Notice and Agenda
Regular Meeting of the Beaumont Basin Watermaster

Wednesday, June 5, 2024 at 11:00 a.m.

Meeting Location:
Beaumont-Cherry Valley Water District
560 Magnolia Avenue • Beaumont, California 92223

This meeting is hereby noticed pursuant to California Government Code Section 54950 et. seq.

Members of the Watermaster Committee:

City of Banning — Beaumont-Cherry Valley Water District
City of Beaumont — South Mesa Water Company
Yucaipa Valley Water District

Remote attendance options are provided primarily as a matter of convenience to the public. Unless a Watermaster Committee member is attending remotely pursuant to provisions of GC 54953 et. seq., the public, in-person meeting will not stop or be otherwise suspended should a technological interruption occur with respect to the Zoom teleconference or call-in line listed on the agenda. Members of the public are encouraged to attend BBWM meetings in person at the above address, or remotely using the options listed.

Online Meeting Participation Link:
https://us02web.zoom.us/j/81638720446?pwd=UnNZcC9TbGZzTGFuMHdhVkRMblczQT09

Telephone: (669) 900-9128 / Meeting ID: 816-3872-0446 / Passcode: 636756
One-Tap Mobile: +16699009128,,81638720446#,,,,*636756#

*For Public Comment, use the **"Raise Hand"** feature if on the video call when prompted, if dialing in, please **dial *9 to "Raise Hand"** when prompted*

Meeting materials are available on the Watermaster website:
https://beaumontbasinwatermaster.org/

BEAUMONT BASIN WATERMASTER COMMITTEE – JUNE 5, 2024

I. Call to Order

II. Roll Call

Committee Member Agency	Primary Representative		Alternate	
City of Banning	Arturo Vela, Chair		Nathan Smith	
City of Beaumont	Robert Vestal		Dustin Christensen	
Beaumont-Cherry Valley Water District	Daniel Jaggers		Mark Swanson	
South Mesa Water Company	Dave Armstrong		Brittany Lim	
Yucaipa Valley Water District	Joseph Zoba		Jennifer Ares	

III. Pledge of Allegiance

IV. Public Comments At this time, members of the public may address the Beaumont Basin Watermaster on matters within its jurisdiction; however, no action or discussion may take place on any item not on the agenda. To provide comments on specific agenda items, please complete a Request to Speak form and provide that form to the Secretary prior to the commencement of the meeting, or, RAISE HAND electronically or Press *9 when prompted for public comment.

ACTION ITEMS

Action may be taken on any item on the agenda.

V. Consent Calendar

A. Meeting Minutes
Note: The April 3, 2024 meeting was cancelled

a. April 17, 2024 Special Meeting [Page 6]

B. Status Report on Water Level Monitoring throughout the Beaumont Basin through May 20, 2024 [Page 14]

C. A Comparison of Production Rights versus Production through April 2024 [Page 25]

VI. Reports

A. Report from Engineering Consultant - Hannibal Blandon, ALDA Engineering

B. Report from Hydrogeological Consultant - Thomas Harder, Thomas Harder & Co.

C. Report from Administrative Consultant – Steve Stuart, Dudek

D. Report from Legal Counsel - Thierry Montoya/Keith McCullough, Frost, Brown, Todd

E. Financial Status Report – Period Ending April 30, 2024 [Memorandum No. 24-15, Page 27]

VII. Discussion Items

A. Consideration of the Watermaster Budget for Fiscal Year 2024-25 [Memorandum No. 24-16, Page 32]

Recommendation: Approve the Budget as presented and invoice each committee member accordingly

B. 2023 Consolidated Annual Report and Engineering Report – Presentation on Comments Received on Draft Report [Memorandum No. 24-17, Page 34]

Recommendation: That the Watermaster Committee Considers Approving the 2023 Annual Report after Comments Received on the Draft Report are Presented and Discussed

The draft annual report can be downloaded here: https://beaumontbasinwatermaster.org/home-2/documents-and-publications/

C. Update on the Safe Yield Reset of the Beaumont Basin [Memorandum No. 24-18, Page 65]

Recommendation: For information and discussion

D. Update on Revising the BBWM Rules and Regulations [Memorandum No. 24-19, Page 179]

Recommendation: For discussion purposes only

E. Analysis of Future Hydrogeologic Scenarios Using the Model [Memorandum No. 24-20, Page 258]

Recommendation: For information and discussion

F. Consideration of Amendment to Task Order No. 4 for Preparation and Attendance at Special Committee Meetings [Memorandum No. 24-21, Page 265]

Recommendation: Approve an amendment to Task Order No. 4 for a sum not to exceed $12,825.00

G. Update on Annual Water Budget Analysis for Proposed Beaumont Basin Study Areas [No written report]

Recommendation: Presentation only. No action required

VIII. Topics for Future Meetings

	Item	Date Listed
A	Development of a Recycled Water Policy	3/27/2019
B	Development of a return flow accounting policy	3/27/2019
C	Development of a methodology and policy to account for groundwater storage losses in the basin / groundwater management	3/27/2019

D	Procurement Policy including thresholds for RFP process	8/17/2021
E	Incidental discharge	10/6/2021
F	Monitoring of future west side well sites and methodologies, and potential collaboration with USGS	10/5/2022
G	Discussion on what to do when an Appropriator goes negative	10/4/2023 and 11/1/2023
H	Discussion on Policy to Document and Account for Emergency Potable Water Transfers from Appropriator to Overlying Party (Tabled from 4/17/24 meeting)	4/17/2024

IX. Comments from the Watermaster Committee Members

X. Announcements

2024 Meeting Dates:

Wednesday, July 10 at 11 a.m.	Special Meeting
Wednesday, August 7 at 11 a.m.	Regular Meeting
Wednesday, September 4 at 11 a.m.	Special Meeting
Wednesday, October 2 at 11 a.m.	Regular Meeting
Wednesday, December 4 at 11 a.m.	Regular Meeting

XI. Adjournment

NOTICES

AVAILABILITY OF AGENDA MATERIALS - Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the Beaumont Basin Watermaster Committee in connection with a matter subject to discussion or consideration at an open meeting of the Committee are available for public inspection in the Office of the Watermaster Secretary, at 560 Magnolia Avenue, Beaumont, California ("Office") during business hours, Monday through Thursday from 7:30 a.m. to 5 p.m. If such writings are distributed to members of the Committee less than 72 hours prior to the meeting, they will be available from the Office at the same time or within 24 hours' time as they are distributed to Board Members, except that if such writings are distributed one hour prior to, or during the meeting, they can be made available in the Board Room at the District Office. Materials may also be available on the Watermaster website: https://beaumontbasinwatermaster.org/.

REVISIONS TO THE AGENDA - In accordance with §54954.2(a) of the Government Code (Brown Act), revisions to this Agenda may be made up to 72 hours before the Board Meeting, if necessary, after mailings are completed. Interested persons wishing to receive a copy of the set Agenda may pick one up at the Office, located at 560 Magnolia Avenue, Beaumont, California, or download from the website up to 72 hours prior to the Meeting.

REQUIREMENTS RE: DISABLED ACCESS - In accordance with §54954.2(a), requests for a disability related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting, should be made to the Office, at least 48 hours in advance of the meeting to ensure availability of the requested service or accommodation. The Office may be contacted by telephone at (951) 845-9581, email at info@bcvwd.gov or in writing to the Beaumont Basin Watermaster Committee, c/o Beaumont-Cherry Valley Water District, 560 Magnolia Avenue, Beaumont, California 92223.

CERTIFICATION OF POSTING: A copy of the foregoing notice was posted near the regular meeting place of the Beaumont Basin Watermaster Committee and to its website at least 72 hours in advance of the meeting (Government Code §54954.2(a)).

Consent Calendar

Record of the Minutes of the
Beaumont Basin Committee Meeting of the
Beaumont Basin Watermaster
Special Meeting
Wednesday, April 17, 2024

Meeting Location:

Beaumont-Cherry Valley Water District
560 Magnolia Ave., Beaumont, CA 92223

I. Call to Order

Chair Art Vela called the meeting to order at 11:01 a.m.

II. Roll Call

City of Banning	*Art Vela*	*Present*
City of Beaumont	*Robert Vestal*	*Present*
Beaumont-Cherry Valley Water District	*Dan Jaggers*	*Present*
South Mesa Water Company	*David Armstrong*	*Present*
Yucaipa Valley Water District	*Joseph Zoba*	*Present*

Hanibal Blandon was present as engineer for the Beaumont Basin Watermaster (BBWM).
Jim van de Water was present and representing Thomas Harder as BBWM hydrogeologist
Thierry Montoya was present as BBWM legal counsel.
Steve Stuart of Dudek was present as BBWM administrator.

Members of the public who registered and / or attended:
Allison Edmisten, Yucaipa Valley Water District
Erin Anton, Yucaipa Valley Water District
Jennifer Ares, Yucaipa Valley Water District
Madeline Blua, Yucaipa Valley Water District
Lance Eckhart, San Gorgonio Pass Water Agency
Matt Howard, San Gorgonio Pass Water Agency
Mickey Valdivia, San Gorgonio Pass Water Agency
Brittany Lim, South Mesa Water Company
James Bean, Beaumont-Cherry Valley Water District
Evan Ward, Beaumont-Cherry Valley Water District
Khalid Sebai, Beaumont-Cherry Valley Water District
Mark Swanson, Beaumont-Cherry Valley Water District
Robert Rasha, Beaumont-Cherry Valley Water District
Lynda Kerney, Beaumont-Cherry Valley Water District

III. Pledge of Allegiance

IV. Public Comments: None.

V. Consent Calendar

A. Meeting Minutes
   a. February 7, 2024 Regular Meeting
   b. March 6, 2024 Special Meeting

B. Status Report on Water Level Monitoring throughout the Beaumont Basin through March 11, 2024

C. A Comparison of Production Rights versus Production through February 2024

It was moved by Member Zoba and seconded by Member Jaggers to approve Consent Calendar items A, B and C.

AYES:	Armstrong, Jaggers, Vela, Vestal, Zoba
NOES:	None
ABSTAIN:	None
ABSENT:	None
STATUS:	Motion Approved

VI. Reports

A. Report from Engineering Consultant – Hannibal Blandon, ALDA Engineering
Mr. Blandon reminded about the water meter issues at the Oak Valley Golf Course wells, and said he would visit them today. In addition, there is a potential for a new observation well on the west side of the Basin.

B. Report from Administrative Consultant – Steve Stuart, Dudek – No report

C. Report from Legal Counsel – Thierry Montoya - Frost, Brown, Todd
Mr. Montoya reported that the Riverside Superior Court has appointed Dustin Christensen as the City of Beaumont alternate member.

VII. Discussion Items

A. Certification of Groundwater Production and Imported Water Use during Water Year 2023

Recommendation: Certify groundwater production, imported water spreading, and change in storage in the Beaumont Groundwater Basin during Water Year 2023

Mr. Blandon reminded that groundwater production information is due to the Department of Water Resources (DWR) on April 1 each year and advised

that the information is tardy. The 2023 Consolidated Annual and Engineering Report is typically approved by the Board at the June meeting, or a subsequent meeting, and needs to be submitted along with the production report, he added.

This is the first time production is being reported on a water year basis (October 1, 2022 to September 30, 2023), but the numbers in the Annual Report are provided on a calendar year basis, Blandon noted. He reviewed the figures in the report (water year):

- *Total production: 15,033 acre-feet (af)*
- *State Water Project deliveries: 16,147 af*
- *Total water use: 15,033 af*
- *2023 change in storage for the water year: +3,643 af*

Upon approval of the information, BCVWD staff will submit the documentation to the DWR and the Annual Report will be submitted upon final approval, Blandon noted.

Member Zoba pointed out a typo on the letter and asked about the purpose of sending out the Annual Report if the figures would be different based on water year vs. calendar year. Mr. Blandon suggested that including an explanation of the differences may suffice. Members discussed reporting figures on both the calendar year and water year basis in a new table for purposes of year-to-year comparison.

Mr. Blandon will update the letter to the State.

It was moved by Member Jaggers and seconded by Member Armstrong to certify groundwater production, imported water spreading, and change in water storage in the Beaumont Groundwater Basin during WY 2023 and approved by the following vote:

AYES:	Armstrong, Jaggers, Vela, Vestal, Zoba
NOES:	None
ABSTAIN:	None
ABSENT:	None
STATUS:	Motion Approved

B. Presentation of Draft 2023 Consolidated Annual and Engineering Report

Recommendation: For review and comment

Mr. Blandon presented highlights of the draft report.

- *Resolution 2023-01 recognized the transfer of 232.4 af of overlying water rights to the Beaumont-Cherry Valley Recreation and Park District*
- *Approved Budget in 2023-2024 just under $37,000 is much lower than the final expenses in the previous two years. Mr. Blandon understands that some of the funds from 2022-23 have accumulated and will be used to fund some of the projects in 2023-2024.*
- *Historical precipitation: the 25-year 13.3 inches average is significantly lower than the 100-year average*
- *Groundwater production by Appropriators totaled 12,709 af (80.6 percent of the five year average)*
- *Groundwater production by Overliers totaled 1,518 af*
- *Imported water spreading totaled 20,393 af (highest ever)*
- *SGPWA spread 10,508 af at the Little San Gorgonio Creek Spreading Basins between 2004 and 2018*
- *City of Beaumont Wastewater Treatment Plant discharged 3,790 af (below the 5-year average) at Cooper's Canyon*
- *2018 conversion of underproduction by Overliers totaled 4,480 af*
- *Conversion of Overlying Rights to Appropriative Rights – a total of 478.25 af have been permanently transferred from Oak Valley Partners to YVWD.*
- *Total 2023 production was 4,958 af*
- *12,642 af were added to storage in the 2023 calendar year*
- *Current water in storage in the Basin totals 108,790 af*
- *2023 allocation of unused Overlying water right / underproduction to 2028 is 4,704 af*
- *Storage increased by 11,462 af from winter 2022 to winter 2023.*
- *The Operating Safe Yield for 2023 is estimated at 5,297 af*
- *No primary water quality standards were exceeded*

Discussion ensued regarding documentation of the transfers from Oak Valley Partners (OVP) to YVWD in 2023. Member Jaggers suggested adding further discussion to a workshop agenda. Counsel Montoya clarified that the water has been transferred with finality. OVP has made it clear they are forgoing their rights to the water in the amounts set forth in the Form 5, granting that water to YVWD. There can be no ambiguity, he noted. The accounting of it is a different issue, but the legality of the transfer has occurred, he stated.

The development of a recycled water policy is on the to-do list for the subcommittee of Zoba and Jaggers, the Committee was reminded. Member Armstrong advised caution.

Members commended the SGPWA for their water supply efforts.

Mr. Blandon requested comments on the draft by May 17 with presentation of the final Report at the June 5 meeting for approval.

C. Update on Technical Memorandum on 2023 Safe Yield Redetermination

Recommendation: No recommendation

Principal Hydrogeologist Jim Van de Water of Thomas Harder and Associates reported that a working draft is in progress with the intent to include it in the June 5 agenda packet.

D. Discussion on Developing Policy to Document and Account for Emergency Potable Water Transfers from Appropriator to Overlying Party

Recommendation: Discussion only

Steve Stuart explained that BCVWD had received a letter from the Morongo Band of Mission Indians (MBMI) (an overlier) stating that they request a temporary, one-time transfer 44 af of water in lieu of water served that was provided by BCVWD to the MBMI in July 2022.

BCVWD entered into an Emergency Potable Water Service Connection Agreement with MBMI for the purpose of providing an emergency, temporary source of water when requested by MBMI. This is a different case than the permanent transfer of water rights via a Form 5, and is a new item to address in the Rules and Regulations, Stuart explained.

He pointed to the suggested process with adjusted appropriative water right and development of a new Form 9 to document the amount of water provided and when.

Member Jaggers provided detail on the emergency service request from the Tukwet Canyon Golf Club related to a well out of service. One of the elements of the agreement allowed for the transfer of overlier right to satisfy the cost of that water. BCVWD provided the water in August 2022, the agreement and the ask from the MBMI came in 2023, and it seems a Form would be a simple way to make the adjustment.

BCVWD understands the golf course is a community resource and does not want to see it blighted due to lack of water, Jaggers explained. He pointed out that the Beaumont-Cherry Valley Recreation and Park District now owns the Danny Thomas Ranch with some overlier water rights. If BCVRPD were to utilize their well to self-serve they may have the same type of ask in the future.

This is not in the judgment, Stuart noted. If agreeable, Dudek would begin working this into a new section as part of the revision of the Rules and Regulations, he stated. Legal Counsel Montoya voiced concern about acting outside of the ambit of the judgment; it is problematic, the BBWM does not have the authority, and it could set precedent, he advised. He said he did not want to stray down that path at all.

If this is to be discussed, Montoya continued, do not consider adding any rule or amending anything until more information is obtained about the request. The documentation about what has been promised should be examined to see if the action is within the ambit of the BBWM authority.

Chair Vela tabled the item for future discussion.

E. Update on Revising and Modernizing the BBWM Rules and Regulations

Recommendation: Presentation only. No action required.

Mr. Stuart requested clarification and direction from the committee on:

1. *Beaumont Basin Water Resources Management Plan, which is referred to in the Rules. Member Zoba said he believes that is the Salinity Plan under the San Timoteo Watershed Management Authority. Jaggers agreed, but said it is likely outdated.*
2. *Statement of Investment Policy: Member Zoba indicated this exists as Resolution 2004-01. He will check for any updates.*
3. *Standard Form of Intervention, when a party not connected to the judgment asks to be a part of it, but will not receive any water rights. Mr. Montoya noted that any "intervention as a matter of right" would have to be done by law and motion and approved by the Court, not on a form. Mr. Stuart will strike the reference to it.*
4. *Application for Recapture – submittal of a groundwater storage agreement but has no plan for recovery at the time, but later submits an application for recapture. No such form exists.*

Other terms referred to in the Rules and Regulations are:

- *Salt Credits – this has not yet been used. Jaggers provided examples when this might apply*
- *Redetermination of Operating Yield – The term is confusing as the judgment defines it. Stuart suggested recharacterizing as "Annualized Safe Yield"*

Stuart shared a table of items that have been identified for revision.

F. Consideration of Special Meetings / Workshops

Recommendation: Consider setting a schedule for special meetings / workshops for July 2024 and beyond

It was moved by Member Jaggers and seconded by Member Zoba to add workshops on July 10 and September 4 by the following vote:

AYES:	Armstrong, Jaggers, Vela, Vestal, Zoba
NOES:	None
ABSTAIN:	None
ABSENT:	None
STATUS:	Motion Approved

VIII. Topics for Future Meetings

	Item	Date Listed
A	Development of a Recycled Water Policy	3/27/2019
B	Development of a return flow accounting policy	3/27/2019
C	Development of a methodology and policy to account for groundwater storage losses in the basin / groundwater management	3/27/2019
D	Procurement Policy including thresholds for RFP process	8/17/2021
E	Incidental discharge	10/6/2021
F	Monitoring of future west side well sites and methodologies, and potential collaboration with USGS	10/5/2022
G	Discussion on what to do when an Appropriator goes negative	10/4/2023 and 11/1/2023
H	Development of a Policy to Document and Account for Emergency Potable Water Transfers from Appropriator to Overlying Party	4/17/24 (tabled)

IX. Comments from the Watermaster Committee Members: None.

X. Announcements

2024 Meeting Dates:

Wednesday, June 5 at 11 a.m.	Regular Meeting
Wednesday, July 10 at 11 a.m.	Special Meeting
Wednesday, August 7 at 11 a.m.	Regular Meeting
Wednesday, September 4 at 11 a.m.	Special Meeting
Wednesday, October 2 at 11 a.m.	Regular Meeting
Wednesday, December 4 at 11 a.m.	Regular Meeting

XI. Adjournment

Chair Vela adjourned the meeting at 12:51 p.m.

Attest:

DRAFT UNTIL APPROVED

_____

Daniel Jaggers, Secretary
Beaumont Basin Watermaster

BEAUMONT BASIN WATERMASTER

Date: June 5th, 2024

From: Hannibal Blandon, ALDA Inc.

Subject: Status Report on Water Level Monitoring throughout the Beaumont Basin through May 20, 2024

Recommendation: Presentation - No recommendation.

At the present time, there are 15 monitoring wells equipped with pressure transducers collecting water level information on an hourly basis at various locations throughout the basin. In addition, two of these monitoring wells are equipped with additional probes to collect barometric pressures at opposite ends of the Beaumont Basin. The location of active monitoring wells is depicted in the attached Figure No. 1. The location of two potential monitoring wells currently being considered are identified in red in this figure. Ground elevations at all sites were obtained from Google Earth, which has varied over time at selected sites and could continue to vary in the future. The Watermaster Committee is in the process of surveying all production and monitoring wells using a common datum.

Water levels at selected locations are depicted in Figures 2 through 7 and are described as follows:

- ✓ Figure No. 2 – Water levels at YVWD Well No. 34 and Oak Valley Well No. 5 are considered representative of basin conditions in the Northwest portion of the basin. From the summer of 2015 through the spring of 2019, water levels at these two wells were fairly steady; however, over the last five years a significant decline has been observed. A 20-foot decline has been recorded at YVWD 34 over this period to its current elevation of 2,122 ft. The decline at Oak Valley 5 has been steeper with a drop 24 feet in the first half of 2020 despite the fact that this well was pumped last in the fall of 2019. Oak Valley 5 is no longer being monitored, as of the Summer of 2020, as it has been destroyed. It is being included here for reference purposes at this time since there is no other well in the immediate area that could be used to monitor levels in the area.

- ✓ Figure No. 3 – Two of the Noble Creek observation wells are presented in this figure representing the shallow and deep aquifers. From the summer of 2016 through the spring of 2018, the water level in the shallow aquifer monitoring well increased over 80 feet to an elevation of 2,422 ft. Water level continued to increase, although at a lower rate, over the ensuing 18 months reaching a peak elevation of 2,431 ft in the fall of 2019. Since, it declined 100 feet to 2,331 ft. in the spring of 2023, a significant recovery of 87 ft has been recorded over the last year to its current elevation of 2,418 ft. In the deeper aquifer, the increase in water level was steady from the summer of 2016 through the spring of 2020 reaching a peak elevation of 2,302 ft.; a decline of 57 feet has been recorded since to a low elevation of 2,245 ft, recorded on August 15, 2023. On that date, this well was vandalized resulting in the disruption of the communications cable and the temporary collection of accurate water level information. With the November visit, the data was

cleaned and it is now included in the figure. A new communications cable was installed on December 6th 2023. Since August 2023, water level at this well has increased by 27 ft. to elevation 2,272 ft.

- ✓ Figure No. 4 – Southern Portion of the Basin. The water level at the Summit Cemetery well is highly influenced by a nearby pumping well that is used to irrigate the cemetery grounds. Since monitoring began, the water level has fluctuated over a 20-foot range. Water level information between January and October 2022 was not collected due to equipment malfunction and vandalism. New water level monitoring equipment was installed at the beginning of October 2022 and the site has been secured to minimize future vandalism. The newly installed optical communications cable worked for a few months, but failed to transmit and was replaced on January 10, 2024. In the last four months, the water level increased to elevation 2,518 ft, matching the spring of 2020 elevation, as the highest recorded since monitoring began; however, it has recently declined to elevation 2,512 ft.

- ✓ Also depicted in Figure No. 4 is the water level at the Sun Lakes well site. It has fluctuated minimally between 2015 and the end of 2021, when it began to decline. Between November 2021 and May 2022, the water level dropped by eight feet to 2,405 ft. However, it has recovered to 2,416 ft in the last two years. Water level information could not be collected between May and early October 2022 due to equipment malfunction. A new communications cable and recording probe were installed in early October 2022, while the probe has been working properly, the new optical cable did not and was replaced during our January 2024 visit.

- ✓ Figure No. 5 illustrates water levels at three wells owned by the City of Banning in the Southeast portion of the basin. While water level at the Old Well No. 15 (Chevron Well) has been fairly flat over the last six years, a somewhat significant and steady decline, close to 34 feet, has been recorded at Banning M-8 between the summer of 2015 and the present to its current elevation of 2,045 ft. Water level at Banning M-9 has fluctuated in a 19-foot range, between 2,128 ft and 2,147 ft. Current water level elevation is at 2,149 ft. represents the highest level recorded at this well since monitoring began. While the water level probe has been collecting data hourly at this well, over the last year, three communications cables have been replaced due to the failure of the water seal at the bottom of the cable. The latest replacement cable was installed during our January visit and continued to work through our May 2024 visit, a good sign.

- ✓ Figure No. 6 illustrates recorded water level at BCVWD No. 2 and BCVWD No. 25. Water level at these two wells follow the same seasonal pattern rising in the fall through the spring months and falling during the summer as production increases. The water level at BCVWD No. 25 has been fluctuating over a 25 ft range between 2,191 ft and 2,215 ft in elevation; however, this past summer (2023) it declined more than normal to a low elevation of 2,193 ft; since, water level is recovering to the March 2024 elevation of 2,203 ft. Water level information could not be collected during our last visit. Over the last three years, summer lows have been lower each year, 2,199 ft in the summer of 2021, 2,194 ft in 2022, and 2,193 in 2023. At BCVWD No. 2, water levels since 2017 have ranged between 2,188 ft and 2,216 ft with a current elevation of 2,203 ft. at the upper end of the range

- ✓ showing a significant decline since the spring of 2023. Similar to BCVWD No. 25, lower summer lows have been recorded in recent years. A new communications cable was installed at this well on December 6, 2023; however, no data was recorded through March 2024 due to malfunctioning of the recording probe. A different probe was installed at that time and has been working fine since.

- ✓ Figure No. 7 depicts the recorded water level at the two newest observation wells, BCVWD No. 29 and Tukwet Canyon Well "B". BCVWD No. 29 is a pumping well on the western portion of the basin. This well was extensively used prior to 2022; however, minimum pumping has been recorded since the winter of 2021. A decline in water level of nine feet has been recorded between the spring of 2019 and the spring of 2021. During the May 2021 visit, the communications cable could not be pulled and information from the water level probe could not be downloaded. During our January 2022 visit, the water level meter got lodged between the pump column and the well casing and could not be removed; it has been there since. There is a chance that the water level meter probe may not be recovered until the column is pulled from the well and the equipment recovered.

- ✓ Tukwet B is a dedicated monitoring well in the southern portion of the basin with minimal fluctuations in elevation since the probe was installed in the spring of 2019. The March 2024 water level was recorded at 2,218 ft representing the highest recorded level since monitoring began. No water level information was available between March and May 2024 due to malfunctioning of the recording probe.

Monitoring Wells Additions

No additional monitoring wells were added during this reporting period.

Equipment Installation and Replacement

Communication cable was replaced at:

- ✓ Banning M-8

Troubleshooting Issues

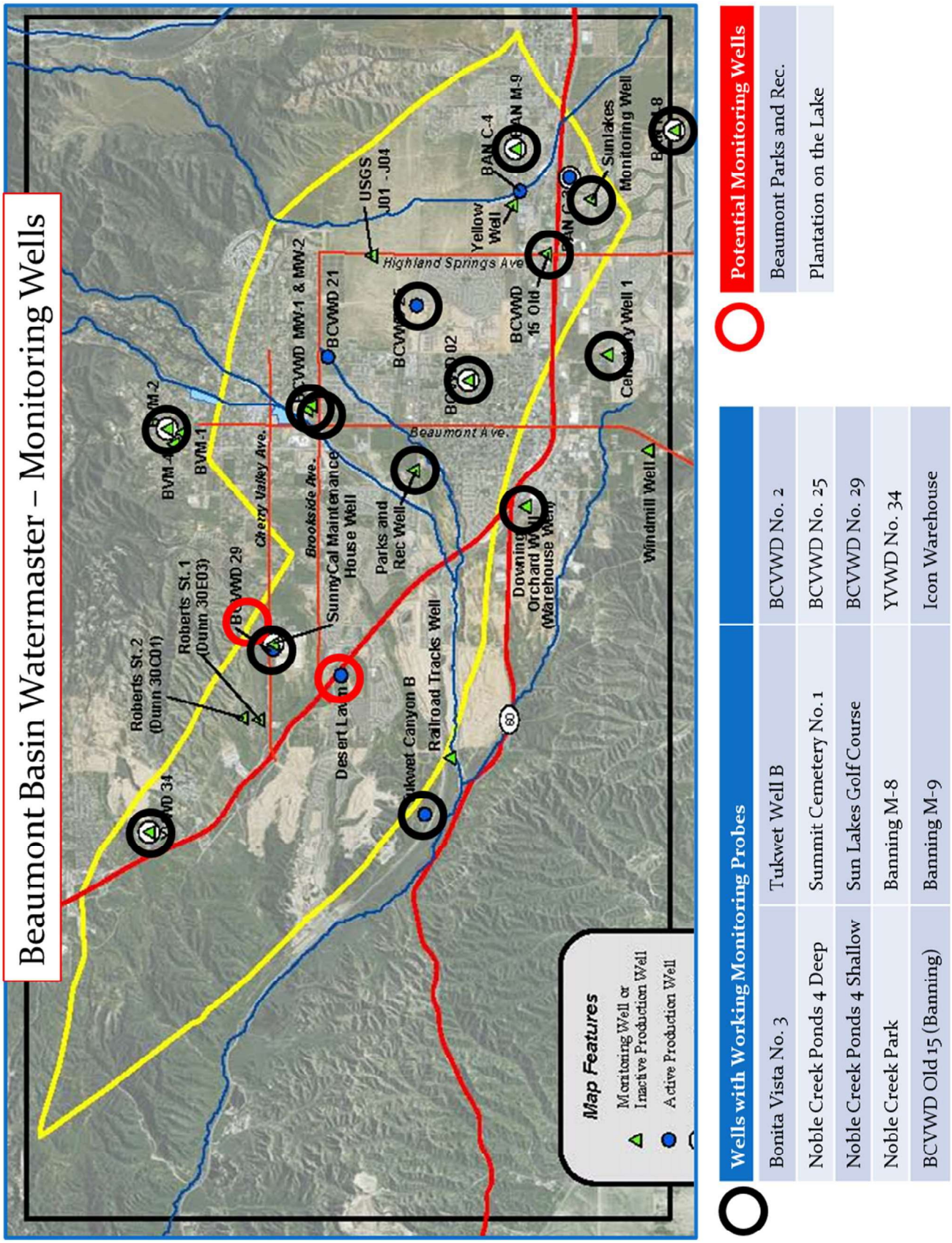
Water level information was manually retrieved at the following wells due to malfunctioning of the communication cables:

- ✓ YVWD No. 34
- ✓ Noble Creek Shallow Aquifer
- ✓ Mountain View

Potential Monitoring Sites

Two production wells have been identified as potential monitoring wells recently. The owners have been contacted and the sites visited. The first well is owned by the Beaumont-Cherry Valley Recreation and Park District. The well is located on the north side of Cherry Valley Blvd and has been recently used to supply water during grading for construction of two warehouses nearby. Upon construction of these facilities, this well will be available to irrigate nearby lands; a monitoring probe could be installed with minor modifications at the well head.

The second well is owned by Plantation on the Lake. The site has been visited and owner is considering drilling a hole on the well head to accommodate the monitoring probe. No progress has been made by owner.


Beaumont Basin Watermaster – Monitoring Wells
Map Features
Monitoring Well or Inactive Production Well
Active Production Well
Roberts St. 2 (Dunn 30C01)
Roberts St. 1 (Dunn 30E03)
BCVWD 29
BVM-1
BVM-2
Cherry Valley Ave.
Brookside Ave.
SunnyCal Maintenance House Well
Parks and Rec Well
Desert Lawn
Tukwet Canyon B
Railroad Tracks Well
BCVWD MW-1 & MW-2
BCVWD 21
USGS J01 - J04
Highland Springs Ave
Beaumont Ave.
BAN C-4
Yellow Well
BCVWD 15 Old
Sunlakes Monitoring Well
Windmill Well
Downing Orchard Well (Warehouse Well)
Wells with Working Monitoring Probes
Bonita Vista No. 3
Tukwet Well B
BCVWD No. 2
Noble Creek Ponds 4 Deep
Summit Cemetery No. 1
BCVWD No. 25
Noble Creek Ponds 4 Shallow
Sun Lakes Golf Course
BCVWD No. 29
Noble Creek Park
Banning M-8
YVWD No. 34
BCVWD Old 15 (Banning)
Banning M-9
Icon Warehouse
Potential Monitoring Wells
Beaumont Parks and Rec.
Plantation on the Lake

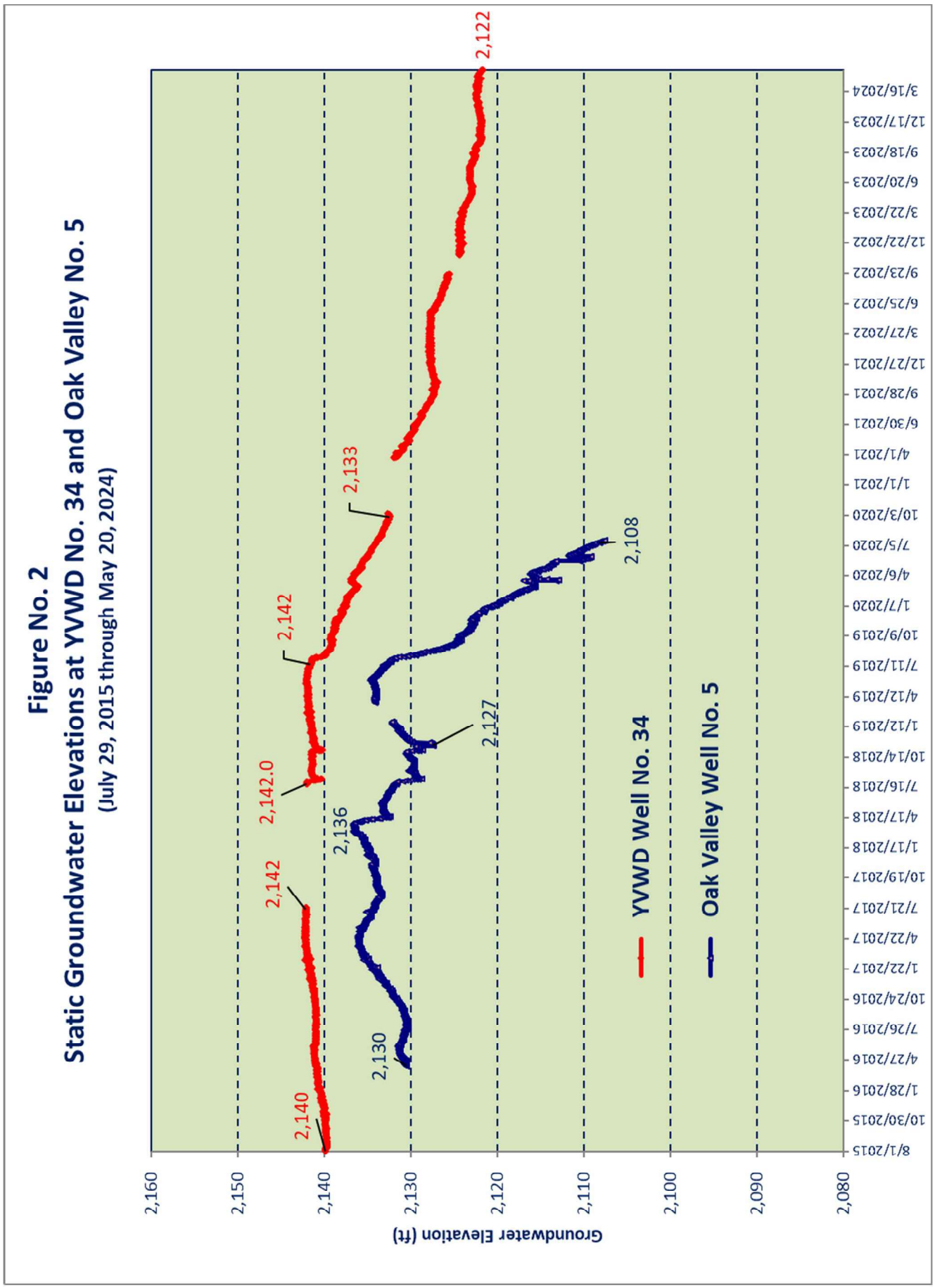


Figure No. 2
Static Groundwater Elevations at YVWD No. 34 and Oak Valley No. 5
(July 29, 2015 through May 20, 2024)
Groundwater Elevation (ft)
2,160
2,150
2,140
2,130
2,120
2,110
2,100
2,090
2,080
YVWD Well No. 34
Oak Valley Well No. 5
2,122
2,133
2,142
2,142.0
2,142
2,140
2,136
2,130
2,127
2,108
8/1/2015
10/30/2015
1/28/2016
4/27/2016
7/26/2016
10/24/2016
1/22/2017
4/22/2017
7/21/2017
10/19/2017
1/17/2018
4/17/2018
7/16/2018
10/14/2018
1/12/2019
4/12/2019
7/11/2019
10/9/2019
1/7/2020
4/6/2020
7/5/2020
10/3/2020
1/1/2021
4/1/2021
6/30/2021
9/28/2021
12/27/2021
3/27/2022
6/25/2022
9/23/2022
12/22/2022
3/22/2023
6/20/2023
9/18/2023
12/17/2023
3/16/2024

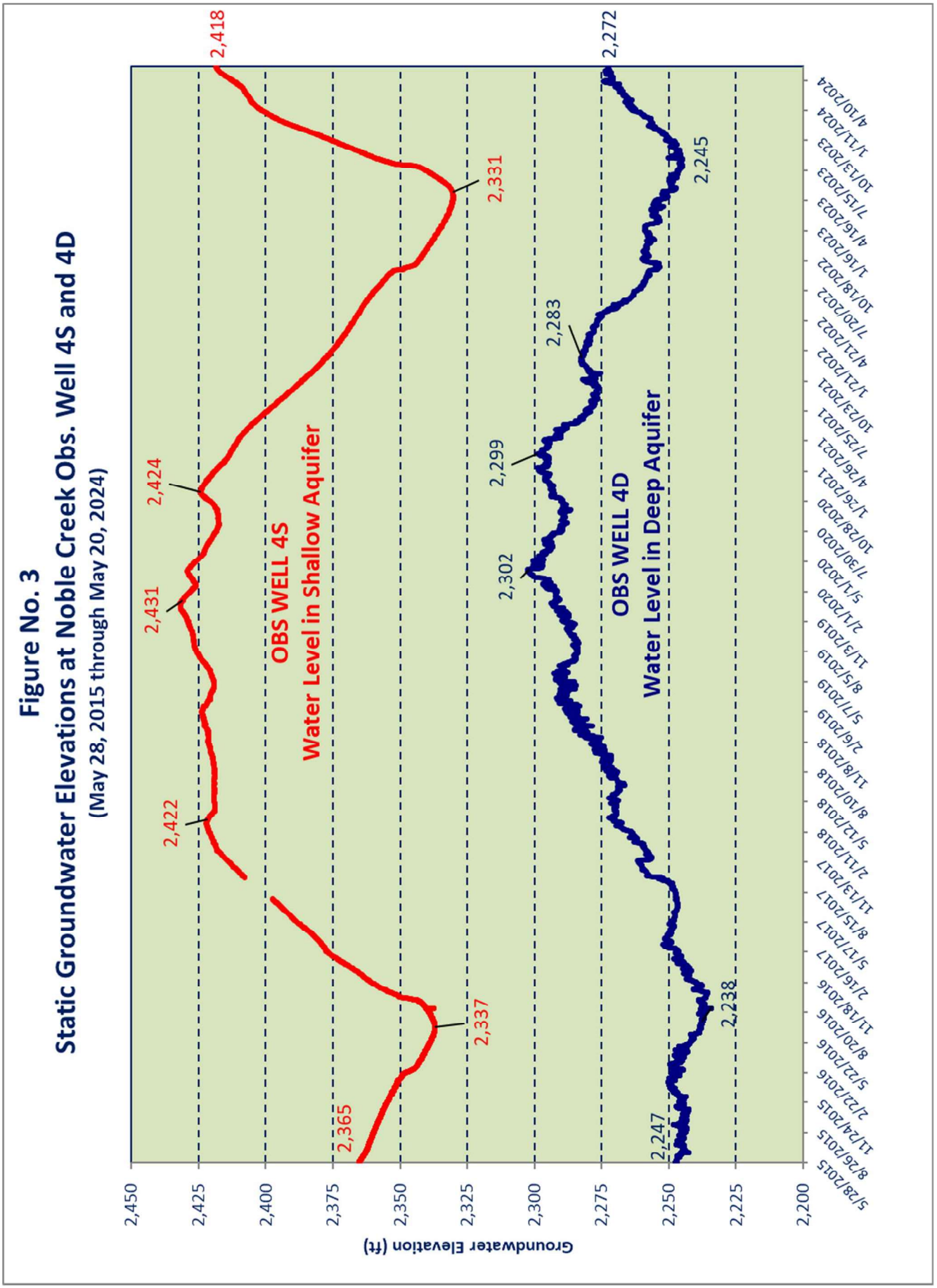


Figure No. 3
Static Groundwater Elevations at Noble Creek Obs. Well 4S and 4D
(May 28, 2015 through May 20, 2024)
OBS WELL 4S
Water Level in Shallow Aquifer
OBS WELL 4D
Water Level in Deep Aquifer
Groundwater Elevation (ft)
2,450
2,425
2,400
2,375
2,350
2,325
2,300
2,275
2,250
2,225
2,200
2,418
2,424
2,431
2,422
2,365
2,337
2,331
2,299
2,283
2,302
2,272
2,245
2,247
2,238
5/28/2015
8/26/2015
11/24/2015
2/22/2016
5/22/2016
8/20/2016
11/18/2016
2/16/2017
5/17/2017
8/15/2017
11/13/2017
2/11/2018
5/12/2018
8/10/2018
11/8/2018
2/6/2019
5/7/2019
8/5/2019
11/3/2019
2/1/2020
5/1/2020
7/30/2020
10/28/2020
1/26/2021
4/26/2021
7/25/2021
10/23/2021
1/21/2022
4/21/2022
7/20/2022
10/18/2022
1/16/2023
4/16/2023
7/15/2023
10/13/2023
1/11/2024
4/10/2024

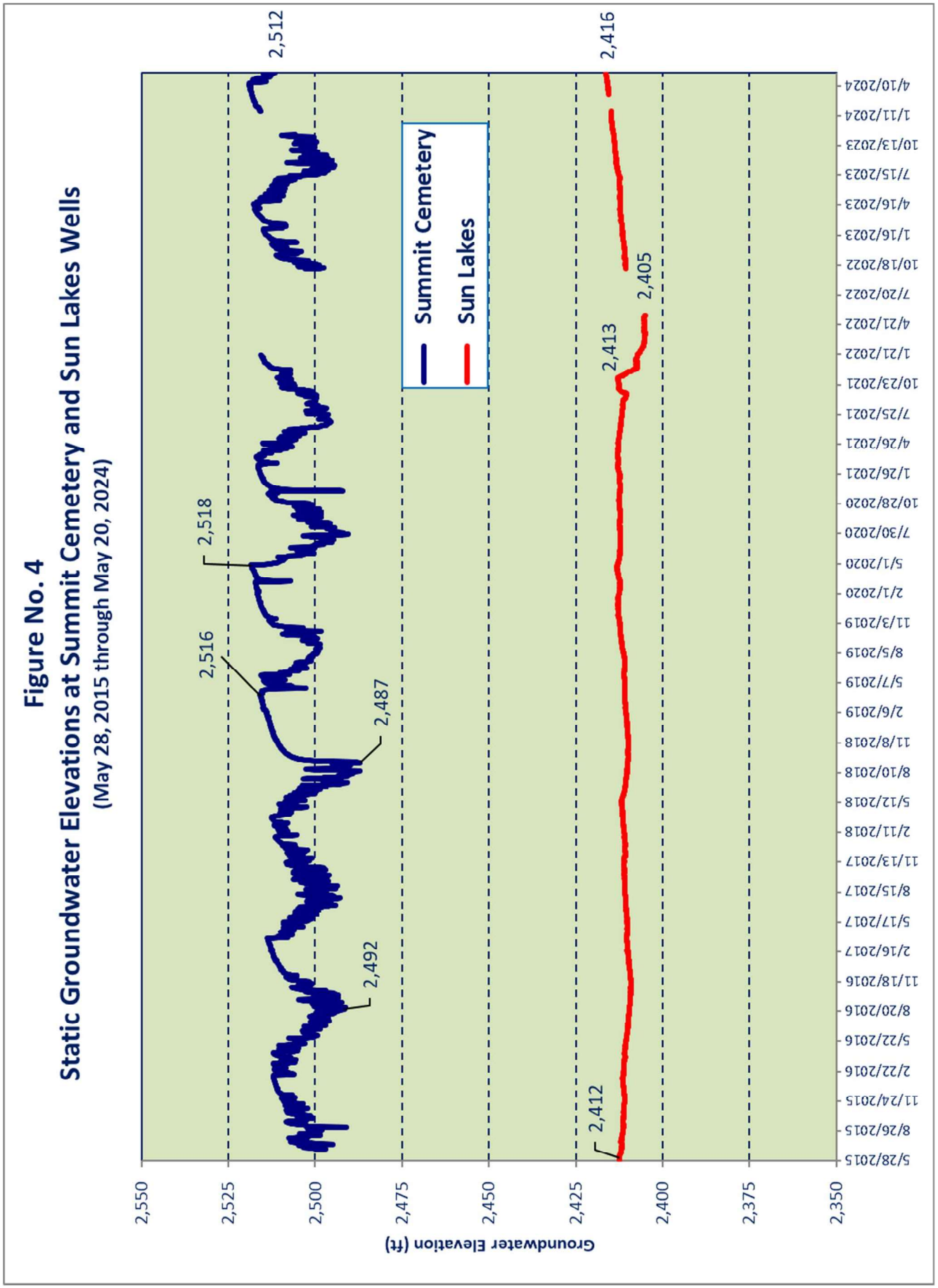


Figure No. 4
Static Groundwater Elevations at Summit Cemetery and Sun Lakes Wells
(May 28, 2015 through May 20, 2024)
Summit Cemetery
Sun Lakes
2,512
2,518
2,516
2,487
2,492
2,416
2,405
2,413
2,412
Groundwater Elevation (ft)
2,550
2,525
2,500
2,475
2,450
2,425
2,400
2,375
2,350
5/28/2015
8/26/2015
11/24/2015
2/22/2016
5/22/2016
8/20/2016
11/18/2016
2/16/2017
5/17/2017
8/15/2017
11/13/2017
2/11/2018
5/12/2018
8/10/2018
11/8/2018
2/6/2019
5/7/2019
8/5/2019
11/3/2019
2/1/2020
5/1/2020
7/30/2020
10/28/2020
1/26/2021
4/26/2021
7/25/2021
10/23/2021
1/21/2022
4/21/2022
7/20/2022
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7/15/2023
10/13/2023
1/11/2024
4/10/2024

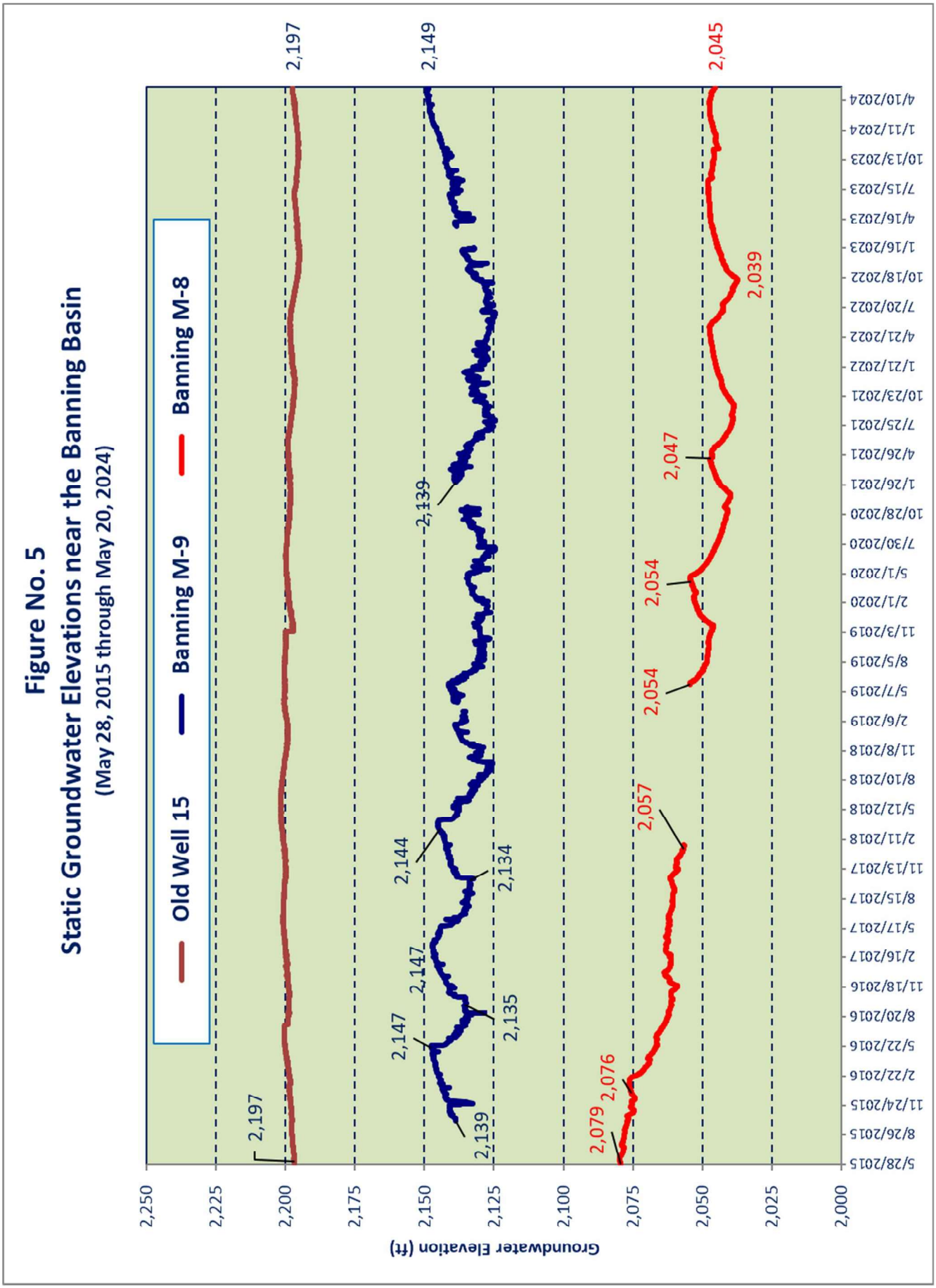
Figure No. 5
Static Groundwater Elevations near the Banning Basin
(May 28, 2015 through May 20, 2024)
Old Well 15
Banning M-9
Banning M-8
Groundwater Elevation (ft)
2,250
2,225
2,200
2,175
2,150
2,125
2,100
2,075
2,050
2,025
2,000
2,197
2,149
2,045
2,139
2,144
2,134
2,147
2,147
2,135
2,139
2,197
2,057
2,079
2,076
2,054
2,054
2,047
2,039
5/28/2015
8/26/2015
11/24/2015
2/22/2016
5/22/2016
8/20/2016
11/18/2016
2/16/2017
5/17/2017
8/15/2017
11/13/2017
2/11/2018
5/12/2018
8/10/2018
11/8/2018
2/6/2019
5/7/2019
8/5/2019
11/3/2019
2/1/2020
5/1/2020
7/30/2020
10/28/2020
1/26/2021
4/26/2021
7/25/2021
10/23/2021
1/21/2022
4/21/2022
7/20/2022
10/18/2022
1/16/2023
4/16/2023
7/15/2023
10/13/2023
1/11/2024
4/10/2024

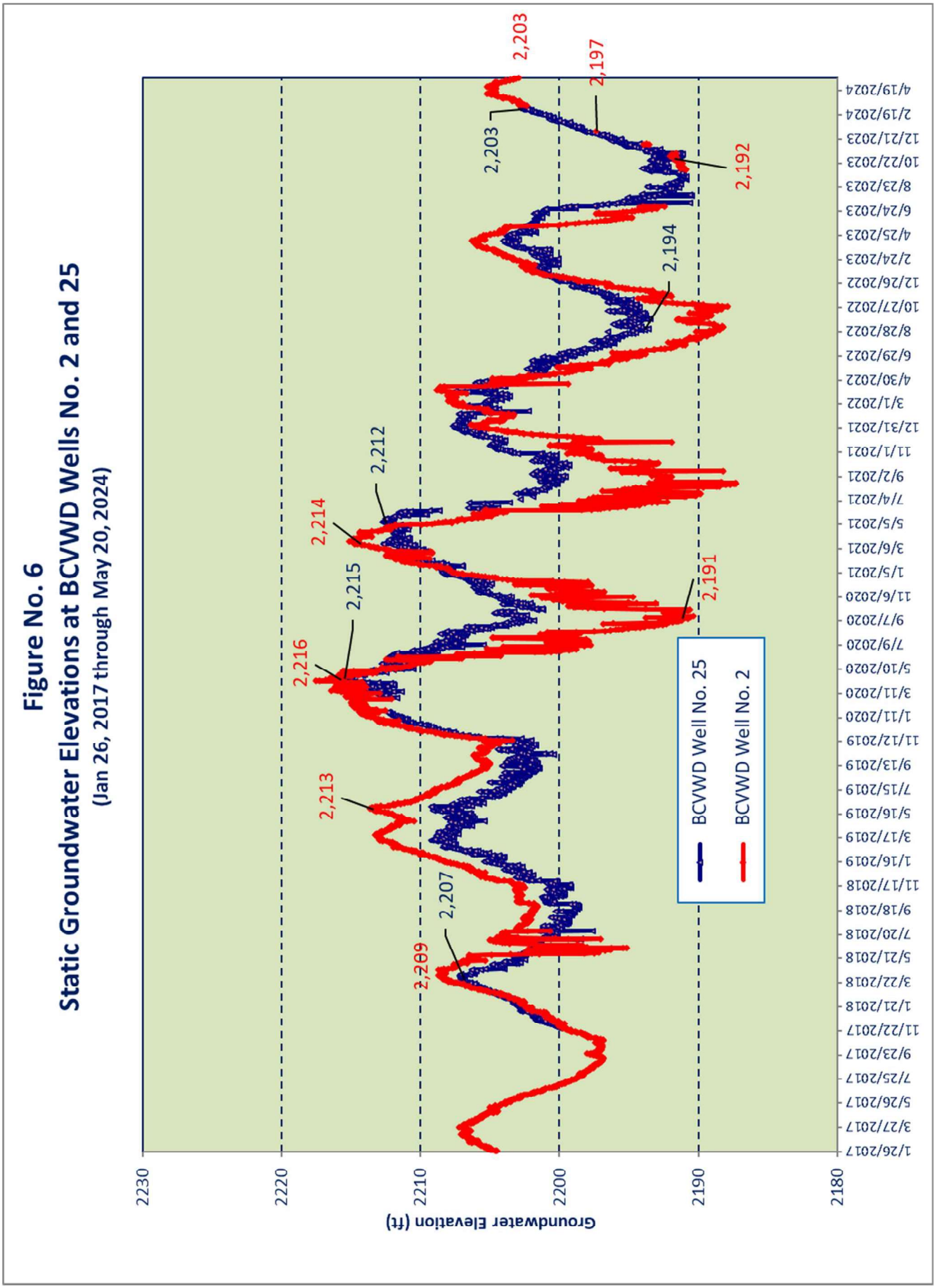
Figure No. 6
Static Groundwater Elevations at BCVWD Wells No. 2 and 25
(Jan 26, 2017 through May 20, 2024)
Groundwater Elevation (ft)
2230
2220
2210
2200
2190
2180
BCVWD Well No. 25
BCVWD Well No. 2
2,203
2,197
2,203
2,192
2,194
2,212
2,214
2,215
2,216
2,213
2,191
2,207
2,209
1/26/2017
3/27/2017
5/26/2017
7/25/2017
9/23/2017
11/22/2017
1/21/2018
3/22/2018
5/21/2018
7/20/2018
9/18/2018
11/17/2018
1/16/2019
3/17/2019
5/16/2019
7/15/2019
9/13/2019
11/12/2019
1/11/2020
3/11/2020
5/10/2020
7/9/2020
9/7/2020
11/6/2020
1/5/2021
3/6/2021
5/5/2021
7/4/2021
9/2/2021
11/1/2021
12/31/2021
3/1/2022
4/30/2022
6/29/2022
8/28/2022
10/27/2022
12/26/2022
2/24/2023
4/25/2023
6/24/2023
8/23/2023
10/22/2023
12/21/2023
2/19/2024
4/19/2024

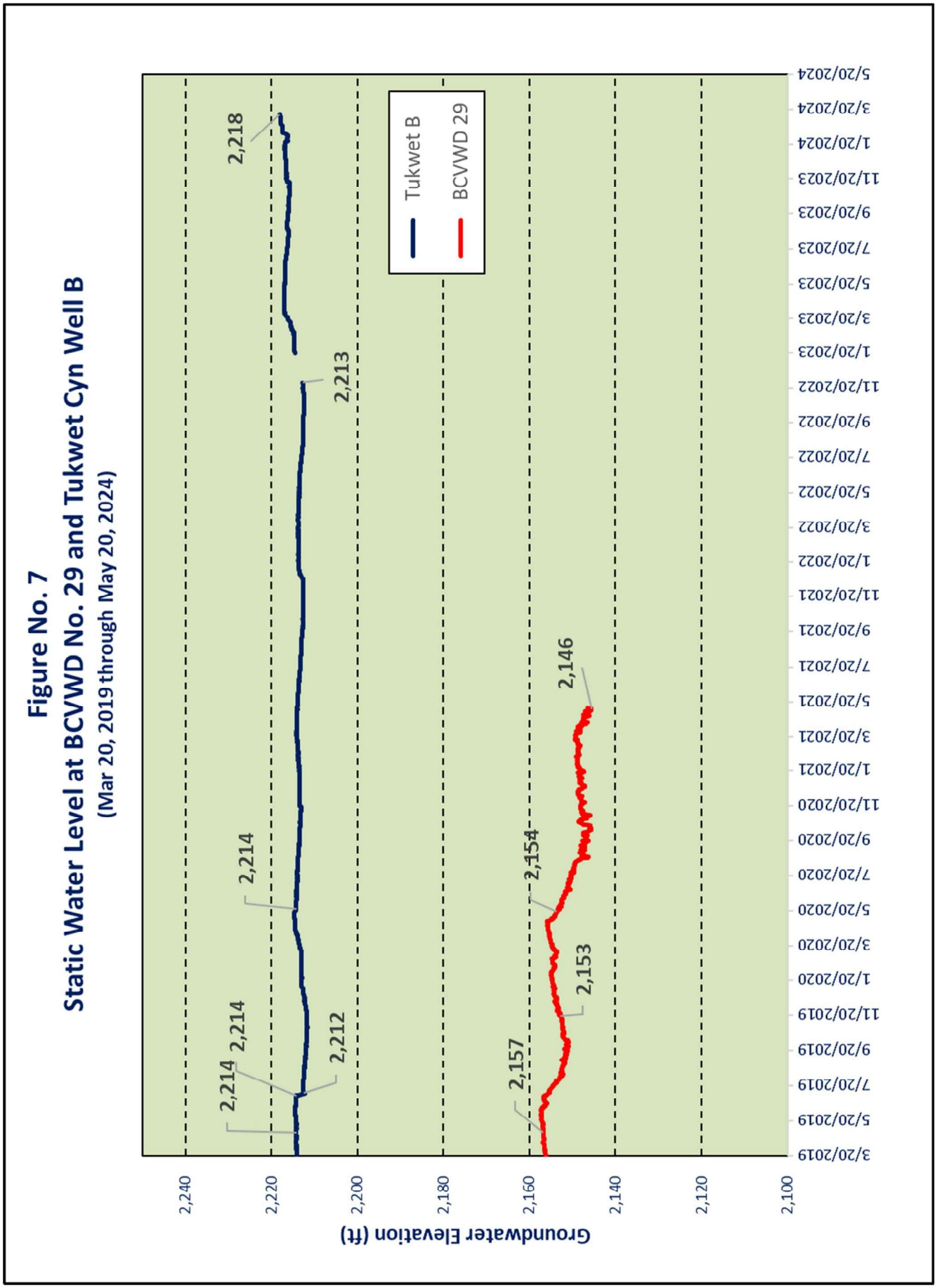
Figure No. 7
Static Water Level at BCVWD No. 29 and Tukwet Cyn Well B
(Mar 20, 2019 through May 20, 2024)
Tukwet B
BCVWD 29
2,218
2,213
2,214
2,214
2,214
2,212
2,146
2,154
2,153
2,157
Groundwater Elevation (ft)
2,240
2,220
2,200
2,180
2,160
2,140
2,120
2,100
3/20/2019
5/20/2019
7/20/2019
9/20/2019
11/20/2019
1/20/2020
3/20/2020
5/20/2020
7/20/2020
9/20/2020
11/20/2020
1/20/2021
3/20/2021
5/20/2021
7/20/2021
9/20/2021
11/20/2021
1/20/2022
3/20/2022
5/20/2022
7/20/2022
9/20/2022
11/20/2022
1/20/2023
3/20/2023
5/20/2023
7/20/2023
9/20/2023
11/20/2023
1/20/2024
3/20/2024
5/20/2024

BEAUMONT BASIN WATERMASTER

Date: June 5th, 2024

From: Hannibal Blandon, ALDA Inc.

Subject: A Comparison of Production Rights vs. Production through April 2024

Recommendation: No recommendation - For informational purposes only

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This Technical Memorandum presents a comparison of Appropriator's Production Rights from the Basin against actual production. At the beginning of each year, Appropriators have certain Production Rights resulting from: a) unused production by overlying users from 2019 and/or b) permanent transfers of overlying water rights. Production Rights for individual Appropriators can be increased through the course of the year by spreading imported (supplemental) water.

Total production by Appropriators through April 2024 was 1,883 ac-ft while Appropriator's Production Rights for the same period were 8,504 ac-ft resulting in a positive storage balance of 6,621 ac-ft, as presented in the table below. Spreading of supplemental water in the first four months of the year was 3,164 ac-ft, all by BCVWD. The Production Rights for all Appropriators was higher than their respective production amounts resulting in a net temporary addition to their individual storage accounts. Storage accounts will be adjusted throughout the calendar year.

	City of Banning	Beaumont Cherry Valley W. D.	South Mesa Mutual W. C.	Yucaipa Valley W. D. (1)	Total
Appropriative Water Rights	1,528	2,067	607	660	4,862
Transfer of Overlying Water Right to Appropriator	0	0	0	478	478
Supplemental Water	0	3,164	0	0	3,164
Appropriator's Production Rights	1,528	5,231	607	1,138	8,504
Production (2)	16	1,706	33	136	1,883
Change in Storage Account	1,512	3,533	574	1,002	6,621
Storage Account Balance as of December 2023	47,651	32,884	10,506	16,855	107,896

1.- YVWD was credited at the beginning of the year with 478.30 ac-ft of Overlying transfers from OVP. Actual credit may be different at the end of the year.
2.- Production by the City of Banning includes eight ac-ft of groundwater produced by BCVWD and delivered to the city at their two connection points.

Reports

ITEM VI - E

BEAUMONT BASIN WATERMASTER
MEMORANDUM NO. 24-15

Date: June 5, 2024

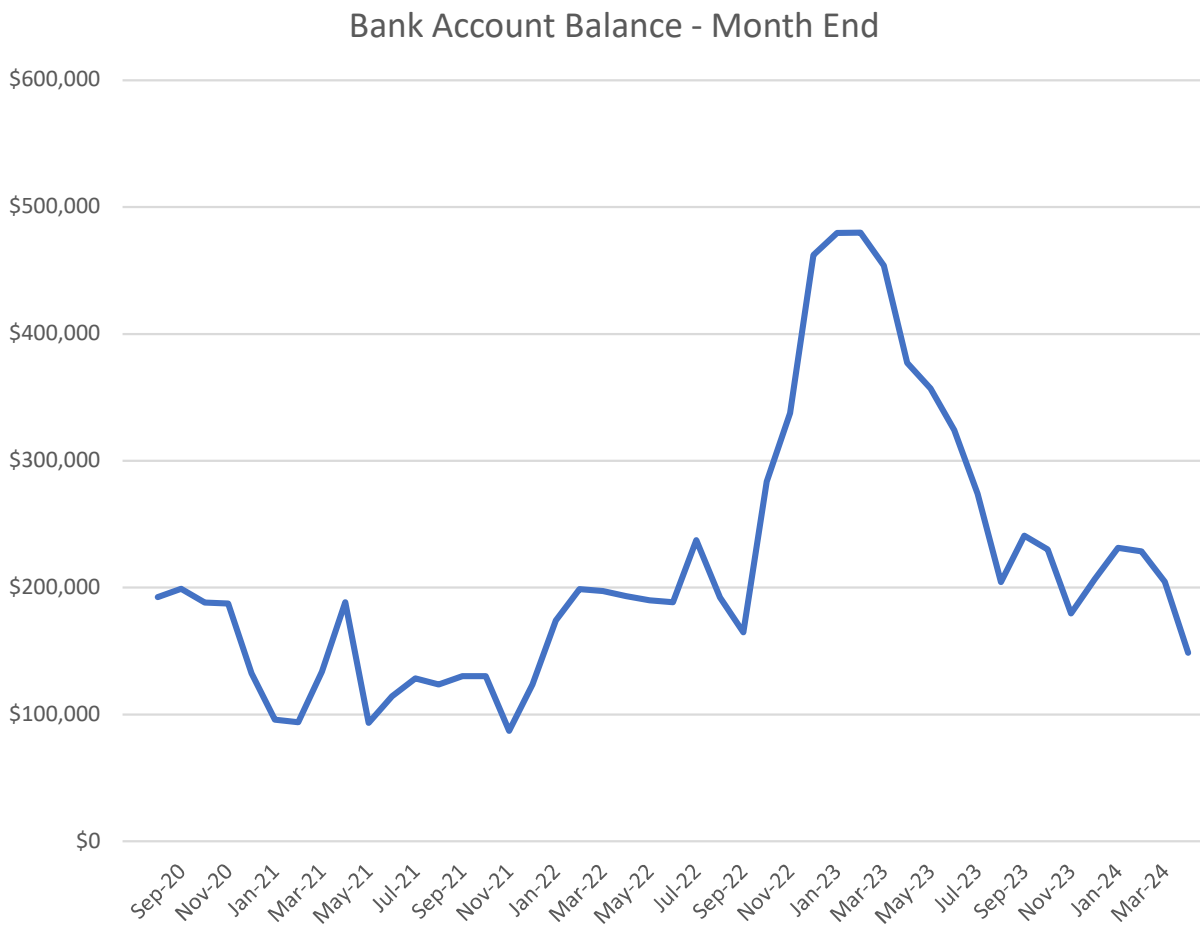
From: Joseph Zoba, Treasurer

Subject: Financial Status Report - Period Ending April 30, 2024

Recommendation: Presentation Only - No Action Required

The following information has been compiled to provide an update on the financial status of the Beaumont Basin Watermaster.

Account Balance - The bank account balance will increase with the receipt of payments from the Watermaster Committee and decrease with the payment of routine expenses incurred by the Watermaster.



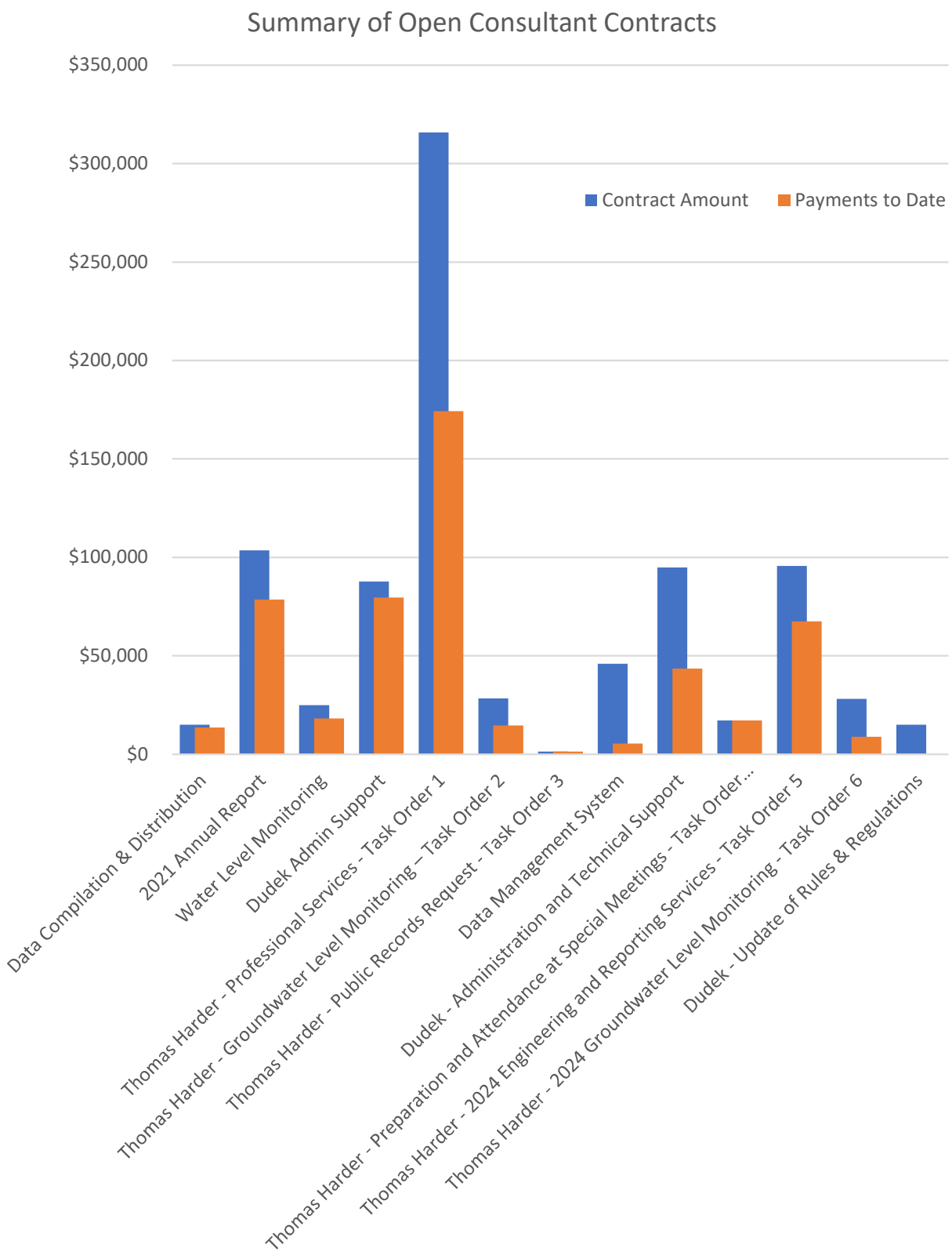
Budget Monitoring - Revenue for the Beaumont Basin Watermaster is received when one of the following events occur: (1) the Watermaster Committee approves a task order; (2) the Watermaster Committee approves a special project; (3) when a budget is adopted with a recommendation to replenish the anticipated administrative expenses for the year; or (4) when the administrative funds have been depleted and additional funds are required.

OPERATING EXPENSES:	Approved Budget Fiscal Year 2024	Year-To-Date Expenses	Percentage of Approved Budget
Bank Fees & Interest	$50	-$41.34	-82.7%
Miscellaneous & Meeting Expenses	$250	$0.00	0.0%
Annual Audit	$1,650	$2,000.00	121.2%
Legal Expenses - Special Project	- -	- -	- -
Legal Expenses	$25,000	$21,700.02	86.8%
Reserve Funding	$10,000	$0.00	0.0%
Special Project - Engineering	$0	$0.00	0.0%
Special Project - Litigation	$0	$0.00	0.0%
Total Operating Expense	**$36,950**	**$23,658.68**	**64.0%**

Summary of Consultant Task Orders - The following Task Orders are open with our consultants.

Task Order \ Memo	Description	Contract Amount	Payments to Date	Percent Billed to Date
27*	Data Compilation & Distribution	$15,000	$13,625.00	91%
28*	2021 Annual Report	$103,600	$78,620.00	76%
29*	Water Level Monitoring	$24,975	$18,200.00	73%
22-22*	Dudek Admin Support	$87,730	$87,602.50	100%
22-27	Thomas Harder - Professional Services - Task Order 1	$315,805	$296,538.75	94%
22-27*	Thomas Harder - Groundwater Level Monitoring – Task Order 2	$28,370	$27,425.00	97%
23-10*	Thomas Harder - Public Records Request - Task Order 3	$1,300	$1,300.00	100%
23-16	Data Management System	$45,895	$29,826.80	65%
23-30 24-03	Dudek - Administration and Technical Support	$94,878	$43,555.00	46%
23-31	Thomas Harder - Preparation and Attendance at Special Meetings - Task Order 4	$17,100	$17,100.00	100%
23-32	Thomas Harder - 2024 Engineering and Reporting Services - Task Order 5	$95,690	$67,501.25	71%
23-33	Thomas Harder - 2024 Groundwater Level Monitoring - Task Order 6	$28,120	$8,900	32%
24-03	Dudek - Update of Rules & Regulations	$15,000	$0.00	0%

* These Task Orders will be closed at the end of Fiscal Year 2023-24.


Summary of Open Consultant Contracts
$350,000
$300,000
$250,000
$200,000
$150,000
$100,000
$50,000
$0
Contract Amount
Payments to Date
Data Compilation & Distribution
2021 Annual Report
Water Level Monitoring
Dudek Admin Support
Thomas Harder - Professional Services - Task Order 1
Thomas Harder - Groundwater Level Monitoring – Task Order 2
Thomas Harder - Public Records Request - Task Order 3
Data Management System
Dudek - Administration and Technical Support
Thomas Harder - Preparation and Attendance at Special Meetings - Task Order...
Thomas Harder - 2024 Engineering and Reporting Services - Task Order 5
Thomas Harder - 2024 Groundwater Level Monitoring - Task Order 6
Dudek - Update of Rules & Regulations

Discussion Items

ITEM VII-A

BEAUMONT BASIN WATERMASTER
MEMORANDUM NO. 24-16

Date: June 5, 2024

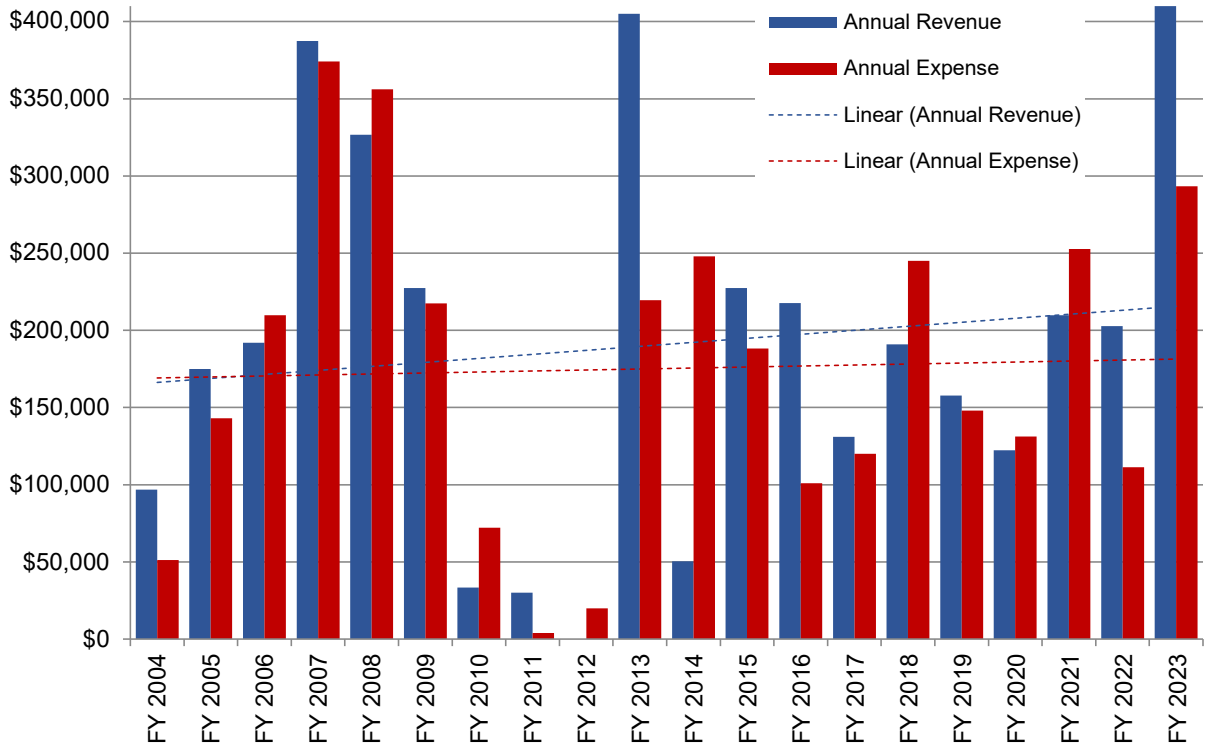
From: Joseph Zoba, Treasurer

Subject: Consideration of the Watermaster Budget for Fiscal Year 2024-2025

Recommendation: That the Watermaster Committee approve the budget as presented and invoice each committee member accordingly.

As of April 30, 2023, the Watermaster had an operating fund balance of $148,588.41 in a designated account at Bank of America.

The historical annual revenue and expense information is shown below.



