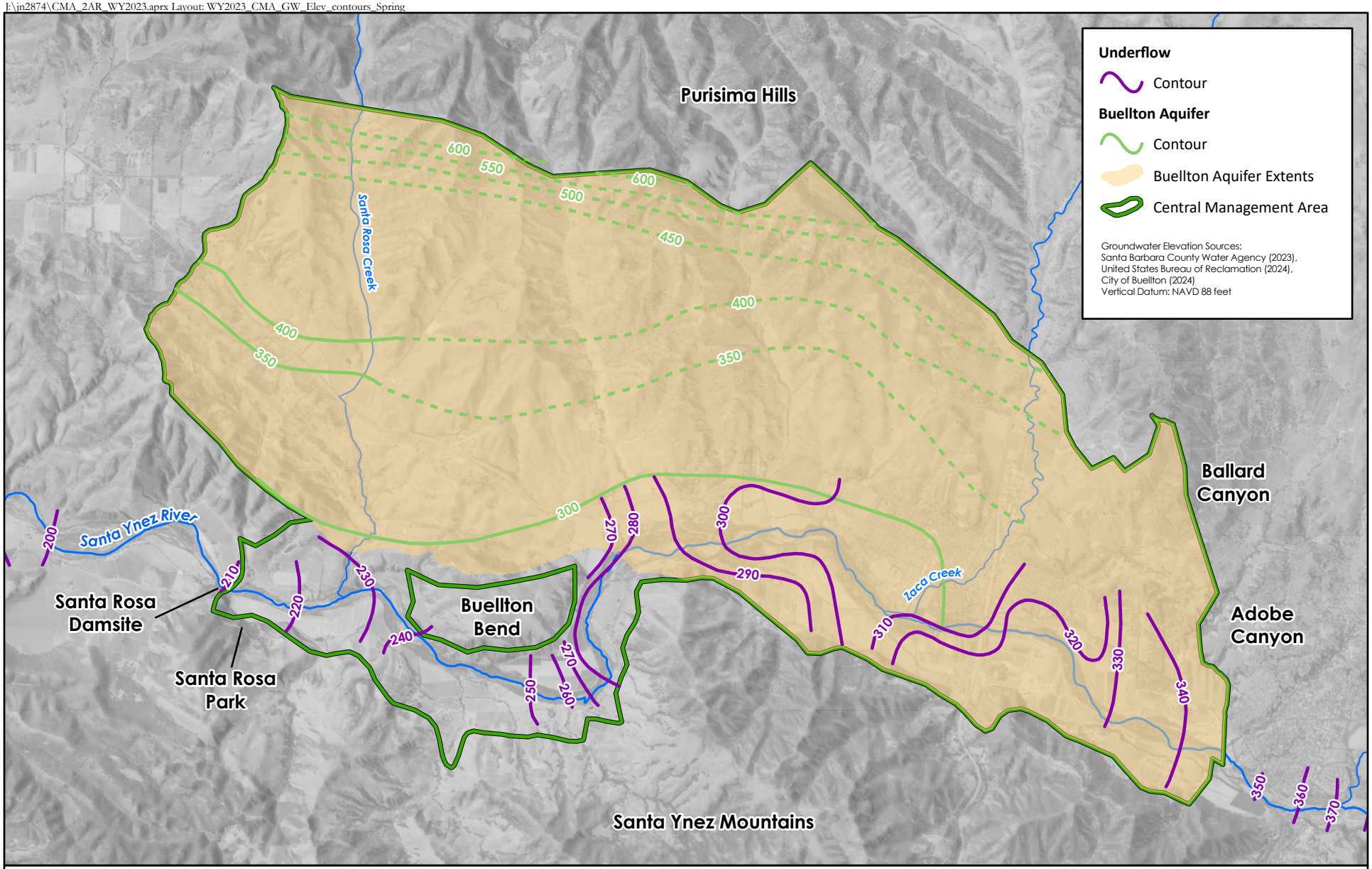
0 0.5 1 Miles

Sources:
USGS National Elevation Dataset, 2002

N

FIGURE 3-2

J:\jn2874\CMA_2AR_WY2023.aprx Layout: WY2023_CMA_GW_Elev_contours_Spring



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

GROUNDWATER AND UNDERFLOW ELEVATION CONTOURS
SEASONAL LOW
SPRING 2023
CENTRAL MANAGEMENT AREA

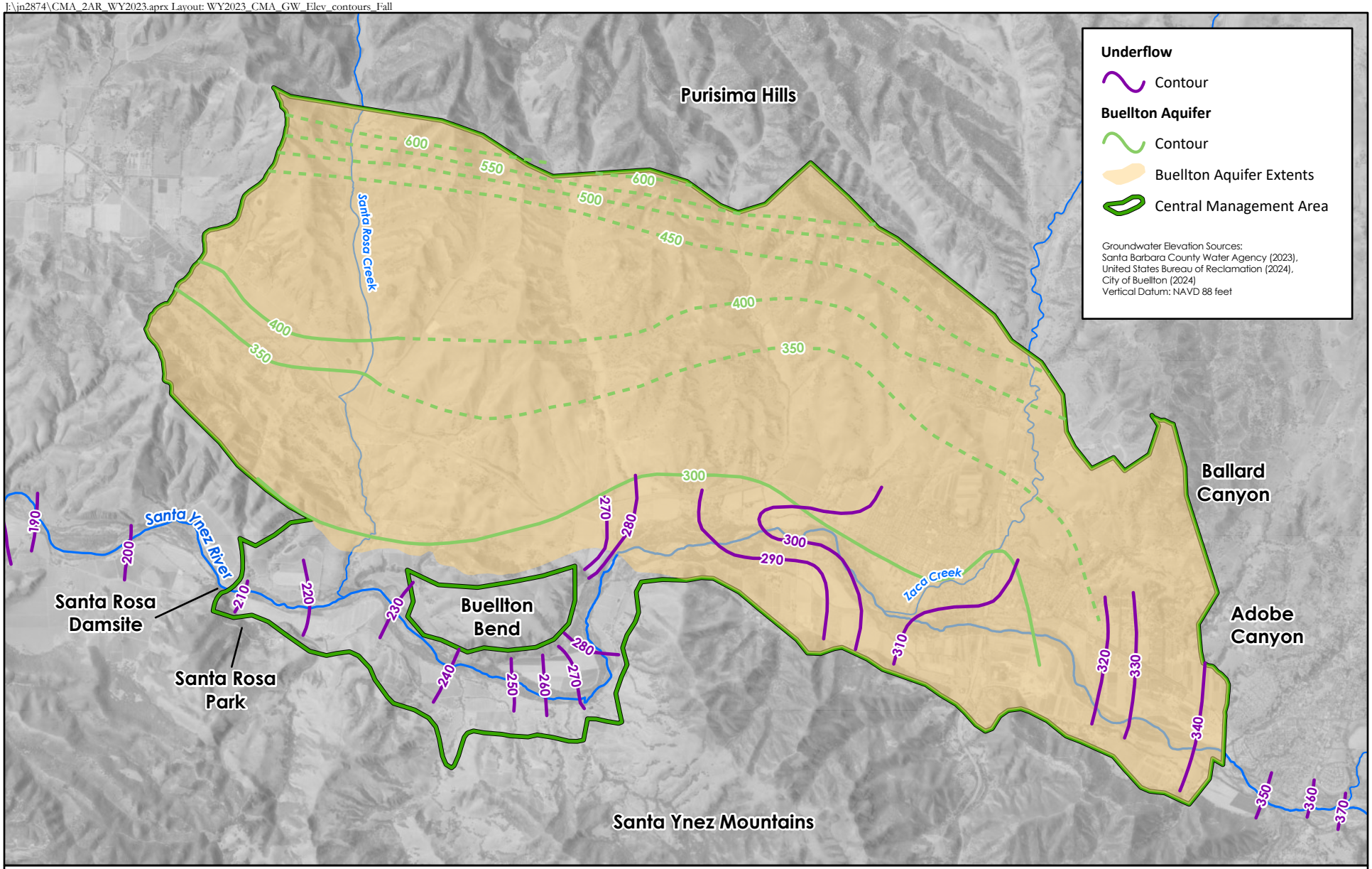
0 0.5 1 Miles

Sources:
USGS National Elevation Dataset, 2002

N

FIGURE 3-3

J:\jn2874\CMA_2AR_WY2023.aprx Layout: WY2023_CMA_GW_Elev_contours_Fall



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

GROUNDWATER AND UNDERFLOW ELEVATION CONTOURS
SEASONAL LOW
FALL 2023
CENTRAL MANAGEMENT AREA

0 0.5 1 Miles

Sources:
USGS National Elevation Dataset, 2002

N

FIGURE 3-4

3.2.1 Fall 2022 –Start of Year Seasonal Low Contours

Figure 3-2 reproduces the groundwater elevation contour map for Fall 2022 included in the Second Annual Report. The map for Fall 2022 represents conditions at both the end of WY 2022 and at the start of WY 2023. Please see the Second Annual Report for additional discussion of the Fall 2022 map.

3.2.2 Spring 2023 – Seasonal High Contours

Figure 3-3 is a groundwater level contour map developed for Spring 2023, which is the seasonal high for WY 2023. Relative to Spring 2022, wells in the Buellton Aquifer indicated a slightly higher water level in Spring 2023. This is likely due to the wet conditions of winter in WY 2023. As identified in the CMA GSP, the well network for the CMA has data gaps. Chapter 6 addresses the progress of plans to resolve these data gaps.

3.2.3 Fall 2023– End of Year Seasonal Low Contours

The Fall 2023 groundwater elevations represent the seasonal low groundwater levels for WY 2023. Figure 3-4 is a groundwater level contour map developed for this seasonal low. The Buellton Aquifer showed an increase in most groundwater levels in Fall 2023 relative to Fall 2022. As with the Spring 2023 water levels, the CMA identified data gaps. Chapter 6 addresses the progress of plans to resolve these data gaps.

INTENTIONALLY LEFT BLANK

CHAPTER 4: WATER USE AND AVAILABLE SURFACE WATER

Water use is a major component of the water budget. The SGMA regulations require that *"...water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type*. "[1] This chapter of the Third Annual Report provides an update on water use in the Basin.

4.1 GROUNDWATER USE

Groundwater production within the CMA Buellton Aquifer is used for agricultural, domestic, municipal, and industrial purposes. There are no managed wetlands in the CMA. Outside of the municipal uses by the City of Buellton, most of the CMA is a mixture of rural areas with agriculture and some rural-suburban development. Groundwater production is reported semi-annually to the Santa Ynez River Water Conservation District (SYRWCD).

SYRWCD's semi-annual groundwater production data was converted to monthly values using monthly evapotranspiration (ET) from California Irrigation Management Information System (CIMIS) sites (see Figure 2-1 for CIMIS site locations). Municipal data provided by the City of Buellton was compiled into monthly data. Domestic and agricultural data for the fourth quarter (July-September) of WY 2023 was estimated using the reported data from the fourth quarter of the previous water year (WY 2022). **Figure 4-1** shows the monthly groundwater use in the CMA Buellton Aquifer, and **Figure 4-2** shows the annual

[1] 23 CCR § 356.2(a) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.

groundwater use for each water year.[2] **Figure 4-3** is a map[3] showing the spatial distribution of groundwater pumping in the Buellton Aquifer during WY 2023. **Table 4-1** summarizes the groundwater production for WY 2023.

Table 4-1
Summary CMA Groundwater Extraction for Water Year 2023

Water Use Sector	Buellton Aquifer	Method of Measurement	Estimated Accuracy
	Acre-Feet		Acre-Feet
Domestic	270	Self-reported to SYRWCD may include estimates using crop usage, estimated for July-September using WY 2022 data	± 30 (~10%)
Agricultural	2,700	Self-reported to SYRWCD may include estimates using crop usage, estimated for July-September using WY 2022 data	± 270 (~10%)
Municipal	580	City of Buellton Daily totalizer values	± 10 (~1%)
Total	**3,550**		**± 310**

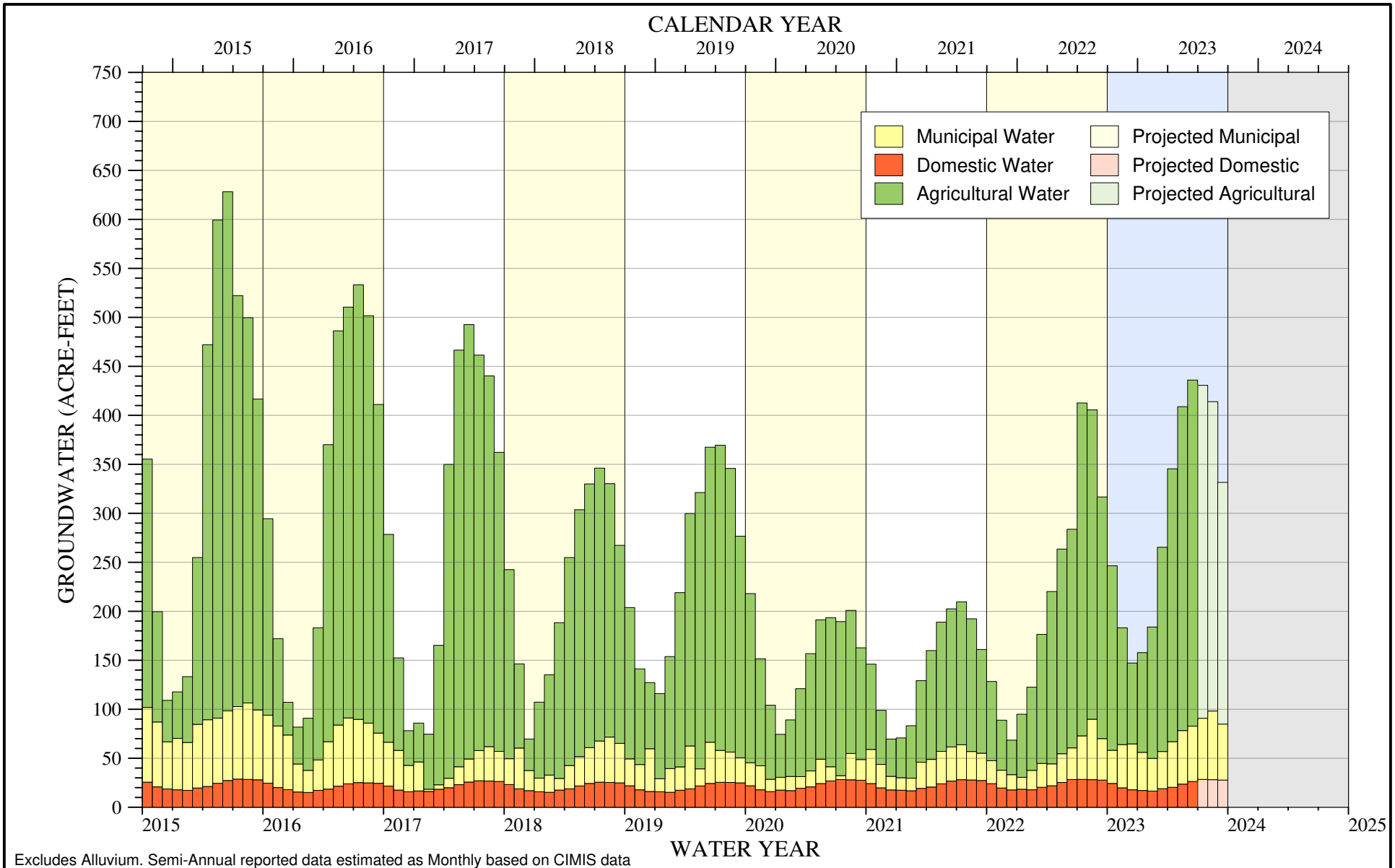
SYRA pumping (SYRWCD Zone A) is managed as surface water and excluded from Table 4-1 (see Table 4-2).
All numbers rounded to the nearest 10 acre-feet.
Source: SYRWCD (2022.2023), City of Buellton (2023,2024)

4.2 SURFACE WATER USE

The CMA relies on two surface water source types: local water and imported water. Local water includes both local tributary flows and the flows of the Santa Ynez River which are partially retained in Lake Cachuma. Imported water is from the State Water Project (SWP). The City of Buellton is the sole water-importing entity in the CMA.

2 Figures in the GSP showed groundwater production based on the SYRWCD's Fiscal Year (July-June), production data presented here is recalculated to the Water Year (October-September) basis.

3 23 CCR § 356.2(a)(2) "Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in [..] a map that illustrates the general location and volume of groundwater extractions."



Excludes Alluvium. Semi-Annual reported data estimated as Monthly based on CIMIS data

STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

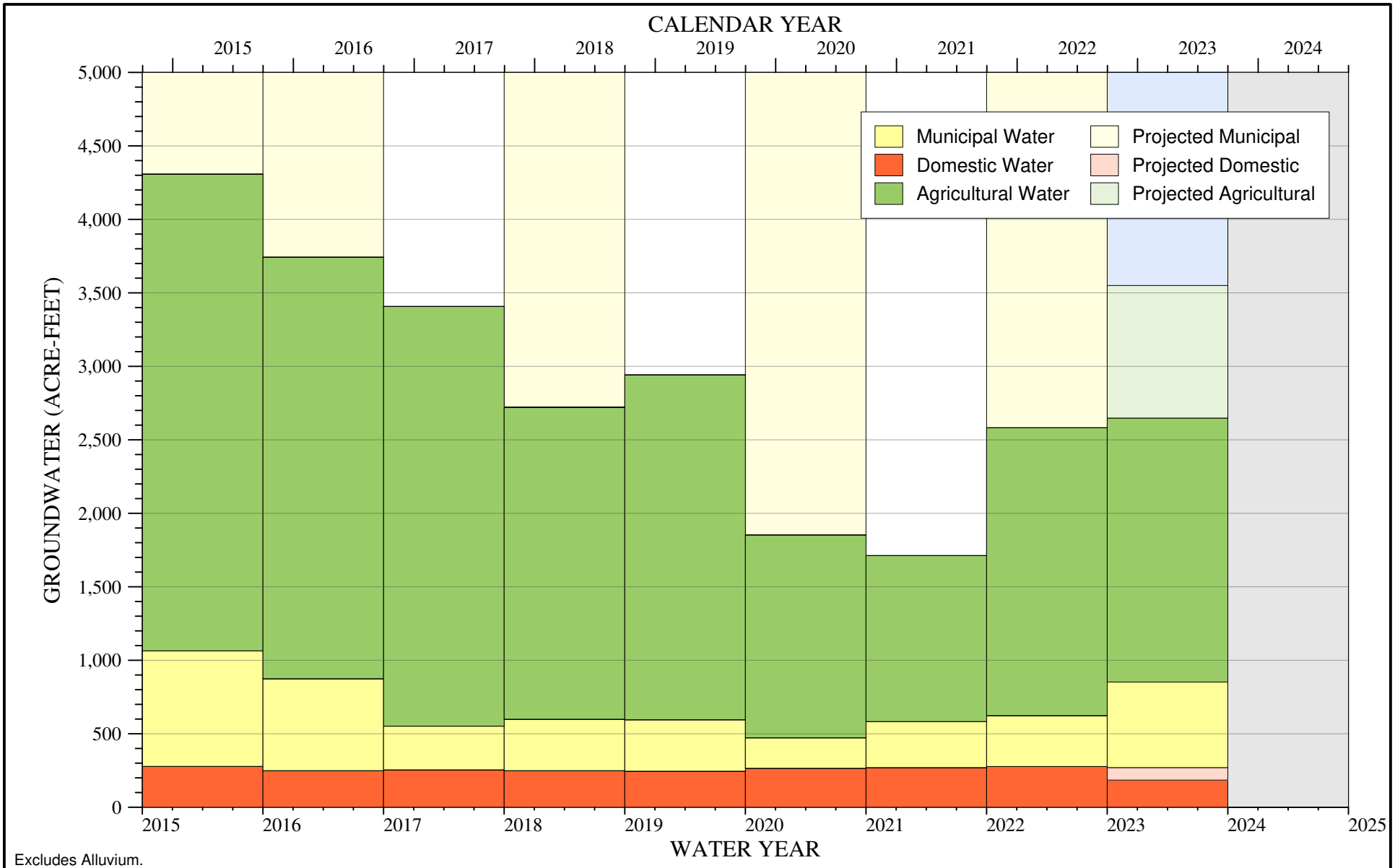
MONTHLY GROUNDWATER USE
BUELLTON AQUIFER

Water Year Type (1942-2023)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

Source: Santa Ynez River Water Conservation District (2024), City of Buellton (2024)

FIGURE 4-1

F:\DATA\2823\Analyses\WY2023-3rd_Report\2024-01 WY23 GW Pumping\Figures\Fig 4-01 Monthly_Water_Use_CMA.grf 2/13/2024 M. McCammon



Excludes Alluvium.

STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

ANNUAL GROUNDWATER USE
BUELLTON AQUIFER

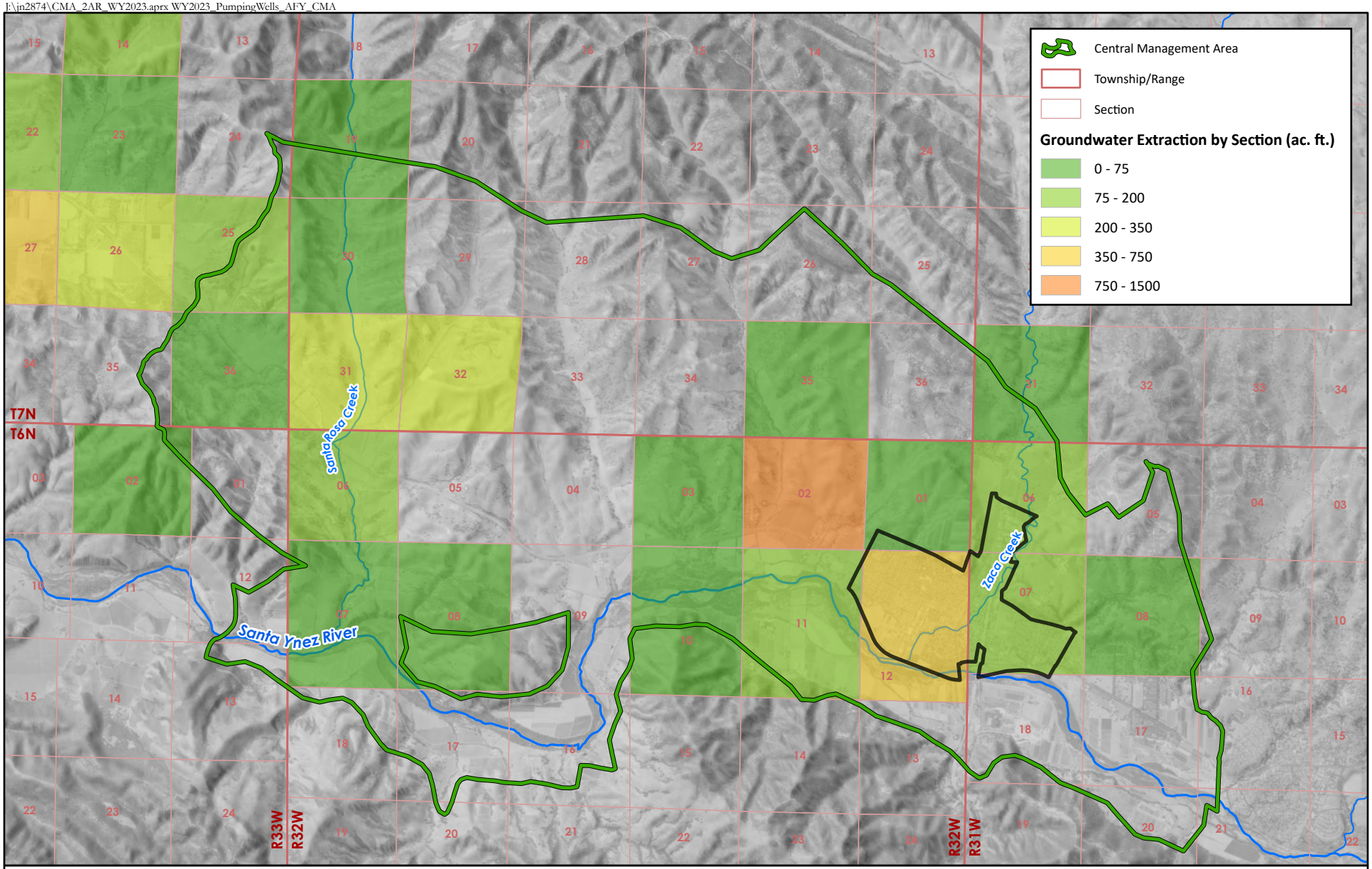
Water Year Type (1942-2023)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

Source: Santa Ynez River Water Conservation District (2024), City of Buellton (2024)

FIGURE 4-2

F:\DATA\2823\Analyses\WY2023-3rd_Report\2024-01 WY23 GW Pumping\Figures\Fig 4-02 Annual_Water_Use_CMA.grf 2/13/2024 M. McCammon

J:\jn2874\CMA_2AR_WY2023\aprx WY2023_PumpingWells_AFY_CMA



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

LOCATION AND VOLUME OF GROUNDWATER EXTRACTION 2023

Source: Santa Ynez River Water Conservation District (2023)

0 0.5 1 Miles

N

FIGURE 4-3

4.2.1 Surface Water Diversions from Santa Ynez River Underflow

Upstream of the Lompoc Narrows, a portion of the Santa Ynez River flows as underflow through a known and definite channel of alluvium. Water flowing in known and definite channels is not groundwater under SGMA,[4] however, this underflow is managed by other agencies. For example, subsurface water above the Lompoc Narrows that is underflow is partially stored in Lake Cachuma per SWRCB Order 2019-148 for later water rights releases. Pumpers from the underflow are legally required to report the amount pumped to both the SYRWCD[5] and the SWRCB. Unlike SGMA, SYRWCD's statute includes all subsurface water as groundwater. The SWRCB water rights Order of 1973 (WR 73-37) was amended in 1989 (WR 89-18) and most recently amended in 2019 (WR 2019-0148). Under appropriated rights in the Santa Ynez River alluvium to date, SWRCB considers water extracted from wells upstream of the Lompoc Narrows as Santa Ynez River diversions. **Table 4-2** shows the total extraction of underflow via river wells upstream within the CMA for WY 2023.[6]

Table 4-2
Summary CMA Surface Water Diversions for Water Year 2023

Water Use Sector	Total	Method of Measurement	Estimated Accuracy
	Acre-Feet		Acre-Feet
Domestic	510	Self-reported to SYRWCD	± 50 (~10%)
Agricultural	3,090	Self-reported to SYRWCD may include estimates using crop usage, estimated for July-September using WY 2022 data	± 310 (~10%)
Municipal	250	City of Buellton Daily totalizer values	± 10 (~1%)
Total	**3,850**		**± 370**

4 CWC Section 10721 (g) "Groundwater" means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.
5 CWC Section 75640 "Any person who fails to register a water-producing facility, as required by Chapter 2 (commencing with Section 75540) of this part, is guilty of a misdemeanor."
6 The SYRWCD records pumping in the Santa Ynez River Alluvium as Zone A.

4.2.2 Water Imports

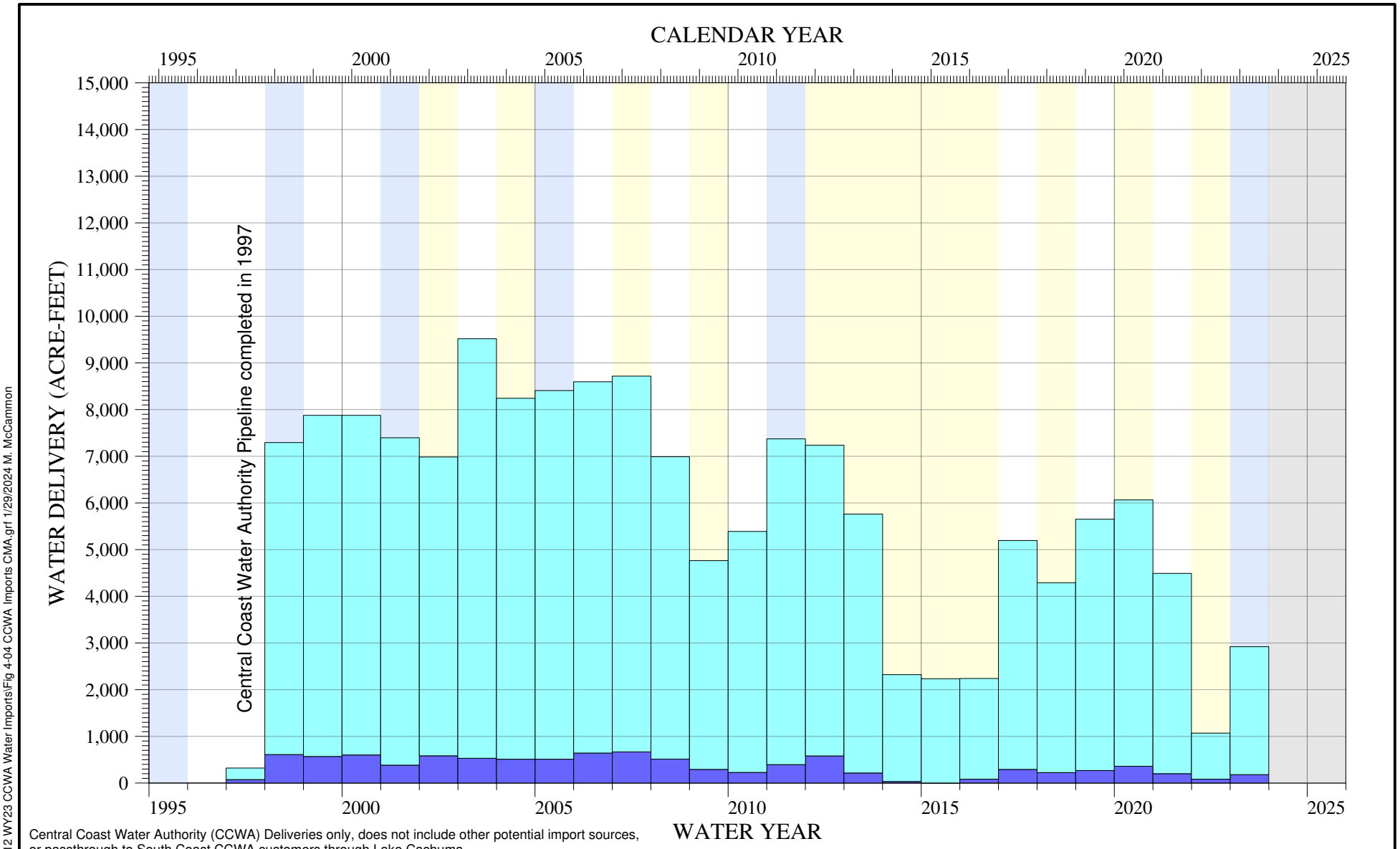
The Central Coastal Water Authority (CCWA) has delivered imported water from the SWP to the SYRVGB since 1997. CCWA makes water deliveries at turnouts to water distribution systems. CCWA delivers to Lake Cachuma for the South Coast customers outside of the SYRVGB. The Cachuma Project Settlement Agreement allows for the comingling of CCWA water with local water for water rights releases. Within the SYRVGB, four agencies contract with CCWA to provide for SWP deliveries: VSFB, the City of Buellton, the City of Solvang, and the Santa Ynez River Water Conservation District Improvement District Number 1. Of these, only the City of Buellton is in the CMA.

During WY 2023 the City of Buellton imported 180 acre-feet of water, all sourced from the SWP through the CCWA pipeline. **Table 4-3** and **Figure 4-4** show the annual imports through the CCWA pipeline to the CMA and the entire SYRVGB updated through the end of WY 2023.

Table 4-3
Santa Ynez River Valley Groundwater Basin Water Imports
in Acre-Feet for Recent Years

Water Year	WMA	CMA	EMA	Total Basin
2015	109	0	2,125	2,234
2016	1,758	82	401	2,241
2017	1,924	293	2,979	5,196
2018	2,296	224	1,770	4,290
2019	2,361	268	3,022	5,651
2020	2,893	359	2,813	6,065
2021	2,239	200	2,051	4,490
2022	268	82	719	1,069
2023	1,015	179	1,727	2,921

Source: CCWA (2024)



Central Coast Water Authority (CCWA) Deliveries only, does not include other potential import sources, or passthrough to South Coast CCWA customers through Lake Cachuma.

STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

ANNUAL WATER IMPORTS
CENTRAL COAST WATER AUTHORITY

Water Year Type (1942-2023)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

Santa Ynez Imports
- City of Buellton
- Non-CMA

Source: Central Coast Water Authority (2024)

FIGURE 4-4

I:\DATA\2823\Analyses\2023-12 WY23 CCWA Water Imports\Fig 4-04 CCWA Imports CMA.grf 1/29/2024 M. McCammon

4.3 SURFACE WATER AVAILABLE FOR GROUNDWATER RECHARGE OR REUSE

During WY 2023, there were no projects within the CMA for direct groundwater recharge or in-lieu use.[7]

The Santa Ynez River and its underflow are within the jurisdiction of and regulated by the SWRCB. SWRCB regulates river flows for beneficial purposes including supporting the steelhead trout (*Oncorhynchus mykiss, O. mykiss*) population.[8] Following the SWRCB, USBR releases water stored in Lake Cachuma to meet downstream water rights and support fish habitat.

The method for the volume and timing of water rights releases comes from the SWRCB Orders of 1973 (WR 73-37), 1989 (WR 89-18), and 2019 (WR 2019-0148). The SWRCB orders account for the volume of water that would have been available if Lake Cachuma and its dam, Bradbury Dam, were not present. These orders identify two areas that Bradbury Dam prevents water from reaching. The Above Narrows Account (ANA) accounts for the area from Bradbury Dam and the Lompoc Narrows. The ANA is a relatively narrow channel of alluvium along the river (underflow), parts of which are within all three SGMA management areas. The Below Narrows Account (BNA) accounts for a relatively wider area below the Lompoc Narrows in the WMA.

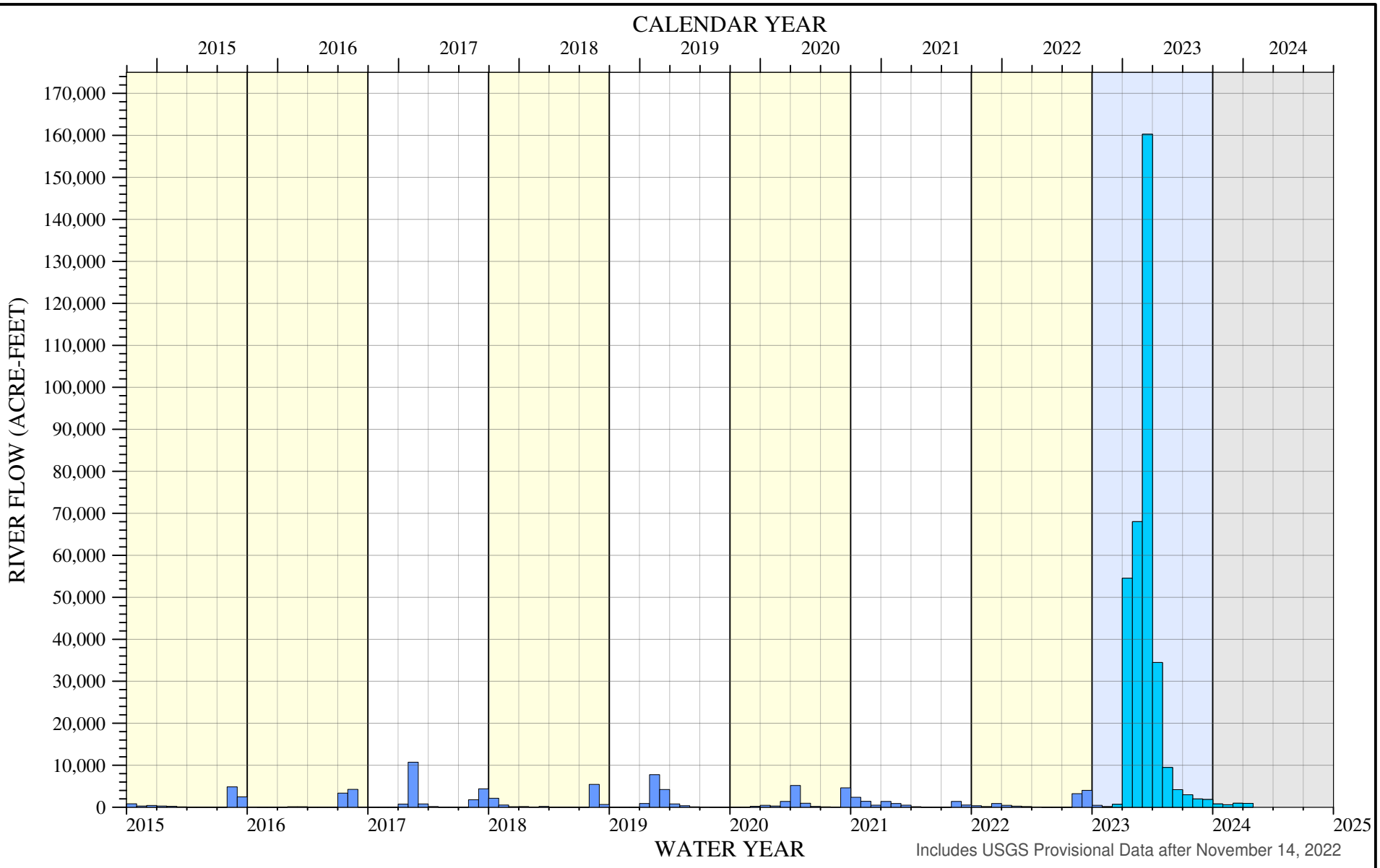
During the summer and fall of 2023, the volume of dewatered storage in the ANA area was relatively low. That is to say, the elevation of water in the subsurface was high. This was due to a quick response in the underflow to the wet winter of 2022-2023. As a result of there being low dewatered storage, at the direction of the SYRWCD, the USBR did not make rights releases from Lake Cachuma during 2023.

