



**City of Greenfield
Arroyo Seco
Groundwater Sustainability Agency**

599 El Camino Real
Greenfield, CA 93927

**Meeting Agenda
May 23, 2023
4:00 P.M.**

The Arroyo Seco Groundwater Sustainability Agency will be meeting on May 23, 2023 at 4:00 p.m. in the City Council Chambers located at 599 El Camino Real, Greenfield, California 93927, and will be open to the public. This meeting will also be accessible online and may be viewed through the following options:

Join Zoom Meeting: <https://us02web.zoom.us/j/86701198267>

Meeting ID: 867 0119 8267

PLEASE TURN OFF CELL PHONES AND PAGERS

- A. **CALL TO ORDER**
- B. **ROLL CALL**
- C. **PLEDGE OF ALLEGIANCE**
- D. **PUBLIC COMMENTS FROM THE AUDIENCE REGARDING ITEMS NOT ON THE AGENDA**

This portion of the Agenda allows an individual the opportunity to address the GSA on any items not on the Closed Session, Consent Calendar, Public Hearings, and City Council Business. Under state regulations, **no action can be taken on non-agenda items, including issues raised under this agenda item.** Members of the public should be aware of this when addressing the GSA regarding items not specifically referenced on this Agenda. Please be further aware that public comments can also be submitted via email to the following email address: cityclerk@ci.greenfield.ca.us.

**Meeting Agenda
May 23, 2023**

E. CONSENT CALENDAR

All matters listed under the Consent Calendar are considered routine and may be approved by one action of the Agency, unless a request for removal for discussion or explanation is received prior to the time Agency votes on the motion to adopt.

E-1. ADOPTION of Minutes of the April 25, 2023 Arroyo Seco GSA Meeting

F. AGENCY BUSINESS

F-1. REVIEW Department of Water Resources Approved Determination of the 2022 Forebay Subbasin Aquifer Groundwater Sustainability Plan and Provide Staff Direction

- a. Staff Report
- b. Public Comments
- c. Agency Board - Comments / Review / Action

F-2. RECEIVE Arroyo Seco Groundwater Sustainability Agency General Manager's Status Report

- a. Oral Report
- b. Public Comments
- c. Agency Board - Comments / Review / Action

G. ADJOURNMENT

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In compliance with the American With Disabilities Act, if you need special assistance to participate in this meeting, please contact the City Clerk at (831) 674-5591. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to the meeting (CFR 35.102-35.104 ADA Title II).
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This agenda is duly posted outside City Hall and on the City of Greenfield web site

**CITY OF GREENFIELD ARROYO SECO
GROUNDWATER SUSTAINABILITY AGENCY
MINUTES**

AGENCY MEETING OF APRIL 25, 2023

ROLL CALL

Present: Chair Thorp, Board Member Rodriguez and White
Absent: Vice Chair Griva and Board Member Wood
Staff: Interagency Attorney Thompson, General Manager Weeks, City Clerk Rathbun

PLEDGE OF ALLEGIANCE

All recited the Pledge of Allegiance.

APPROVAL OF CONSENT AGENDA

A MOTION by Board Member Rodriguez, seconded by Board Member White to approve Minutes of the March 28, 2023 Arroyo Seco Groundwater Sustainability Agency Meeting. All in favor. Motion carried.

AGENCY BUSINESS

**CONSIDER NEW ARROYO SECO GROUNDWATER SUSTAINABILITY AGENCY
ADVISORY COMMITTEE MEMBERSHIP**

Staff report was given by General Manager Weeks.

A MOTION by Board Member White, seconded by Board Member Rodriguez to approve and appoint the following to the ASGSA Advisory Committee: Michael Griva, James Thorp, Brian Thorne, Allan Panziera, Jerry Lohr (Jesus Ramirez – Alt), Roger Moitoso, Tim Frahm, Mary Lerner (Keven Serrano – Alt). All in favor. Motion carried.