The Treasurer of the Beaumont Basin Watermaster sends invoices to Watermaster Committee members when one of the following events occur: (1) the Watermaster Committee approves a task order; (2) the Watermaster Committee approves a special project; (3) when a budget is approved to replenish the anticipated administrative funds for the year; or (4) when the administrative funds have been depleted.

Based on the anticipated expenses incurred by the Beaumont Basin Watermaster for FY 2024-25, the financial contribution needed for each member agency will be $5,935 for routine administrative expenses.

OPERATING EXPENSES:	Account Number	**Recommended Budget Fiscal Year 2024-25**	**Year-To-Date Expenses**
Bank Fees & Interest	5000	-$75	-$41
Miscellaneous & Meeting Expenses	5010	$0	$0
Annual Audit	5040	$2,250	$2,000
Legal Expenses - Special Project	- -	- -	- -
Legal Expenses	5070	$27,500	$21,700
Reserve Funding	5080	$0	$0
Special Project – Engineering	- -	$0	$0
Special Project - Litigation	- -	$0	$0
Total Operating Expense		**$29,675**	**$23,659**

In addition to the administrative budget, invoices will continue to be sent to Watermaster Committee members when task orders are approved at Watermaster Committee meetings throughout the year.

BEAUMONT BASIN WATERMASTER

MEMORANDUM NO. 24-17

Date:	June 5, 2024
From:	Hannibal Blandon, ALDA Inc.
Subject:	2023 Consolidated Annual Report and Engineering Report - Presentation of Comments Received on Draft Report
Recommendation:	Approve the 2023 Annual Report after Comments Received on the Draft Report are Presented and Discussed

At the April 17, 2024 regular meeting, a draft of the 2023 Consolidated Annual Report and Engineering Report was presented. A formal presentation documenting the findings and recommendations was made. Members of the Watermaster Committee had the opportunity to ask questions during the presentation and requested that comments be submitted in writing and presented at the June 2024 regular meeting.

Written comments on the report were received from BCVWD and the City of Banning. All other agencies either indicated that they did not have any comments or did not respond to our request for comments. In addition, legal counsel indicated that they did not have any comments.

During the meeting, as part of Discussion Item A, Certification of Groundwater Production and Imported Water Use during Water Year 2023, the issue of converting the current and subsequent Consolidated Annual and Engineering Report from a Calendar Year basis to a Water Year basis was briefly discussed. As a result, it was recommended that a new section in the annual report be introduced to address this issue.

A new Section 3.10 and our response to comments received are presented below.

3-10 Certification of Groundwater Production and Imported Water Use during Water Year 2023

The State of California Department of Water Resources requires the documentation of the use of water in all groundwater basins on a Water Year basis. Water Year 2023 begins on October 1, 2022 and ends on September 30, 2023. Groundwater production for the first three months of Water Year 2023 (October through December 2022) is documented in Table 3-1 D, Appropriator Producer – Summary of Production for Calendar Year 2022, for Appropriators and Table 3-2 D, Overlying Producer – Summary of Production for Calendar Year 2022, for Overlying users. Total production for the first three months of Water Year 2023 was as follows:

- ✓ Appropriators: 3,733.40 ac-ft
- ✓ Overliers: 346.60 ac-ft

Similarly, Appropriator production during the last nine months of Water Year 2023 (January through September 2023) is documented in Table 3-1 E, Appropriator Producer – Summary of

Production for Calendar Year 2023, for Appropriators and Table 3-2-E, Overlying Producer – Summary of Production for Calendar Year 2023, for Overlying users. Total production for this nine-month period was as follows:

- ✓ Appropriators: 9,852.20 ac-ft
- ✓ Overliers: 1,100.70 ac-ft

Total groundwater production for Water Year 2023 from the Beaumont Basin was 15,033 ac-ft.

The use of imported water is documented on an annual basis in Table 3-4, Annual Supplemental Recharge to the Beaumont Basin – Calendar Years 2003-2023. Imported water deliveries during Water Year 2023 amounted to 15,905 ac-ft. Monthly deliveries to individual agencies for this water year are presented in Table 3-10.

Change in Storage during Water Year 2023 was estimated at 3,643 ac-ft. Figure 3-17 displays the change in elevation between October 2022 and October 2023.

Response to Comments Received

Comments by Mr. Swanson, BCVWD

Mr. Swanson's main comment relates to the absence of documentation of water services provided by YVWD to specific parcels in the basin as a result of the Oak Valley Partners transfers. Mr. Zoba indicated, during the presentation of the annual report at the April regular meeting, that YVWD's water rights resulting from the transfer of overlying water rights from OVP were equal to 2022's deliveries of 478.25 ac-ft. While Counsel Montoya clarified that the water has been transferred with finality, Member Jaggers suggested adding further discussion of this issue to a workshop agenda. Mr. Swanson commented that the delivery numbers are on a year-by-year basis and the expectation is that 2023 consumptions were lower by approximately 20 percent. In addition, he commented that the transfers to parcels should be provided for 2023, not just rolled over from 2022.

This issue impacts a number of figures and tables in the report including Figures 3-8 through 3-11 and tables 3-7 through 3-9. A positive resolution to this issue may be attained at the June meeting or at a later meeting and may impact the ability of the Watermaster Committee to approve the Draft of the 2023 Consolidated Annual and Engineering Report.

Another comment by Mr. Swanson relates to the need to create a table for SGPWA to present their storage account balances and transfers of water in the basin. Table 3-9, Consolidation of Storage Accounts, already provides the information requested by Mr. Swanson.

Mr. Swanson commented that the parcels listed under Resolution 2023-01 be listed in the body of the annual report. These parcels are included as part of the Resolution in Appendix A of the report.

Mr. Swanson had other miscellaneous editorial comments, not discussed here, that will be addressed in the final version of the annual report.

Comments by Member Art Vela, City of Banning

While the majority of Member Vela's comments were editorial in nature, he recommended that a note should be added to Table 3-8 indicating that the Watermaster has yet to develop a policy to account for the various New Yield categories.

Language will be added to the text of the report addressing this issue.

Attached to this Memorandum are all the comments provided by BCVWD and the City of Banning.

Should members of the Watermaster Committee be satisfied that all important comments have been addressed properly, we recommend that the Draft of the 2023 Consolidated Annual Report and Engineering Report be approved, and a final version produced. The final version of the report will incorporate all comments received in writing and additional comments discussed during the meeting. All comments will be included under Appendix H in the final report.

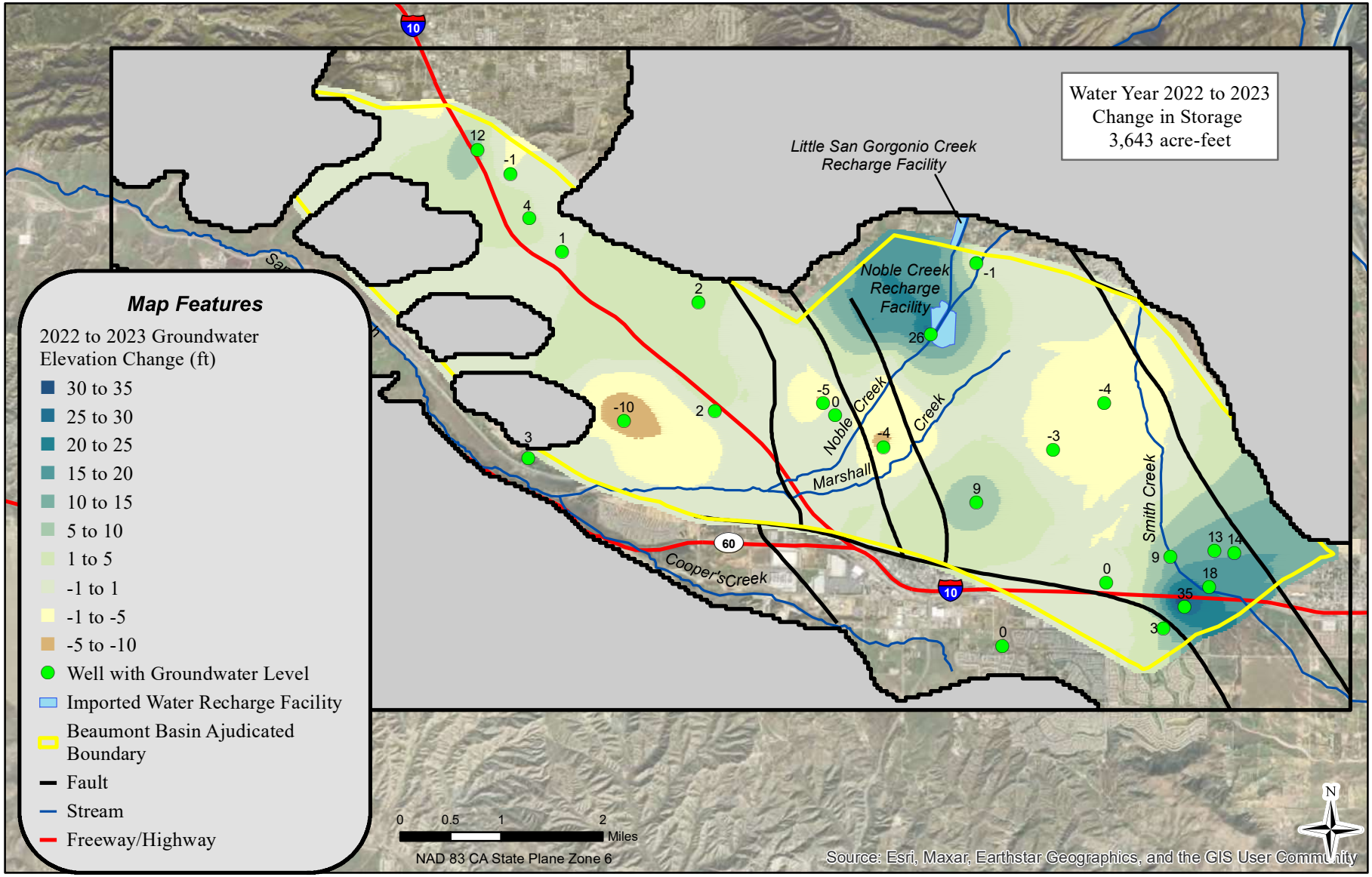
The Draft 2023 Consolidated Annual Report is available online from the "Documents & Publications" section of the Beaumont Basin Watermaster website (www.beaumontbasinwatermaster.org)

Table 3-10
Annual Supplemental Recharge to the Beaumont Basin - Water Year 2023

Year	Supplemental Recharge (ac-ft)				
	Banning	BCVWD	YVWD	SGPWA	Total
Oct-22	-	308.0	-	-	308.0
Nov-22	35.0	1,086.0	-	-	1,121.0
Dec-22	-	-	-	-	-
Jan-23	-	-	-	-	-
Feb-23	-	1,339.0	-	-	1,339.0
Mar-23	-	2,539.0	-	-	2,539.0
Apr-23	-	2,529.0	-	-	2,529.0
May-23	-	1,454.0	-	-	1,454.0
Jun-23	-	1,984.0	-	-	1,984.0
Jul-23	-	1,067.0	-	-	1,067.0
Aug-23	750.0	1,058.0	500.0	-	2,308.0
Sep-23	250.0	1,006.0	-	-	1,256.0
Totals	**1,035.0**	**14,370.0**	**500.0**	**-**	**15,905.0**

Beaumont Basin Watermaster

Evaluation of Groundwater Conditions and Operating Safe Yield for the Beaumont Basin – 2023



Thomas Harder & Co.
Groundwater Consulting

March 2024

Change in Groundwater Elevation October 2022 to October 2023

RE: 2023 Draft Consolidated Annual and Engineering Report - Comments

From: Swanson, Mark (BCVWD) (mark.swanson@bcvwd.gov)

To: blandona@aldaengineering.com

Cc: dan.jaggers@bcvwd.gov

Date: Monday, May 20, 2024 at 11:58 AM PDT

Hannibal,

Attached are comments from BCVWD related to the BBWM 2023 Annual Report.

Thank you,

Mark Swanson, P.E., QSD
Director of Engineering
Beaumont-Cherry Valley Water District
560 Magnolia Ave.
Beaumont, CA 92223
Office Phone (951) 845-9581 Ext. 218
Fax (951) 845-0159
http://www.bcvwd.gov
mark.swanson@bcvwd.gov
District Hours: 8am-5pm Mon-Thurs

From: Swanson, Mark (BCVWD) <mark.swanson@bcvwd.gov>
Sent: Friday, May 17, 2024 12:50 PM
To: Anibal Blandon <blandona@aldaengineering.com>
Cc: Jaggers, Dan (BCVWD) <dan.jaggers@bcvwd.gov>
Subject: Re: 2023 Draft Consolidated Annual and Engineering Report - Comments

Hannibal,

Dan was om vacation last week and just recently returned. BCVWD is working to have comments on Monday.

Let me know if you have any questions.

Thanks you,

Mark Swanson, P.E., QSD/P

Director of Engineering

(951) 845-9581 Ext. 218

Sent from my Verizon, Samsung Galaxy smartphone

Get Outlook for Android

From: Anibal Blandon <blandona@aldaengineering.com>
Sent: Monday, May 13, 2024 2:03:21 PM
To: Art Vela <avela@banningca.gov>; Nathan Smith <nsmith@banningca.gov>; Jaggers, Dan (BCVWD) <dan.jaggers@bcvwd.gov>; Swanson, Mark (BCVWD) <mark.swanson@bcvwd.gov>; Joseph Zoba <jzoba@yvwd.us>; Jennifer Ares <jares@yvwd.us>; David Armstrong <darmstrong@southmesawater.com>; Brittany Lim <blim@southmesawater.com>; Robert Vestal <rvestal@beaumontca.gov>; Thierry Montoya <tmontoya@fbtlaw.com>; Steve Stuart <sstuart@dudek.com>; Thomas Harder <tharder@thomashardercompany.com>; Kerney, Lynda (BCVWD) <lynda.kerney@bcvwd.gov>
Subject: Re: 2023 Draft Consolidated Annual and Engineering Report - Comments

All:

Just a quick reminder that comments on the Draft Annual Report are due by this Friday.

Thus far, I received a response from one of the agencies.

Regards

Hannibal Blandon
ALDA Inc.
909-587-9916

On Monday, May 6, 2024 at 09:38:43 AM PDT, Anibal Blandon <blandona@aldaengineering.com> wrote:

All:

I hope all is well.

Just a reminder that comments on the draft report, presented at the April 17, 2024 regular Board meeting, are due by next Friday, May 17, 2024.

Please respond to this email with your comments or with a simple note indicating that there are no comments.

Best Regards

Hannibal Blandon

ALDA Inc.
909-587-9916

BBWM_2023DraftAnnualReport_BCVWD Comments_MBS.pdf
16.8MB

Beaumont Basin Watermaster

2023 Consolidated Annual Report and Engineering Report

DRAFT

2023 Watermaster Board

Art Vela, City of Banning, **Chairman**

Dave Armstrong, South Mesa Water Company, **Vice Chairman**

Daniel Jaggers, Beaumont Cherry Valley Water District, **Secretary**

Joseph Zoba, Yucaipa Valley Water District, **Treasurer**

Vacant, City of Beaumont

Alvarado Smith, **Legal Counsel**

Thomas Harder & Company in Association with ALDA Inc., **Engineering**

Rogers, Anderson, Malody, and Scott. LLP, **Financial Auditors**

April 2024

BCVWD Comments to Report
5/20/2024

In addition, there were two Special Meetings on July 13, 2023 and November 1, 2023.

Agendas for each of the above regular and special meetings can be viewed at and/or downloaded from Watermaster's website or by making a request to the Watermaster Secretary. Pursuant to Resolution 2009-01, all of Watermaster's public records are open for inspection during office hours, provided that a written request to inspect said records has been submitted.

2.2.2 Watermaster Committee Resolutions

There was one resolution adopted by the Watermaster Committee during CY 2023. Resolution 2023-01. An unsigned copy of this resolution is included under Appendix A to this report. A signed copy is not available at the time of this report production; however, it will be incorporated into the Final 2023 Consolidated Annual and Engineering Report.

The Resolution adopted during CY 2023 is described as follows:

list the parcels.

- ✓ ***Resolution No. 2023-01*** – A Resolution of the Beaumont Basin Watermaster Recognizing the Designation of a Specific Amount of Overlying Water Rights to Specific Parcels. Resolution was adopted at the June 7th, 2023 Regular Meeting of the Watermaster Committee by unanimous vote.

2.2.3 Items Discussed in 2023

This section is a summary of topics addressed at Watermaster meetings during CY 2023. The Beaumont Basin Watermaster maintains official meeting minutes that report the items discussed and actions taken during normal and special meetings. Signed official copies of the minutes for all regular and special meetings that took place during the year are included in Appendix B. Official meeting minutes may also be accessed at the Beaumont Basin Watermaster website: www.beaumontbasinwatermaster.org

The following items were discussed during the six regular meetings and two special meetings held in CY 2023 along with their resulting outcome.

Items Discussed During the February 1, 2023 Regular Watermaster Committee Meeting

- ✓ *Consideration Reorganization of the Beaumont Basin Watermaster Committee – Chair, Vice Chair, Secretary and Treasurer [Memorandum 23-01].* The current Watermaster Committee Officers were re-affirmed to their respective positions for 2023. Motion was approved unanimously

- ✓ *Financial Status Report [Memorandum 23-02].* Member Zoba recommended that this item be placed in the Consent Calendar in the future. He pointed out the list of task orders and suggested discussion at the next meeting regarding deprogramming some of the funds in those tasks that are no longer functional. No action was required.

- ✓ *Independent Accountants Financial Report of Agreed-Upon Procedures for the Beaumont Basin Watermaster [Memorandum 23-03].* Member Zoba explained that there is so little activity for this group, that an independent account's report is provided rather

Harder estimated the operating safe yield for 2022 at about 7,000 ac-ft/yr contrasted with 7,900 ac-ft/yr for 2021.

Member Armstrong asked if the management zones would affect storage accounts. Mr. Harder explained all would have to add up to the whole; it is just a matter of managing different areas differently.

Mr. Blandon presented the data on water quality and offered a number of recommendations related to groundwater storage losses, recycled water recharge, accuracy and consistency of data reporting, and the implementation of a water meter maintenance program.

Mr. Blandon requested comments by May 12 in order to be addressed at the June 7 meeting. All comments will be included as an appendix to the Annual Report.

- ✓ *Transfers of Water Rights to Beaumont-Cherry Valley Recreation and Park District [Memorandum 23-08].* Mr. Stuart advised that the BCVRPD is acquiring six parcels, combined 123 acres of land, donated by a developer. Along with the land, 300 ac-ft/yr of water rights are being transferred as part of Sunny Cal North rights transferred from Sunny Cal Egg and Poultry Company. Legal Counsel Montoya advised that there is still uncertainty and when approved it should be done through a resolution. Vice Chair Armstrong tabled the item to be brought back as a resolution at the June meeting.

- ✓ *Update of Well Survey Project and Request for Proposals for Licensed Surveyors to Survey Wells in the Beaumont Basin Monitoring Network [No Written Report].* Vice Chair Armstrong reminded the Committee of previous discussion. Mr. Stuart indicated that he is seeking information from the various agencies. Mr. Jaggers noted that if data is needed from City of Beaumont wells, they can be included in BCVWD survey.

- ✓ *Proposal for Development of Data Management System and Demonstration [Memorandum 23-09].* Mr. Palavido of Dudek demonstrated a web-based application consisting of a GIS map-based interference for information on wells. Member Jaggers indicated that the five BBWM agencies will share the initial cost and ongoing maintenance costs. Mr. Palavido indicated that most of the maintenance cost is for ESRI licensing. Members discussed taking this item to their Boards and brought back when the City of Banning is in attendance.

- ✓ *Approval of Expenditures related to Public Records Act Request [Memorandum 23-10].* Member Jaggers explained that some records may not be readily available. This request is related to the reassessment of SWAPA's groundwater activities. Mr. Harder explained the content of the request for groundwater wells, which will take some effort to put together. Counsel Montoya clarified that SAWPA is entitled to the documents and this is a question of reimbursement of Mr. Harder's time. The expenditure was approved unanimously by present members.

SAWPA

Items Discussed During the June 7, 2023 Regular Watermaster Committee Meeting

- ✓ *Consideration of the Watermaster Budget for Fiscal Year 2023-24 [Memorandum 23-12].* Chair Vela noted that the recommendation is for approval of a budget for fiscal year 2023-24 of $36,950. Year to date expenses total $17,934. The Watermaster budget was approved on a 5-0 vote.

- ✓ *Resolution 2023-__: Recognizing the Designation of a Specific Amount of Overlying Water Rights to Specific Parcels (Transfer of Water Rights to Beaumont-Cherry Valley Recreation Park and District) [Memorandum 23-13].* Mr. Stuart explained the resolution transferring rights. He indicated that the parcels to which the water rights were transferred per Resolution 2006-02 were identified, and those corresponding parcel numbers are now being transferred to BCVRPD and correspond with the parcels identified in Exhibit B of the Judgment. With the revised safe yield of 2013, the water right of 232.4 ac-ft/yr will be transferred. Resolution 2023-01 was approved unanimously.

- ✓ *Transfer of Overlying Water Rights from Oak Valley Partners to Yucaipa Valley Water District [Memorandum 23-14].* Mr. Stuart provided some background on the transfer of all Oak Valley Partners under Resolution 2017-02 including YVWD transferring water rights in 2018 and 2019 for specific tracts and the litigation that took place in 2021.

Form 5? Plural or Singular?

In 2023, YVWD submitted five Forms 5 representing transfers from CY 2018 to CY 2022 and totaling 790.38 ac-ft. Counsel Montoya said he confirmed with Member Zoba that the water provided was for the parcels identified in Resolution 2017-02. He added that there is clear accounting on the BBWM side and recommended the transfer be approved.

Form 5? Plural or Singular?

Chair Vela noted that documentation did not indicate specific phases or tracts being served and that he would like to confirm that the water delivered is outside of the tracts noted in previous Forms 5 and that these are new developments for which transfers have not been accepted. After much discussion on the issue, Vela cautioned against double counting.

Form 5? Plural or Singular?

Member Jaggers said he would like confirmation that figures are a true accounting of water supplied and he prefers the method where it is known where the water goes and approximate amounts, and there is a handle of it rather than general aggregate activities. He further added that the submittal did not follow the past process and clarifications are needed before receiving and filing. Member Ares noted this is a matter of interpretation, and the recommendation is to receive and file, not to approve. Member Jaggers posited that the current Forms 5 do not provide the information as required by Resolution 2017-02 and requested clarity.

Member Ares moved to receive and file, there was no second. Member Jaggers offered a substitute motion to receive and file with further documented clarification and further discussion, resolution, and adherence to the format of Resolution 2017-02. The motion was second and passed 4-1.

2023 - Amount recharged by SGPWA?

Gorgonio Creek Spreading Ponds. These spreading ponds are located outside the adjudicated boundary of the Beaumont Basin, as shown in Figure 3-3. Spreading of imported water at these spreading ponds is likely to be a source of subsurface recharge to the Beaumont Basin; however, Watermaster has not adopted this finding. Subsurface recharge across the Banning Fault was investigated as part of the Safe Yield of the Basin determination study, completed in early 2015.

Should this term be "store" in lieu of "spread?"

Deliveries of imported water by SGPWA to the Little San Gorgonio Creek Spreading Ponds began in August 2003. Between 2004 and 2013, SGPWA recharged a total of 10,464 ac-ft or an average of 1,046.4 ac-ft/yr. Deliveries in CY 2014 through CY 2018 were practically non-existent as less than 44 ac-ft were spread in those five years combined.

Under Resolution 17-01, adopted on June 7, 2017, SGPWA entered into a storage agreement with the Beaumont Basin Watermaster to spread up to 10,000 ac-ft of imported water in the Beaumont Basin subject to certain conditions. Starting in CY 2019, SGPWA began spreading imported water at their new facilities on Brookside Avenue and has spread a total of 1,401.4 ac-ft at this new location. No spreading by SGPWA has taken place at the Little San Gorgonio Creek Spreading Ponds since CY 2016.

3.3.2 Treated Wastewater Recharge

The City of Beaumont owns and operates the Beaumont Wastewater Treatment Plant. The plant was originally designed and permitted to discharge up to 4.0 mgd of tertiary treated wastewater; current capacity is 6.0 mgd. Discharges from this plant are not permitted for recycled water use at this time and are currently regulated under Order No. R8- 2015-0026, NPDES Number CA105376.

Prior to March 2010, Beaumont's treated wastewater from Wastewater Treatment Plant No. 1 was discharged at Discharge Point No. 1 (DP-001) in Cooper's Creek where it infiltrated into the San Timoteo Management Zone and outside the Beaumont Basin. Starting in March 2010, Beaumont began deliveries of treated wastewater to Discharge Point No. 7 (DP-007), located along an unnamed tributary of Marshall Creek, as shown in Figure 3-3. It is believed that a portion of the treated wastewater discharged at this location reaches and recharges the Beaumont Basin. In the Fall of 2015, the City of Beaumont ceased deliveries to DP-007 in Marshall Creek and continued to use the discharge facilities at Discharge Point No. 1 only.

Treated wastewater discharges from this plant peaked during CY 2020 at 4,305 ac-ft (3.83 mgd). Discharges have declined over the last three years to an annual average of 3,958 ac-ft; in CY 2023 a total of 3,790 ac-ft of treated wastewater was discharged.

Monthly discharges at DP-001 varied slightly in CY 2023 from a low 3.22 mgd in February to a high of 3.53 mgd in August; the average for the year was 3.38 mgd. Monthly treated wastewater discharges by the City of Beaumont since 2007 are summarized in Table 3-5.

Safe Yield of 8,650 ac-ft/yr. OVPs rights have been adjusted to 1,398.87 ac-ft/yr based on the recalculated Safe Yield of 6,700 ac-ft/yr as approved by the Watermaster on April 1, 2015. Overlying rights and Overlying-Appropriative rights will be adjusted every 10 years based on the recalculation of the Safe Yield of the Beaumont Basin.

During CY 2018 and CY 2019, OVP transferred, through four separate assignments, a total of 183.05 ac-ft of their Overlying water rights to YVWD. Documentation of these transfers was provided by YVWD to the Watermaster Committee, as correspondence, in the March 28, 2018, August 1, 2018, October 3, 2018, and February 6, 2019 meetings.

Under Resolution 2019-02, adopted on June 25, 2019, the Beaumont Basin Watermaster rescinded Section 7 of the Beaumont Basin Watermaster Rules and Regulations in its entirety and replaced it as provided in Attachment A of the resolution. Under this resolution, the Beaumont Basin Watermaster also updated Form 5 entitled, "Notice to Adjust Rights of an Overlying Party due to Proposed Provision of Water Service by an Appropriator" and Form 7 entitled, "Notice to Transfers of Appropriator Production Right of Operating Yield Between Appropriators".

At the Dec 4, 2019 Watermaster Meeting, YVWD submitted a Form 5, signed Nov 19, 2019, documenting the transfer of OVP's all original 1,806 / revised 1,398.90 ac-ft ("Earmarked Water") of Overlying Water Rights to YVWD effective on October 9, 2018 (See Appendix E of the 2020 Annual Report). This issue was extensively discussed at that meeting and throughout the various meetings in 2020 between legal counsel and members of the Watermaster Committee without reaching an agreement. In mid-2021, YVWD filed with the Court two related motions. The first motion was to rescind Watermaster Rule 7.3 (formerly Rule 7.8); the second motion was to order the Watermaster to recognize Oak Valley Partners, LP's transfer of overlying water rights. On August 31, 2021, the Court denied these motions without prejudice. A copy of the Notice of Entry of Order Regarding YVWD's Motions, along with associated exhibits A and B was included under Appendix A of the 2021 Annual Report.

On May 24, 2023, YVWD notified the Watermaster that completed Forms 5 for CY 2018 through CY 2022, documenting OVP's transfers will be included in the Correspondence section of the June 7, 2023 meeting packet to Receive and File. Through this submittal, YVWD wanted to transfer a cumulative 790.3 ac-ft of Overlying water rights from OVP for this five-year period. This item was brought up for discussion under TM 23-14 and as a result the Watermaster Committee voted to receive and file the Form 5 as provided by YVWD with further documented clarification of the recission of the previous requests for water rights transfers, and further discussion, resolution, and adherence to the format of Resolution 2017-02.

aggregated

On September 18, 2023, the YVWD submitted the information requested by the Watermaster Committee for consideration at the October 4, 2023 regular meeting. The information provided by YVWD was deemed to be complete and properly documented and as a result the Watermaster Committee approved to Receive and File the transfer of Overlying water rights from OVP to YVWD for calendar years 2018 through 2022. The water rights transferred during this period are as follows:

for each year for all areas served on a year-by-year basis.

Note: These numbers are on a year-by-year basis and the expectation is that 2023 consumptions were lower by approx. 20%.
Also, the transfers to parcels should be provided for 2023, not just rolled over from 2022.

- ✓ 2018 – 0.11 ac-ft
- ✓ 2019 – 63.96 ac-ft
- ✓ 2020 – 194.82 ac-ft
- ✓ 2021 – 366.77 ac-ft
- ✓ 2022 – 478.25 ac-ft

Need 2023 totals added for all parcels served.

Supporting documentation for this transfer is included under Appendix F as follows:

- ✓ Technical Memorandum 23-25 documenting the transfer
- ✓ General background information provided in the packet
- ✓ Original Form 5 submitted by YVWD and dated November 19, 2019
- ✓ Notice to Adjust Rights of an Overlying Party Due to Water Service by an Appropriator for Calendar Year 2018, including:
  - A map of parcels served in 2018
  - Annual volumes of water delivered to each parcel served totaling 0.11 ac-ft
- ✓ Notice to Adjust Rights of an Overlying Party Due to Water Service by an Appropriator for Calendar Year 2019, including:
  - A map of parcels served in 2019
  - Annual volumes of water delivered to each parcel served totaling 63.96 ac-ft
- ✓ Notice to Adjust Rights of an Overlying Party Due to Water Service by an Appropriator for Calendar Year 2020, including:
  - A map of parcels served in 2020
  - Annual volumes of water delivered to each parcel served totaling 194.82 ac-ft
- ✓ Notice to Adjust Rights of an Overlying Party Due to Water Service by an Appropriator for Calendar Year 2021, including:
  - A map of parcels served in 2021
  - Annual volumes of water delivered to each parcel served totaling 366.77 ac-ft
- ✓ Notice to Adjust Rights of an Overlying Party Due to Water Service by an Appropriator for Calendar Year 2022, including:
  - A map of parcels served in 2022
  - Annual volumes of water delivered to each parcel served totaling 478.25 ac-ft

For CY 2023, the YVWD did not provide additional delivery information, as a result, the same quantity transferred in CY 2022 of 478.25 ac-ft is applied.

A table should be created for SGPWA due to their having a storage account and the ability to transfer water within the basin.

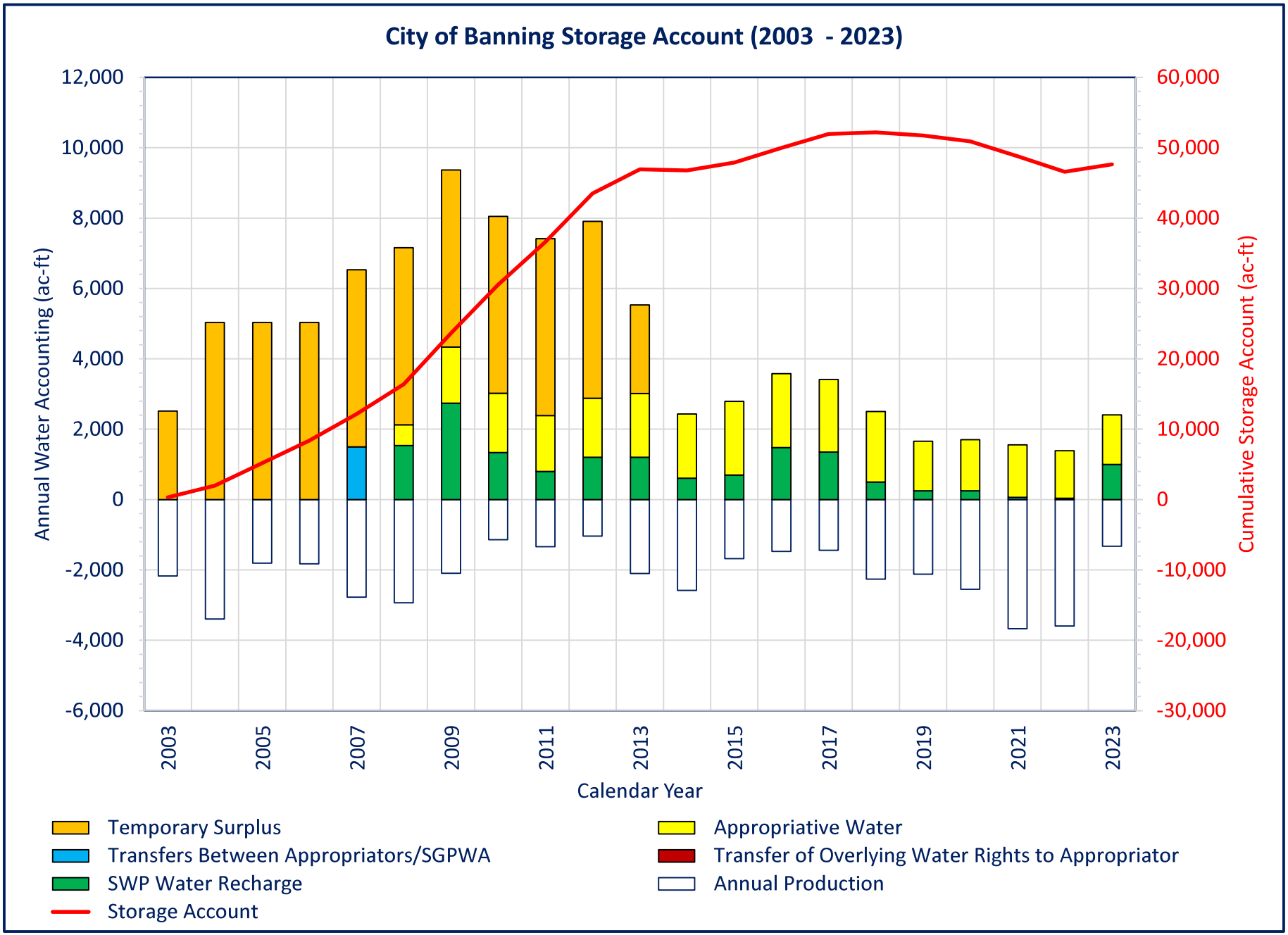


Figure 3-5
City of Banning - Supply Sources and Storage Account (2003-23)

This quantity should be verified for 2023. Is it really the same as 2022?

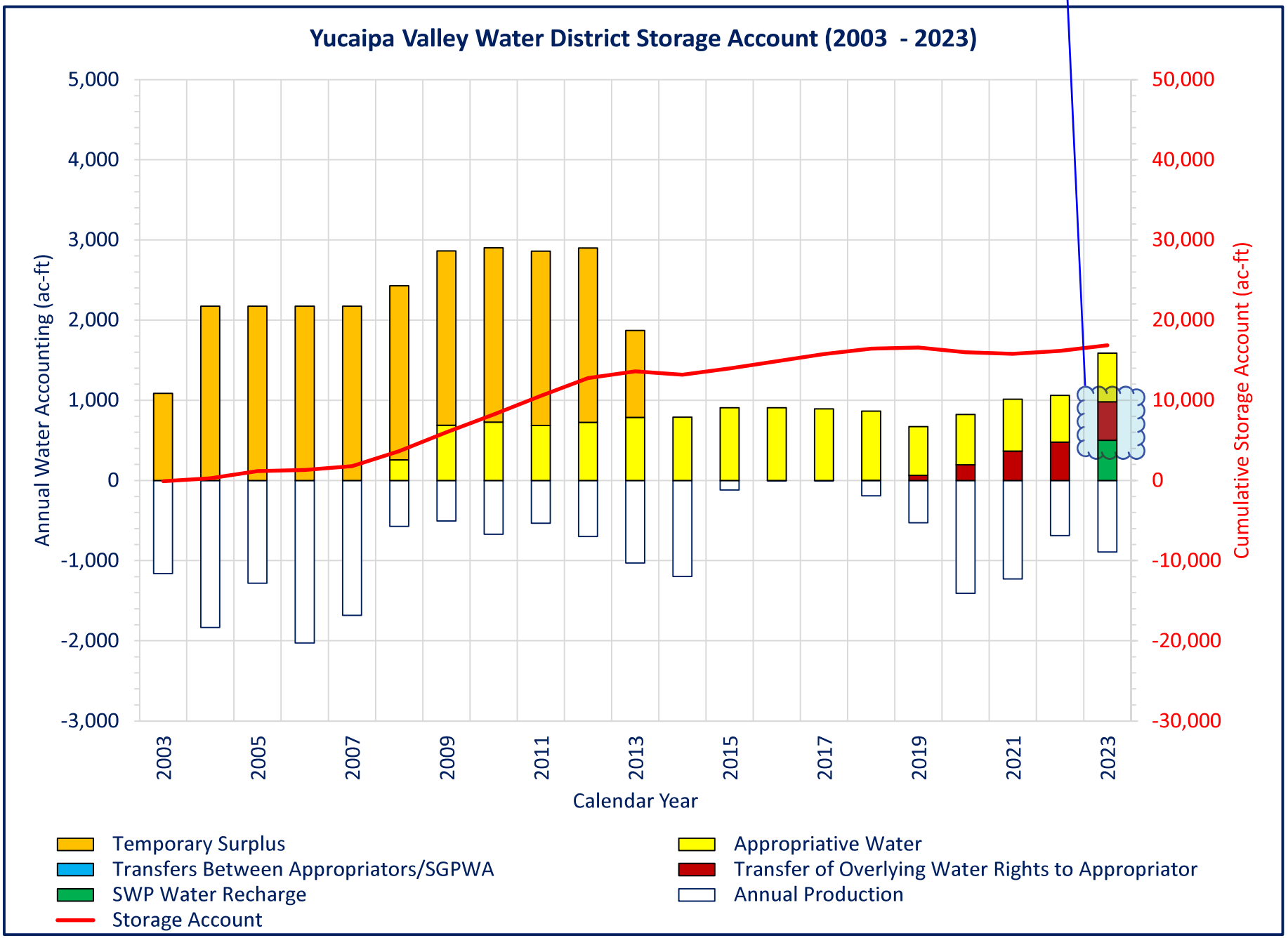


Figure 3-8
YVWD - Supply Sources and Storage Account (2003-23)

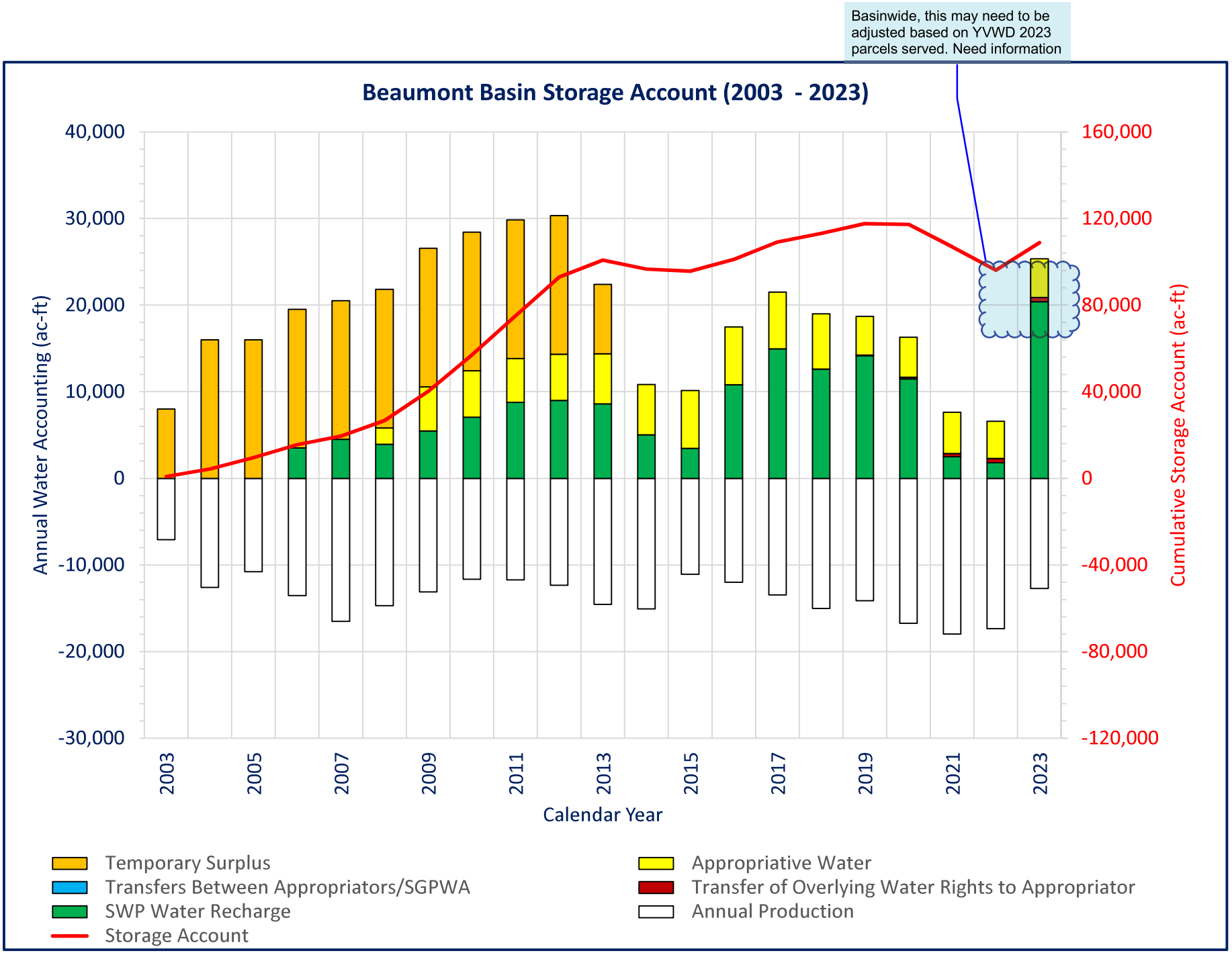
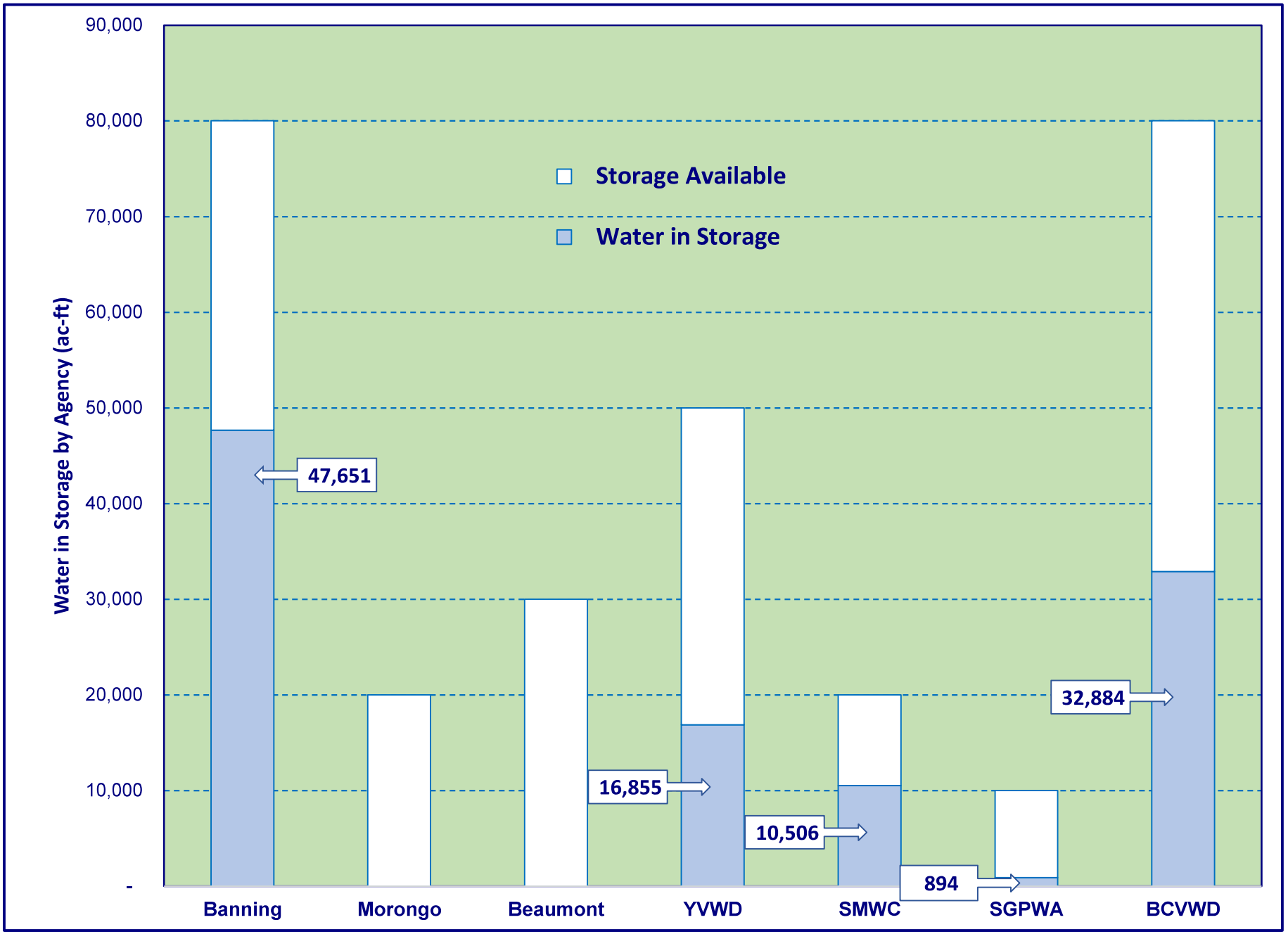


Figure 3-9

Beaumont Basin - Supply Sources and Storage Account (2003-23)



Based on previous comments regarding YVWD's 2023 Overlier Service amounts, these numbers may need to be adjusted, and may change future overlier allocations

Figure 3-10
Groundwater Storage by Agency/User as of 2023

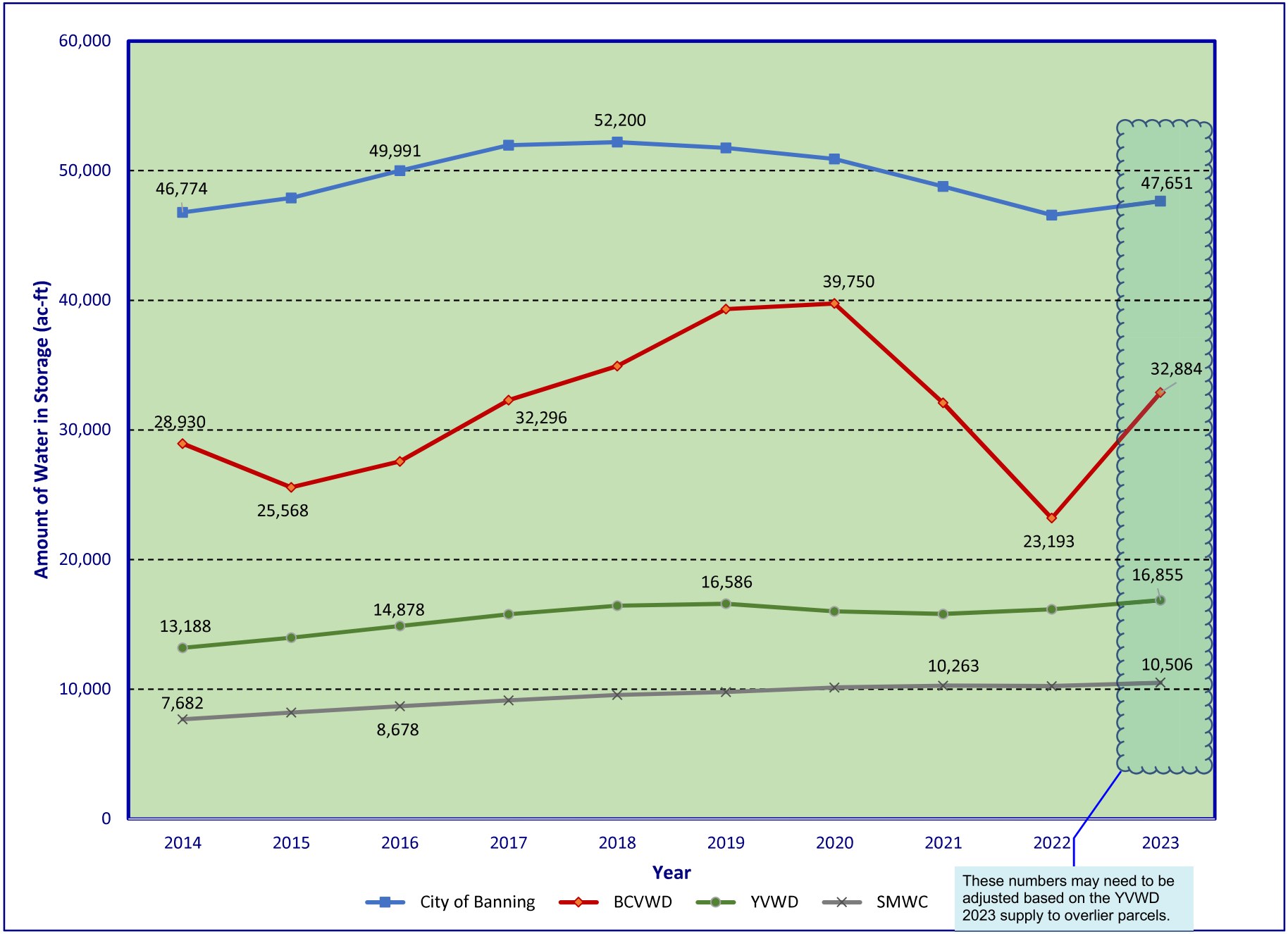


Figure 3-11
Accumulation of Storage by Appropriator for the 2014-2023 10-Yr Period

Table 3-7

Summary of Unused Overlying Water and Allocation to Appropriators (ac-ft)

Accounting Year	Overlying Water Right	Overlying Production	Unused Overlying Water Right
2003	4,325	2,441	1,884
2004	8,650	3,576	5,074
2005	8,650	3,293	5,357
2006	8,650	3,597	5,053
2007	8,650	3,307	5,343
2008	8,650	2,872	5,778
2009	8,650	2,838	5,812
2010	8,650	1,976	6,674
2011	8,650	1,971	6,679
2012	8,650	2,085	6,565
2013	8,650	2,285	6,365
2014	6,700	2,219	4,481
2015	6,700	2,086	4,614
2016	6,700	1,936	4,764
2017	6,700	2,404	4,296
2018 [1]	6,700	2,220	4,480
2019	6,636	1,773	4,863
2020	6,505	1,912	4,594
2021	6,333	1,966	4,367
2022	6,222	2,135	4,087
2023	6,222	1,518	4,704

Allocation Year	City of Banning	City of Beaumont	Beaumont Cherry Valley WD	South Mesa Water Co.	Yucaipa Valley Water District	Total
2008	592	0	801	235	256	1,884
2009	1,595	0	2,157	633	689	5,074
2010	1,684	0	2,277	669	728	5,357
2011	1,588	0	2,148	631	686	5,053
2012	1,679	0	2,272	667	726	5,343
2013	1,816	0	2,456	721	785	5,778
2014	1,827	0	2,471	725	789	5,812
2015	2,097	0	2,837	833	906	6,674
2016	2,099	0	2,839	833	907	6,679
2017	2,063	0	2,791	819	891	6,565
2018	2,001	0	2,706	794	864	6,365
2019	1,408	0	1,905	559	609	4,481
2020	1,450	0	1,962	576	627	4,614
2021	1,497	0	2,025	595	647	4,764
2022	1,350	0	1,826	536	583	4,296
2023	1,408	0	1,904	559	608	4,480
2024	1,528	0	2,067	607	660	4,863
2025	1,444	0	1,953	573	624	4,594
2026	1,373	0	1,856	545	593	4,367
2027	1,285	0	1,737	510	555	4,087
2028	1,479	0	2,000	587	639	4,704

1.- At the October 4, 2023, YVWD submitted revised documentation supporting Form 5s transfers of Overlying water rights from Oak Valley Partners from 2018 through 2022 as follows: a) 2018, 0.11 ac-ft b) 2019, 63.96 ac-ft, c) 2020, 194.82 ac-ft, d) 2021, 366.77 ac-ft, and e) 2022, 478.25 ac-ft. Transfers for CY 2023 remain at the CY 2022 level since YVWD has not documented increasing delivery volumes. As a result, cummulative Overlying water rights have decreased by the listed quantities.

Does this actually carry over to 2023? YVWD should provide the data which supports what was served to the overlying parcels.

This may be impacted depending on what was served in 2023.

Table 3-8
Appropriator's Production Right

Calendar Year	Operating Yield		Water Acquired		New Yield		Water From Storage	Appropriator 's Production Right
	Temporary Surplus Water	Appropriative Water Right	Transfer of Overlying Water Rights to Appropriator	Transfers Between Appropriators /SGPWA	Capture Available Stream Flow	Increase Capture of Rising Water		
Yucaipa Valley Water District								
2003	1,086.5	0.0	0.0	0.0	0.0	0.0	75.9	1,162.4
2004	2,173.0	0.0	0.0	0.0	0.0	0.0	0.0	2,173.0
2005	2,173.0	0.0	0.0	0.0	0.0	0.0	0.0	2,173.0
2006	2,173.0	0.0	0.0	0.0	0.0	0.0	0.0	2,173.0
2007	2,173.0	0.0	0.0	0.0	0.0	0.0	0.0	2,173.0
2008	2,173.0	255.9	0.0	0.0	0.0	0.0	0.0	2,428.9
2009	2,173.0	689.0	0.0	0.0	0.0	0.0	0.0	2,862.0
2010	2,173.0	727.5	0.0	0.0	0.0	0.0	0.0	2,900.5
2011	2,173.0	686.2	0.0	0.0	0.0	0.0	0.0	2,859.2
2012	2,173.0	725.6	0.0	0.0	0.0	0.0	0.0	2,898.6
2013	1,086.5	784.7	0.0	0.0	0.0	0.0	0.0	1,871.2
2014	0.0	789.2	0.0	0.0	0.0	0.0	409.2	1,198.5
2015	0.0	906.3	0.0	0.0	0.0	0.0	0.0	906.3
2016	0.0	907.0	0.0	0.0	0.0	0.0	0.0	907.0
2017	0.0	891.5	0.0	0.0	0.0	0.0	0.0	891.5
2018	0.0	864.4	0.1	0.0	0.0	0.0	0.0	864.5
2019	0.0	608.5	64.0	0.0	0.0	0.0	0.0	672.5
2020	0.0	626.6	194.8	0.0	0.0	0.0	586.3	1,407.7
2021	0.0	646.9	366.8	0.0	0.0	0.0	214.8	1,228.5
2022	0.0	583.4	478.3	0.0	0.0	0.0	0.0	1,061.7
2023	0.0	608.3	478.3	0.0	0.0	0.0	0.0	1,086.6

This number needs to be reported for . This could be more or less than than 2022, but should be credited accurately per format approved.

Table 3-9
Consolidation of Storage Accounts

Calendar Year	Appropriator 's Production Right	Appropriator's Annual Production	Water Supply Deficit	Supplemental Water				Total Additions to or Withdrawals from Storage	Ending Storage Account Balance
				SWP Water Recharge	Recycled Water Recharge	Local Imported Water Recharge	Stormwater Recharge		
Yucaipa Valley Water District - Authorized Storage Account: 50,000 ac-ft									
2003	1,162.4	1,162.4	0.0	0.0	0.0	0.0	0.0	75.9	-75.9
2004	2,173.0	1,833.7	0.0	0.0	0.0	0.0	0.0	0.0	263.4
2005	2,173.0	1,281.3	0.0	0.0	0.0	0.0	0.0	0.0	1,155.1
2006	2,173.0	2,027.3	0.0	0.0	0.0	0.0	0.0	0.0	1,300.8
2007	2,173.0	1,682.9	0.0	0.0	0.0	0.0	0.0	0.0	1,790.9
2008	2,428.9	572.0	0.0	0.0	0.0	0.0	0.0	0.0	3,647.8
2009	2,862.0	504.4	0.0	0.0	0.0	0.0	0.0	0.0	6,005.4
2010	2,900.5	672.4	0.0	0.0	0.0	0.0	0.0	0.0	8,233.5
2011	2,859.2	534.1	0.0	0.0	0.0	0.0	0.0	0.0	10,558.6
2012	2,898.6	700.1	0.0	0.0	0.0	0.0	0.0	0.0	12,757.2
2013	1,871.2	1,030.8	0.0	0.0	0.0	0.0	0.0	0.0	13,597.6
2014	1,198.5	1,198.5	0.0	0.0	0.0	0.0	0.0	409.2	13,188.4
2015	906.3	119.2	0.0	0.0	0.0	0.0	0.0	0.0	13,975.5
2016	907.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	14,877.9
2017	891.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	15,769.2
2018	864.5	191.2	0.0	0.0	0.0	0.0	0.0	0.0	16,442.5
2019	672.5	528.6	0.0	0.0	0.0	0.0	0.0	0.0	16,586.4
2020	1,407.7	1,407.7	0.0	0.0	0.0	0.0	0.0	586.3	16,000.1
2021	1,228.5	1,228.5	0.0	0.0	0.0	0.0	0.0	214.8	15,785.3
2022	1,061.7	686.5	0.0	0.0	0.0	0.0	0.0	0.0	16,160.4
2023	1,086.6	891.7	0.0	500.0	0.0	0.0	0.0	0.0	16,855.3

Verify the number per previous comments regarding overlyer rights.

RE: 2023 Draft Consolidated Annual and Engineering Report - Comments

From: Arturo Vela (avela@banningca.gov)

To: blandona@aldaengineering.com

Date: Thursday, May 16, 2024 at 02:17 PM PDT

See attached.

Arturo Vela, P.E.
Director of Public Works
Public Works Department
City of Banning
Direct Line: 951-922-3134
Direct Fax: 951-922-3141
avela@banningca.gov
99 E. Ramsey Street
Banning, CA 92220
www.banningca.gov

-----Original Message-----
From: Anibal Blandon <blandona@aldaengineering.com>
Sent: Monday, May 13, 2024 2:03 PM
To: Arturo Vela <avela@banningca.gov>; Nathan Smith <nsmith@banningca.gov>; Jaggers Dan (BCVWD) <dan.jaggers@bcvwd.gov>; Swanson Mark (BCVWD) <mark.swanson@bcvwd.gov>; Joseph Zoba <jzoba@yvwd.us>; Jennifer Ares <jares@yvwd.us>; David Armstrong <darmstrong@southmesawater.com>; Brittany Lim <blim@southmesawater.com>; Robert Vestal <rvestal@beaumontca.gov>; Thierry Montoya <tmontoya@fbtlaw.com>; Steve Stuart <sstuart@dudek.com>; Thomas Harder <tharder@thomashardercompany.com>; Kerney Lynda (BCVWD) <lynda.kerney@bcvwd.gov>
Subject: Re: 2023 Draft Consolidated Annual and Engineering Report - Comments

All:

Just a quick reminder that comments on the Draft Annual Report are due by this Friday.

Thus far, I received a response from one of the agencies.

Regards

Hannibal Blandon
ALDA Inc.
909-587-9916

On Monday, May 6, 2024 at 09:38:43 AM PDT, Anibal Blandon <blandona@aldaengineering.com> wrote:

All:

I hope all is well.

Just a reminder that comments on the draft report, presented at the April 17, 2024 regular Board meeting, are due by next Friday, May 17, 2024.

Please respond to this email with your comments or with a simple note indicating that there are no comments.

Best Regards

Hannibal Blandon
ALDA Inc.
909-587-9916

Summary of Comments on Beaumont Basin Watermaster Draft Annual Report 2023 Art Vela 5.16.24.pdf
9.1MB

Section 1
Background

The 2023 Consolidated Annual and Engineering Report of the Beaumont Basin Watermaster Committee (Watermaster) consolidates the information about the basin previously presented in Annual Reports with the information presented in the bi-annual Engineer's Report. This report documents activities in the Beaumont Basin for Calendar Year 2023. Section 3 of the original annual report has been expanded and retitled as "Status of the Basin and Administration of the Judgment"; it documents the Administration of the Judgment as well as provides a status of conditions in the basin addressing water production, water levels, recharge of supplemental water, water transfers, and storage activities. In addition, a Water Quality Conditions section, Section 4, has been added to document water quality of selected compounds at selected wells, as well as basin wide concentrations for the 2019-2023 five-year period.

1.1 History of the Beaumont Basin Stipulated Judgment

In January 2001, the City of Beaumont (Beaumont), the Beaumont-Cherry Valley Water District (BCVWD), the South Mesa Water Company (SMWC), and the Yucaipa Valley Water District (YVWD) formed the San Timoteo Watershed Management Authority (STWMA). One of the initial tasks of STWMA was to develop a watershed-wide program to develop and implement a comprehensive management program for the San Timoteo watershed.

Phase I of the management program, documented in the San Timoteo Watershed Management Program, Phase I Report (WEI, 2002), included the following goals:

- ✓ Enhancing water supplies
- ✓ Protecting and enhancing water quality
- ✓ Optimizing the management of STWMA area groundwater basins
- ✓ Protecting riparian habitat in San Timoteo Creek and protecting/enhancing habitat in the STWMA area
- ✓ Equitably distributing the benefits and costs of developing the Integrated Regional Watershed Management Program for the San Timoteo watershed

One of the elements identified in the management plan to achieve the listed goals consisted in the establishment of a groundwater management entity for the Beaumont Basin. As a result of this initiative, two groups representing overlying users and water agencies with interest in this basin began negotiations in May 2002.

Over the next 18 months of negotiations, a Stipulated Agreement was developed and submitted to the Court. Honorable Judge Gary Tranbarger of the Superior Court of the State of California for the County of Riverside signed the Agreement, titled "San Timoteo Watershed Management Authority, vs. City of Banning, et al." (Case No. RIC 389197), on February 4, 2004, (the Judgment).

Summary of Comments on Beaumont Basin Watermaster.pdf

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Author: avela Subject: Highlight Date: 5/16/2024 1:26:10 PM
Is this description still relevant (I.e. Section 3 and Water Quality section) considering that they were added over 10 years ago?

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Author: avela Subject: Highlight Date: 5/16/2024 1:32:33 PM
Reminder to add signed resolution .

In addition, there were two Special Meetings on July 13, 2023 and November 1, 2023.

Agendas for each of the above regular and special meetings can be viewed at and/or downloaded from Watermaster's website or by making a request to the Watermaster Secretary. Pursuant to Resolution 2009-01, all of Watermaster's public records are open for inspection during office hours, provided that a written request to inspect said records has been submitted.

2.2.2 Watermaster Committee Resolutions

There was one resolution adopted by the Watermaster Committee during CY 2023. Resolution 2023-01. An unsigned copy of this resolution is included under Appendix A to this report. A signed copy is not available at the time of this report production; however, it will be incorporated into the Final 2023 Consolidated Annual and Engineering Report.

The Resolution adopted during CY 2023 is described as follows:

- ✓ ***Resolution No. 2023-01*** – A Resolution of the Beaumont Basin Watermaster Recognizing the Designation of a Specific Amount of Overlying Water Rights to Specific Parcels. Resolution was adopted at the June 7th, 2023 Regular Meeting of the Watermaster Committee by unanimous vote.

2.2.3 Items Discussed in 2023

This section is a summary of topics addressed at Watermaster meetings during CY 2023. The Beaumont Basin Watermaster maintains official meeting minutes that report the items discussed and actions taken during normal and special meetings. Signed official copies of the minutes for all regular and special meetings that took place during the year are included in Appendix B. Official meeting minutes may also be accessed at the Beaumont Basin Watermaster website: www.beaumontbasinwatermaster.org

The following items were discussed during the six regular meetings and two special meetings held in CY 2023 along with their resulting outcome.

Items Discussed During the February 1, 2023 Regular Watermaster Committee Meeting

- ✓ *Consideration Reorganization of the Beaumont Basin Watermaster Committee – Chair, Vice Chair, Secretary and Treasurer [Memorandum 23-01]* The current Watermaster Committee Officers were re-affirmed to their respective positions for 2023. Motion was approved unanimously

- ✓ *Financial Status Report [Memorandum 23-02].* Member Zoba recommended that this item be placed in the Consent Calendar in the future. He pointed out the list of task orders and suggested discussion at the next meeting regarding deprogramming some of the funds in those tasks that are no longer functional. No action was required.

- ✓ *Independent Accountants Financial Report of Agreed-Upon Procedures for the Beaumont Basin Watermaster [Memorandum 23-03].* Member Zoba explained that there is so little activity for this group, that an independent account's report is provided rather

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Author: avela Subject: Cross-Out Date: 5/16/2024 1:30:54 PM
2018 is not recent.

Author: avela Subject: Highlight Date: 5/16/2024 1:30:09 PM

Author: avela Subject: Cross-Out Date: 5/16/2024 1:32:24 PM
"was" the primary facility .....

3.3 Groundwater Recharge

The Watermaster is responsible for maintaining an annual account of all water artificially recharged in the Beaumont Basin and any losses of water supplies or Safe Yield resulting from such recharged water. Sources of groundwater recharge include imported water from the State Water Project (SWP), recycled water, and new yield sources developed in the basin since the Judgment inception in July 2003. The Watermaster has maintained the accounting of groundwater recharge; however, losses from the basin, estimated in the recently completed (Sep 2018) Beaumont Basin Storage Analysis, have not been incorporated into the accounting of storage in the basin. The Watermaster may adopt a policy to address storage losses in the future. Table 3-4 presents a summary of the annual groundwater recharge in the Beaumont Basin since 2004 on a calendar year basis. There was no imported water recharge in 2003.

3.3.1 State Water Project Water Recharge

Deliveries of imported water are conducted through the San Gorgonio Pass Water Agency, the State Water Contractor for this area. BCVWD's Noble Creek Recharge Facility (NCRF), located in the vicinity of Beaumont Avenue and Cherry Valley Blvd., has been until recently the primary facility in the Beaumont Basin where imported water can be delivered for groundwater recharge. The location of this recharge facility is depicted in Figure 3-3. In 2019, SGPWA completed the construction of a new spreading facility southwest of the intersection of Beaumont Avenue and Brookside Avenue; spreading of imported water at this location took place for the first time in December of that year when 257.80 ac-ft were spread.

BCVWD began taking deliveries of imported water for groundwater recharge in the Fall of 2006 when 3,501 ac-ft were spread pursuant to the storage and recharge agreement on file with Watermaster. Deliveries of imported water for BCVWD increased over the next five years peaking in CY 2011 at 7,979 ac-ft and declining through 2015 to a low of 2,773 ac-ft. From CY 2017 through CY 2020, BCVWD spread over 10,000 ac-ft per year; however, spreading in CY 2021 decreased to a low of 2,468 ac-ft and in CY 2022 to an all-time low of 1,776.0 ac-ft. The significant reduction in imported water for groundwater recharge in those two years has been primarily related to the lack of available water from the SWP. However, in CY 2023, thanks to a significantly above average precipitation in the northern portion of the State, BCVWD was able to spread 18,000 ac-ft of SWP project water. In total, 131,136 ac-ft of imported water have been spread on behalf of BCVWD since CY 2006, as listed in Table 3-4.

The City of Banning began purchasing imported water for recharge at BCVWD's NCRF in July 2008 and has since recharged 14,977.2 ac-ft. in accordance with their storage agreement on file with Watermaster. During CY 2012 and 2013, Banning spread an average of 100 ac-ft per month; spreading in CY 2014 and 2015 was reduced to approximately half of that amount. However, spreading in CY 2016 and 2017 increased significantly to 1,477 ac-ft and 1,350 ac-ft, respectively. In CY 2019 and again in CY 2020, the City of Banning spread only 250 ac-ft of imported water per year while no spreading took place in CY 2021. In CY 2023, the City of Banning spread 1,000 ac-ft of imported water.

In addition to imported water deliveries to BCVWD and the City of Banning at BCVWD's NCRF, SGPWA has also delivered significant quantities of imported water at the Little San

3.10 Recommendations

The Rules and Regulations, initially adopted in June 2004, were developed with the understanding that they should be revisited and/or revised from time to time to make sure they were consistent with the provisions of the Judgment. Revisions to the Rules and Regulations have been made over the years with the latest revisions adopted in December 2022 as documented earlier in Section 2.4. The latest revisions to the Rules and Regulations, as documented in Resolution 2022-09 will significantly increase the consistency in documenting Overlying water transfers for service by Appropriators and for reporting groundwater levels recording procedures.

In September 2018, a study to estimate groundwater losses from the basin was completed for Watermaster. In this study groundwater losses from the basin resulting from spreading of imported or outside water at selected locations in the basin was estimated. The study has been accepted by the Watermaster Committee; however, a methodology to address this issue is yet to be developed.

Watermaster may conduct additional studies in the future in support of:

- ✓ Developing a methodology to account for new yield from capturing local stormwater in the basin, and
- ✓ Developing a methodology to account for recycled water recharge in the basin.

In preparing this annual report and through the review of previous annual reports, we have identified a number of issues/activities that should be considered by the Watermaster to ensure accurate accounting of production, transfers, recharge, and storage. It should be noted that many of the recommendations provided in this section have been previously documented in prior annual reports. Our recommendations are as follows:

- ✓ Develop a protocol to increase the accuracy and consistency of data reported to the Watermaster. This has been partially addressed by the changes to the Rules and Regulations, as documented in Resolution 2022-09. Watermaster should identify a person and/or entity to be the central repository for data collection, transfer, and exchange. This person/entity shall be responsible for the collection and distribution of all groundwater production, water level, groundwater recharge, and water quality information. Quality control of the data in its various forms including checks for errors, omissions, and inconsistencies between the reporting agencies and/or parties should be part of this process.

As indicated earlier, Watermaster should revisit the Rules and Regulations to ensure that its activities are consistent with the requirements of the Judgment. The following inconsistencies between guidelines provided in this document and current Watermaster activities were identified:

- ✓ Watermaster has not conducted a meter maintenance program, as required under Section 3.1 of the Rules and Regulations, to make sure groundwater production is

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Author: avela Subject: Highlight Date: 5/16/2024 1:36:20 PM
Make note to add these items for discussion on an agenda during 2024.

Author: avela Subject: Highlight Date: 5/16/2024 1:38:02 PM
Consider either removing these columns or adding a footnote that the BBWM has not yet to develop a policy to account for these New Yield categories.

Table 3-8
Appropriator's Production Right

Calendar Year	Operating Yield		Water Acquired		New Yield		Water From Storage	Appropriator 's Production Right
	Temporary Surplus Water	Appropriative Water Right	Transfer of Overlying Water Rights to Appropriator	Transfers Between Appropriators /SGPWA	Capture Available Stream Flow	Increase Capture of Rising Water		
City of Banning								
2003	2,514.5	0.0	0.0	0.0	0.0	0.0	0.0	2,514.5
2004	5,029.0	0.0	0.0	0.0	0.0	0.0	0.0	5,029.0
2005	5,029.0	0.0	0.0	0.0	0.0	0.0	0.0	5,029.0
2006	5,029.0	0.0	0.0	0.0	0.0	0.0	0.0	5,029.0
2007	5,029.0	0.0	0.0	1,500.0	0.0	0.0	0.0	6,529.0
2008	5,029.0	592.2	0.0	0.0	0.0	0.0	0.0	5,621.2
2009	5,029.0	1,594.7	0.0	0.0	0.0	0.0	0.0	6,623.7
2010	5,029.0	1,683.8	0.0	0.0	0.0	0.0	0.0	6,712.8
2011	5,029.0	1,588.2	0.0	0.0	0.0	0.0	0.0	6,617.2
2012	5,029.0	1,679.5	0.0	0.0	0.0	0.0	0.0	6,708.5
2013	2,514.5	1,816.1	0.0	0.0	0.0	0.0	0.0	4,330.6
2014	0.0	1,826.7	0.0	0.0	0.0	0.0	150.4	1,977.1
2015	0.0	2,097.5	0.0	0.0	0.0	0.0	0.0	2,097.5
2016	0.0	2,099.1	0.0	0.0	0.0	0.0	0.0	2,099.1
2017	0.0	2,063.2	0.0	0.0	0.0	0.0	0.0	2,063.2
2018	0.0	2,000.6	0.0	0.0	0.0	0.0	0.0	2,000.6
2019	0.0	1,408.4	0.0	0.0	0.0	0.0	462.9	1,871.3
2020	0.0	1,450.3	0.0	0.0	0.0	0.0	848.3	2,298.6
2021	0.0	1,497.2	0.0	60.0	0.0	0.0	2,110.9	3,668.1
2022	0.0	1,350.3	0.0	0.0	0.0	0.0	2,208.4	3,558.7
2023	0.0	1,407.9	0.0	0.0	0.0	0.0	0.0	1,407.9

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Author: avela Subject: Highlight Date: 5/16/2024 2:07:49 PM
Did the UCR study result in any further action or was it just received and filed?

2.- What sources contribute nitrate to groundwater of the BMZ?

The report indicates that in Zone 1 the isotopes of nitrate values overlap those expected for human or animal waste. Similarly, in Zone 3 the isotopic composition of water suggests a high probability of inputs of nitrate from human or animal waste. The presence of PPCPs in most samples indicates the possibility that septic systems are contaminating groundwater within the central part of Cherry Valley.

3.- How much nitrate from human waste is making its way into the groundwater of the BMZ?

The report documents the following findings:

- ✓ Mixing models suggest that between 18 to 30 percent of the nitrate in central Cherry Valley groundwater is derived from septic systems.
- ✓ If septic systems were completely phased out, nitrate concentrations in central Cherry Valley groundwater could decline by 30 percent once a steady state condition is achieved. The time to reach a steady state is anticipated to be shorter than in other portions of the BMZ due to relatively high rates of recharge in Zone 3.
- ✓ Mass balance calculations show that nitrate-nitrogen inputs from septic systems is one of the largest inputs of nitrogen to groundwater in the BMZ.
- ✓ If the waste from septic tanks were to be conveyed to the City of Beaumont WWTP, about 30 percent of the current input of nitrate from human waste to groundwater would be removed.

4.2 Comparison with Federal and State Drinking Water Standards

The California Department of Health Services (CDPH) maintains an active water quality database of all public and private drinking water wells throughout the state. This database was recently incorporated into the Groundwater Ambient Monitoring and Assessment (GAMA) program. The GAMA program is California's comprehensive groundwater quality monitoring program that was created by the State Water Resources Control Board in 2000. The program was later expanded by Assembly Bill 559, also known as the Groundwater Quality Monitoring Act of 2001.

Chemical information for drinking water sources is grouped in the GAMA program in various databases depending on the year(s) of information desired. This annual report documents water quality conditions for the 2018-22 period. To gather pertinent information, the 2015-19 and 2020-Present databases in the State of California Water Resources Control Board website were accessed. Accessing the water quality information in the GAMA program has been significantly enhanced compared to previous databases run through the CDPH website; it is better organized and easier to access and compile. The 2020 and earlier annual reports documented water quality information using databases from the CDPH website.

The objective of this water quality analysis was to determine whether any of the potable wells in the Beaumont Basin exceeded the Primary or Secondary Federal and State standards or

ITEM VII-C

BEAUMONT BASIN WATERMASTER

MEMORANDUM NO. 24-18

Date:	June 5, 2024
From:	Thomas Harder, Thomas Harder & Co.
Subject:	Update on the Safe Yield Reset of the Beaumont Basin
Recommendation:	For Information and Discussion

As per the 2003 Beaumont Basin Judgment, "The Safe Yield of the Beaumont Basin shall be redetermined at least every 10 years beginning 10 years after the date of entry of this Judgment."[1] The first redetermination of the Beaumont Basin Safe Yield was conducted in 2013[2] and revised the Safe Yield to be 6,700 acre-ft per year. The Safe Yield is being redetermined again for 2023.

At the February Committee meeting, presented a recommended Safe Yield for the next ten years (2023 through 2032). The Safe Yield was redetermined using an updated version of the groundwater flow model of the Beaumont Basin that was previously developed for the 2013 Safe Yield redetermination. TH&Co has prepared a draft technical report to the Committee for review and consideration. The technical report includes:

- Updates to the Beaumont Basin Groundwater Flow Model Used to Estimate Safe Yield
- Assumptions for Future Basin Management Forecasts for Use in Model Analysis
- A Description of the Model Calibration
- A Summary of the Analysis of Safe Yield
- Findings and Recommendations

Based on the analysis using the groundwater flow model, the Beaumont Basin Safe Yield for 2023 to 2032 is recommended to be 7,100 acre-ft/yr.

[1] Beaumont Basin Judgment. Section VI Administration, 5 (Y).
[2] Thomas Harder & Co., 2015. 2013 Reevaluation of the Beaumont Basin Safe Yield. Dated April 3, 2015.