Measurements at the Solvang stream gauge represent more than 90% of all local surface water flows entering the CMA (Stetson, 2022). **Figure 4-5** shows flows of the Santa Ynez River at the USGS Streamflow gage 11128500 at Solvang, at the EMA-CMA boundary for WY 2015 through November 2023. The location of the Solvang gage is shown in Figure 1-4.

---

7 23 CCR § 356.2(b)(3) Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.

8 The Cachuma Operation and Maintenance Board (COMB) Fisheries Division conducts the monitoring of steelhead (*Oncorhynchus mykiss*) population in the Santa Ynez River and its tributaries. However, the COMB report comes out in the second quarter of the following water year, which is expected to be published concurrent or after this annual report.



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

MONTHLY SURFACE FLOW
SANTA YNEZ RIVER AT SOLVANG CALIFORNIA
USGS STREAMGAGE 11128500

Water Year Type (1942-2023)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

Source: USGS NWIS (2024)

FIGURE 4-5

\\192.168.16.33\main\DATA\2823\Analyses\2023-12 WY23 SW Flow Statistics\Fig 4-05 WY23 CMA Monthly_11128500 SANTA YNEZ R A SOLVANG CMA.grf 2/5/2024 M. McCammon

4.3.1 Treated Wastewater Sources

Within the CMA, wastewater is managed by the City of Buellton and the City of Solvang[9]. Wastewater is conveyed to the treatment facilities before it is discharged as treated effluent to percolation ponds over the Santa Ynez River alluvium. The average daily secondary treated effluent from the City of Buellton and the City of Solvang since 2015 is provided in **Table 4-4** as wastewater plant influent flows.

Table 4-4
Wastewater Influent Volumes for Recent Years

Water Year	City of Buellton Plant Influent	City of Solvang Plant Influent
	Acre-Feet per Year	Acre-Feet per Year
2015	447	710
2016	470	705
2017	472	719
2018	522	696
2019	571	736
2020	503	690
2021	508	717
2022	487	702
2023	478	795

Source: City of Buellton (2021, 2022, 2023,2024), City of Solvang (2021, 2022, 2023,2024)

9 Solvang Wastewater Treatment Plant is located within the City of Solvang outside of the CMA but discharges its wastewater at the border of the CMA and EMA inside the CMA.

4.4 TOTAL WATER USE

Total water use in the CMA during WY 2023 is comprised of groundwater supplies, surface water diversions from the Santa River underflow, and imported SWP water. See Chapters 4.1 and 4.2 above for additional details on these supplies. **Table 4-5** shows the summary of total water use by sector for the water year 2023. **Table 4-6** shows the summary of total water use for WY 2015-WY 2023. Total water use in the CMA was 7,580 AF in WY 2023.

Table 4-5
Summary CMA Total Water Use by Sector for Water Year 2023

Water Use Sector	Total	Method of Measurement	Estimated Accuracy
	Acre-Feet		Acre-Feet
Domestic	780	Self-Reported to SYRWCD	± 80
Agricultural	5,790	Self-reported to SYRWCD and estimates for July-September using WY 2022 data	± 580
Municipal	1,010	Daily totalizer values; Includes CCWA imports to the City of Buellton	± 10
Total	**7,580**		**± 670**

Table 4-6
Summary CMA Total Water Use by Source for Recent Years

Water Year	Total Groundwater (Buellton Aquifer)	Total Surface Water (River Underflow Well Pumping)	Total Imports (CCWA)	TOTAL WATER USE
	Acre-Feet per Year	Acre-Feet per Year	Acre-Feet per Year	Acre-Feet per Year
2015	4,310	4,420	0	8,730
2016	3,740	4,460	80	8,280
2017	3,410	4,900	290	8,600
2018	2,720	5,230	220	8,170
2019	2,940	4,940	270	8,150
2020	1,850	5,040	360	7,250
2021	1,710	4,450	200	6,360
2022	2,070	4,390	80	6,540
2023	3,550	3,850	190	7,580

4.4.1 Cannabis Land and Water Use

Multiple commenters on the CMA GSP, including the California Fish and Wildlife Service (CDFW), expressed concern about the use of water for the special purpose of growing cannabis.[10] This update on cannabis is fulfilling commitments made by the CMA in the GSP to periodically update about the status of cannabis cultivation within the CMA.

Local and county regulations apply to cannabis cultivation. CMA member agencies of the City of Buellton and the County of Santa Barbara have individually restricted cannabis cultivation. The city of Buellton generally prohibits commercial cannabis facilities including cultivation within the City limits.[11] Santa Barbara County has further adopted a series of ordinances that regulate commercial cannabis operations within the County's unincorporated area. As of the end of WY 2023, the CMA has not assessed or limited

[10] As defined in California Business and Professions Code Section 26001, parts of the plant *Cannabis sativa Linnaeus*, *Cannabis indica*, or *Cannabis ruderalis*.
[11] Buellton Municipal Code Chapter 19.20.

water use for specific purposes. The CMA has not been a party to or consulted on the cannabis permit issued by the County or City agencies.

Table 4-7 summarizes the status of current applications by parcel within the CMA to the County of Santa Barbara for cannabis Land Use Permits. As of December 2023, the County has received 49 permit applications for parcels within the CMA. Of these, the County has issued 13 permits for cannabis agriculture, closed 27 applications with no permit issued, with the remaining 9 applications pending. There are an additional 9 permit applications located within a half mile of the CMA boundary, of which 8 were permitted and one was closed without a permit.

Table 4-7
CMA Cannabis Cultivation Land Use Permits as of December 2023[A]

CMA Subarea	Permits Issued	Application In Review			Total Applications
		Approved	Processing	Closed	
Buellton Upland	4	0	3	7	14
SYR Alluvium [B]	9	0	6	20	35
Total	**13**	**0**	**9**	**27**	**49**

[A] County of Santa Barbara Commercial Cannabis Application status as of 2023-12-11.
[B] Subarea is based on geographic extents in this table.

CHAPTER 5: GROUNDWATER STORAGE

Groundwater storage is one of the SGMA sustainability indicators. This chapter presents the changes in groundwater in storage components required by the SGMA regulations:

> *"(5) Change in groundwater in storage shall include the following:*
>
> *(A) Change in groundwater in storage maps for each principal aquifer in the basin.*
>
> *(B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year."*
>
> *(*23 CCR § 356.2(b))

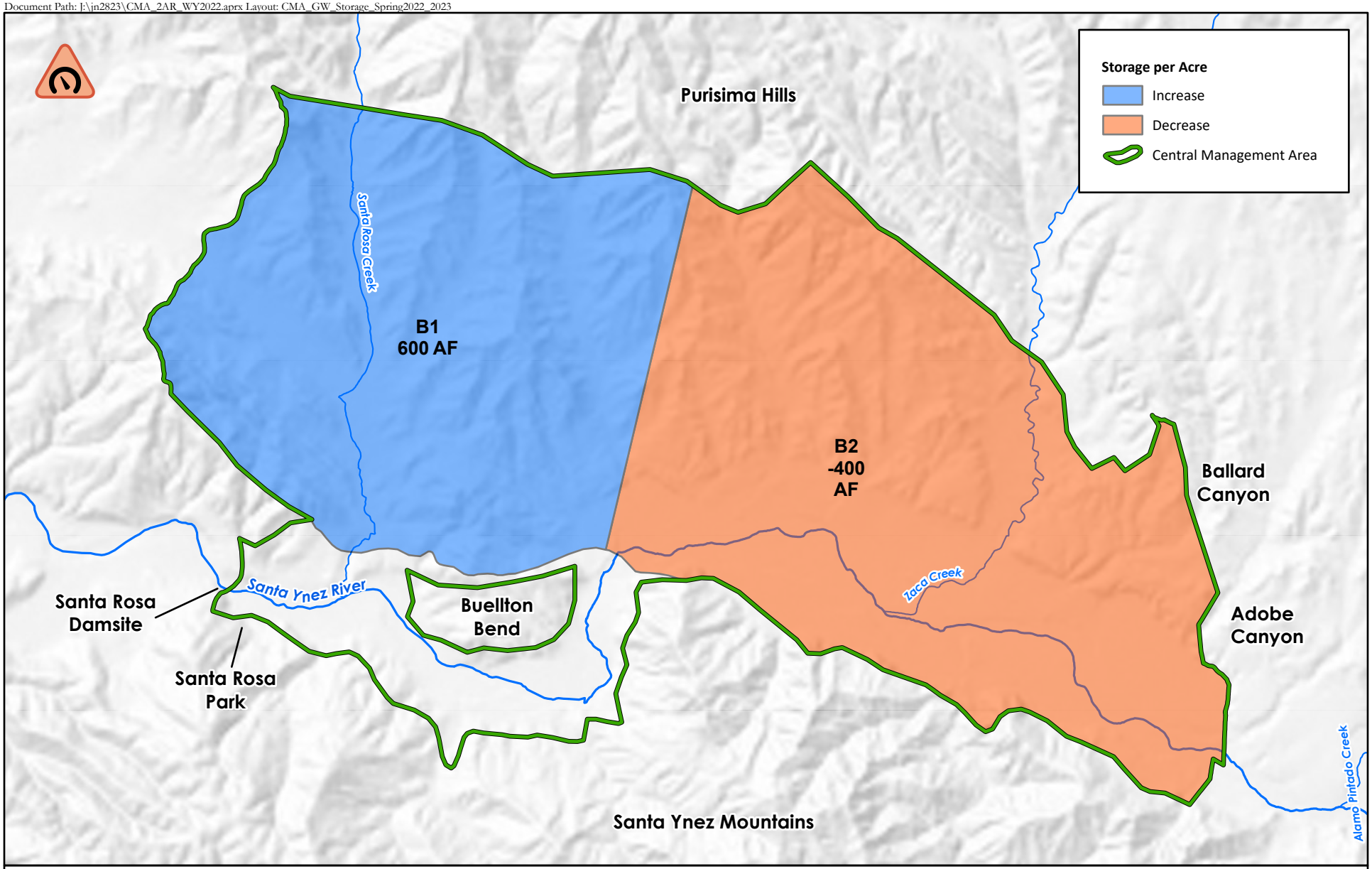
Changes in groundwater in storage are calculated and mapped for the seasonal high (spring-to-spring) using the Thiessen polygon method. This method uses water level observations at representative monitoring wells. In the CMA there is a longer period of record for seasonal high spring water levels than there is for seasonal low fall water levels. Agencies collected water levels from fewer wells during the fall. The CMA uses the spring-to-spring storage changes for trends due to this historical data collection.

5.1 CHANGE IN GROUNDWATER IN STORAGE MAPS

The SGMA regulations[1] require every Annual Report to contain *"change in groundwater in storage maps for each principal aquifer in the basin."* On the following maps, the polygon color indicates the change in groundwater in storage. Blue indicates increased groundwater in storage. Orange indicates decreased groundwater in storage. Color intensity is relative to the area of the polygon. Darker colors indicate a greater change in storage per acre. Numbers shown in each polygon are the estimated volume change in acre-feet. **Figure 5-1** shows the spring change in groundwater in storage.

[1] 23 CCR § 356.2(b)(1)

Document Path: J:\jn2823\CMA_2AR_WY2022.aprx Layout: CMA_GW_Storage_Spring2022_2023



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

CHANGE IN GROUNDWATER IN STORAGE
SPRING 2022-SPRING 2023
BUELLTON AQUIFER
CENTRAL MANAGEMENT AREA

0 0.5 1 Miles

N

Sources:
USGS National Elevation Dataset, 2002

FIGURE 5-1

The node of each polygon comes from existing representative monitoring wells (Figure 3-1). The area of each polygon is the area that is closest to the node point, compared to the other node points. The external boundary is the aquifer extent. The CMA uses the following equation to calculate the change in groundwater in storage for each polygon:

Change of Groundwater in Storage (acre-feet) = [area (acres)] x [Sy (unitless)] x [change in groundwater elevation (ft)]

Total Change of Groundwater in Storage (acre-feet) = Σ (Change in Storage for each Polygon)

Table 5-1 summarizes the total change in groundwater in storage calculated for WY 2023.

Table 5-1
Estimated Change in Groundwater in Storage
in Acre-Feet.

Period		Buellton Aquifer
Seasonal High	Spring 2022 to Spring 2023	200

Numbers rounded to the nearest 100 AF.

The Spring 2022 to Spring 2023 change in groundwater in storage is shown in Figure 5-1. This figure represents changes between the seasonal high of 2022 and 2023. Figure 5-1 shows that the volume of groundwater in storage in the east increased and decreased in the west. The total change in groundwater in storage for the CMA's Buellton Aquifer was a gain of 200 AF using this spring-to-spring approach.

5.2 GROUNDWATER USE AND EFFECTS ON STORAGE

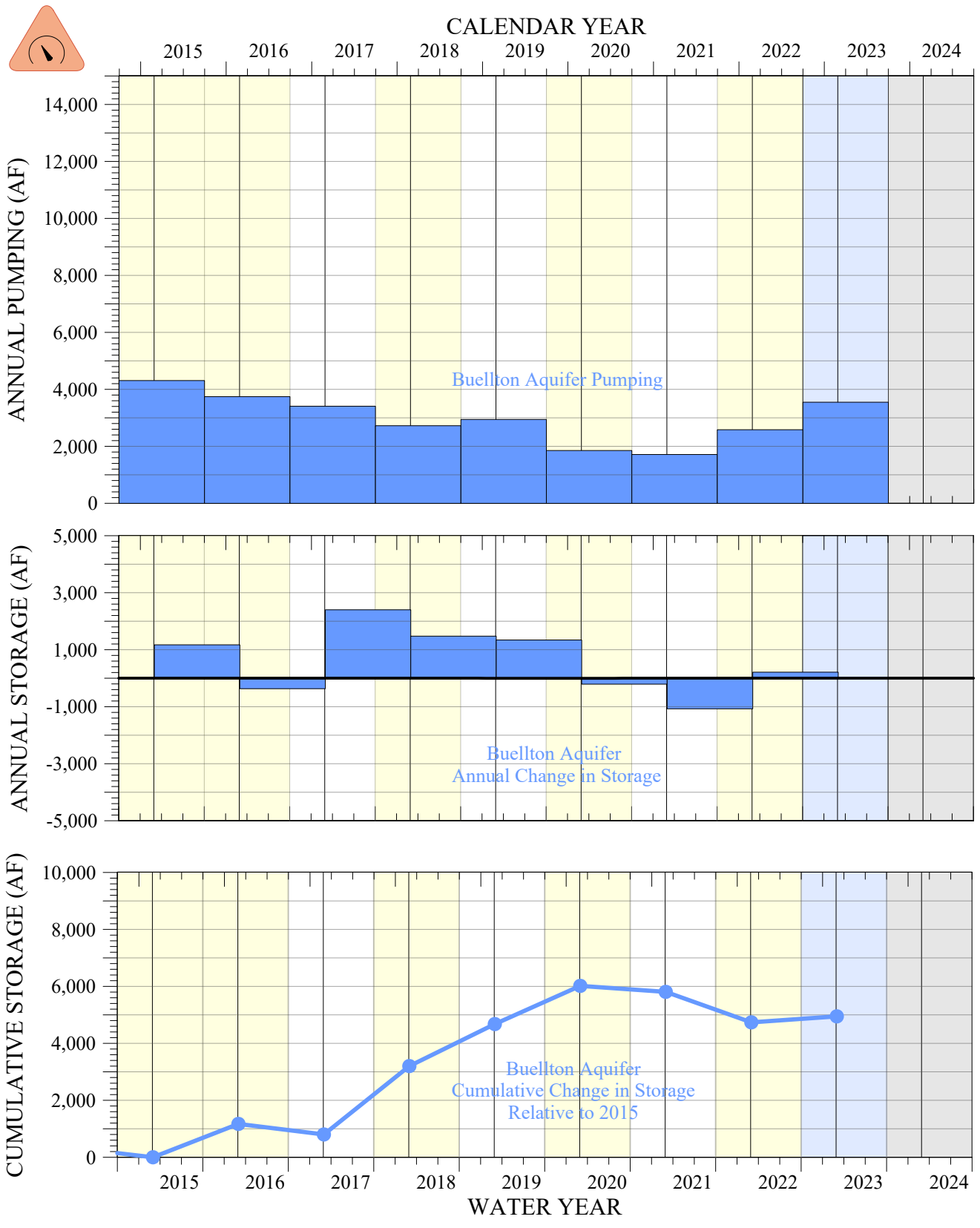
The SGMA regulations require that GSP Annual Reports contain "*A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year*."[2]

The Water Year Type is classified in Chapter 2 of this report using the same method as described in the CMA GSP. Updated groundwater use for WY 2023 is described in Chapter 4. The method for calculating the annual change in groundwater in storage is described earlier in this chapter. Annual storage change was calculated for historical years, including from WY 2015 through the present.

Annual reported groundwater use for the CMA in the Buellton Aquifer is compared to cumulative groundwater storage loss in **Figure 5-2**. The Water Year classifications shown in this figure are consistent with the classification of water years shown in Figure 2-4.

The top of Figure 5-2 shows the annual reported groundwater use for the CMA Buellton Aquifer. The middle of Figure 5-2 shows the annual change in storage, and the bottom of Figure 5-2 set shows the cumulative change starting in March 2015.

[2] 23 CCR § 356.2(b)(5)(B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.



Annual Pumping Data Includes Projected Data for WY2023Q4

STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

COMPARISON OF WATER YEAR, USE, ANNUAL STORAGE, AND CUMULATIVE STORAGE RELATIVE TO MARCH 2015

Water Year Type (1942-2023)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

F:\DATA\2823\Analyses\WY2023-3rd_Report\2024-01 WY23 Storage\CMA Fig 5-03 Dewatered_Storage_Comparison.2015.grf 3/4/2024 M. McCammon

INTENTIONALLY LEFT BLANK

CHAPTER 6: PROGRESS TOWARDS GSP IMPLEMENTATION AND SUSTAINABILITY

The SGMA regulations (Appendix 1-A) require that the SGMA Annual Reports contain "*A description of progress towards implementing the [GSP], including achieving interim milestones, and implementation of projects or management actions since the previous annual report*."[1] DWR approval of the GSP occurred on January 18, 2024, after the end of WY 2023. As indicated by the previous chapters discussing groundwater levels, water use, and storage, groundwater conditions within the CMA remain sustainable with no undesirable results for the SGMA sustainability criteria. The conditions within the CMA for the additional SGMA indicators are summarized below.