**RECEIVE ARROYO SECO GROUNDWATER SUSTAINABILITY AGENCY GENERAL
MANAGER'S STATUS REPORT**

General Manager Weeks stated that Salinas Valley Basin GSA would be increasing their fees to cover the 2023-2024 expenditures. He stated that the fees would more than double. He stated that in the implementation agreement, under section 4G, there was a requirement that stated that anytime the SVBGSA proposed to raise their fees that they would coordinate with the ASGSA board. He stated that he did contact the new general manager, Piret Harmon, and she was very responsive and they were in the middle of trying to set up a meeting. He stated that they wanted to talk about the new tiered rate structure and explained that the schedule of rates were different in different areas.

General Manager Weeks also stated that there was a technical advisory group which was composed of staff, consultants and other individuals. He stated that this group used the USGA model to try to model how seawater intrusion was moving into the pressure 180, 400 zone. He stated that there had been a couple of issues that had been raised by members. He stated that these members of the technical advisory group questioned the applicability of the use of that model. He stated that he was concerned about that they were still going to move forward with that model even with the concerns that were expressed by the technical advisory members. He stated that he wanted to bring it to the Advisory Committee and then it could be brought to this Board in order to see what should be done.

ADJOURNMENT

Meeting adjourned at 4:29 p.m.

Chair of the Board

City Clerk of the City of Greenfield



**City of Greenfield
Arroyo Seco
Groundwater Sustainability Agency**

MEMORANDUM: May 18, 2023

AGENDA DATE: May 23, 2023

TO: Board Members

FROM: Curtis Weeks, General Manager

TITLE: **REVIEW DWR APPROVED DETERMINATION OF THE 2022 FOREBAY SUBBASIN AQUIFER GSP AND PROVIDE STAFF DIRECTION**

The Californian Department of Water Resources (DWR) has approved the Forebay Subbasin GSP. With formal approval DWR has also transmitted 7 additional Corrective Actions for the Salinas Valley Basin GSA and the Arroyo Seco GSA (SVBGSA and ASGSA) to consider. The timing on our collective response to DWR's requested actions are as soon as possible. With DWR's formal approval of the GSP, the Salinas Valley GSA and the Arroyo Seco GSA have moved into the implementation phase of the Sustainable Groundwater Management Act (SGMA). Currently, the SVBGSA has developed an implementation road map to work on several areas of SGMA compliance in the Forebay Subbasin, mostly focused on filling data gap and providing additional monitoring infrastructure. With the receipt of DWR's approval and findings, the implementation phase of the Forebay's GSP will need to be modified to include the work outlined in the set of Corrective Actions.

DISCUSSION:

The approval letter and DWR's Forebay Subbasin Review Report are attached for the Board's review. The corrective actions are summarized in the Summary section of the report and are presented below:

- **RECOMMENDED CORRECTIVE ACTION 1**

Conduct necessary investigations or studies to understand the degree to which groundwater extraction affects groundwater quality in the Subbasin.

- **RECOMMENDED CORRECTIVE ACTION 2**

Investigate the connectivity of the upper saturated zone to the principal aquifer to determine if a continuous upper saturated zone connects to the principal aquifer.

- **RECOMMENDED CORRECTIVE ACTION 3**

Conduct necessary field reconnaissance for GDE identification. Update future iterations of the GSP with the results of the field studies to identify GDEs in the Subbasin.

- **RECOMMENDED CORRECTIVE ACTION 4**

Provide more information about how the proposed minimum thresholds for the chronic lowering groundwater levels may impact beneficial uses and users. Specifically, work to obtain additional well information and consider the impact of the selected minimum threshold levels on supply wells. The consideration should identify the degree/extent of potential impact including the percentage, number and location of potentially impacted wells at the proposed minimum thresholds for chronic lowering of groundwater levels.

- **RECOMMENDED CORRECTIVE ACTION 5**

Revise the definition of undesirable results so that exceedances of minimum thresholds caused by groundwater extraction, whether the GSAs have implemented pumping regulations or not, are considered in the assessment of undesirable results in the Subbasin.

- **RECOMMENDED CORRECTIVE ACTION 6**

Provide the rationale for using 2019 concentration data instead of 2015 concentration data as the baseline for setting minimum thresholds for degraded water quality.

- **RECOMMENDED CORRECTIVE ACTION 7**

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSAs should work to address the following items by the first periodic update:

- a. Establish sustainable management criteria for all conditions within the Subbasin regardless of whether conservation releases are occurring or not.
- b. Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.
- c. Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.
- d. Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSAs jurisdictional area.