DRAFT 2023 Reevaluation of the Beaumont Basin Safe Yield

May 29, 2024

Prepared for

Beaumont Basin Watermaster

Prepared by

Thomas Harder
Principal Hydrogeologist

Table of Contents

Tables

Figures

Appendices

Acronyms

ASR – Aquifer Storage & Recovery

BCF – Block-Centered Flow Package

BCVWD - Beaumont-Cherry Valley Water District

CGS – California Geological Survey

CHD - Constant Head Boundary

CIMIS – California Irrigation Management Information System

DEM – Digital Elevation Model

DRT – Drain Return Package

DWR – Department of Water Resources (California)

ESRI – Environmental Systems Research Institute

ET- Evapotranspiration

ET_o – Reference evapotranspiration

GHB – General Head Boundary

LSGCRF – Little San Gorgonio Creek Recharge Facility

MBR – Mountain Block Recharge

MODFLOW – Modular Finite-Difference Flow Model

NRMSE – Normalized Root Mean Square Error

PEST – Parameter Extinction Software Test

RIC – Responsive Interventions for Change

SFR – Streamflow-Routing Package

SGPWA - San Gorgonio Pass Water Agency

SMWC - South Mesa Water Company

STF – San Timoteo Formation

STR – Stream Package

SWP – State Water Project (California)

TH&Co - Thomas Harder & Company

UPW – Upstream Weighting Package

USGS – United States Geological Survey

VIC – Variable Infiltration Capacity

WEL – Well Package

WWTP – Wastewater Treatment Plant

YVWD - Yucaipa Valley Water District

1.0 Introduction

1.1 Background

The Beaumont Basin is located in the San Gorgonio Pass, a low-relief highland located between the San Bernardino Mountains and the San Timoteo Hills in Riverside County, California (Figure 1). The boundaries of the Beaumont Basin (also referred to as the Beaumont Storage Unit) were originally defined by Bloyd (1971) and adopted by the Superior Court of the State of California (the Court), when the basin was adjudicated per Riverside County case number RIC 389197, *San Timoteo Watershed Management Authority vs. City of Banning, et al*. (the Judgment) (Figure 2). It is noted that subsequent studies of the Beaumont Basin area have redefined the hydrogeologic boundaries of the groundwater basin (Rewis et al., 2006). However, for purposes of this report, the Beaumont Basin refers to the adjudicated basin area as defined in the Judgment.

The Safe Yield of the Beaumont Basin is defined by the Judgment as "The maximum quantity of water which can be produced annually from a groundwater basin under a given set of conditions without causing a gradual lowering of the groundwater level leading eventually to depletion of the supply in storage." The Safe Yield in the original Judgment was 8,650 acre-ft/yr. As per the Judgment, the Safe Yield is to be reevaluated every 10 years. In 2013, the Safe Yield was reset at 6,700 acre-ft/year. This report presents the 10-yr reevaluation of the Safe Yield of the Beaumont Basin for 2023.

1.2 Purpose and Scope

The purpose of this analysis was to reevaluate the Safe Yield of the Beaumont Basin in keeping with the requirements of the Judgment. The evaluation was conducted by developing a detailed water balance of the basin and vicinity with the aid of a calibrated numerical groundwater flow model.

The groundwater flow model used for the analysis was originally based on a model previously developed by the United States Geological Survey (USGS) for the Beaumont area (Rewis et al., 2006). The model had been updated and refined for the 2013 Safe Yield reset. For the 2023 Safe Yield reset, the groundwater model was further updated and refined to reflect new data collected over the previous 10 years.

The scope of the evaluation consisted of:

1. Obtaining and compiling data.

2. Updating and refining the existing groundwater flow model.
3. Calibrating the groundwater flow model through December 2022.
4. Create a 50-year future model projection.
5. Reevaluating the safe yield of the Beaumont Basin Adjudicated Area using the calibrated groundwater flow model.
6. Preparing this report summarizing the findings.

1.3 Safe Yield Reevaluation Approach

The Safe Yield of the Beaumont Basin is a function of the overall water balance of the area. Changes in water/groundwater inflow to the basin and water/groundwater outflow from the basin impact the Safe Yield. As groundwater management and land use changes impact the water balance, they also impact the Safe Yield. A generalized expression of the water balance is as follows:

$$\text{Inflow} - \text{Outflow} = +/- \text{ Change in Storage} \qquad (1)$$

The water balance equation for pre-developed conditions (prior to human occupation) can be further expressed as:

$$(I_{ss} + I_{mfr} + I_{pr} + I_{str}) - (O_{ss} + O_{et}) = \Delta S \qquad (2)$$

Where:

I_{ss} = Inflow from Subsurface Underflow

I_{mfr} = Inflow from Mountain Front Recharge

I_{pr} = Inflow from Areal Recharge from Precipitation

I_{str} = Inflow from Infiltration from Runoff in Stream Beds

O_{ss} = Subsurface Outflow

O_{et} = Evapotranspiration

ΔS = Change in Groundwater Storage

Under pre-developed conditions, the groundwater basin would be in a state of equilibrium such that the inflow and outflow would balance and there would be no significant long-term change in storage. Under this condition, groundwater levels would be relatively stable (Figure 3).

Underdeveloped land use conditions, the water balance changes as groundwater is pumped from the basin for irrigation and municipal supply (Figure 4). Lowering of the groundwater table resulting from pumping reduces the amount of groundwater that would otherwise leave the basin and reduces evapotranspiration losses in areas of shallow groundwater (e.g. San Timoteo Creek). Some of the pumped groundwater used for irrigation infiltrates past the roots of the plants and returns to the groundwater as return flow. Groundwater return flow also occurs as a result of discharges from individual septic systems. Other sources of recharge to the groundwater under developed land use include wastewater treatment plant discharges and artificial recharge in spreading basins. Finally, the balance of precipitation infiltration and runoff changes in areas of buildings and roads that were previously native soil and vegetation.

The water balance equation for developed land use conditions can be modified as follows:

$$(I_{ss} + I_{mfr} + I_{pr} + I_{str} + I_{rf} + I_{ar}) - (O_{ss} + O_{et} + O_p) = \Delta S \qquad (3)$$

Where:

I_{rf} = Inflow from Return Flow

I_{ar} = Inflow from Artificial Recharge

O_p = Outflow from Groundwater Pumping

Under developed basin conditions, if the inflow terms exceed the outflow terms, then the groundwater in storage increases (become positive) and groundwater levels rise. If the outflow terms exceed the inflow, then the groundwater in storage decreases (become negative) and groundwater levels drop.

The Safe Yield of a developed groundwater basin is the combination of pumping and recharge under a given land use condition that results in no long-term change in groundwater storage in the basin. The water balance equation can be rearranged and simplified to estimate Safe Yield:

$$\text{Safe Yield} = \Delta S + O_p - I_{ar} \qquad (4)$$

This relationship is valid if the following conditions are met:

1. The Safe Yield incorporates a hydrology that is representative of a relatively long period of record that includes multiple wet and dry hydrologic cycles.
2. The land use conditions are representative of the time period.
3. Pumping and recharge within the basin does not result in adverse impacts.

The approach used to reevaluate the Safe Yield of the Beaumont Basin was to use the calibrated numerical groundwater flow model to simulate future projections of groundwater pumping and artificial recharge in the context of a long-term average hydrology and return flow based on projected land use conditions. The Safe Yield was estimated for the 10-yr period from 2013 to 2022 based on the historical and projected water balance for 1978 through 2032 from the calibrated model and Equation 4 above.

1.4 Types and Sources of Data

Compilation, review and analysis of multiple types of data were necessary to refine the groundwater flow model. The various types of data are summarized in Figure 5 and include geology, soils/lithology, hydrogeology, surface water hydrology, climate, land use, topography, groundwater recharge and recovery, and climate change data. Groundwater levels, precipitation, imported water, well construction information, groundwater quality, and pumping test data were stored in a relational database expanded from database files provided by the USGS, San Gorgonio Pass Water Agency (SGPWA), Beaumont Cherry Valley Water District (BCVWD), South Mesa Water Company (SMWC), City of Banning, Yucaipa Valley Water District (YVWD), Riverside County Flood Control and Water Conservation District, and Beaumont Basin Watermaster. Other types of data necessary for analysis were compiled into spreadsheets. Historical groundwater quality data was collected and can be incorporated into future model analyses if a water quality transport component is added to the existing groundwater flow model.

Data for updating and refining the groundwater flow model were obtained from multiple sources:

Geological Data including geologic maps and cross sections were obtained from the USGS and the California Geological Survey (CGS).

Soils/Lithological Data including detailed lithologic logs from wells and test boreholes, geophysical logs, and drillers' logs from wells and test boreholes were obtained from the California Department of Water Resources (DWR), City of Banning, Yucaipa Valley Water District (YVWD), South Mesa Water Company (SMWC), and Beaumont-Cherry Valley Water District (BCVWD).

Hydrogeological Data including groundwater levels, pumping test data, and groundwater chemistry were obtained from the San Gorgonio Pass Water Agency (SGPWA), BCVWD, SMWC, YVWD, and City of Banning.

Groundwater Recharge and Recovery Data including spreading basin locations and dimensions, artificial recharge, water well construction, well locations, groundwater production, and information for septic return flow estimates were obtained from SGPWA, BCVWD, SMWC, YVWD, and City of Banning.

Hydrological (i.e. Surface Water) Data consisted of stream gage data along Little San Gorgonio Creek and San Timoteo Creek and was obtained from BCVWD and USGS. Wastewater treatment plant discharge data was obtained from the City of Beaumont.

Climate Data was acquired from the Riverside County Flood Control and Water Conservation District for the Beaumont weather station and DWR's California Irrigation Management Information System (CIMIS) at the University of California, Riverside station. Future climatology, hydrology, and streamflow was obtained from DWR.

Land Use Data was obtained from the DWR. Aerial photographs of land use conditions were obtained from the USGS, the United States Department of Agriculture Firescope, and ESRI Imagery Basemaps. Zoning maps from General Plans were obtained from the City of Beaumont, the City of Banning, the City of Calimesa, and Riverside County.

Topographical Data including Digital Elevation Models (DEMs) and topographical maps were acquired from the USGS.

In addition to the various types of data, numerous historical reports on the geology, hydrogeology and groundwater management of the Study Area were reviewed. These reports included USGS publications, DWR reports and bulletins, and agency reports. Publications relied on for the generation of this report are listed in the References (Section 7).

2.0 Updates to the Groundwater Flow Model

2.1 Updated Model Calibration Period

The previous model had been updated with groundwater pumping, recharge, and imported water data through December 2021. Model input files were appended to extend the model calibration period from January 2022 through December 2022. The updated 2023 model uses monthly stress periods; therefore, twelve stress periods were appended to the model to extend the calibration through December 2022.

The previous historical period of the model was January 1927 through December 2021. TH&Co shortened the historical calibration period by removing January 1927 through December 1977 from the model. This modification was made to enhance the model's runtime efficiency.

2.2 Created Uniform Model Stress Periods

Model stress periods are discrete time intervals over which groundwater flow and associated boundary conditions are simulated in a groundwater flow model. These stress periods divide the simulation period into manageable segments, allowing for the representation of temporal variations in boundary conditions, such as recharge rates, pumping rates, and hydraulic head values. Each stress period typically represents a fixed duration, such as a month, a season, or a year, depending on the temporal resolution required for the model simulation period.

In the previous version of the model, each stress period did not represent a uniform period. There were stress periods which represented multiple years and stress periods which represented only a few days. Having uniform stress periods helps maintain numerical stability during the simulation by preventing abrupt changes in boundary conditions between time steps. This reduces the likelihood of convergence issues, and numerical instabilities that may arise when the model encounters discontinuities in boundary conditions. Consistent stress periods makes model updates easier as it becomes unnecessary to convert model input data received from the stakeholders into various time units of years, months, and days. Lastly, uniform stress periods increase the compatibility of post-processing the results of the groundwater flow model; making temporal conversions redundant.

2.3 Changed Model Layering

The previous version of the Beaumont Basin groundwater model consistently underestimated shallow groundwater levels at the Noble Creek recharge basins, relative to measured groundwater level data. The discrepancy between simulated and measured groundwater levels at Noble Creek Shallow monitoring well NC-4S was greatest during times when large volumes were being recharged into the Noble Creek recharge basins. Further analysis of cross sections of

the area suggested that the model was not representing the interbedded fine-grained layers (silt and/or clay) in the upper approximately 400 feet of subsurface sediments that were, in reality, impeding the recharge rates and resulting in a higher recharge mound.

To address the model calibration issues in the Noble Creek recharge basin area and better represent the interbedded nature of the sediments above the regional aquifer system, TH&Co added a low permeability 50-foot-thick confining unit uniformly across the entire model domain (Figures 6 through 8). This confining unit was added based upon silt/clay lenses observed in lithologic logs for wells SMWC 04, YVWD 34 and 48, BCVWD 24 through 26, BCVWD 29, BCVWD MW-1, 2S/1W-35J01, Banning C-2A, Banning C-3, and Banning M9. The addition of the new low permeability unit resulted in splitting the previous model Layer 1 into three layers (Layers 1 through 3; Figures 7 and 8). The previous model Layer 2 became model Layer 4 and has not changed in terms of thickness or depth relative to the previous version of the model. The thickness of each of the four new model layers is shown on Figure 9a through 9d.

Overall, adding the low permeability layer significantly improved model calibration at well NC-4S (see Section 4).

2.4 Updated The Model Solver

The solver of a groundwater flow model is used to solve the mathematical equations that govern the movement of groundwater flow through a porous media. For the Beaumont Basin model update, the solver for the groundwater flow model update was converted from MODFLOW 2005 to MODFLOW Newton. This conversion involves transitioning from a traditional finite-difference numerical solver to a Newton-Raphson-based solver, which offers enhanced capabilities for solving nonlinear groundwater flow equations. The MODFLOW Newton solver uses iterative methods that converge quicker for highly complex nonlinear problems. The three main benefits to using the Newton solver are to improve accuracy during groundwater flow calculations, improve convergence of the model, and enhance model stability.

2.5 Updated the Stream Simulation Package in the Model

To better represent flow in San Timoteo Creek in the southern part of the model domain, TH&Co updated the Beaumont Basin groundwater flow model with an updated version of the MODFLOW stream package. The stream package was updated from the STR package (Prudic, 1989) to the Streamflow Routing package (SFR) (Niswonger et al., 2006). The SFR package allows for dynamic simulation of streamflow routing and more accurate simulation of surface water-groundwater interactions, such as gaining and losing streams, infiltration, and seepage, which are critical for representing groundwater-surface water interactions, such as occur along the San Timoteo Creek drainage.

Streamflow in San Timoteo Creek is generated by a combination of discharges of treated wastewater from the City of Beaumont wastewater treatment plant, rising groundwater, and periodic stormflow runoff from Marshall Creek, Noble Creek, and Little San Gorgonio Creek (Figure 10). Stream flow data used for this study were obtained from a USGS stream gage on Little San Gorgonio Creek and manual gaging of San Timoteo Creek (Figure 10). Little San Gorgonio Creek surface water flows were measured by the USGS from 1948 to 1985. Surface water flow within San Timoteo Creek was measured by YVWD on a weekly basis from 2002 to 2012.

Baseflow in San Timoteo Creek is sustained from treated wastewater discharges to Cooper's Creek by the City of Beaumont and groundwater discharge to the creek channel. The primary wastewater discharge point is in Cooper's Creek adjacent to the wastewater treatment plant (WWTP) (Figure 10). The second discharge point is in a small drainage north of the WWTP. Monthly wastewater discharge data were available from the City of Beaumont for the model update period through 2022 and historical discharges formed the basis for San Timoteo Creek flow in Segment 1 of the SFR (Figure 11). Flow in Segment 2 of the SFR was based on YVWD manual measurements (Figure 12) taken at the downstream location shown on Figure 10.

2.6 Modified Simulation Method for Groundwater Flow Between No Flow Zones in the Western Model Domain

The MODFLOW DRT (Drain Return) (Prudic, 1989) package was incorporated into the Beaumont Basin model in parts of the western Beaumont Basin to better simulate shallow groundwater flow between isolated no flow zones (Figure 13). The isolated no flow zones are conceptualized to represent outcrops of low permeability San Timoteo Formation separated by more permeable shallow alluvial channels that direct runoff from the Singleton Hills area to San Timoteo Creek. The narrow geometry of the active model domain in these areas resulted in numerical instability in the previous version of the model. The DRT is designed to simulate the interaction more efficiently between shallow subsurface groundwater flow upgradient of the narrow channels and groundwater flow within the channels. During periods when groundwater levels discharge at the land surface, the DRT package accounts for surface water infiltration back into the aquifer in the narrow channels. Therefore, the DRT package allows for a more realistic simulation of water through these geological features.

2.7 Updates to Model Package Controlling Cell-by-Cell Flow

Use of the MODFLOW Newton solver allowed TH&Co to incorporate a more robust package to simulate the flow between model cells. Accordingly, TH&Co replaced the Block-Centered Flow (BCF) package (McDonald & Harbaugh, 1988) in the previous model with the Upstream Weighting (UPW) (Niswonger & Panday, 2011) package, which is designed to improve the representation of hydraulic conductivity and anisotropy within the model domain. The transition

to the UPW package enhances the model's capability to represent spatial variability in hydrogeological properties, improve simulation accuracy, and better capture flow dynamics in heterogeneous groundwater systems.

2.8 Updated Model Calibration Targets

In addition to appending the previous model calibration target wells with updated data, TH&Co revised the calibration targets in the updated model. Three calibration targets were removed: Powers (2S/1W-32G01), Phillips (3S/1W-12D01), and Wilkins (2S/1W-34M01). These wells were removed since data for the updated calibration period was unavailable. TH&Co added ten new groundwater level calibration target wells: Noble Creek Park, Noble Creek 4, BCVWD 25, Tukwet B, Tukwet C, Tukwet D, YVWD 34, BCVWD 29, Delph, and Hewitt (Figure 14). New calibration targets were primarily wells identified as locations in the model which had good quality groundwater level data and were generally further from other calibration targets.

2.9 Updated Model Boundary Conditions

In addition to updating model input files, TH&Co updated the hydrographs used for boundary conditions with groundwater level data measured through December 2022 (Appendix A). Figure 13 shows the updated 2023 model boundary conditions which includes no flow cells, General Head Boundary (GHB) (McDonald & Harbaugh, 1988) cells, and Boundary Recharge cells. A comparison of previous model boundary conditions with the current updated model is shown on Figure 15.

2.9.1 Conversion of Constant Head Boundary Cells to General Head Boundary Cells

For some boundary conditions, TH&Co converted the Constant Head (CHD) (Harbaugh et al., 2000) package boundary condition cells to the General Head Boundary (GHB) package (Figure 13). MODFLOW GHB boundary cells are more flexible and versatile than CHD boundaries. While CHD boundaries maintain a constant head value throughout the simulation, GHB boundaries allow for spatially varying head values, which can better represent natural conditions such as local gradients or hydraulic head variations along a boundary. GHB boundaries can simulate various boundary conditions, including specified head, specified flow, or a combination of both. This flexibility allows for the simulation of more complex hydrogeological scenarios.

2.9.2 Conversion of General Head Boundary Cells to Mountain Block Recharge Cells

TH&Co converted all of the cells along the northern model boundary from GHB cells to mountain block recharge cells. Recharge in these cells is simulated using injection wells in the MODFLOW WEL (Well) (Harbaugh et al., 2020) package (Figure 13). Mountain block recharge cells are used to represent the infiltration of precipitation or snowmelt into the groundwater

system, capturing the spatial variability of recharge rates along the boundary. This allowed for more flexibility in adjusting recharge across the boundary during calibration.

2.10 Updates to Groundwater Pumping

Groundwater pumping for municipal supply was updated in the 2023 model based on data provided by BCVWD, SMWC, YVWD, and City of Banning. All municipal groundwater pumping was updated through December of 2022. Figure 16 shows the location of all the production wells inside the model. Total groundwater pumping in the Beaumont Basin has increased from just over 5,000 acre-ft/yr in 1978 to just under 19,000 acre-ft/yr in 2022 (Figure 17).

2.11 Incorporated Additional Recharge Basins

Additional recharge basins were constructed and put into operation within the Beaumont Basin Adjudicated area since the last Safe Yield reset in 2013 (Figure 16). In the previous model only San Gorgonio Pass Water Agency's (SGPWA's) Little San Gorgonio Creek Recharge Facility (LSGCRF) (located outside the adjudicated boundary) and BCVWD's Noble Creek northwest recharge facility existed. In the 2023 model update, TH&Co incorporated Noble Creek southeast and Brookside East and West were added to the model. Imported water deliveries to LSGCRF were discontinued in 2020 and no deliveries to these basins were included in the 10-year forecast period. BCVWD started delivering imported water to Noble Creek 1 & 2 starting in 2006 and continued to recharge water through 2022 and into the forecast (Table 1). SGPWA delivered water to Brookside East from 2019 to 2022. Brookside West was added to the model but in this model update does not receive water in the calibration or forecast period. SGPWA along with other stakeholders do plan on using this basin for imported water recharge in the future.

2.12 Updated Recharge From Precipitation

The climate of the Study Area has been characterized as transitional, with marine coastal influences to the west and arid Mojave Desert influences to the east (Rewis et al., 2006). The area has hot summers and cool winters. Historical annual precipitation at the Beaumont precipitation station, operated by the Riverside County Flood Control District, has ranged from 6.4 inches in 1999 to 35.0 inches in 1978 with an annual average of 17.2 inches (Figure 18). Analysis of the cumulative departure from mean precipitation at this station indicates the following trends:

- The period from approximately 1885 through 1903 was relatively dry.
- The period from 1904 through 1946 was relatively wet.
- The period from 1947 through 1977 was relatively dry.
- The period from 1978 through 1983 was relatively wet.

- The period from 1984 through 1990 was relatively dry.
- The period from 1991 through 1998 was relatively wet.
- The period from 1999 through 2023 was relatively dry.

Average annual reference evapotranspiration (ET_o) in the Study Area is relatively high. Average annual ET_o at the University of California, Riverside CIMIS station, located approximately 12 miles west of the Study Area, is 56.37 inches. Due to the relatively deep groundwater table throughout most of the Study Area, only groundwater in the riparian area along San Timoteo Creek is subject to ET (Figure 10).

Groundwater recharge from artificial recharge basins, return flow associated with the various land use conditions, and infiltration in Noble Creek and Marshall Creek were addressed in the model using the recharge package. Recharge was applied to the uppermost active model layer within 34 individual recharge zones (Figure 19). The relatively large number of recharge zones was necessary to enable the simulation of changes in return flow and streambed infiltration over time.

2.13 Changes in Aquifer Parameters from Recalibration of the Updated Model

Given the changes in model layering and other boundary conditions in the updated 2023 model relative to the previous version, it was necessary to recalibrate the model to provide an optimum match of measured and model-generated groundwater levels (see Section 4 herein). As aquifer parameters were adjusted during this process, the recalibration effort resulted in changes to parameter value arrays in the model, including horizontal hydraulic conductivity, vertical hydraulic conductivity, specific yield, and specific storage (see Appendix B).

3.0 Future Projections

As the reevaluation of the Safe Yield of the Beaumont Basin applies to the future period from 2023 through 2033, TH&Co included a 10-year projection of basin recharge and pumping in the water budget period used to estimate the Safe Yield. The forecast is based on assumptions for hydrology, groundwater pumping demand, imported water recharge, and anticipated projects to recharge/pump groundwater for a 50-year projection, as described herein. However, only the forecasted period from 2023 through 2033 was included in the analysis of Safe Yield.

3.1 Climate and Precipitation Projection

The climate and precipitation forecast for the 50-year projection period was completed using the 2070 climate change factors from the DWR climate change model (DWR, 2018). DWR's climate change model outputs a precipitation factor across a 6 km by 6 km grid matrix covering California. The precipitation factor is applied to the historical precipitation record at each grid cell to estimate how much a historical year's rainfall will be affected by climate change by 2070 (Figure 20). To account for future precipitation in the Beaumont model forecast, TH&Co conducted a statistical analysis on the historical precipitation record at the Beaumont Precipitation Station (see section 2.12), classifying historical years into the following precipitation categories: very wet, wet, average, dry, and very dry. A proxy precipitation year was then picked for each one of the categories and the DWR 2070 climate change factor was then applied (Table 2). TH&Co applied a random 50-year pattern of the five precipitation categories described above across the 50-year model projection (2023-2071).

3.2 Groundwater Pumping Forecast

Projected groundwater pumping in the model forecast period 2023-2072 was based on pumping projections provided by BCVWD, SMWC, YVWD, and City of Banning. Forecast period total groundwater pumping for the entire Study Area for 2023-2032 is shown in (Figure 17). Groundwater pumping is forecast to increase from just over 20,000 acre-ft/yr in 2023 to over 25,000 acre-ft/yr in 2032. Overlyer pumping for the 50-yr projection simulation was based on the 5-year historical average monthly pumping from 2018-2022.

3.3 Imported Water Forecast

Projections of artificial recharge in the model forecast period were estimated based on SGPWA's Table A imported water allocation and DWR projections of imported water availability in the future. SGPWA's Table A allocation is 17,300 acre-ft/yr. DWR's Final State Water Project Delivery Capability Report (DWR, 2020) describes the percentage of Table A water State Water Project contractors can expect in the future and the number of years they can expect it. TH&Co assigned imported water deliveries in any given year in accordance with the climate categories described in Section 3.1 (Table 3). Very wet years hydrologically were assigned a high

percentage of imported water delivery (97 percent). In contrast, very dry years hydrologically were assigned a low percentage of imported water delivery (7 percent).

Imported water was assigned to individual recharge facilities in the Beaumont Basin on a priority basis. Water was first assigned to the Noble Creek Recharge facility. If the recharge capacity of those basins were maximized, recharge was then assigned to Brookside East. The recharge capacity at each facility was based upon the area of each basin and a historical maximum infiltration rate.

3.4 Natural Recharge Water Forecast

Precipitation recharge for the model forecast period was assigned to the MODFLOW recharge package based on the proxy year precipitation projections shown in Table 2. The recharge value for each recharge package zone (Figure 19) for the historical proxy year was applied to the forecast period in accordance with its precipitation category (very wet, wet, average, dry, and very dry (see Section 3.1 and Table 2 for more information).

3.5 YVWD ASR Project

The YVWD is planning to implement a groundwater recharge and recovery project which would become operational in 2026. This project includes four injection wells and three extraction wells, as shown on Figure 21. The project would recharge and/or recover up to 2,000 acre-ft/yr of imported water. These injection and extraction wells were added into the 2023 updated model based on planned locations provided to TH&Co by YVWD (Figure 21). The ASR project involves purchasing imported water during wet periods when excess water is available and injecting it into the local aquifer for storage. During times of high demand or drought, the stored water can be withdrawn from the aquifer and treated for distribution to meet the needs of YVWD's customers.

4.0 Model Calibration

The revisions to the model changed the pumping and recharge stresses that affect model calibration, so the model was recalibrated to reflect the new data. This involved a two-step process:

1. Manually modifying aquifer property values to optimize the fit between measured groundwater levels and modeled groundwater levels, and
2. Conducting an automated parameter estimation process (PEST) to further refine the calibration.

TH&Co used PEST (Parameter ESTimation) to make changes to horizontal hydraulic conductivity, vertical hydraulic conductivity, specific yield, and specific storage. PEST uses algorithms to iteratively adjust parameter values, updating the model simulations and comparing them with observed data until an optimal fit is achieved (Doherty, 2002). PEST was allowed to explore specific ranges of each parameter space for horizontal hydraulic conductivity, vertical hydraulic conductivity, specific yield, and specific storage but was not allowed outside of the range consistent with historical pumping test data in the Beaumont Basin.

Calibration hydrographs showing both measured and model-generated groundwater elevations are provided in (Appendix C). The simulated groundwater elevations reasonably match the measured elevations at most of the target wells in the model. A scatter plot of simulated versus measured groundwater elevations for the 2,689 groundwater level observations in the calibration is displayed model wide in (Figure 22). The correlation coefficient between the simulated and measured values is 0.93, which meets the benchmark minimum value of 0.90 noted in DWR (2016) and Hill and Tiedemann (2007). Values of 0.90 and above indicate a strong positive correlation between the measured and model-generated groundwater levels (i.e., as one value increases, so does the other and vice versa).

Another measure of groundwater level "goodness of fit" is the normalized root-mean square error (NRMSE) where the error is the difference between the measured and model-generated groundwater level. The NRMSE is expressed as a percent with results less than 10 percent generally considered to be acceptable. The NRMSE for the 2023 model with respect to groundwater elevations is 5.4 percent (Figure 22).

5.0 Analysis of Safe Yield

The Safe Yield of the Beaumont Basin is a function of the overall water balance of the adjudicated area. As described in Section 1.3, the Safe Yield can be expressed using the following equation:

$$\text{Safe Yield} = \Delta S + O_p - I_{ar} \qquad (4)$$

where:

ΔS = Change in Groundwater Storage

O_p= Outflow from Groundwater Pumping

I_{ar} = Inflow from Artificial Recharge of Supplemental Water

This relationship is valid if the following conditions are met:

1. The Safe Yield incorporates a hydrology that is representative of a relatively long period of record that includes multiple wet and dry hydrologic cycles.
2. The land use conditions are representative of the time period.
3. Pumping and recharge within the basin does not result in adverse impacts.

The updated Safe Yield estimate for the Beaumont Basin was based on a water budget developed using the updated and recalibrated groundwater flow model of the basin (see Table 4). The water budget includes both the historical period from 1978 through 2022 and the forecast period from 2023 through 2032. The Safe Yield is based on Equation 4 above and the average groundwater pumping, change in aquifer storage, and imported water recharge for the 1978 through 2032 period.

Multiple realizations of the Beaumont Basin model were evaluated before selecting the water budget shown on Table 4, which was used to estimate Safe Yield. The purpose of analyzing multiple model realizations is to account for uncertainty in the model input parameters, many of which are estimated. A model realization is a model with the same area and layering but different parameter distributions. For the analysis of Safe Yield, TH&Co originally analyzed 100 different realizations of the Beaumont model, each with different aquifer parameters, hydrology, and mountain front recharge varied within acceptable ranges. To be considered for evaluation of Safe Yield, a realization would need to result in an acceptable model calibration in

accordance with the criteria described in Section 4. Of the original 100 model realizations, 79 resulted in an acceptable calibration for use in estimating Safe Yield.

The Safe Yield estimates from each of the 79 acceptable model realizations formed a normal distribution when plotted (see Figure 23). The Safe Yield estimates ranged from 6,700 acre-ft/yr to 7,300 acre-ft/yr. The Safe Yield recommended herein (7,100 acre-ft/yr) represents the 50th percentile of the distribution of estimates derived from the uncertainty analysis. This means that there is a 50 percent chance of the estimate being lower and a 50 percent chance of the estimate being higher, within the range of the estimates. The Safe Yield does not include imported water recharge.

6.0 Findings and Recommendations

A calibrated numerical groundwater flow model of the Beaumont Basin has been updated and refined based data collected since the earlier version of the model was developed. The updated and refined model is calibrated to industry standards and is a valuable tool for evaluating both the historical water balance of the Beaumont Basin and future water balance based on projections of groundwater production and artificial recharge. Analysis of the Beaumont Basin historical water budget from the groundwater flow model has resulted in the following findings:

- The water balance resulting from the analysis of future groundwater production and artificial recharge shows that change in groundwater storage during the 50-yr historical and forecast period from 1978 to 2032 ranges from 10,574 acre-ft/yr to -14,233 acre-ft/yr with an average of 4,251 acre-ft/yr. Average storage change over the 10-yr period (2013-2022) was 2,150 acre-ft/yr.
- Changes in groundwater storage over the 50-year period (1978-2032) are variable and are highly dependent on groundwater pumping, recharge from precipitation, and imported water for recharge. As noted in TH&Co (2018), imported water recharge that is not captured downgradient will likely result in higher losses.
- The Safe Yield based on an uncertainty analysis of the model-generated water budgets from 79 different realizations of the updated Beaumont Basin model is approximately 7,100 acre-ft/yr. This value represents the 50th percentile of the normalized distribution of safe yield estimates from the 79 different realizations.

Based on the analysis presented herein, including an analysis of model uncertainty, the recommended Safe Yield of the Beaumont Basin for the next 10 years (2023 through 2032) is 7,100 acre-ft/yr.

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Tables

Beaumont Basin Annual Imported Water Deliveries

Calendar Year	Little San Gorgonio Creek Recharge Facility (acre-ft)	Noble Creek Recharge Facility (1 & 2) (acre-ft)	Brookside East Recharge Facility (acre-ft)	Brookside West Recharge Facility (acre-ft)	Annual Total (acre-ft)
2003	77	0	0	0	77
2004	814	0	0	0	814
2005	687	0	0	0	687
2006	778	3,501	0	0	4,279
2007	541	4,501	0	0	5,042
2008	758	3,933	0	0	4,691
2009	852	5,482	0	0	6,335
2010	1,215	7,065	0	0	8,280
2011	1,842	8,779	0	0	10,621
2012	1,827	8,983	0	0	10,810
2013	881	8,634	0	0	9,515
2014	17	5,013	0	0	5,030
2015	9	3,467	0	0	3,476
2016	18	10,796	0	0	10,814
2017	6	14,940	0	0	14,946
2018	0	12,621	0	0	12,621
2019	0	13,770	383	0	14,153
2020	1	11,005	464	0	11,470
2021	0	2,387	117	0	2,504
2022	0	1,311	500	0	1,811
2023	0	16,781	0	0	16,781
2024	0	13,496	0	0	13,496
2025	0	6,921	0	0	6,921
2026	0	10,034	0	0	10,034
2027	0	7,437	0	0	7,437
2028	0	4,801	0	0	4,801
2029	0	12,414	0	0	12,414
2030	0	12,020	0	0	12,020
2031	0	14,795	0	0	14,795
2032	0	7,437	0	0	7,437
Average (2003-2032)	344	7,744	49	0	8,137
Total (2003-2032)	10,323	232,324	1,464	0	244,112

Notes: Historical & forecast period imported water data was received from SMWC, YVWD, BCVWD, SGPWA, and The City of Banning.

Beaumont Model Forecast Period Proxy Year Selection

Model Forecast Year	Proxy Year	Proxy Year Precipitation (in.)	Category
2023	2005	26.9	Very Wet
2024	2005	26.9	Very Wet
2025	2018	6.6	Dry
2026	2015	10.1	Average
2027	2015	9.6	Average
2028	2007	4.4	Very Dry
2029	2019	19.8	Wet
2030	2015	10.7	Average
2031	2005	30.0	Very Wet
2032	2015	12.1	Average

Notes: Proxy year precipitation was determined from data at Beaumont Precipitation Station #13. Categories were determined by statistically classifying the historical precipitation data.

Model Forecast Period SWP[2] Imported Water Proxies

Category[1]	Proxy Year	SWP Allocation (%)	Annual Allocation Volume[3] (acre-ft)	Logic
Very Wet	2005	97%	16,781	Single Wet Year allocation From DWR[4] SWP 2019 Delivery Capability Report
Wet	2019	78%	13,494	Average Between Average and Very Wet Year
Average	2015	58%	10,034	Long Term Average allocation From DWR SWP 2019 Delivery Capability Report
Dry	2018	33%	5,709	Average Between Average and Very Dry Year
Very Dry	2007	7%	1,211	Single Dry Year allocation From DWR SWP 2019 Delivery Capability Report

Notes:

[1] Categories were determined by statistically classifying the historical precipitation data. See Table 2 For More Information.

[2] SWP = State Water Project

[3] Based on San Gorgonio Pass Water Agencies maximum SWP Table A allocation which equals 17,300 acre-ft/yr.

[4] DWR = California Department of Water Resources

Groundwater Budget for the Beaumont Basin Adjudicated Area (January 1978 - Decemeber 2032)

	Groundwater Inflows (acre-ft)							Groundwater Outflows (acre-ft)				(acre-ft)
Year	Subsurface Inflow into the Adjudicated Area	Imported Water for Recharge[a]	Imported Water for Injection[b]	Deep Infiltration of Precipitation and Runoff in Stream[c]	Recharge from the Mountain Block	Wellbore Flow[d]	Total Inflow	Subsurface Outflow out of the Adjudicated Area	Evapotran-spiration (ET)	Groundwater Pumping	Total Outflow	Change in Storage[e]
1978	11,585	0	0	3,364	43	1,502	16,494	(11,475)	0	(6,987)	(18,461)	(1,967)
1979	13,009	0	0	3,477	30	1,130	17,646	(10,005)	0	(6,831)	(16,836)	811
1980	15,496	0	0	3,409	43	947	19,895	(8,954)	0	(5,967)	(14,921)	4,974
1981	11,384	0	0	3,590	13	938	15,925	(8,388)	0	(6,561)	(14,949)	976
1982	14,597	0	0	3,600	33	1,001	19,231	(9,463)	0	(5,345)	(14,808)	4,423
1983	16,604	0	0	3,587	44	1,009	21,244	(9,702)	0	(4,726)	(14,428)	6,817
1984	11,850	0	0	3,693	10	978	16,531	(10,115)	0	(5,483)	(15,598)	933
1985	10,427	0	0	3,534	9	903	14,872	(9,352)	0	(6,735)	(16,087)	(1,215)
1986	10,450	0	0	3,705	9	850	15,014	(8,173)	0	(6,722)	(14,895)	120
1987	10,358	0	0	3,542	11	852	14,763	(8,971)	0	(7,490)	(16,461)	(1,698)
1988	10,003	0	0	3,676	10	789	14,478	(8,102)	0	(8,059)	(16,160)	(1,683)
1989	10,276	0	0	3,849	10	996	15,131	(7,903)	0	(11,187)	(19,090)	(3,960)
1990	10,224	0	0	3,790	9	969	14,992	(8,058)	0	(12,570)	(20,628)	(5,636)
1991	10,213	0	0	3,850	10	909	14,981	(8,222)	0	(10,667)	(18,889)	(3,908)
1992	11,616	0	0	3,804	24	861	16,306	(8,159)	0	(9,671)	(17,830)	(1,524)
1993	17,711	0	0	3,740	32	813	22,297	(9,396)	0	(7,355)	(16,751)	5,546
1994	14,432	0	0	3,804	28	844	19,108	(9,871)	0	(8,138)	(18,009)	1,099
1995	18,008	0	0	3,864	33	884	22,789	(10,057)	0	(6,020)	(16,078)	6,711
1996	12,440	0	0	3,813	9	889	17,150	(10,124)	0	(6,775)	(16,899)	251
1997	12,995	0	0	3,893	25	951	17,865	(10,024)	0	(8,060)	(18,084)	(219)
1998	17,076	0	0	3,946	42	1,066	22,130	(10,980)	0	(7,710)	(18,690)	3,441
1999	12,123	0	0	3,673	7	1,006	16,810	(9,614)	0	(9,957)	(19,571)	(2,761)
2000	10,908	0	0	3,871	9	943	15,731	(8,951)	0	(14,143)	(23,095)	(7,364)
2001	10,935	0	0	3,928	8	989	15,860	(8,862)	0	(14,624)	(23,486)	(7,626)
2002	10,748	0	0	3,831	8	886	15,474	(7,128)	0	(18,438)	(25,566)	(10,092)
2003	12,720	0	0	3,904	19	1,114	17,757	(7,393)	0	(12,266)	(19,659)	(1,902)
2004	13,985	0	0	4,099	20	923	19,028	(7,919)	0	(16,703)	(24,622)	(5,594)
2005	19,121	0	0	3,886	32	983	24,022	(8,822)	0	(14,694)	(23,516)	506
2006	14,246	3,501	0	4,283	6	1,089	23,125	(9,591)	0	(17,901)	(27,492)	(4,367)
2007	11,395	4,501	0	4,285	4	1,056	21,242	(9,751)	0	(20,559)	(30,309)	(9,067)
2008	11,760	3,933	0	4,830	13	936	21,471	(9,613)	0	(18,264)	(27,876)	(6,405)
2009	12,023	5,482	0	4,815	9	922	23,252	(9,560)	0	(16,565)	(26,125)	(2,873)
2010	13,314	7,065	0	5,379	15	933	26,706	(10,533)	0	(14,547)	(25,080)	1,626
2011	14,983	8,779	0	5,130	21	989	29,902	(12,113)	0	(14,668)	(26,781)	3,121
2012	13,432	8,983	0	5,065	8	916	28,404	(11,885)	0	(15,327)	(27,212)	1,192
2013	12,610	8,634	0	4,273	4	1,017	26,538	(12,579)	0	(17,798)	(30,377)	(3,839)
2014	12,624	5,013	0	3,348	7	934	21,926	(11,979)	0	(17,896)	(29,875)	(7,949)
2015	13,123	3,467	0	2,711	8	770	20,079	(11,625)	0	(13,556)	(25,181)	(5,102)
2016	13,062	10,796	0	4,968	11	778	29,615	(11,334)	0	(16,615)	(27,949)	1,666
2017	12,183	14,940	0	6,762	11	910	34,806	(13,618)	0	(16,779)	(30,397)	4,409
2018	13,635	12,621	0	4,332	12	873	31,474	(13,369)	0	(18,120)	(31,489)	(15)
2019	16,208	14,153	0	6,595	19	981	37,956	(14,699)	0	(17,116)	(31,814)	6,142
2021	14,052	2,504	0	1,735	5	839	19,134	(12,188)	0	(21,179)	(33,367)	(14,233)
2022	14,348	1,811	0	2,304	4	912	19,379	(12,615)	0	(19,917)	(32,532)	(13,152)

Groundwater Budget for the Beaumont Basin Adjudicated Area (January 1978 - Decemeber 2032)

	Groundwater Inflows (acre-ft)							Groundwater Outflows (acre-ft)				(acre-ft)
Year	Subsurface Inflow into the Adjudicated Area	Imported Water for Recharge[a]	Imported Water for Injection[b]	Deep Infiltration of Precipitation and Runoff in Stream[c]	Recharge from the Mountain Block	Wellbore Flow[d]	Total Inflow	Subsurface Outflow out of the Adjudicated Area	Evapotran-spiration (ET)	Groundwater Pumping	Total Outflow	Change in Storage[e]
2023	19,856	16,781	0	4,708	41	665	42,051	(10,252)	0	(21,225)	(31,477)	10,574
2024	20,730	13,496	0	4,056	32	715	39,030	(10,657)	0	(21,529)	(32,185)	6,845
2025	15,555	6,921	0	2,424	8	705	25,613	(10,986)	0	(21,940)	(32,926)	(7,313)
2026	14,639	10,034	2,000	1,307	9	2,763	30,752	(11,064)	0	(23,743)	(34,807)	(4,055)
2027	13,980	7,437	2,000	1,454	6	2,760	27,637	(11,325)	0	(23,992)	(35,316)	(7,679)
2028	13,542	4,801	2,000	1,763	9	2,740	24,855	(9,949)	0	(24,217)	(34,166)	(9,311)
2029	16,270	12,414	2,000	771	19	2,787	34,260	(12,490)	0	(24,508)	(36,998)	(2,738)
2030	15,513	12,020	2,000	1,557	16	2,746	33,853	(10,871)	0	(24,722)	(35,593)	(1,740)
2031	20,504	14,795	2,000	2,458	34	2,741	42,532	(9,664)	0	(24,942)	(34,606)	7,926
2032	15,517	7,437	2,000	1,461	6	2,783	29,204	(11,201)	0	(25,221)	(36,423)	(7,219)
Average (1978 - 2022)	13,088	2,837	0	4,032	17	950	20,923	(10,126)	0	(12,362)	(22,488)	(1,565)
Average (1978 - 2032)	13,728	4,251	255	3,698	17	1,166	23,115	(10,257)	0	(14,406)	(24,663)	(1,548)

Notes:

[a] Values prior to 2023 are reported values provided by the stakeholders.
Values from 2023 onward are based on anticipated deliveries off the State Water Project associated with forecasted precipitation.

[b] Values reported by YVWD.

[c] Includes deep percolation of precipitation and runoff in stream, channels (stream channels include Noble Creek and Marshall Creek), return flows (e.g., landscaping, parks, golf courses, transmission losses, septic systems, etc.).

[d] Wellbore flow refers to the movement of water through the annular space between the well casing and the surrounding formation in a groundwater well.

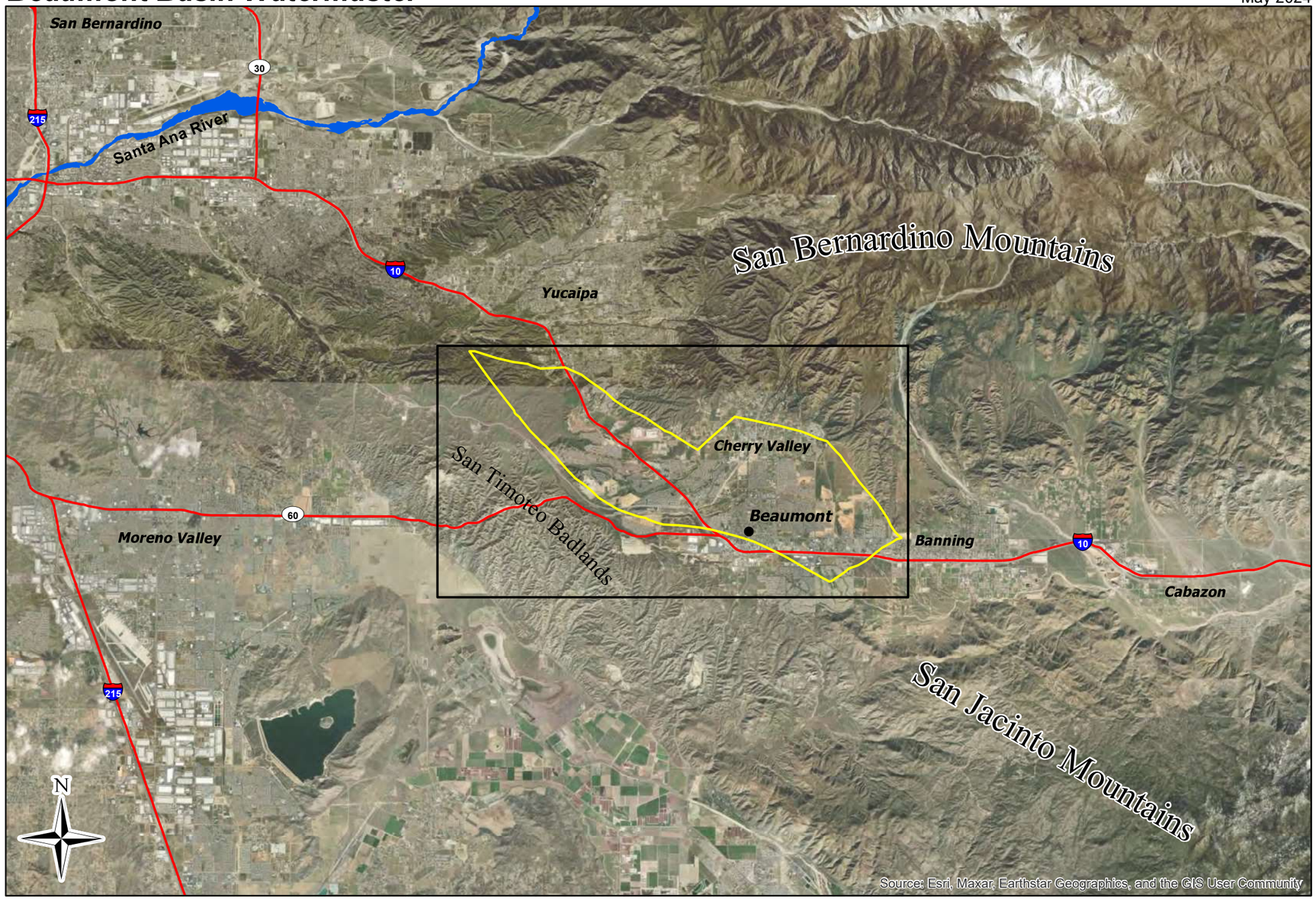
[e] As all "Total Outflow" values are presented as negative (parenthesized) values, the "Change in Storage" is calculated as "Total Inflow plus Total Outflow".

Figures

Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



0 1 2 4 Miles

NAD 83 State Plane Zone 6

Map Features

- Study Area
- Beaumont Basin Adjudicated Area
- Santa Ana River
- Freeway/Highway

Regional Setting

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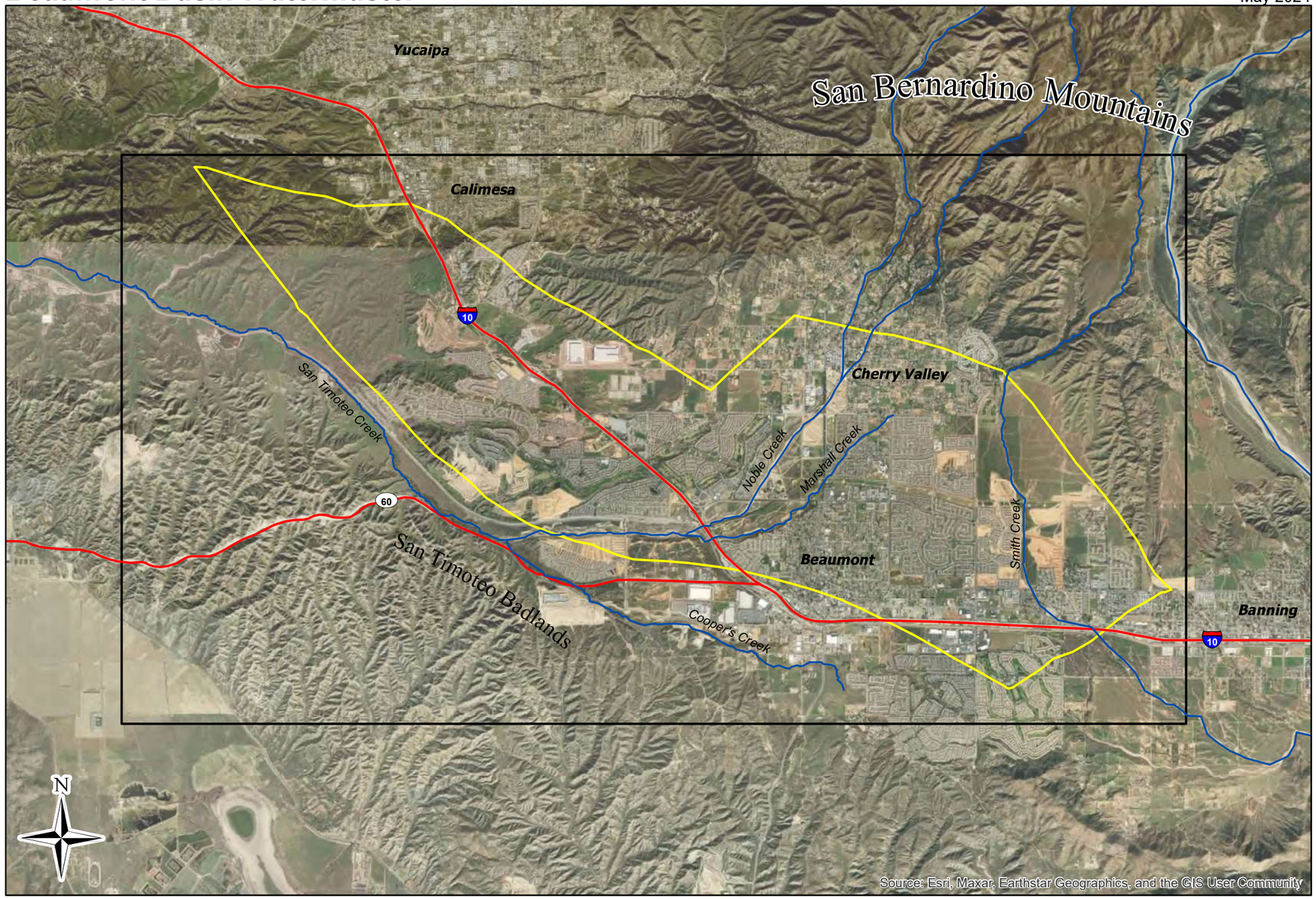
Regional Map

Figure 1

Beaumont Basin Watermaster

May 2024



0 0.5 1 2 Miles

NAD 83 State Plane Zone 6

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2023 Reevaluation of the Beaumont Basin Safe Yield

Map Features

- Study Area
- Beaumont Basin Adjudicated Area
- Creek
- Freeway/Highway

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Beaumont Basin Study Area

Figure 2

Figure 3
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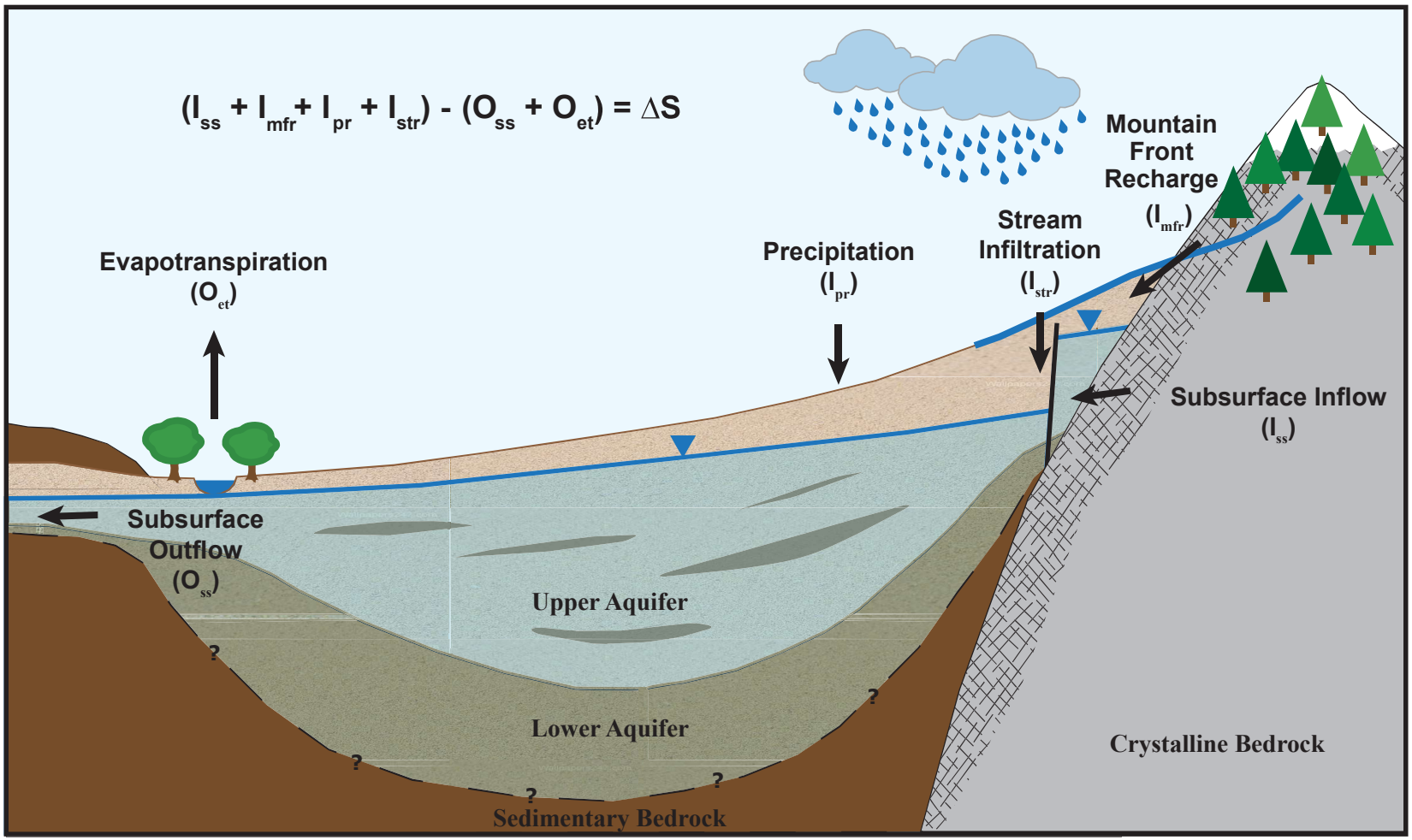
Conceptual Water Balance - Pre-developed Conditions



Note:
*Not to scale.

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May 2024

Figure 4
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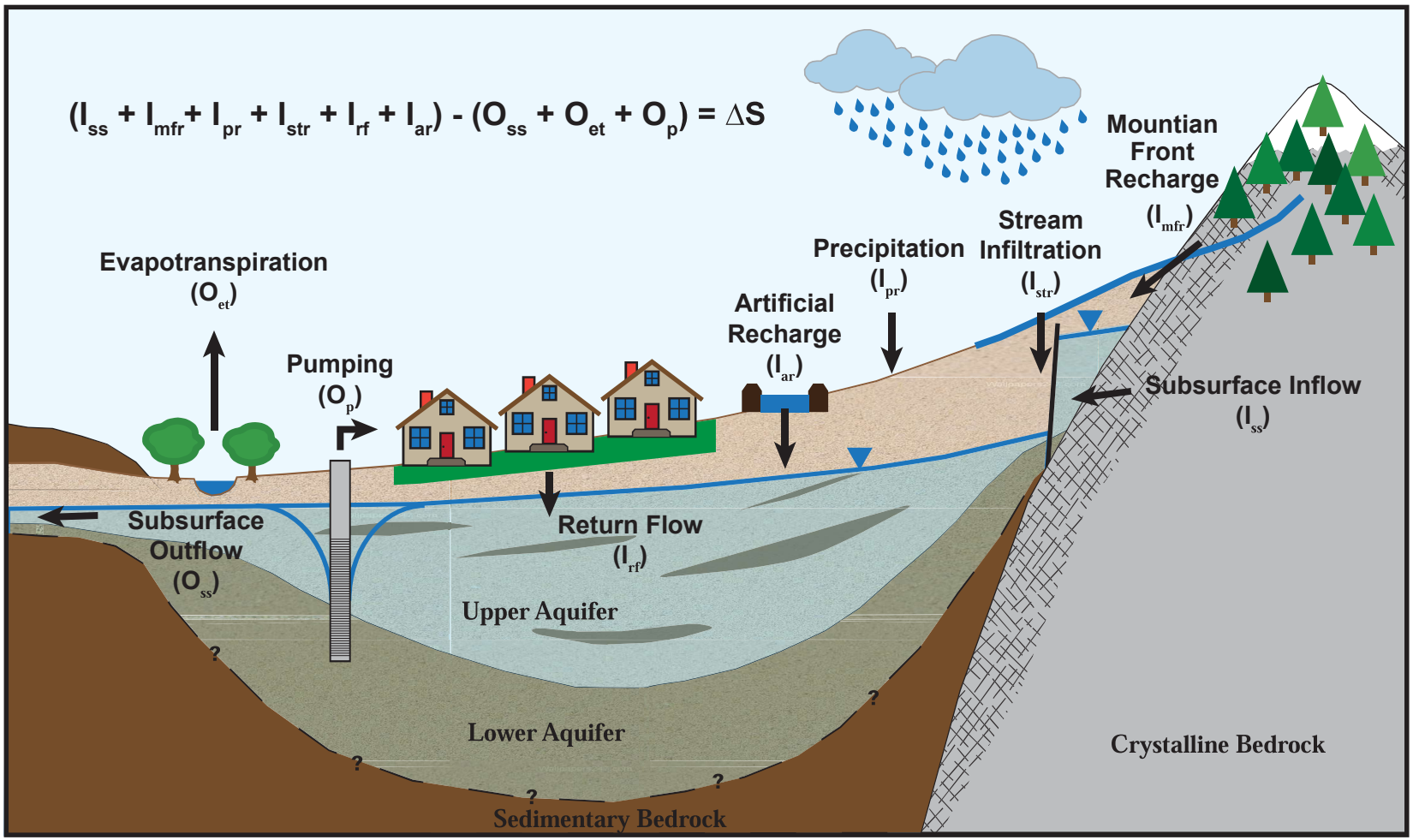
Conceptual Water Balance - Developed Conditions



Note:
*Not to scale.

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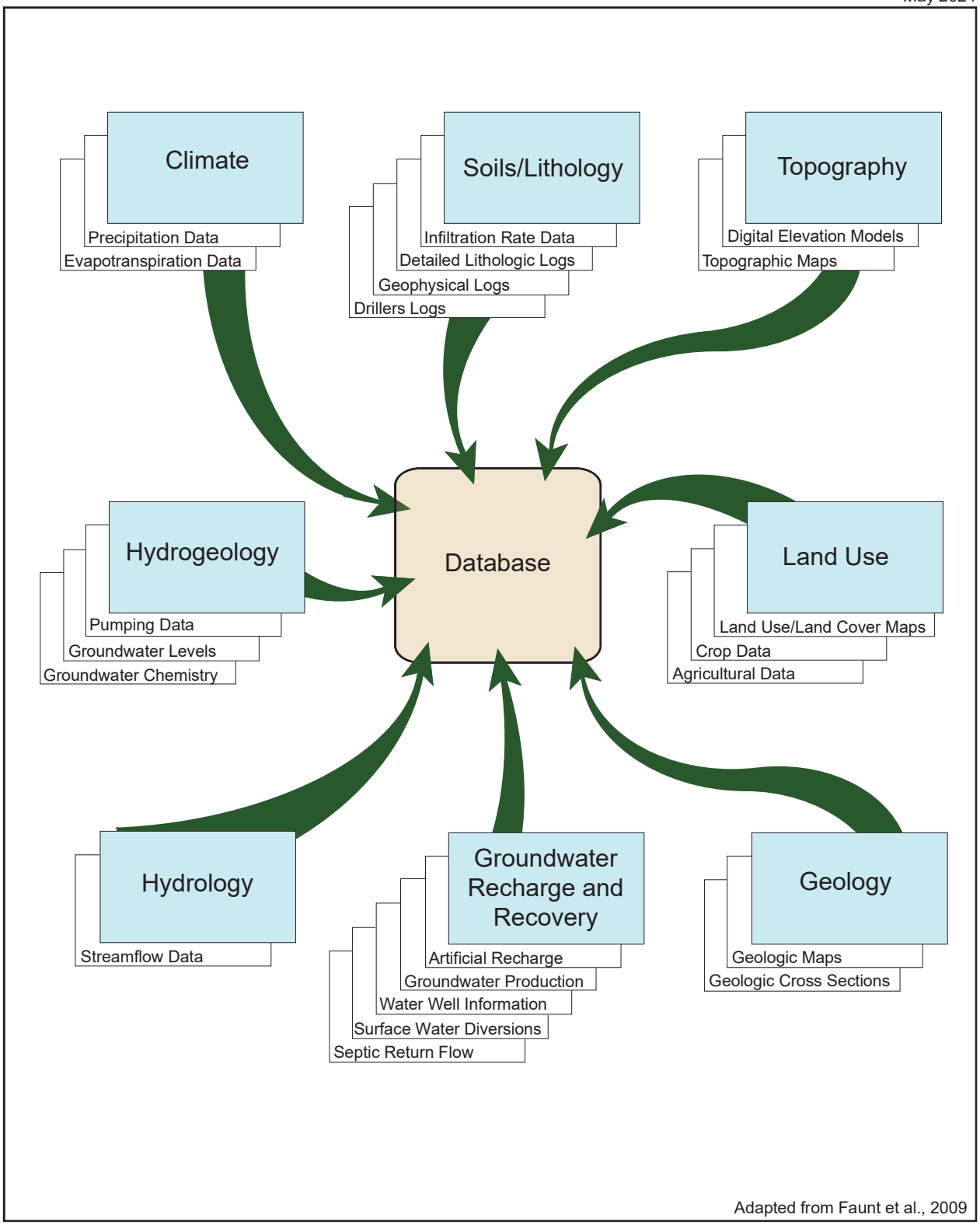
Beaumont Basin Watermaster



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Data Type Diversity Flow Chart
Figure 5
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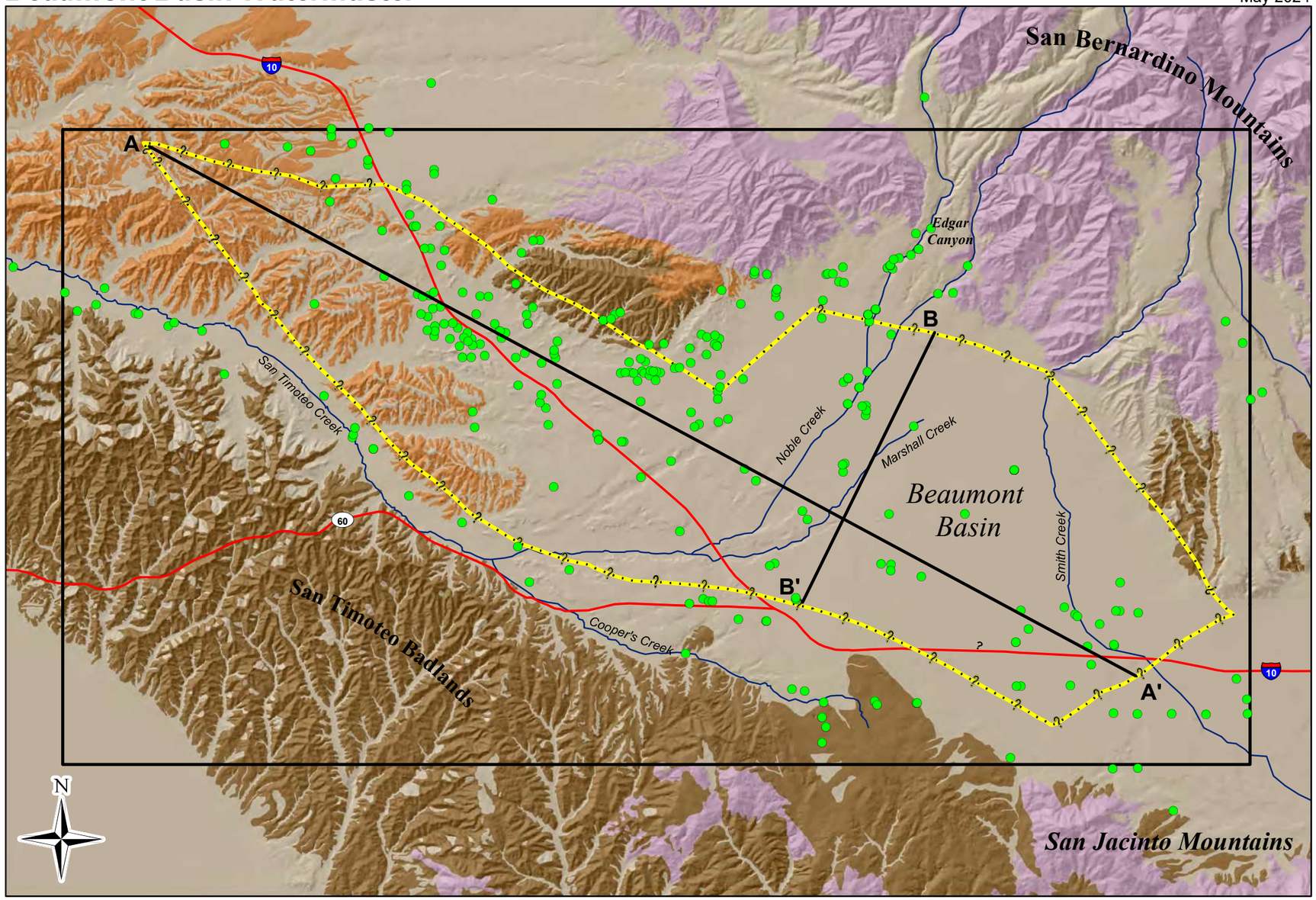
Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

- Well
- Surficial or Alluvial Deposits
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex
- Concealed Fault (Bloyd, 1971) - Hypothetical where Queried
- (Beaumont Basin Adjudication Boundary)
- Stream
- Freeway/Highway
- Study Area

Note: Geology modified from California Geological Survey, Special Report 217 (Revised, 2012); USGS Open-File Report 2005-1305; and USGS Scientific Investigations Report 2006-5026 (Rewis et al., 2006).