Implementation of general projects and management actions identified in the CMA GSP has begun. The CMA is in the process of taking steps to ensure funding to complete the actions planned in the GSP.

6.1 SUSTAINABILITY INDICATORS

Analyses conducted for the CMA GSP indicate that Basin conditions are sustainable with no current undesirable results during WY 2023. This chapter discusses GSP-identified minimum thresholds, measurable objectives, and interim milestones[2] for both the previously discussed sustainability indicators (groundwater levels [Chapter 3], interconnected surface water [Chapter 3], and storage [Chapter 5]), as well as the remaining sustainability indicators (seawater intrusion, water quality, and land subsidence).

1 23 CCR § 356.2(a) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.

2 23 CCR § 356.2(a) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.


Groundwater Levels


Groundwater Storage


Seawater intrusion (not applicable to CMA)


Degraded water quality


Land subsidence


Interconnected surface water

6.1.1 Chronic Lowering of Groundwater Levels


Chapter 3 provided data and maps for the chronic lowering of groundwater levels sustainability indicator. The January 2022 CMA GSP (3B.2 Undesirable Results) states the following regarding monitoring groundwater levels for undesirable results:

> "Spring groundwater elevations that drop below the established groundwater elevation minimum thresholds in more than 50% of the representative monitoring wells for two consecutive, non-drought[3] years would correspond to an undesirable result associated with chronic lowering of groundwater elevations."

Similarly, for measurable objectives and interim milestones, the CMA GSP (3B.4 Measurable Objectives) states:

[3] Two or more consecutive years that are classified as Dry or Critically Dry (Section 2b, GC) will be defined for this purpose as drought years. All other year types and combination of year types will be defined as non-drought years for the purpose of defining undesirable results under a groundwater sustainability plan.

"Measurable objectives are achieved when the 2011 groundwater elevation is reached in half of the representative monitoring wells (RMWs)."

The interim milestones were set to measurable objectives due to GSP's finding that the CMA conditions were sustainable with no current undesirable results.

The CMA currently has four representative groundwater level monitoring wells in the Buellton Aquifer. **Table 6-1** compares the groundwater level elevations to the sustainable management criteria for each well. The sustainable management criteria include Measurable Objectives, Early Warning, and Minimum Thresholds. the groundwater elevations at the four representative groundwater monitoring wells. These tables show all wells were above their Minimum Threshold levels for WY 2023. No undesirable results related to water levels occurred in WY 2023.

Table 6-1
Groundwater Elevations for Groundwater Levels (feet in NAVD88)

Name	ID	Measuring Point	Reference Values			Water Year 2022		Water Year 2023	
			Measurable Objective	Early Warning	Minimum Threshold	Spring	Fall	Spring	Fall
7N/33W-36J1	82	504.54	379	362	357	369	369	371	372
7N/32W-31M1	75	452.60 (±20)	402	364	359	371	370	372	373
6N/32W-12K1, 12K2	909	352.56 (±5)	301	281	276	307	305	306	296
6N/31W – 7F1	90	382.81	307	297	292	305	300	305	304

n/a = No available data
NAVD88 = North American Vertical Datum of 1988

6.1.2 Reduction of Groundwater in Storage

Chapter 5 of this report addresses the reduction of groundwater in storage. In addition, progress towards sustainability for groundwater storage is tracked along with groundwater levels as discussed in Section 6.1.1.

6.1.3 Water Quality

The CMA GSP found that "Groundwater quality in the WMA is currently suitable for agricultural, domestic, and municipal supply purposes." The SGMA statute and SGMA regulations on Annual Reports do not include a discussion of general water quality (see Appendix 1-A). The WMA has included a periodic evaluation of water quality as **Appendix 6-A**. Most of the data evaluated is sourced from Water Board datasets and inclusion is intended to support the Central Coast Water Board's water quality mission.[4]

6.1.4 Seawater Intrusion

The CMA is an inland management area of the Basin and is greater than 20 river miles[5] above the Pacific Ocean. Therefore, seawater intrusion is not an applicable sustainability indicator for the sustainable management of the CMA, and the CMA GSP did not set specific targets within the CMA. For the Santa Ynez River Valley Groundwater Basin as a whole, the seawater intrusion sustainability indicator is addressed by the WMA which includes a portion of the coast.

6.1.5 Land Subsidence

Significant land subsidence due to groundwater withdrawal is not occurring in the CMA. Conditions in the CMA are considered to have dropped below the land subsidence minimum threshold when both (1) a decline of six inches (a half foot) from the 2015 land surface elevation because of groundwater extractions, and (2) that decline interferes with either land use or infrastructure.

Two primary sources of data are used to characterize the movement of the land surface: remote sensing area data from Interferometric Synthetic Aperture Radar (InSAR) and point data from continuous global

4 Central Coast Regional Water Quality Control Board. Bishop, James. June 22, 2023. Public Comment Letter for The Santa Ynez River Valley Groundwater Basin – Annual Report Water Year 2022. 3 pg. https://sgma.water.ca.gov/portal/gspar/comments/214. Access date 2023-12-05.

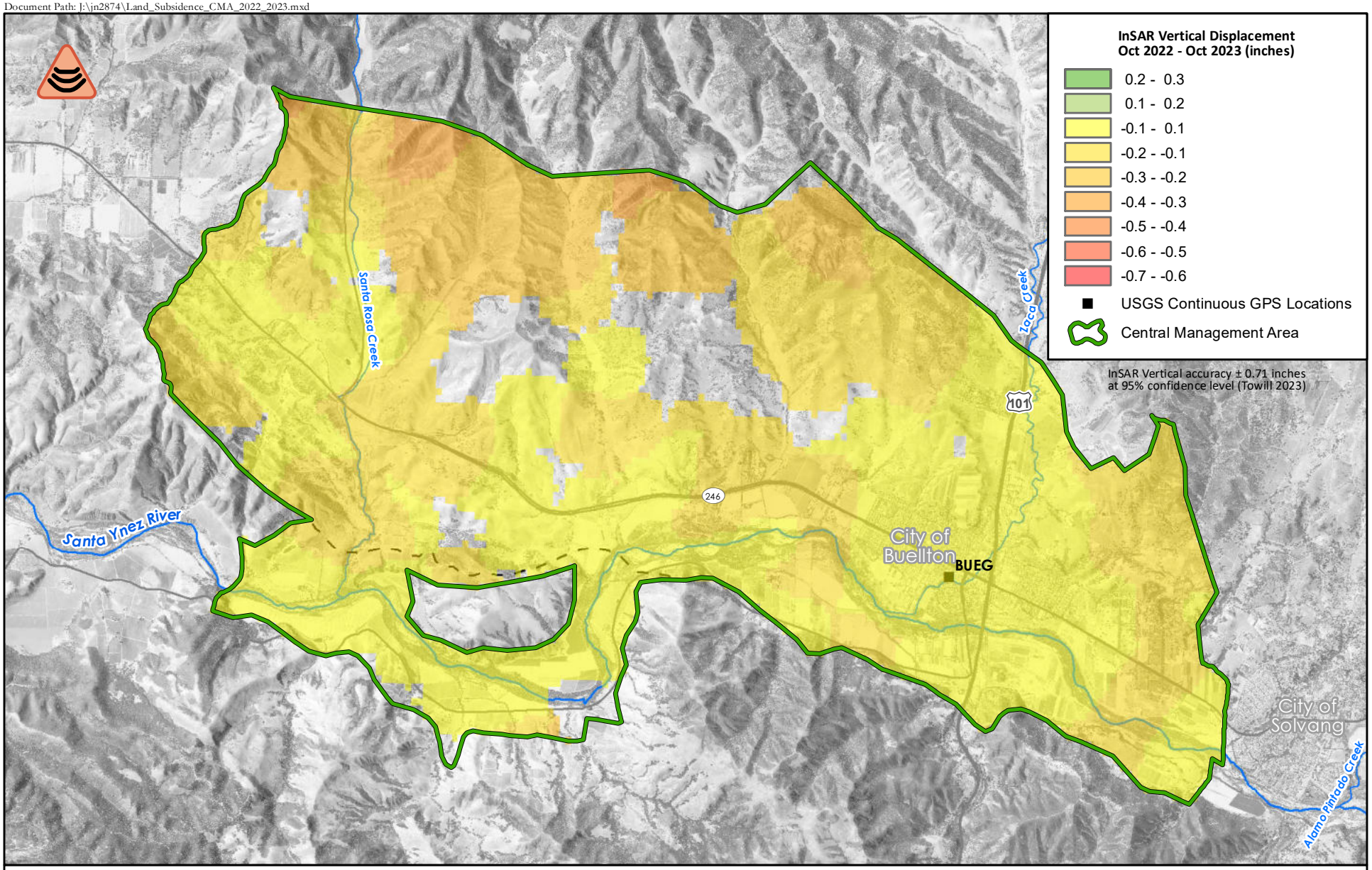
5 River miles are distance that water flows along the river which accounts for the bends and meanders of the river.

positioning system (CGPS). Both InSAR and CGPS methods provide absolute changes in elevation and do not differentiate between land subsidence resulting from excessive groundwater extraction and other sources of vertical movement such as tectonic movement. Any significant lowering of ground levels indicated by these methods would need to be followed up to identify the cause.

The InSAR maps show the elevation change of the ground over a wide area between two points in time. **Figure 6-1** is a map comparison of October 2022 and October 2023, showing change over WY 2023. **Figure 6-2** is a map comparison of January 2015 and October 2023 which shows cumulative change since 2015. These two figures show that the vertical change is less than the InSAR method accuracy for most of the CMA.[6]

[6] Reported as 18 mm (0.71 inches) vertical accuracy at 95% confidence level in Towill (2023).

Document Path: J:\jn2874\Land_Subsidence_CMA_2022_2023.mxd



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

LAND SUBSIDENCE
OCTOBER 2022 TO OCTOBER 2023
INSAR DATA
WITHIN CENTRAL MANAGEMENT AREA

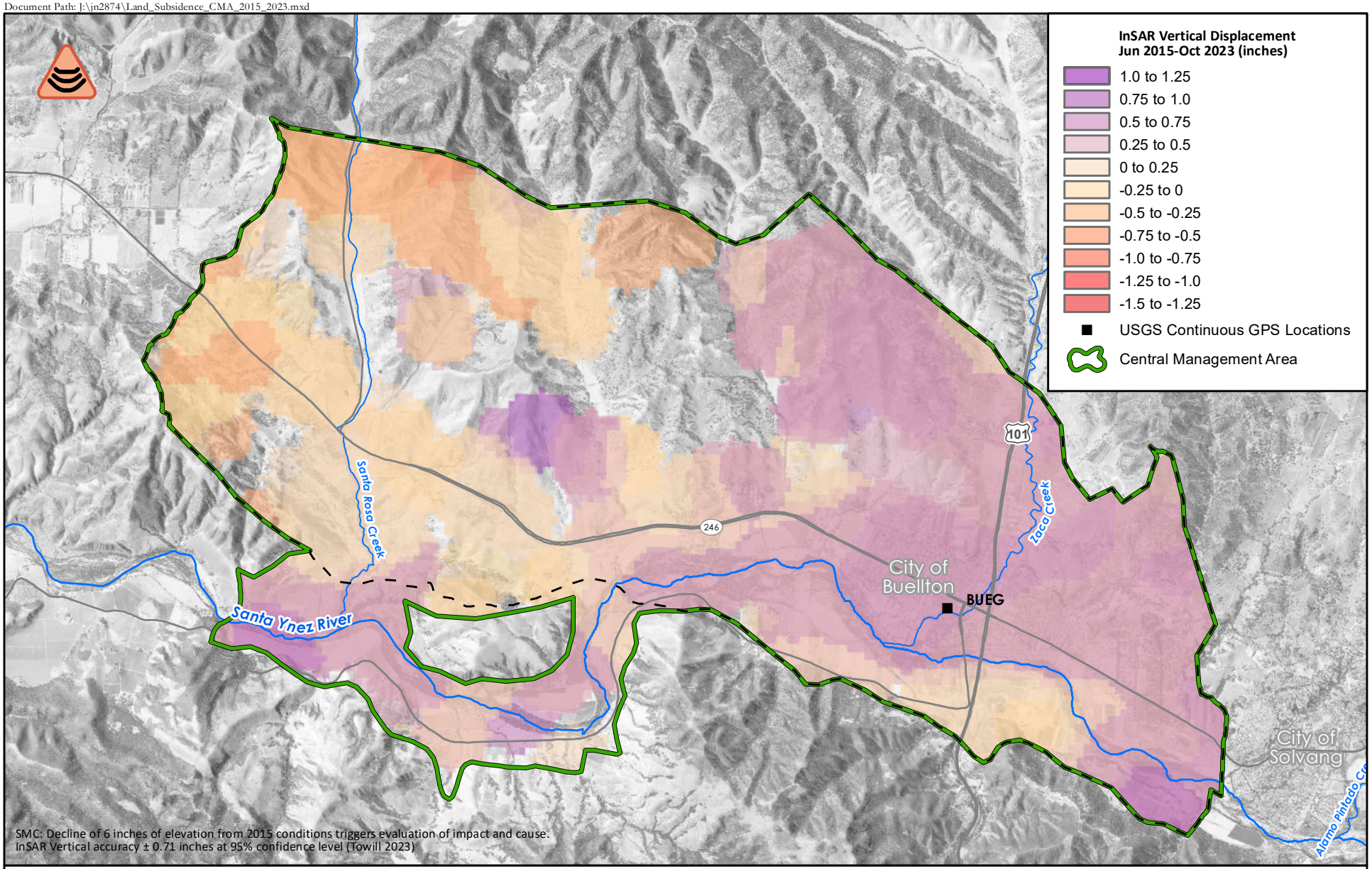
0 0.5 1 Miles

N

Sources:
USGS National Elevation Dataset, 2002
NAIP (2022), DWR (2023)

FIGURE 6-1

Document Path: J:\jn2874\Land_Subsidence_CMA_2015_2023.mxd



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

LAND SUBSIDENCE
JUNE 2015 TO OCTOBER 2023
INSAR DATA
WITHIN CENTRAL MANAGEMENT AREA

0 0.5 1 Miles

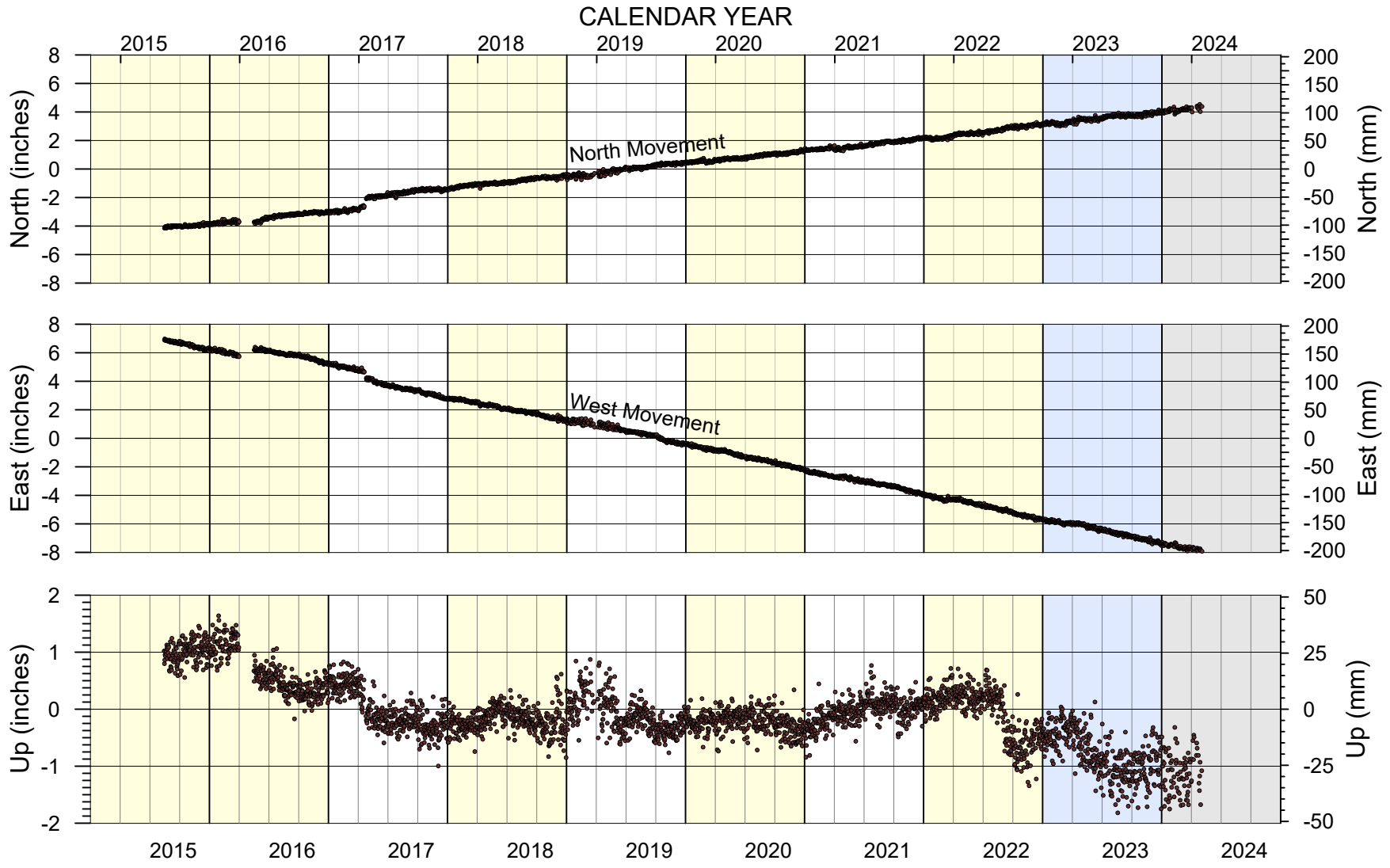
Sources:
USGS National Elevation Dataset, 2002
NAIP (2022), DWR (2022)

N

FIGURE 6-2

CGPS collects very high-resolution three-dimensional movement of a sensor over time. The BUEG station, located near the City of Buellton (see **Figure 6-2**), is a CGPS station that has been in operation since January 2015. **Figure 6-3** graphs the horizontal movement (north-south, east-west) and vertical movement (up-down). Since 2015 the graph shows movement to the north of 8 inches and movement west of 16 inches. Vertical movement is down by less than an inch, with a date entry change in 2016 and 2017. This lateral movement is aseismic tectonic movement, and not due to groundwater conditions.