The work needed to complete some of the corrective actions has already begun under the ASGSA's original GSP but will need to be completed for the rest of Forebay Subbasin. As an example, the ASGSA original GSP included conducting a salt management study as a

management action which would have addressed Corrective Action 1. Nevertheless, the ASGSA will need to be working with the SVBGSA on how to respond to all 7 Corrective Actions. Staff recommends the Board direct staff to begin developing the technical coordination with the SVBGSA and begin developing a comprehensive respond plan. It is also recommended that the Board consider providing direction to the Coordination Committee regarding how the GSAs will develop the Corrective Action respond plan.

RECOMMENDATION:

Staff recommends the ASGSA Board review DWR letter and GSP report and provide staff and the Coordination Committee direction.

Attachment: DWR Approval Letter and Review Report



CALIFORNIA DEPARTMENT OF WATER RESOURCES

SUSTAINABLE GROUNDWATER MANAGEMENT OFFICE

715 P Street, 8th Floor | Sacramento, CA 95814 | P.O. Box 942836 | Sacramento, CA 94236-0001

April 27, 2023

Donna Meyers
Salinas Valley Basin Groundwater Sustainability Agency
1441 Schilling Place
Salinas, CA 93901
meyersd@svbgsa.org

RE: Approved Determination of the 2022 Groundwater Sustainability Plan Submitted for the Salinas Valley Basin – Forebay Aquifer Subbasin

Dear Donna Meyers,

The Department of Water Resources (Department) has evaluated the groundwater sustainability plan (GSP) submitted for the Salinas Valley Basin – Forebay Aquifer Subbasin and has determined the GSP is approved. The approval is based on recommendations from the Staff Report, included as an exhibit to the attached Statement of Findings, which describes that the Forebay Aquifer Subbasin satisfies the objectives of the Sustainable Groundwater Management Act (SGMA) and substantially complies with the GSP Regulations. The Staff Report also proposes recommended corrective actions that the Department believes will enhance the GSP and facilitate future evaluation by the Department. The Department strongly encourages the recommended corrective actions be given due consideration and suggests incorporating all resulting changes to the GSP in future updates.

Recognizing SGMA sets a long-term horizon for groundwater sustainability agencies (GSAs) to achieve their basin sustainability goals, monitoring progress is fundamental for successful implementation. GSAs are required to evaluate their GSPs at least every five years and whenever the Plan is amended, and to provide a written assessment to the Department. Accordingly, the Department will evaluate approved GSPs and issue an assessment at least every five years. The Department will initiate the first five-year review of the Forebay Aquifer Subbasin GSP no later than January 24, 2027.

Please contact Sustainable Groundwater Management staff by emailing sgmps@water.ca.gov if you have any questions related to the Department's assessment or implementation of your GSP.

Thank You,

Paul Gosselin

Paul Gosselin
Deputy Director
Sustainable Groundwater Management

Attachment:

1. Statement of Findings Regarding the Determination of Approval of the Salinas Valley Basin – Forebay Aquifer Subbasin Groundwater Sustainability Plan

**STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES**

**STATEMENT OF FINDINGS REGARDING THE
APPROVAL OF THE
SALINAS VALLEY – FOREBAY AQUIFER SUBBASIN
GROUNDWATER SUSTAINABILITY PLAN**

The Department of Water Resources (Department) is required to evaluate whether a submitted groundwater sustainability plan (GSP or Plan) conforms to specific requirements of the Sustainable Groundwater Management Act (SGMA or Act), is likely to achieve the sustainability goal for the basin covered by the Plan, and whether the Plan adversely affects the ability of an adjacent basin to implement its GSP or impedes achievement of sustainability goals in an adjacent basin. (Water Code § 10733.) The Department is directed to issue an assessment of the Plan within two years of its submission. (Water Code § 10733.4.) This Statement of Findings explains the Department’s decision regarding the Plan submitted by the Salinas Valley Basin Groundwater Sustainability Agency and the Arroyo Seco Groundwater Sustainability Agency (collectively, GSAs or Agencies) for the Forebay Aquifer Subbasin (Basin No. 3-004.04).