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Geology of Beaumont Basin

Figure 6

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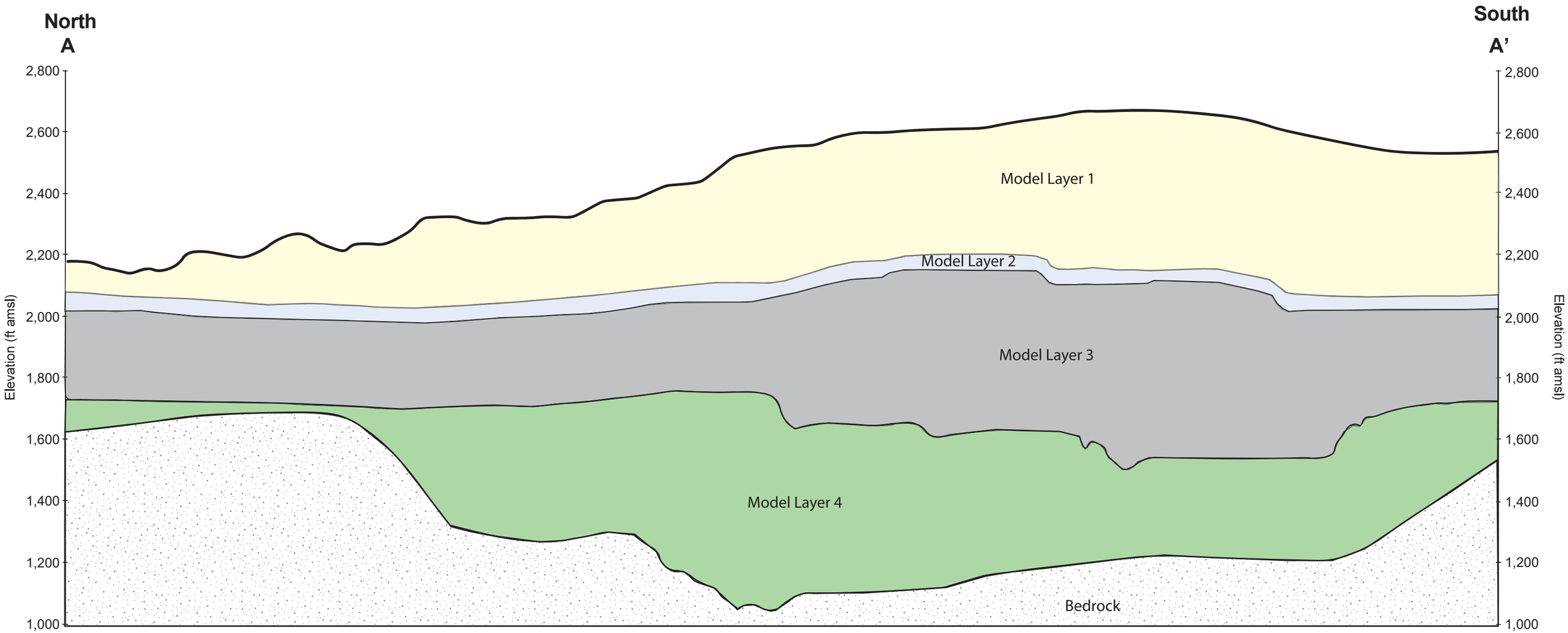

Vertical Scale
0
225
450
Feet

Horizontal Scale
0 3/4 1 1/2 Miles

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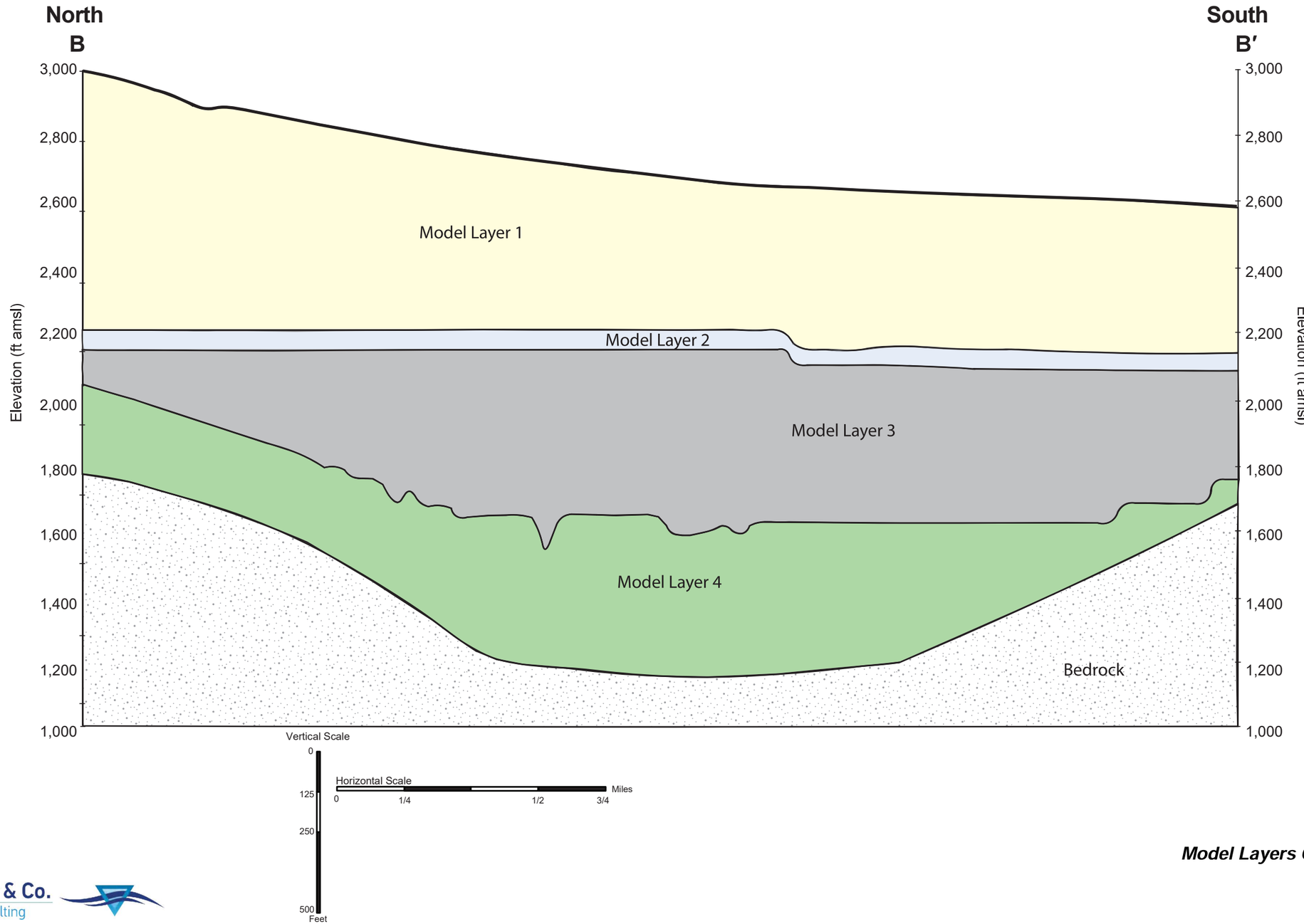
Model Layers Cross Section A-A'
Beaumont Basin
Figure 7
May 2024



Model Layers Cross Section B-B'
Beaumont Basin
Figure 8
May 2024

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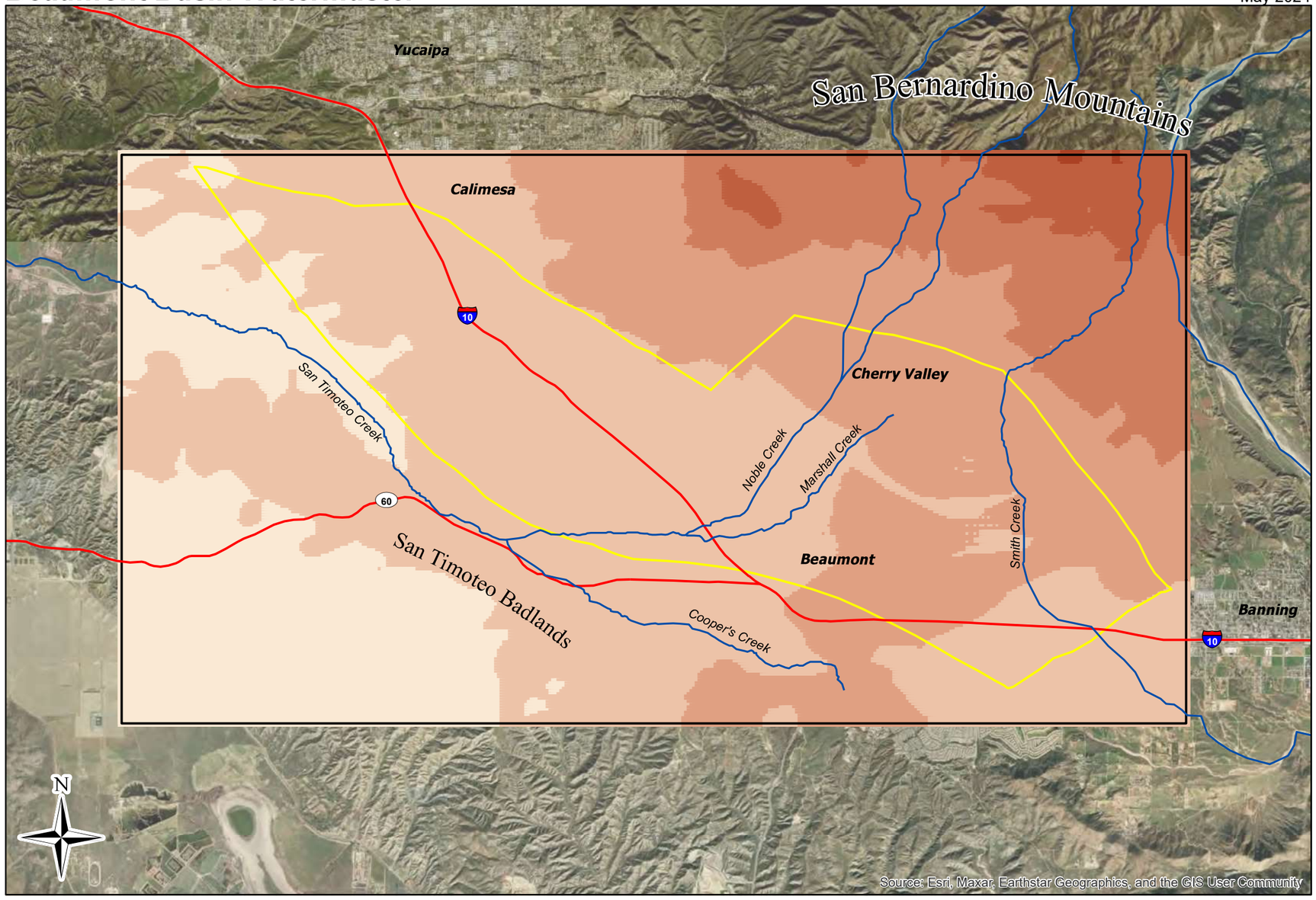
Beaumont Basin Watermaster

May 2024



0 0.5 1 2 Miles

NAD 83 State Plane Zone 6

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2023 Reevaluation of the Beaumont Basin Safe Yield

Map Features

Layer Thickness (ft)
- 50 to 100
- 100 to 500
- 500 to 1000
- 1000 to 1500
- 1500 to 2000
- 2000 to 2100

Study Area
Beaumont Basin Adjudicated Area
Creek
Freeway/Highway

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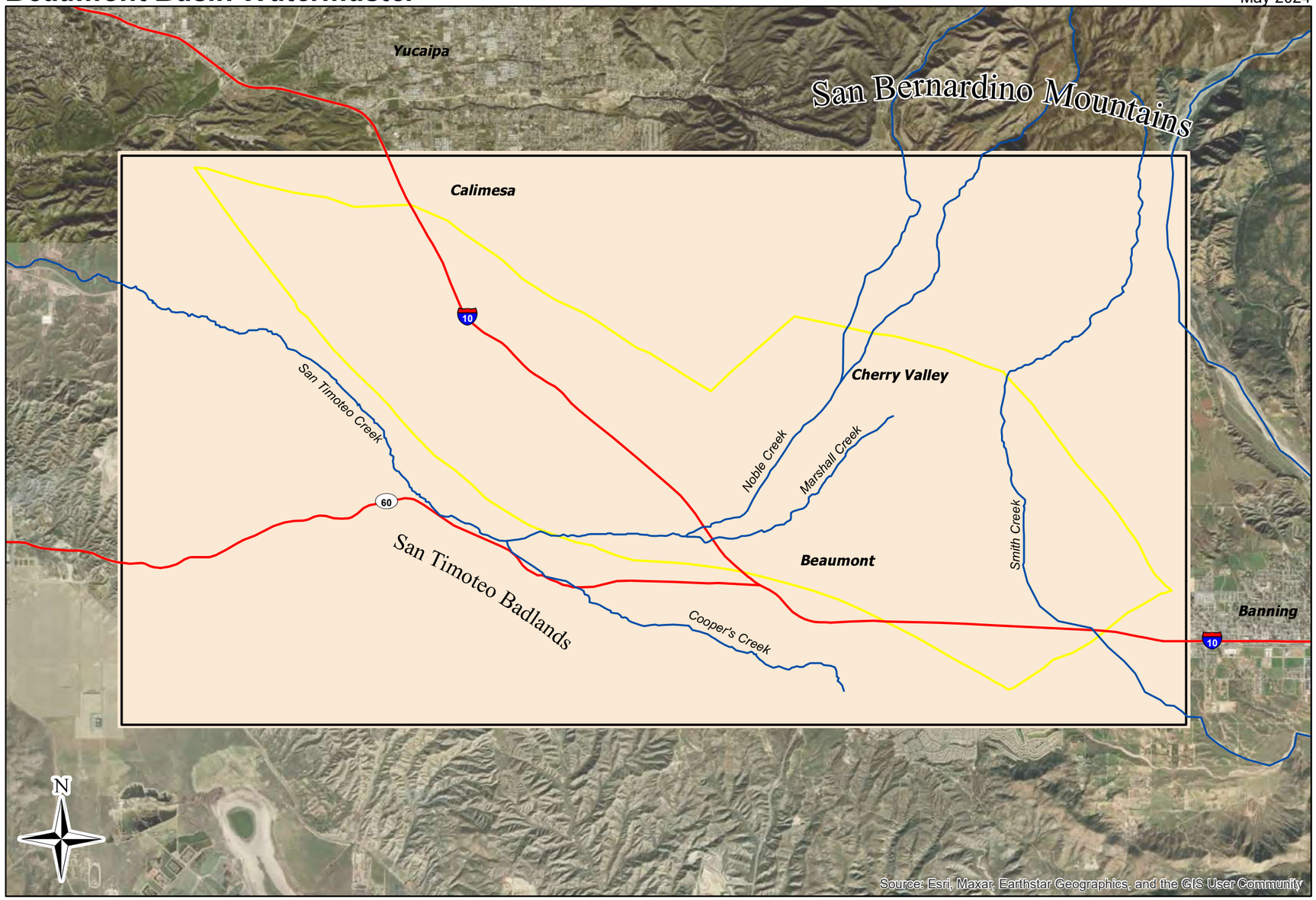
Layer 1 Thickness

Figure 9a

Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



Map Features

Layer Thickness (ft)

- 50
- Study Area
- Beaumont Basin Adjudicated Area
- Creek
- Freeway/Highway

0 0.5 1 2 Miles

NAD 83 State Plane Zone 6

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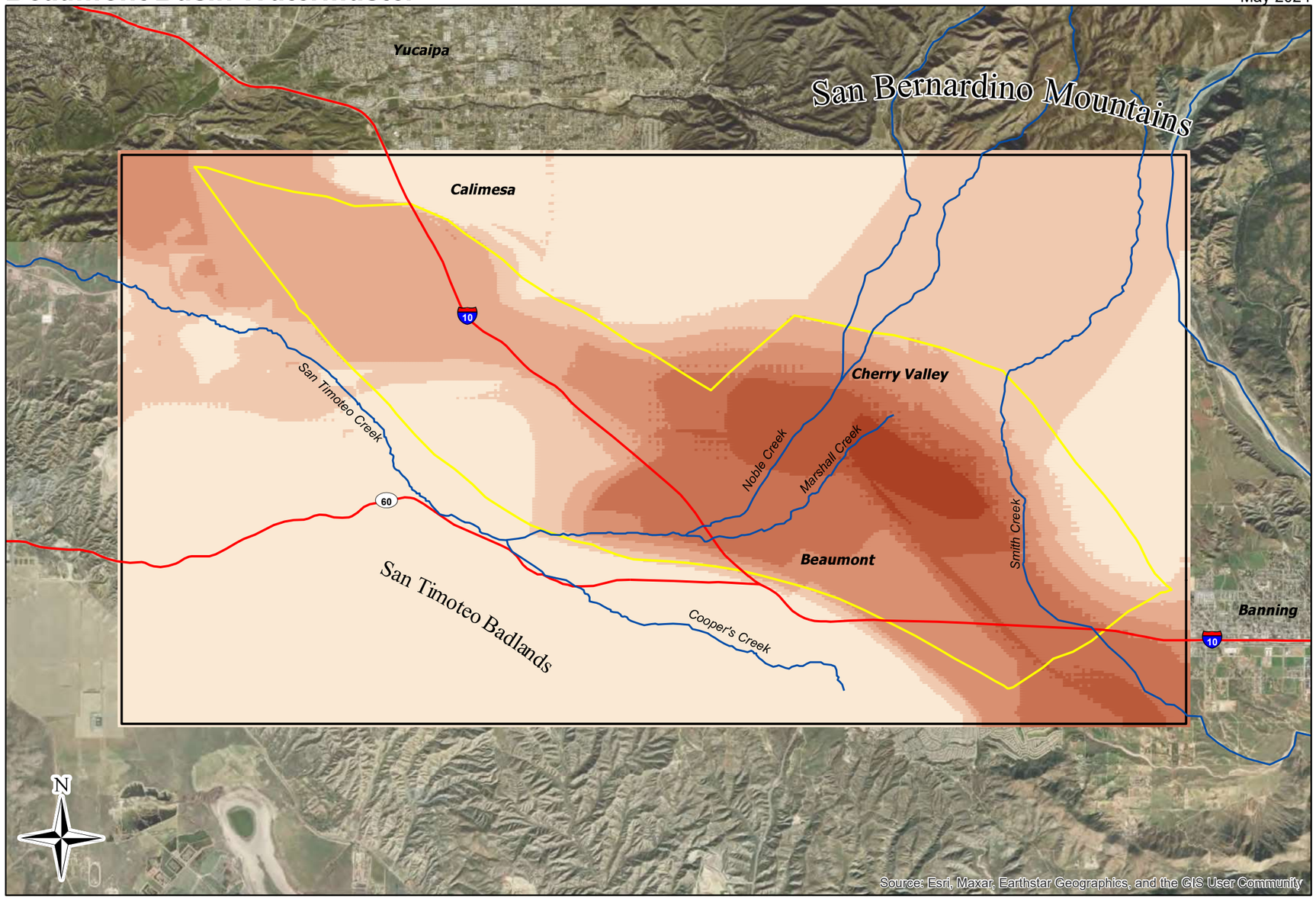
Layer 2 Thickness

Figure 9b

Beaumont Basin Watermaster

May 2024



0 0.5 1 2 Miles

NAD 83 State Plane Zone 6

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2023 Reevaluation of the Beaumont Basin Safe Yield

Map Features

Layer Thickness (ft)
- 0 to 100
- 100 to 200
- 200 to 300
- 300 to 400
- 400 to 500
- 500 to 600
- 600 to 700

Study Area
Beaumont Basin Adjudicated Area
Creek
Freeway/Highway

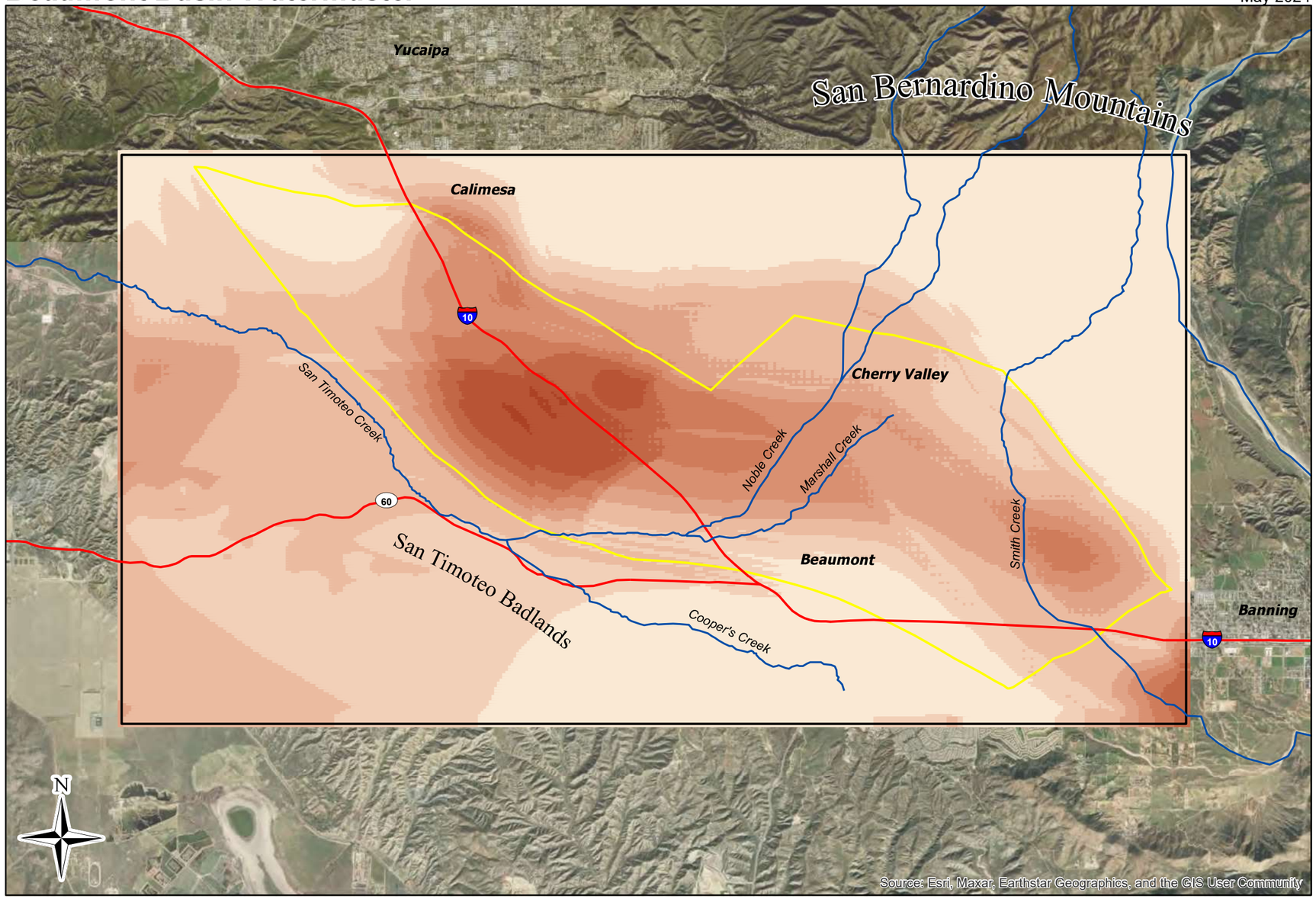
DRAFT

Layer 3 Thickness

Figure 9c

Beaumont Basin Watermaster

May 2024



0 0.5 1 2 Miles

NAD 83 State Plane Zone 6

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2023 Reevaluation of the Beaumont Basin Safe Yield

Map Features

Layer Thickness (ft)
- 0 to 100
- 100 to 200
- 200 to 300
- 300 to 400
- 400 to 500
- 500 to 600
- 600 to 700
- 700 to 800
- 800 to 900

Study Area
Beaumont Basin Adjudicated Area
Creek
Freeway/Highway

DRAFT

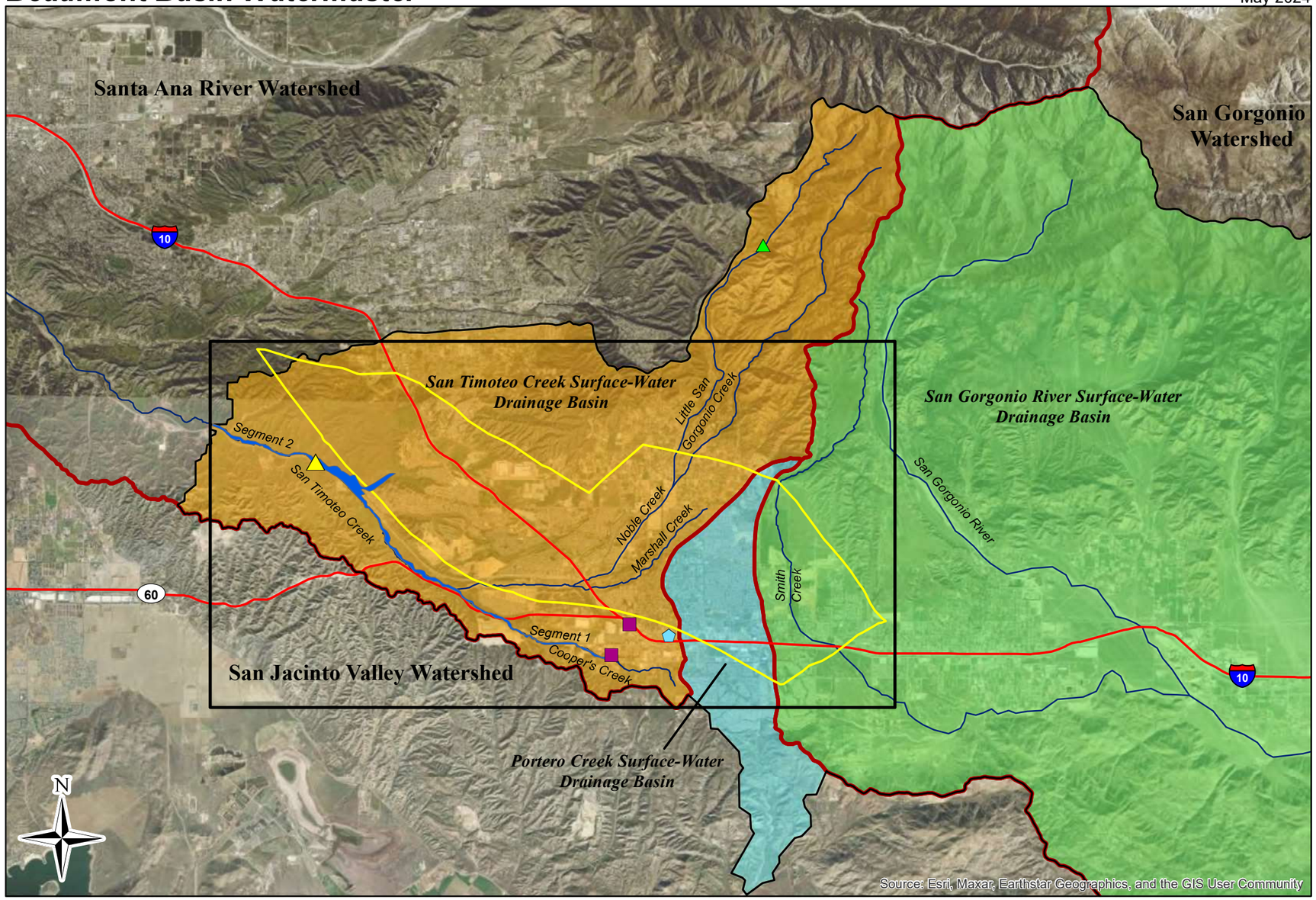
Layer 4 Thickness

Figure 9d

Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



0 1.25 2.5 5 Miles

NAD 83 State Plane Zone 6

Map Features

- Wastewater Treatment Plant Discharge Location
- Beaumont Precipitation Station
- Little San Gorgonio Creek Discharge Measurement Location
- San Timoteo Creek Discharge Measurement Location
- Creek
- Freeway/Highway
- San Timoteo Creek Surface-Water Drainage Basin
- San Gorgonio River Surface-Water Drainage Basin
- Portero Creek Surface-Water Drainage Basin
- Watershed
- Beaumont Basin Area Drainage Basin
- Riparian Area
- Study Area
- Beaumont Basin Adjudicated Area

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Surface Water Features in the Beaumont Basin Area

Figure 10

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Figure 11
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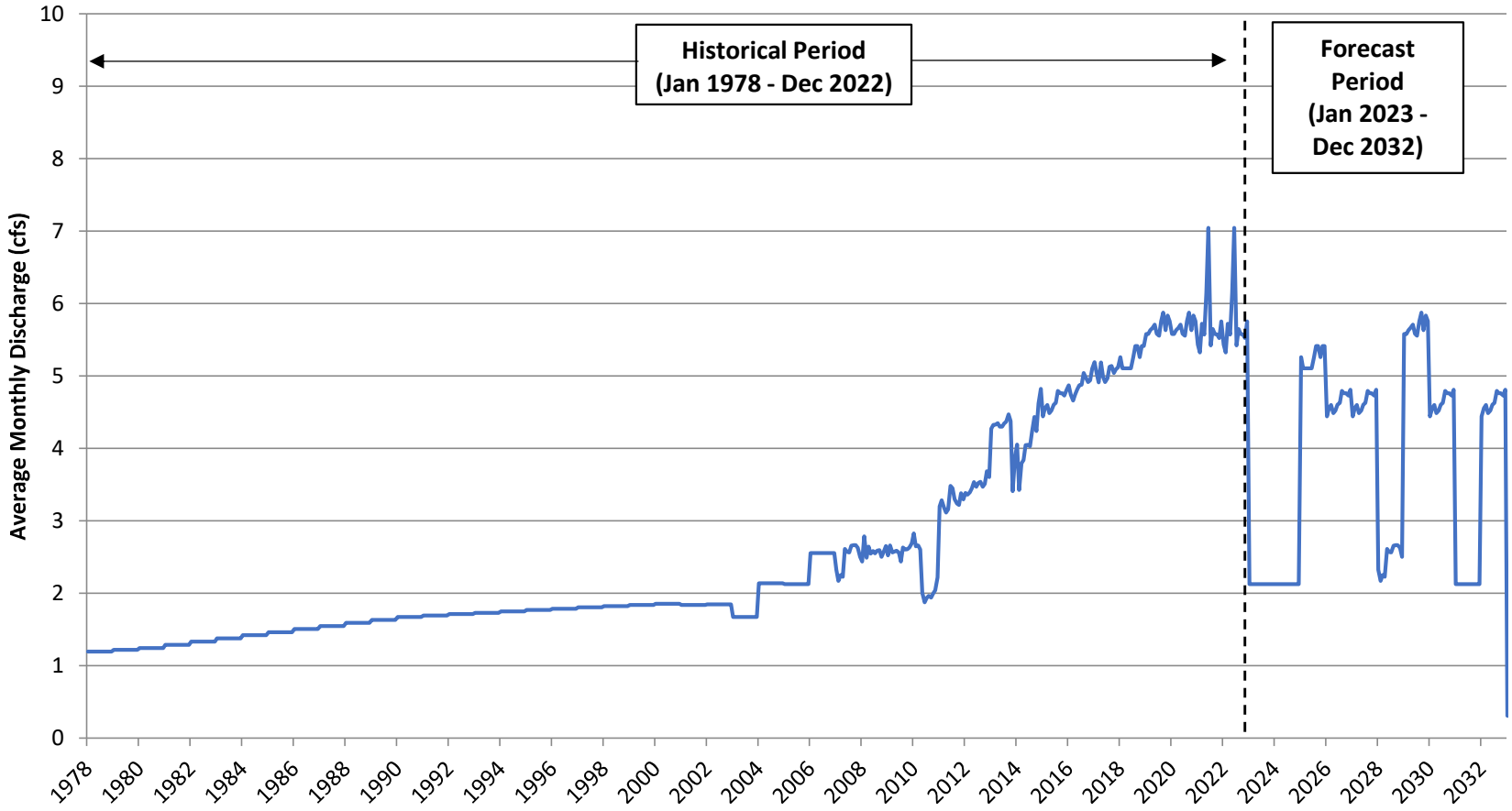
Model Stream Segment 1 Flow (City of Beaumont WWTP)



Notes: Historical period data comes from treated wastewater discharges to Coopers Creek by the City of Beaumont.
Forecast period wastewater recharge was determined using proxy years from the historical period (See Section 2.13).

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Figure 12
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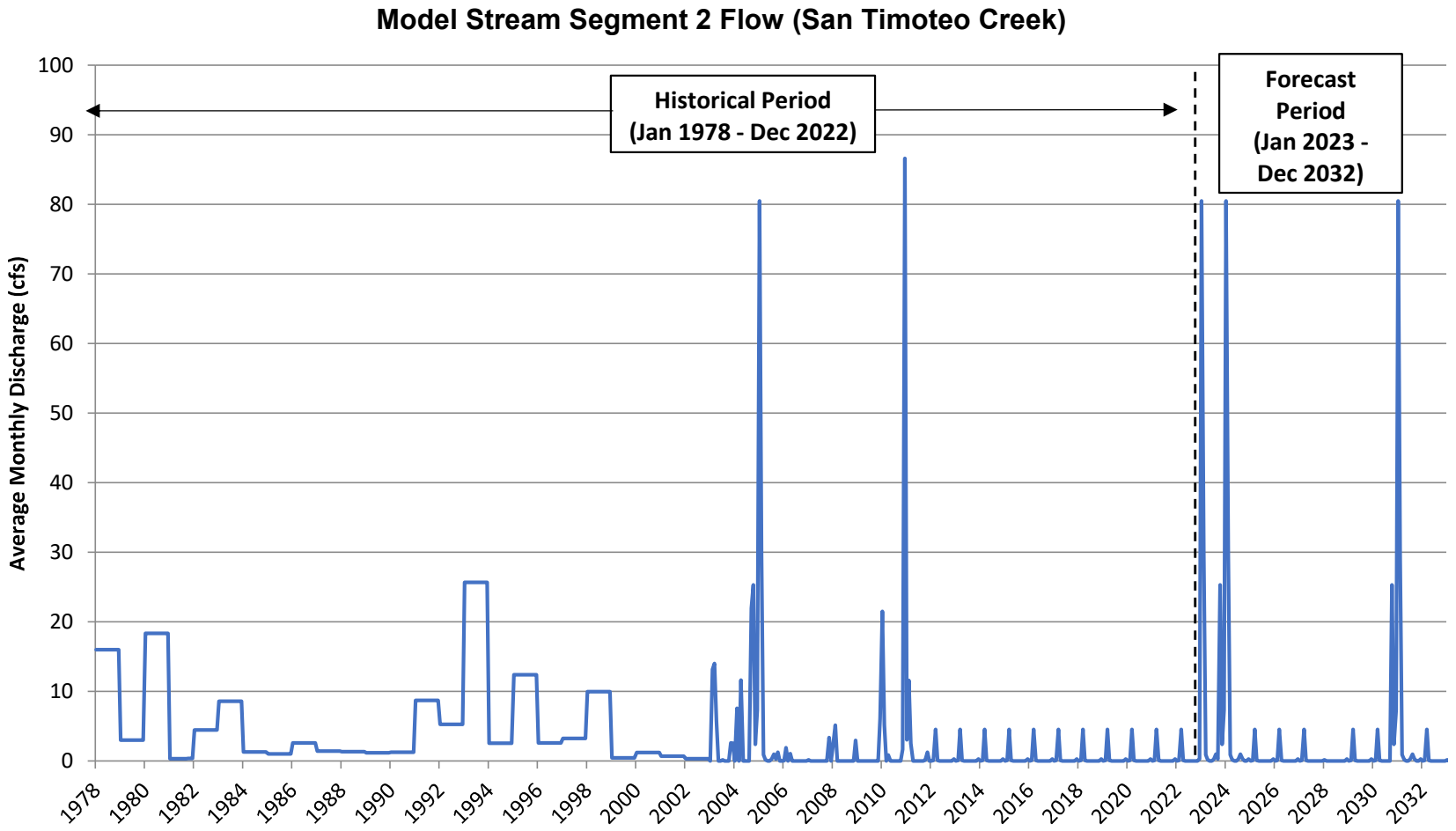

Notes: Historical period data for 1978-1985 was interpolated from the USGS Little San Gorgonio Creek gage.
Historical period data for 2002-2012 was measued by YVWD on San Timoteo Creek.
Forecast period wastewater recharge was determined using proxy years from the historical period (See Section 2.13).

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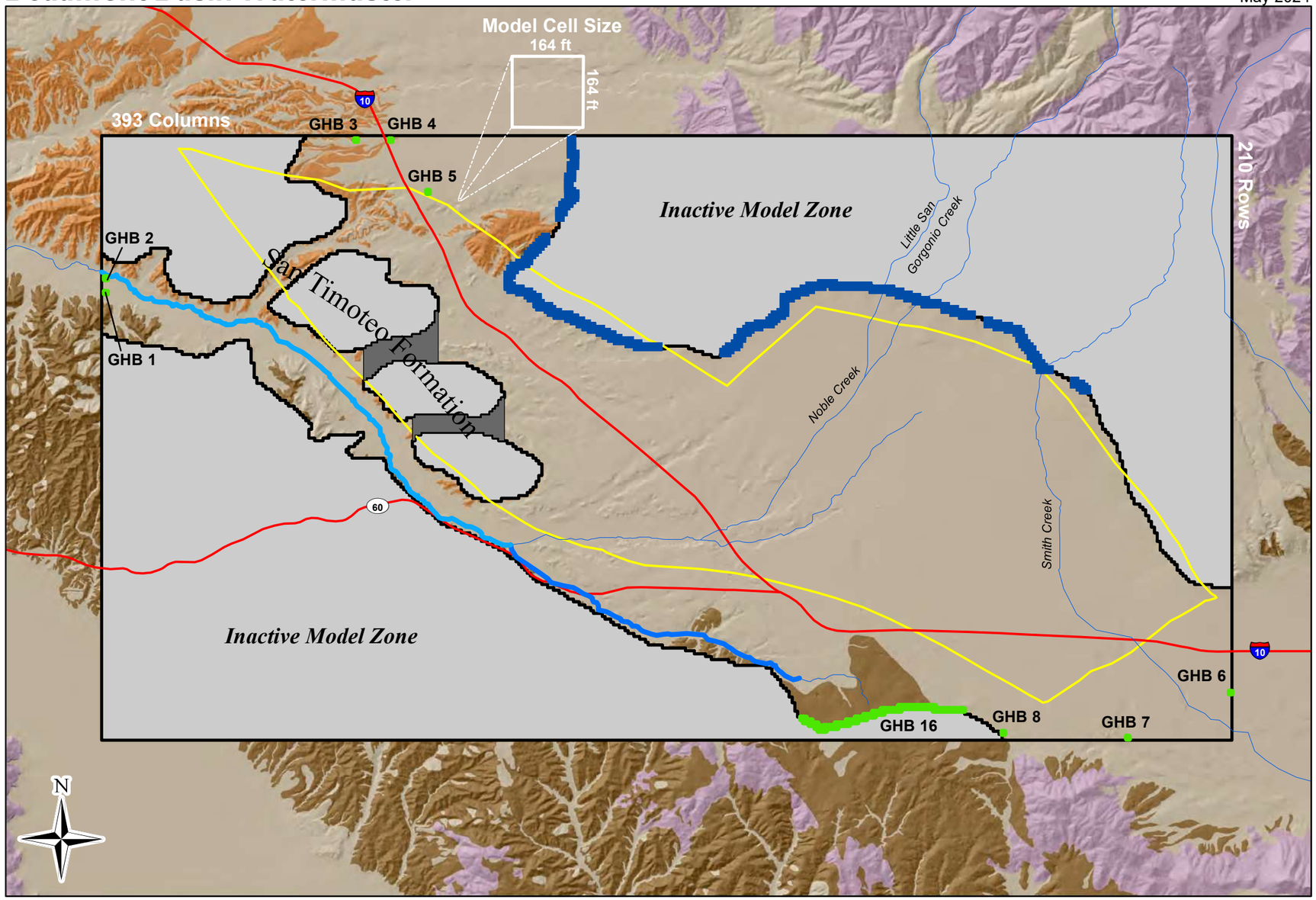
Beaumont Basin Watermaster

May 2024



NAD 83 State Plane Zone 6

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2023 Reevaluation of the Beaumont Basin Safe Yield

Map Features

- Model Stream Segment 2
- Model Stream Segment 1
- Boundary Recharge Cell
- General Head Boundary
- Model Drain Return Cell
- Surficial or Alluvial Deposists
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex
- Active Model Zone
- Inactive Model Zone
- Beaumont Basin Adjudicated Area
- Creek
- Freeway/Highway

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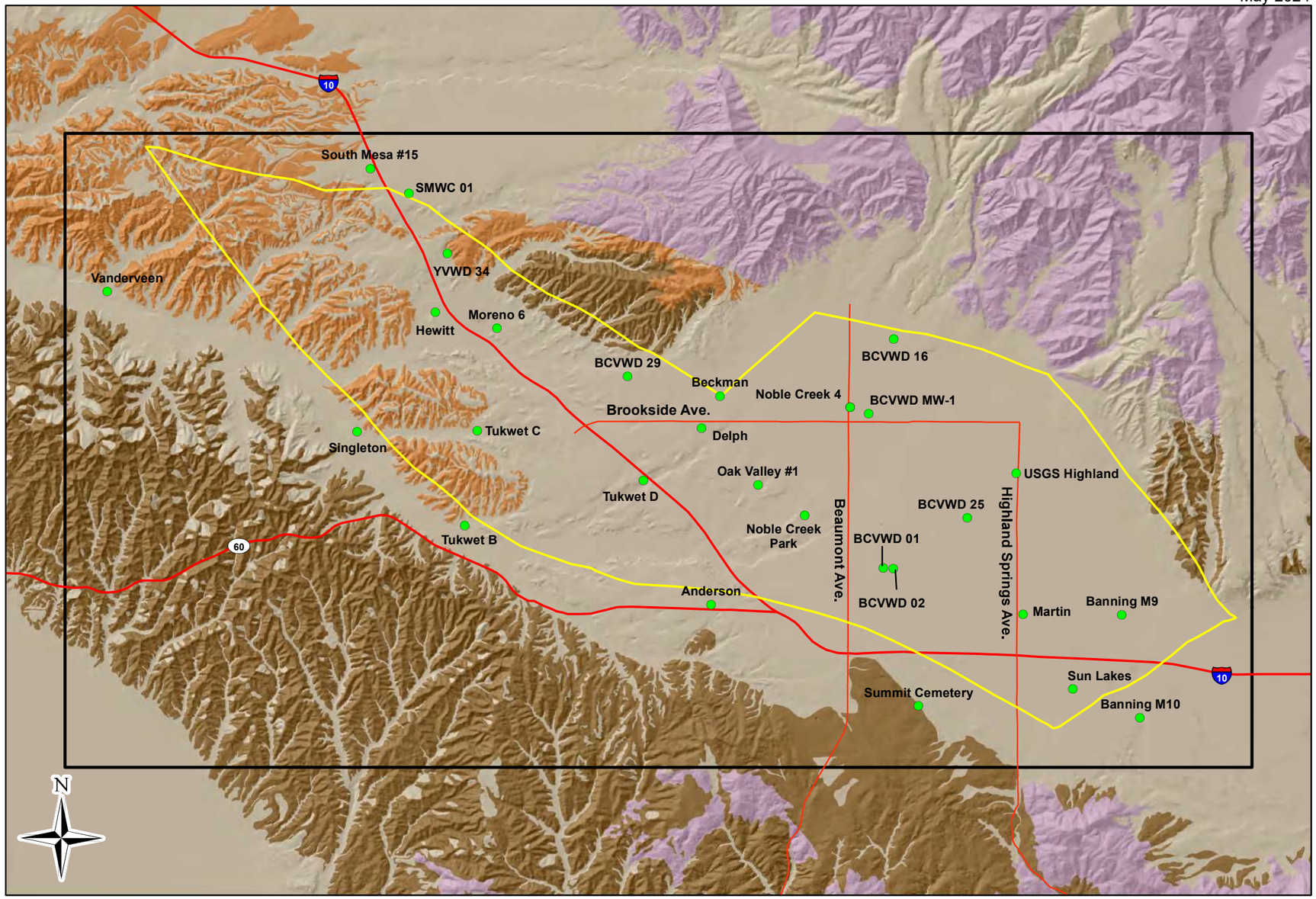
Model Boundary Conditions and Features

Figure 13

Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

- Calibration Well
- Surficial or Alluvial Deposists
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex
- Study Area
- Beaumont Basin Adjudicated Area
- Major Street
- Freeway/Highway

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Monitoring Wells Used for Model Calibration

Figure 14

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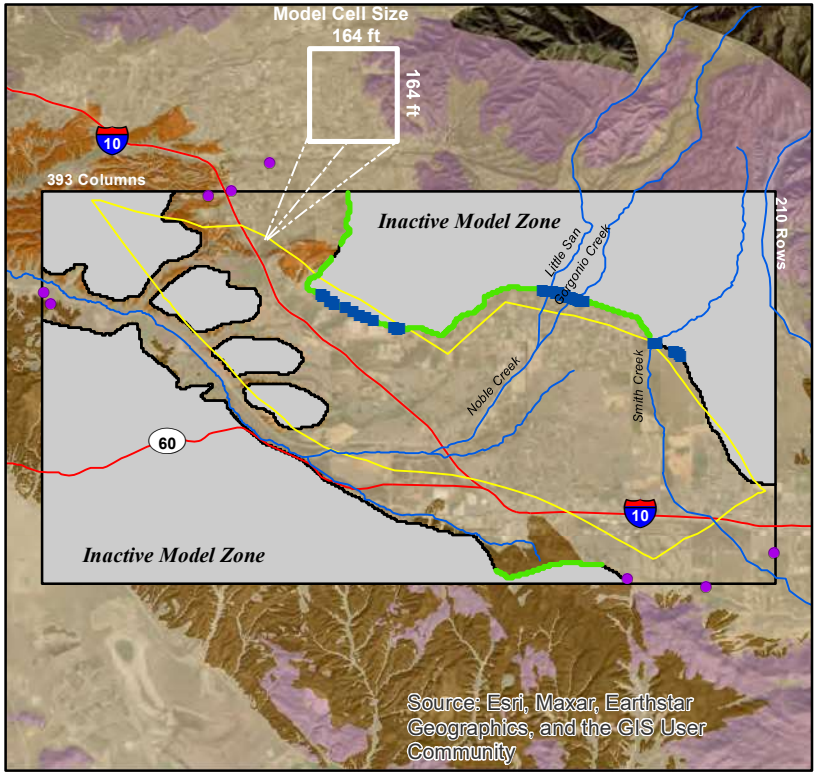
Beaumont Basin Watermaster

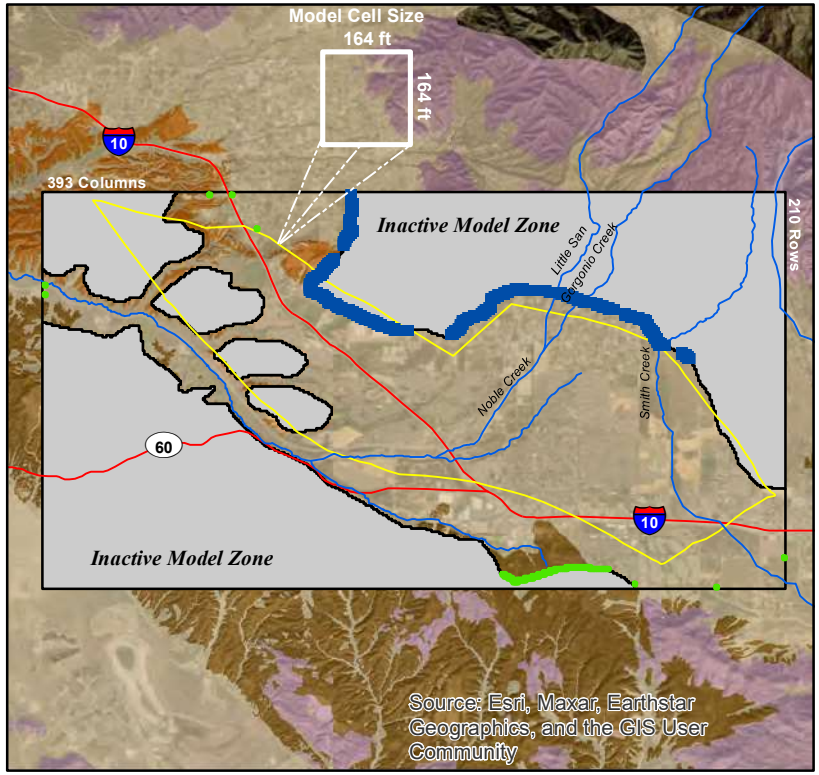
2023 Reevaluation of the Beaumont Basin Safe Yield

May 2024

2013 Model Update



2023 Model Update



Map Features

- Constant Head Cell
- Boundary Recharge Cell
- General Head Boundary
- Creek
- Freeway/Highway
- Active Model Zone
- Inactive Model Zone
- Beaumont Basin Adjudicated Area
- Surficial or Alluvial Deposists
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex

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0 1.25 2.5 5 Miles

NAD 83 State Plane Zone 6

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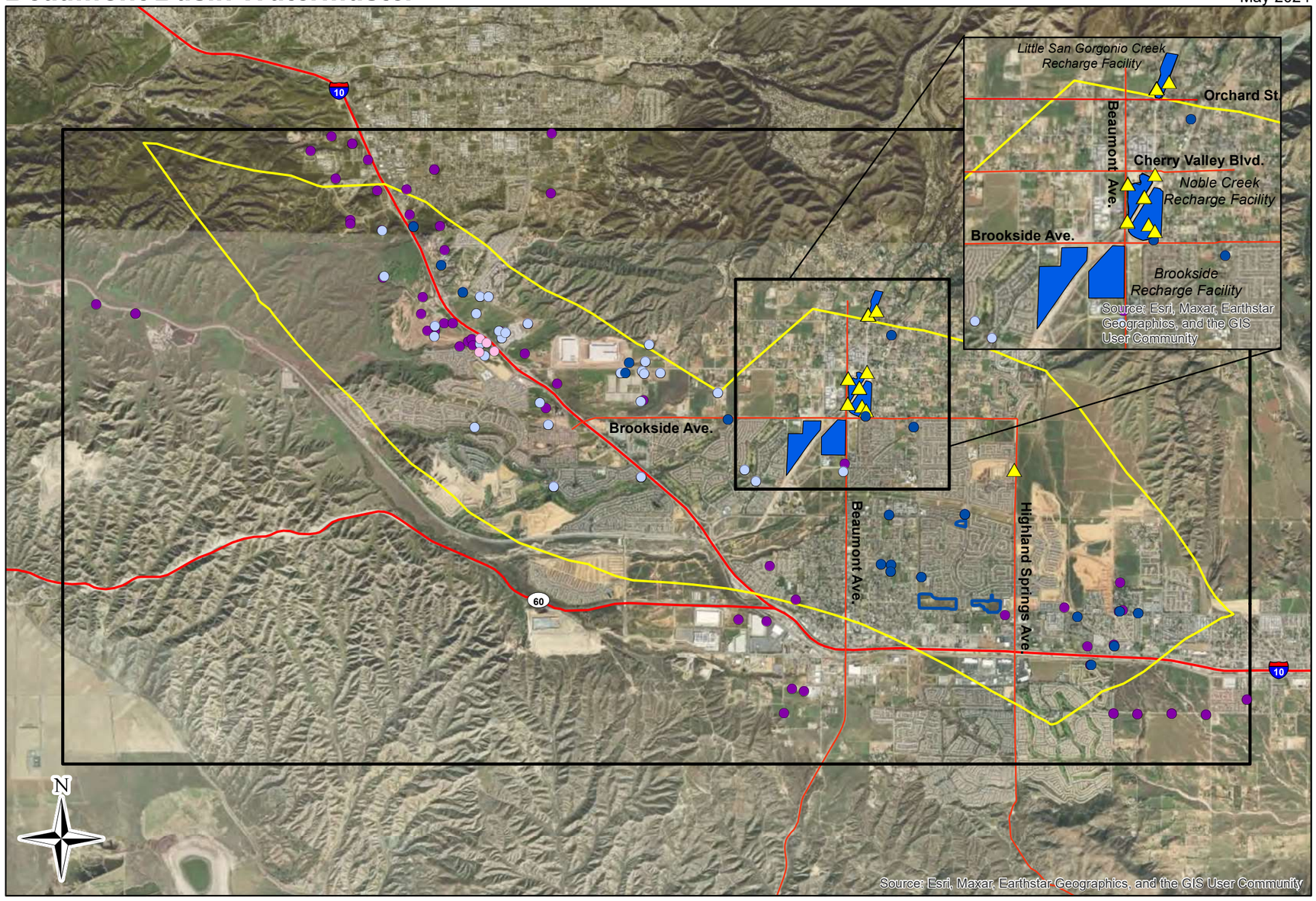
2023 Updates to Model Boundary Conditions

Figure 15

Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



0 0.5 1 2 Miles

NAD 83 State Plane Zone 6

Map Features

- Appropriator Production Well
- Overlayer Production Well
- Other Production Well
- Injection Well
- Monitoring Well
- Study Area
- Recharge Facility
- Beaumont Basin Adjudicated Area
- City of Beaumont Stormwater Capture Basin
- Major Street
- Freeway/Highway

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Groundwater Wells and Recharge Facilities

Figure 16

Figure 17
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Beaumont Basin Groundwater Production and Safe Yield

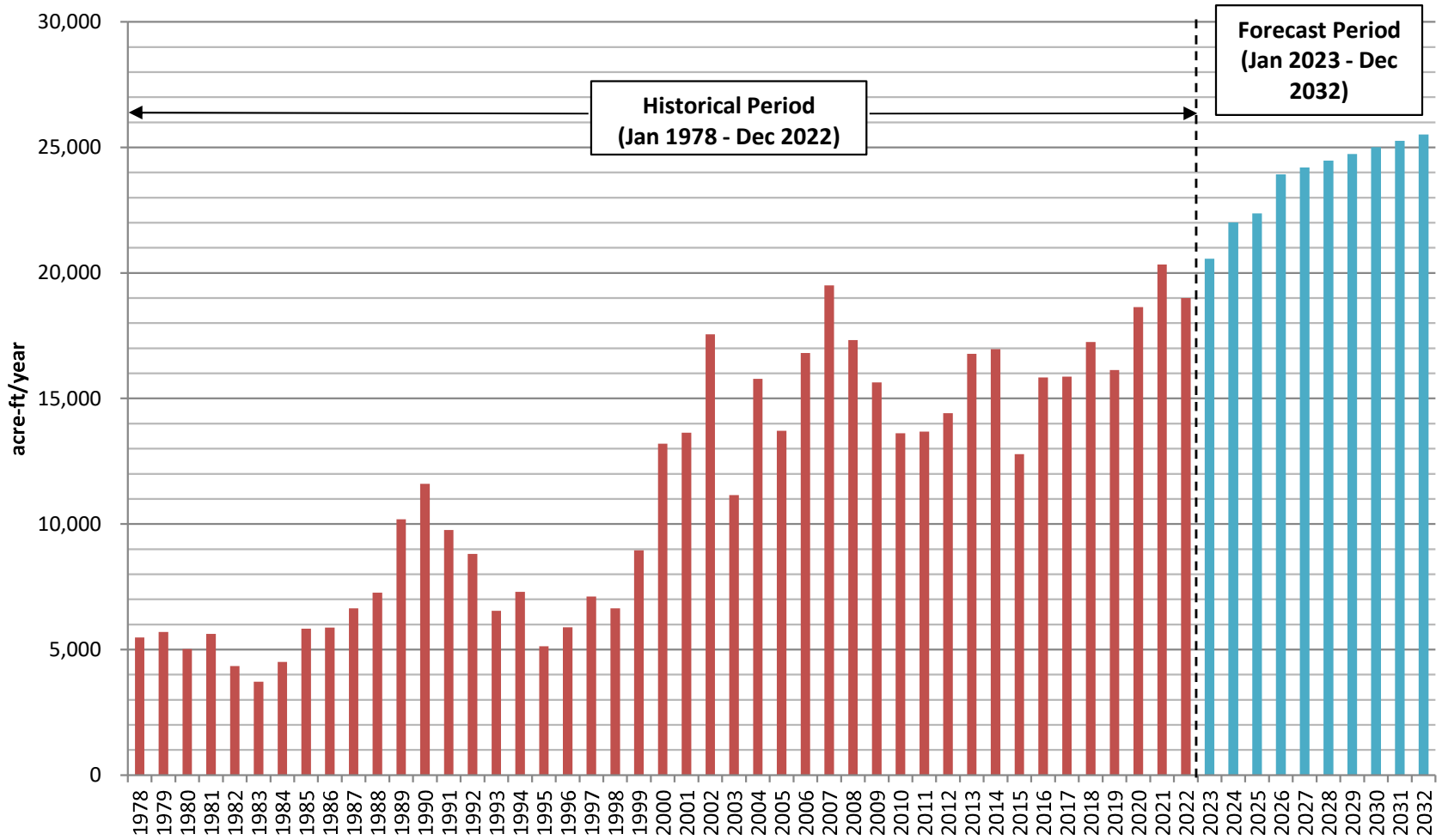

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Figure 18
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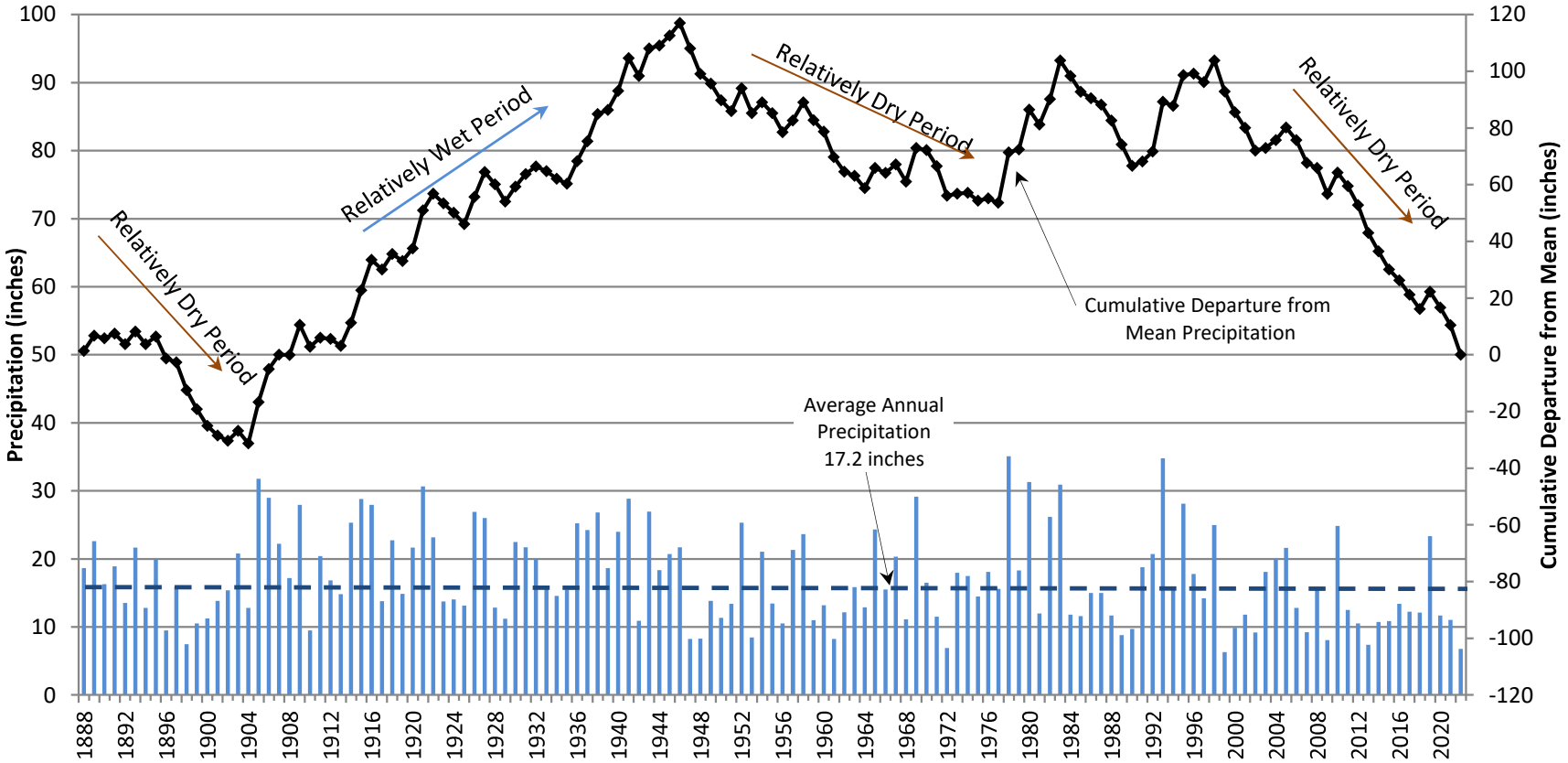
Beaumont Annual Precipitation
1888 - 2022



Source: Riverside County Flood Control Water Conservation District, Station Number 13 (2023)

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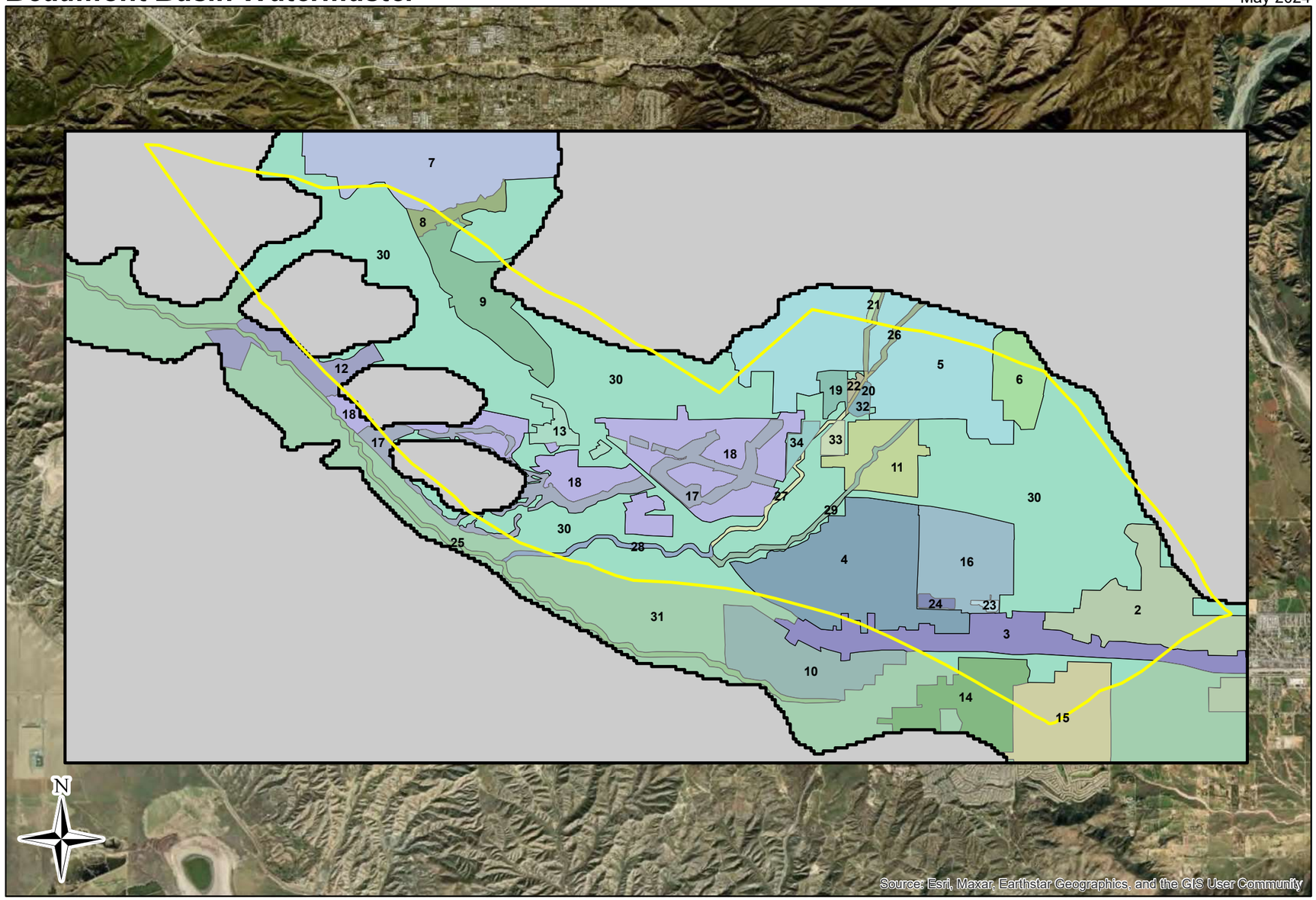
2023 Reevaluation of the Beaumont Basin Safe Yield



Map Features

- Active Model Zone
- Inactive Model Zone
- Beaumont Basin Adjudicated Area

0 0.5 1 2 Miles

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Recharge Zones Used in the Groundwater Flow Model

Figure 19

Beaumont Basin Watermaster

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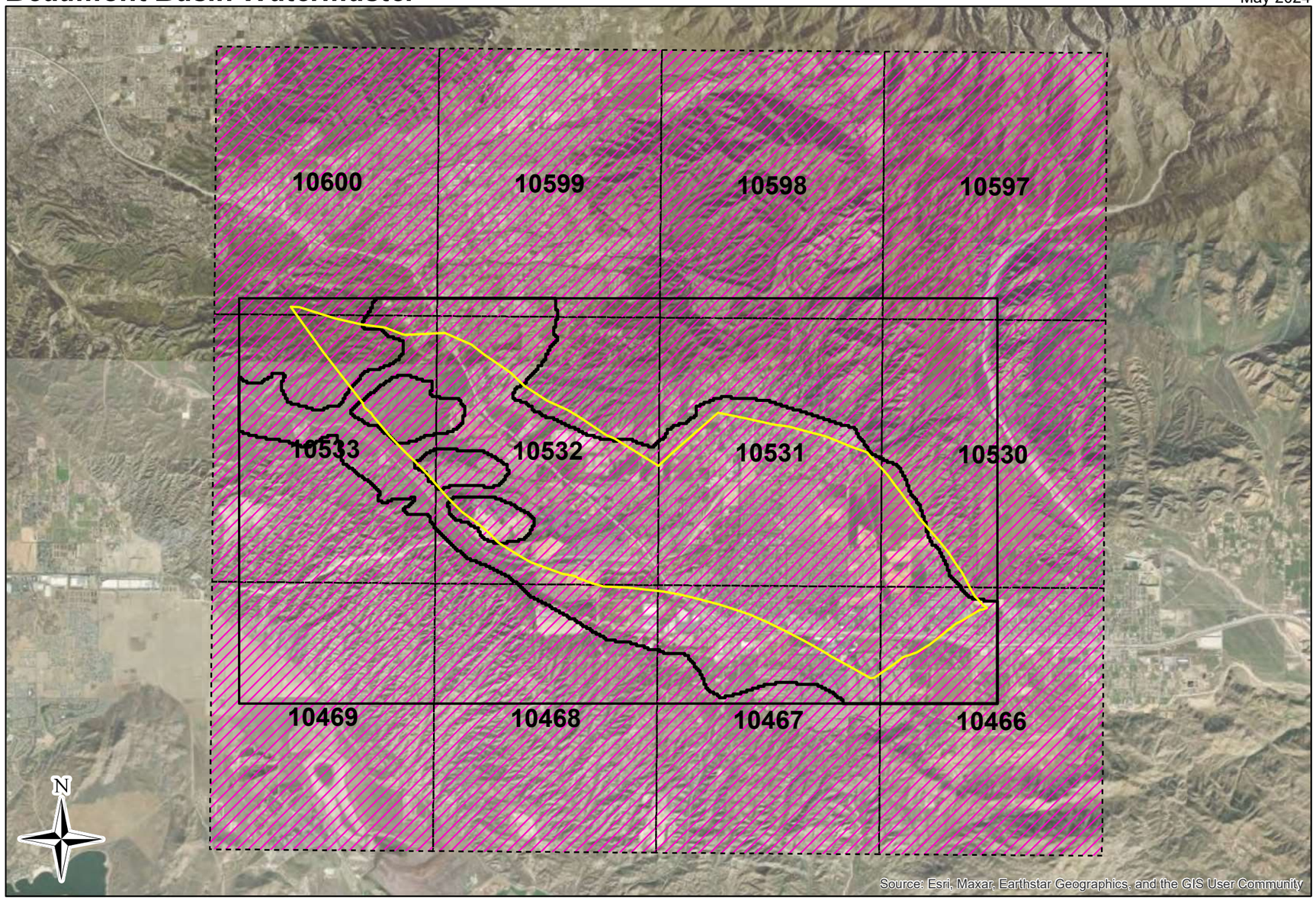

0 0.5 1 2 Miles

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2023 Reevaluation of the Beaumont Basin Safe Yield

Map Features

- DWR Climate Change Model Polygon
- Active Model Domain
- Beaumont Basin Adjudicated Area
- Study Area

Note: The number inside each DWR Climate Change Model Polygon denotes the Cell Identification Number of the California Department of Water Resources Variable Infiltration Capacity (VIC) model cell. DWR Climate Change Model Polygon from California Department of Water Resources. (n.d.). SGMA Data Viewer.

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Climate Change Model Areas

Figure 20

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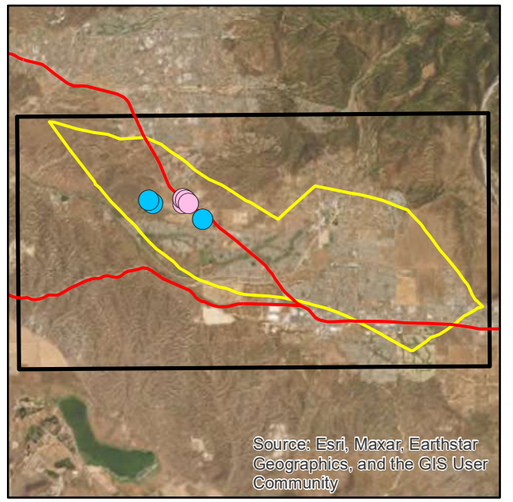
2023 Reevaluation of the Beaumont Basin Safe Yield

Map Features

- Injection Well
- Extraction Well
- Study Area
- Beaumont Basin Adjudicated Area
- Freeway/Highway



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0 0.05 0.1 0.2 Miles

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Yucaipa Valley Water District Proposed Aquifer Storage & Recovery Project Wells

Figure 21

Figure 22
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Modeled vs. Measured Groundwater Elevations
All Model Layers

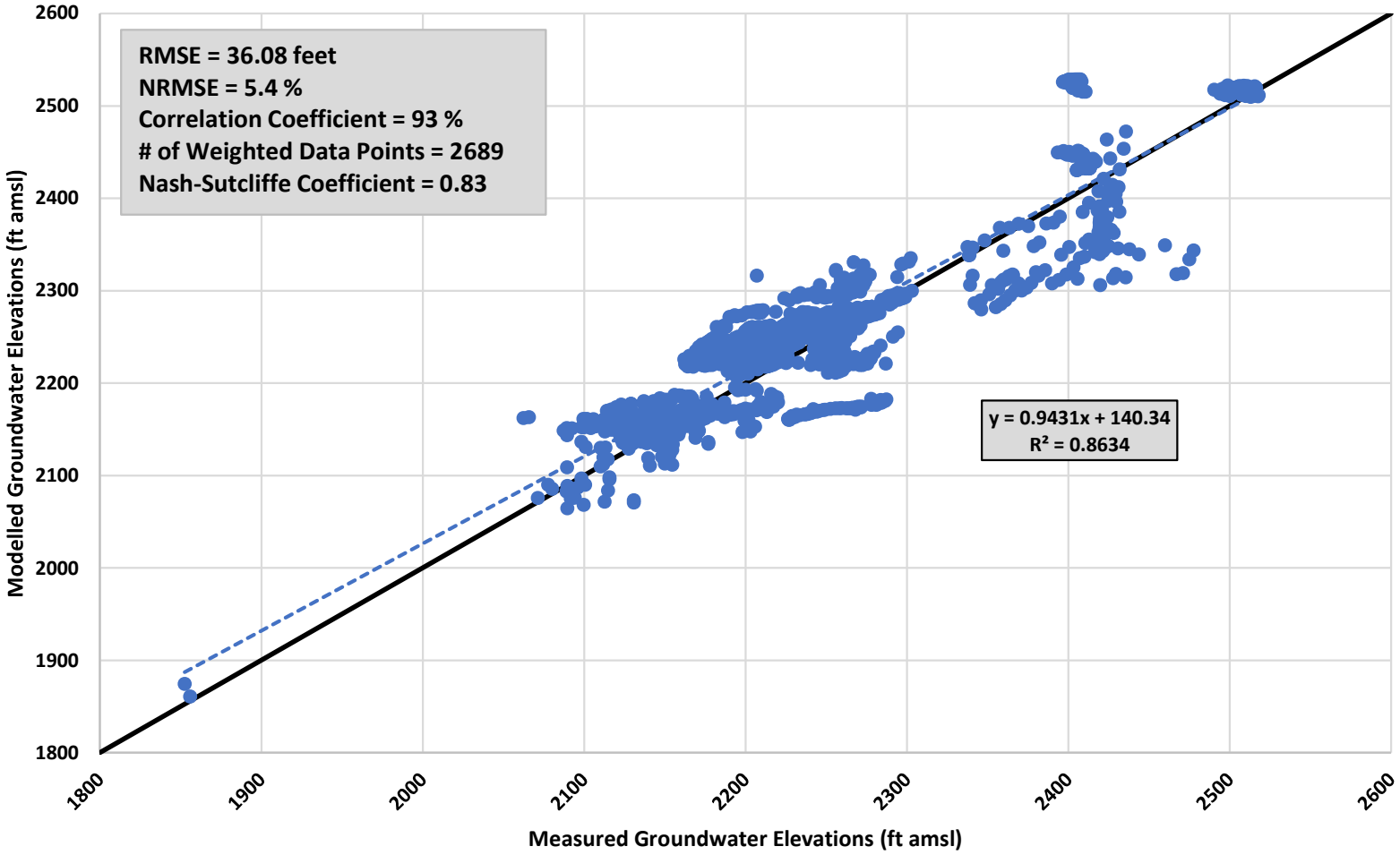

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Figure 23
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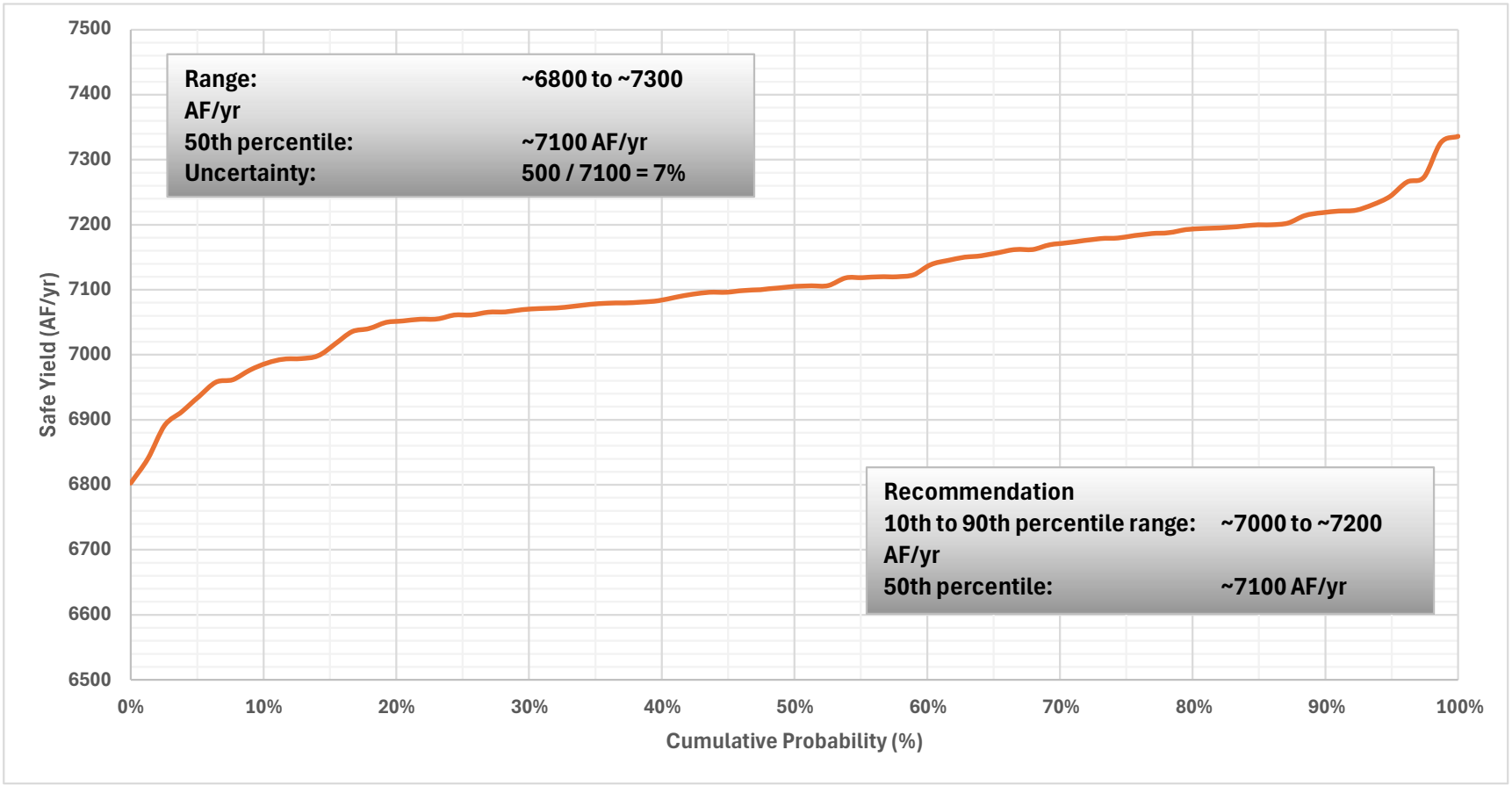
Safe Yield vs. Cumulative Probability
1978 - 2032



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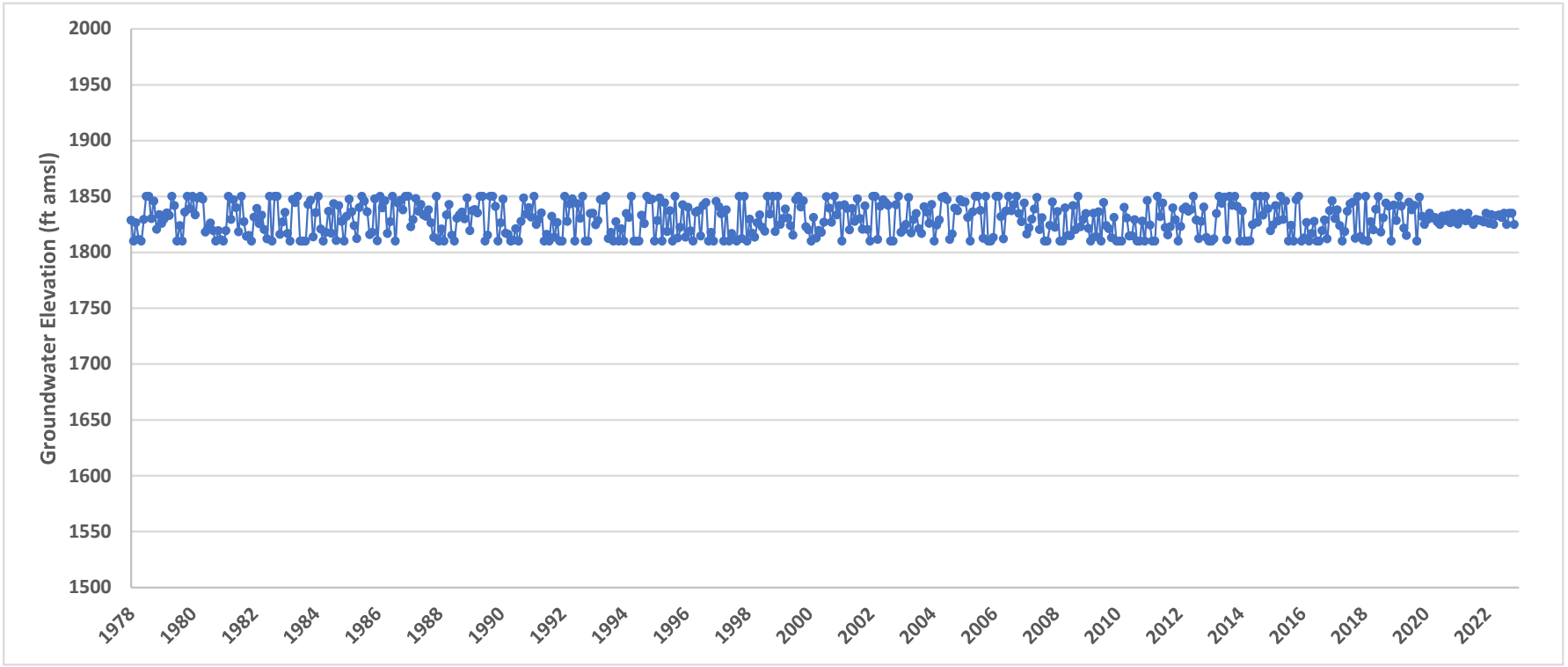
Appendices

Appendix A

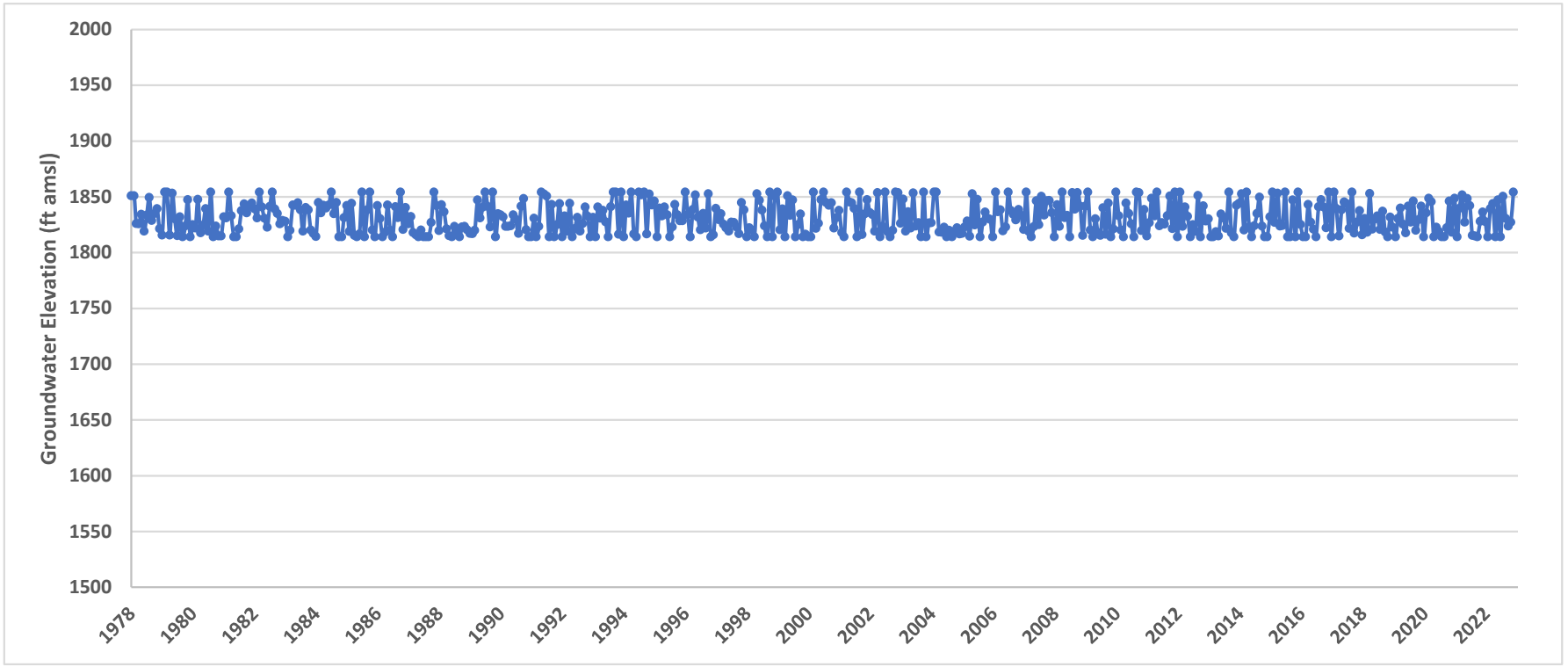
Model Boundary Condition Hydrographs

Boundary Condition Well Hydrograph
GHB 1 (Chester Well)



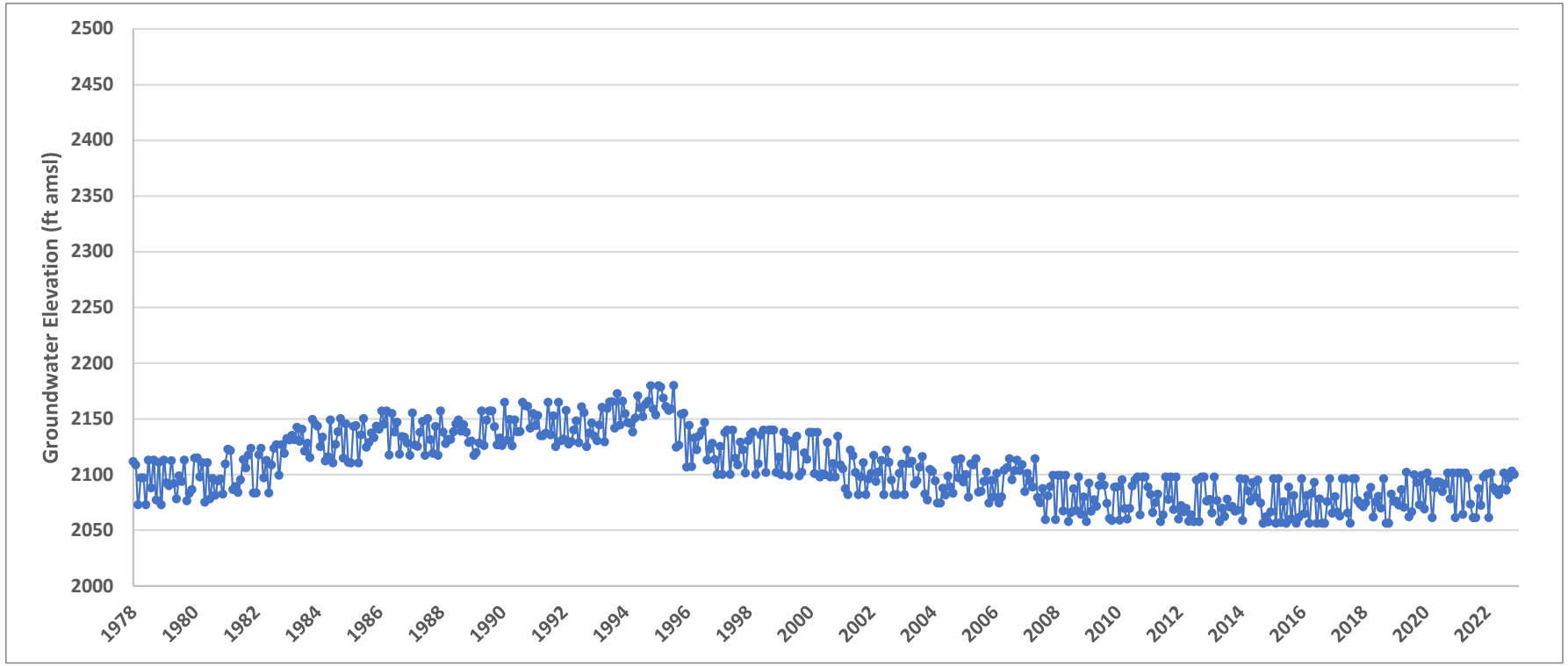
Notes: Groundwater elevations at this boundary well were selected based on observed data from Chester well.
The groundwater elevations bounds were allowed to vary based on model layering and reasonable expectations to get a decent calibration fit.