Both InSAR and CGPS methods show there were no undesirable results related to land subsidence during WY 2023.



Decline of 6 inches of elevation from 2015 conditions triggers evaluation of impact and cause.

Source: Murray, J.R. and Svarc, J. (2017), Global Positioning System data collection, processing, and analysis conducted by the U.S. Geological Survey Earthquake Hazards Program, Seismol. Res. Lett., doi:10.1785/022016020 .

STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

CONTINUOUS GLOBAL POSITIONING SYSTEM
BUEG STATION TRENDS
LAND SUBSIDENCE

Water Year Type (1942-2023)
- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

FIGURE 6-3

F:\DATA\2823\Analyses\WY2023-3rd_Report\2023-12 WY23 CGPS Land Subsidence\Fig 6-03 CMA_CGPS WY2023_shift_scale.grf 2/16/2024 M. McCammon

6.1.6 Interconnected Surface Water and Groundwater Dependent Ecosystems

The SGMA sustainability indicator "depletion of interconnected surface water," is related to the effects of groundwater pumping on surface water flows. Under the SGMA statute, groundwater is water in the identified groundwater aquifers, "but does not include water that flows in known and definite channels"[7] such as the underflows of the Santa Ynez River through its alluvial sediments. The SWRCB, under Order WR 2019-0148 and earlier orders and decisions, regulates all flows of the Santa Ynez River. This regulation by the SWRCB extends to and includes the subsurface flows through the alluvial channel.

The groundwater level hydrographs presented in Appendixes 3-A and 3-B further address the potential depletion of interconnected surface water. As stated in the 2022 CMA GSP (Section 3b.2-6), groundwater elevations in the Santa Ynez River Alluvium that drop to fifteen feet below channel thalweg elevations in two out of the three representative monitoring wells for two consecutive non-drought[8] years would indicate significant and undesirable results for interconnected surface water and groundwater-dependent ecosystems. Similarly, the measurable objective and interim milestone (2022 GSP, Sections 3b.4-6 and 3b.5-6) established goals for the groundwater levels in the Santa Ynez River Alluvium underflow to rise to at least 5 feet below the channel thalweg elevation. **Table 6-2** summarizes the groundwater elevations at the three wells used to measure potential impacts on surface water. This table shows that all wells had water levels above the minimum threshold during WY 2023.

The Cachuma Operation and Maintenance Board (COMB) Fisheries Division monitors the migration of the Southern California Steelhead/rainbow trout (*O. mykiss*) in the Santa Ynez River from Lake Cachuma to the Pacific Ocean. The COMB publishes the report concurrently or after this annual report,[9] conclusions from that report about WY 2023[10] are currently unavailable before the SGMA annual reporting deadline.

---

7 CWC Section 10721 (g) "Groundwater" means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.

8 For this purpose, a year is a drought if it is two or more consecutive years that are classified as Dry or Critically Dry (see Chapter 2 for year classifications). All other year types and combination of year types will be defined as non-drought years for the purpose of defining undesirable results under a groundwater sustainability plan.

9 The COMB Fisheries Division report on WY 2022 was published on June 9, 2023.

10 The COMB Water Year is the same as SGMA, running October 1st to September 30th.

Table 6-2
Groundwater Elevations for Interconnected Surface Water (feet in NAVD88)

Name	ID	Reference Values		Water Year 2022		Water Year 2023	
		Measurable Objective	Minimum Threshold	Spring	Fall	Spring	Fall
6N/32W – 9G1	1120	267	257	268	271	260	262
6N/32W – 13G2	1115	304	294	316	316	323	314
6N/32W – 17R1	1111	332	322	338	339	341	339

NAVD88 = North American Vertical Datum of 1988.
The Measurable Objective is five feet below the Channel Thalweg.
The Minimum Threshold is fifteen feet below the Channel Thalweg.

The most recently published COMB report was about WY 2022 (COMB, 2023). Due to "low flow conditions" during WY 2022, no trapping was conducted at the Salsipuedes Creek Migrant Traps or any of the traps along the Lower Santa Ynez River (LSYR) Mainstem Trap. The WY 2022 report identified that since 2011 only five migrant captures of *O. mykiss* have been made in the mainstem Lower Santa Ynez River (LSYR), and no *O. mykiss* migrants have been observed for 10 of the last 11 years. The CMA boundaries include what COMB calls the "Avenue of the Flags Reach," and the CMA ends above the "Cadwell" property. The 2022 COMB snorkel surveys of both the "Avenue of the Flags" and "Cadwell" reaches identified no *O. mykiss* was observed at either survey area. However, the COMB report indicated active beaver dams throughout the alluvial area upstream of the Lompoc Narrows, with 63 beaver dams between the Lompoc Narrows and Alisal Bridge (this area also includes part of the WMA and EMA). The WY2022 COMB report concluded that "it was highly unlikely that any LSYR Lagoon fish migrated upstream or downstream" in WY 2022.

6.2 IMPLEMENTATION OF PROJECT AND MANAGEMENT ACTIONS SINCE PREVIOUS ANNUAL REPORT

The CMA GSP identified future projects and management actions to improve sustainability. **Table 6-3** is a summary of the projects and management actions envisioned in the GSP. Error! Reference source not f ound. identifies the expected additional water and the benefit-to-cost ratio. Completion is subject to funding and approval from the CMA GSA committee.

Table 6-3
Summary of CMA GSP Implementation Projects

Project Category	Task	Occurrence	Water Year 2023 Status
Completing Ongoing Field Investigations	Surveying Representative Wells	One Time	
	SkyTEM Airborne Geophysics	One Time	Completed
Monitoring Network Gaps	Video Logging and Sounding Wells	One Time	
	Add new GWL Monitoring	One Year	
	Dedicated GWL Monitoring Wells (Outreach)	One Time	
	SW Gage Installation (planning)	One Time	
Projects and Management Actions	Water Conservation	Annual	
	Groundwater Extraction Fee Study	5 Year	In Progress
	Supplemental Imported Water Fund Reserve Options	One Time	
	Feasibility Study for Bioswale Stormwater Retention	One Time	In Progress
Improved Data Collection for Management	Well Registration Update	One Time	In Progress
	Well Metering Requirement	One Time	
Data Management	Data Updates	Annual	In Progress
Reporting and Plan Updates	SMGA WY Annual Reports	Annual	In Progress
	SGMA Five-Year Plan Assessment	5 Year	

6.2.1 Governance Update

During Water Year 2023 (WY 2023), the CMA GSA was reformed under a separate entity using the Joint Exercise of Powers Act (JPA). This replaced the Memorandum of Agreement (MOA) which established the CMA GSA on January 11, 2017. From a practical perspective, the core provisions of the existing MOA were integrated into the draft GSA JPA, so, in effect, the JPA is consistent with the MOA while simultaneously

providing the ability to exercise the powers common to the member agencies and protect the member agencies from the GSAs debts or other liabilities.

The CMA GSA Committee endorsed the articles of the GSA JPA on September 25, 2023. The GSA JPA was scheduled to be ratified by the member agencies at the beginning of WY 2024. The SYRWCD Board of Directors voted for the JPA on October 19, 2023. The City of Buellton City Council voted for the JPA on October 26, 2023, in a 4-1 vote. The County of Santa Barbara Board of Supervisors voted to execute the JPA on November 28, 2023, in a unanimous vote. The change in governance structure was communicated to DWR in January 2024.

6.2.2 Groundwater Extraction Fee Study

The GSA developed a request for proposals from qualified firms to conduct a rate study for groundwater extractors and find mechanisms to fund the implementation of the GSP. The choice of the rate study firm is scheduled to be completed early in WY 2024. The requested services will find the required revenue to support implementation for the next five years, evaluate the need for a pump charge rate and/or a parcel fee, prepare rate schedules, and offer two recommended rate/fee alternatives. The rate study will include stakeholder outreach and engagement by presenting draft rate study materials for public input and to the Citizen Advisory Group (CAG). The recommended rate/fee structures will be consistent with industry practice for established rates in California and follow Prop 26 and 218 and the Revenue Program Guidelines by the State of California Water Resources Control Board.

6.2.3 Update Well Registration Program

The GSA needs more detailed data about the location and number of groundwater extraction facilities, including information on current groundwater wells and new groundwater wells. Accordingly, as described in the GSP, the GSA developed a resolution to require extraction well registration, which was adopted during the September 25, 2023, meeting of the CMA GSA. The resolution requires the Property Owner of each groundwater well to provide groundwater well registration information (to the extent known to the Property owner at the time of registration) by filling out and sending a registration form issued by the Agency and returned to the Agency via U.S. mail or electronic mail. All new groundwater extraction wells shall be registered with the Agency using the same form no later than sixty (60) days after

well completion. Changes to the information provided in the well registration form including, but not limited to, a change to the Property Owner or Operator of a Groundwater Extraction Facility must be reported within thirty (30) days of the change taking effect. The Agency shall keep the information contained in the registration confidential to the extent permissible under applicable law.

6.2.4 Data Updates and Reporting

The required water level, water quality, and water use data collection, processing, and Data Management System (DMS) maintenance was completed to support the preparation of the WY 2022 Annual Report and this WY 2023 Annual Report. The CMA allows public access to portions of the DMS at the following web address: https://sywater.info/

6.2.5 CMA Committee Meetings

During WY 2022 the CMA published its second annual report, for the Water Year 2022 (October 2021-September 2022). This report was the first year following the submittal of the GSP. The CMA committee approved the first annual report on March 27, 2023. The CMA committee submitted it to DWR on March 28, 2023, before the April 1 deadline.[11]

The CMA committee met four times in WY 2023 after the completion of the WY 2022 annual report: at three regular meetings and one special meeting. At the May 22 meeting, the City of Buellton announced their water shortage contingency plan. The August 7 special meeting included legal counsel presenting a SWRCB staff comment letter that questioned whether certain water should be categorized as surface water underflow or as groundwater. The August 21 meeting reviewed a well application. The September 25 meeting discussed a Joint Powers Agreement (JPA) for CMA, was presented, and a motion was passed endorsing the draft JPA for consideration by each of the CMA GSA member agencies board. An SGMA Implementation Grant Award was announced.

As part of collaboration work with the SWRCB, CMA staff produced a legal letter and supporting technical analysis detailing how the CMA applied the SGMA's statute on groundwater which excludes "water that

[11] CWC Section 10728 "On the April 1 following the adoption of a groundwater sustainability plan and annually thereafter, a groundwater sustainability agency shall submit a report to the department [..]"

flows in known and definite channels."[12] CMA staff clarified how SGMA's groundwater definition is different and more restricted than the use in other contexts and statutes including those empowering the Santa Ynez River Water Conservation District or the general presumption that all subterranean water is "percolating groundwater."

During the fall and winter of WY 2024, the staff of all three management agencies met with DWR and SWRCB staff twice to address concerns related to non-SGMA groundwater use. As a result of these meetings, staff prepared an "Action Plan for Management of All Well Production Along the Santa Ynez River, Above the Lompoc Narrows," which includes various actions intended to, among other things, achieve the goal of educating, gaining additional information and ensuring that all water production and well owners in the Santa Ynez Alluvium Area are registered and reporting to the applicable GSA, State Board, and the Santa Ynez River Water Conservation District. This plan was circulated to DWR and SWRCB staff for comment and edits and then was endorsed by joint action of all three management area boards.

In Water Year 2024, the CMA committee has met twice to date. This included one regular and one special meeting. The meeting minutes have not been finalized and posted at this time.

[12] CWC Section 10721 (g) "Groundwater" means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.

INTENTIONALLY LEFT BLANK

CHAPTER 7: REFERENCES

CCWA (Central Coast Water Authority). 2022. Emails Regarding WY 2021 CCWA Delivery Data. Adam, L. Central Coast Water Senior Accountant. Personal Emails dated February 2 and 4, 2022.

CCWA 2022b. Email Regarding Land Subsidence. Brady, J. Central Coast Water Authority. Deputy Director of Operations and Engineering. Personal Email dated February 2, 2022.

COMB 2023. WY2022 Annual Monitoring Summary For The Biological Opinion For The Operation And Maintenance Of The Cachuma Project On The Santa Ynez River In Santa Barbara County, California. Cachuma Operation And Maintenance Board Fisheries Division. 235 pg. SYWATER 524.

Dunne, Thomas, and Luna Leopold, 1978. Water in Environmental Planning.

DWR (Department of Water Resources). 2019. CA Bulletin 118 Groundwater Basins. GIS Vector Digital Data Set. Accessed 2019-02-11. https://data.cnra.ca.gov/dataset/ca-bulletin-118-groundwater-basins.

DWR. 2021. Sustainable Groundwater Management Act Water Year Type Dataset Development Report. SYWATER 473.

DWR. 2023. A Guide to Annual Reports, Periodic Evaluations, & Plan Amendments. Groundwater Sustainability Plan Implementation. 44 pg. SYWATER 523.

State Water Resources Control Board (SWRCB). 2019. Order WR 2019-0148. In the Matter of Permits 11308 and 11310 (Applications 11331 and 11332) held by the United States Bureau of Reclamation for the Cachuma Project on the Santa Ynez River. State Water Resources Control Board, State of California. SYWATER 218.

Stetson (Stetson Engineers). 2022. Groundwater Sustainability Plan. Santa Ynez River Valley Groundwater Basin Central Management Area. Prepared for Central Management Area Groundwater Sustainability Agency. 1,229 pg. SYWATER 453.

Stetson. 2023. Santa Ynez River Alluvium Underflow and Subterranean Stream Report Prepared in Response to the April 14, 2023, Comments by State Water Resources Control Board Staff regarding Groundwater Sustainability Plans for the Santa Ynez River Valley Groundwater Basin. 75 pg. SYWATER 521.

Towill (2023) InSAR Data Accuracy for California Groundwater basins CGPS Data Comparative Analysis January 2015 to October 2022. Final Report. Towill, Inc. California Department of Water Resources. Contract 4600013876 TO#1. 131 pg. SYWATER 528.

CHAPTER 8: APPENDICES

INTENTIONALLY LEFT BLANK

Chapter 1 – General Information

Appendix 1-A:

Portions of Sustainable Groundwater Management Act Statute and Regulations Specific to Annual Report Requirements Effective August 15, 2016

INTENTIONALLY LEFT BLANK

Portions of Sustainable Groundwater Management Act Statute and Regulations Specific to Annual Report Requirements

CALIFORNIA WATER CODE
DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES
PART 2.74. SUSTAINABLE GROUNDWATER MANAGEMENT
CHAPTER 6. GROUNDWATER SUSTAINABILITY PLANS

Section 10728. Annual Reporting By Groundwater Sustainability Agency To Department

On the April 1 following the adoption of a groundwater sustainability plan and annually thereafter, a groundwater sustainability agency shall submit a report to the department containing the following information about the basin managed in the groundwater sustainability plan:

(a) Groundwater elevation data.

(b) Annual aggregated data identifying groundwater extraction for the preceding water year.

(c) Surface water supply used for or available for use for groundwater recharge or in-lieu use.

(d) Total water use.

(e) Change in groundwater storage.

CALIFORNIA CODE OF REGULATIONS
TITLE 23. WATERS
DIVISION 2. DEPARTMENT OF WATER RESOURCES
CHAPTER 1.5. GROUNDWATER MANAGEMENT
SUBCHAPTER 2. GROUNDWATER SUSTAINABILITY PLANS

ARTICLE 2. Definitions

§ 351. Definitions

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

[...]

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

[..]

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

ARTICLE 4. Procedures

§ 353.4. Reporting Provisions

Information required by the Act or this Subchapter, including Plans, Plan amendments, annual reports, and five-year assessments, shall be submitted by each Agency to the Department as follows:

(a) Materials shall be submitted electronically to the Department through an online reporting system, in a format provided by the Department as described in Section 353.2.

(b) Submitted materials shall be accompanied by a transmittal letter signed by the plan manager or other duly authorized person.

ARTICLE 5. Plan Contents
SUBARTICLE 4. Monitoring Networks

§ 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.

ARTICLE 6. Department Evaluation and Assessment

§ 355.6. Periodic Review of Plan by Department

[...]

(b) The Department shall evaluate approved Plans and issue an assessment at least every five years. The Department review shall be based on information provided in the annual reports and the periodic evaluation of the Plan prepared and submitted by the Agency.

§ 355.8. Department Review of Annual Reports

The Department shall review annual reports as follows:

(a) The Department shall acknowledge the receipt of annual reports by written notice and post the report and related materials on the Department's website within 20 days of receipt.

(b) The Department shall provide written notice to the Agency if additional information is required.

(c) The Department shall review information contained in the annual report to determine whether the Plan is being implemented in a manner that will likely achieve the sustainability goal for the basin, pursuant to Section 355.6.

ARTICLE 7. Annual Reports and Periodic Evaluations by the Agency

§ 356. Introduction to Annual Reports and Periodic Evaluations by the Agency

This Article describes the procedural and substantive requirements for the annual reports and periodic evaluation of Plans prepared by an Agency.

§ 356.2. Annual Reports

Each Agency shall submit an annual report to the Department by April 1 of each year following the adoption of the Plan. The annual report shall include the following components for the preceding water year:

(a) General information, including an executive summary and a location map depicting the basin covered by the report.

(b) A detailed description and graphical representation of the following conditions of the basin managed in the Plan:

(1) Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:

(A) Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.

(B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.

(2) Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.

(3) Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.

(4) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.

(5) Change in groundwater in storage shall include the following:

(A) Change in groundwater in storage maps for each principal aquifer in the basin.

(B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.

(c) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.

ARTICLE 8. Interagency Agreements

§ 357.4. Coordination Agreements

[…]

(d) The coordination agreement shall describe a process for submitting all Plans, Plan amendments, supporting information, all monitoring data and other pertinent information, along with annual reports and periodic evaluations.