Department management has discussed the Plan with staff and has reviewed the Department Staff Report, entitled Sustainable Groundwater Management Program Groundwater Sustainability Plan Assessment Staff Report, attached as Exhibit A, recommending approval of the GSP. Department management is satisfied that staff have conducted a thorough evaluation and assessment of the Plan and concurs with staff’s recommendation and all the recommended corrective actions. The Department therefore **APPROVES** the Plan and makes the following findings:

- A. The Plan satisfies the required conditions as outlined in § 355.4(a) of the GSP Regulations (23 CCR § 350 et seq.):
 - 1. The Plan was submitted within the statutory deadline of January 31, 2022. (Water Code § 10720.7(a); 23 CCR § 355.4(a)(1).)
 - 2. The Plan was complete, meaning it generally appeared to include the information required by the Act and the GSP Regulations sufficient to warrant a thorough evaluation and issuance of an assessment by the Department. (23 CCR § 355.4(a)(2).)
 - 3. The Plan, either on its own or in coordination with other Plans, covers the entire Subbasin. (23 CCR § 355.4(a)(3).)
- B. The general standards the Department applied in its evaluation and assessment of the Plan are: (1) “conformance” with the specified statutory requirements, (2)

Statement of Findings

Salinas Valley – Forebay Aquifer Subbasin (No. 3-004.04)

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“substantial compliance” with the GSP Regulations, (3) whether the Plan is likely to achieve the sustainability goal for the Forebay Aquifer Subbasin within 20 years of the implementation of the Plan, and (4) whether the Plan adversely affects the ability of an adjacent basin to implement its GSP or impedes achievement of sustainability goals in an adjacent basin. (Water Code § 10733.) Application of these standards requires exercise of the Department’s expertise, judgment, and discretion when making its determination of whether a Plan should be deemed “approved,” “incomplete,” or “inadequate.”

The statutes and GSP Regulations require Plans to include and address a multitude and wide range of informational and technical components. The Department has observed a diverse array of approaches to addressing these technical and informational components being used by GSAs in different basins throughout the state. The Department does not apply a set formula or criterion that would require a particular outcome based on how a Plan addresses any one of SGMA’s numerous informational and technical components. The Department finds that affording flexibility and discretion to local GSAs is consistent with the standards identified above; the state policy that sustainable groundwater management is best achieved locally through the development, implementation, and updating of local plans and programs (Water Code § 113); and the Legislature’s express intent under SGMA that groundwater basins be managed through the actions of local governmental agencies to the greatest extent feasible, while minimizing state intervention to only when necessary to ensure that local agencies manage groundwater in a sustainable manner. (Water Code § 10720.1(h)) The Department’s final determination of a Plan’s status is made based on the entirety of the Plan’s contents on a case-by-case basis, considering and weighing factors relevant to the particular Plan and Subbasin under review.

- C. In making these findings and Plan determination, the Department also recognized that: (1) it maintains continuing oversight and jurisdiction to ensure the Plan is adequately implemented; (2) the Legislature intended SGMA to be implemented over many years; (3) SGMA provides Plans 20 years of implementation to achieve the sustainability goal in a Subbasin (with the possibility that the Department may grant GSAs an additional five years upon request if the GSA has made satisfactory progress toward sustainability); and, (4) local agencies acting as GSAs are authorized, but not required, to address undesirable results that occurred prior to enactment of SGMA. (Water Code §§ 10721(r); 10727.2(b); 10733(a); 10733.8.)
- D. The Plan conforms with Water Code §§ 10727.2 and 10727.4, substantially complies with 23 CCR § 355.4, and appears likely to achieve the sustainability goal for the Subbasin. It does not appear at this time that the Plan will adversely affect the ability of adjacent basins to implement their GSPs or impede achievement of sustainability goals.