Boundary Condition Well Hydrograph
GHB 2 (El Casco Schoolhouse Well)



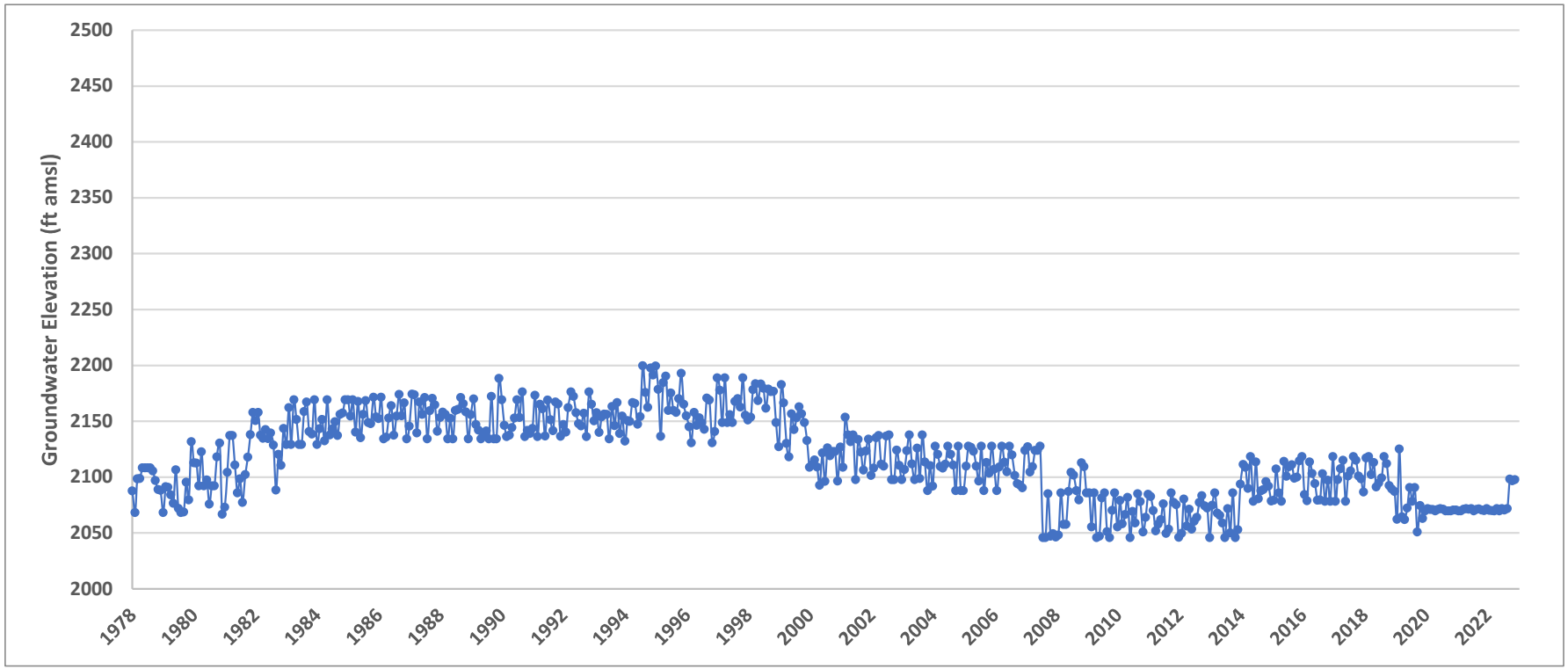
Notes: Groundwater elevations at this boundary well were selected based on observed data from El Casco Schoolhouse well.
The groundwater elevations bounds were allowed to vary based on model layering and reasonable expectations to get a decent calibration fit.

Boundary Condition Well Hydrograph
GHB 3 (SMWC 07 Well)



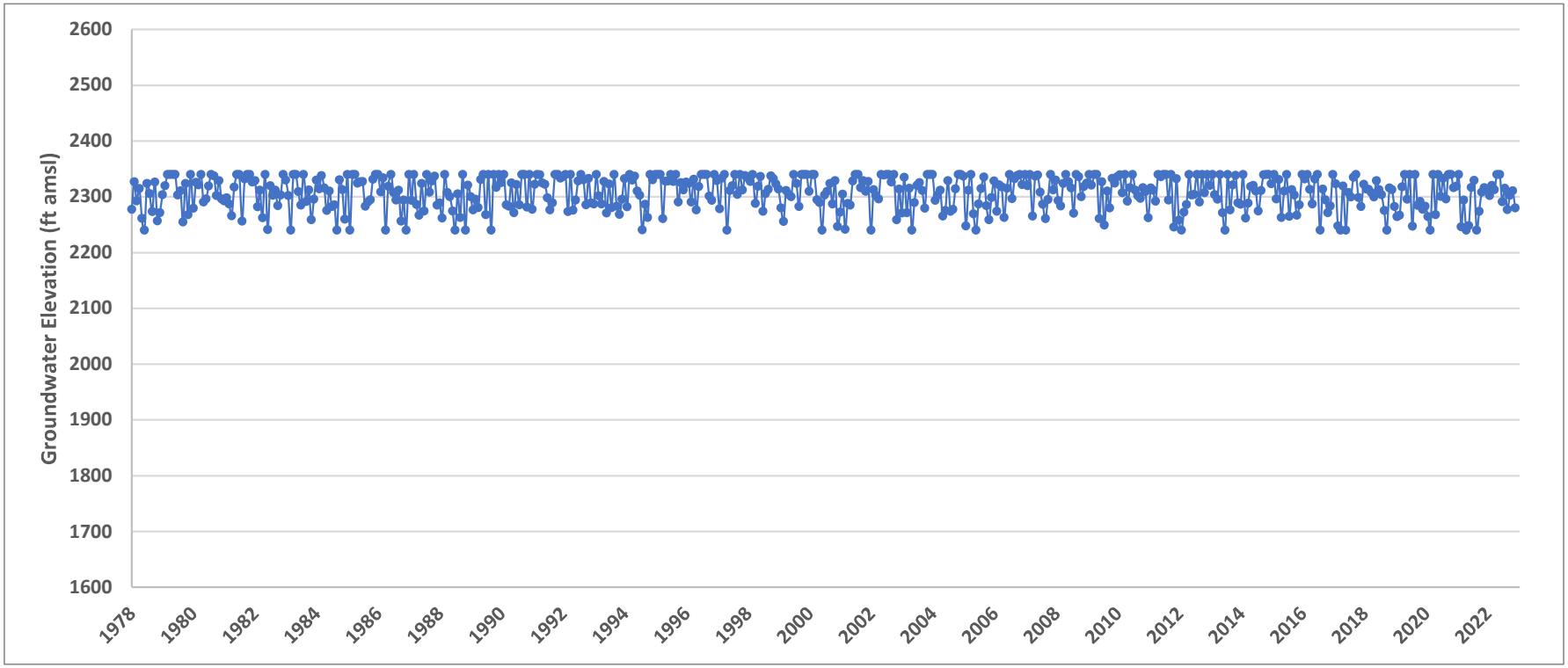
Notes: Groundwater elevations at this boundary well were selected based on observed data from SMWC 07 well.
The groundwater elevations bounds were allowed to vary based on model layering and reasonable expectations to get a decent calibration fit.

Boundary Condition Well Hydrograph
GHB 4 (SMWC 11 Well)



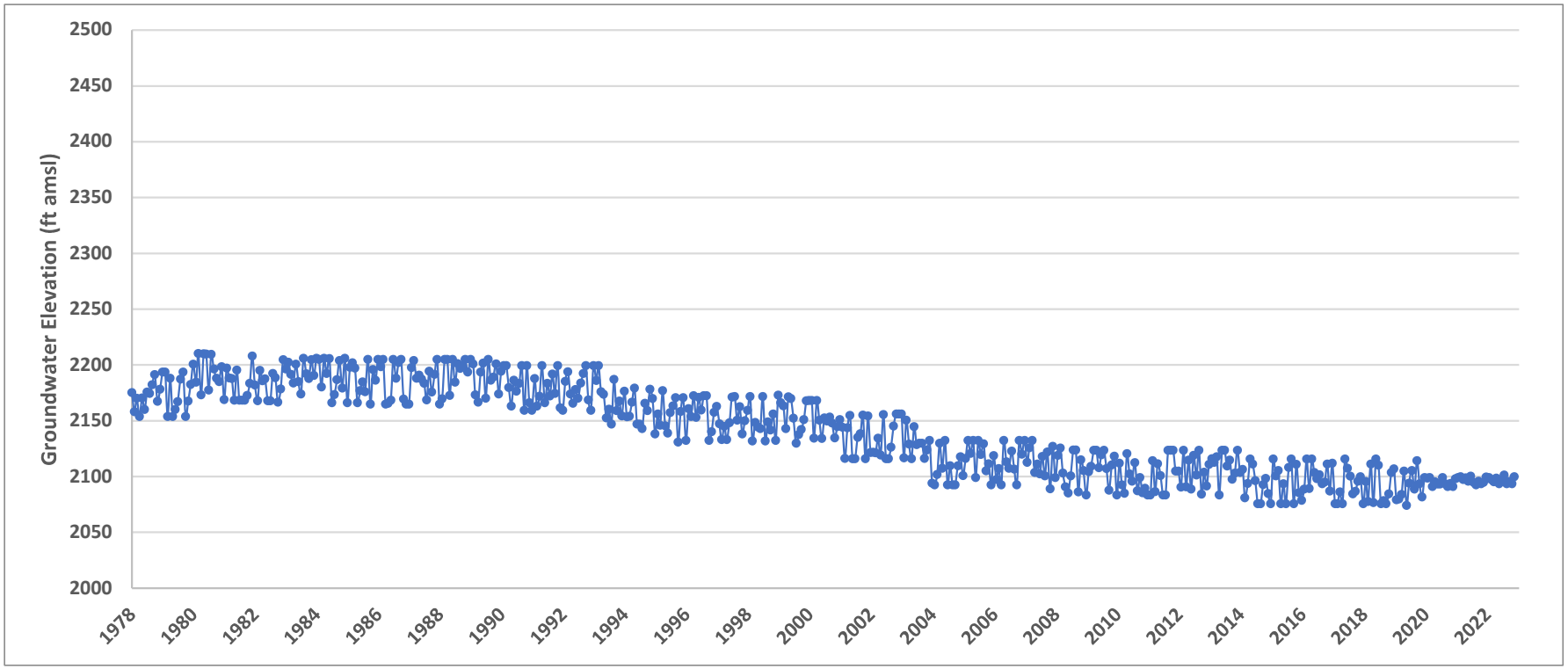
Notes: Groundwater elevations at this boundary well were selected based on observed data from SMWC 11 well.
The groundwater elevations bounds were allowed to vary based on model layering and reasonable expectations to get a decent calibration fit.

Boundary Condition Well Hydrograph
GHB 5 (SMWC 01 Well)



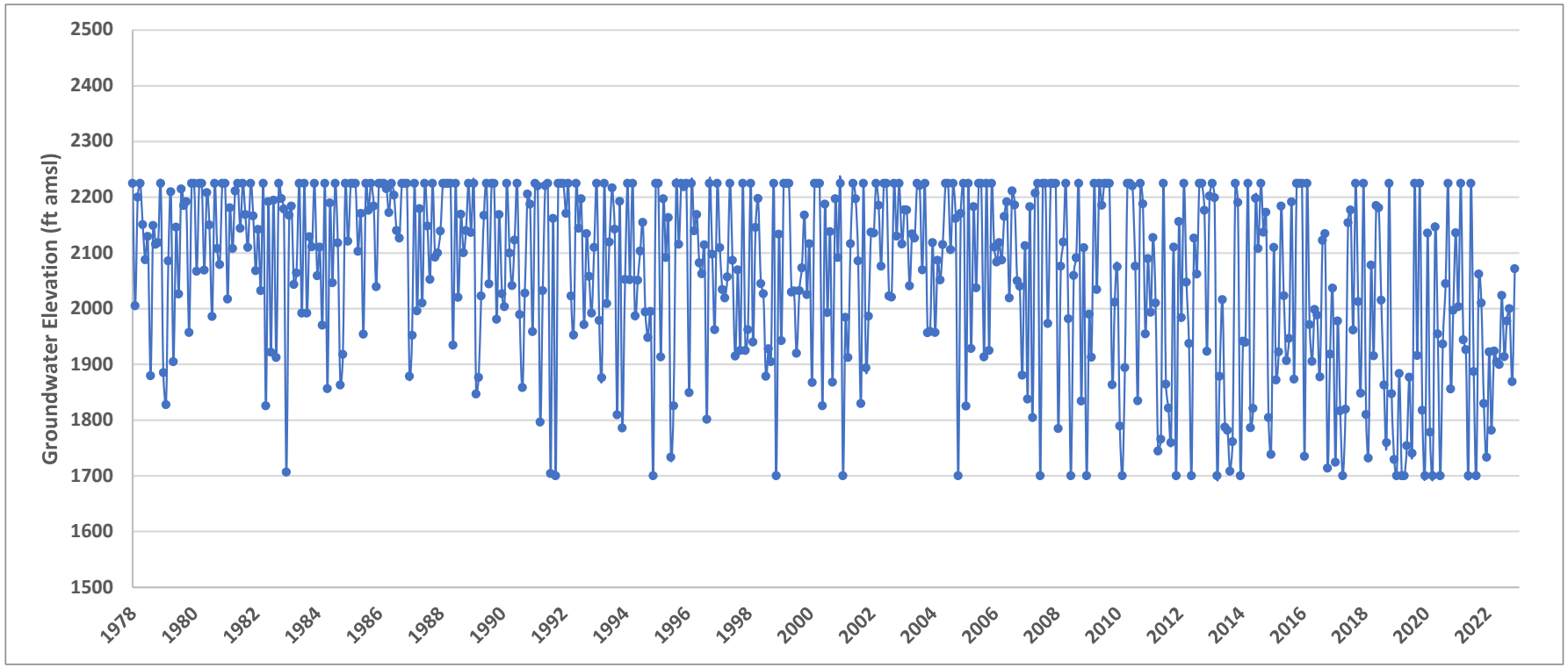
Notes: Groundwater elevations at this boundary well were selected based on observed data from SMWC 01 well.
The groundwater elevations bounds were allowed to vary based on model layering and reasonable expectations to get a decent calibration fit.

Boundary Condition Well Hydrograph
GHB 6 (Banning CW #C5 Well)



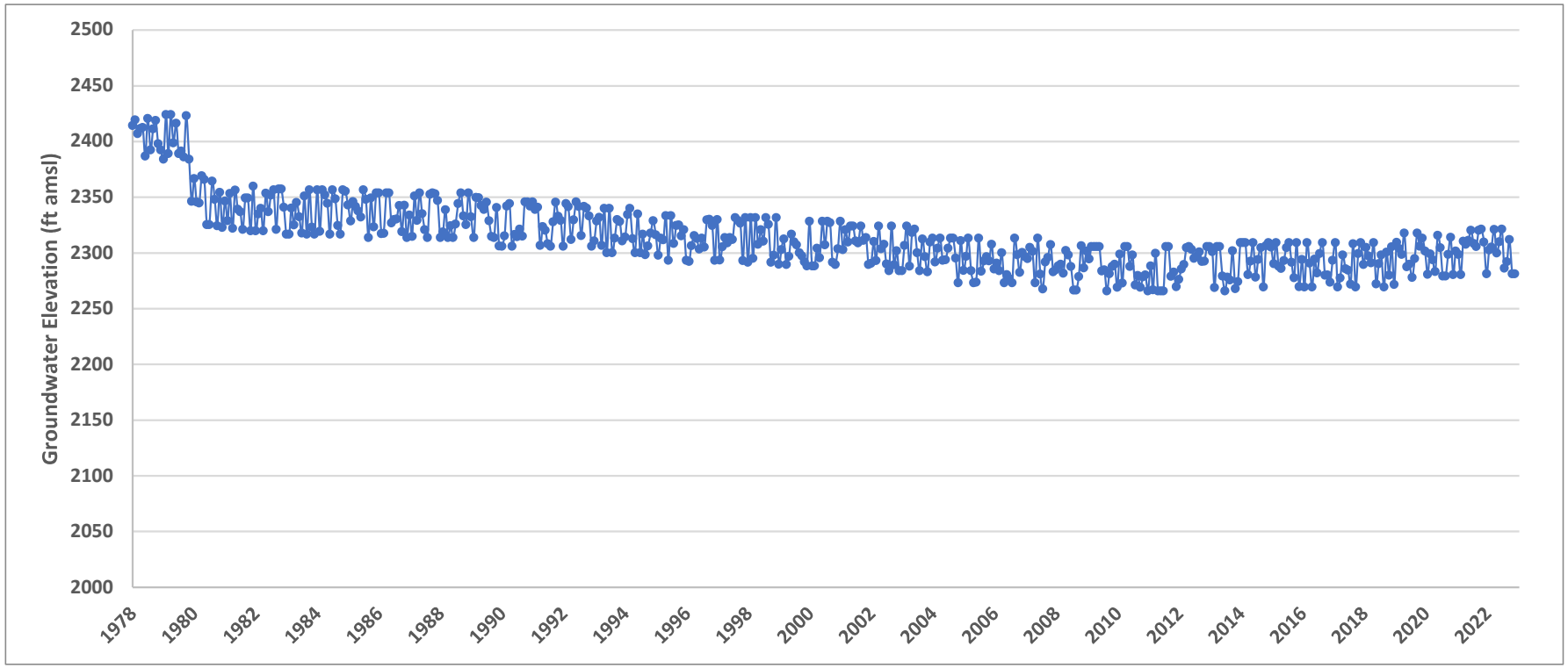
Notes: Groundwater elevations at this boundary well were selected based on observed data from Banning CW #C5 well.
The groundwater elevations bounds were allowed to vary based on model layering and reasonable expectations to get a decent calibration fit.

Boundary Condition Well Hydrograph
GHB 7 (Banning M8 Well)



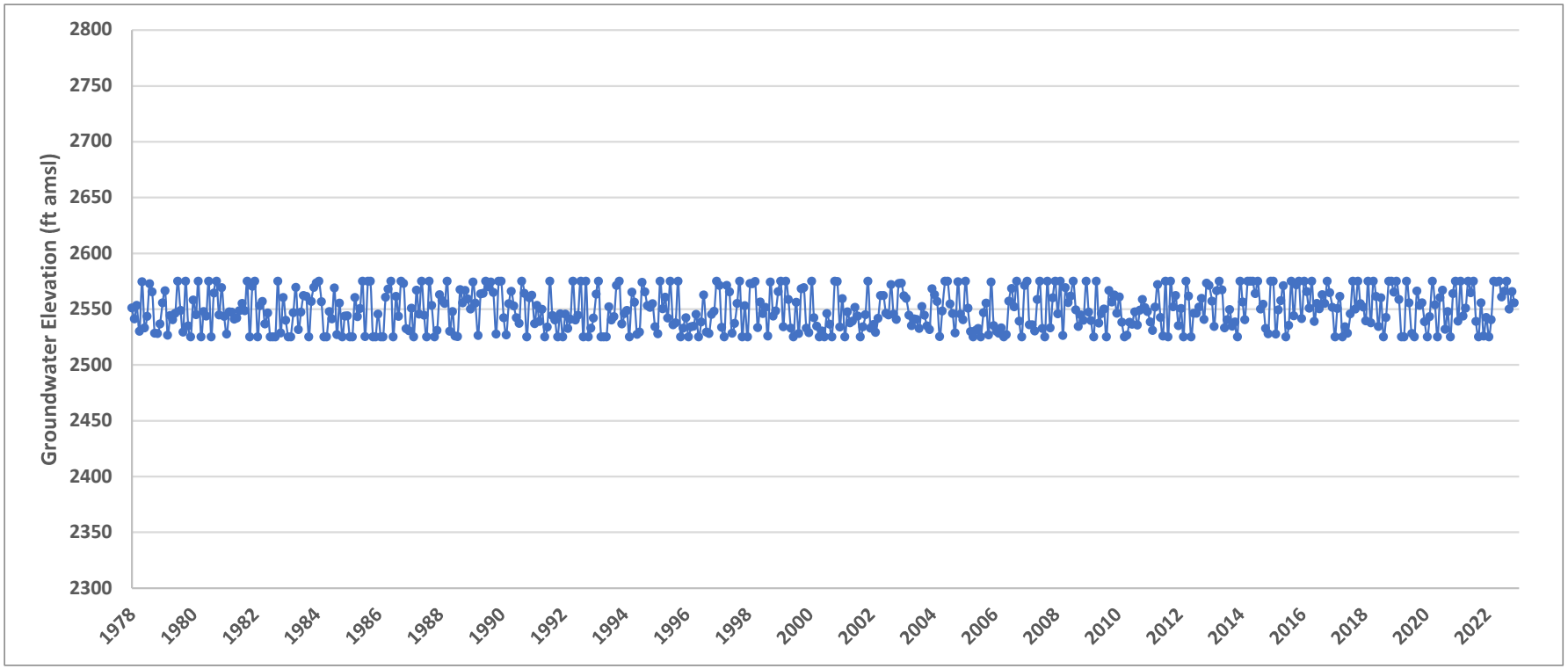
Notes: Groundwater elevations at this boundary well were selected based on observed data from Banning M8 well.
The groundwater elevations bounds were allowed to vary based on model layering and reasonable expectations to get a decent calibration fit.

Boundary Condition Well Hydrograph
GHB 8 (3S/1W-14J02 Well)



Notes: Groundwater elevations at this boundary well were selected based on observed data from 3S/1W-14J02 well.
The groundwater elevations bounds were allowed to vary based on model layering and reasonable expectations to get a decent calibration fit.

Boundary Condition Well Hydrograph
GHB 16 (Cemetery Well)



Notes: Groundwater elevations at this boundary well were selected based on observed data from Cemetery well.
The groundwater elevations bounds were allowed to vary based on model layering and reasonable expectations to get a decent calibration fit.

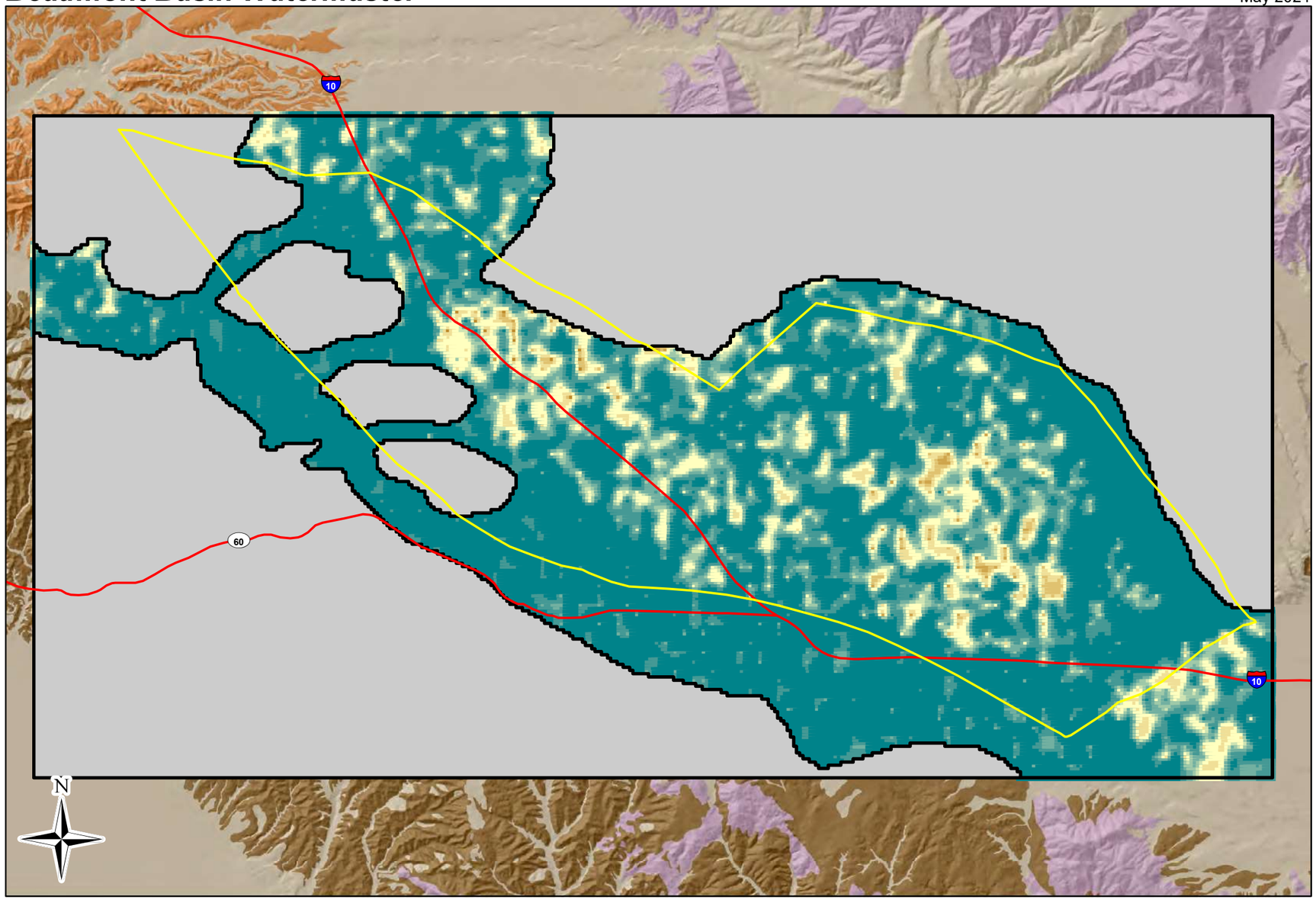
Appendix B

Model Parameters

Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

Horizontal Hydraulic Conductivity (ft/day)

- 0 to 20
- 20 to 40
- 40 to 60
- 60 to 80
- 80 to 100
- 100 to 200
- 200 to 300
- 300 to 400
- 400 to 500
- 500 to 600
- Active Model Zone
- Inactive Model Zone
- Surficial or Alluvial Deposists
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex
- Beaumont Basin Adjudicated Area
- Freeway/Highway

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Horizontal Hydraulic Conductivity - Layer 1

Appendix B-1

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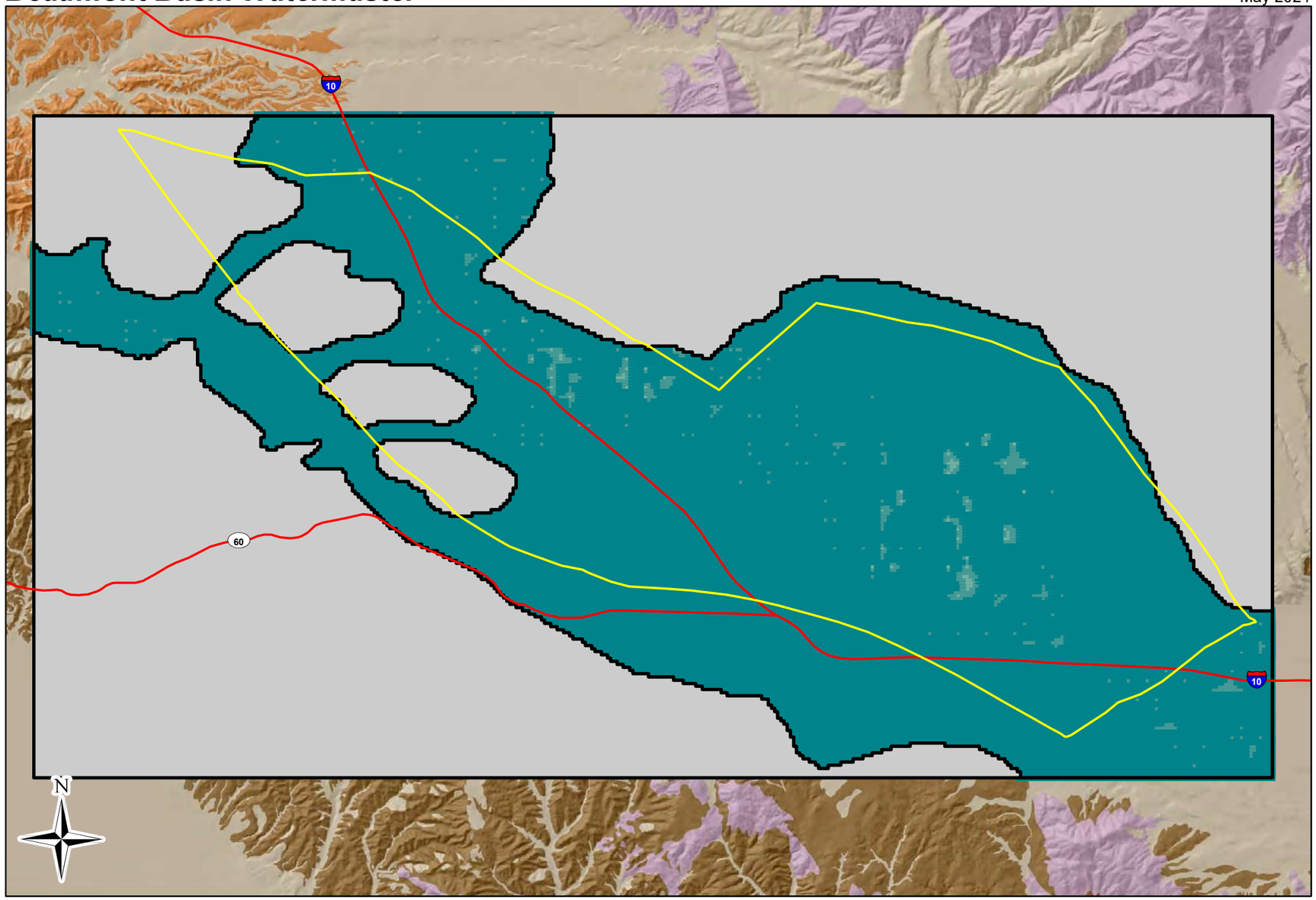
May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

Horizontal Hydaulic Conducticity (ft/day)

- 0 to 20
- 20 to 40
- 40 to 60
- Active Model Zone
- Inactive Model Zone
- Surficial or Alluvial Deposists
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex
- Beaumont Basin Adjudicated Area
- Freeway/Highway

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Horizontal Hydraulic Conductivity - Layer 2

Appendix B-2

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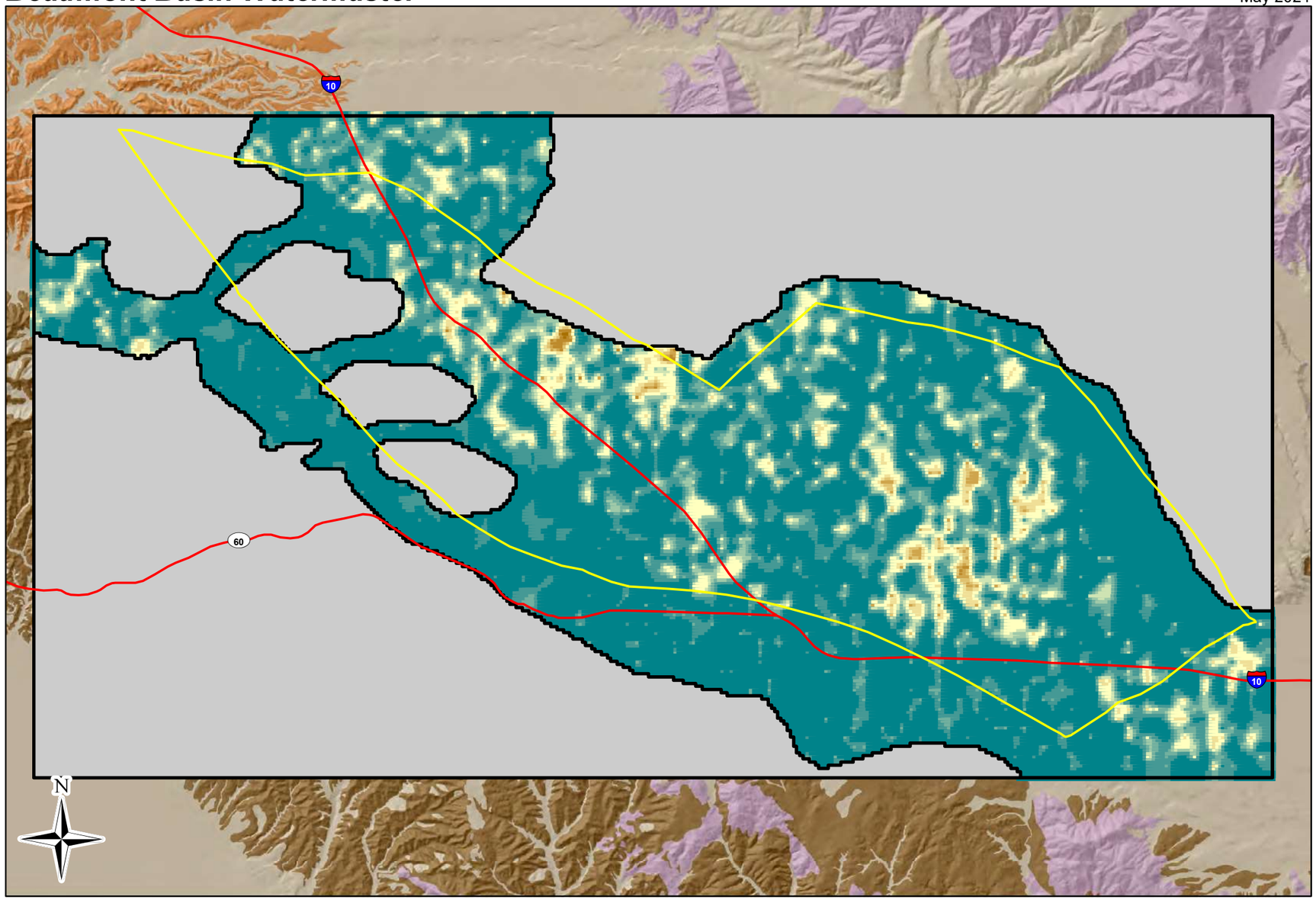
Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

Horizontal Hydraulic Conductivity (ft/day)

- 0 to 20
- 20 to 40
- 40 to 60
- 60 to 80
- 80 to 100
- 100 to 200
- 200 to 300
- 300 to 400
- 400 to 500
- 500 to 600
- 600 +
- Active Model Zone
- Inactive Model Zone
- Surficial or Alluvial Deposists
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex
- Beaumont Basin Adjudicated Area
- Freeway/Highway

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Horizontal Hydraulic Conductivity - Layer 3

Appendix B-3

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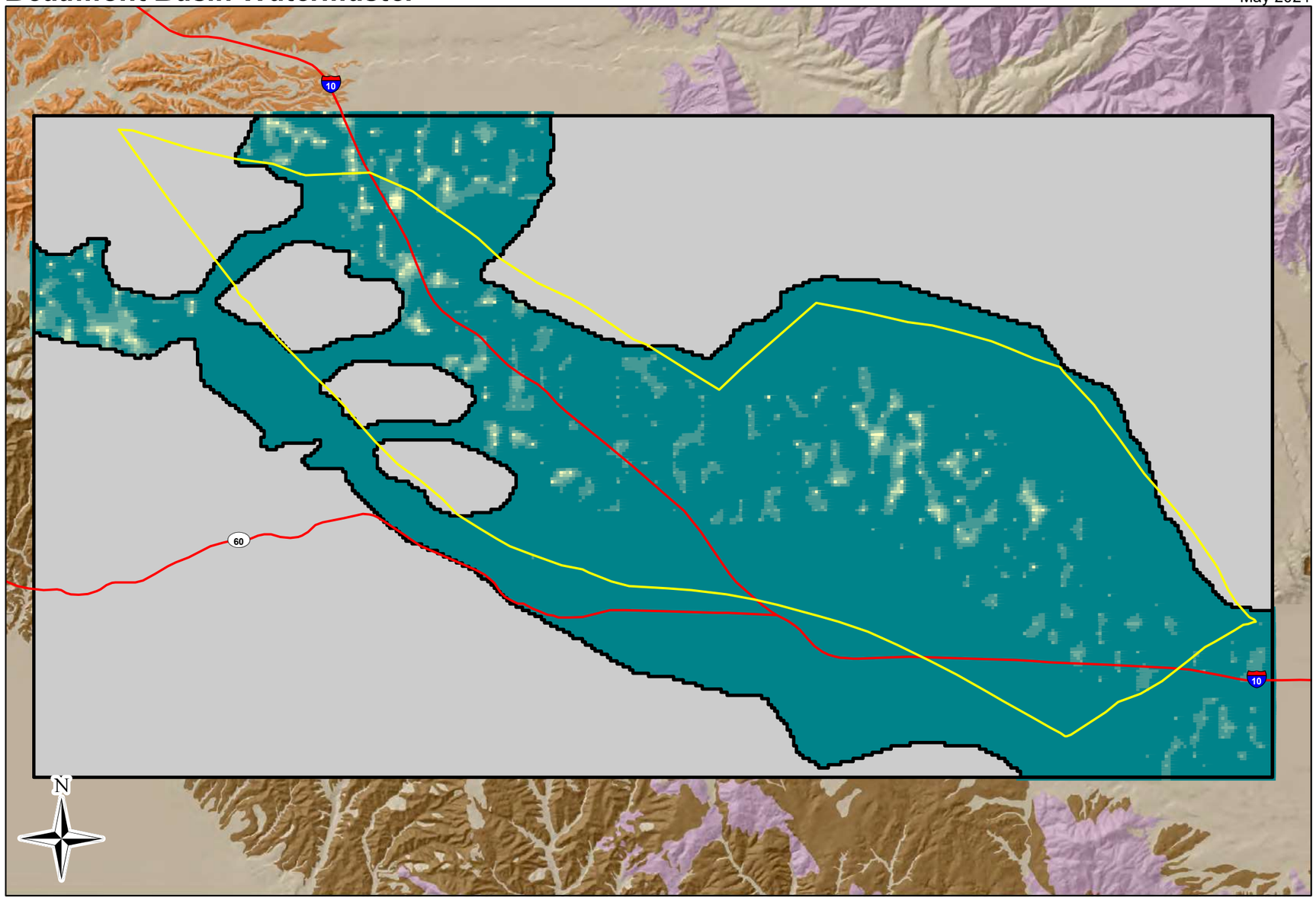
Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

Horizontal Hydraulic Conductivity (ft/day)

- 0 to 20
- 20 to 40
- 40 to 60
- 60 to 80
- 80 to 100
- 100 to 200
- Active Model Zone
- Inactive Model Zone
- Surficial or Alluvial Deposists
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex
- Beaumont Basin Adjudicated Area
- Freeway/Highway

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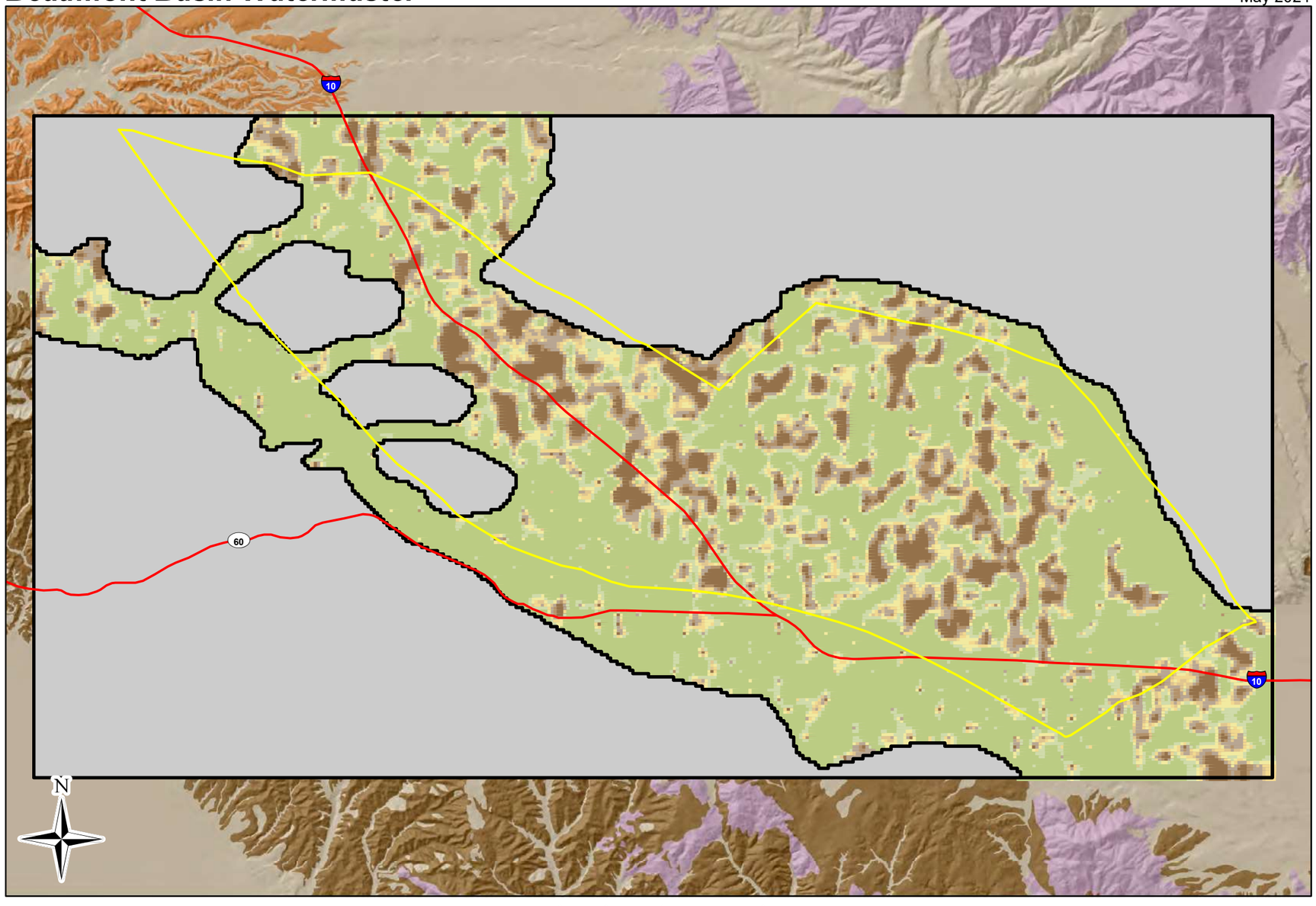
Horizontal Hydraulic Conductivity - Layer 4

Appendix B-4

Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

Vertical Hydraulic Conductivity (ft/day)

- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- 5 to 10
- 10 to 15
- 15 to 20
- Active Model Zone
- Inactive Model Zone
- Surficial or Alluvial Deposists
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex
- Beaumont Basin Adjudicated Area
- Freeway/Highway

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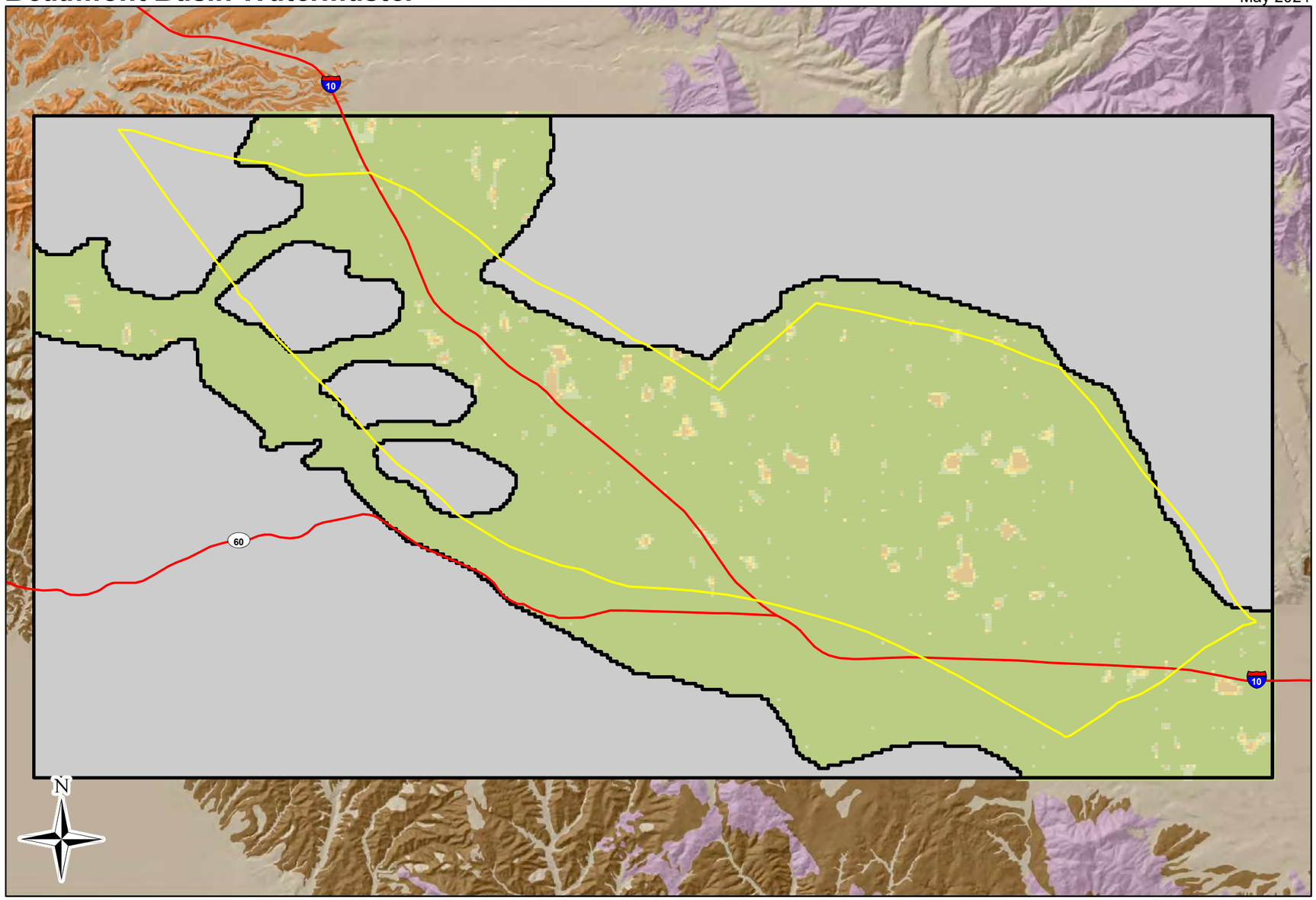
Vertical Hydraulic Conductivity - Layer 1

Appendix B-5

Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

Vertical Hydraulic Conductivity (ft/day)

- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- Active Model Zone
- Inactive Model Zone
- Surficial or Alluvial Deposists
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex
- Beaumont Basin Adjudicated Area
- Freeway/Highway

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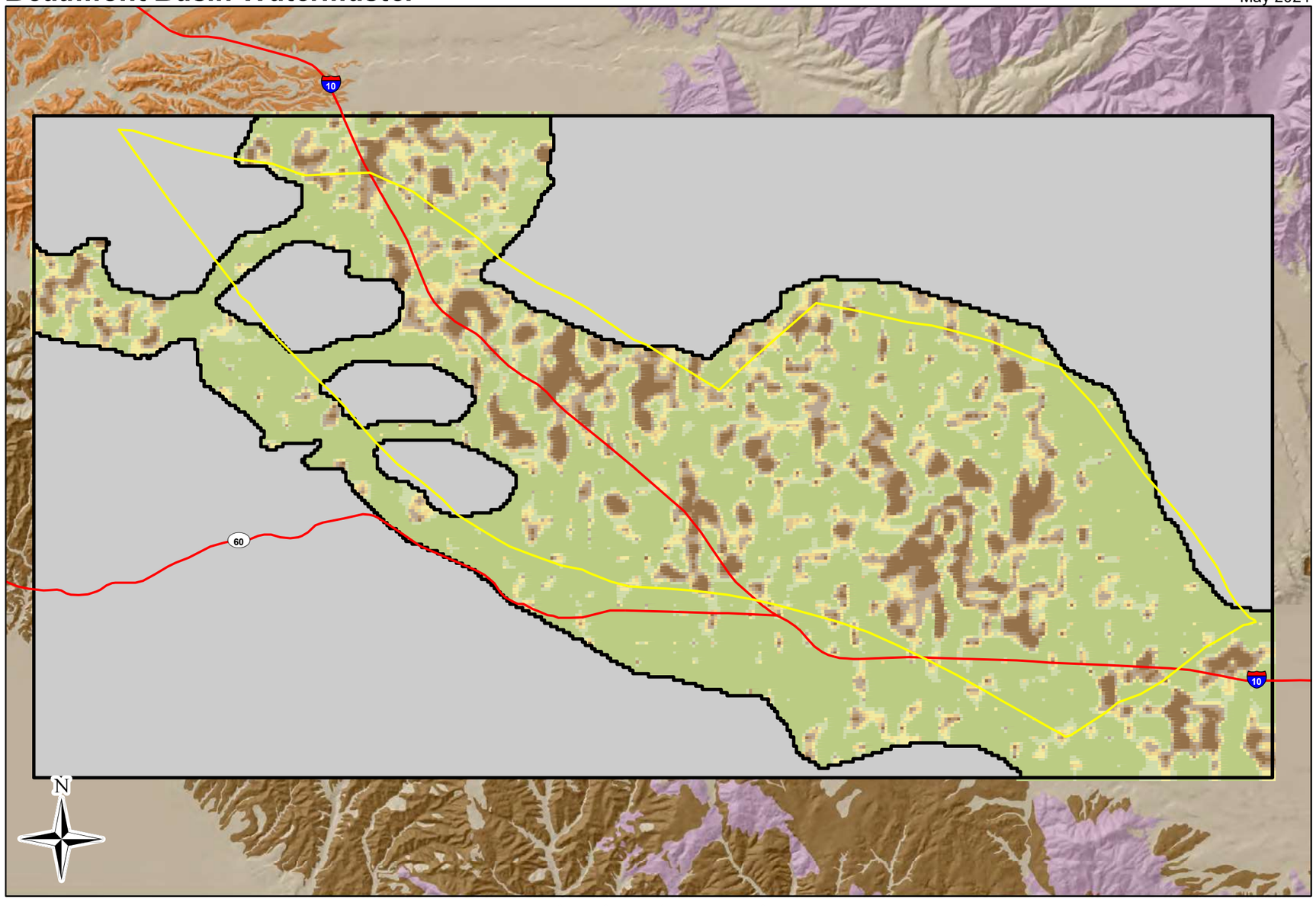
Vertical Hydraulic Conductivity - Layer 2

Appendix B-6

Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

Vertical Hydraulic Conductivity (ft/day)

- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- 5 to 10
- 10 to 15
- 15 to 20
- Active Model Zone
- Inactive Model Zone
- Surficial or Alluvial Deposists
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex
- Beaumont Basin Adjudicated Area
- Freeway/Highway

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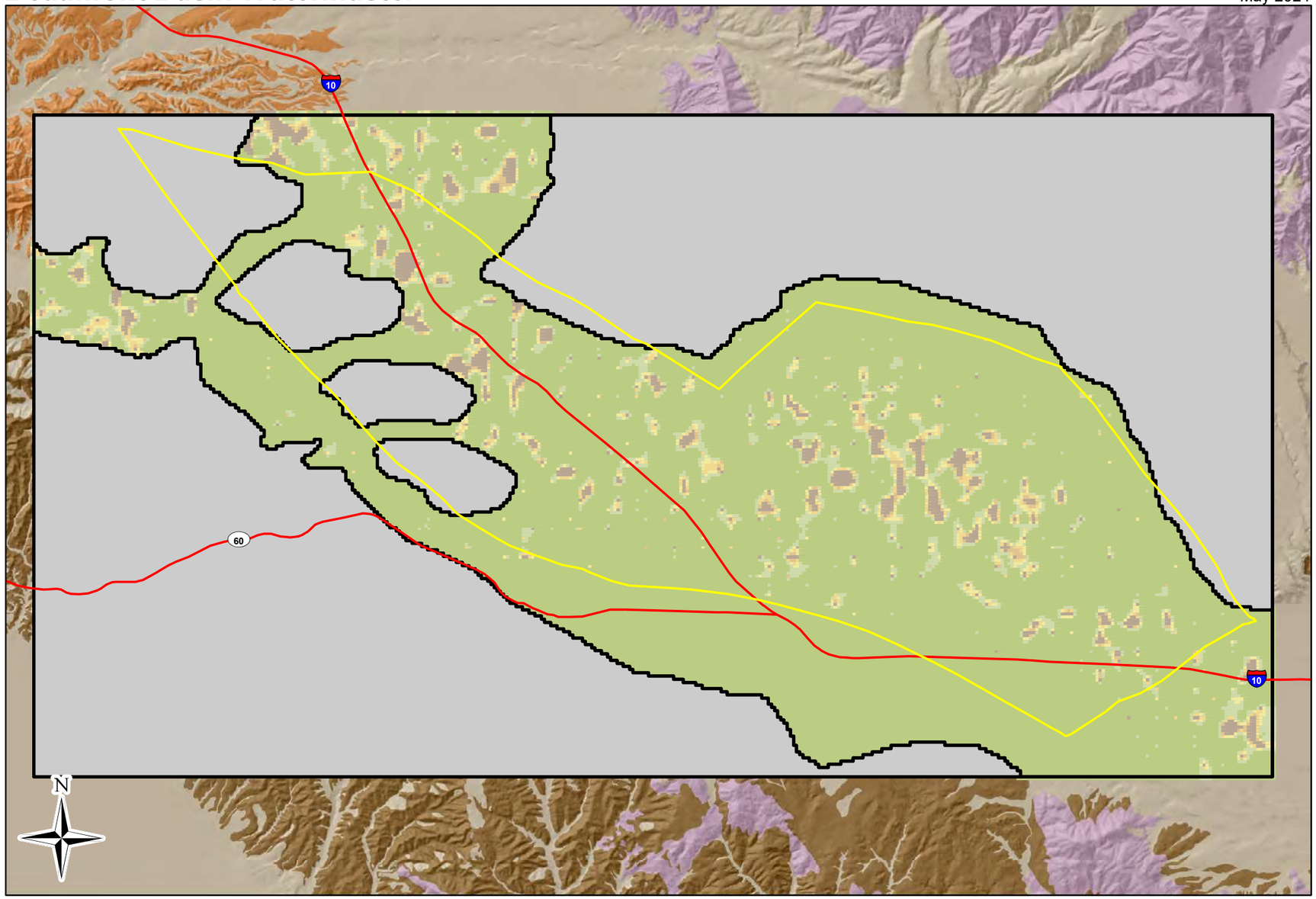
Vertical Hydraulic Conductivitiy - Layer 3

Appendix B-7

Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

Vertical Hydraulic Conductivity (ft/day)

- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 4
- 4 to 5
- 5 to 10
- Active Model Zone
- Inactive Model Zone
- Surficial or Alluvial Deposits
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex
- Beaumont Basin Adjudicated Area
- Freeway/Highway

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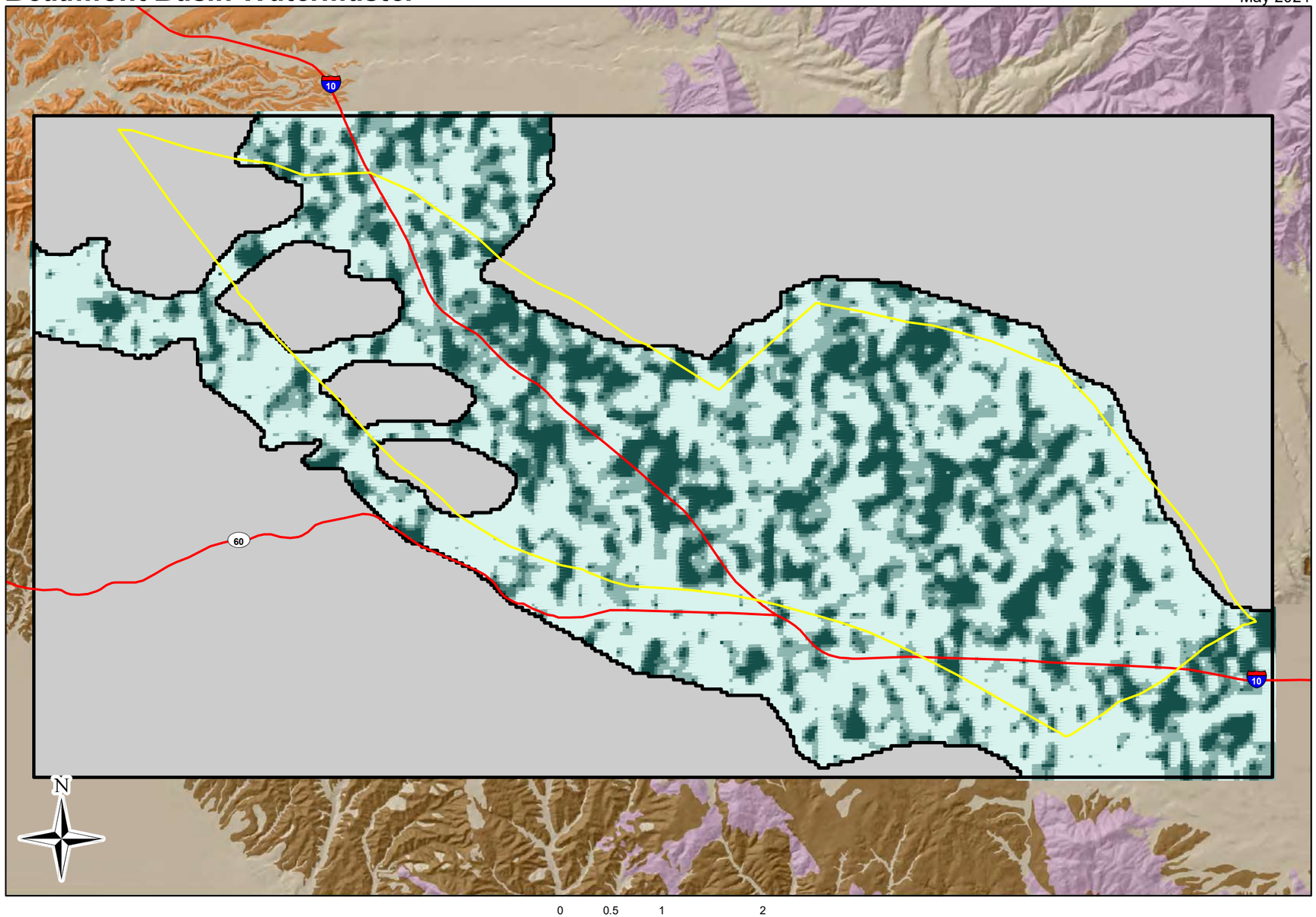
Vertical Hydraulic Conductivity - Layer 4

Appendix B-8

Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

Specific Yield
- 0.00 to 0.10
- 0.10 to 0.20
- 0.20 to 0.30
- 0.30 to 0.40

Active Model Zone

Inactive Model Zone

Surficial or Alluvial Deposists

Pleistocene San Timoteo Deposits

Tertiary San Timoteo and other Tertiary Sedimentary Deposits

Crystalline Basement Complex

Beaumont Basin Adjudicated Area

Freeway/Highway

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Specific Yield - Layer 1

Appendix B-9

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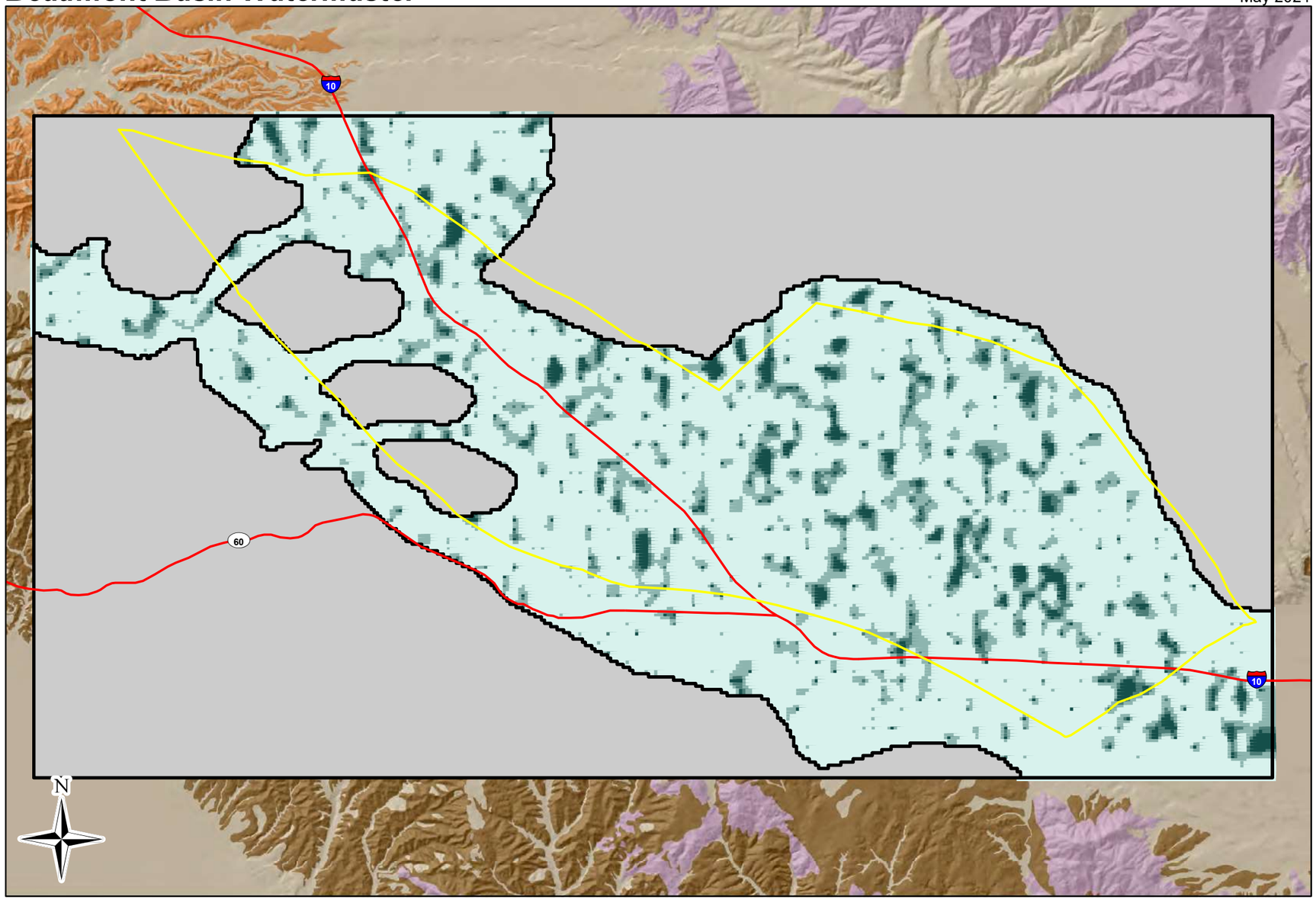
Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

Specific Yield

- 0.00 to 0.10
- 0.10 to 0.20
- 0.20 to 0.30
- 0.30 to 0.40
- Active Model Zone
- Inactive Model Zone
- Surficial or Alluvial Deposists
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex
- Beaumont Basin Adjudicated Area
- Freeway/Highway

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Specific Yield - Layer 2

Appendix B-10

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Beaumont Basin Watermaster

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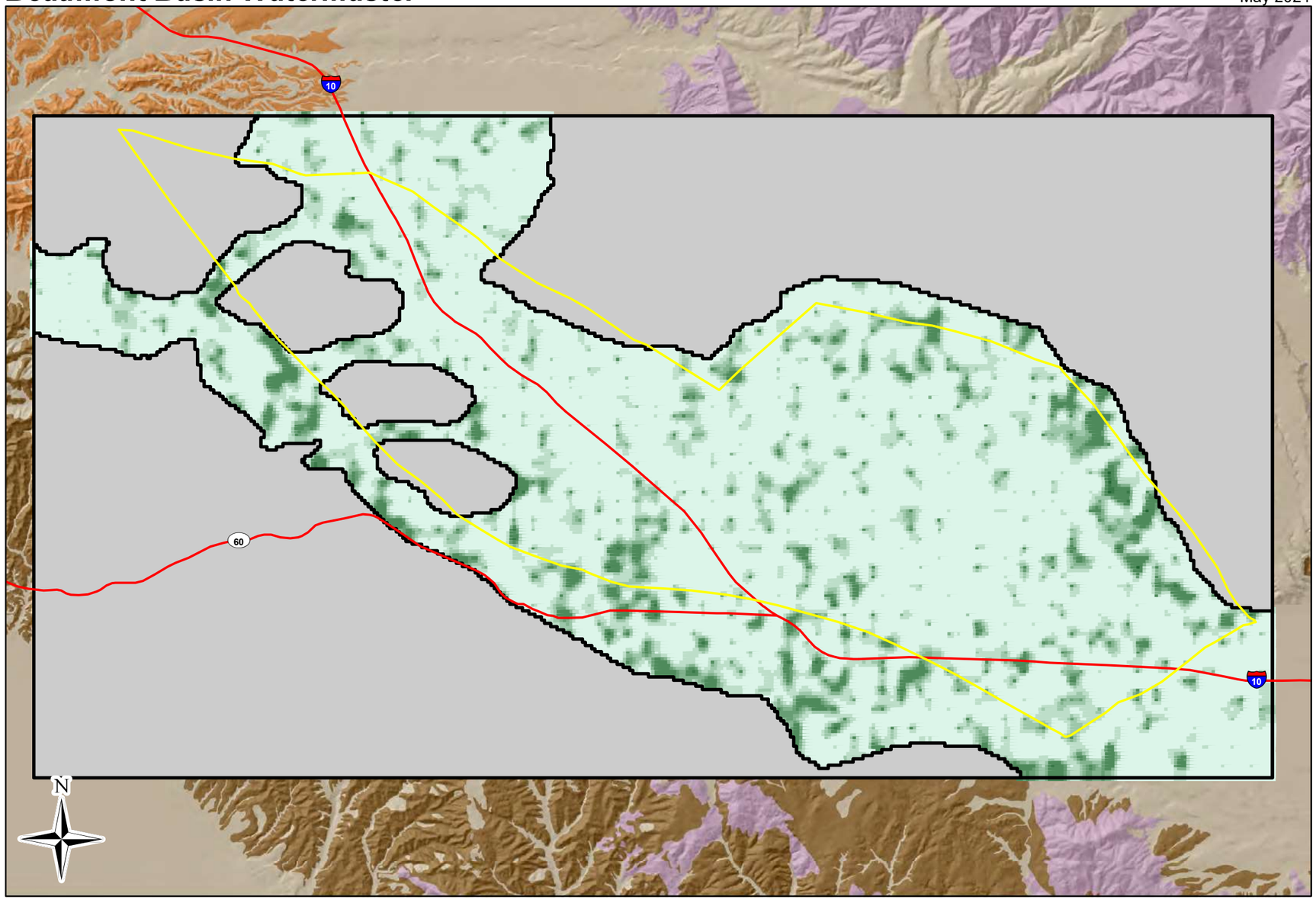
2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

Specific Storage

- 0.00000 to 0.00002
- 0.00002 to 0.00004
- 0.00004 to 0.00006
- 0.00006 to 0.00008
- 0.00008 to 0.0001
- 0.0001 to 0.0005
- 0.0005 to 0.001
- 0.001 +

- Active Model Zone
- Inactive Model Zone
- Surficial or Alluvial Deposits
- Pleistocene San Timoteo Deposits
- Tertiary San Timoteo and other Tertiary Sedimentary Deposits
- Crystalline Basement Complex
- Beaumont Basin Adjudicated Area
- Freeway/Highway

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Specific Storage - Layer 3

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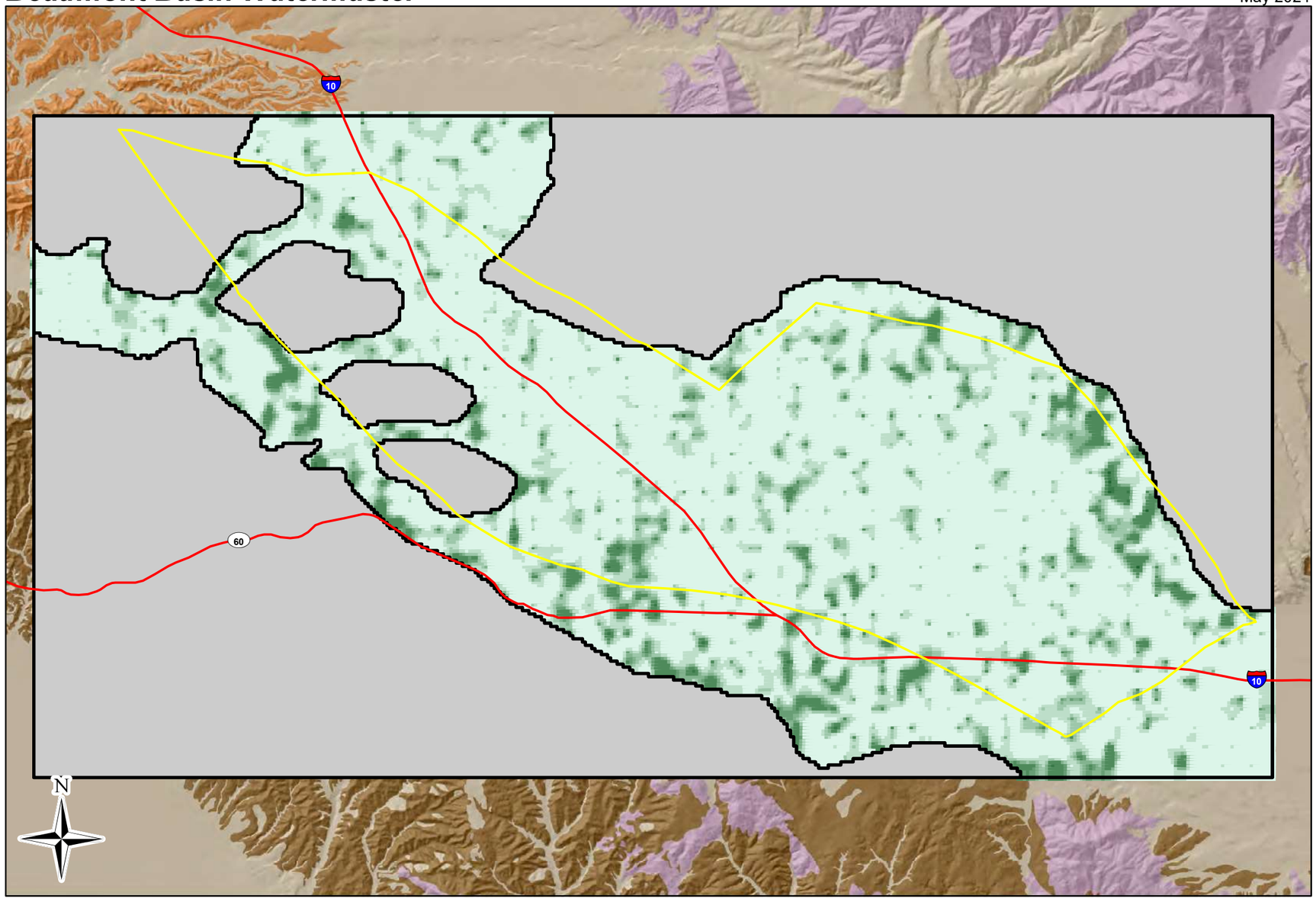
Beaumont Basin Watermaster

May 2024

2023 Reevaluation of the Beaumont Basin Safe Yield



NAD 83 State Plane Zone 6

Map Features

Specific Storage
- 0.0000 to 0.00002
- 0.00002 to 0.00004
- 0.00004 to 0.00006
- 0.00006 to 0.00008
- 0.00008 to 0.0001
- 0.0001 to 0.0005
- 0.0005 to 0.001
- 0.001 +

Active Model Zone
Inactive Model Zone
Surficial or Alluvial Deposits
Pleistocene San Timoteo Deposits
Tertiary San Timoteo and other Tertiary Sedimentary Deposits
Crystalline Basement Complex
Beaumont Basin Adjudicated Area
Freeway/Highway

DRAFT

Specific Storage - Layer 4

Appendix B-12

Thomas Harder & Co.
Groundwater Consulting

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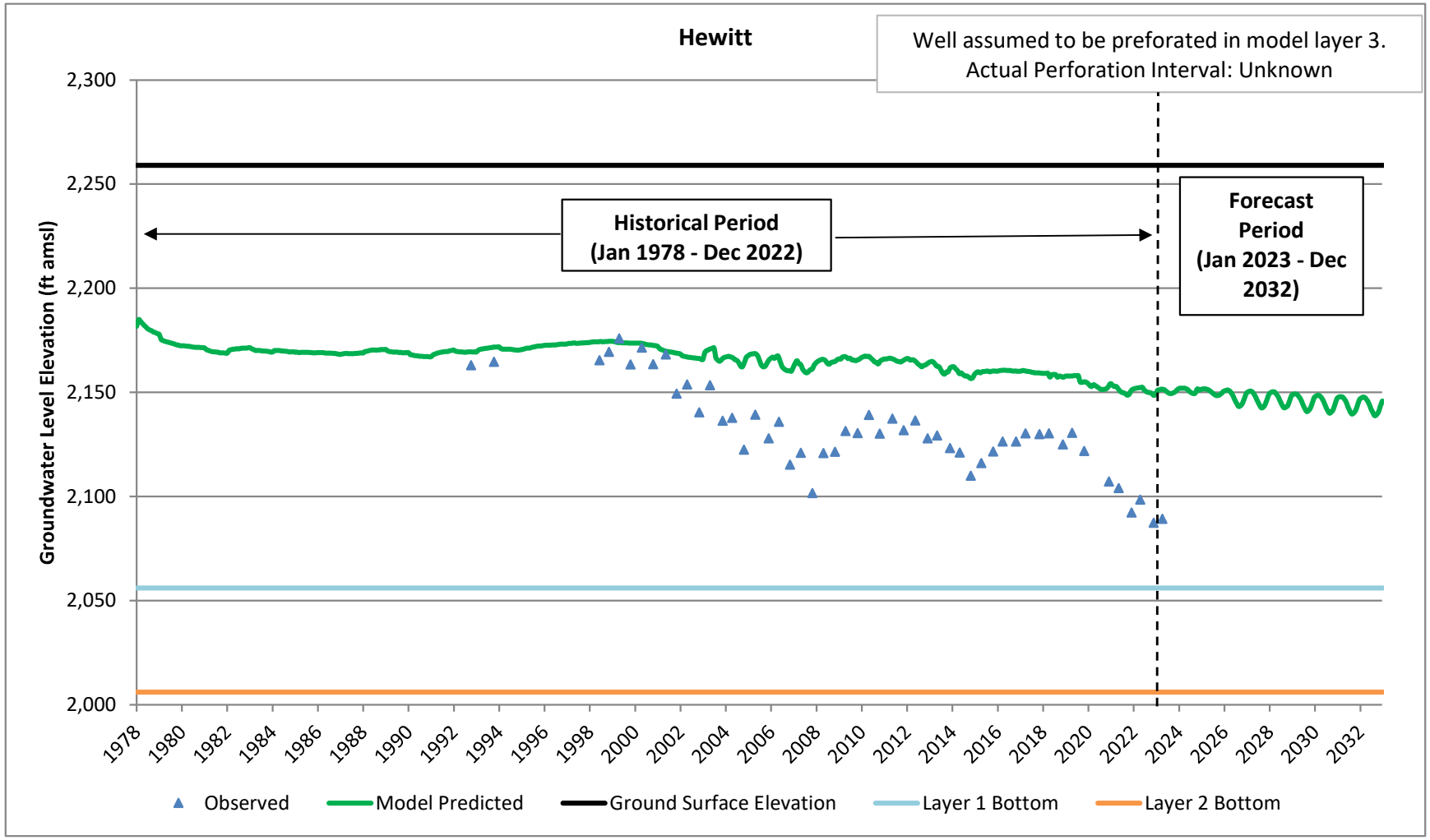
Appendix C