Chapter 3 – Groundwater Hydrographs and Contours

Appendix 3-A:

Groundwater Level Hydrographs for Assessing Chronic Decline in Groundwater Levels, Central Management Area

INTENTIONALLY LEFT BLANK

APPENDIX 3-A: GROUNDWATER LEVEL HYDROGRAPHS FOR ASSESSING CHRONIC DECLINE IN GROUNDWATER LEVELS, CENTRAL MANAGEMENT AREA

WATER YEAR 2023

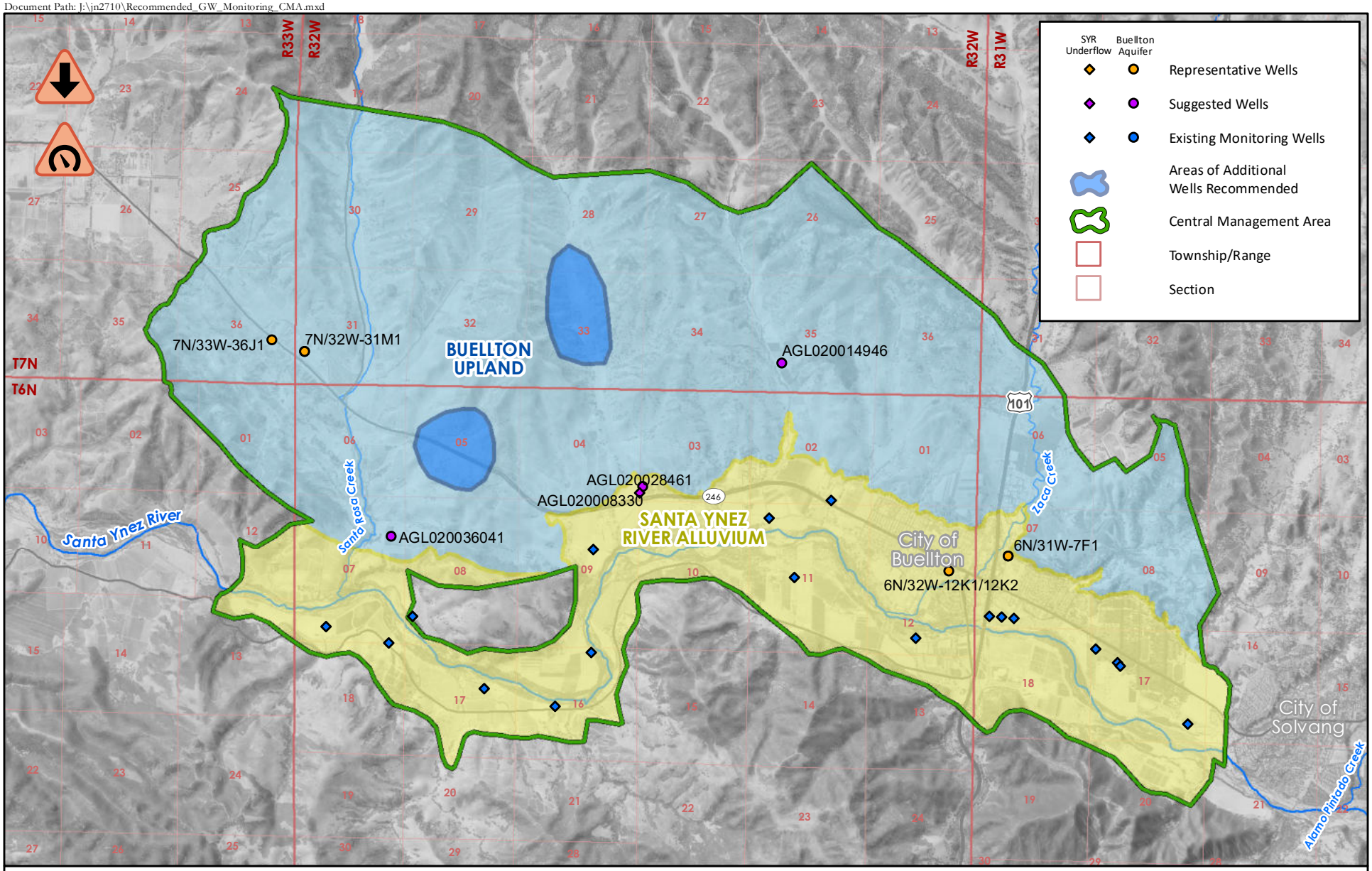
This appendix includes hydrographs, which are graphs of water levels in wells. These are the representative wells for monitoring groundwater level decline. As per the SGMA regulations, this includes the period from January 1, 2015 through the end of the Water Year 2023. Shown on these graphs are key SGMA criteria: measurable objective, early warning, and minimum threshold. All included wells are in the Buellton Aquifer.

The Groundwater Sustainability Plan (GSP) includes hydrographs of the long-term period of record. A copy of the GSP, water level data, and hydrographs are available at https://sywater.info .

LIST OF ACRONYMS AND ABBREVIATIONS

BGS	below ground surface
CASGEM	California Statewide Groundwater Elevation Monitoring
CMA	Central Management Area
FT	feet
NAVD88	North American Vertical Datum of 1988
USBR	United States Bureau of Reclamation
USGS	United States Geologic Survey
WL	Water Level

Document Path: J:\jn2710\Recommended_GW_Monitoring_CMA.mxd



STETSON ENGINEERS INC.

CMA

Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

CMA MONITORING NETWORK AND REPRESENTATIVE MONITORING WELLS FOR GROUNDWATER LEVELS AND GROUNDWATER STORAGE

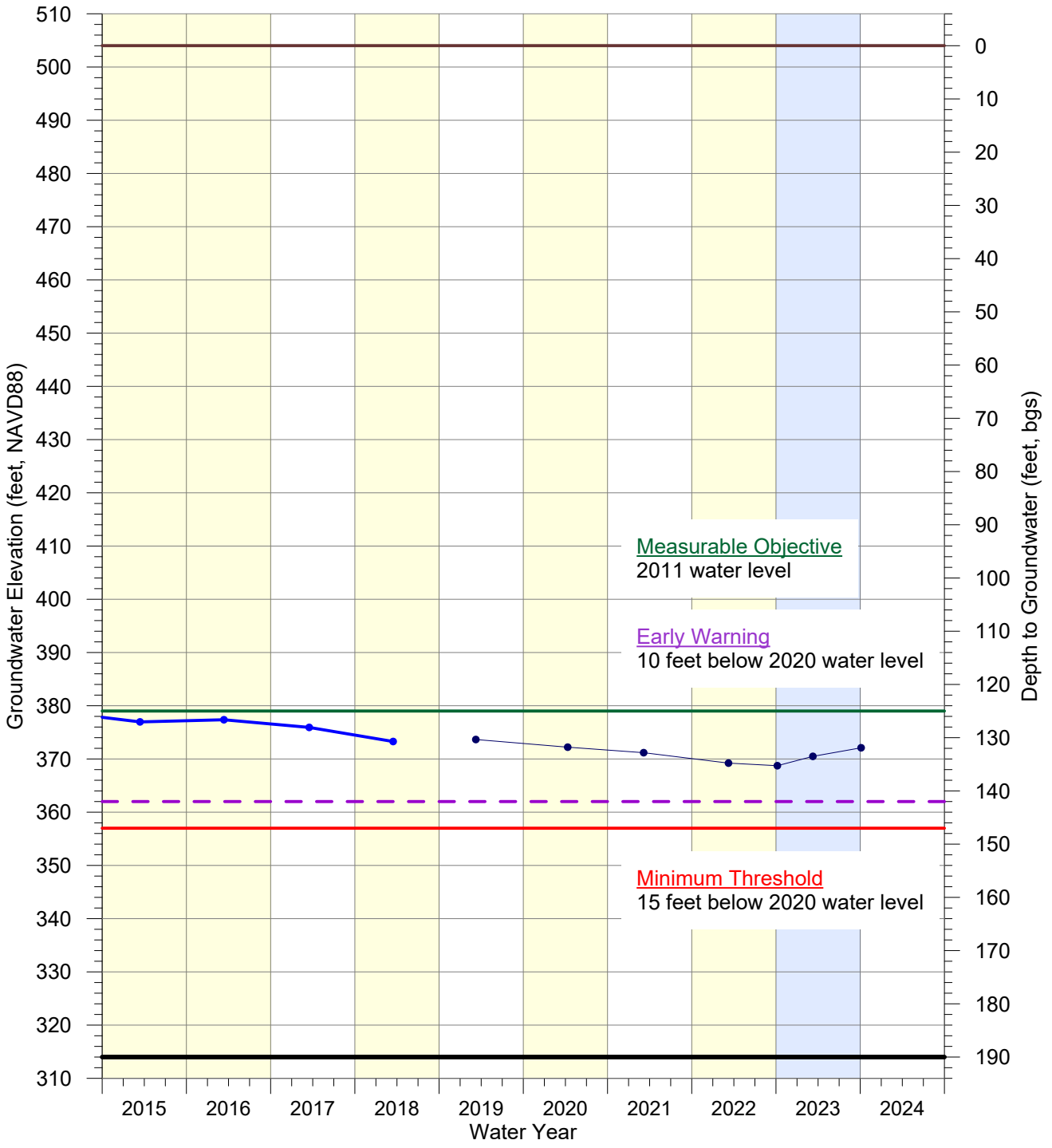
0 0.5 1 Miles

N

FIGURE A1-01

CASGEM ID
25268
Voluntary

CMA Representative Monitoring Well
for Buellton Aquifer
(Buellton Upland Subarea)
7N/33W-36J1



DBID
82

STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Buellton Aquifer
Buellton Upland

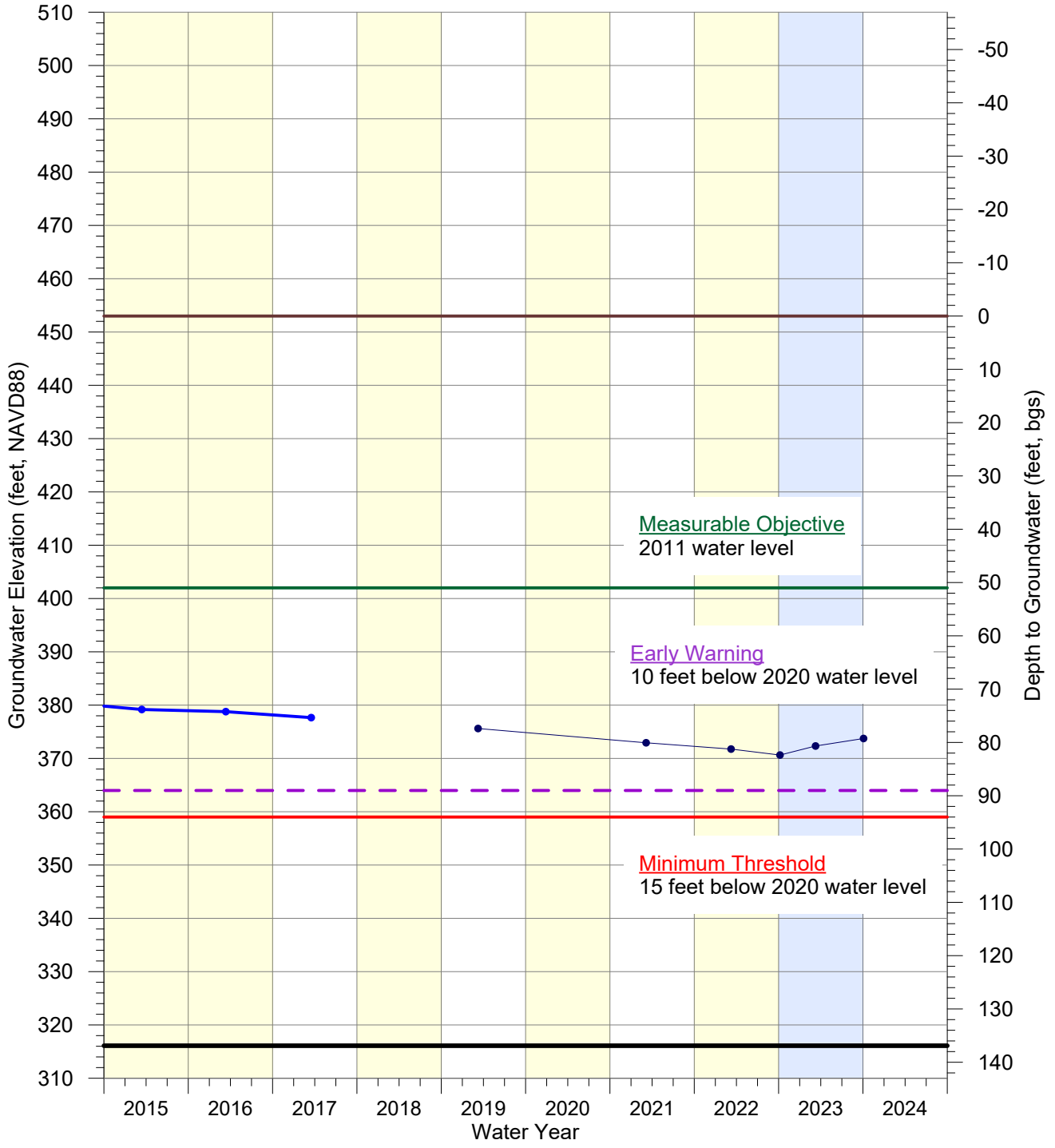
Water Year Type (1942-2023)
- Wet
- Above/Below Normal
- Dry / Critically Dry

F:\DATA\2823\Analyses\2024-01 WY23 WL GWL Hydrographs\CMA_GWL_SMCs\Grapher_Files\CMA Fig A1-01 BU 82 36J1.grf 1/11/2024 Stetson

FIGURE A1-02

CASGEM ID
23681
Voluntary

CMA Representative Monitoring Well
for Buellton Aquifer
(Buellton Upland Subarea)
7N/32W-31M1



DBID
75

STETSON ENGINEERS INC.

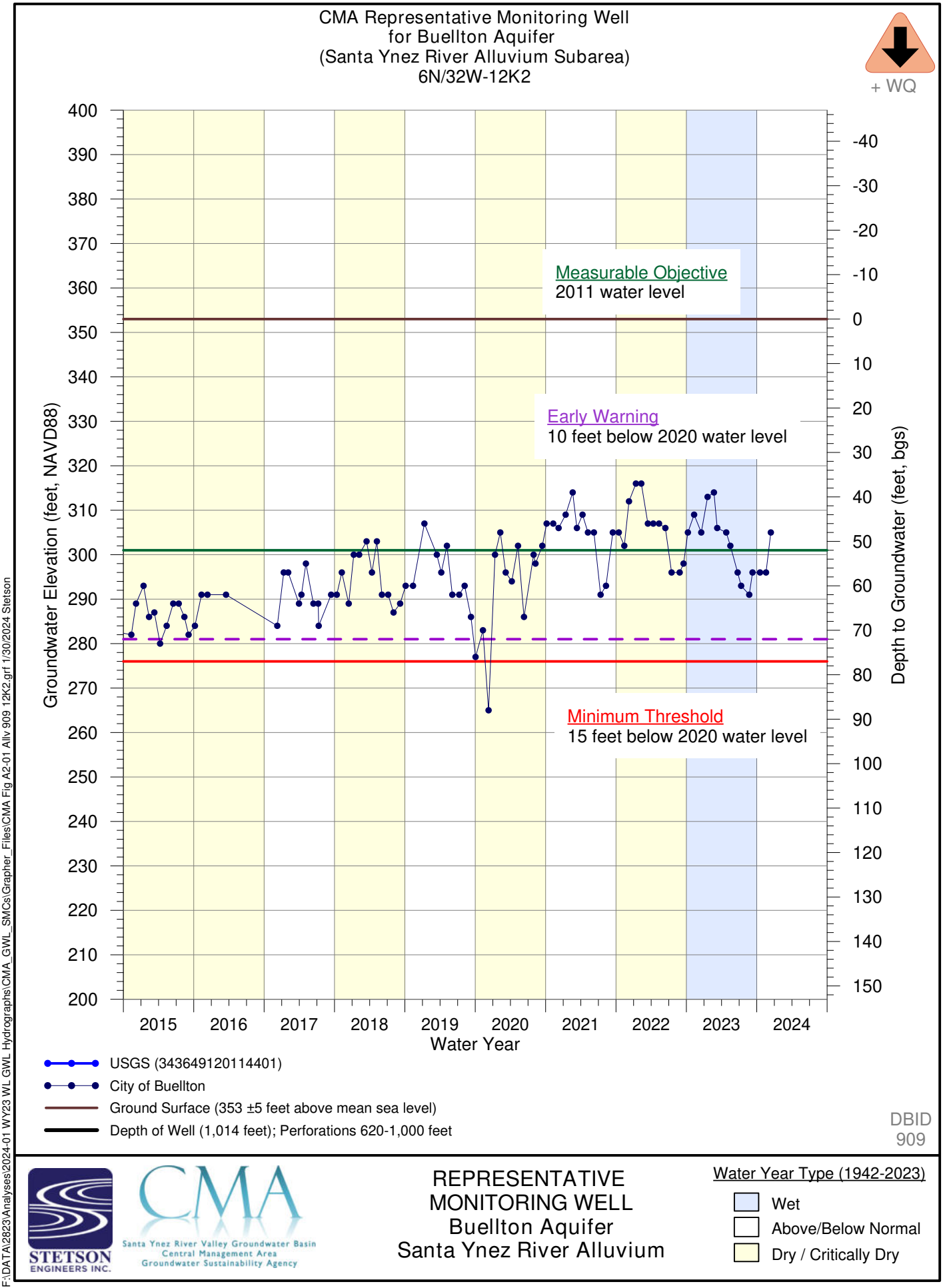
CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Buellton Aquifer
Buellton Upland

Water Year Type (1942-2023)
- Wet
- Above/Below Normal
- Dry / Critically Dry

F:\DATA\2823\Analyses\2024-01 WY23 WL GWL Hydrographs\CMA_GWL_SMCs\Grapher_Files\CMA Fig A1-02 BU 75 31M1.grf 1/11/2024 Stetson