Statement of Findings

Salinas Valley – Forebay Aquifer Subbasin (No. 3-004.04)

April 27, 2023

1. The sustainable management criteria and goal to maintain groundwater levels at or above December 2015 groundwater elevations are reasonable and sufficiently explained. The Plan relies on the best available information and science to quantify the groundwater conditions that the Plan seeks to avoid and provides an objective way to determine whether the Subbasin is being managed sustainably in accordance with SGMA. (23 CCR § 355.4(b)(1).)
2. The Plan demonstrates a thorough understanding of where data gaps exist and demonstrate a commitment to eliminate those data gaps. In particular, better understanding the hydrogeologic properties of the Subbasin's principal aquifer, the relationship between regional groundwater pumping and interconnected surface water depletions, expanding the existing groundwater extraction monitoring program to cover the entire Subbasin, and incorporating new information into numerical models to improve water budget calculations, will be important in reducing uncertainty regarding the GSAs' ability to evaluate potential significant and unreasonable effects related to groundwater extraction in the Subbasin. Filling these data gaps and others described in the Plan, should lead to the refinement of the GSAs' monitoring networks and sustainable management criteria and help inform and guide adaptive management strategies. (23 CCR § 355.4(b)(2).)
3. The projects and management actions proposed are designed to reduce water demand and increase groundwater storage. The projects and management actions are reasonable and commensurate with the level of understanding of the Subbasin setting. The projects and management actions described in the Plan provide a feasible approach to achieving the Subbasin's sustainability goal and should provide the GSAs with greater versatility to adapt and respond to changing conditions and future challenges during GSP implementation. (23 CCR § 355.4(b)(3).)
4. The Plan provides a detailed explanation of how the varied interests of groundwater uses and users in the Subbasin were considered in developing the sustainable management criteria and how those interests, including domestic wells, would be impacted by the chosen minimum thresholds. (23 CCR § 355.4(b)(4).)
5. The Plan's projects and management actions appear feasible at this time and appear likely to prevent undesirable results and ensure that the Subbasin is operated within its sustainable yield within 20 years. The Department will continue to monitor Plan implementation and reserves the right to change its determination if projects and management actions are

Statement of Findings

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not implemented or appear unlikely to prevent undesirable results or achieve sustainability within SGMA timeframes. (23 CCR § 355.4(b)(5).)

6. The Plan includes a reasonable assessment of overdraft conditions and includes reasonable means to mitigate overdraft, if present. (23 CCR § 355.4(b)(6).)
7. At this time, it does not appear that the Plan will adversely affect the ability of an adjacent subbasin to implement its GSP or impede achievement of sustainability goals in an adjacent subbasin. The Plan explains that the Salinas Valley Basin GSA is either the exclusive GSA or one of the coordinating GSAs for the adjacent subbasins and therefore, the GSA will coordinate implementation of the GSPs developed for each of these subbasins. Department staff will continue to review periodic updates to the Plan to assess whether implementation of the Forebay Aquifer GSP is potentially impacting adjacent subbasins. (23 CCR § 355.4(b)(7).)
8. If required, a satisfactory coordination agreement has been adopted by all relevant parties. (23 CCR § 355.4(b)(8).)
9. The Arroyo Seco GSA and the Salinas Valley Basin GSA's eight member agencies (County of Monterey, Monterey County Water Resources Agency, City of Salinas, City of Soledad, City of Gonzales, City of King, Castroville Community Services District, and Monterey One Water) have historically implemented numerous projects and management actions to address problematic groundwater conditions in the Subbasin. The GSAs and their history of groundwater management provide a reasonable level of confidence that the GSAs have the legal authority and financial resources necessary to implement the Plan. (23 CCR § 355.4(b)(9).)
10. Through review of the Plan and consideration of public comments, the Department determines that the GSAs adequately responded to comments that raised credible technical or policy issues with the Plan, sufficient to warrant approval of the Plan at this time. The Department also notes that the recommended corrective actions included in the Staff Report are important to addressing certain technical or policy issues that may have been raised and, if not addressed before future, subsequent plan evaluations, may preclude approval of the Plan in those future evaluations. (23 CCR § 355.4(b)(10).)