Model Calibration & Forecast Period Hydrographs at Calibration Targets

Model Calibration Hydrographs



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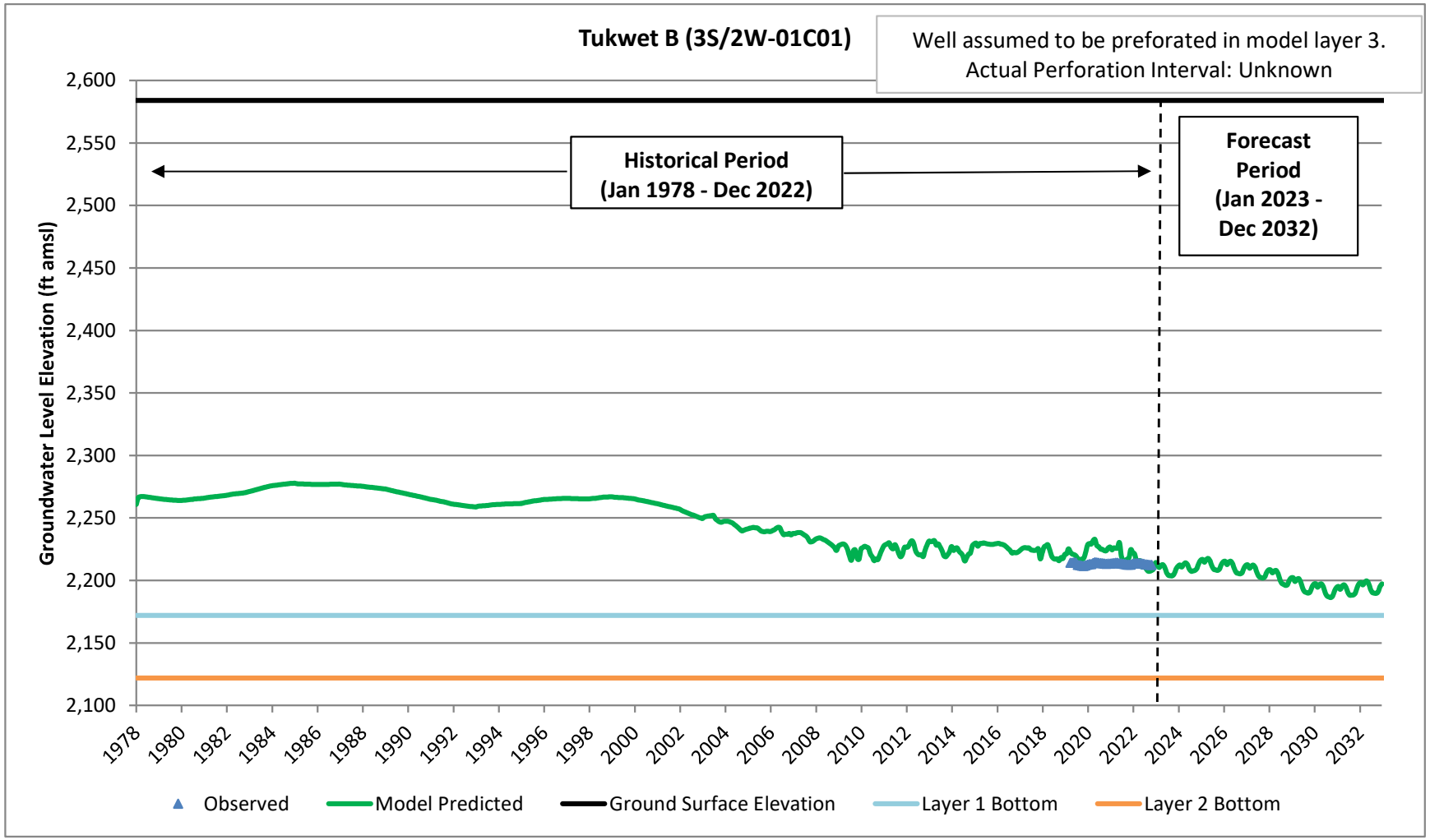

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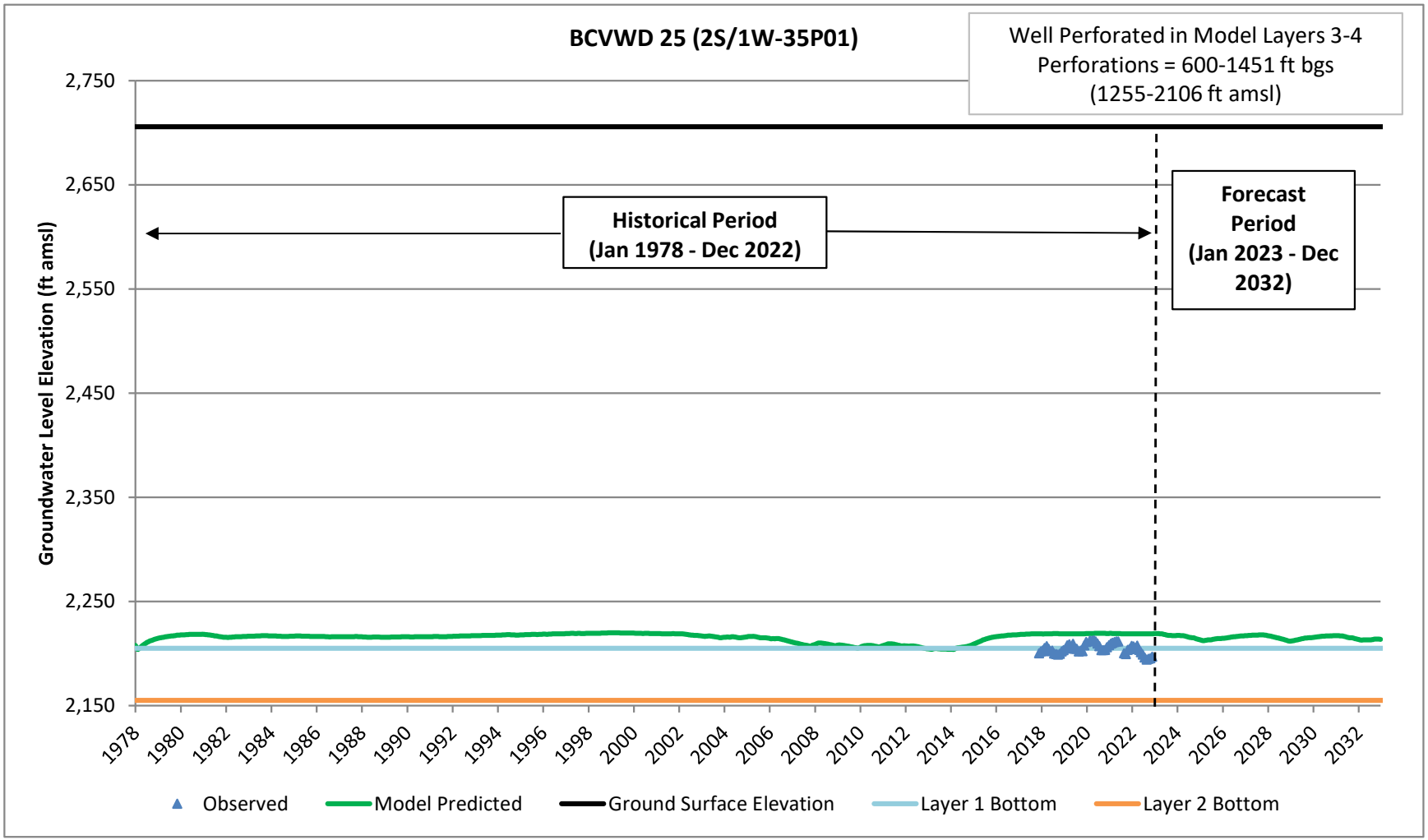

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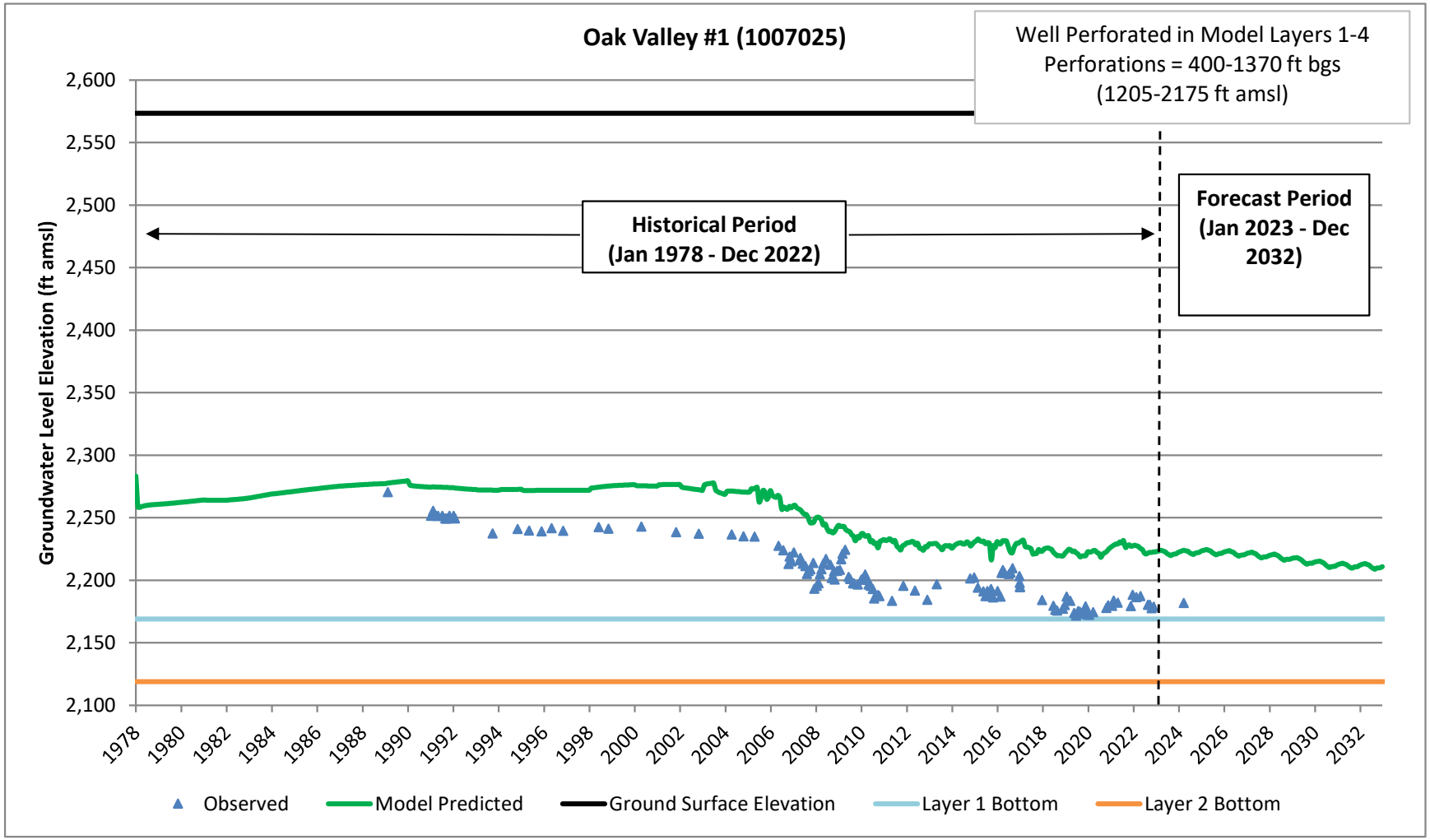

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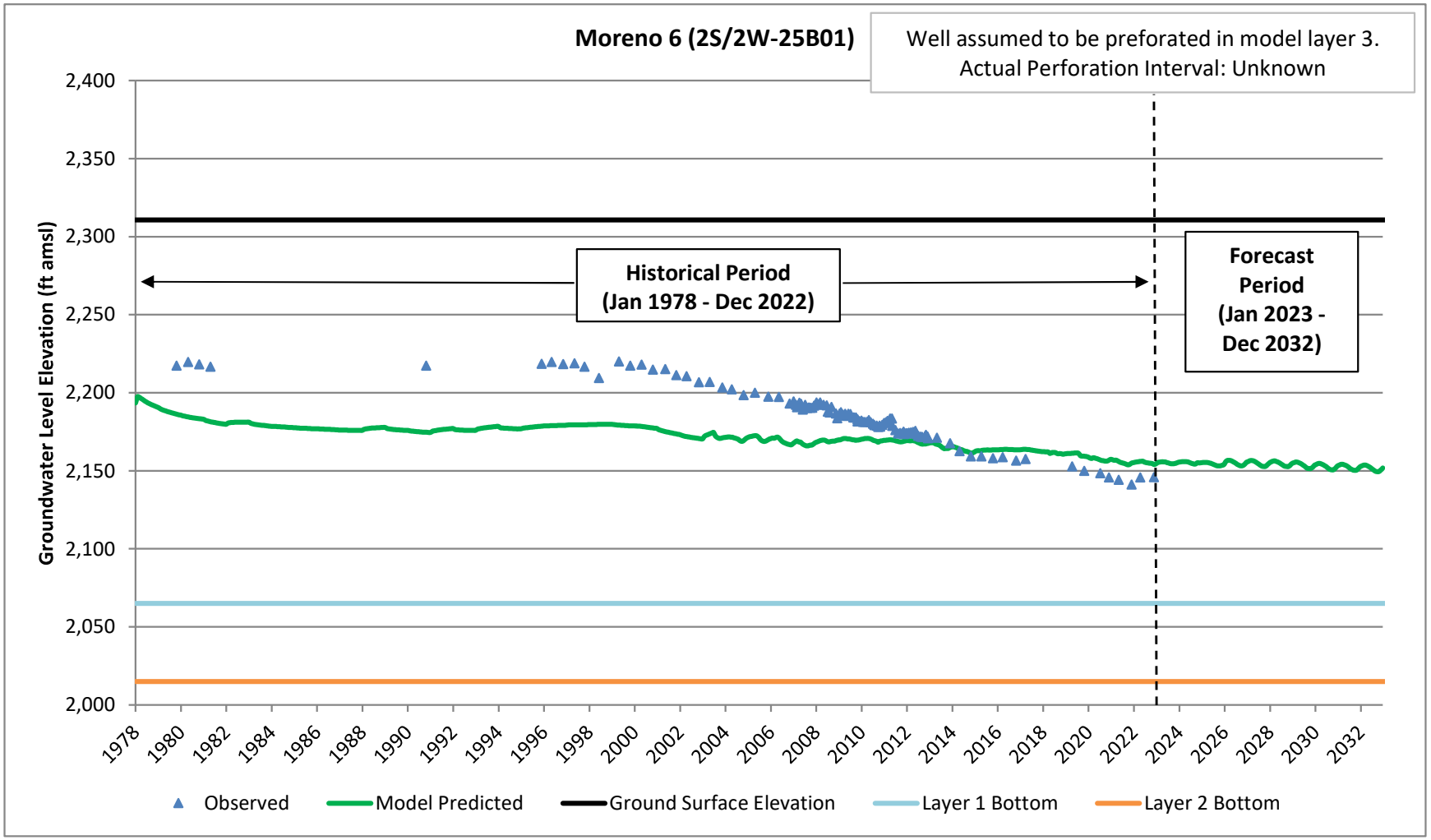

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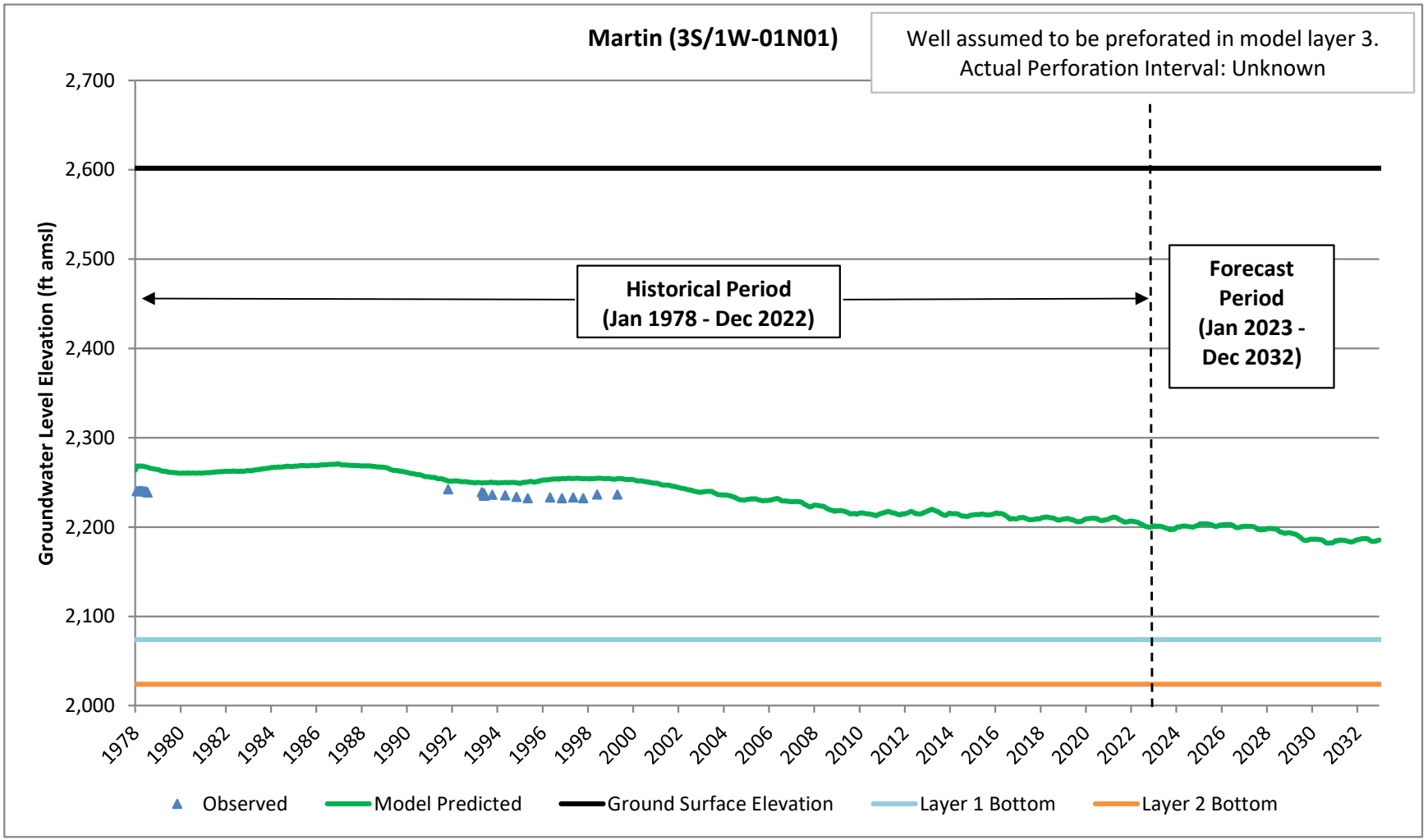

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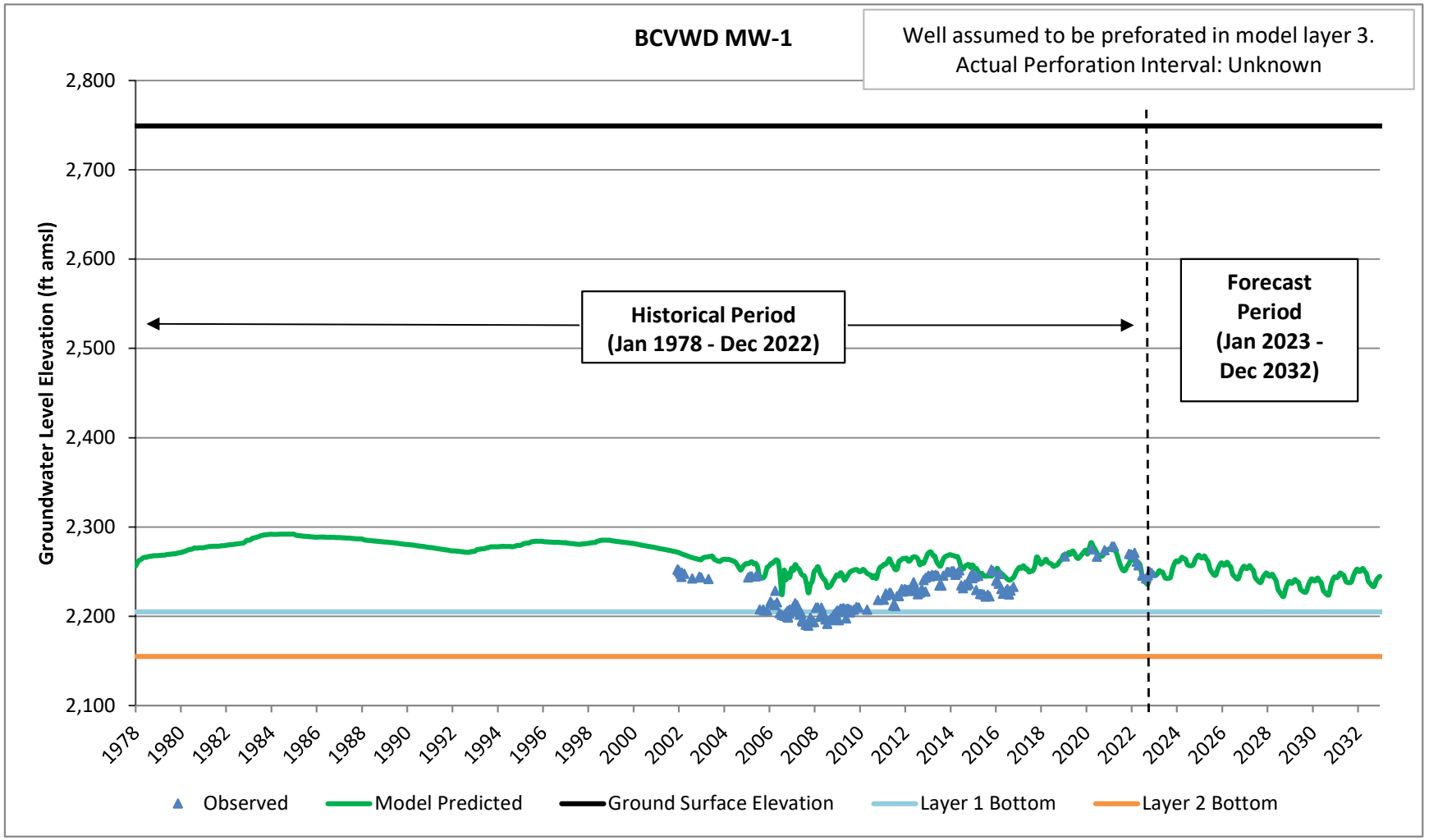

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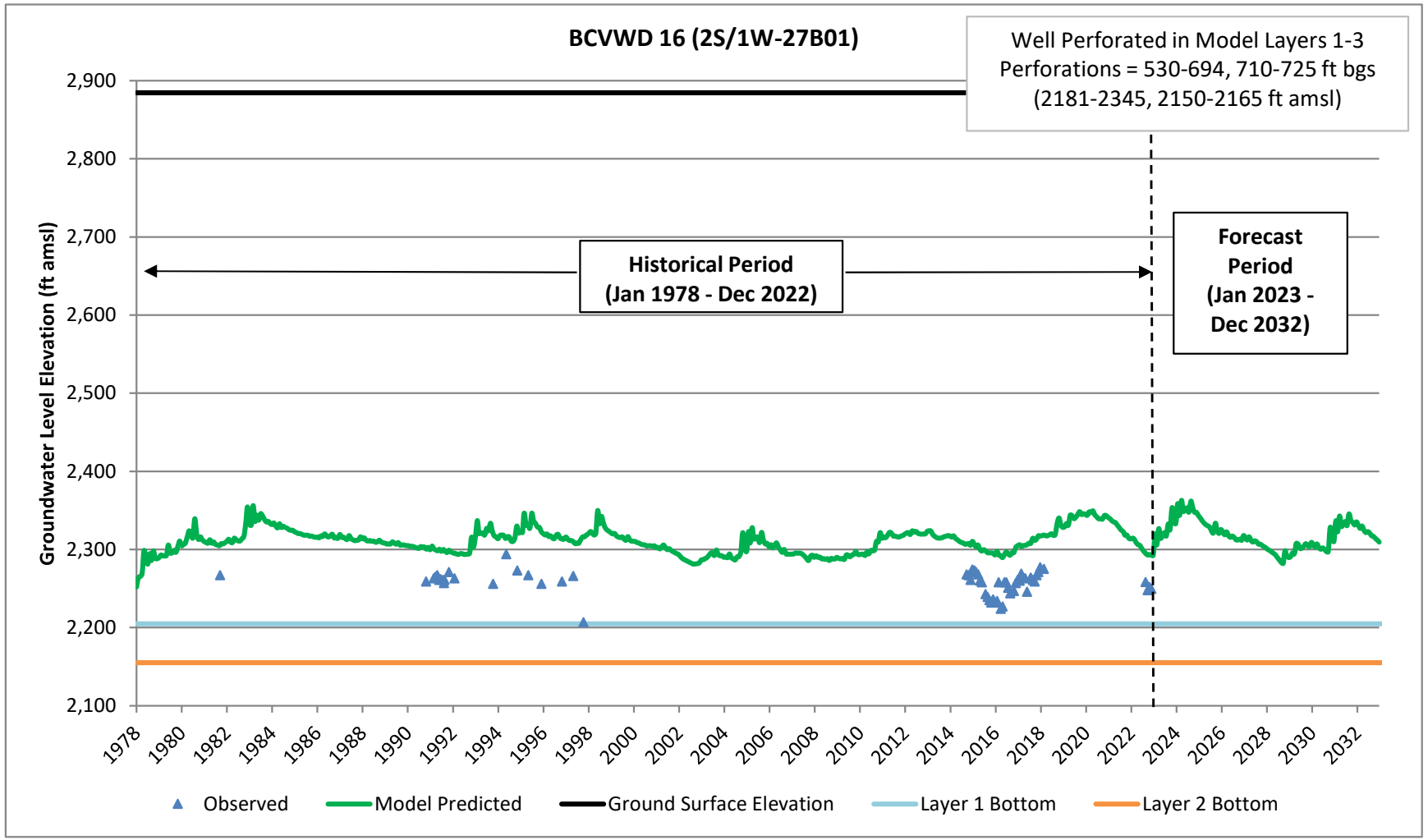

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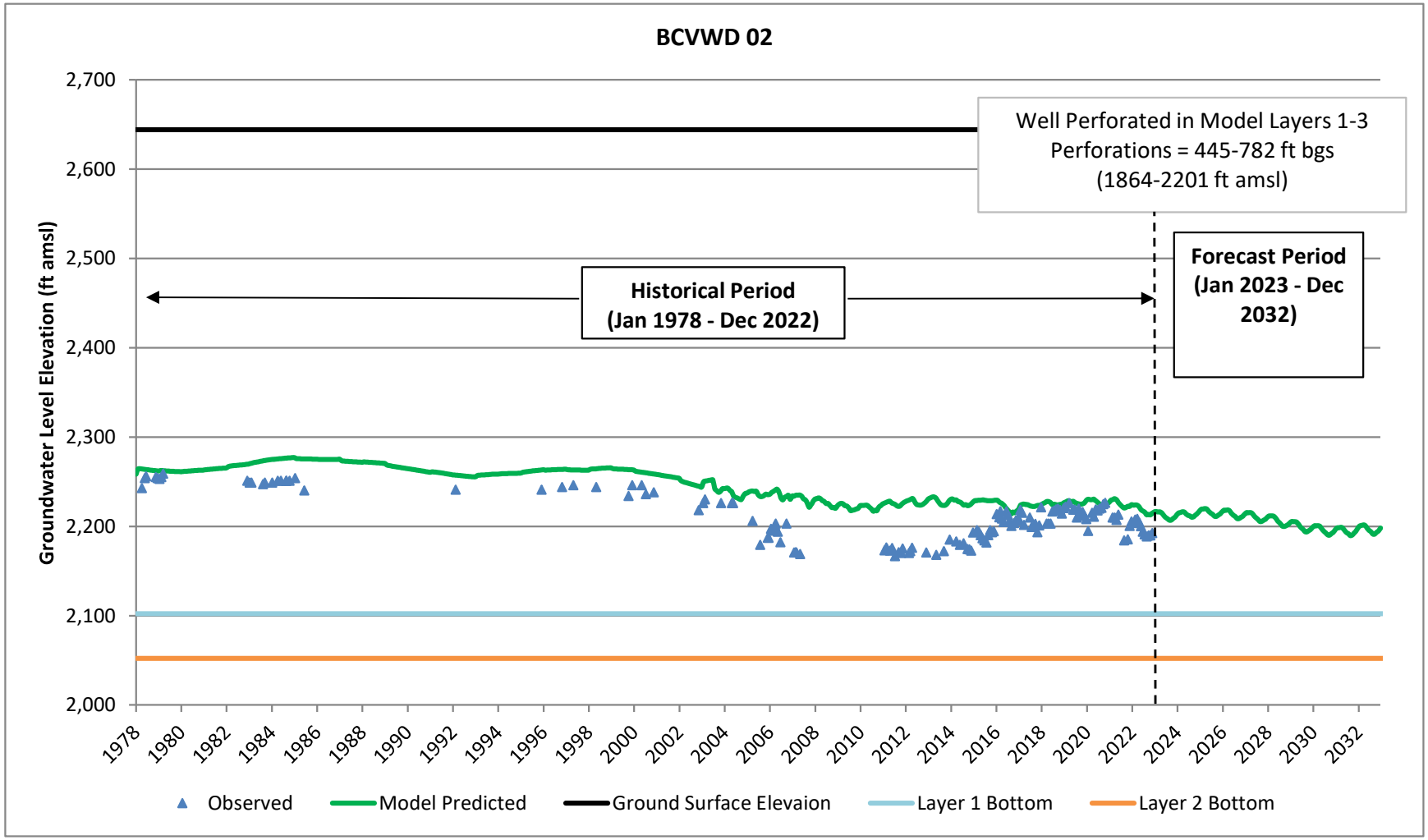

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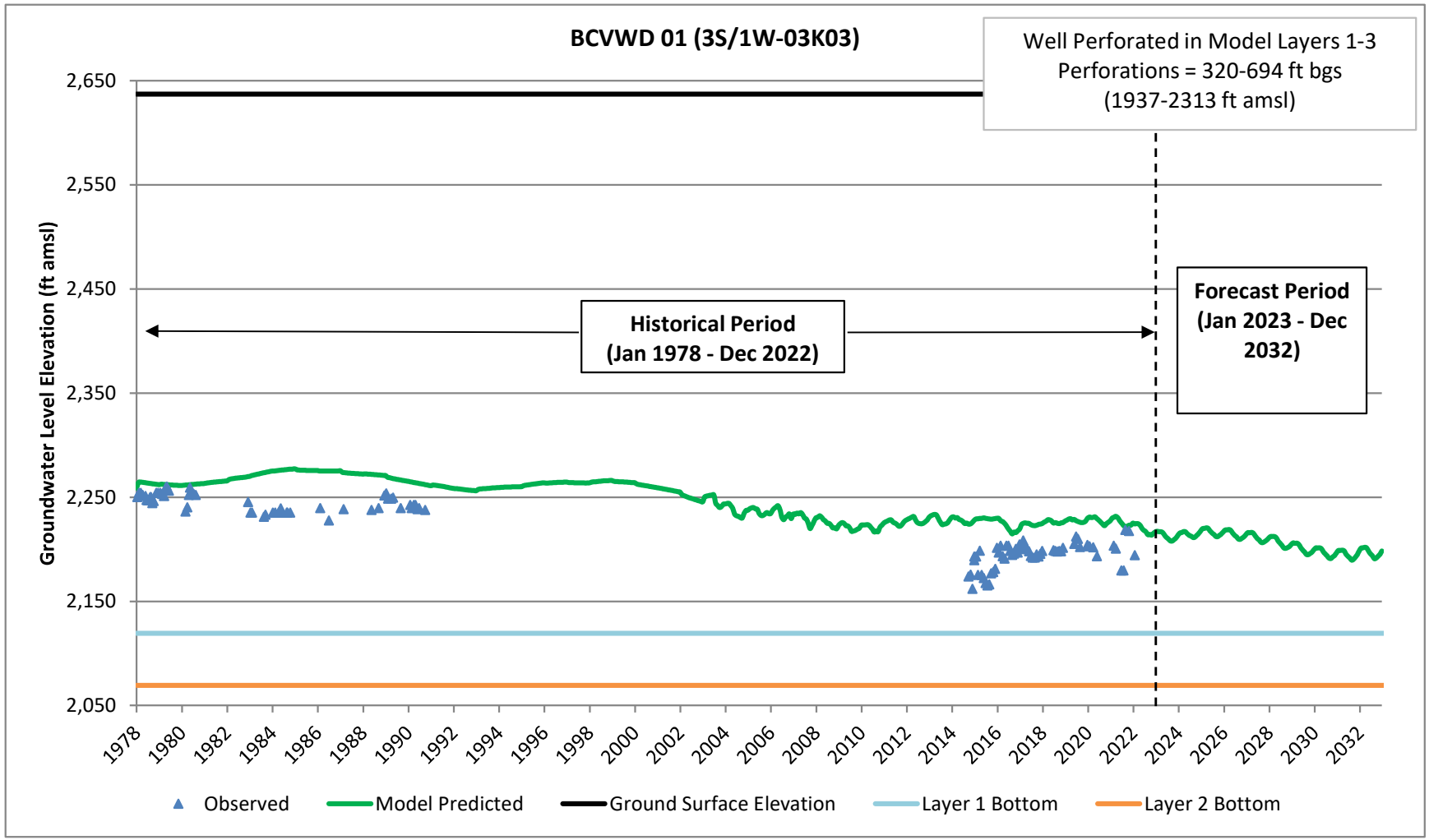

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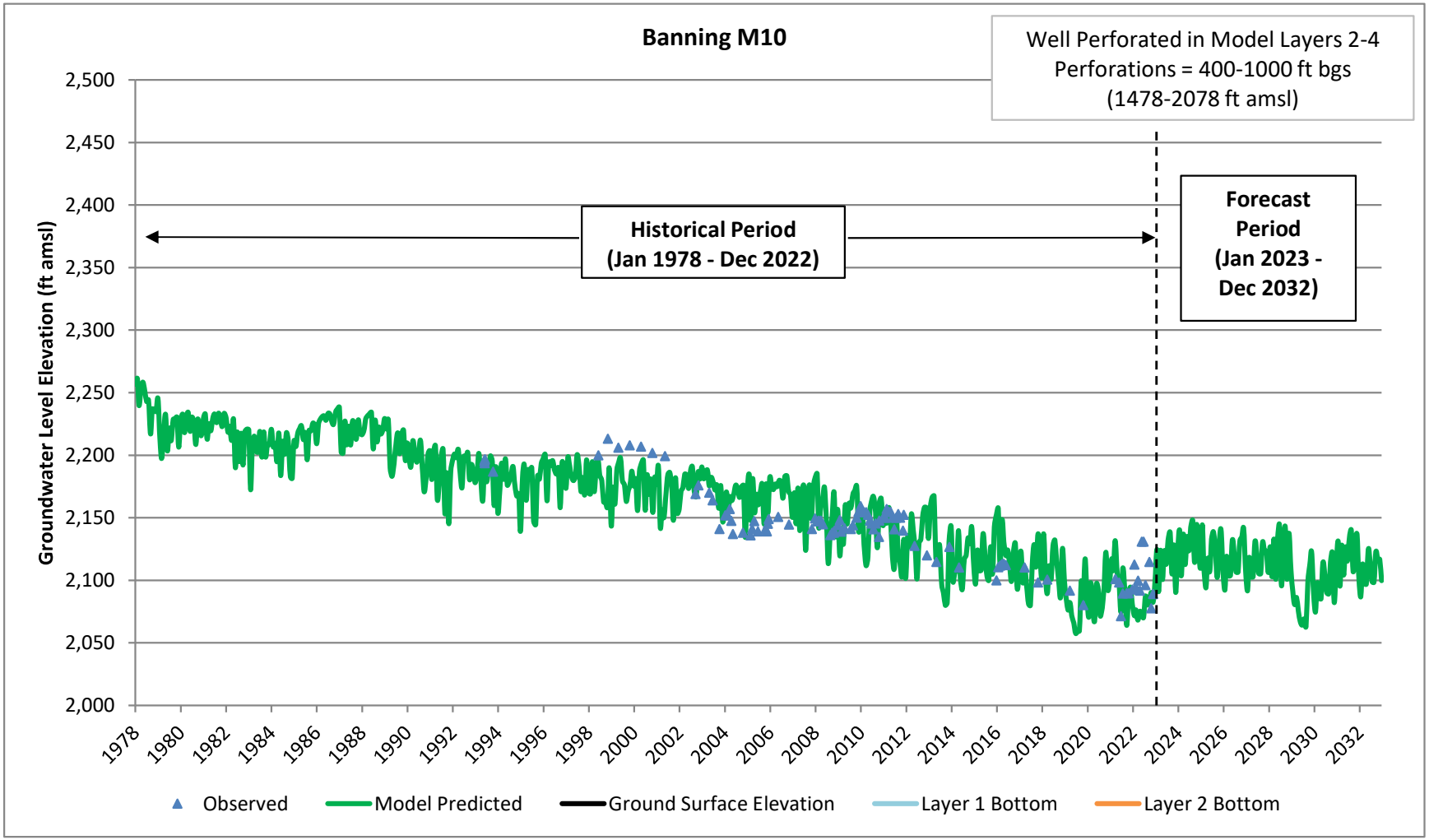

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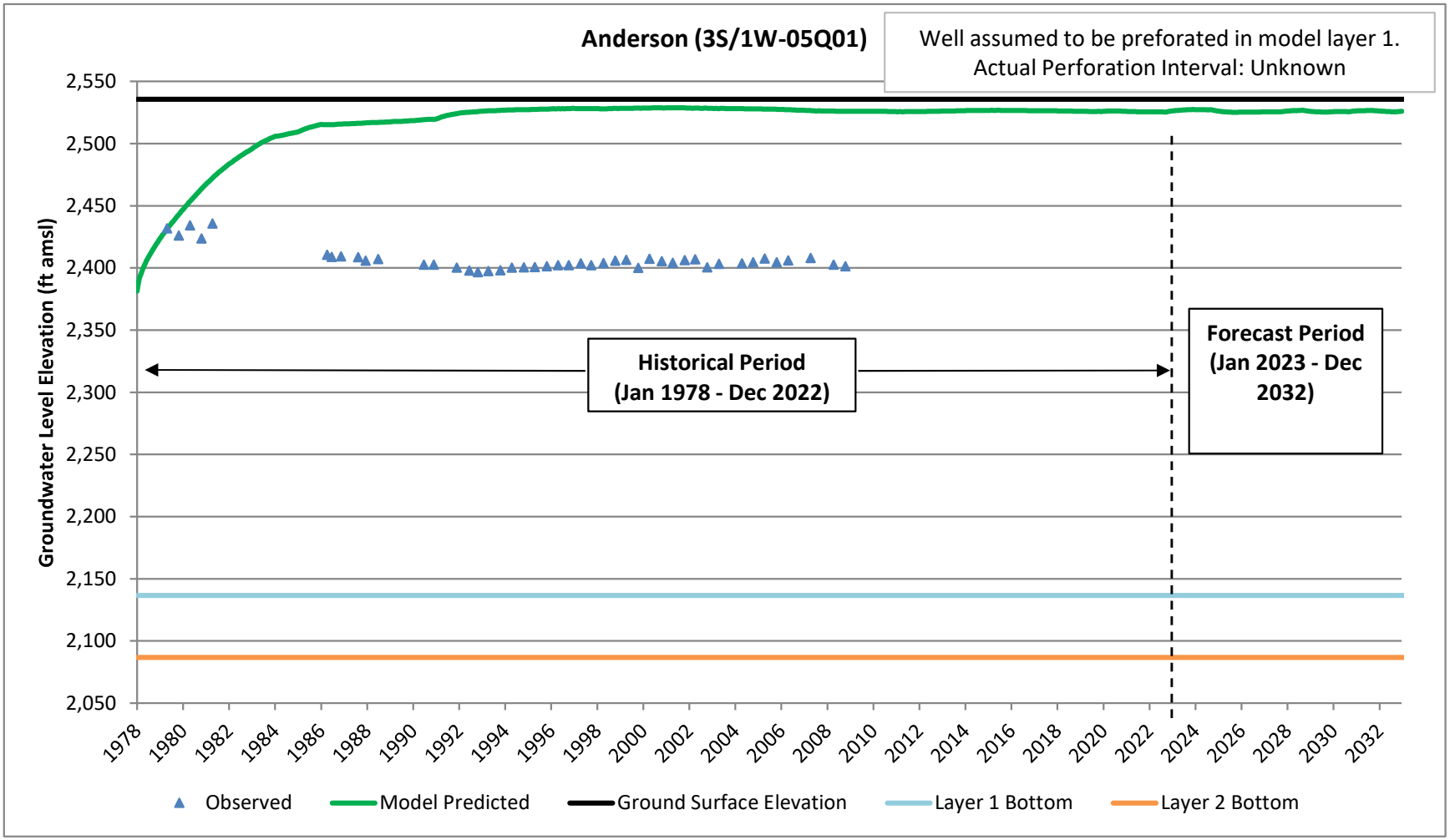

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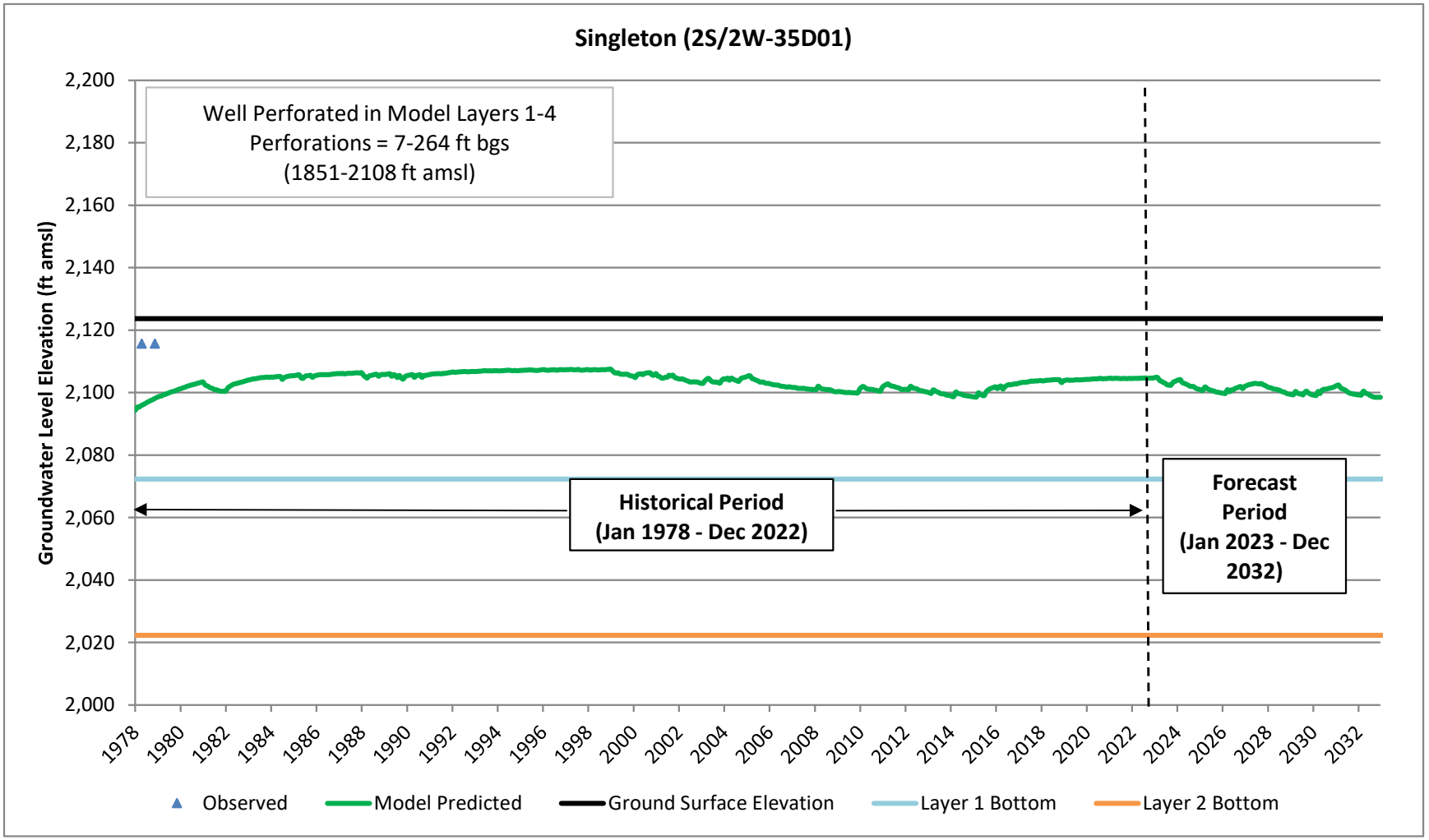

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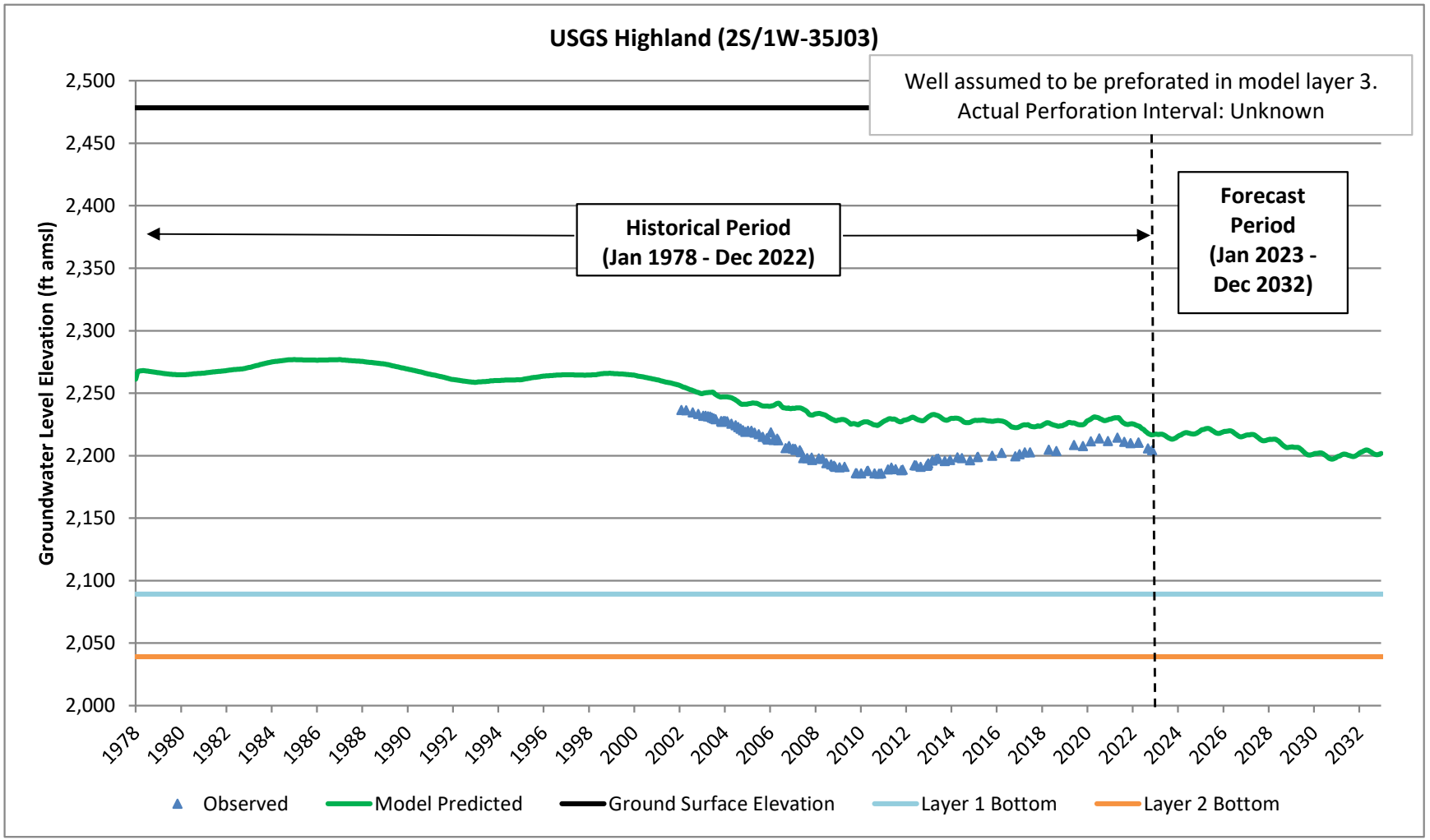

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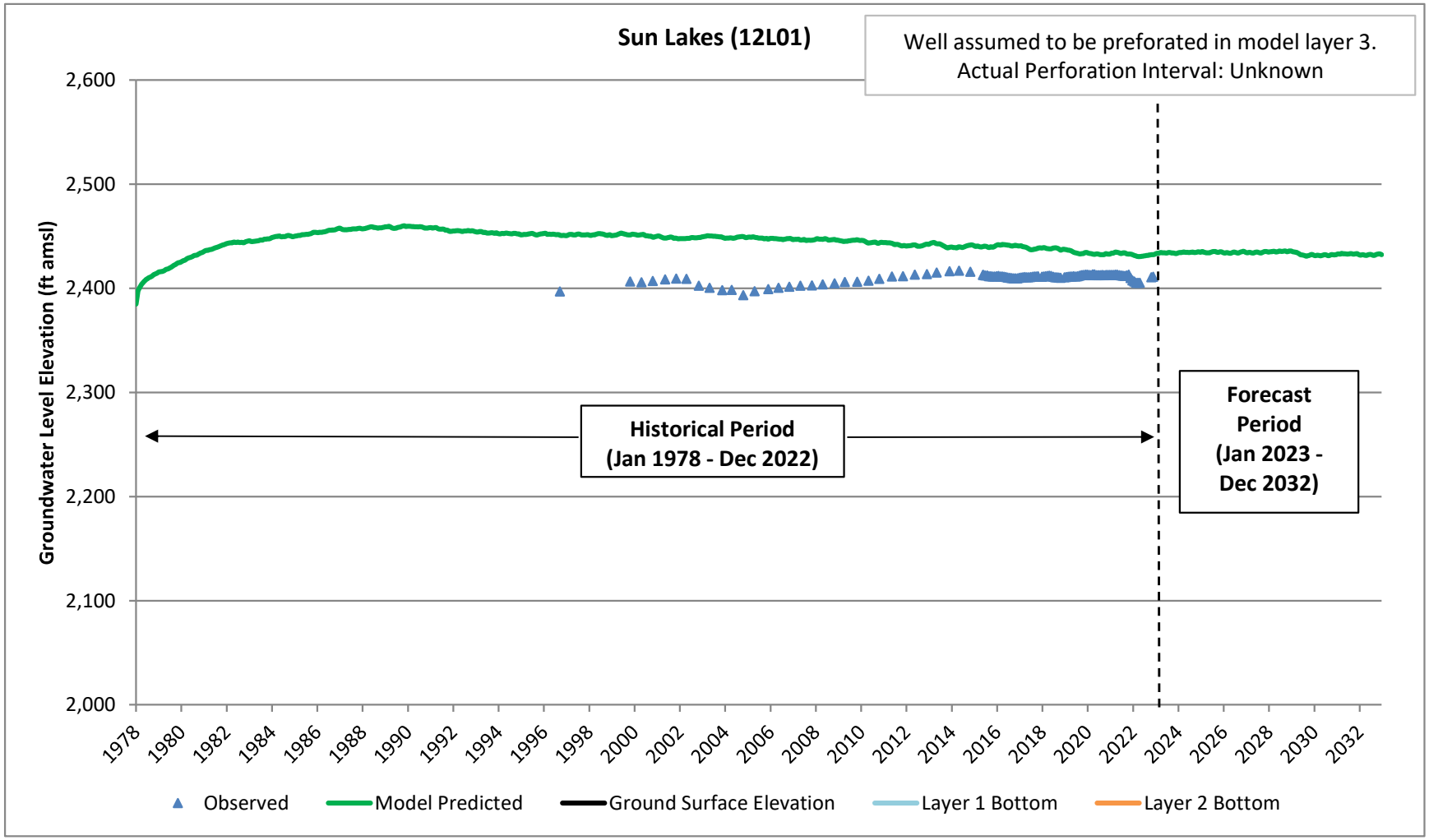

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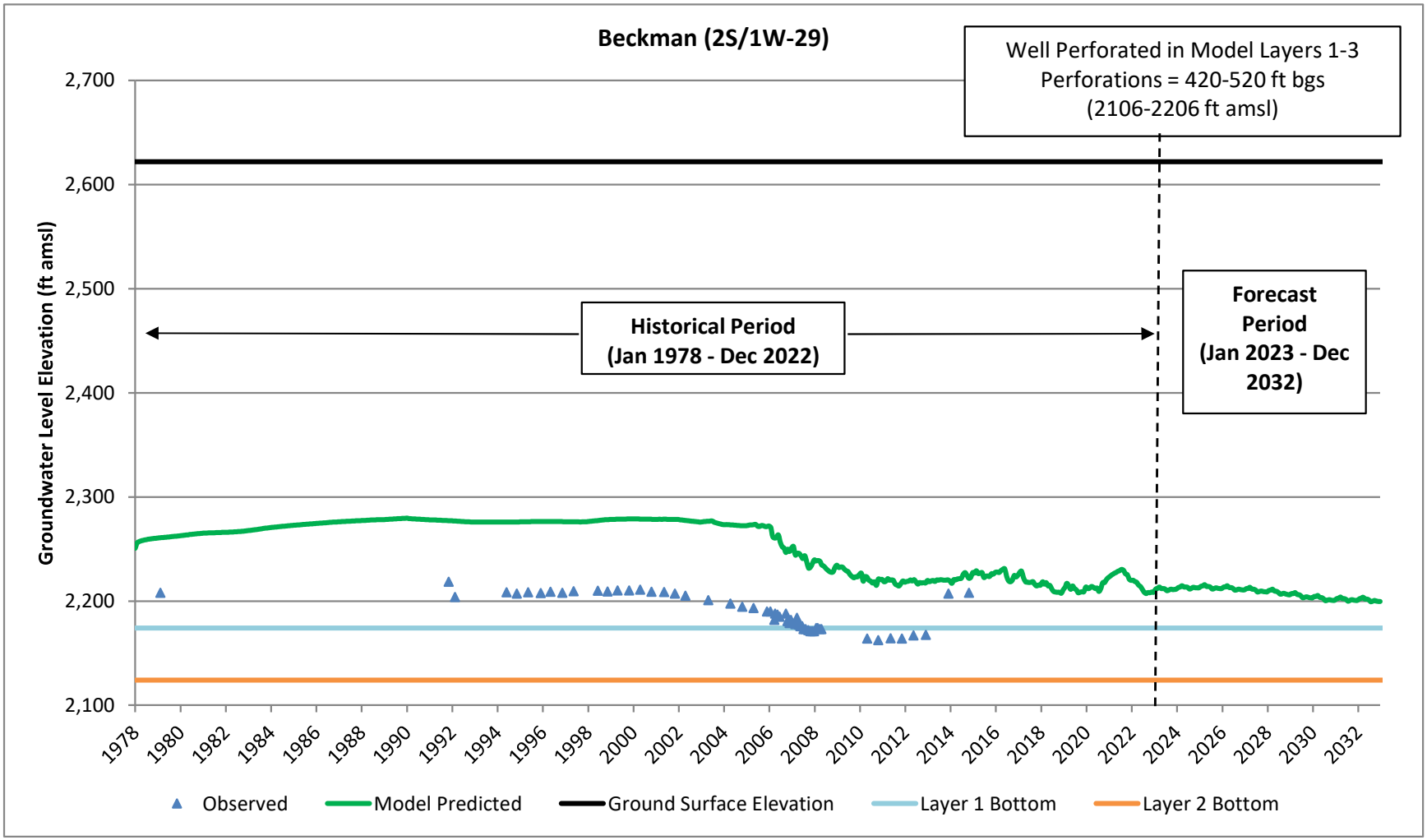

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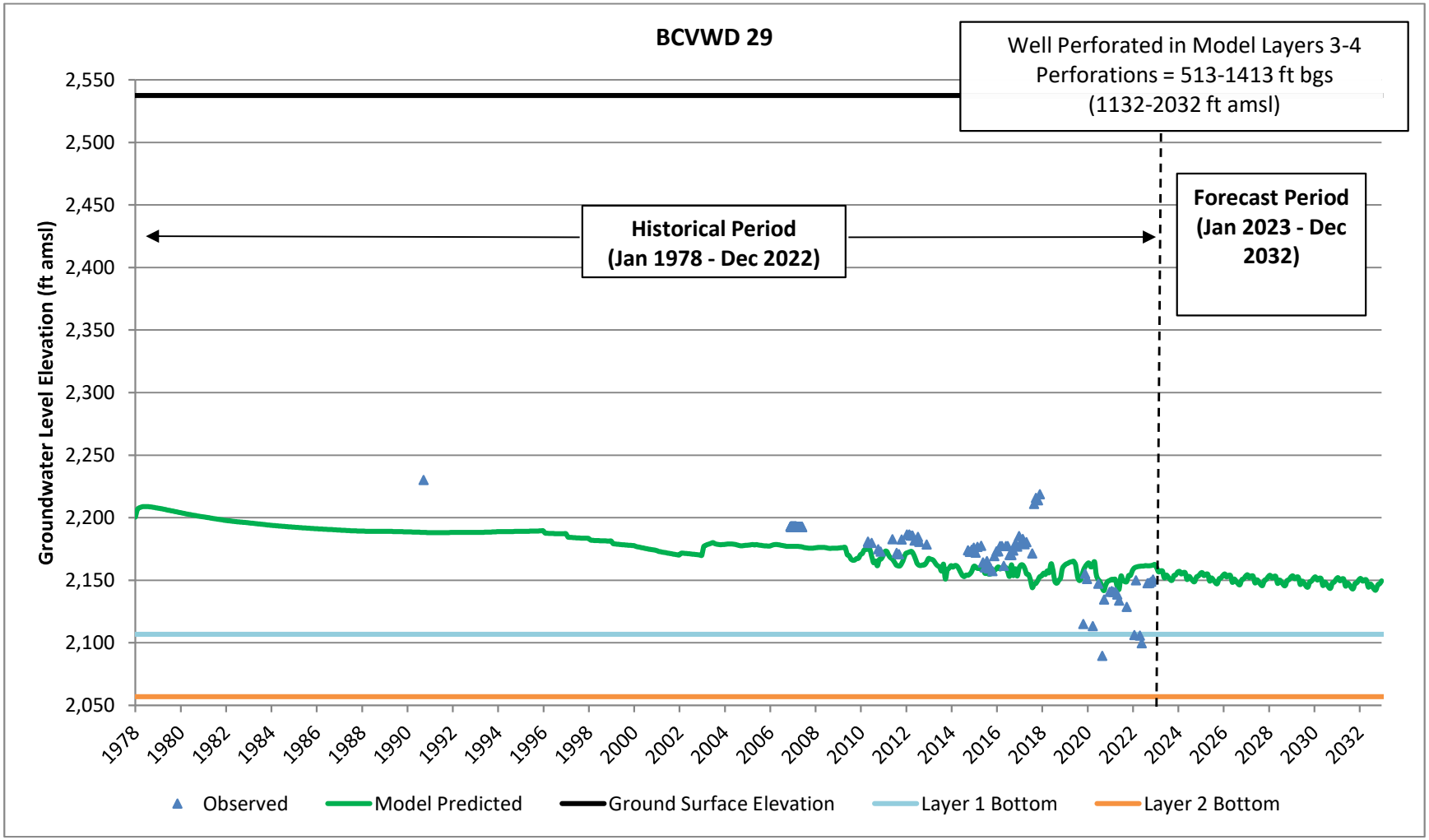

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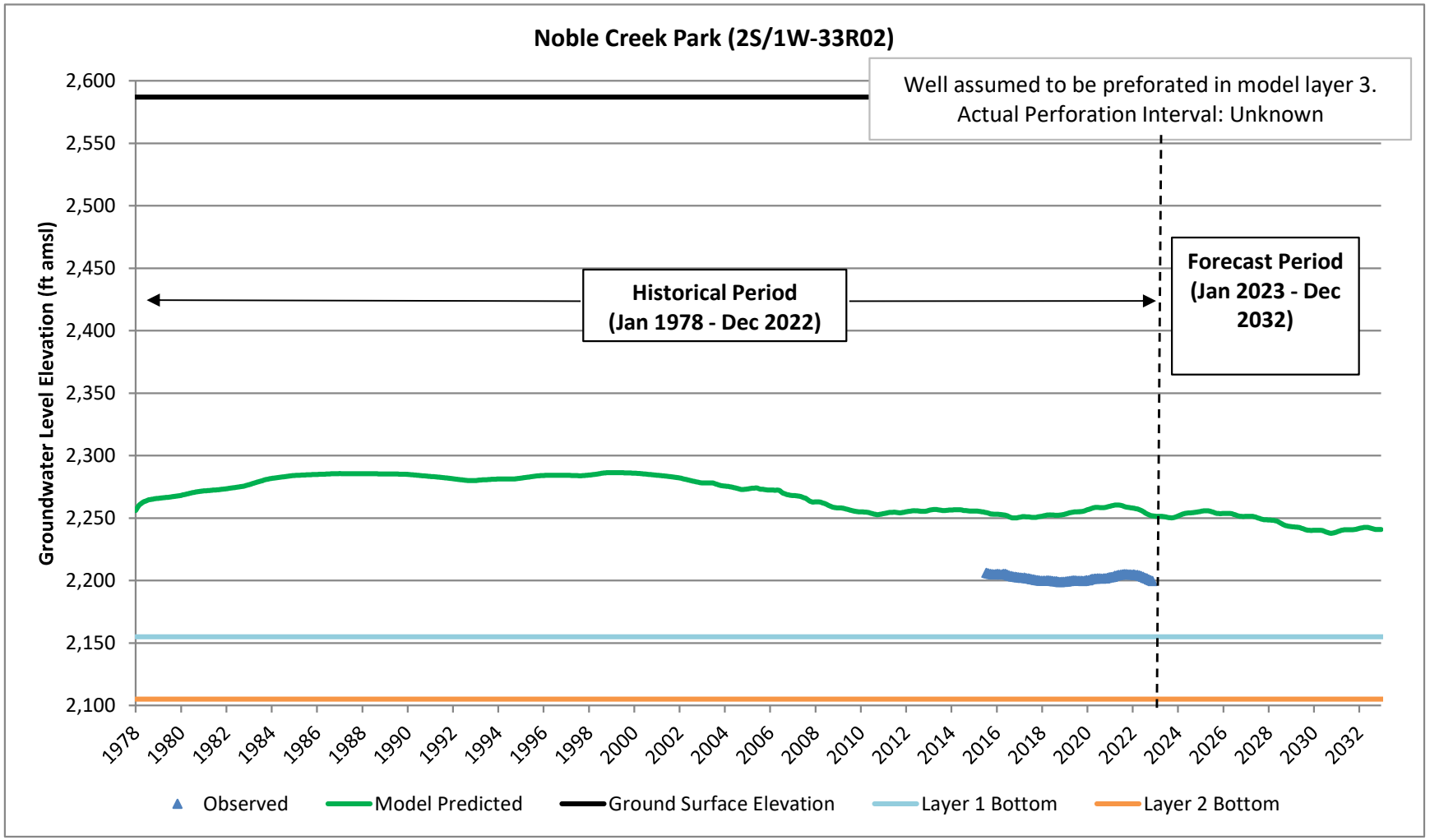

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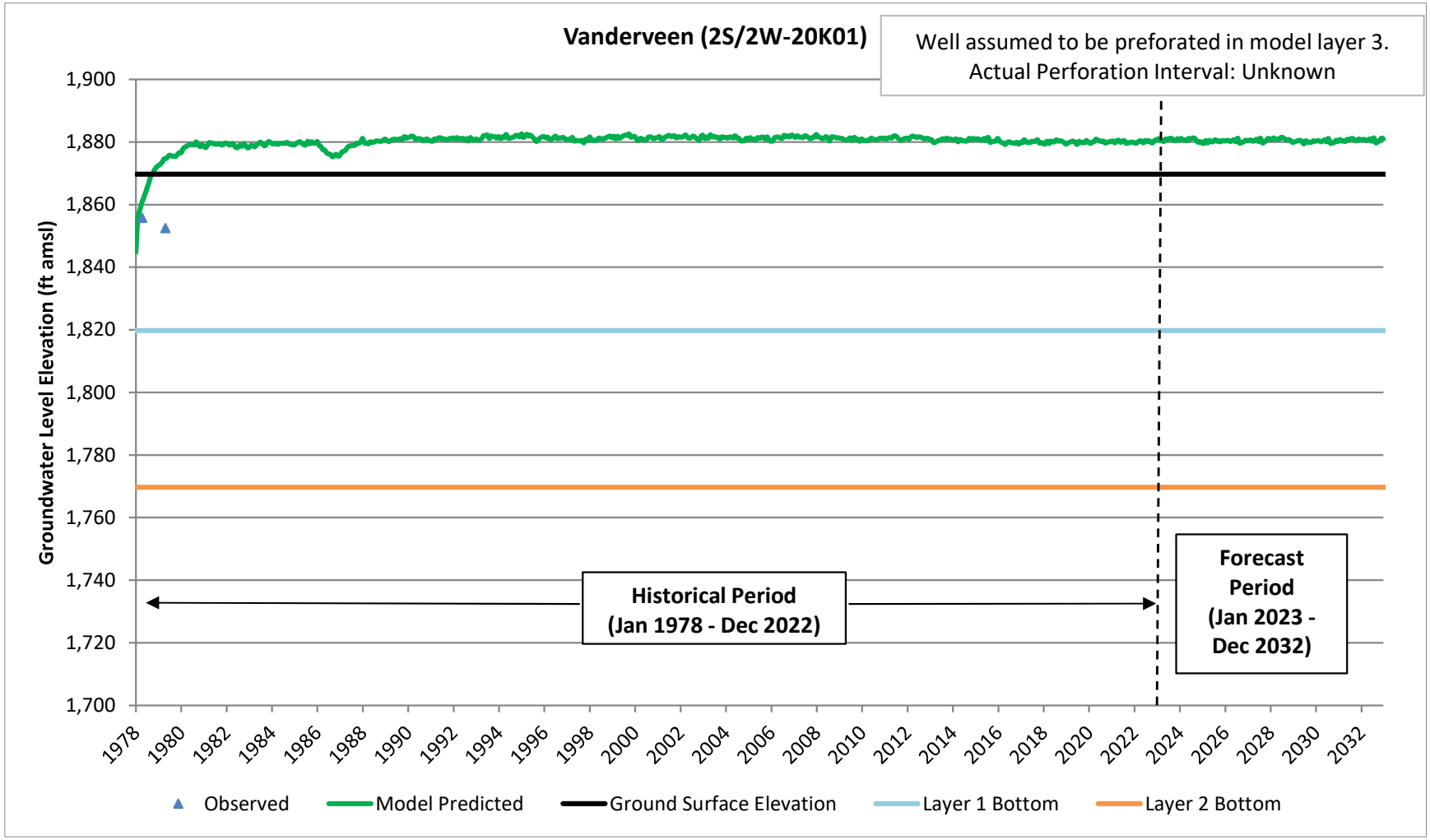

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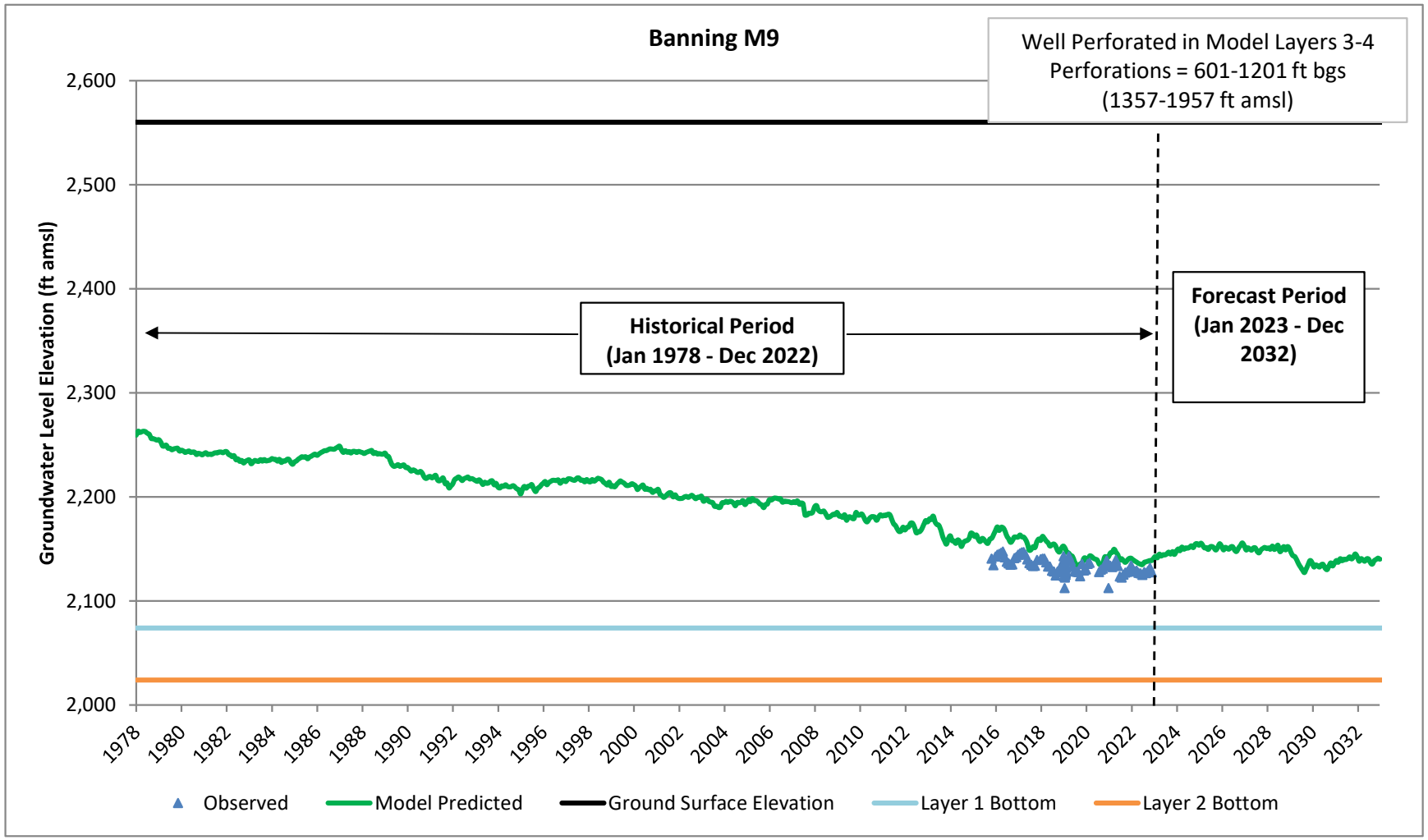

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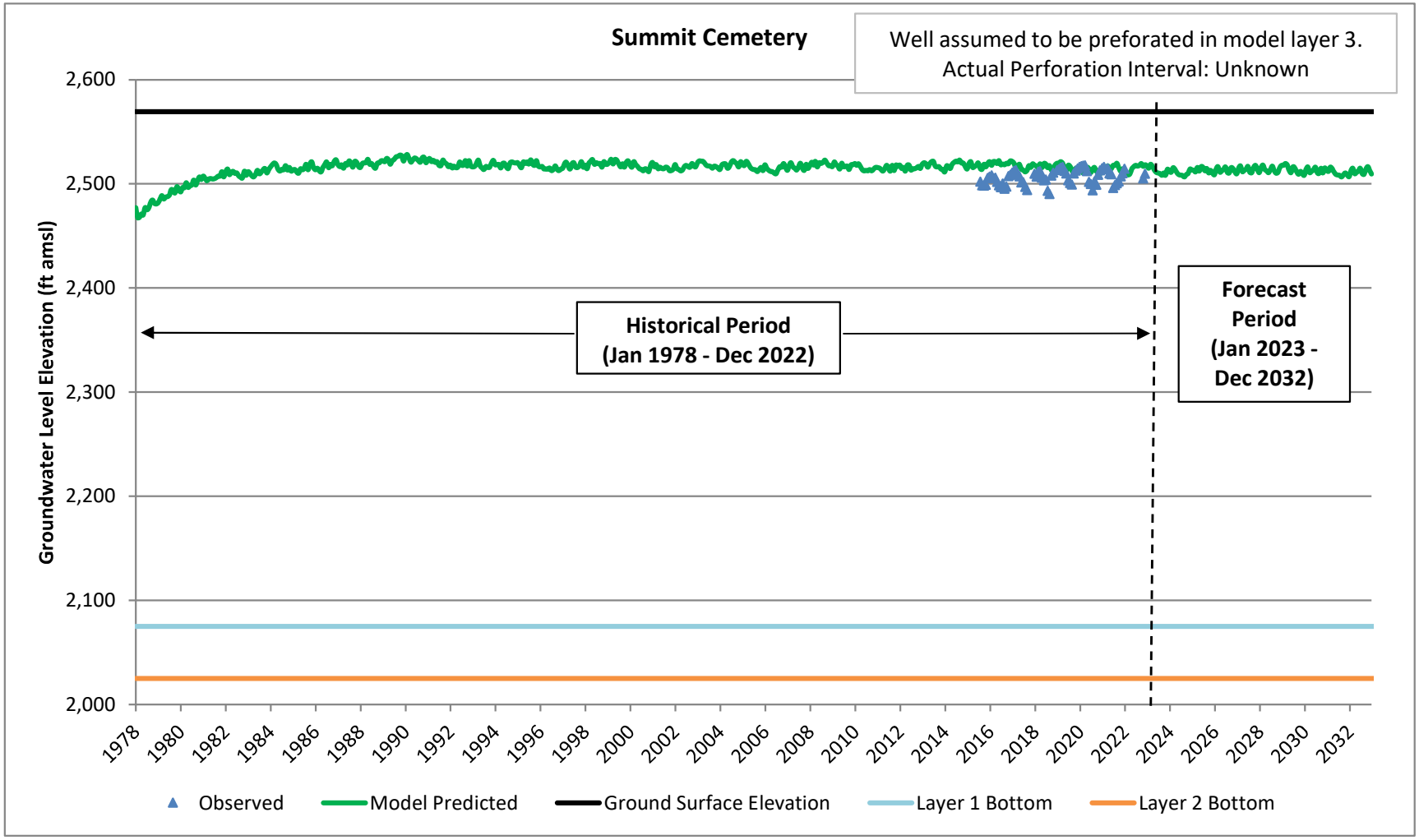

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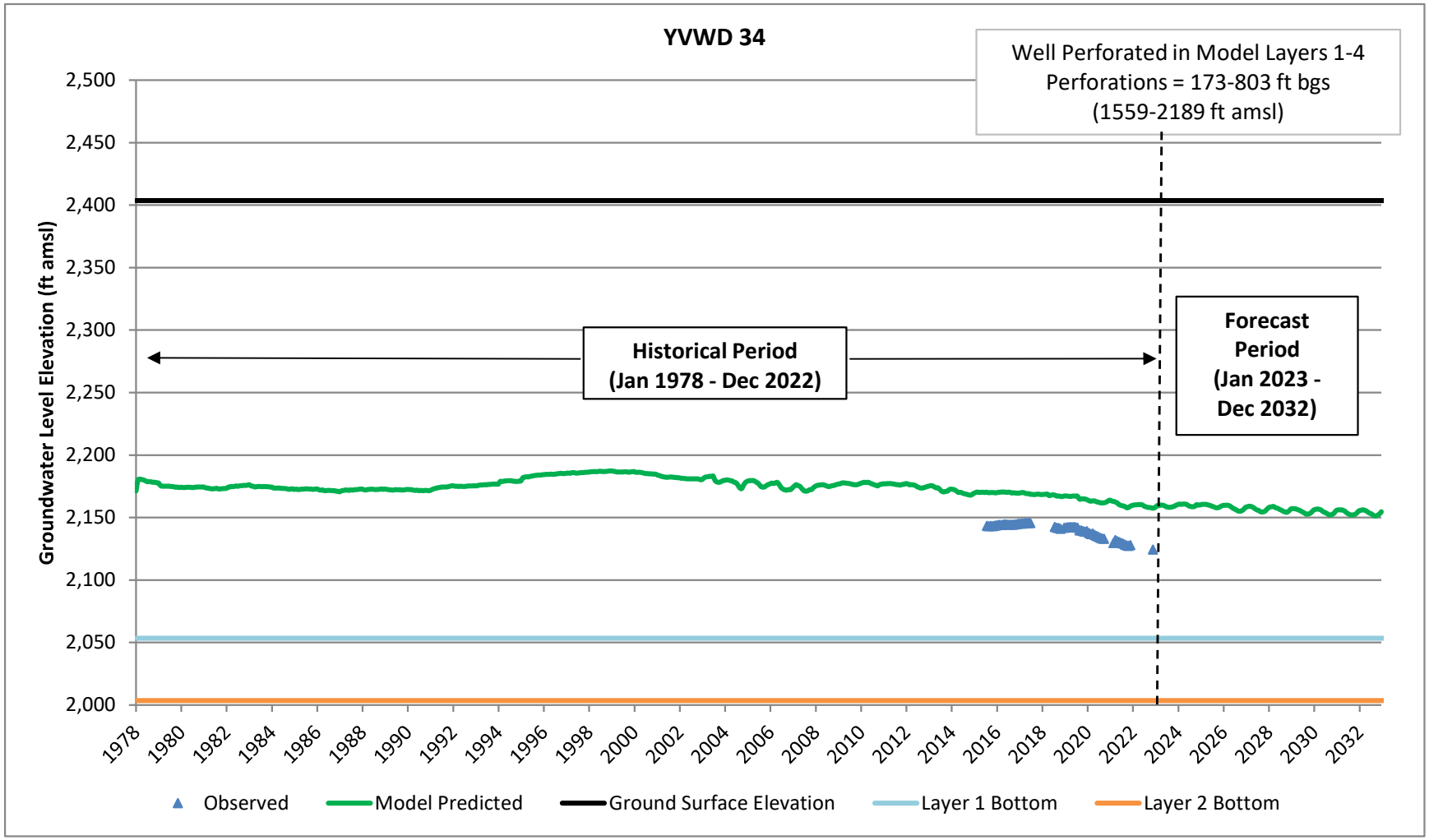