FIGURE A2-01



STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

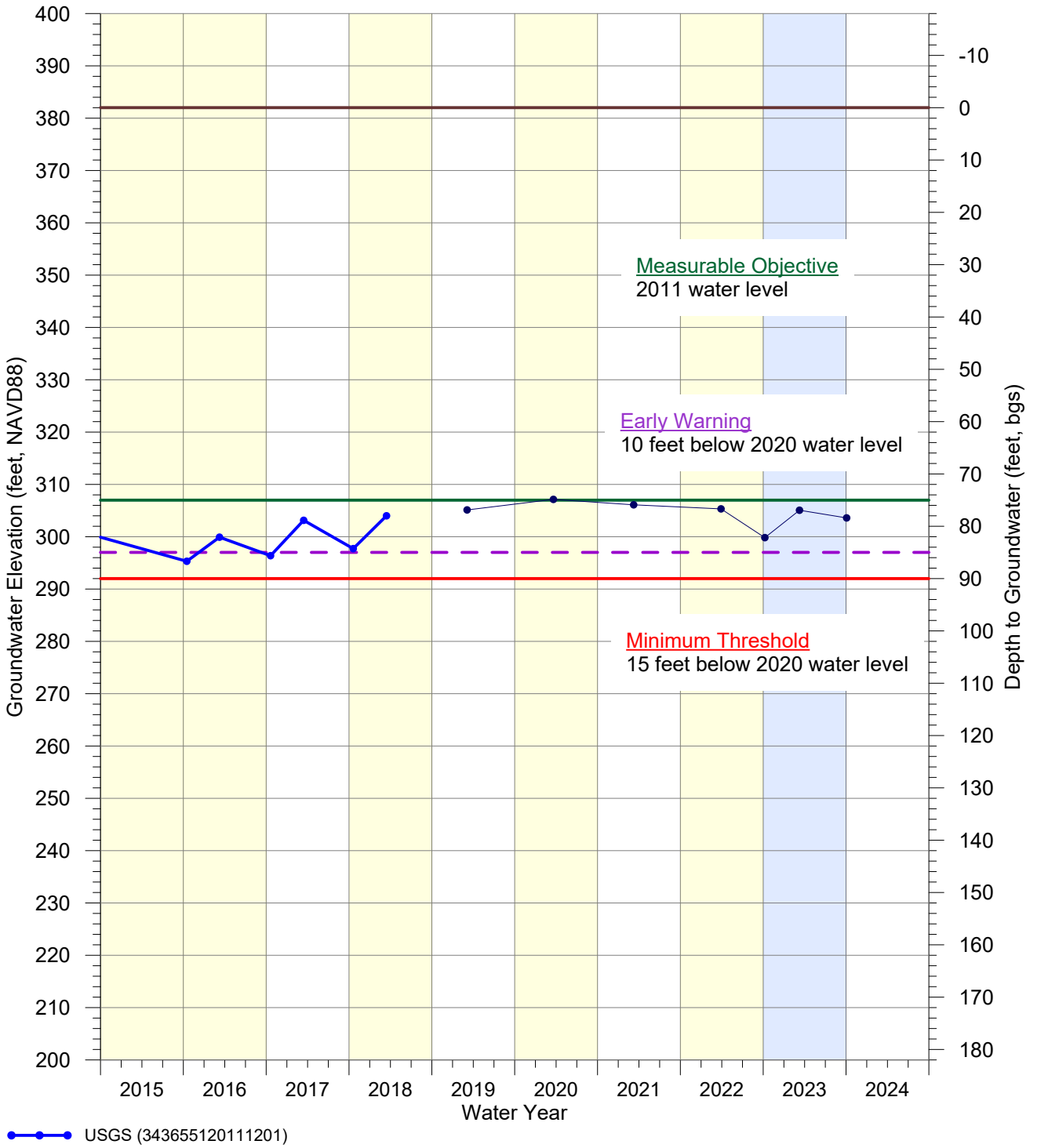
REPRESENTATIVE
MONITORING WELL
Buellton Aquifer
Santa Ynez River Alluvium

Water Year Type (1942-2023)
- Wet
- Above/Below Normal
- Dry / Critically Dry

F:\DATA\2823\Analyses\2024-01 WY23 WL GWL Hydrographs\CMA_GWL_SMCs\Grapher_Files\CMA Fig A2-01 Alv 909 12K2.grf 1/30/2024 Stetson

CASGEM ID
49120
CASGEM

CMA Representative Monitoring Well for Buellton Aquifer (Santa Ynez River Alluvium Subarea) 6N/31W-7F1



DBID
90

STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL
Buellton Aquifer
Santa Ynez River Alluvium

Water Year Type (1942-2023)
- Wet
- Above/Below Normal
- Dry / Critically Dry

F:\DATA\2823\Analyses\2024-01 WY23 WL GWL Hydrographs\CMA_GWL_SMCs\Grapher_Files\CMA Fig A2-02 Allv 90 7F1.grf 1/11/2024 Stetson

Chapter 3 – Groundwater Hydrographs and Contours

Appendix 3-B:

Groundwater Level Hydrographs for Assessing Surface Water Depletion, Central Management Area

INTENTIONALLY LEFT BLANK

APPENDIX 3-B:

GROUNDWATER LEVEL HYDROGRAPHS FOR ASSESSING SURFACE WATER DEPLETION, CENTRAL MANAGEMENT AREA

WATER YEAR 2023

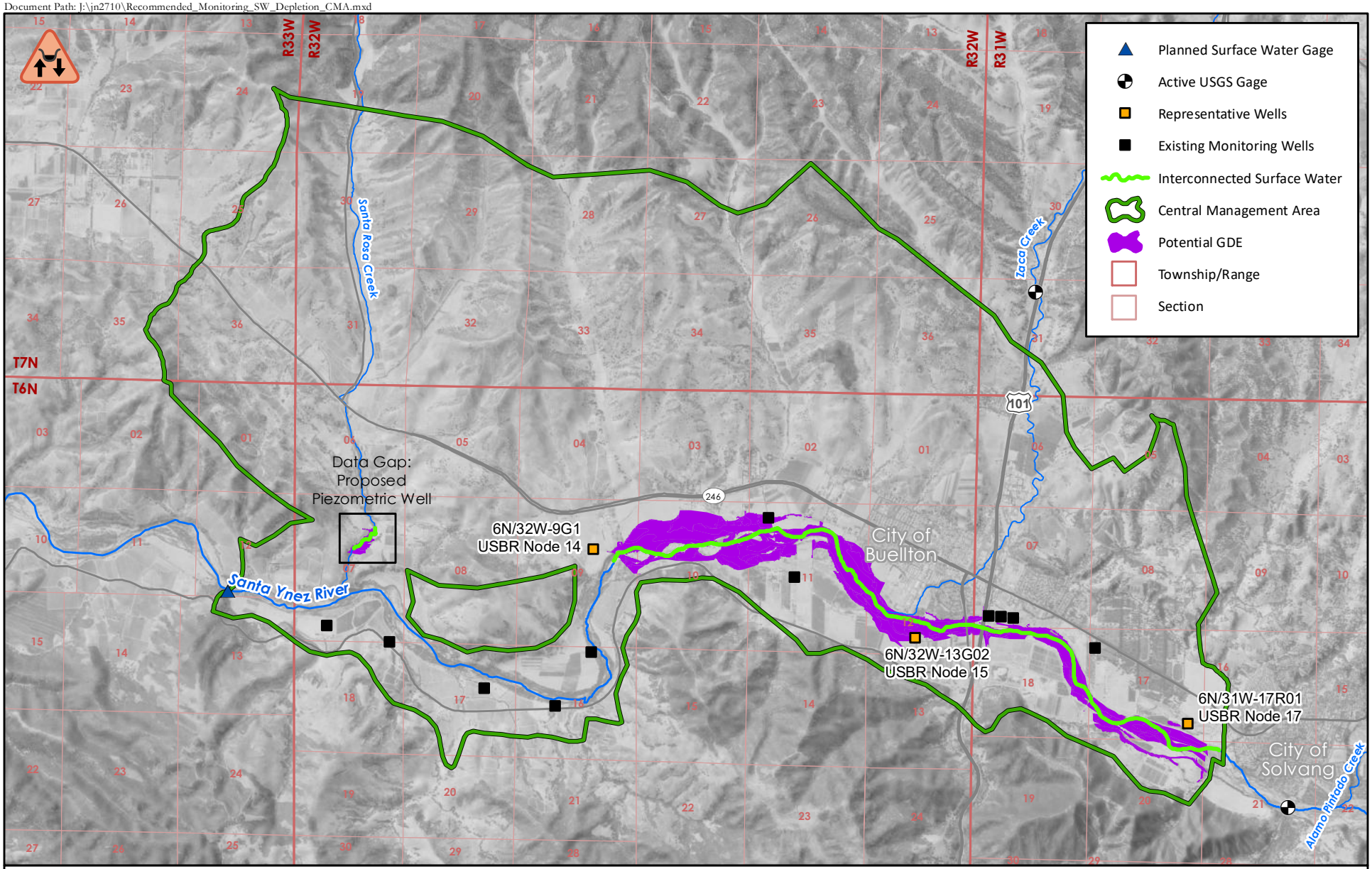
This appendix includes hydrographs, which are graphs of water levels in wells. These are the representative wells for monitoring potential surface water depletion. As per the SGMA regulations, this includes the period from January 1, 2015 through the end of the Water Year 2023. Shown on these graphs are key SGMA criteria: measurable objective, early warning, and minimum threshold.

The Groundwater Sustainability Plan (GSP) includes hydrographs of the long-term period of record. A copy of the GSP, water level data and hydrographs are available at https://sywater.info.

LIST OF ACRONYMS AND ABBREVIATIONS

BGS	below-ground surface
CASGEM	California Statewide Groundwater Elevation Monitoring
CMA	Central Management Area
FT	feet
NAVD88	North American Vertical Datum of 1988
USBR	United States Bureau of Reclamation
USGS	United States Geologic Survey
WL	Water Level

Document Path: J:\jn2710\Recommended_Monitoring_SW_Depletion_CMA.mxd



STETSON ENGINEERS INC.

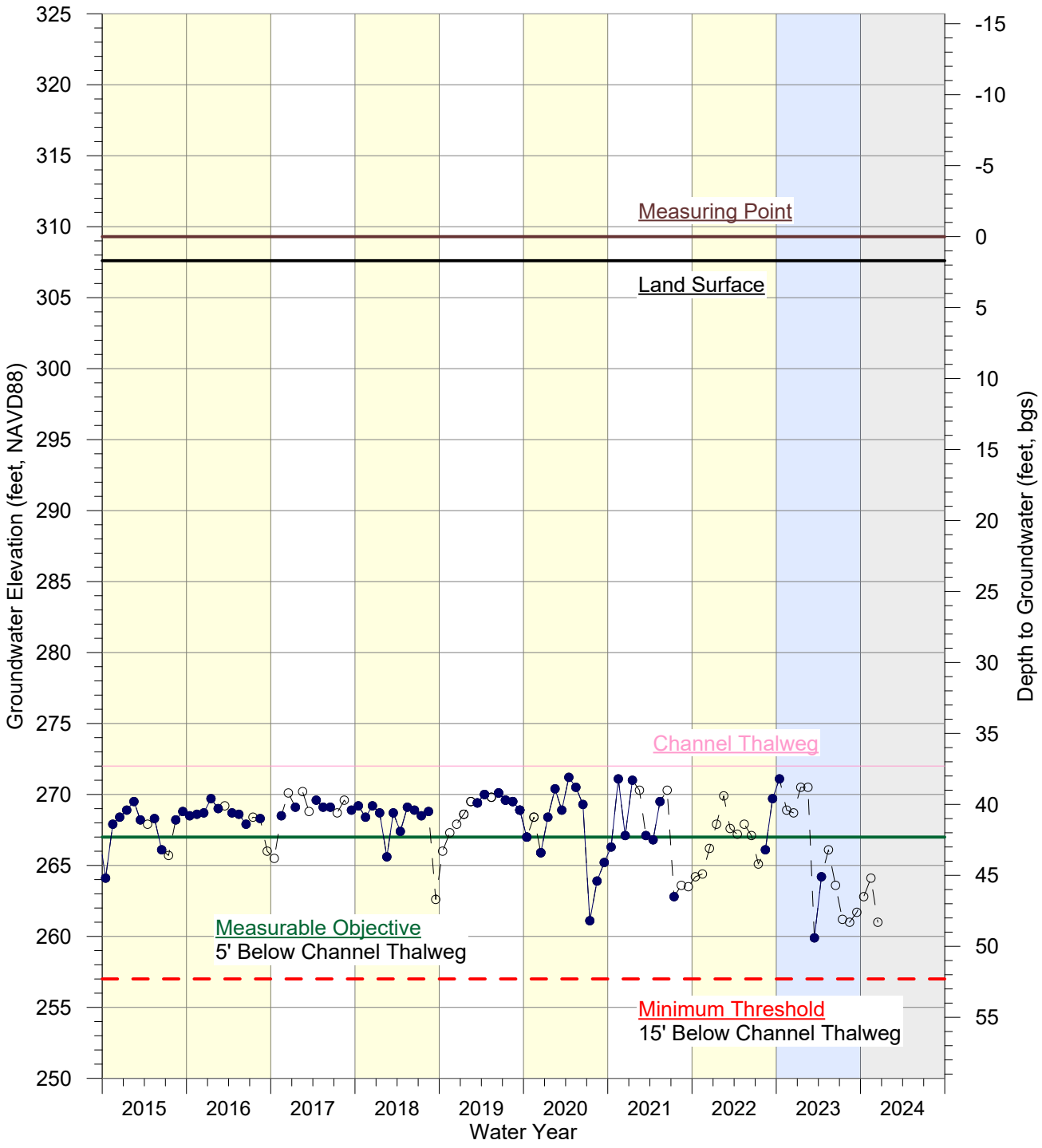
CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

CMA MONITORING NETWORK AND REPRESENTATIVE MONITORING FOR INTERCONNECTED SURFACE WATER AND GROUNDWATER DEPENDENT ECOSYSTEMS

0 0.5 1 Miles

N

CMA Representative Monitoring Well for Interconnected Surface Water and Groundwater Dependent Ecosystems 6N/32W-9G1



US Bureau of Reclamation
US Bureau of Reclamation (Estimated)
Measuring Point (309.3 feet above mean sea level)
Land Surface (307.6 feet above mean sea level)
Depth of Well (97 feet); Perforations TBD

DBID 1120

STETSON ENGINEERS INC.

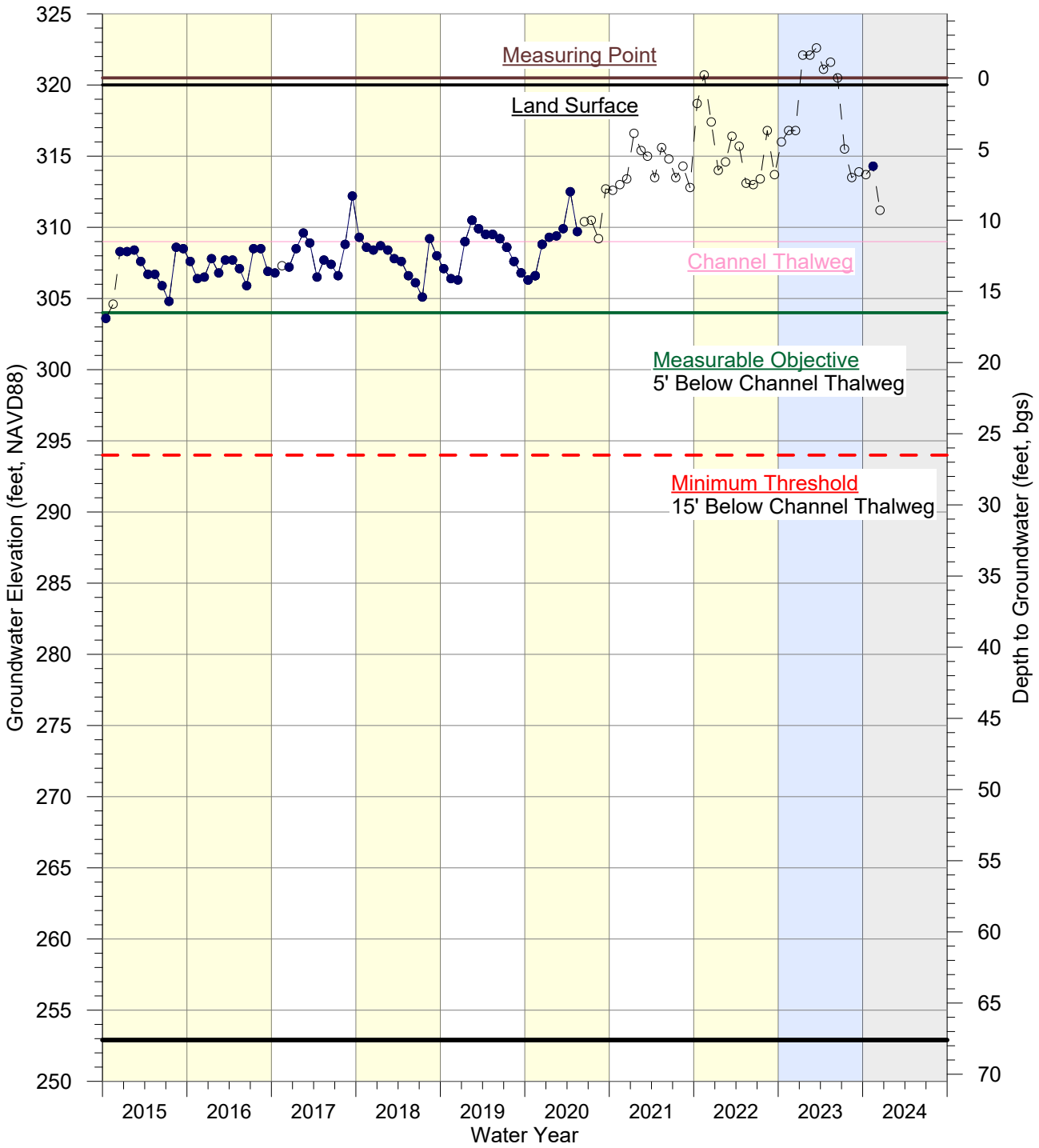
CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL ASSESSING SURFACE WATER DEPLETION

Water Year Type (1942-2023)
- Wet
- Above/Below Normal
- Dry / Critically Dry

F:\DATA\2823\Analyses\WY2023-3rd_Report\2024-01 WY23 GDE GWL Hydrographs\CMA_GDE_Hydrograph_Grapher\CMA Fig B-01 LP-U 1120 9G1.grf 2/20/2024 M. McCammon

CMA Representative Monitoring Well for Interconnected Surface Water and Groundwater Dependent Ecosystems 6N/32W-13G2



US Bureau of Reclamation

US Bureau of Reclamation (Estimated)

Measuring Point (320.5 feet above mean sea level)

Land Surface (320.0 feet above mean sea level)