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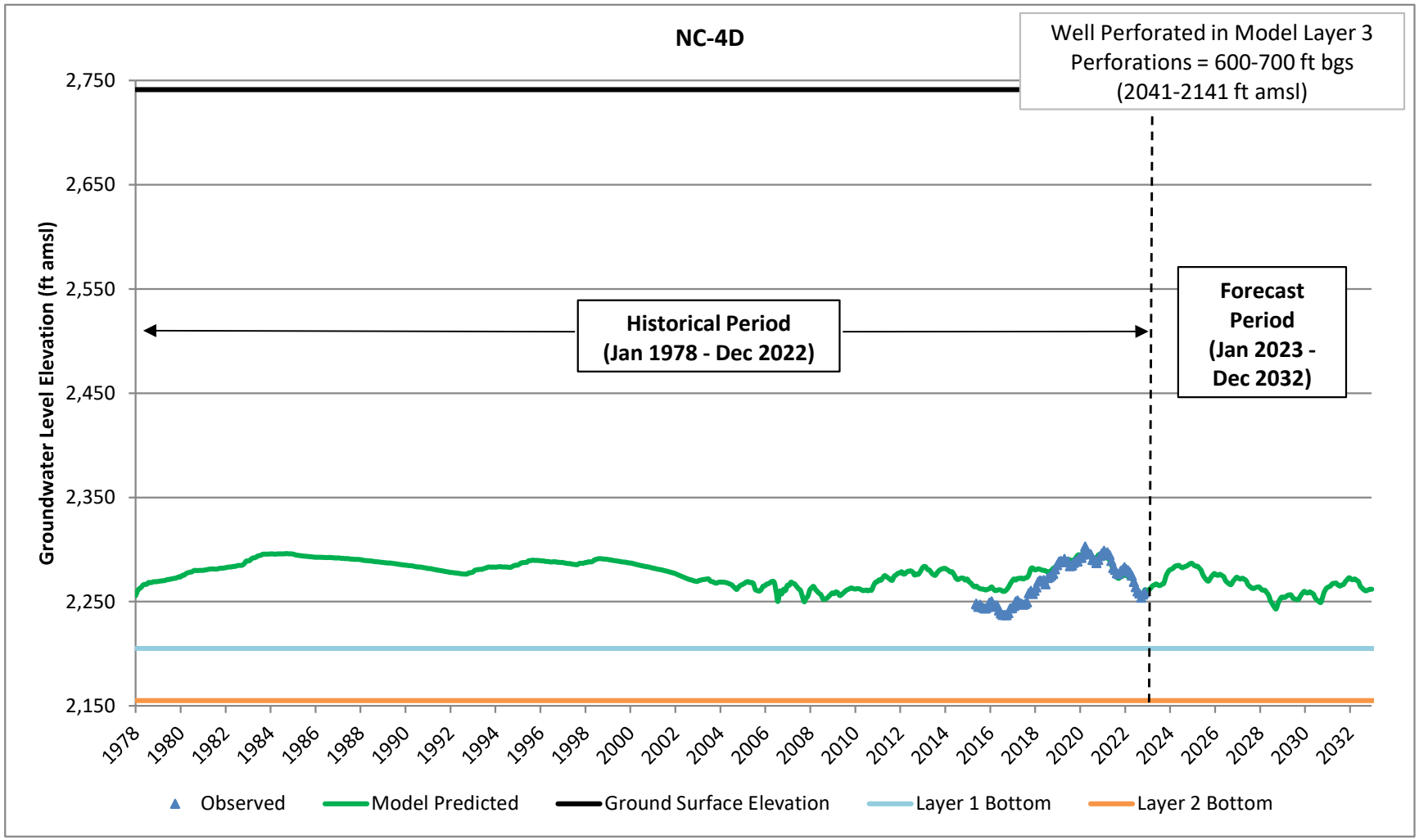

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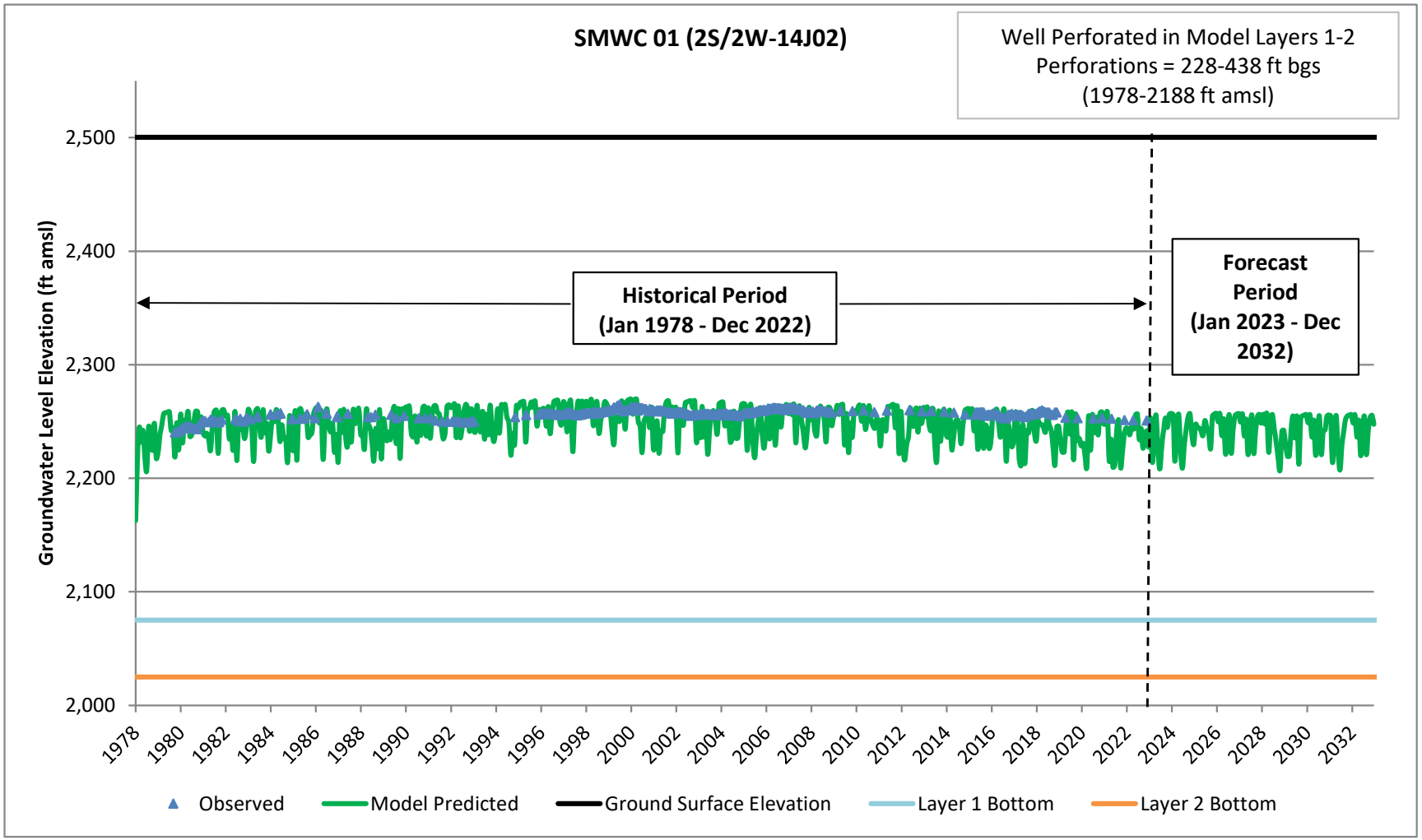

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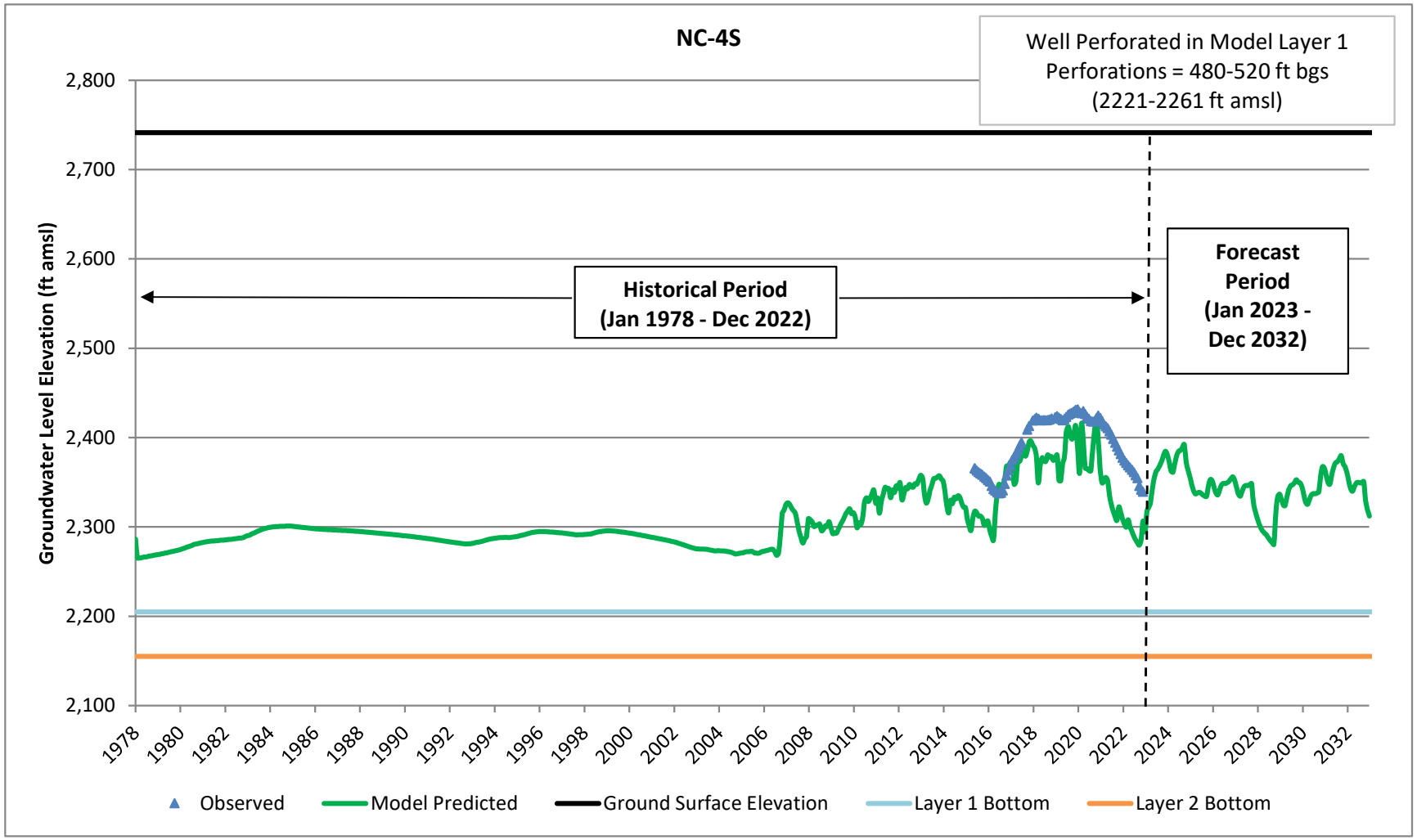

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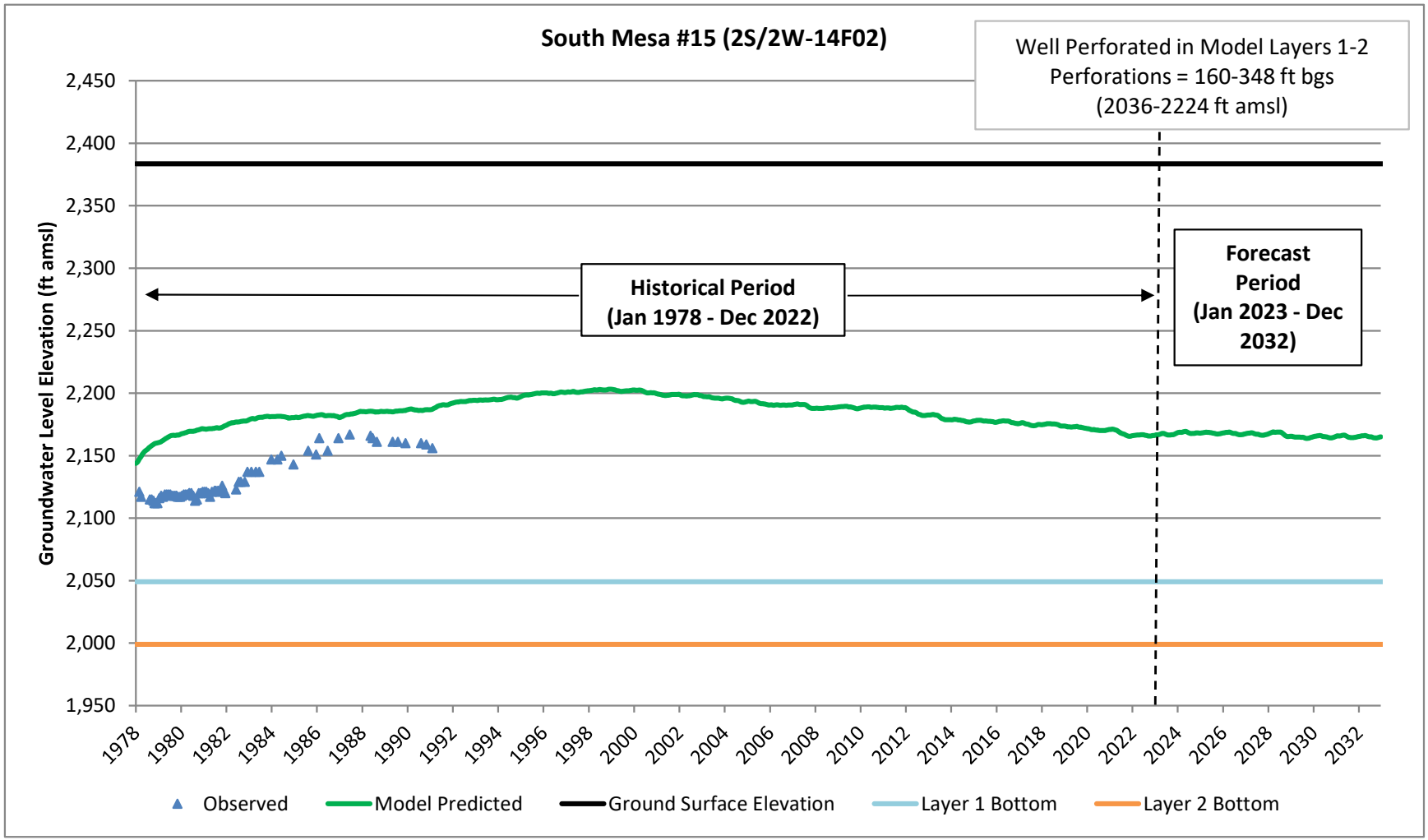

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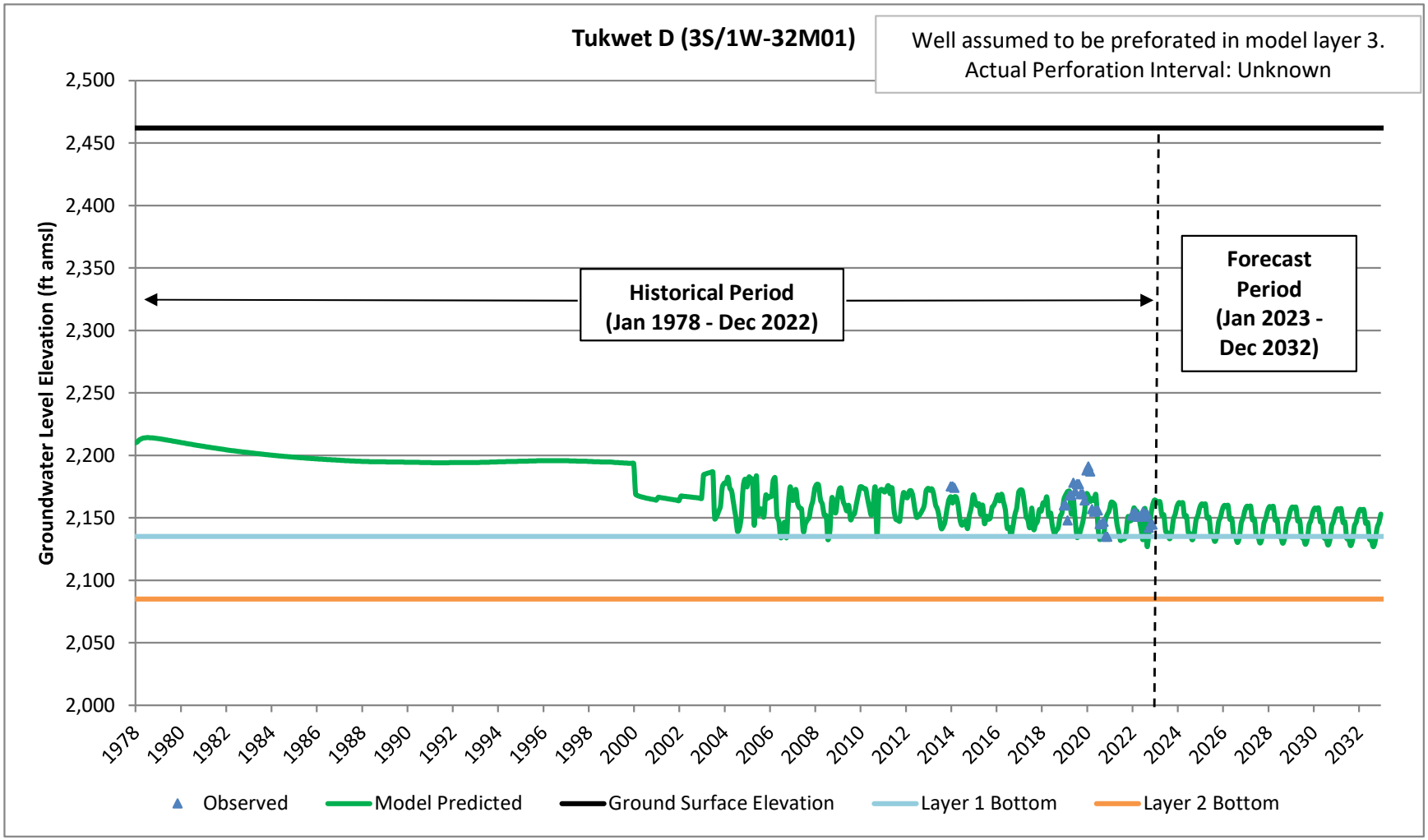

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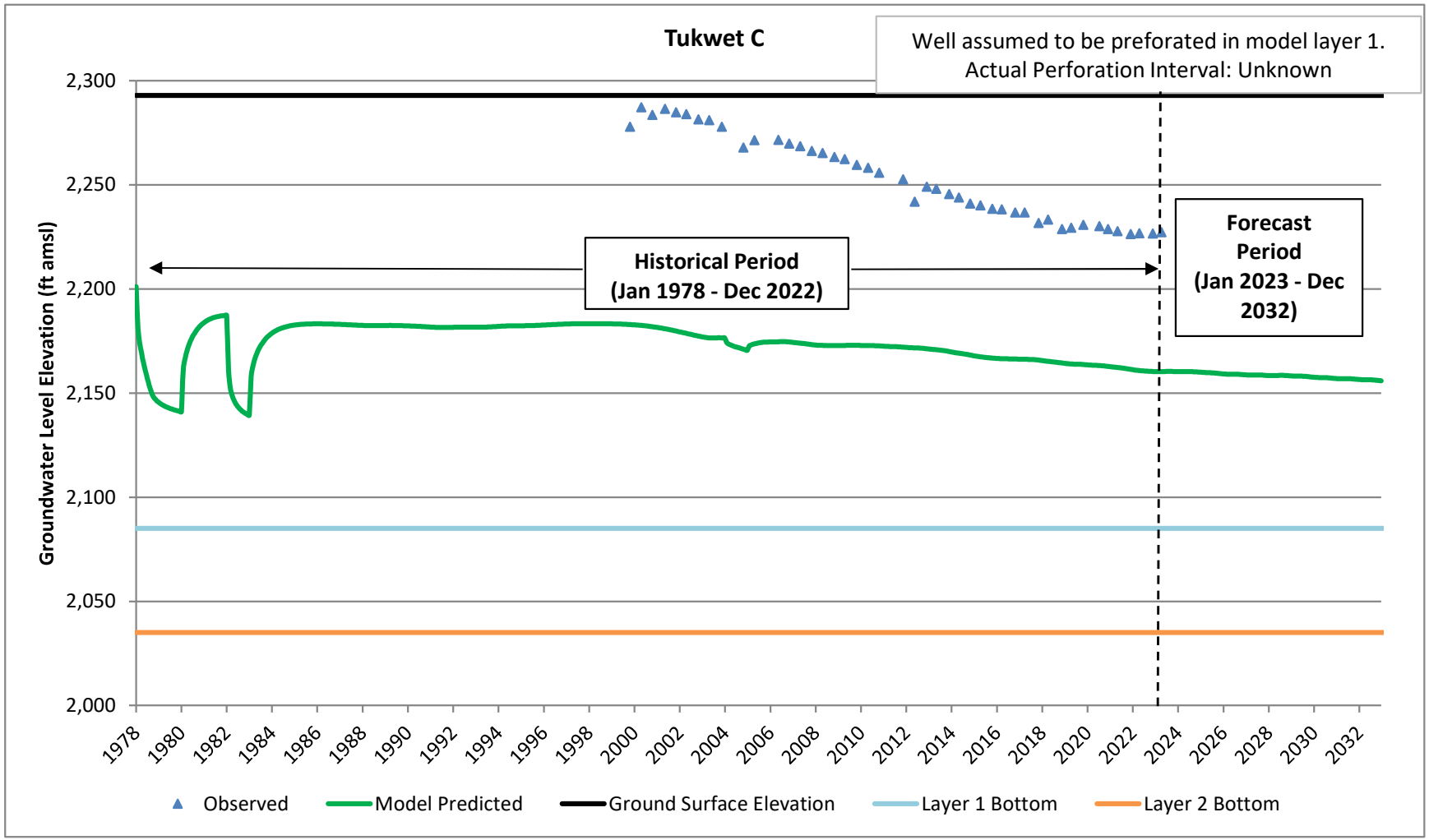

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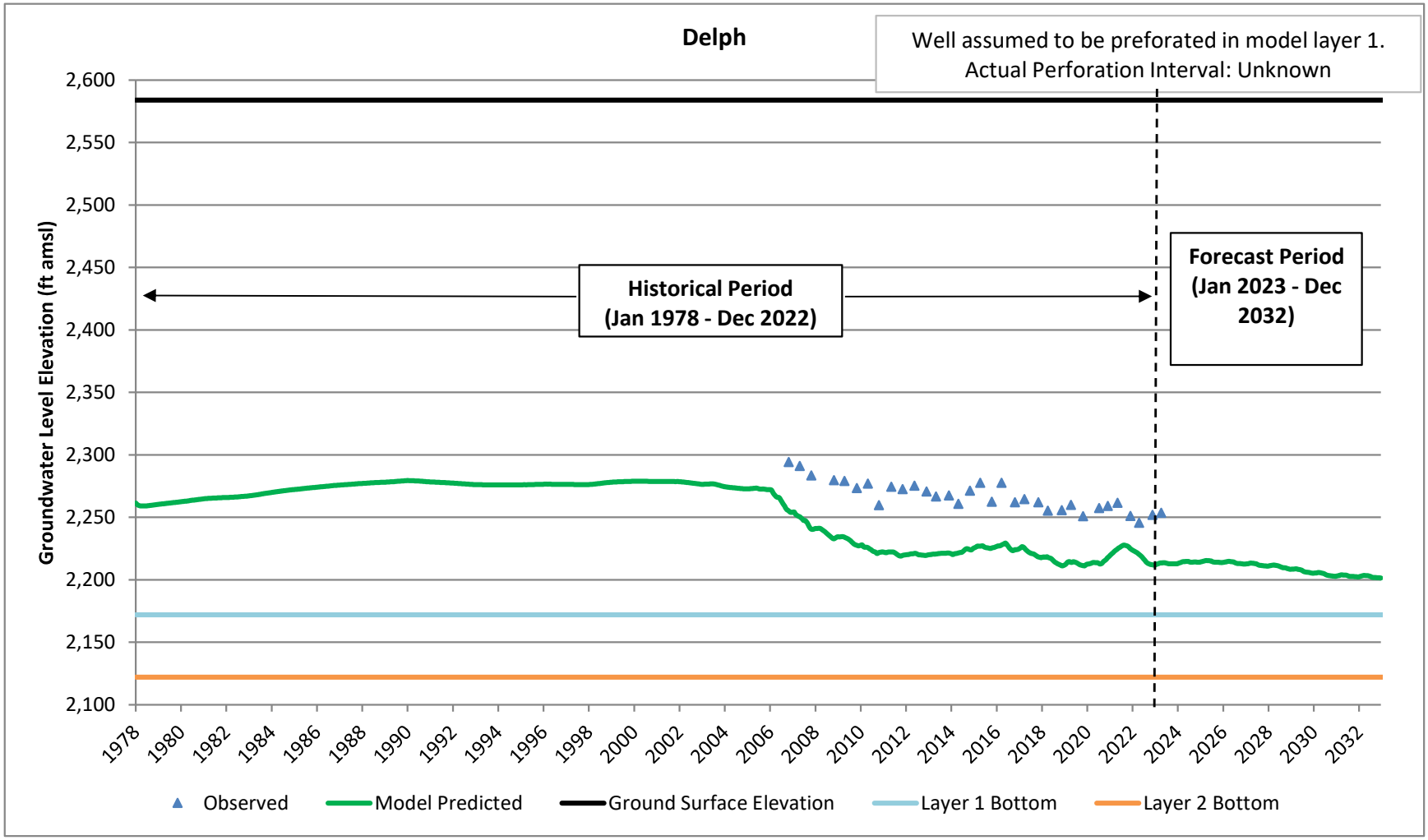

ITEM VII-D

BEAUMONT BASIN WATERMASTER

MEMORANDUM NO. 24-19

Date:	June 5, 2024
From:	Steven Stuart, Dudek
Subject:	Update on Revising the Beaumont Basin Watermaster Rules and Regulations
Recommendation:	For discussion purposes only

Dudek was tasked with reviewing the BBWM Rules and Regulations (last amended in December 2022) and has prepared a redline version with suggested edits of the revised Rules and Regulations. At this meeting, Dudek will seek clarification on the following statements in the Rules and Regulations:

1. Section 2.13 Interventions

   The last sentence of this section reads, “Interveners shall have no water rights under the Judgement (unless acquired from an Appropriator Party).”

   - The Judgment has no declaration that “Interveners shall have no water rights (unless acquired from an Appropriator Party).”
   - What is the water right that may be acquired by an Appropriator Party? Is it the Appropriative Water Right?
   - Can an Intervening Party apply for a Groundwater Storage Agreement?

2. Section 4.3 Losses or Spills from the Basin

   Last sentence reads, “Supplemental Water stored pursuant to Groundwater Storage Agreements shall be lost prior to Basin water (i.e., unused operating safe yield) held in Storage by a Party to the Judgement.”

   - Does this imply that Stored Water is the first volume of water to be removed at the southern and western boundaries of the Basin?

3. Definition of Stored Water

   “Stored Water” means Supplemental Water stored in the Beaumont Basin pursuant to a Groundwater Storage Agreement with the Watermaster.

   - Should “Stored Water” include New Yield Water?

4. Discussion on revising Watermaster Forms and potentially merging Forms 7 and 8

RULES AND REGULATIONS

OF THE

BEAUMONT BASIN WATERMASTER

Adopted: June 8, 2004
Amended: February 7, 2006
Amended: September 9, 2008
Amended: April 18, 2012
Amended: June 25, 2019
Amended: December 7, 2022

Table of Contents

SECTION **PAGE NO.**

1 GENERAL PROVISIONS

1.0 In General

In general, the Beaumont Basin Watermaster will strive to accomplish as many of its specific duties as is feasible and practical by entering into agreements with the Parties for the performance of those duties (e.g., meter installation, testing and maintenance, meter reading, water level measurement, etc.). Nothing herein shall conflict with the terms of the Judgment.

1.1 Definitions

The terms used in these Rules and Regulations shall have the same meanings as set forth in Section 1, Paragraph 3 of the Judgment, unless the context shall clearly indicate a different meaning. The following additional terms are defined for the purposes of these Rules and Regulations:

(a) "Annual or Year" means a ~~fiscal~~ calendar year, ~~July~~ January 1 through ~~June~~ December 3~~0~~1 ~~following~~, unless the context shall clearly indicate a different meaning.

(b) "Judgment" means the Amended Judgment Pursuant to Stipulation Adjudicating Groundwater Rights in the Beaumont Basin dated ~~February~~ March 4~~14~~, ~~2004~~ 2019 in the Riverside Superior Court, Case No. RIC 389197.

(c) "New Yield Water" means water derived from an increase in yield in quantities greater than historical amounts from sources of supply including, but not limited to, capture of available stream flow and rising groundwater, by means of projects constructed after February 20, 2003.

(d) "Party" or "Parties" means any Person(s) named in the Judgement, or who has intervened, or has become subject to the Judgement either through stipulation, trial or otherwise.

~~(b)~~(e) "Producer" or "Pumper" means any Person who extracts groundwater from the Beaumont Basin.

(f) "Salt Credits" means an assignable credit that may be granted by the Regional Water Quality Control Board and computed by the Watermaster from activities that result from the removal of salt from the Basin, or that result in a decrease in the amount of salt entering the Basin. Salt Credits may be used by Appropriators to facilitate implementation of the Integrated Regional Water Management Program for the San Timoteo Watershed (Wildermuth, 2005) ~~Beaumont Basin Water Resources Management Plan~~ and as an offset against potential impacts associated with discrete projects. This does not preclude development of Salt credits by Appropriators implementing projects through agreements with their users.

(g) "Storage Account" represents a record of the amount of water stored in the Beaumont Basin and available for recapture by an Appropriator or Party subject to a Groundwater Storage Agreement. A Storage Account is assessed annually and includes water gained as a share of an Appropriator's Operating Yield, water acquired by transfer, New Yield, and Supplemental Water minus the amount of water pumped from the Beaumont Basin

(h) "Storage Party" represents the Party that entered into an executed Groundwater Storage Agreement with the Watermaster. A Storage Party has acquired permission from the Watermaster to store a limited amount of Stored Water in the Beaumont Basin and may recapture the same Stored Water for reasonable beneficial use while not adversely impacting the beneficial uses of other Producers in the Basin.

(i) "Stored Water" means Supplemental Water stored in the Beaumont Basin pursuant to a Groundwater Storage Agreement with the Watermaster.

~~(e)~~(j) "Supplemental Water" means water imported into the Beaumont Basin from outside the Beaumont Basin including, without limitation, water diverted from creeks upstream and tributary to Beaumont Basin and water which is recycled and useable withing the Beaumont Basin.~~.~~

~~(d)~~(k) "Watermaster" and "Watermaster Committee" means the 5-member committee of the Beaumont Basin Watermaster composed of persons nominated by the City of Banning, the City of Beaumont, the Beaumont-Cherry Valley Water District, the South Mesa Mutual Water Company and the Yucaipa Valley Water District, each of whom shall have the right to nominate one representative who shall be an employee of or consultant to the nominating agency.

2 ADMINISTRATION

2.0 Principal Office

The principal office of the Watermaster shall be:

Office of the Watermaster Secretary
c/o Beaumont-Cherry Valley Water District
560 Magnolia Avenue
Beaumont, CA 92223

or at such other location as may be designed from time-to-time by the Watermaster by resolution.

2.1 Records

All records of the Watermaster shall be available for public inspection pursuant to the California Public Records Act, except as otherwise provided by law. Paper ~~C~~copies of such records may be obtained upon payment of the cost of duplication. Digital copies of the Judgement, Resolutions adopted by the Watermaster, these Rules and Regulations, annual Watermaster reports, 10-year Redeterminations of the Safe Yield of the Beaumont Basin, and other documents may be accessed at the Beaumont Basin Watermaster website located at https://beaumontbasinwatermaster.org.

2.2 Meetings of the Watermaster

The Watermaster shall conduct regular meetings on the first Wednesday of every even numbered month. Special meetings and workshops may be called as necessary to conduct the business of the Watermaster. All meetings of the Watermaster shall be open in public and conducted in accordance with the provisions of the California Open Meeting Law (Brown Act).

2.3 Quorum

A majority of the 5-member committee acting as the Watermaster shall constitute a quorum for the transaction of business.

2.4 Voting Procedures

Only action by affirmative vote of a majority of the members of the Watermaster Committee shall be effective.

2.5 Employment of Experts and Agents

The Watermaster may employ or retain such administrative, engineering, geologic, hydrogeologic, accounting, legal or other specialized personnel and professional consultants as it may deem appropriate.

2.6 Acquisition of Facilities

The Watermaster may purchase, lease and acquire all necessary real and personal property, including facilities and equipment.

2.7 Investment of Funds

The Watermaster may hold and invest all Watermaster funds in investments authorized from time-to-time for public agencies of the State of California, pursuant to a Statement of Investment Policy adopted by the Watermaster Committee on March 9, 2004 as documented in Watermaster Resolution 2004-01.

2.8 Borrowing

The Watermaster may borrow, from time-to-time, amounts not exceeding annual receipts (payments on funds borrowed to implement Watermaster projects and programs must be included in Watermaster assessments such that they are part of Watermaster's annual receipts).

2.9 Contracts

The Watermaster may enter into contracts and agreements for the performance of any of its powers, and may act jointly or cooperate with agencies of the United States, the State of California, or any political subdivisions, municipalities, special districts or any person.

2.10 Budgets

The Watermaster shall prepare a proposed annual administrative budget for the upcoming fiscal year (July 1 – June 30 of subsequent year) for Watermaster review. The Watermaster shall hold a public hearing on each such budget prior to adoption. Budgets shall be prepared in sufficient detail so as to make a proper allocation of the expenses and receipts. The adopted budget shall be funded in the upcoming fiscal year through assessments made pursuant to the Judgment. Expenditures within budgeted items may thereafter be made by the Watermaster as a matter of course (Judgment p.~~22~~15, lines 25~~3~~-27~~5~~ and p. 16, lines 1-2).

2.11 Assessments

Pursuant to the Judgment, Watermaster is empowered to levy and collect the following assessments:

(a) Annual Replenishment Assessments. The Watermaster shall levy and collect assessments in each year, in amounts sufficient to purchase replenishment water to replace Overproduction by any Party from the prior ~~fiscal~~ calendar year. Replenishment assessments shall be collected not later than ~~October~~ April 1 of ~~each~~ the subsequent year. Under no circumstances shall Overlying Parties be required to pay assessments for pumping in an amount up to that set forth in column 4 of Exhibit B of the Judgment, subject to Section III of the Judgment.

(b) Annual Administrative Assessments. Annually, not later than the June meeting of the Watermaster, a General Administrative Budget shall be adopted for the ensuing fiscal year for the purpose of funding General Administration Watermaster Expenses. The General Watermaster Administration Expenses shall include office rent, labor, supplies, office equipment, incidental expenses and general overhead. General Watermaster Administration Expenses will be assessed equally among the Appropriators who have appointed representatives to the Watermaster (Judgment, p. ~~19~~12, lines ~~21~~9-~~27~~17).

(c) Special Project Assessments. Special Project Assessments will be levied to cover special project expenses including: special engineering, economic or other studies, litigation expenses, meter testing or other major operating expenses. Each such project shall be assigned a task order number and shall be separately budgeted and accounted for. Special Project Expenses shall be allocated to the Appropriators, or portion thereof, on the basis of benefit. This may be accomplished through the identification and implementation of Special Project Committees. A Specific Project Committee may involve a specific Party or any group of Parties, provided that no Party shall be involved without its approval (Judgment, p. ~~20~~14, lines 14-19). Special Project Assessments shall be invoiced upon approval of a budget and a scope of work for a Special Project by Project Committee.

(d) Supplemental Assessments. Supplemental Assessments may be levied based on incurring unbudgeted or unforeseen expenses as approved by Watermaster. Examples include Special Project expenses for litigation in which Watermaster has taken action to participate. All Supplemental Assessments shall reference the Watermaster action authorizing same and be invoiced within one ~~week~~ month of the Watermaster action.

(e) Assessment Procedure. Assessments shall be levied and collected as follows:

i. Notice of Assessment. The Watermaster shall give written notice of all applicable assessments to each producer in the form of an invoice.

ii. Payment. Each assessment shall be payable on or before thirty (30) days after the date of invoice, and shall be the primary obligation of the party or successor owning the water production facility at the time written notice of assessment is given, even though prior arrangement for payment by others has been made in writing and filed with the Watermaster.

iii. Delinquency. Any delinquent assessment shall incur a late charge of 10% per annum (or such greater rate as shall equal the average current cost of borrowed funds to the Watermaster) from the due date thereof.

iv. Assessment Adjustments. The Watermaster shall make assessment adjustments as necessary for the reporting period as either a credit or a debit in the next occurring assessment period unless otherwise reasonably decided by the Watermaster.

v. Collection of Delinquent Assessments. The Watermaster may bring suit in a Court having jurisdiction against any Producer for the collection of any delinquent assessments and interest thereon. The Court, in addition to any delinquent assessments, may award interest and reasonable costs including attorneys' fees.

(f) Salt Credits. Watermaster may establish a method of calculating salt credits in the future as part of a conjunctive use program or as part of the maximum benefit objectives demonstration program for discrete projects.

2.12 Annual Report

A draft annual report shall be prepared by May and final report shall be prepared by July of each year (Watermaster Resolution 2011-01). At a minimum, the annual report will describe Watermaster's operations, assessments and expenditures, and a review of Watermaster activities. The annual report shall also include a summary ~~report~~ describing and updating the state of the groundwater basin, including the status of monitoring, storage, water quality, ~~any basin condition information collected or analyzed~~ and a current active party list.

~~2.13 Basin Condition Report~~

~~The Watermaster shall prepare, at least once every two years, a "state of the groundwater basin" report including an update on the status of monitoring, storage and water quality.~~

~~2.14~~2.13 Interventions

Any Person who is neither a Party to the Judgment nor a successor or assignee of a Party to the Judgment may seek to become a party to the Judgment by filing a petition in intervention with the Court. Watermaster will ~~provide a standard form for interventions should the need arise, and will~~ report on any such interventions in its annual report. Interveners shall have no water rights under the Judgment (unless acquired from an Appropriator Party).

~~2.15~~2.14 Notice and Waiver of Notice

Pursuant to the Judgment, each Party shall designate, in writing, the name and address to be used for purposes of all subsequent notices and services under the Judgment. Such designation may be changed by filing a written notice with the Watermaster. Any Party desiring to be relieved of receiving notices of Watermaster activity may file a waiver of notice on a form to be provided by the Watermaster. Watermaster staff shall maintain, at all times, a current list of Parties to whom notices are to be sent and their addresses for the purposes of service as well as a current list of the names and addresses of all parties or their successors and assigns. Copies of such lists shall be available to any Person.

~~2.16~~2.15 Watermaster Alternates

To ensure consistency in the administration of the affairs of the Watermaster, the members of the Watermaster Committee will endeavor to attend all meetings of the Watermaster. However, from time-to-time the press of business may prevent such regular attendance. Therefore, the members of the Watermaster agencies may appoint an alternate member to the Watermaster Committee who, in the absence of the regular member, shall, if present, participate in a meeting of the Watermaster the same as if the alternate member were a regular member of the Watermaster Committee. Each alternate member must hold a senior management position within the organization of the appointing Watermaster member agency.

3 MONITORING

3.0 Scope

The Watermaster will carry out the monitoring activities described in this section of the Rules & Regulations ~~the Beaumont Basin Management Plan~~ and such policies and procedures as may be deemed necessary by the Watermaster. Any such policies and procedures shall be adopted at regular or special meetings of the Watermaster and reported in the Watermaster's annual report.

3.1 Measuring Devices

Groundwater production shall be monitored by measuring devices and/or meters (hereinafter collectively, "meter" or "meters"), as follows:

(a) Meter Installation. Except as otherwise provided by agreement, such necessary meters as Watermaster may deem appropriate shall be installed as follows:

i. New Wells:

1. Appropriator Wells. A meter shall be installed on each new Appropriator well by the Appropriator and at the Appropriator's expense concurrently with the installation of the pump.

2. Overlyer Wells. A meter shall be installed on each new Overlyer well by the Watermaster and at the Watermaster's expense concurrently with the installation of the pump.

ii. Existing Wells. Meters shall be installed on existing wells as soon as practicable by the Watermaster at the Watermaster's expense.

(b) Meter Maintenance. The Watermaster shall, at its expense, perform routine maintenance on all well meters in the Beaumont Basin.

(c) Inspection, Testing, Repair and Retesting. Meters shall be inspected and tested as deemed necessary by the Watermaster and the cost thereof borne by the Watermaster. The Watermaster may contract for a meter testing service or with an Appropriator for meter inspection and/or testing. Any Producer may request an evaluation of any or all of its water meters at any time; provided, however, the Watermaster shall only pay for tests initiated by the Watermaster. Meter repair and retesting will be a Producer expense (Judgment, p~~p~~. ~~18-19~~13, lines ~~28-~~22 – ~~7~~26).

3.2 Reporting By Producers

Each Producer producing in excess of 10 acre-feet per year shall file with the Watermaster on forms provided therefore, a monthly report of its total water production during the preceding calendar month, together with such additional information as the Watermaster may reasonably require (including power

use records, if unmetered). The report shall be due on the fifteenth (15th) day of the month next succeeding the end of each respective month. Appropriators shall report groundwater levels and Overlying Owner production along with such additional information as may be necessary to complete the Watermaster monitoring program through Agreements with the Watermaster. Producers producing 10 acre-feet or less per year shall file an annual report of their total water production during the preceding fiscal year by the 15th of July of each year on forms provided therefore.

3.3 Groundwater Level Measuring and Reporting Procedures

The watermaster will carry out all groundwater measuring activities in accordance with the procedures identified hereafter and in accordance with the Groundwater Elevation Monitoring Guidelines issued by the California Department of Water Resources (DWR, 2010) for the California Statewide Groundwater Elevation Monitoring (CASGEM) program and the Monitoring Protocols, Standards, and Sites Best Management Practices issued by DWR to assist in the development of monitoring protocols for Groundwater Sustainability Plans (DWR, 2016).

To the extent possible, groundwater level monitoring events shall be coordinated so that measurements are taken in the late spring and late fall to record the annual highs and lows, respectively, in groundwater levels in the Beaumont Basin.

3.3.1 Communication and Planning

The Beaumont Basin Watermaster and representatives of the Watermaster will conduct the following procedures to coordinate the collection of water level data with all stakeholders owning a well that is part of the Beaumont Basin groundwater monitoring network:

1) Notification of the intent of the Watermaster to access the respective party's well to collect a water level measurement will be provided via email, text message, or phone call two weeks, at a minimum, before the data collection event.

2) Verification of receipt of the notification and authorization by the well owner granting access to the well shall be obtained by the Watermaster and Watermaster representative via email, text message or phone call at least three days prior to accessing the well.

    a) The Watermaster and/or Watermaster representative will follow up with an email, text message or phone call should the well owner not respond within three days of the groundwater monitoring event.

    b) All forms of correspondence shall be documented (e.g., record date and time of text message delivery).

3) All efforts shall be made by the Watermaster representative to accommodate the schedule of the well owner to access the well within the two-week period set for the groundwater monitoring event,

and to provide the well owner the opportunity to observe the collection of data at their respective well.

4) Digital and hard copies of the groundwater level measuring and reporting procedures shall be made available at the well owner's request at the time of data collection.

5) Arrangements, to the extent possible, shall be made with the well owner to collect a static water level measurement per Section 3.3.4 ~~(d)(c)~~. This may include requesting that the well be idle for 24 hours, at a minimum, prior to measuring the water level.

3.3.2 Monitoring Well Network

3.3.2.1 Existing Wells

The monitoring well network used by the Watermaster for purposes of characterizing groundwater conditions in the Beaumont Basin shall include all accessible production and monitoring wells owned by the Appropriators, Overlying Parties, and other stakeholders. The following highlight the minimum requirements for existing wells to be included in the Beaumont Basin monitoring well network:

1) Wells in the monitoring network shall be screened in the unconsolidated Quaternary alluvium and upper portion of the San Timoteo Formation, together comprising the water-bearing aquifer of the Beaumont Basin.

2) Groundwater level measurements shall be taken from a clearly marked and permanent reference point on the top of a sounding tube, well casing, or other permanent feature.

3) Reference points shall be surveyed by a California licensed surveyor. The survey shall include the following details:

   a) Well locations (center point of well casing) shall be referenced to the North American Datum of 1983 (NAD83) and reported in decimal degrees for latitude and longitude.

   b) Elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD88) with an accuracy, at a minimum, of 0.5 foot. The following features, if applicable, shall be surveyed at each well point:

      (1) Top of Well Casing or Sounding Tube (i.e., TOC)

      (2) Top of protective steel riser or monument cover

      (3) Land surface

3.3.2.2 New Wells

New wells installed in the Beaumont Basin shall be equipped with dedicated sounding tubes (if a production well) or have open casing to facilitate the use of a water level metering device to measure

groundwater elevations. The new well shall be constructed to accommodate the installation of a 7/8-inch diameter dedicated pressure transducer. The following highlight the minimum requirements for new wells to be included in the Beaumont Basin monitoring well network:

1) Well construction details and survey results by a licensed surveyor shall be shared with the Beaumont Basin Watermaster and included in the well network database for the Beaumont Basin.

2) New wells that are screened fully or partially in the unconsolidated Quaternary alluvium and upper portion of the San Timoteo Formation, together comprising the water-bearing aquifer of the Beaumont Basin, will be included in the monitoring well network for the Beaumont Basin.

3) Groundwater level measurements shall be taken from a clearly marked and permanent reference point on the top of a sounding tube, well casing, or other permanent feature.

4) Reference points shall be surveyed by a California licensed surveyor. The survey shall include the following details:

    a) Well locations (center point of well casing) shall be referenced to the North American Datum of 1983 (NAD83) and reported in decimal degrees for latitude and longitude.

    b) Elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD88) with an accuracy, at a minimum, of 0.5 foot. The following features, if applicable, shall be surveyed at each well point:

        i) Top of Well Casing or Sounding Tube (i.e., TOC)

        ii) Top of protective steel riser or monument cover

        iii) Land surface

3.3.3 Groundwater Water Level Measuring Devices

3.3.3.1 Electric Water Level Sounder

Where possible, groundwater levels shall be manually measured with an electric water level sounder calibrated to the nearest 0.01 ft. All equipment must be in good working condition. No damaged or refurbished electric sounding tape should be used, unless specifically approved by the Watermaster.

3.3.3.2 Dedicated Pressure Transducers

Dedicated pressure transducers shall be installed in monitoring and production wells identified as key wells for administration of the Judgement. The pressure transducers shall be installed below the groundwater level and pressure-rated for the range of anticipated groundwater level fluctuations due to seasonal fluctuations and/or groundwater production.

Dedicated pressure transducers shall be equipped with a datalogger that is programmable to measure and record water levels at a desired frequency. Each dedicated pressure transducer shall measure absolute pressure in units of pounds per square inch (psia) and/or feet of water. The Watermaster shall use separate pressure transducers dedicated to measure barometric pressure in units of psia and/or feet of water to provide a general characterization of barometric pressure in the Beaumont Basin.

3.3.4 Manual Groundwater Level Measurements

The following procedures shall be used to measure and record manual groundwater level measurements in the field.

3.3.4.1 Water Level Form

1) Upon arrival at each well site, the field technician shall note the following information on a standardized Water Level Field Form (see Appendix A):

    a) Name of well owner

    b) Well Identifier (e.g. well owner name, State Well ID)

    c) Date (mm/dd/yyyy) and time (24 hr) of measurement

    d) Climate conditions (e.g., sunny, light breeze, air temp is 80 °F, etc.)

    e) Type of well (e.g., municipal, monitoring, agricultural, etc.)

    f) Status of water level and/or well: Static, Recovering (i.e., rising), Pumping, Artesian (i.e., flowing), Falling.

    g) Time since pumping stopped (i.e., idle time) if well was previously active.

    h) Method of water level measurement (e.g., electric water level sounder, airline, sonic, dedicated pressure transducer)

    i) Field technician and/or representative measuring the water level

    j) Any additional comment

2) Use one Water Level Field Form for each well. If possible, the same field form should be used at each well during each monitoring event.

3.3.4.2 Water Level Status

Where possible, groundwater level measurements must be representative of static (i.e. non-pumping) groundwater level conditions. To ensure measurements of static groundwater levels in active pumping

wells, the field technician collecting the data shall coordinate, verify, and/or confirm that the pump has been off for at least 24 hours prior to collecting the data (wherever possible).

3.3.4.3 Decontamination

All water level measuring equipment shall be cleaned prior to lowering it into the well(s) using the following decontamination procedure:

a) Wash equipment with an Alconox solution which is followed by a deionized water rinse.

b) Triple rinse equipment with deionized water.

3.3.4.4 Electric water level sounder

3.3.4.4.1 Before making a measurement

1) Inspect the sounding tape for wear, kinks, frayed electrical connections, and possible stretch. Make a notation in the Water Level Field Form documenting any wear or other issues that possibly affect measurements with the electric water level sounder.

2) Test that the battery and replacement batteries are fully charged.

3) Test the circuit by dipping the probe into tap water and observe whether the sounder indicator turns on and/or makes a sound to indicate the circuit is closed when in contact with water.

3.3.4.4.2 Making the Measurement

1) Lower the electrode probe slowly into the designated sounding port for production wells and into the main well for monitoring wells. Lower the probe until the circuit is closed and contact with the water surface in the well is made.

2) Measure the depth-to-water (DTW) by placing the sounder tape next to the dedicated and clearly marked reference point on the top of the sounding tube or well casing. Measure the DTW to the nearest 0.01-foot. The DTW shall be recorded as feet below reference point (or ft brp).

3) Lift the probe slowly a few feet and make second measurement by repeating the step above. If the 2nd measurement is more than 0.02 feet different from the first measurement, collect and record a third measurement. If more than two measurements are taken, record the average of all reasonable readings.

4) If the groundwater level is not static, stay at the well long enough (if reasonable time allows) for a static groundwater level. If that wait is more than 1 hour or not possible, make ten (10) or more measurements at 1-minute minimum intervals to document the rate of groundwater level rise or fall per 5 minutes for the non-static measurements. If necessary, use additional sheets of the Water Level Field Form to document all measurements. Document possible reason for the rise or fall of the water level in the comment section.

5) All DTW measurements shall be immediately recorded on the Water Level Field Form (see Appendix A). The DTW shall be compared to previous measurements in the field and re-measured if significantly different.

    a) If the DTW measurement appears incorrect or anomalous, provide the possible reason or recommend follow-up actions so that future measurements are representative of actual conditions at the well.

3.3.4.4.3 After Making the Measurement

1) The sounder tape and electrode probe shall be wiped down during retrieval from the sounding tube or well using a clean paper towel or disinfectant wipe.

2) If oil is noticeable on the sounder tape and/or electric probe, its presence and apparent thickness, if possible, shall be noted in the Water Level Field Form. The CASGEM Guidelines note that, “oil on the surface of the water may interfere with obtaining consistent readings and could damage the electrode probe.” An alternative method may be necessary to obtain an accurate water level measurement.

3) Refer to Section 3.3.4.3 for disinfection procedures.

4) The cap to the sounding tube or well shall be replaced.

5) Where applicable, the riser shall be secured with the dedicated lock.

6) Prior to leaving the monitoring well site, the field representative shall note any physical changes in the concrete well pad and riser pipe, such as erosion, cracks, or damage. All changes shall be recorded on the Water Level Field Form.

7) Whenever possible, an electric water level sounder should be used to measure the DTW in a well. The use of an airline or sonic water level meter should only be used when well conditions do not allow for electric water level sounder measurements.

3.3.4.5 Airline Measurements

Airline measurements are an acceptable alternative to measuring DTW in a well in the following cases:

1) There is no access port or sounding tube available to allow access of an electric water level sounder to measure the DTW.

2) No dedicated pressure transducer has been installed and calibrated to measure and record water levels

3) At the time of installation, the DTW measured by the airline was calibrated to a water level measured using an electric water level sounder or steel tape.

4) The airline extends a minimum 10 feet below the lowest anticipated water level in the well.

5) The airline is the only method for measuring a water level that the well can accommodate.

3.3.4.5.1 Making the Measurement

DTW measurements using an airline will be collected per the following (Cunningham et al., 2011):

1) The depth to the open end of the airline and length of the airline is known. The airline is secure and not subject to freely move in the well.

2) The pressure gauge is calibrated and covers the anticipated range in pressure fluctuations associated with water level fluctuations anticipated in the well due to seasonal and/or pumping effects.

3) The accuracy of the airline measurement must be documented in the Water Level Field Form. The typical accuracy using a pressure gauge is approximately 1 foot.

3.3.4.6 Sonic Water Level Meter

1) Sonic water level meter procedures vary by meter manufacturer. Refer to the meter operating instructions for procedures.

3.3.4.6.1 Making the Measurement

1) In general, use of a sonic meter requires an access port that is 5/8-inch or greater in diameter and a measurement of the average air temperature in the well casing.

    a) The typical accuracy of a sonic meter is 0.2 feet for water levels less than 100 feet or 0.2% for water levels deeper than 100 feet.

    b) Sonic water levels should not be used if the casing diameter is greater than 8-inches in diameter, air temperature inside the well is not known, there is an obstruction in the well casing that is close to half the well diameter or more, and there is no cover surrounding the meter in open wells.

3.3.5 Automatic Groundwater Level Measurements

3.3.5.1 Installation of Dedicated Pressure Transducers

1) Before installing a pressure transducer in a well, the water level in the well shall be confirmed at a static condition using an electric water level sounder (see Section 3.3.4.2 and 3.3.4.4) and no pumping from the well has occurred in the previous 24 hours.

2) The dedicated pressure transducer shall be lowered below the water level in the well to a depth within the transducer's pressure rating. The device shall be set at a depth to accommodate the anticipated fluctuations in the water level due to seasonal effects and pumping (if applicable).

3) Once the desired depth setting of the pressure transducer is set, the transducer shall be secured to the wellhead, casing, or other permanent structure.

4) A real-time reading of the pressure head (in feet of water) from the pressure transducer shall be collected and documented once it has been set and given time to equilibrate to the temperature of the water.

5) The measured DTW by the electric sounder shall be added to the height of water measured above the transducer's sensor to calculate the depth of the pressure transducer from the well's reference point.

6) The depth the transducer is set below the reference point, the make, model, and serial number of the pressure transducer, and battery life remaining (or usage) at time of deployment shall be recorded in a Water Level Field Form.

3.3.5.2 Installation of barometric pressure transducers

1) Barometric pressure transducers shall be installed in the protective steel casings of wells, well houses, or other protected structure that is open and/or in contact with the atmosphere.

2) The location of the barometric pressure transducer, the make, model, and serial number of the pressure transducer, and battery life remaining (or usage) at time of deployment shall be recorded in a Water Level Field Form.

3.3.5.3 Frequency of Water Level Measurements

1) Dedicated pressure transducers equipped with internal dataloggers shall be programmed to measure and record water levels in units of psi or feet of water at a frequency of once per hour at the top of the hour.

2) Water level data will be downloaded from each pressure transducer at least once every three months.

3) During each download session, the field technician will also obtain a manual groundwater level measurement to verify transducer readings and ensure that the instruments are working properly.

3.3.5.4 Frequency of Barometric Pressure Measurements

1) Barometric pressure transducers shall be programmed to measure and record barometric pressure in units of psi or feet of water at a frequency of once per hour at the top of the hour.

2) In the event any pressure transducer assembly must be removed from any particular well for download, the removed assembly shall be disinfected in accordance with decontamination procedures outlined under Section 3.3.4.3~~(c)d~~.

4 ~~OPERATING YIELD,~~ SAFE YIELD AND ~~NEW YIELD~~STORAGE ACCOUNTS

4.0 ~~Redetermination of Operating~~Annualized Safe Yield

The ~~Operating~~ Annualized Safe Yield of the Beaumont Basin shall be redetermined annually by the Watermaster based on an estimated annual change in storage, the estimated volume of natural recharge, and annual groundwater production from the Basin. ~~.~~

4.1 Redetermination of Safe Yield

The Safe Yield of the Beaumont Basin shall be redetermined at least every ten (10) years beginning 10 years after the date of entry of the Judgment (Judgment p. ~~22~~16, lines ~~63~~-~~95~~).

4.2 Storage Accounts

Storage Accounts represent a record of the amount of water in storage and available for recapture by an Appropriator or Person subject to a Groundwater Storage Agreement with the Watermaster. Storage Accounts are assessed annually and include the amount of water gained per an Appropriator's Operating Yield, water acquired via transfer, and New Yield minus the amount of water pumped and transferred to another Party. Supplemental Water used by an Appropriator or Person subject to a Groundwater Storage Agreement to recharge the Beaumont Basin is added to their respective Storage Account and available for recapture.

4.2.1 Definitions

(a) Operating Yield is the maximum quantity of water which can be produced annually by the Appropriators from the Beaumont Basin, which quantity consists of Appropriative Water plus Temporary Surplus (Judgement p. 3, lines 20-22).
(b) Appropriative Water is the amount of Safe Yield remaining after satisfaction of Overlying Water Rights (Judgement p. 2, lines 26-27).
(c) Temporary Surplus is the amount of groundwater that can be pumped annually in excess of Safe Yield from a Groundwater Basin necessary to create enough additional storage capacity to prevent the waste of water (Judgement p. 5, lines 1-3).
(d) Appropriative Water Right represents each Appropriator's share of the Appropriative Water, which is expressed as a percentage of the share of the Safe Yield allocated to Appropriators in Exhibit C of the Judgement (Judgment p. 3, lines 1-2).

4.2.2 Temporary Surplus

The Appropriators were allocated a Temporary Surplus of 160,000 AF from 2003 to 2013 to increase Groundwater Storage Capacity for future conjunctive use projects and to bank some of that water for future use (Langridge et al., 2016). Column 5 of Exhibit C of the Judgement provides a breakdown of the annual Appropriator allocations of the Temporary Surplus.

4.2.3 Storage Account Calculations

Storage Accounts are assessed annually by calculating the following:

(a) The sum of the Operating Yield, the amount of water acquired (transfer of Overlying Water Right to Appropriator and transfer of water from other Appropriators or Storage Parties), and New Yield Water.

(b) Subtracting the amount of water pumped by an Appropriator or Storage Party and the amount of water transferred to another Appropriator or Storage Party.

(c) Adding Supplemental Water used by an Appropriator or Storage Party to recharge the Beaumont Basin to the Appropriator's or Storage Party's respective Storage Account.

(d) The amount of water in a Storage Account represents the volume of water stored in the Beaumont Basin that is available for recapture.

~~4.2 New Yield~~

~~In order to encourage maximization of Basin water under the Physical Solution, New Yield shall be accounted for by the Watermaster in interim periods between re-determinations of the Safe Yield.~~

~~(a) New Yield includes proven increases in yield in quantities greater than the historical level of contribution from certain recharge sources that may result from changed conditions including, but not limited to, the increased capture of rising water, increased capture of available stormflow, and other management activities that occur after February 20, 2003, as determined by Watermaster (Judgment, p. 4, lines 1-5). These increases are considered New Yield.~~

~~(b) Recharge with new locally generated water shall be credited as New Yield to the Party that creates the new recharge. The Watermaster shall make an independent scientific assessment of the estimated New Yield to be created by each proposed project based upon monitoring data. The cost of the Watermaster scientific assessment of the New Yield shall be borne by the Party applying to create it.~~

~~(c) New Yield shall be allocated on an annual basis, based upon monitoring data and review by the Watermaster. (Judgment, p. 21, lines 14-20).~~

4.3 Losses or Spills from the Basin

Water in Storage may be subject to losses. The 2013 Redetermination of the Beaumont Basin Safe Yield indicated that losses from the Beaumont Basin occur as groundwater underflow along the southern and western boundaries of the Basin (Harder, 2015). The subsequent Beaumont Basin

Storage Loss Analysis (Harder, 2018) indicated that Basin losses "associated with managed supplemental water recharge are highly sensitive to the volume of recharge and the location and pumping capacity of downgradient production wells to capture the water." ~~The Watermaster shall determine if losses are occurring and report its findings in the first Basin Condition Report. If losses are occurring, Watermaster shall determine how much water is being lost.~~ The Storage Loss Analysis (TH&C, 2018) recommended that the groundwater flow numerical model of the Beaumont Basin may be used to quantify losses on an annual basis by comparing the groundwater underflow between a scenario simulating observed conditions to one with no managed recharge. Supplemental Water stored pursuant to Groundwater Storage Agreements shall be lost prior to Basin water (i.e., unused operating safe yield) held in Storage by a Party to the Judgment.

5 RECHARGE OF SUPPLEMENTAL AND NEW YIELD WATER

5.0 In General

All ~~Groundwater~~ Supplemental and New Yield Water Recharge activities in the Beaumont Basin shall be subject to the Watermaster Rules and Regulations:

(a) The Watermaster shall calculate additions, extractions and losses, and maintain an annual account of all recharged water in the Beaumont Basin, and any losses of water supplies or Safe Yield resulting from such recharged water (Judgement p. ~~21~~15, lines ~~9~~12-1~~35~~).

(b) The owners of existing publicly-owned recharge facilities shall cooperate with the Watermaster to expand, improve and/or preserve recharge facilities. The Watermaster shall cooperate with appropriate entities to construct and operate new recharge facilities.

(c) The Watermaster shall account for all sources of recharge and shall provide an annual accounting of the amount of recharge and the location(s) of the specific types of recharge.

(d) The Watermaster may determine to prepare a Recharge Master Plan, which Plan shall be periodically updated to account for changed conditions.

(e) The Watermaster may arrange, facilitate and provide for recharge by entering into contracts with appropriate persons, who may provide facilities and operations for the physical recharge of Supplemental and New Yield~~w~~ Water.

5.1 Sources of Supplemental Water

Supplemental Water may be obtained by the Watermaster from any available source. The Watermaster shall, however, seek to obtain the best quality of Supplemental Water at the most reasonable cost for recharge. Available sources may include, but are not limited to:

(a) Maximum beneficial use of Recycled Water, which shall be given a high priority by the Watermaster;

(b) State Project Water;

(c) Local Imported Water through facilities and methods for importation of surface and groundwater supplies from adjacent basins and watersheds;

(d) Available supplies of Metropolitan Water District;

(e) Stormwater recharge projects.

(f) Other Imported Water.

5.2 Method of Replenishment of Supplemental Water

The Watermaster may accomplish replenishment by any reasonable method, including:

(a) spreading and percolation, or injection of water in existing or new facilities,
~~(c)~~(b) in-lieu delivery arrangements and acquisition of unproduced water.

5.3 New Yield

In order to encourage maximization of Basin water under the Physical Solution (Judgement, Section V, p. 10), New Yield shall be accounted for by the Watermaster in interim periods between re-determinations of the Safe Yield.

(g) New Yield includes proven increases in yield in quantities greater than the historical level of contribution from certain recharge sources that may result from changed conditions including, but not limited to, the increased capture of rising water, increased capture of available stream flow, and other management activities that occur after February 20, 2003, as determined by Watermaster (Judgment, p. 3, lines 17-19). These increases are considered New Yield.

(h) Recharge with new locally generated water shall be credited as New Yield to the Party that creates the new recharge. The Party shall file an Application for Groundwater Storage Agreement (Watermaster Form 1) with the Watermaster to store and recapture the New Yield Water. The Watermaster shall make an independent scientific assessment of the estimated New Yield to be created by each proposed project based upon monitoring data (Judgment, p. 15, lines 16-20). The cost of the Watermaster scientific assessment of the New Yield shall be borne by the Party applying to create it.

(i) New Yield shall be allocated on an annual basis, based upon monitoring data and review by the Watermaster. (Judgment, p. 15, lines 19-20).

~~5.1 Application to Recharge Supplemental or New Yield Water~~

~~a) All recharge of Supplemental or New Yield Water shall be subject to Watermaster approval obtained by an application made to the Watermaster to protect the integrity of the Beaumont Basin.~~

~~5.2 Notice of Pending Applications~~

~~Upon receipt of an application, the Watermaster staff shall prepare a written summary and analysis of each such application. The application, along with the written summary and analysis shall be distributed to the Producers and any other interested parties not less than 21 days prior to the date the Watermaster is scheduled to consider and take action on the pending application. The cost of the summary and analysis of each application shall be borne by the applicant.~~

5.3 Watermaster Investigations of Applications

The Watermaster may, in its discretion, cause an investigation of the subject of a pending application. Any party to the proceeding may be requested to confer and cooperate with the Watermaster's staff and consultants, and to provide such additional information and data as may be reasonably required to complete the investigation.

5.4 Sources of Supplemental Water

Supplemental Water may be obtained by the Watermaster from any available source. The Watermaster shall, however, seek to obtain the best quality of Supplemental Water at the most reasonable cost for recharge. Available sources may include, but are not limited to:

(a) Maximum beneficial use of Recycled Water, which shall be given a high priority by the Watermaster;
(b) State Project Water;
(c) Local Imported Water through facilities and methods for importation of surface and groundwater supplies from adjacent basins and watersheds;
(d) Available supplies of Metropolitan Water District;
(e) Stormwater recharge projects.
(f) Other Imported Water.

5.5 Method of Replenishment

(a) The Watermaster may accomplish replenishment by any reasonable method, including spreading and percolation, injection of water in existing or new facilities, in-lieu delivery arrangements and acquisition of unproduced water.

6 GROUNDWATER STORAGE AGREEMENTS

6.0 In General

A substantial amount of available groundwater storage capacity exists in the Beaumont Basin that is not used for storage or regulation of ~~basin~~ Basin waters. It is essential that the use of storage capacity be undertaken only under Watermaster control and regulation so as to protect the integrity of the Beaumont Basin. The Watermaster shall exercise the regulation and control of storage primarily through the execution of Groundwater Storage Agreements (Watermaster Resolution 2005-01).

6.1 Storage and Recapture of Supplemental and New Yield Water

Storing Supplemental and New Yield Water for withdrawal, or causing withdrawal of Supplemental and New Yield ~~w~~Water unused and stored in prior years, shall be subject to the terms of a Groundwater Storage Agreement with the Watermaster. Any Supplemental and New Yield Water recharged by any P~~p~~erson not subject to the Judgement (any non-Appropriator individual, partnership, association, corporation, governmental entity or agency, or other organization) is deemed abandoned and shall not be considered ~~w~~water stored ~~stored~~ except pursuant to these Rules and Regulations and an executed Groundwater Storage Agreement.

6.2 Application for Groundwater Storage ~~of Water~~Agreement

The Watermaster will ensure that any Person, including, but not limited to, the State of California ~~and the~~ Department of Water Resources and San Gorgonio Pass Water Agency, shall ~~make~~submit an ~~a~~Application for Groundwater Storage Agreement to the Watermaster to store and ~~recover~~recapture Supplemental and New Yield ~~w~~Water as provided herein. The Watermaster shall also ensure that sufficient storage capacity shall be reserved for local Conjunctive Use projects implemented by the Appropriators.

6.3 Contents of Application for Groundwater Storage Agreements

Each Application for Groundwater Storage Agreement (Watermaster Form 1) shall include, but not be limited to, the following components:

(a) Identification and Contact Information of the Applicant
(b) Project Description
(c) Amount Requested
(d) Purpose of Storage
(e) The method and Location of Placement in Storage
(f) The method and Location of Recapture

~~The quantities and term of the storage right, which shall specifically exclude credit for any return flows;~~
~~A statement of the priorities of the storage right as against overlying, Safe Yield uses, and other storage rights;~~
~~The projected delivery rates, together with projected schedules and procedures for spreading, injection or in-lieu deliveries of Supplemental Water for direct use;~~
~~The calculation of storage water losses and annual accounting for water in storage; and~~
~~The establishment and administration of withdrawal schedules, locations and methods.~~

6.4 Supporting Documentation for Groundwater Storage Agreements

The following applications are required with the Application for a Groundwater Storage Agreement.

6.4.1 Application to Recharge Supplemental or New Yield Water

All recharge of Supplemental or New Yield Water by a Person not subject to the Judgement shall be subject to Watermaster approval obtained by an Application for Recharge (Watermaster Form 3) made to the Watermaster to protect the integrity of the Beaumont Basin. The Application for Recharge shall include information, at a minimum, on the following:

(a) Identification and Contact Information of the Applicant
(b) Identification of the source of Supplemental or New Yield Water
(c) The method of recharge (e.g., percolation, injection)
(d) The methodology for quantifying the volume of recharge on a monthly basis
(e) A description of the water quality of the source of recharge
(f) An evaluation of the potential impacts to water quality and groundwater levels in the Basin as a result of the recharge of Supplemental or New Yield Water

~~6.1~~6.4.2 ~~Relationship Between~~Application to Recapture ~~and~~ Water In Storage

Recapture of Supplemental and New Yield ~~w~~Water ~~held in a storage account~~ will generally be approved by the Watermaster via an Application to Recapture Water in Storage (Watermaster Form 4)~~as a component of and coincident with a Groundwater Storage Agreement~~. However, the Watermaster may approve a Groundwater Storage Agreement where the plan for recovery is not yet known. In such cases, the applicant for a Groundwater Storage Agreement may request Watermaster approval of the Agreement and subsequently submit and process ~~an independent~~at a later time an Application ~~for~~ to

Recapture Water in Storage to the Watermaster. The Application to Recapture Water in Storage shall include information, at a minimum, on the following:

(a) Identification and Contact Information of the Applicant
(b) The purpose of recapture
(c) The method and schedule of recapture (e.g., well extraction, exchange)
(d) The methodology for quantifying the volume of recapture on a monthly basis
(e) A description of the water quality of the water recaptured
(f) An evaluation of the potential impacts to water quality and groundwater levels in the Basin as a result of the recapture of Supplemental or New Yield Water

~~6.2 Storage of Water~~

~~Storing Supplemental Water for withdrawal, or causing withdrawal of water unused and stored in prior years, shall be subject to the terms of a Groundwater Storage Agreement with the Watermaster. Any Water recharged by any person is deemed abandoned and shall not be considered water stored except pursuant to these Rules and Regulations and a Groundwater Storage Agreement.~~

~~6.3 Application for Storage of Water~~

~~The Watermaster will ensure that any Person, including, but not limited to, the State of California and the Department of Water Resources, shall make an application to the Watermaster to store and recover water as provided herein. The Watermaster shall also ensure that sufficient storage capacity shall be reserved for local projects implemented by the Appropriators.~~

~~6.4 Contents of Groundwater Storage Agreements~~

~~Each Groundwater Storage Agreement shall include, but not be limited to, the following components:~~

~~(a) The quantities and term of the storage right, which shall specifically exclude credit for any return flows;~~
~~(b) A statement of the priorities of the storage right as against overlying, Safe Yield uses, and other storage rights;~~
~~(c) The projected delivery rates, together with projected schedules and procedures for spreading, injection or in-lieu deliveries of Supplemental Water for direct use;~~
~~(d) The calculation of storage water losses and annual accounting for water in storage; and~~
~~(e) The establishment and administration of withdrawal schedules, locations and methods.~~

6.5 Notice of Pending Applications

Upon receipt of ~~an~~ a Groundwater Storage Agreement application and supporting applications, the Watermaster ~~staff~~ shall prepare a written summary and analysis of each such application. The application along with the written summary and analysis shall be distributed to the ~~Producers~~ Applicant and any other interested ~~parties~~ Persons not less than 21 days prior to the date when the Watermaster is scheduled to consider and take action on the pending application. The cost of the written summary and analysis of each such application shall be borne by the applicant.

6.6 Watermaster Investigations of Applications

The Watermaster may, in its discretion, cause an investigation of the subject of a pending Groundwater Storage Agreement application. Any party to the proceeding may be requested to confer and cooperate with the Watermaster's staff and consultants, and to provide such additional information and data as may be reasonably required to complete the investigation.

6.7 Accounting for Water Stored

The Watermaster shall calculate additions, extractions and losses of all water stored and any losses of water supplies or Safe Yield resulting from such water stored, and keep and maintain for public record an annual accounting thereof.

6.8 Groundwater Storage Agreements

The Watermaster shall issue a Groundwater Storage Agreement (Watermaster Form 2), documenting the identification of the Storage Party, the amount of Supplemental and New Yield Water to be stored and recaptured in the Beaumont Basin, the reporting requirements of the Storage Party, the terms of the Agreement, and confirmation of the Watermaster's right to inspect the recharge and/or recapture facilities maintained and operated by the Storage Party. The Groundwater Storage Agreement will be signed by the Watermaster and the Storage Party.

The Watermaster may elect to adopt a resolution documenting the process of entering into a Groundwater Storage Agreement with a Storage Party.

7 ADJUSTMENTS OF RIGHTS

7.0 In General

In General, Overlying Parties shall have the right to exercise their respective Overlying Water Rights except to the extent provided in Section III, Paragraph 3, entitled Adjustment of Rights, of the Judgment. (Judgment, p. ~~86~~, lines ~~12~~17–~~14~~19).

(a) To the extent any Overlying Party requests, and uses its adjudicated water rights to obtain water service from an Appropriator Party, an equivalent volume of potable groundwater shall be earmarked by the Appropriator Party which will serve the Overlying Party, up to the volume of the Overlying Water Rights as reflected in Column 4 of Exhibit "B" of the Judgment, for the purpose of serving the Overlying Party. (Judgment, p. ~~86~~, lines ~~15~~20-~~27~~24).

(b) When an Overlying Party receives water service as provided for in paragraph 7(a), the Overlying Party shall forebear the use of that volume of the Overlying Water Right earmarked by the Appropriator Party. The Appropriator Party providing such service shall have the right to produce the volume of water foregone by the Overlying Party, in addition to other rights otherwise allocated to the Appropriator Party. (Judgment, p. ~~87~~, lines ~~28~~1– ~~p. 9, line 7~~5).

(c) Should the volume of the Overlying Water Right equal or exceed the volume of portable groundwater earmarked as provided in paragraph 7(a), the Appropriator Party which will serve the Overlying Party shall:

i. Impose potable water charges and assessments upon the Overlying Party and its successors in interest at the rates charged to the then-existing regular customers of the Appropriator Party, and

ii. Not collect from such Overlying Party any development charge that may be related to the importation of water into the Beaumont Basin. (Judgment, p. 7, lines 6–12).

(d) If an Appropriator Party provides recycled water to serve an overlying use served with groundwater, then the Overlying Water Right shall not be diminished by the receipt of recycled water. (Judgment, p. 7, lines 16–18).

~~(d)~~(e) The Appropriator Party which will serve the Recycled Water shall have the right to use that portion of the Overlying Water Right of the Overlying Party offset by the provision of Recycled Water service; provided, however, that such right of use by the Appropriator Party shall no longer be valid if the Recycled Water, provided by the Appropriator Party to the Overlying Party, does not satisfy the requirements of Sections 13550 and 13551 [of the Water Code] and the Overlying Party ceases taking delivery of such Recycled Water (Judgement, p. 7, lines 21-27).

7.1 Notice of Adjustment of Rights from an Overlying ~~Pumper~~ Party to an Appropriator

The Overlying ~~Pumper~~ Party and Appropriator shall complete a Notice ~~of Adjustment of Rights (Form 5 – Notice~~ to Adjust Rights of an Overlying Party ~~d~~Due to Proposed Provision of Water Service by an Appropriator (Watermaster Form 5) and file it with the Watermaster.

Required supplemental documentation to be filed with a Form 5 includes the following:

(a) a map identifying the individual Overlying Party parcel(s) receiving potable water service by the Appropriator;

(b) a listing of the parcel(s) by their current (by the date of the Form 5 submittal) Assessor's Parcel Number (APN), the original APN of the parcel(s) listed in Exhibit D of the Judgement, the volume(s) of potable water served to each parcel, and the total volume of potable water served in the calendar year;

(c) Additional supplemental documentation of water served shall be submitted, if applicable, for subsequent years until the total volume of water served is equal to the volume of "Earmarked Water" listed in the executed Form 5 between the Overlying Party and Appropriator.

7.2 Accounting for Transfers

~~(a)~~ ~~.~~Watermaster shall maintain an accounting of acquisitions by Appropriators of water otherwise subject to Overlying Water Rights as the result of the provision of water service by an Appropriator. The Watermaster shall maintain an accounting of ~~-~~all transfers, and such accounting shall be included in the Annual Report and other relevant Watermaster reports as appropriate.

~~7.2~~7.3 Transfer of Water Between Appropriators

Any Appropriator may transfer all or any portion of its ~~Appropriator's Production Right or Operating Yield~~Storage Account that is surplus to its needs to another Appropriator in accordance with these Rules and Regulations. The Appropriators shall file a Transfer of Right to Recapture Water in Storage Between Appropriators (Watermaster Form 8) with the Watermaster to document the agreed-upon transfer of a specific quantity of water from the Transferor's Storage Account to the Transferee's Storage Account. The Watermaster shall maintain an accounting of all transfers, and such accounting shall be included in the Annual Report and other relevant Watermaster reports as appropriate.

~~7.3~~7.4 Availability of Unused Overlying Production and Allocation to the Appropriator Parties

Except as provided for in Section 7.0 herein, to the extent that groundwater pumping by an ~~o~~Overlying P~~p~~arty to the Judgment does not exceed five times the share of safe yield ~~assigned~~ allocated to the ~~o~~Overlying ~~p~~Party during any five-year period (see column 4 of Exhibit B to the Judgment), the amount

of groundwater not produced by such ~~overlying~~ Overlying P~~p~~arty pursuant to its rights under the Judgment shall be available for allocation to the ~~appropriator~~ Appropriator ~~p~~Parties in accordance with their respective percentage shares of unused safe yield (see column 3 of Exhibit C to the Judgment). The availability and allocation of any such groundwater not produced by the ~~o~~Overlying P~~p~~arties in accordance with their rights under the Judgment shall be first determined in fiscal year 2008/09 and every year thereafter. The table below illustrates the allocation process anticipated ~~in the~~for the first 10 years of the Judgment.

Available Unused Overlying Production in Fiscal	Will be Allocated to the Appropriator Parties in Fiscal
2003/04	2008/09
2004/05	2009/10
2005/06	2010/11
2006/07	2011/12
2007/08	2012/13
2008/09	2013/14
2009/10	2014/15
2010/11	2015/16
2011/12	2016/17
2012/13	2017/18

Groundwater not produced by the O~~o~~verlying ~~p~~Parties in accordance with their rights under the Judgment and determined to be available for allocation to the ~~appropriator~~ Appropriator ~~p~~Parties pursuant hereto may be utilized by the ~~appropriator~~ Appropriator ~~p~~Parties in accordance with the terms of the Judgment and these Rules and Regulations. Neither this rule nor its operation shall be deemed or construed in any way to change, limit or otherwise affect any rights awarded to and held by the ~~overlying~~ Overlying ~~p~~Parties pursuant to the Judgment. Nor shall this rule or its operation result in any liability to the O~~o~~verlying ~~p~~Parties or be deemed or construed as a transfer, assignment, forfeiture or abandonment of any overlying rights under the Judgment.

8 COORDINATION WITH THE SAN GORGONIO PASS WATER AGENCY AND OTHER AGENCIES

8.0 In General

The San Gorgonio Pass Water Agency ("Agency") was established by the California Water Uncodified Act No. 9099. The Agency has contracted with the California Department of Water Resources to import as much as 17,300 acre feet of water from the California State Water Project. ~~As of 2004, the Agency is importing, at its sole cost and expense, up to 2,000 acre feet of State Water Project water per year for recharge in the Beaumont Basin.~~

8.1 Potential Conflict

The Agency has expressed concern that the exercise of its powers may conflict with the powers of the Watermaster, a concern that the Watermaster has acknowledged.

8.2 Coordination of Water Resources Management Activities

The Judgment provides that any Person may make reasonable beneficial use of the Groundwater Storage Capacity for the storage of Supplemental Water; provided however that no such use shall be made except pursuant to a written Groundwater Storage Agreement with the Watermaster. (Judgment, p. 15, lines 1~~7~~-~~21~~4). Therefore, in order to minimize the potential for conflict, the Watermaster is authorized to coordinate with the Agency, or other agencies such reasonable Groundwater Storage Agreements. Each such Agreement shall address (for example) whether the management activity that is the subject matter of the Agreement will increase or deplete water supplies, enhance or impair water quality, is engineeringly feasible, and whether it will provide the greatest public good with the least private injury.

8.3 Groundwater Storage Agreement with San Gorgonio Pass Water Agency

The Watermaster accepted the Agency's Groundwater Storage Agreement application in February 2018 (Watermaster Resolution 2018-01) and granted a Storage Account for up to 10,000 acre-feet of Stored Water to the Agency. The Agency purchases State Water Project (SWP) water when available to recharge the Beaumont Basin via the Beaumont Avenue Recharge Facility and/or the Brookside East Recharge Facility. SWP water purchased from an Appropriator and used to recharge the Beaumont Basin will go directly into the Appropriator's Storage Account; SWP water purchased by the Agency and used to recharge the Beaumont Basin will be placed into the Agency's Storage Account.

Water in the Agency's Storage Account may be purchased and transferred from the Agency's Storage Account to an Appropriator's Storage Account. The Agency does not own or operate extraction facilities, and so would not extract any of the water from its Storage Account.

9 REVIEW PROCEDURES

9.0 In General

Nothing in the Judgment or these rules and regulations shall be deemed to prevent any party from seeking judicial relief against any other party whose pumping activities constitute an unreasonable interference with the complaining party's ability to extract groundwater. Any and all disputes between and among the Producers and/or the Watermaster shall be addressed expeditiously and resolved, if possible, amicably, in accordance with the following procedures.

9.1 Complaints or Contesting an Application

Any Producer or interested person may file a written complaint with the Watermaster concerning matters other than applications to recharge (Section 5), or store (Section 6), or contest an application to recharge or store water. The written complaint or objection shall describe the basis for the complaint or objection and the underlying facts and circumstances. Such complaint or objection shall be filed with the Watermaster at least fourteen (14) days before the item is to be agendized for the Watermaster Committee. The Watermaster staff shall provide notice of the complaint or objection to all interested parties.

(a) Answering the Complaint or Objection. At the discretion of the affected Party , a written answer to a complaint or objection may be filed at the time it is presented to the Watermaster Committee for consideration. In lieu of immediately answering the complaint or objection, the Party may request a reference to a two-member subcommittee of the Watermaster for review, discussion, and potential resolution prior to the item being agendized for Watermaster consideration.

(b) Continuance for Good Cause. An affected Party may also request a continuance to a subsequent Watermaster meeting (without reference to a subcommittee) and the request may be granted by the Watermaster's staff where good cause exists.

(c) Investigation by Watermaster. The Watermaster may, in its discretion, cause an investigation of the subject matter of the complaint. Any party to the proceeding may be requested to confer and cooperate with the Watermaster, its staff or consultants to carry out such investigations, and to provide such information and data as may be reasonably required.

(d) Uncontested Applications. The Watermaster shall consider and may approve or deny any uncontested application to recharge or store water at a regularly-scheduled meeting of the Watermaster. Where good cause appears, the Watermaster may also, conditionally approve, or continue an uncontested application to a future meeting. If the Watermaster staff recommendation to the Watermaster is to deny an application it shall first be referred to a two-member subcommittee of the Watermaster for review, discussion and potential resolution with the applicant.

(e) Judicial Review. Any action, decision, rule or procedure of the Watermaster shall be subject to review by the Court on its own motion or on timely motion by any Party as follows:

i. Effective Date of Watermaster Action: Any order, decision or action of the Watermaster pursuant to the Judgment or these Rules and Regulations on noticed specific agenda items shall be deemed to have occurred on the date of the order, decision or action.

ii. Notice of Motion for Judicial Review: Any Party May, by a regularly noticed motion, petition the Court for review within 90 days of the action or decision by Watermaster, except motions for review of assessments under the Judgment shall be filed within 30 days of mailing of the notice of the assessment. The motion shall be deemed to be filed and served when a copy, conformed as filed with the Court, has been delivered to the Watermaster staff, together with a service fee sufficient to cover the cost of photocopying and mailing the motion to each Party. The Watermaster staff shall prepare the copies and mail a copy of the motion to each Party or its designee according to the official service list that shall be maintained by the Watermaster staff pursuant to the Judgment. Unless ordered by the Court, any petition shall not operate to stay the effect of any Watermaster action or decision which is challenged.

iii. De Novo Nature of Proceeding: Upon filing of a petition to review a Watermaster action, the Watermaster shall notify the Parties of a date when the Court will take evidence and hear argument. The Court's review shall be de novo and the Watermaster decision or action shall have no evidentiary weight in such proceeding.

iv. Decision: The decision of the Court in such proceedings shall be an appealable Supplemental Order in this case. When it is final, it shall be binding upon the Watermaster and the Parties.

10 WATERMASTER FORMS

10.0 In General

In order to facilitate and expedite he performance of its duties, the Watermaster may, from time-to-time, develop standardized forms for the transaction of business. Such forms shall be adopted by minute action of the Watermaster Board.

10.1 Approved Forms

The following standardized forms shall be used, except when good cause exists for the use of a customized format:

1) Application for Groundwater Storage Agreement.
2) Groundwater Storage Agreement.
3) Application for Recharge.
4) Application (or Amendment to Application) to Recapture Water in Storage.
5) Notice to Adjust Rights of an Overlying Party due to Proposed Provision of Water Service by an Appropriator.
6) Request for Notice or Waiver of Notice and Designation of Address for Notice and Service.
7) Notice of Transfer of Appropriator Production Right or Operating Yield Between Appropriators.
8) Transfer of Right to Recapture Water in Storage Between Appropriators.
9) Water Level Field Form

11 REFERENCES

California Department of Water Resources (DWR), 2010. Groundwater Elevation Monitoring Guidelines. December 2010.

California Department of Water Resources (DWR), 2016. Monitoring Protocols, Standards, and Sites BMP, Best Management Practices for the Sustainable Management of Groundwater. December 2016.

Cunningham, W.L., and Schalk, C.W., comps., 2011, Groundwater Technical Procedures of the U. S. Geological Survey: U. S. Geological Survey Techniques and Methods 1-A1, 151 p.

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Langridge, R., Brown, A., Rudestam, K., and Conrad, E. 2016. An Evaluation of California's Adjudicated Groundwater Basins. Prepared for the State Water Resources Control Board. October 1.

Wildermuth Environmental, Inc. 2005. Integrated Regional Water Management Program for the San Timoteo Watershed (Formerly, San Timoteo Watershed Management Program) Draft Report. Prepared for the San Timoteo Watershed Management Authority. January 24.

- END OF RULES AND REGULATIONS -

RULES AND REGULATIONS

OF THE

BEAUMONT BASIN WATERMASTER

Adopted: June 8, 2004
Amended: February 7, 2006
Amended: September 9, 2008
Amended: April 18, 2012
Amended: June 25, 2019
Amended: December 7, 2022

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SECTION **PAGE NO.**

1 GENERAL PROVISIONS

1.0 In General

In general, the Beaumont Basin Watermaster will strive to accomplish as many of its specific duties as is feasible and practical by entering into agreements with the Parties for the performance of those duties (e.g., meter installation, testing and maintenance, meter reading, water level measurement, etc.). Nothing herein shall conflict with the terms of the Judgment.

1.1 Definitions

The terms used in these Rules and Regulations shall have the same meanings as set forth in Section 1, Paragraph 3 of the Judgment, unless the context shall clearly indicate a different meaning. The following additional terms are defined for the purposes of these Rules and Regulations:

(a) "Annual or Year" means a calendar year, January 1 through December 31, unless the context shall clearly indicate a different meaning.

(b) "Judgment" means the Amended Judgment Pursuant to Stipulation Adjudicating Groundwater Rights in the Beaumont Basin dated March 14, 2019 in the Riverside Superior Court, Case No. RIC 389197.

(c) “New Yield Water” means water derived from an increase in yield in quantities greater than historical amounts from sources of supply including, but not limited to, capture of available stream flow and rising groundwater, by means of projects constructed after February 20, 2003.

(d) “Party” or “Parties” means any Person(s) named in the Judgement, or who has intervened, or has become subject to the Judgement either through stipulation, trial or otherwise.

(e) “Producer” or “Pumper” means any Person who extracts groundwater from the Beaumont Basin.

(f) "Salt Credits" means an assignable credit that may be granted by the Regional Water Quality Control Board and computed by the Watermaster from activities that result from the removal of salt from the Basin, or that result in a decrease in the amount of salt entering the Basin. Salt Credits may be used by Appropriators to facilitate implementation of the Integrated Regional Water Management Program for the San Timoteo Watershed (Wildermuth, 2005) and as an offset against potential impacts associated with discrete projects. This does not preclude development of Salt credits by Appropriators implementing projects through agreements with their users.

(g) “Storage Account” represents a record of the amount of water stored in the Beaumont Basin and available for recapture by an Appropriator or Party subject to a Groundwater Storage Agreement. A Storage Account is assessed annually and includes water gained as a share of an Appropriator’s Operating Yield, water acquired by transfer, New Yield, and Supplemental Water minus the amount of water pumped from the Beaumont Basin

(h) "Storage Party" represents the Party that entered into an executed Groundwater Storage Agreement with the Watermaster. A Storage Party has acquired permission from the Watermaster to store a limited amount of Stored Water in the Beaumont Basin and may recapture the same Stored Water for reasonable beneficial use while not adversely impacting the beneficial uses of other Producers in the Basin.

(i) "Stored Water" means Supplemental Water stored in the Beaumont Basin pursuant to a Groundwater Storage Agreement with the Watermaster.

(j) "Supplemental Water" means water imported into the Beaumont Basin from outside the Beaumont Basin including, without limitation, water diverted from creeks upstream and tributary to Beaumont Basin and water which is recycled and useable withing the Beaumont Basin.

(k) "Watermaster" and "Watermaster Committee" means the 5-member committee of the Beaumont Basin Watermaster composed of persons nominated by the City of Banning, the City of Beaumont, the Beaumont-Cherry Valley Water District, the South Mesa Mutual Water Company and the Yucaipa Valley Water District, each of whom shall have the right to nominate one representative who shall be an employee of or consultant to the nominating agency.

2 ADMINISTRATION

2.0 Principal Office

The principal office of the Watermaster shall be:

Office of the Watermaster Secretary
c/o Beaumont-Cherry Valley Water District
560 Magnolia Avenue
Beaumont, CA 92223

or at such other location as may be designed from time-to-time by the Watermaster by resolution.

2.1 Records

All records of the Watermaster shall be available for public inspection pursuant to the California Public Records Act, except as otherwise provided by law. Paper copies of such records may be obtained upon payment of the cost of duplication. Digital copies of the Judgement, Resolutions adopted by the Watermaster, these Rules and Regulations, annual Watermaster reports, 10-year Redeterminations of the Safe Yield of the Beaumont Basin, and other documents may be accessed at the Beaumont Basin Watermaster website located at https://beaumontbasinwatermaster.org.

2.2 Meetings of the Watermaster

The Watermaster shall conduct regular meetings on the first Wednesday of every even numbered month. Special meetings and workshops may be called as necessary to conduct the business of the Watermaster. All meetings of the Watermaster shall be open in public and conducted in accordance with the provisions of the California Open Meeting Law (Brown Act).

2.3 Quorum

A majority of the 5-member committee acting as the Watermaster shall constitute a quorum for the transaction of business.

2.4 Voting Procedures

Only action by affirmative vote of a majority of the members of the Watermaster Committee shall be effective.

2.5 Employment of Experts and Agents

The Watermaster may employ or retain such administrative, engineering, geologic, hydrogeologic, accounting, legal or other specialized personnel and professional consultants as it may deem appropriate.

2.6 Acquisition of Facilities

The Watermaster may purchase, lease and acquire all necessary real and personal property, including facilities and equipment.

2.7 Investment of Funds

The Watermaster may hold and invest all Watermaster funds in investments authorized from time-to-time for public agencies of the State of California, pursuant to a Statement of Investment Policy adopted by the Watermaster Committee on March 9, 2004 as documented in Watermaster Resolution 2004-01.

2.8 Borrowing

The Watermaster may borrow, from time-to-time, amounts not exceeding annual receipts (payments on funds borrowed to implement Watermaster projects and programs must be included in Watermaster assessments such that they are part of Watermaster's annual receipts).

2.9 Contracts

The Watermaster may enter into contracts and agreements for the performance of any of its powers, and may act jointly or cooperate with agencies of the United States, the State of California, or any political subdivisions, municipalities, special districts or any person.

2.10 Budgets

The Watermaster shall prepare a proposed annual administrative budget for the upcoming fiscal year (July 1 – June 30 of subsequent year) for Watermaster review. The Watermaster shall hold a public hearing on each such budget prior to adoption. Budgets shall be prepared in sufficient detail so as to make a proper allocation of the expenses and receipts. The adopted budget shall be funded in the upcoming fiscal year through assessments made pursuant to the Judgment. Expenditures within budgeted items may thereafter be made by the Watermaster as a matter of course (Judgment p.15, lines 25-27 and p. 16, lines 1-2).

2.11 Assessments

Pursuant to the Judgment, Watermaster is empowered to levy and collect the following assessments:

(a) Annual Replenishment Assessments. The Watermaster shall levy and collect assessments in each year, in amounts sufficient to purchase replenishment water to replace Overproduction by any Party from the prior calendar year. Replenishment assessments shall be collected not later than April 1 of the subsequent year. Under no circumstances shall Overlying Parties be required to pay assessments for pumping in an amount up to that set forth in column 4 of Exhibit B of the Judgment, subject to Section III of the Judgment.

(b) Annual Administrative Assessments. Annually, not later than the June meeting of the Watermaster, a General Administrative Budget shall be adopted for the ensuing fiscal year for the purpose of funding General Administration Watermaster Expenses. The General Watermaster Administration Expenses shall include office rent, labor, supplies, office equipment, incidental expenses and general overhead. General Watermaster Administration Expenses will be assessed equally among the Appropriators who have appointed representatives to the Watermaster (Judgment, p. 12, lines 9-17).

(c) Special Project Assessments. Special Project Assessments will be levied to cover special project expenses including: special engineering, economic or other studies, litigation expenses, meter testing or other major operating expenses. Each such project shall be assigned a task order number and shall be separately budgeted and accounted for. Special Project Expenses shall be allocated to the Appropriators, or portion thereof, on the basis of benefit. This may be accomplished through the identification and implementation of Special Project Committees. A Specific Project Committee may involve a specific Party or any group of Parties, provided that no Party shall be involved without its approval (Judgment, p. 14, lines 14-19). Special Project Assessments shall be invoiced upon approval of a budget and a scope of work for a Special Project by Project Committee.

(d) Supplemental Assessments. Supplemental Assessments may be levied based on incurring unbudgeted or unforeseen expenses as approved by Watermaster. Examples include Special Project expenses for litigation in which Watermaster has taken action to participate. All Supplemental Assessments shall reference the Watermaster action authorizing same and be invoiced within one month of the Watermaster action.

(e) Assessment Procedure. Assessments shall be levied and collected as follows:

i. Notice of Assessment. The Watermaster shall give written notice of all applicable assessments to each producer in the form of an invoice.

ii. Payment. Each assessment shall be payable on or before thirty (30) days after the date of invoice, and shall be the primary obligation of the party or successor owning the water production facility at the time written notice of assessment is given, even though prior arrangement for payment by others has been made in writing and filed with the Watermaster.

iii. Delinquency. Any delinquent assessment shall incur a late charge of 10% per annum (or such greater rate as shall equal the average current cost of borrowed funds to the Watermaster) from the due date thereof.

iv. Assessment Adjustments. The Watermaster shall make assessment adjustments as necessary for the reporting period as either a credit or a debit in the next occurring assessment period unless otherwise reasonably decided by the Watermaster.

v. Collection of Delinquent Assessments. The Watermaster may bring suit in a Court having jurisdiction against any Producer for the collection of any delinquent assessments and interest thereon. The Court, in addition to any delinquent assessments, may award interest and reasonable costs including attorneys' fees.

(f) Salt Credits. Watermaster may establish a method of calculating salt credits in the future as part of a conjunctive use program or as part of the maximum benefit objectives demonstration program for discrete projects.

2.12 Annual Report

A draft annual report shall be prepared by May and final report shall be prepared by July of each year (Watermaster Resolution 2011-01). At a minimum, the annual report will describe Watermaster's operations, assessments and expenditures, and a review of Watermaster activities. The annual report shall also include a summary describing and updating the state of the groundwater basin, including the status of monitoring, storage, water quality, and a current active party list.

2.13 Interventions

Any Person who is neither a Party to the Judgment nor a successor or assignee of a Party to the Judgment may seek to become a party to the Judgment by filing a petition in intervention with the Court. Watermaster will report on any such interventions in its annual report. Interveners shall have no water rights under the Judgment (unless acquired from an Appropriator Party).

2.14 Notice and Waiver of Notice

Pursuant to the Judgment, each Party shall designate, in writing, the name and address to be used for purposes of all subsequent notices and services under the Judgment. Such designation may be changed by filing a written notice with the Watermaster. Any Party desiring to be relieved of receiving notices of Watermaster activity may file a waiver of notice on a form to be provided by the Watermaster. Watermaster staff shall maintain, at all times, a current list of Parties to whom notices are to be sent and their addresses for the purposes of service as well as a current list of the names and addresses of all parties or their successors and assigns. Copies of such lists shall be available to any Person.

2.15 Watermaster Alternates

To ensure consistency in the administration of the affairs of the Watermaster, the members of the Watermaster Committee will endeavor to attend all meetings of the Watermaster. However, from time-to-time the press of business may prevent such regular attendance. Therefore, the members of the Watermaster agencies may appoint an alternate member to the Watermaster Committee who, in the absence of the regular member, shall, if present, participate in a meeting of the Watermaster the same

as if the alternate member were a regular member of the Watermaster Committee. Each alternate member must hold a senior management position within the organization of the appointing Watermaster member agency.

3 MONITORING

3.0 Scope

The Watermaster will carry out the monitoring activities described in this section of the Rules & Regulations and such policies and procedures as may be deemed necessary by the Watermaster. Any such policies and procedures shall be adopted at regular or special meetings of the Watermaster and reported in the Watermaster's annual report.

3.1 Measuring Devices

Groundwater production shall be monitored by measuring devices and/or meters (hereinafter collectively, “meter” or “meters”), as follows:

(a) Meter Installation. Except as otherwise provided by agreement, such necessary meters as Watermaster may deem appropriate shall be installed as follows:

i. New Wells:

1. Appropriator Wells. A meter shall be installed on each new Appropriator well by the Appropriator and at the Appropriator’s expense concurrently with the installation of the pump.

2. Overlyer Wells. A meter shall be installed on each new Overlyer well by the Watermaster and at the Watermaster’s expense concurrently with the installation of the pump.

ii. Existing Wells. Meters shall be installed on existing wells as soon as practicable by the Watermaster at the Watermaster’s expense.

(b) Meter Maintenance. The Watermaster shall, at its expense, perform routine maintenance on all well meters in the Beaumont Basin.

(c) Inspection, Testing, Repair and Retesting. Meters shall be inspected and tested as deemed necessary by the Watermaster and the cost thereof borne by the Watermaster. The Watermaster may contract for a meter testing service or with an Appropriator for meter inspection and/or testing. Any Producer may request an evaluation of any or all of its water meters at any time; provided, however, the Watermaster shall only pay for tests initiated by the Watermaster. Meter repair and retesting will be a Producer expense (Judgment, p. 13, lines 22 – 26).

3.2 Reporting By Producers

Each Producer producing in excess of 10 acre-feet per year shall file with the Watermaster on forms provided therefore, a monthly report of its total water production during the preceding calendar month, together with such additional information as the Watermaster may reasonably require (including power

use records, if unmetered). The report shall be due on the fifteenth (15th) day of the month next succeeding the end of each respective month. Appropriators shall report groundwater levels and Overlying Owner production along with such additional information as may be necessary to complete the Watermaster monitoring program through Agreements with the Watermaster. Producers producing 10 acre-feet or less per year shall file an annual report of their total water production during the preceding fiscal year by the 15th of July of each year on forms provided therefore.

3.3 Groundwater Level Measuring and Reporting Procedures

The watermaster will carry out all groundwater measuring activities in accordance with the procedures identified hereafter and in accordance with the Groundwater Elevation Monitoring Guidelines issued by the California Department of Water Resources (DWR, 2010) for the California Statewide Groundwater Elevation Monitoring (CASGEM) program and the Monitoring Protocols, Standards, and Sites Best Management Practices issued by DWR to assist in the development of monitoring protocols for Groundwater Sustainability Plans (DWR, 2016).

To the extent possible, groundwater level monitoring events shall be coordinated so that measurements are taken in the late spring and late fall to record the annual highs and lows, respectively, in groundwater levels in the Beaumont Basin.

3.3.1 Communication and Planning

The Beaumont Basin Watermaster and representatives of the Watermaster will conduct the following procedures to coordinate the collection of water level data with all stakeholders owning a well that is part of the Beaumont Basin groundwater monitoring network:

1) Notification of the intent of the Watermaster to access the respective party's well to collect a water level measurement will be provided via email, text message, or phone call two weeks, at a minimum, before the data collection event.

2) Verification of receipt of the notification and authorization by the well owner granting access to the well shall be obtained by the Watermaster and Watermaster representative via email, text message or phone call at least three days prior to accessing the well.

    a) The Watermaster and/or Watermaster representative will follow up with an email, text message or phone call should the well owner not respond within three days of the groundwater monitoring event.

    b) All forms of correspondence shall be documented (e.g., record date and time of text message delivery).

3) All efforts shall be made by the Watermaster representative to accommodate the schedule of the well owner to access the well within the two-week period set for the groundwater monitoring event,

and to provide the well owner the opportunity to observe the collection of data at their respective well.

4) Digital and hard copies of the groundwater level measuring and reporting procedures shall be made available at the well owner's request at the time of data collection.

5) Arrangements, to the extent possible, shall be made with the well owner to collect a static water level measurement per Section 3.3.4. This may include requesting that the well be idle for 24 hours, at a minimum, prior to measuring the water level.

3.3.2 Monitoring Well Network

3.3.2.1 Existing Wells

The monitoring well network used by the Watermaster for purposes of characterizing groundwater conditions in the Beaumont Basin shall include all accessible production and monitoring wells owned by the Appropriators, Overlying Parties, and other stakeholders. The following highlight the minimum requirements for existing wells to be included in the Beaumont Basin monitoring well network:

1) Wells in the monitoring network shall be screened in the unconsolidated Quaternary alluvium and upper portion of the San Timoteo Formation, together comprising the water-bearing aquifer of the Beaumont Basin.

2) Groundwater level measurements shall be taken from a clearly marked and permanent reference point on the top of a sounding tube, well casing, or other permanent feature.

3) Reference points shall be surveyed by a California licensed surveyor. The survey shall include the following details:

    a) Well locations (center point of well casing) shall be referenced to the North American Datum of 1983 (NAD83) and reported in decimal degrees for latitude and longitude.

    b) Elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD88) with an accuracy, at a minimum, of 0.5 foot. The following features, if applicable, shall be surveyed at each well point:

        (1) Top of Well Casing or Sounding Tube (i.e., TOC)

        (2) Top of protective steel riser or monument cover

        (3) Land surface

3.3.2.2 New Wells

New wells installed in the Beaumont Basin shall be equipped with dedicated sounding tubes (if a production well) or have open casing to facilitate the use of a water level metering device to measure

groundwater elevations. The new well shall be constructed to accommodate the installation of a 7/8-inch diameter dedicated pressure transducer. The following highlight the minimum requirements for new wells to be included in the Beaumont Basin monitoring well network:

1) Well construction details and survey results by a licensed surveyor shall be shared with the Beaumont Basin Watermaster and included in the well network database for the Beaumont Basin.

2) New wells that are screened fully or partially in the unconsolidated Quaternary alluvium and upper portion of the San Timoteo Formation, together comprising the water-bearing aquifer of the Beaumont Basin, will be included in the monitoring well network for the Beaumont Basin.

3) Groundwater level measurements shall be taken from a clearly marked and permanent reference point on the top of a sounding tube, well casing, or other permanent feature.

4) Reference points shall be surveyed by a California licensed surveyor. The survey shall include the following details:

    a) Well locations (center point of well casing) shall be referenced to the North American Datum of 1983 (NAD83) and reported in decimal degrees for latitude and longitude.

    b) Elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD88) with an accuracy, at a minimum, of 0.5 foot. The following features, if applicable, shall be surveyed at each well point:

        i) Top of Well Casing or Sounding Tube (i.e., TOC)

        ii) Top of protective steel riser or monument cover

        iii) Land surface

3.3.3 Groundwater Water Level Measuring Devices

3.3.3.1 Electric Water Level Sounder

Where possible, groundwater levels shall be manually measured with an electric water level sounder calibrated to the nearest 0.01 ft. All equipment must be in good working condition. No damaged or refurbished electric sounding tape should be used, unless specifically approved by the Watermaster.

3.3.3.2 Dedicated Pressure Transducers

Dedicated pressure transducers shall be installed in monitoring and production wells identified as key wells for administration of the Judgement. The pressure transducers shall be installed below the groundwater level and pressure-rated for the range of anticipated groundwater level fluctuations due to seasonal fluctuations and/or groundwater production.

Dedicated pressure transducers shall be equipped with a datalogger that is programmable to measure and record water levels at a desired frequency. Each dedicated pressure transducer shall measure absolute pressure in units of pounds per square inch (psia) and/or feet of water. The Watermaster shall use separate pressure transducers dedicated to measure barometric pressure in units of psia and/or feet of water to provide a general characterization of barometric pressure in the Beaumont Basin.

3.3.4 Manual Groundwater Level Measurements

The following procedures shall be used to measure and record manual groundwater level measurements in the field.

3.3.4.1 Water Level Form

1) Upon arrival at each well site, the field technician shall note the following information on a standardized Water Level Field Form (see Appendix A):

    a) Name of well owner

    b) Well Identifier (e.g. well owner name, State Well ID)

    c) Date (mm/dd/yyyy) and time (24 hr) of measurement

    d) Climate conditions (e.g., sunny, light breeze, air temp is 80 °F, etc.)

    e) Type of well (e.g., municipal, monitoring, agricultural, etc.)

    f) Status of water level and/or well: Static, Recovering (i.e., rising), Pumping, Artesian (i.e., flowing), Falling.

    g) Time since pumping stopped (i.e., idle time) if well was previously active.

    h) Method of water level measurement (e.g., electric water level sounder, airline, sonic, dedicated pressure transducer)

    i) Field technician and/or representative measuring the water level

    j) Any additional comment

2) Use one Water Level Field Form for each well. If possible, the same field form should be used at each well during each monitoring event.

3.3.4.2 Water Level Status

Where possible, groundwater level measurements must be representative of static (i.e. non-pumping) groundwater level conditions. To ensure measurements of static groundwater levels in active pumping

wells, the field technician collecting the data shall coordinate, verify, and/or confirm that the pump has been off for at least 24 hours prior to collecting the data (wherever possible).

3.3.4.3 Decontamination

All water level measuring equipment shall be cleaned prior to lowering it into the well(s) using the following decontamination procedure:

a) Wash equipment with an Alconox solution which is followed by a deionized water rinse.

b) Triple rinse equipment with deionized water.

3.3.4.4 Electric water level sounder

3.3.4.4.1 Before making a measurement

1) Inspect the sounding tape for wear, kinks, frayed electrical connections, and possible stretch. Make a notation in the Water Level Field Form documenting any wear or other issues that possibly affect measurements with the electric water level sounder.

2) Test that the battery and replacement batteries are fully charged.

3) Test the circuit by dipping the probe into tap water and observe whether the sounder indicator turns on and/or makes a sound to indicate the circuit is closed when in contact with water.

3.3.4.4.2 Making the Measurement

1) Lower the electrode probe slowly into the designated sounding port for production wells and into the main well for monitoring wells. Lower the probe until the circuit is closed and contact with the water surface in the well is made.

2) Measure the depth-to-water (DTW) by placing the sounder tape next to the dedicated and clearly marked reference point on the top of the sounding tube or well casing. Measure the DTW to the nearest 0.01-foot. The DTW shall be recorded as feet below reference point (or ft brp).

3) Lift the probe slowly a few feet and make second measurement by repeating the step above. If the 2nd measurement is more than 0.02 feet different from the first measurement, collect and record a third measurement. If more than two measurements are taken, record the average of all reasonable readings.

4) If the groundwater level is not static, stay at the well long enough (if reasonable time allows) for a static groundwater level. If that wait is more than 1 hour or not possible, make ten (10) or more measurements at 1-minute minimum intervals to document the rate of groundwater level rise or fall per 5 minutes for the non-static measurements. If necessary, use additional sheets of the Water Level Field Form to document all measurements. Document possible reason for the rise or fall of the water level in the comment section.

5) All DTW measurements shall be immediately recorded on the Water Level Field Form (see Appendix A). The DTW shall be compared to previous measurements in the field and re-measured if significantly different.

    a) If the DTW measurement appears incorrect or anomalous, provide the possible reason or recommend follow-up actions so that future measurements are representative of actual conditions at the well.

3.3.4.4.3 After Making the Measurement

1) The sounder tape and electrode probe shall be wiped down during retrieval from the sounding tube or well using a clean paper towel or disinfectant wipe.

2) If oil is noticeable on the sounder tape and/or electric probe, its presence and apparent thickness, if possible, shall be noted in the Water Level Field Form. The CASGEM Guidelines note that, “oil on the surface of the water may interfere with obtaining consistent readings and could damage the electrode probe.” An alternative method may be necessary to obtain an accurate water level measurement.

3) Refer to Section 3.3.4.3 for disinfection procedures.

4) The cap to the sounding tube or well shall be replaced.

5) Where applicable, the riser shall be secured with the dedicated lock.

6) Prior to leaving the monitoring well site, the field representative shall note any physical changes in the concrete well pad and riser pipe, such as erosion, cracks, or damage. All changes shall be recorded on the Water Level Field Form.

7) Whenever possible, an electric water level sounder should be used to measure the DTW in a well. The use of an airline or sonic water level meter should only be used when well conditions do not allow for electric water level sounder measurements.

3.3.4.5 Airline Measurements

Airline measurements are an acceptable alternative to measuring DTW in a well in the following cases:

1) There is no access port or sounding tube available to allow access of an electric water level sounder to measure the DTW.

2) No dedicated pressure transducer has been installed and calibrated to measure and record water levels

3) At the time of installation, the DTW measured by the airline was calibrated to a water level measured using an electric water level sounder or steel tape.

4) The airline extends a minimum 10 feet below the lowest anticipated water level in the well.

5) The airline is the only method for measuring a water level that the well can accommodate.

3.3.4.5.1 Making the Measurement

DTW measurements using an airline will be collected per the following (Cunningham et al., 2011):

1) The depth to the open end of the airline and length of the airline is known. The airline is secure and not subject to freely move in the well.

2) The pressure gauge is calibrated and covers the anticipated range in pressure fluctuations associated with water level fluctuations anticipated in the well due to seasonal and/or pumping effects.

3) The accuracy of the airline measurement must be documented in the Water Level Field Form. The typical accuracy using a pressure gauge is approximately 1 foot.

3.3.4.6 Sonic Water Level Meter

1) Sonic water level meter procedures vary by meter manufacturer. Refer to the meter operating instructions for procedures.

3.3.4.6.1 Making the Measurement

1) In general, use of a sonic meter requires an access port that is 5/8-inch or greater in diameter and a measurement of the average air temperature in the well casing.

    a) The typical accuracy of a sonic meter is 0.2 feet for water levels less than 100 feet or 0.2% for water levels deeper than 100 feet.

    b) Sonic water levels should not be used if the casing diameter is greater than 8-inches in diameter, air temperature inside the well is not known, there is an obstruction in the well casing that is close to half the well diameter or more, and there is no cover surrounding the meter in open wells.

3.3.5 Automatic Groundwater Level Measurements

3.3.5.1 Installation of Dedicated Pressure Transducers

1) Before installing a pressure transducer in a well, the water level in the well shall be confirmed at a static condition using an electric water level sounder (see Section 3.3.4.2 and 3.3.4.4) and no pumping from the well has occurred in the previous 24 hours.

2) The dedicated pressure transducer shall be lowered below the water level in the well to a depth within the transducer's pressure rating. The device shall be set at a depth to accommodate the anticipated fluctuations in the water level due to seasonal effects and pumping (if applicable).

3) Once the desired depth setting of the pressure transducer is set, the transducer shall be secured to the wellhead, casing, or other permanent structure.

4) A real-time reading of the pressure head (in feet of water) from the pressure transducer shall be collected and documented once it has been set and given time to equilibrate to the temperature of the water.

5) The measured DTW by the electric sounder shall be added to the height of water measured above the transducer's sensor to calculate the depth of the pressure transducer from the well's reference point.

6) The depth the transducer is set below the reference point, the make, model, and serial number of the pressure transducer, and battery life remaining (or usage) at time of deployment shall be recorded in a Water Level Field Form.

3.3.5.2 Installation of barometric pressure transducers

1) Barometric pressure transducers shall be installed in the protective steel casings of wells, well houses, or other protected structure that is open and/or in contact with the atmosphere.

2) The location of the barometric pressure transducer, the make, model, and serial number of the pressure transducer, and battery life remaining (or usage) at time of deployment shall be recorded in a Water Level Field Form.

3.3.5.3 Frequency of Water Level Measurements

1) Dedicated pressure transducers equipped with internal dataloggers shall be programmed to measure and record water levels in units of psi or feet of water at a frequency of once per hour at the top of the hour.

2) Water level data will be downloaded from each pressure transducer at least once every three months.

3) During each download session, the field technician will also obtain a manual groundwater level measurement to verify transducer readings and ensure that the instruments are working properly.

3.3.5.4 Frequency of Barometric Pressure Measurements

1) Barometric pressure transducers shall be programmed to measure and record barometric pressure in units of psi or feet of water at a frequency of once per hour at the top of the hour.

2) In the event any pressure transducer assembly must be removed from any particular well for download, the removed assembly shall be disinfected in accordance with decontamination procedures outlined under Section 3.3.4.3.

4 SAFE YIELD AND STORAGE ACCOUNTS

4.0 Annualized Safe Yield

The Annualized Safe Yield of the Beaumont Basin shall be redetermined annually by the Watermaster based on an estimated annual change in storage, the estimated volume of natural recharge, and annual groundwater production from the Basin.

4.1 Redetermination of Safe Yield

The Safe Yield of the Beaumont Basin shall be redetermined at least every ten (10) years beginning 10 years after the date of entry of the Judgment (Judgment p. 16, lines 3-5).

4.2 Storage Accounts

Storage Accounts represent a record of the amount of water in storage and available for recapture by an Appropriator or Person subject to a Groundwater Storage Agreement with the Watermaster. Storage Accounts are assessed annually and include the amount of water gained per an Appropriator's Operating Yield, water acquired via transfer, and New Yield minus the amount of water pumped and transferred to another Party. Supplemental Water used by an Appropriator or Person subject to a Groundwater Storage Agreement to recharge the Beaumont Basin is added to their respective Storage Account and available for recapture.

4.2.1 Definitions

(a) Operating Yield is the maximum quantity of water which can be produced annually by the Appropriators from the Beaumont Basin, which quantity consists of Appropriative Water plus Temporary Surplus (Judgement p. 3, lines 20-22).
(b) Appropriative Water is the amount of Safe Yield remaining after satisfaction of Overlying Water Rights (Judgement p. 2, lines 26-27).
(c) Temporary Surplus is the amount of groundwater that can be pumped annually in excess of Safe Yield from a Groundwater Basin necessary to create enough additional storage capacity to prevent the waste of water (Judgement p. 5, lines 1-3).
(d) Appropriative Water Right represents each Appropriator's share of the Appropriative Water, which is expressed as a percentage of the share of the Safe Yield allocated to Appropriators in Exhibit C of the Judgement (Judgment p. 3, lines 1-2).

4.2.2 Temporary Surplus

The Appropriators were allocated a Temporary Surplus of 160,000 AF from 2003 to 2013 to increase Groundwater Storage Capacity for future conjunctive use projects and to bank some of that water for

future use (Langridge et al., 2016). Column 5 of Exhibit C of the Judgement provides a breakdown of the annual Appropriator allocations of the Temporary Surplus.

4.2.3 Storage Account Calculations

Storage Accounts are assessed annually by calculating the following:

(a) The sum of the Operating Yield, the amount of water acquired (transfer of Overlying Water Right to Appropriator and transfer of water from other Appropriators or Storage Parties), and New Yield Water.
(b) Subtracting the amount of water pumped by an Appropriator or Storage Party and the amount of water transferred to another Appropriator or Storage Party.
(c) Adding Supplemental Water used by an Appropriator or Storage Party to recharge the Beaumont Basin to the Appropriator's or Storage Party's respective Storage Account.
(d) The amount of water in a Storage Account represents the volume of water stored in the Beaumont Basin that is available for recapture.

4.3 Losses or Spills from the Basin

Water in Storage may be subject to losses. The 2013 Redetermination of the Beaumont Basin Safe Yield indicated that losses from the Beaumont Basin occur as groundwater underflow along the southern and western boundaries of the Basin (Harder, 2015). The subsequent Beaumont Basin Storage Loss Analysis (Harder, 2018) indicated that Basin losses "associated with managed supplemental water recharge are highly sensitive to the volume of recharge and the location and pumping capacity of downgradient production wells to capture the water." The Storage Loss Analysis (TH&C, 2018) recommended that the groundwater flow numerical model of the Beaumont Basin may be used to quantify losses on an annual basis by comparing the groundwater underflow between a scenario simulating observed conditions to one with no managed recharge. Supplemental Water stored pursuant to Groundwater Storage Agreements shall be lost prior to Basin water (i.e., unused operating safe yield) held in Storage by a Party to the Judgment.

5 RECHARGE OF SUPPLEMENTAL AND NEW YIELD WATER

5.0 In General

All Supplemental and New Yield Water Recharge activities in the Beaumont Basin shall be subject to the Watermaster Rules and Regulations:

(a) The Watermaster shall calculate additions, extractions and losses, and maintain an annual account of all recharged water in the Beaumont Basin, and any losses of water supplies or Safe Yield resulting from such recharged water (Judgement p. 15, lines 12-15).

(b) The owners of existing publicly-owned recharge facilities shall cooperate with the Watermaster to expand, improve and/or preserve recharge facilities. The Watermaster shall cooperate with appropriate entities to construct and operate new recharge facilities.

(c) The Watermaster shall account for all sources of recharge and shall provide an annual accounting of the amount of recharge and the location(s) of the specific types of recharge.

(d) The Watermaster may determine to prepare a Recharge Master Plan, which Plan shall be periodically updated to account for changed conditions.

(e) The Watermaster may arrange, facilitate and provide for recharge by entering into contracts with appropriate persons, who may provide facilities and operations for the physical recharge of Supplemental and New Yield Water.

5.1 Sources of Supplemental Water

Supplemental Water may be obtained by the Watermaster from any available source. The Watermaster shall, however, seek to obtain the best quality of Supplemental Water at the most reasonable cost for recharge. Available sources may include, but are not limited to:

(a) Maximum beneficial use of Recycled Water, which shall be given a high priority by the Watermaster;

(b) State Project Water;

(c) Local Imported Water through facilities and methods for importation of surface and groundwater supplies from adjacent basins and watersheds;

(d) Available supplies of Metropolitan Water District;

(e) Stormwater recharge projects.

(f) Other Imported Water.

5.2 Method of Replenishment of Supplemental Water

The Watermaster may accomplish replenishment by any reasonable method, including:

(a) spreading and percolation, or injection of water in existing or new facilities,
(b) in-lieu delivery arrangements and acquisition of unproduced water.

5.3 New Yield

In order to encourage maximization of Basin water under the Physical Solution (Judgement, Section V, p. 10), New Yield shall be accounted for by the Watermaster in interim periods between re-determinations of the Safe Yield.

(a) New Yield includes proven increases in yield in quantities greater than the historical level of contribution from certain recharge sources that may result from changed conditions including, but not limited to, the increased capture of rising water, increased capture of available stream flow, and other management activities that occur after February 20, 2003, as determined by Watermaster (Judgment, p. 3, lines 17-19). These increases are considered New Yield.

(b) Recharge with new locally generated water shall be credited as New Yield to the Party that creates the new recharge. The Party shall file an Application for Groundwater Storage Agreement (Watermaster Form 1) with the Watermaster to store and recapture the New Yield Water. The Watermaster shall make an independent scientific assessment of the estimated New Yield to be created by each proposed project based upon monitoring data (Judgment, p. 15, lines 16-20). The cost of the Watermaster scientific assessment of the New Yield shall be borne by the Party applying to create it.

(c) New Yield shall be allocated on an annual basis, based upon monitoring data and review by the Watermaster. (Judgment, p. 15, lines 19-20).

6 GROUNDWATER STORAGE AGREEMENTS

6.0 In General

A substantial amount of available groundwater storage capacity exists in the Beaumont Basin that is not used for storage or regulation of Basin waters. It is essential that the use of storage capacity be undertaken only under Watermaster control and regulation so as to protect the integrity of the Beaumont Basin. The Watermaster shall exercise the regulation and control of storage primarily through the execution of Groundwater Storage Agreements (Watermaster Resolution 2005-01).

6.1 Storage and Recapture of Supplemental and New Yield Water

Storing Supplemental and New Yield Water for withdrawal, or causing withdrawal of Supplemental and New Yield Water unused and stored in prior years, shall be subject to the terms of a Groundwater Storage Agreement with the Watermaster. Any Supplemental and New Yield Water recharged by any Person not subject to the Judgement (any non-Appropriator individual, partnership, association, corporation, governmental entity or agency, or other organization) is deemed abandoned and shall not be considered water stored except pursuant to these Rules and Regulations and an executed Groundwater Storage Agreement.

6.2 Application for Groundwater Storage Agreement

The Watermaster will ensure that any Person, including, but not limited to, the State of California Department of Water Resources and San Gorgonio Pass Water Agency, shall submit an Application for Groundwater Storage Agreement to the Watermaster to store and recapture Supplemental and New Yield Water as provided herein. The Watermaster shall also ensure that sufficient storage capacity shall be reserved for local Conjunctive Use projects implemented by the Appropriators.

6.3 Contents of Application for Groundwater Storage Agreement

Each Application for Groundwater Storage Agreement (Watermaster Form 1) shall include, but not be limited to, the following components:

(a) Identification and Contact Information of the Applicant
(b) Project Description
(c) Amount Requested
(d) Purpose of Storage
(e) The method and Location of Placement in Storage
(f) The method and Location of Recapture

6.4 Supporting Documentation for Groundwater Storage Agreements

The following applications are required with the Application for a Groundwater Storage Agreement.

6.4.1 Application to Recharge Supplemental or New Yield Water

All recharge of Supplemental or New Yield Water by a Person not subject to the Judgement shall be subject to Watermaster approval obtained by an Application for Recharge (Watermaster Form 3) made to the Watermaster to protect the integrity of the Beaumont Basin. The Application for Recharge shall include information, at a minimum, on the following:

(a) Identification and Contact Information of the Applicant
(b) Identification of the source of Supplemental or New Yield Water
(c) The method of recharge (e.g., percolation, injection)
(d) The methodology for quantifying the volume of recharge on a monthly basis
(e) A description of the water quality of the source of recharge
(f) An evaluation of the potential impacts to water quality and groundwater levels in the Basin as a result of the recharge of Supplemental or New Yield Water

6.4.2 Application to Recapture Water In Storage

Recapture of Supplemental and New Yield Water will generally be approved by the Watermaster via an Application to Recapture Water in Storage (Watermaster Form 4). However, the Watermaster may approve a Groundwater Storage Agreement where the plan for recovery is not yet known. In such cases, the applicant for a Groundwater Storage Agreement may request Watermaster approval of the Agreement and subsequently submit and process at a later time an Application to Recapture Water in Storage to the Watermaster. The Application to Recapture Water in Storage shall include information, at a minimum, on the following:

(a) Identification and Contact Information of the Applicant
(b) The purpose of recapture
(c) The method and schedule of recapture (e.g., well extraction, exchange)
(d) The methodology for quantifying the volume of recapture on a monthly basis
(e) A description of the water quality of the water recaptured
(f) An evaluation of the potential impacts to water quality and groundwater levels in the Basin as a result of the recapture of Supplemental or New Yield Water

6.5 Notice of Pending Applications

Upon receipt of a Groundwater Storage Agreement application and supporting applications, the Watermaster shall prepare a written summary and analysis of each such application. The application

along with the written summary and analysis shall be distributed to the Applicant and any other interested Persons not less than 21 days prior to the date when the Watermaster is scheduled to consider and take action on the pending application. The cost of the written summary and analysis of each such application shall be borne by the applicant.

6.6 Watermaster Investigations of Applications

The Watermaster may, in its discretion, cause an investigation of the subject of a pending Groundwater Storage Agreement application. Any party to the proceeding may be requested to confer and cooperate with the Watermaster's staff and consultants, and to provide such additional information and data as may be reasonably required to complete the investigation.

6.7 Accounting for Water Stored

The Watermaster shall calculate additions, extractions and losses of all water stored and any losses of water supplies or Safe Yield resulting from such water stored, and keep and maintain for public record an annual accounting thereof.

6.8 Groundwater Storage Agreements

The Watermaster shall issue a Groundwater Storage Agreement (Watermaster Form 2), documenting the identification of the Storage Party, the amount of Supplemental and New Yield Water to be stored and recaptured in the Beaumont Basin, the reporting requirements of the Storage Party, the terms of the Agreement, and confirmation of the Watermaster’s right to inspect the recharge and/or recapture facilities maintained and operated by the Storage Party. The Groundwater Storage Agreement will be signed by the Watermaster and the Storage Party.

The Watermaster may elect to adopt a resolution documenting the process of entering into a Groundwater Storage Agreement with a Storage Party.

7 ADJUSTMENTS OF RIGHTS

7.0 In General

In General, Overlying Parties shall have the right to exercise their respective Overlying Water Rights except to the extent provided in Section III, Paragraph 3, entitled Adjustment of Rights, of the Judgment. (Judgment, p. 6, lines 17-19).

(a) To the extent any Overlying Party requests, and uses its adjudicated water rights to obtain water service from an Appropriator Party, an equivalent volume of potable groundwater shall be earmarked by the Appropriator Party which will serve the Overlying Party, up to the volume of the Overlying Water Rights as reflected in Column 4 of Exhibit "B" of the Judgment, for the purpose of serving the Overlying Party. (Judgment, p. 6, lines 20-24).

(b) When an Overlying Party receives water service as provided for in paragraph 7(a), the Overlying Party shall forebear the use of that volume of the Overlying Water Right earmarked by the Appropriator Party. The Appropriator Party providing such service shall have the right to produce the volume of water foregone by the Overlying Party, in addition to other rights otherwise allocated to the Appropriator Party. (Judgment, p. 7, lines 1–5).

(c) Should the volume of the Overlying Water Right equal or exceed the volume of portable groundwater earmarked as provided in paragraph 7(a), the Appropriator Party which will serve the Overlying Party shall:

i. Impose potable water charges and assessments upon the Overlying Party and its successors in interest at the rates charged to the then-existing regular customers of the Appropriator Party, and

ii. Not collect from such Overlying Party any development charge that may be related to the importation of water into the Beaumont Basin. (Judgment, p. 7, lines 6–12).

(d) If an Appropriator Party provides recycled water to serve an overlying use served with groundwater, then the Overlying Water Right shall not be diminished by the receipt of recycled water (Judgment, p. 7, lines 16–18).

(e) The Appropriator Party which will serve the Recycled Water shall have the right to use that portion of the Overlying Water Right of the Overlying Party offset by the provision of Recycled Water service; provided, however, that such right of use by the Appropriator Party shall no longer be valid if the Recycled Water, provided by the Appropriator Party to the Overlying Party, does not satisfy the requirements of Sections 13550 and 13551 [of the Water Code] and the Overlying Party ceases taking delivery of such Recycled Water (Judgement, p. 7, lines 21-27).

7.1 Notice of Adjustment of Rights from an Overlying Party to an Appropriator

The Overlying Party and Appropriator shall complete a Notice to Adjust Rights of an Overlying Party Due to Proposed Provision of Water Service by an Appropriator (Watermaster Form 5) and file it with the Watermaster. Required supplemental documentation to be filed with a Form 5 includes the following:

(a) a map identifying the individual Overlying Party parcel(s) receiving potable water service by the Appropriator;

(b) a listing of the parcel(s) by their current (by the date of the Form 5 submittal) Assessor's Parcel Number (APN), the original APN of the parcel(s) listed in Exhibit D of the Judgement, the volume(s) of potable water served to each parcel, and the total volume of potable water served in the calendar year;

(c) Additional supplemental documentation of water served shall be submitted, if applicable, for subsequent years until the total volume of water served is equal to the volume of "Earmarked Water" listed in the executed Form 5 between the Overlying Party and Appropriator.

7.2 Accounting for Transfers

Watermaster shall maintain an accounting of acquisitions by Appropriators of water otherwise subject to Overlying Water Rights as the result of the provision of water service by an Appropriator. The Watermaster shall maintain an accounting of all transfers, and such accounting shall be included in the Annual Report and other relevant Watermaster reports as appropriate.

7.3 Transfer of Water Between Appropriators

Any Appropriator may transfer all or any portion of its Storage Account that is surplus to its needs to another Appropriator in accordance with these Rules and Regulations. The Appropriators shall file a Transfer of Right to Recapture Water in Storage Between Appropriators (Watermaster Form 8) with the Watermaster to document the agreed-upon transfer of a specific quantity of water from the Transferor's Storage Account to the Transferee's Storage Account. The Watermaster shall maintain an accounting of all transfers, and such accounting shall be included in the Annual Report and other relevant Watermaster reports as appropriate.

7.4 Availability of Unused Overlying Production and Allocation to the Appropriator Parties

Except as provided for in Section 7.0 herein, to the extent that groundwater pumping by an Overlying Party to the Judgment does not exceed five times the share of safe yield allocated to the Overlying Party during any five-year period (see column 4 of Exhibit B to the Judgment), the amount of groundwater not produced by such Overlying Party pursuant to its rights under the Judgment shall be available for allocation to the Appropriator Parties in accordance with their respective percentage

shares of unused safe yield (see column 3 of Exhibit C to the Judgment). The availability and allocation of any such groundwater not produced by the Overlying Parties in accordance with their rights under the Judgment shall be first determined in fiscal year 2008/09 and every year thereafter. The table below illustrates the allocation process anticipated for the first 10 years of the Judgment.

Available Unused Overlying Production in Fiscal	Will be Allocated to the Appropriator Parties in Fiscal
2003/04	2008/09
2004/05	2009/10
2005/06	2010/11
2006/07	2011/12
2007/08	2012/13
2008/09	2013/14
2009/10	2014/15
2010/11	2015/16
2011/12	2016/17
2012/13	2017/18

Groundwater not produced by the Overlying Parties in accordance with their rights under the Judgment and determined to be available for allocation to the Appropriator Parties pursuant hereto may be utilized by the Appropriator Parties in accordance with the terms of the Judgment and these Rules and Regulations. Neither this rule nor its operation shall be deemed or construed in any way to change, limit or otherwise affect any rights awarded to and held by the Overlying Parties pursuant to the Judgment. Nor shall this rule or its operation result in any liability to the Overlying Parties or be deemed or construed as a transfer, assignment, forfeiture or abandonment of any overlying rights under the Judgment.

8 COORDINATION WITH THE SAN GORGONIO PASS WATER AGENCY AND OTHER AGENCIES

8.0 In General

The San Gorgonio Pass Water Agency ("Agency") was established by the California Water Uncodified Act No. 9099. The Agency has contracted with the California Department of Water Resources to import as much as 17,300 acre feet of water from the California State Water Project.

8.1 Potential Conflict

The Agency has expressed concern that the exercise of its powers may conflict with the powers of the Watermaster, a concern that the Watermaster has acknowledged.

8.2 Coordination of Water Resources Management Activities

The Judgment provides that any Person may make reasonable beneficial use of the Groundwater Storage Capacity for the storage of Supplemental Water; provided however that no such use shall be made except pursuant to a written Groundwater Storage Agreement with the Watermaster. (Judgment, p. 15, lines 1-4). Therefore, in order to minimize the potential for conflict, the Watermaster is authorized to coordinate with the Agency, or other agencies such reasonable Groundwater Storage Agreements. Each such Agreement shall address (for example) whether the management activity that is the subject matter of the Agreement will increase or deplete water supplies, enhance or impair water quality, is engineeringly feasible, and whether it will provide the greatest public good with the least private injury.

8.3 Groundwater Storage Agreement with San Gorgonio Pass Water Agency

The Watermaster accepted the Agency's Groundwater Storage Agreement application in February 2018 (Watermaster Resolution 2018-01) and granted a Storage Account for up to 10,000 acre-feet of Stored Water to the Agency. The Agency purchases State Water Project (SWP) water when available to recharge the Beaumont Basin via the Beaumont Avenue Recharge Facility and/or the Brookside East Recharge Facility. SWP water purchased from an Appropriator and used to recharge the Beaumont Basin will go directly into the Appropriator's Storage Account; SWP water purchased by the Agency and used to recharge the Beaumont Basin will be placed into the Agency's Storage Account. Water in the Agency's Storage Account may be purchased and transferred from the Agency's Storage Account to an Appropriator's Storage Account. The Agency does not own or operate extraction facilities, and so would not extract any of the water from its Storage Account.

9 REVIEW PROCEDURES

9.0 In General

Nothing in the Judgment or these rules and regulations shall be deemed to prevent any party from seeking judicial relief against any other party whose pumping activities constitute an unreasonable interference with the complaining party's ability to extract groundwater. Any and all disputes between and among the Producers and/or the Watermaster shall be addressed expeditiously and resolved, if possible, amicably, in accordance with the following procedures.

9.1 Complaints or Contesting an Application

Any Producer or interested person may file a written complaint with the Watermaster concerning matters other than applications to recharge (Section 5), or store (Section 6), or contest an application to recharge or store water. The written complaint or objection shall describe the basis for the complaint or objection and the underlying facts and circumstances. Such complaint or objection shall be filed with the Watermaster at least fourteen (14) days before the item is to be agendized for the Watermaster Committee. The Watermaster staff shall provide notice of the complaint or objection to all interested parties.

(a) Answering the Complaint or Objection. At the discretion of the affected Party , a written answer to a complaint or objection may be filed at the time it is presented to the Watermaster Committee for consideration. In lieu of immediately answering the complaint or objection, the Party may request a reference to a two-member subcommittee of the Watermaster for review, discussion, and potential resolution prior to the item being agendized for Watermaster consideration.

(b) Continuance for Good Cause. An affected Party may also request a continuance to a subsequent Watermaster meeting (without reference to a subcommittee) and the request may be granted by the Watermaster's staff where good cause exists.

(c) Investigation by Watermaster. The Watermaster may, in its discretion, cause an investigation of the subject matter of the complaint. Any party to the proceeding may be requested to confer and cooperate with the Watermaster, its staff or consultants to carry out such investigations, and to provide such information and data as may be reasonably required.

(d) Uncontested Applications. The Watermaster shall consider and may approve or deny any uncontested application to recharge or store water at a regularly-scheduled meeting of the Watermaster. Where good cause appears, the Watermaster may also, conditionally approve, or continue an uncontested application to a future meeting. If the Watermaster staff recommendation to the Watermaster is to deny an application it shall first be referred to a two-member subcommittee of the Watermaster for review, discussion and potential resolution with the applicant.

(e) Judicial Review. Any action, decision, rule or procedure of the Watermaster shall be subject to review by the Court on its own motion or on timely motion by any Party as follows:

i. Effective Date of Watermaster Action: Any order, decision or action of the Watermaster pursuant to the Judgment or these Rules and Regulations on noticed specific agenda items shall be deemed to have occurred on the date of the order, decision or action.

ii. Notice of Motion for Judicial Review: Any Party May, by a regularly noticed motion, petition the Court for review within 90 days of the action or decision by Watermaster, except motions for review of assessments under the Judgment shall be filed within 30 days of mailing of the notice of the assessment. The motion shall be deemed to be filed and served when a copy, conformed as filed with the Court, has been delivered to the Watermaster staff, together with a service fee sufficient to cover the cost of photocopying and mailing the motion to each Party. The Watermaster staff shall prepare the copies and mail a copy of the motion to each Party or its designee according to the official service list that shall be maintained by the Watermaster staff pursuant to the Judgment. Unless ordered by the Court, any petition shall not operate to stay the effect of any Watermaster action or decision which is challenged.

iii. De Novo Nature of Proceeding: Upon filing of a petition to review a Watermaster action, the Watermaster shall notify the Parties of a date when the Court will take evidence and hear argument. The Court's review shall be de novo and the Watermaster decision or action shall have no evidentiary weight in such proceeding.

iv. Decision: The decision of the Court in such proceedings shall be an appealable Supplemental Order in this case. When it is final, it shall be binding upon the Watermaster and the Parties.

10 WATERMASTER FORMS

10.0 In General

In order to facilitate and expedite he performance of its duties, the Watermaster may, from time-to-time, develop standardized forms for the transaction of business. Such forms shall be adopted by minute action of the Watermaster Board.

10.1 Approved Forms

The following standardized forms shall be used, except when good cause exists for the use of a customized format:

1) Application for Groundwater Storage Agreement.
2) Groundwater Storage Agreement.
3) Application for Recharge.
4) Application (or Amendment to Application) to Recapture Water in Storage.
5) Notice to Adjust Rights of an Overlying Party due to Proposed Provision of Water Service by an Appropriator.
6) Request for Notice or Waiver of Notice and Designation of Address for Notice and Service.
7) Notice of Transfer of Appropriator Production Right or Operating Yield Between Appropriators.
8) Transfer of Right to Recapture Water in Storage Between Appropriators.
9) Water Level Field Form

11 REFERENCES

California Department of Water Resources (DWR), 2010. Groundwater Elevation Monitoring Guidelines. December 2010.

California Department of Water Resources (DWR), 2016. Monitoring Protocols, Standards, and Sites BMP, Best Management Practices for the Sustainable Management of Groundwater. December 2016.

Cunningham, W.L., and Schalk, C.W., comps., 2011, Groundwater Technical Procedures of the U. S. Geological Survey: U. S. Geological Survey Techniques and Methods 1-A1, 151 p.

Harder, Thomas. 2015. 2013 Reevaluation of the Beaumont Basin Safe Yield. Prepared by Thomas Harder & Co. in association with Alda, Inc. Prepared for the Beaumont Basin Watermaster. April 3.

Harder, Thomas. 2018. Beaumont Basin Storage Loss Analysis. Prepared by Thomas Harder & Co. in association with Alda, Inc. Prepared for the Beaumont Basin Watermaster. September 6.

Langridge, R., Brown, A., Rudestam, K., and Conrad, E. 2016. An Evaluation of California's Adjudicated Groundwater Basins. Prepared for the State Water Resources Control Board. October 1.

Wildermuth Environmental, Inc. 2005. Integrated Regional Water Management Program for the San Timoteo Watershed (Formerly, San Timoteo Watershed Management Program) Draft Report. Prepared for the San Timoteo Watershed Management Authority. January 24.

- END OF RULES AND REGULATIONS -

ITEM VII-E

BEAUMONT BASIN WATERMASTER

MEMORANDUM NO. 24-20

Date:	June 5, 2024
From:	Thomas Harder, Thomas Harder & Co.
Subject:	Analysis of Future Hydrogeologic Scenarios Using the Model
Recommendation:	For Information and Discussion

At the February 2024 regular Committee meeting, TH&Co presented a framework for analysis of potential undesirable results in the Beaumont Basin. The purpose of the framework was to assess the types of conditions in the basin that could result in groundwater level impacts to stakeholders. TH&Co proposed a "stress test" using the groundwater flow model to analyze a range of hydrogeologic conditions and their effects on groundwater levels and storage.

As a follow-up to the February 2024 meeting, TH&Co has prepared a scope of work and cost estimate (attached) to analyze three future basin scenarios using the updated calibrated groundwater flow model of the Beaumont Basin. Our proposed approach is to define an initial scenario, with Committee input, that reflects a "worst case" dry hydrogeologic condition. The other two scenarios would iteratively test wetter conditions to assess the relative impact on the ability of Basin Stakeholders to pump groundwater without undesirable results. The three scenarios would be compared against a baseline scenario, which is what was developed for the redetermination of the Safe Yield.

The cost estimate to analyze three scenarios is $67,720. Additional scenarios can be developed and analyzed for $21,100 per scenario.

The scope of work can be completed within six months of authorization to proceed.

Thomas Harder & Co.
Groundwater Consulting

Item VII-E Attachment 1

May 28, 2024

Mr. Art Vela
Beaumont Basin Watermaster
99 E. Ramsey St.
Banning, California 92220

Re: Proposed Scope of Work for Analysis of Future Hydrogeologic Scenarios

Dear Mr. Vela:

At the request of the Beaumont Basin Watermaster (BBWM), Thomas Harder & Company (TH&Co) has prepared this proposed scope of work (SOW) to analyze alternative future hydrogeologic scenarios ("forecast scenarios") for the adjudicated area of the Beaumont Basin (the Basin). The objective of the work is to develop a plausible range of basin hydrologic conditions (precipitation and imported water recharge) to stress the Basin and determine if those conditions could result in undesirable results. This scope of work and cost estimate assumes the development and analysis of three scenarios. However, the effort is iterative, and costs are provided on a per scenario basis should additional scenarios be needed and approved by the BBWM committee.

METHODOLOGY

TH&Co redetermined the safe yield of the Basin as presented to the BBWM in a workshop given at Beaumont-Cherry Valley Water District headquarters on February 7, 2024 ("the February workshop"). The safe yield analysis relied on a groundwater flow model (GFM) comprised of a historical ("calibration") period spanning January 1978 through December 2022 and a 10-year forecast period spanning January 2023 through December 2032. For this SOW, the same GFM and forecast duration period will be used, with modifications as necessary to simulate the forecast scenarios.

SCOPE OF WORK

The SOW involves the following tasks:

Thomas Harder & Co.
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(714) 779-3875

1. Define the forecast scenarios;
2. Modify GFM input files to simulate the forecast scenarios ("pre-processing");
3. Conduct the model runs ("simulations");
4. Analyze, illustrate, and tabulate the model results ("post-processing"); and
5. Prepare and submit draft technical memorandum of the results ("reporting").

TASK 1: DEFINE THE FORECAST SCENARIOS

This SOW assumes that three (3) forecast scenarios will be evaluated. It is assumed that a prolonged period of extreme dry hydrologic conditions would have the highest probability of producing undesirable results in the Basin. Accordingly, our proposed approach is to define an initial scenario that reflects a "worst case" dry hydrogeologic condition and iteratively test wetter conditions to assess the relative impact of these conditions on the ability of Basin Stakeholders to pump groundwater without undesirable results. The three scenarios would be compared against a baseline scenario, which is what was developed for the redetermination of the Safe Yield.

The hydrogeologic conditions will be characterized using: 1) precipitation and availability of imported water, 2) overlier pumping, and 3) operation of proposed injection wells in the Yucaipa Valley Water District's (YVWD's) service area. In short, the forecast scenarios are based on climate and pumping.

The following presents the proposed forecast scenarios. TH&Co envisions this task to be a collaborative effort and seeks input from all stakeholders in finalizing the forecast scenarios before continuing onto subsequent tasks.

Precipitation and Availability of Imported Water

As presented at the February workshop, with respect to precipitation and availability of imported water, the GFM forecast period assumes the following "proxy years" on a water year (WY) basis:

- WY 2005 = very wet;
- WY 2019 = wet;
- WY 2015 = average;
- WY 2018 = dry; and
- WY 2007 = very dry.

For the sake of consistency, these proxy years will be used to represent hydrogeological conditions in the analysis as well. **Table 1** below shows a preliminary selection of proxy water years for the forecast period of each proposed scenario. As shown in the table, the best case and worst case forecast scenarios consist of two alternating proxy water years whereas the average case forecast scenario consists of a single proxy water year.

Table 1: Precipitation / Availability of Imported Water Proxy Water Years for the Forecast Scenarios

Forecast Water Year	Scenario 1 (Worst Case)	Scenario 2	Scenario 3	Baseline
2023	WY 2018 (dry)	WY 2019 (wet)	WY 2019 (wet)	WY 2005 (very wet)
2024	WY 2007 (very dry)	WY 2018 (dry)	WY 2018 (dry)	WY 2005 (very wet)
2025	WY 2018 (dry)	WY 2007 (very dry)	WY 2007 (very dry)	WY 2018 (dry)
2026	WY 2018 (dry)	WY 2018 (dry)	WY 2018 (dry)	WY 2015 (average)
2027	WY 2007 (very dry)	WY 2019 (wet)	WY 2019 (wet)	WY 2015 (average)
2028	WY 2019 (wet)	WY 2018 (dry)	WY 2018 (dry)	WY 2007 (very dry)
2029	WY 2018 (dry)	WY 2015 (average)	WY 2015 (average)	WY 2019 (wet)
2030	WY 2007 (very dry)	WY 2018 (dry)	WY 2018 (dry)	WY 2015 (average)
2031	WY 2015 (average)	WY 2007 (very dry)	WY 2007 (very dry)	WY 2005 (very wet)
2032	WY 2018 (dry)	WY 2015 (average)	WY 2019 (wet)	WY 2015 (average)

Overlier Pumping

For this analysis, overlier pumping in each scenario is assumed to be 1.25 times the average historical overlier pumping between 2018 and 2023 (5 years).

Appropriator Pumping

Pumping by Approriators in each scenario is in accordance with the pumping projections used in the Baseline.

Operation of Proposed YVWD Injection Wells

The baseline assumes YVWD's four proposed injection wells will begin operation in January 2026 and continue through December 2032 at a constant pumping rate of 500 acre-feet per year per well (i.e., 2000 acre-feet per year).

For this analysis, the best case, worst case, and average case forecast scenarios will be based on assumed injection rates as follows:

- Scenario 1 (worst case): The four injection wells do not go into operation (i.e., 0 acre-feet per year) but the demand supplied by the extraction wells continues at 2,000 acre-ft/yr;

- Scenario 2: The four injection wells do not go into operation (i.e., 0 acre-feet per year) but the demand supplied by the extraction wells continues at half of design capacity or 1,000 acre-ft/yr;
- Scenario 3: The four injection wells do not go into operation (i.e., 0 acre-feet per year) but the demand supplied by the extraction wells continues at 500 acre-ft/yr.

TASK 2: MODIFY INPUT FILES

The GFM is configured in the widely-used U.S. Geological Survey (USGS) MODFLOW code. To run the code, the user must provide several input files called 'packages'. Some packages include parameters that vary with time whereas others do not. For this analysis, packages that do not have time-variant parameters will not be modified. All packages that have time-variant parameters to be modified for this proposed analysis are listed in **Table 2** below.

Table 2: Time-Variant Packages to be Modified for the Analysis

Package	Function
Evapotranspiration (EVT)	This package allows the user to vary evaporation surface, depth, and rate. All these parameters are varied within the GFM over time.
General Head Boundary (GHB)	This package allows the user to vary groundwater elevations and conductances over time. The groundwater elevations at locations along the perimeter of the model domain and in some instances immediately outside the adjudicated boundary, are varied over time.
Multi-node Well (MNW2)	This package allows the user to vary pumping rates over time. As currently configured, the pumping rates for all wells are varied within the GFM over time.
Recharge (RCH)	This package allows the user to vary recharge rates over time. As currently configured, recharge rates in 33 individual recharge zones are varied within the GFM over time.
Streamflow Routing (SFR)	As currently configured, this package allows the user to vary streambed conductivity and thickness by reach (model cell) but not over time. However, stream channel roughness coefficient, upstream stream channel width, and downstream stream channel width are varied within the GFM over time.
Well (WEL)	As currently configured, this package is used to simulate mountain block/mountain front recharge. This process is varied within the GFM over time at all cell locations specified in the WEL package.

The historical calibration of the model will not change and will utilize the 50th percentile realization from the 2023 redetermination of the Basin Safe Yield. Each of the time-variant packages of the 10-yr forecast period for the three scenarios will be adjusted in the model to reflect the monthly pumping and recharge specific to each scenario.

TASK 3: SIMULATIONS

The input files for each scenario will be appended to the historical period in the calibrated baseline model and analyzed. It is assumed for this cost estimate that the same historical realization of the model used to estimate Basin Safe Yield will be used for the scenarios.

TASK 4: POST-PROCESSING

The USGS MODFLOW post-processing utility code 'ZONEBUDGET' will be used to extract all water budget components for each scenario. TH&Co will select up to ten representative wells for analysis of hydrographs to assess the relative impact of the conditions assumed in each scenario on groundwater levels. TH&Co will also evaluate and present the water budgets to assess impacts of dry conditions on subsurface inflow and outflow.

TASK 5: REPORTING

The findings of the analysis will be presented in a technical memorandum (TM). Information from the safe yield reset report currently being prepared by TH&Co and to be presented at the June meeting may be briefly summarized in the TM where relevant; however, the TM will focus on the model results of dry hydrologic conditions, the potential impacts of these conditions on groundwater levels throughout the Basin, and the potential for impacts to stakeholders. The cost estimate for this task assumes preparation of one draft version of the report and one final version.

COST AND SCHEDULE

The cost for the proposed scope of work is $67,720 (see Table 1). It is anticipated that the work can be completed within 6 months of receiving approval to proceed.

If the BBWM requires analysis of additional scenarios, TH&Co can analyze them at a cost of $21,100 per scenario. It is estimated that analysis of each additional scenario will add 3 to 4 weeks to the schedule.

As always, we appreciate the opportunity to provide our services to the Beaumont Basin Watermaster. If you have any questions, please contact us.

Sincerely,

Thomas Harder

Thomas Harder, P.G., C.HG.
Principal Hydrogeologist

Jim Van de Water

Jim Van de Water, P.G., C.HG.
Principal Hydrogeologist

Table 1

Cost Estimate

Beaumont Basin Watermaster - Analysis of Future Hydrogeologic Scenarios

Task	Description	Principal Hydrogeologist $220/hr	Associate Hydrogeologist $190/hr	Senior Geologist $160/hr	Project Geoscientist $135/hr	Staff Geoscientist $115/hr	Graphics $100/hr	Clerical $80/hr	Total Labor	Reimbursable Expenses	Total Cost
1	Define the Forecast Scenarios	12	0	0	0	24	0	0	$5,400	$0	$5,400
2	Preparation of Input Files	40	0	0	0	120	0	0	$22,600	$0	$22,600
3	Simulations	12	0	0	0	24	0	0	$5,400	$0	$5,400
4	Post-Processing	32	0	0	0	64	8	0	$15,200	$0	$15,200
5	Reporting	40	0	0	0	80	8	4	$19,120	$0	$19,120
	Totals =>	**136**	**0**	**0**	**0**	**312**	**16**	**4**	**$67,720**	**$0**	**$67,720**

Optional Task

	Setup and Analysis of Each Additional Scenario	40	0	0	0	100	8		$21,100	$0	$21,100

ITEM VII-F

BEAUMONT BASIN WATERMASTER

MEMORANDUM NO. 24-21

Date:	June 5, 2024
From:	Thomas Harder, Thomas Harder & Co.
Subject:	Consideration of Amendment to Task Order No. 4 for Preparation and Attendance at Special Committee Meetings
Recommendation:	Approve an amendment to Task Order No. 4 for a sum not to exceed $12,825.00

At the April 2024 Watermaster Committee meeting, the Committee agreed to continue holding at least three additional special meetings to enable planning to develop strategies to optimize management of the groundwater basin. TH&Co/Alda has been attending special meetings under Task Order 4. However, the original scope of work for attendance at up to four meetings has been used and additional meetings are out of scope.

The proposed amendment to the scope of services for Task Order No. 4 is for preparation and attendance at an additional three Special Meetings.

The proposed budget is $12,825.00 and is based on 80 engineering and administrative hours.

The financial impacts associated with the proposed contract amendment would result in a budget line item of $12,825.00, and if approved would result in invoices sent to each Watermaster Committee member totaling up to $2,565.00.

Thomas Harder & Co.
Groundwater Consulting

Item VII-F Attachment 1

May 28, 2024

Mr. Art Vela
Beaumont Basin Watermaster
99 E. Ramsey St.
Banning, California 92220

Re: Beaumont Basin Watermaster – Proposed Amendment to Task Order 4 - Attendance at Special Committee Meetings

Dear Mr. Vela,

This letter outlines our proposed scope of services and consulting fee to prepare for and attend three additional Special Meetings for the Beaumont Basin Watermaster (the Watermaster). To date, four Special Meetings have been held to develop strategies to optimize management of the groundwater basin. Three additional meetings are being envisioned to further articulate the vision and goals of the Beaumont Basin Watermaster. The cost estimate to attend the three additional meetings would be an amendment to Task Order 4.

Our proposed scope of services includes preparation for and attendance at three Special Committee meetings.

Estimated Hours:	60 Hours
Estimated Cost:	$12,825.00

The total estimated cost for this scope of work is $12,825 as summarized in Table 1. Services will be billed on a time and materials basis up to the approved limit according to the billing rates shown in Table 1.

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1260 N. Hancock St., Suite 109
Anaheim, California 92807
(714) 779-3875

I appreciate the opportunity to provide consulting services for the Beaumont Basin Watermaster. If you have any questions, don't hesitate to contact me at (714) 394-4449.

Sincerely,

Thomas Harder

Thomas Harder, P.G., C.HG.
Principal Hydrogeologist

Cost Estimate for Beaumont Basin Watermaster Engineering Services
Task Order No. 3 Attendance at Special Meetings

		Thomas Harder & Co.								ALDA				
Task	Description	Principal Hydro-Geologist $220/hr	Associate Hydro-Geologist $190/hr	Senior Hydro-Geologist $160/hr	Project Geo-Scientist $135/hr	Staff Geo-Scientist $115/hr	Graphics $100/hr	Clerical $80/hr	Total Hours TH&Co	Project Manager $225/hr	Professional Engineer $200/hr	Staff Engineer $175/hr	Total Hours ALDA	Total Cost
1	Special Meeting Preparation	9	0	0	6	0	0	0	15	9	0	0	9	**$4,815**
2	Special Meeting Attendance (Assume 3 Meetings)	18	0	0	0	0	0	0	18	18	0	0	18	**$8,010**
	Total Labor Hours Tasks 1 and 2	**27**	**0**	**0**	**6**	**0**	**0**	**0**	**33**	**27**	**0**	**0**	**27**	**$12,825**