Depth of Well (67.6 feet); Perforations TBD

DBID 1115

STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

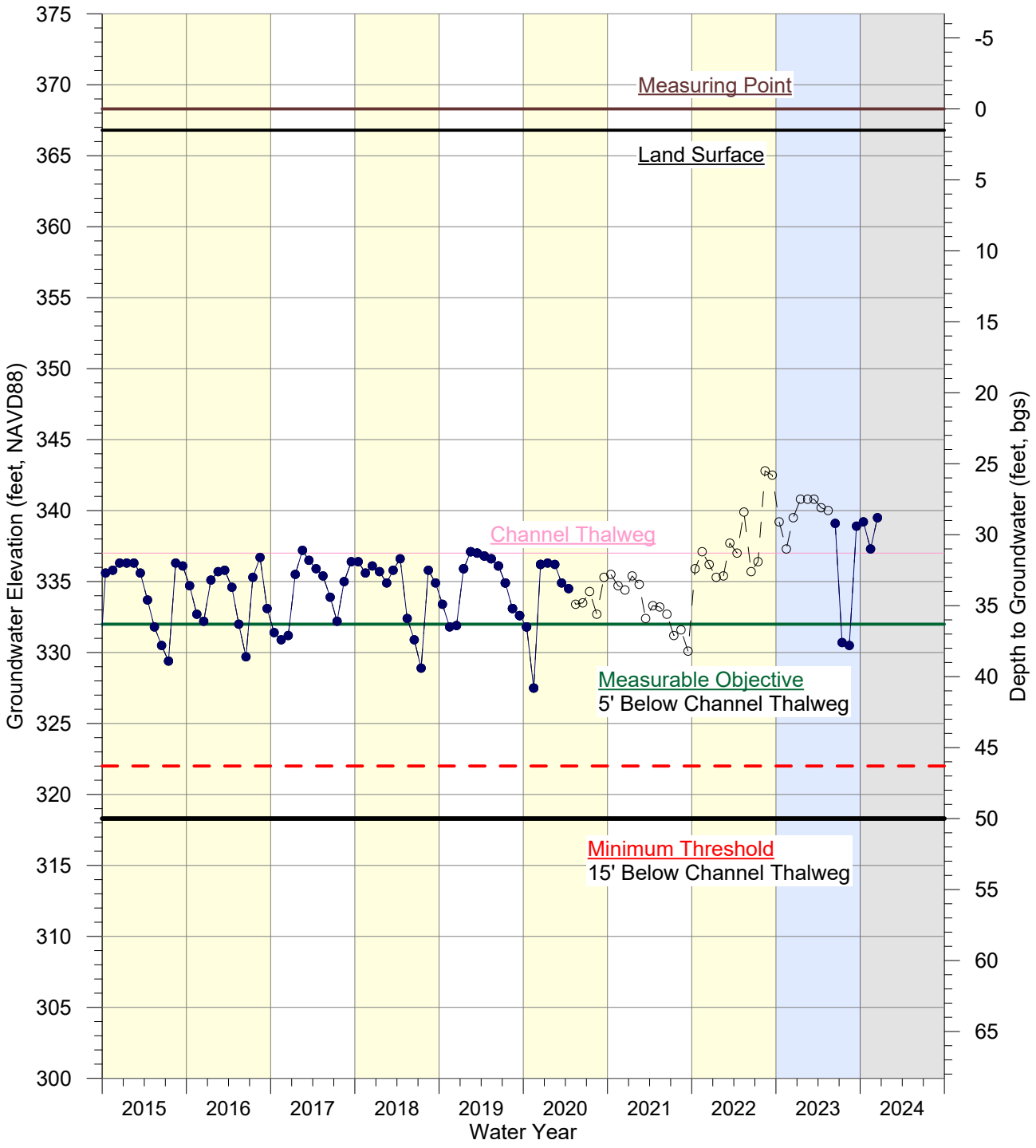
REPRESENTATIVE MONITORING WELL ASSESSING SURFACE WATER DEPLETION

Water Year Type (1942-2023)

- Wet
- Above/Below Normal
- Dry / Critically Dry

F:\DATA\2823\Analyses\WY2023-3rd_Report\2024-01 WY23 GDE GWL Hydrographs\CMA_GDE_Hydrograph_Grapher\CMA Fig B-02 LP-U 1115 13G2.grf 2/20/2024 M. McCammon

CMA Representative Monitoring Well for Interconnected Surface Water and Groundwater Dependent Ecosystems 6N/31W-17R1



US Bureau of Reclamation
US Bureau of Reclamation (Estimated)
Measuring Point (368.3 feet above mean sea level)
Land Surface (366.8 feet above mean sea level)
Depth of Well (50 feet); Perforations TBD

DBID 1111

STETSON ENGINEERS INC.

CMA
Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

REPRESENTATIVE MONITORING WELL ASSESSING SURFACE WATER DEPLETION

Water Year Type (1942-2023)
- Wet
- Above/Below Normal
- Dry / Critically Dry

F:\DATA\2823\Analyses\WY2023-3rd_Report\2024-01 WY23 GDE GWL Hydrographs\CMA_GDE_Hydrograph_Grapher\CMA Fig B-03 LP-U 1111 17R1.grf 2/20/2024 M. McCammon

(Page Intentionally Left Blank)

Chapter 6 – Groundwater Quality

Appendix 6-A:

Groundwater Quality
Central Management Area

INTENTIONALLY LEFT BLANK

APPENDIX 6-A:
GROUNDWATER QUALITY,
CENTRAL MANAGEMENT AREA

WATER YEAR 2023

This appendix includes a discussion of groundwater quality. Sustainable Groundwater Management Act (SGMA) statute and SGMA regulations on Annual Reports do not include discussion of general water quality (see Appendix 1-A). To support the Central Coast Water Board's water quality mission, the Central Management Area (CMA) has included the following periodic evaluation of water quality with this Third Annual Report.

LIST OF ACRONYMS AND ABBREVIATIONS

Cl	Chloride
CMA	Central Management Area
DWR	Department of Water Resources
GSP	Groundwater Sustainability Plan
ILRP	Irrigated Lands Reporting Program
mg/L	milligrams per Liter
MO	Measurable Objective
MT	Minimum Thresholds
N	Nitrogen
Na	Sodium
NO_3	Nitrate
TDS	Total Dissolved Solids
SGMA	Sustainable Groundwater Management Act
SO_4	Sulfate
µg/L	micrograms per Liter (1 mg/L = 1000 µg/L)

The Central Management Area (CMA) Groundwater Sustainability Plan (GSP) identified minimum thresholds (MT), measurable objectives (MO), and interim milestones (at 5 years (2027), 10 years (2032), and 15 years (2037)) for the assessment of groundwater quality. **Table 6-A-1** summarizes the constituents and concentrations identified for the CMA to assess water quality sustainability. **Table 6-A-2** identifies the wells used to assess water quality. Groundwater quality data collection is currently through two programs of the State Water Resources Control Board: Public Water System Reporting in the Safe Drinking Water Information System (SDWIS) and the California Irrigated Lands Reporting Program (ILRP). ILRP data is accessed through the GeoTracker GAMA website.

Table 6-A-1
SGMA Assessment Criteria for Water Quality in the CMA

Constituent	Minimum Thresholds (mg/L)	Measurable Objectives (mg/L)	Interim Milestones (mg/L)		
			5-year (2027)	10-year (2032)	15-year (2037)
Salinity as Total Dissolved Solids (TDS)	1,000	1,000	1,000	1,000	1,000
Chloride (Cl)	150	150	150	150	150
Sulfate (SO_4)	700	700	700	700	700
Sodium (Na)	100	100	100	100	100
Nitrate (N)	10	10	10	10	10

Table 6-A-2
Representative Monitoring Wells for Water Quality

DMS ID	RMW Name	WQ Well ID	Principal Aquifer	Subarea
Buellton Aquifer – Buellton Upland Subarea				
3337	7N/32W-35	AGL020014946	Buellton Aquifer	Buellton Upland
3220	6N/32W - 7	AGL020036041	Buellton Aquifer	Buellton Upland
3173	7N/33W-36	AGL020021622	Buellton Aquifer	Buellton Upland
3137	7N/32W-31	AGL020001355	Buellton Aquifer	Buellton Upland
3139	6N/31W-8	AGL020028450	Buellton Aquifer	Buellton Upland
Buellton Aquifer – Santa Ynez River Alluvium Subarea				
909	6N/32W-12K1, 12K2	Buellton Well 09	Buellton Aquifer	Santa Ynez River Alluvium
3076	6N/32W-3	AGL020008330	Buellton Aquifer	Santa Ynez River Alluvium

DMS = Data Management System, RMW = Representative Monitoring Well

6-A-1 SALINITY - TOTAL DISSOLVED SOLIDS (TDS)

Salinity, as measured by total dissolved solids (TDS), is the dry mass of constituents dissolved in each volume of water. There are two measurements of salinity: TDS, which is a measurement of the total mass of the mineral constituents dissolved in the water, and electrical conductivity, which is a measurement of the conductivity of the solution of water and dissolved minerals. **Table 6-A-3** identifies the results of total dissolved solids at the identified wells.

Table 6-A-3
Salinity as Total Dissolved Solids (TDS) in mg/L,
Historical Water Quality Summary, Representative Monitoring Wells

Well Information		Criteria		Recent Data			
DMS ID	Well ID	MT	MO	Concentration	Date	Source	Currently Exceeds MT?
Buellton Aquifer – Buellton Upland Subarea							
3337	AGL020014946	1,000	1,000	440	2018-04-05	ILRP	No
3220	AGL020036041	1,000	1,000	1,120	2019-12-09	ILRP	No
3173	AGL020021622	1,000	1,000	217	2022-04-28	ILRP	No
3137	AGL020001355	1,000	1,000	257	2022-04-26	ILRP	No
3139	AGL020028450	1,000	1,000	530	2017-10-24	ILRP	No
Buellton Aquifer – Santa Ynez River Alluvium Subarea							
909	Buellton Well 09	1,000	1,000	840	2023-08-23	SDWIS	No
3076	AGL020008330	1,000	1,000	970	2017-06-20	ILRP	No

Notes: All concentrations are mg/L, n/a = not assessed, MT = Minimum Threshold, MO = Measurable Objective, TDS = Total Dissolved Solids

6-A-2 CHLORIDE

Chloride (Cl^-) is a mineral anion and a major water-quality constituent in natural systems. Chloride is characteristically retained in solution through most of the processes that tend to separate other ions. The circulation of chloride ions in the hydrologic cycle is through physical processes. **Table 6-A-4** identifies the results for chloride at the identified wells.

Table 6-A-4
Chloride (Cl) in mg/L,
Historical Water Quality Summary, Representative Monitoring Wells

Well Information		Criteria		Recent Data			
DMS ID	Well ID	MT	MO	Concentration	Date	Source	Currently Exceeds MT?
Buellton Aquifer – Buellton Upland Subarea							
3337	AGL020014946	150	150	43	2018-04-05	ILRP	No
3220	AGL020036041	150	150	127	2019-12-09	ILRP	No
3173	AGL020021622	150	150	31	2017-11-15	ILRP	No
3137	AGL020001355	150	150	32	2017-12-26	ILRP	No
3139	AGL020028450	150	150	82	2017-10-24	ILRP	No
Buellton Aquifer – Santa Ynez River Alluvium Subarea							
909	Buellton Well 09	150	150	61	2023-08-23	SDWIS	No
3076	AGL020008330	150	150	132	2017-06-20	ILRP	No

Notes: All concentrations are mg/L, n/a = not assessed, MT = Minimum Threshold, MO = Measurable Objective, Cl = Chloride

6-A-3 SULFATE

Sulfate (SO_4^{2-}) is a naturally occurring anion and a major water quality constituent. **Table 6-A-5** identifies the results for sulfate at the identified wells.

Table 6-A-5
Sulfate (SO_4) in mg/L,
Historical Water Quality Summary, Representative Monitoring Wells

Well Information		Criteria		Recent Data			
DMS ID	Well ID	MT	MO	Concentration	Date	Source	Currently Exceeds MT?
Buellton Aquifer – Buellton Upland Subarea							
3337	AGL020014946	700	700	120	2018-04-05	ILRP	No
3220	AGL020036041	700	700	405	2019-12-09	ILRP	No
3173	AGL020021622	700	700	19.6	2017-11-15	ILRP	No
3137	AGL020001355	700	700	14	2017-12-26	ILRP	No
3139	AGL020028450	700	700	94.1	2017-10-24	ILRP	No
Buellton Aquifer – Santa Ynez River Alluvium Subarea							
909	Buellton Well 09	700	700	230	2023-08-23	SDWIS	No
3076	AGL020008330	700	700	210	2017-06-20	ILRP	No

Notes: All concentrations are mg/L, n/a = not assessed, MT = Minimum Threshold, MO = Measurable Objective, SO_4 = Sulfate

6-A-4 SODIUM

Sodium (Na^+) is a mineral cation and a major water-quality constituent in natural systems. The 2019 Central Coast Basin Plan indicates the primary concern for sodium in irrigation water is the sodium absorption ratio (SAR). The sodium absorption ratio is the relative concentration of sodium to calcium and magnesium and is managed to maintain soil permeability. **Table 6-A-6** identifies the results for sodium at the identified wells.

Table 6-A-6
Sodium (Na) in mg/L,
Historical Water Quality Summary, Representative Monitoring Wells

Well Information		Criteria		Recent Data			
DMS ID	Well ID	MT	MO	Concentration	Date	Source	Currently Exceeds MT?
Buellton Aquifer – Buellton Upland Subarea							
3337	AGL020014946	100	100	35	2018-04-05	ILRP	No
3220	AGL020036041	100	100	115	2019-12-09	ILRP	Yes
3173	AGL020021622	100	100	27.6	2017-11-15	ILRP	No
3137	AGL020001355	100	100	31	2017-12-26	ILRP	No
3139	AGL020028450	100	100	54.5	2017-10-24	ILRP	No
Buellton Aquifer – Santa Ynez River Alluvium Subarea							
909	Buellton Well 09	100	100	60	2023-08-23	SDWIS	No
3076	AGL020008330	100	100	79.4	2017-06-20	ILRP	No

Notes: All concentrations are mg/L, n/a = not assessed, MT = Minimum Threshold, MO = Measurable Objective, Na = Sodium

6-A-5 NITRATE

Nitrogen is the primary atmospheric gas, however, its presence in water is related to the breakdown of organic waste. Total nitrogen in groundwater is the sum of organic nitrogen and the three inorganic forms: nitrate (NO_3^-), nitrite (NO_2^-), and ammonia (NH_3). Nitrate concentrations are reported either as nitrate (the full mass of the nitrate anion) or as nitrogen (the mass of the Nitrogen). In some cases, a combined nitrate-nitrite as nitrogen is reported. **Table 6-A-7** identifies the results for nitrate at the identified wells.

Table 6-A-7
Nitrate as Nitrogen (NO_3 as N) in mg/L,
Historical Water Quality Summary, Representative Monitoring Wells

Well Information		Criteria		Recent Data			
DMS ID	**Well ID**	**MT**	**MO**	**Concentration**	**Date**	**Source**	**Currently Exceeds MT?**
Buellton Aquifer – Buellton Upland Subarea							
3337	AGL020014946	10	10	0.6	2018-04-05	ILRP	No
3220	AGL020036041	10	10	Less than 0.1	2019-12-09	ILRP	No
3173	AGL020021622	10	10	2.3	2017-11-15	ILRP (NO_3 + NO_2)	No
3137	AGL020001355	10	10	2.02	2022-04-26	ILRP (NO_3 + NO_2)	No
3139	AGL020028450	10	10	0.9	2017-10-24	ILRP (NO_3 + NO_2)	No
Buellton Aquifer – Santa Ynez River Alluvium Subarea							
909	Buellton Well 09	10	10	0.12	2023-08-23	SDWIS (as NO_3)	No
3076	AGL020008330	10	10	1.9	2018-11-14	ILRP (NO_3 + NO_2)	No

Notes: All concentrations are mg/L, values reported as NO_3 converted to NO_3 as N, values NO_3 + NO_2 as N as reported,
n/a = not assessed, MT = Minimum Threshold, MO = Measurable Objective,
NO_3 = Nitrate, NO_2 = Nitrite, N = Nitrogen

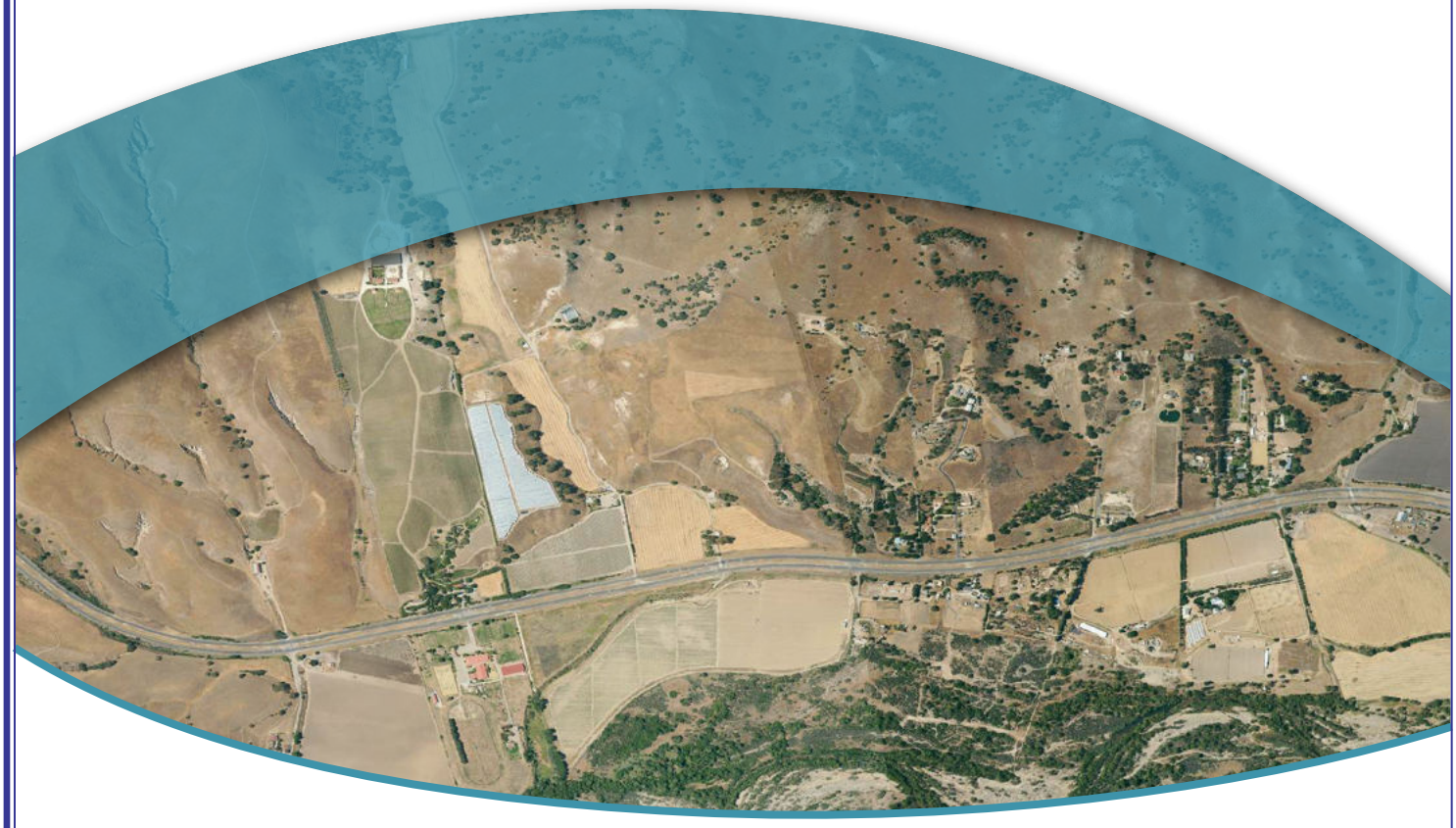
INTENTIONALLY LEFT BLANK

INTENTIONALLY LEFT BLANK

Third Annual Report Water Year 2023
Groundwater Sustainability Plan

CMA

Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency



STETSON
ENGINEERS INC.