E. In addition to the grounds listed above, DWR also finds that:

1. The Plan sets forth minimum thresholds for chronic lowering of groundwater levels that take into consideration the depths of domestic water supply wells. (Forebay Aquifer GSP p. 240). The Plan sets minimum thresholds at groundwater levels observed in 2015 which should avoid any

Statement of Findings

Salinas Valley – Forebay Aquifer Subbasin (No. 3-004.04)

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new impacts that may be caused by lowering groundwater levels below historical lows. The Plan's compliance with the requirements of SGMA and substantial compliance with the GSP Regulations supports the state policy regarding the human right to water (Water Code § 106.3). The Department developed its GSP Regulations consistent with, and intending to further, the policy through implementation of SGMA and the Regulations, primarily by achieving sustainable groundwater management in a basin. By ensuring substantial compliance with the GSP Regulations, the Department has considered the state policy regarding the human right to water in its evaluation of the Plan. (23 CCR § 350.4(g).)

2. The Plan acknowledges and identifies interconnected surface waters within the Subbasin. The GSAs propose initial sustainable management criteria to manage this sustainability indicator and measures to improve understanding and management of depletions of interconnected surface water. The GSAs acknowledge, and the Department agrees, many data gaps related to interconnected surface water exist. The GSAs should continue filling data gaps, collecting additional monitoring data, and coordinating with resources agencies and interested parties to understand beneficial uses and users that may be impacted by depletions of interconnected surface water caused by groundwater pumping. Future updates to the Plan should aim to improve the initial sustainable management criteria as more information and improved methodologies become available.
3. The California Environmental Quality Act (Public Resources Code § 21000 *et seq.*) does not apply to the Department's evaluation and assessment of the Plan.

Statement of Findings
Salinas Valley – Forebay Aquifer Subbasin (No. 3-004.04)

April 27, 2023

Accordingly, the GSP submitted by the Agency for the Forebay Aquifer Subbasin is hereby **APPROVED**. The recommended corrective actions identified in the Staff Report will assist the Department's future review of the Plan's implementation for consistency with SGMA and the Department therefore recommends the Agency address them by the time of the Department's five-year review, which is set to begin on January 24, 2027, as required by Water Code § 10733.8. Failure to address the Department's Recommended Corrective Actions before future, subsequent plan evaluations, may lead to a Plan being determined incomplete or inadequate.

Signed:



Karla Nemeth, Director
Date: April 27, 2023

Exhibit A: Groundwater Sustainability Plan Assessment Staff Report – Forebay Aquifer Subbasin

State of California
Department of Water Resources
Sustainable Groundwater Management Program
Groundwater Sustainability Plan Assessment
Staff Report

Groundwater Basin Name: Salinas Valley – Forebay Aquifer Subbasin (No. 3-004.04)
Submitting Agency: Salinas Valley Basin Groundwater Sustainability Agency
Arroyo Seco Groundwater Sustainability Agency
Submittal Type: Initial GSP Submission
Submission Date: January 24, 2022
Recommendation: Approved
Date: April 27, 2023

The Salinas Valley Basin Groundwater Sustainability Agency and the Arroyo Seco Groundwater Sustainability Agency (collectively, GSAs or Agencies) submitted the Forebay Aquifer Subbasin Groundwater Sustainability Plan (GSP or Plan)¹ for the Forebay Aquifer Subbasin (Subbasin) to the Department of Water Resources (Department) for evaluation and assessment as required by the Sustainable Groundwater Management Act (SGMA)² and GSP Regulations.³ The GSP covers the entire Subbasin for the implementation of SGMA.

After evaluation and assessment, Department staff conclude that the Plan includes the required components of a GSP, demonstrates a thorough understanding of the Subbasin based on what appears to be the best available science and information, sets well explained, supported, and reasonable sustainable management criteria to prevent undesirable results as defined in the Plan, and proposes a set of projects and management actions that will likely achieve the sustainability goal defined for the Subbasin.⁴ Department staff will continue to monitor and evaluate the Subbasin's

¹ SGMA requires that the Department assess a Plan within two years of its submission by a GSA. By issuing this staff report and related Plan determination, the Department has satisfied this statutory requirement. The Department notes that it is involved in ongoing litigation brought by the City of Marina challenging the Salinas Valley GSA's status and plan for another nearby subbasin, the 180/400 Aquifer Subbasin (*City of Marina, et al. v. County of Monterey, et al.*, County of Monterey Superior Court, Case No. 19CV005270; Sixth District Court of Appeal, Appeal No. H049575). This assessment is limited to technical review of the submitted Plan, as required by SGMA. However, if the litigation regarding the 180/400 Aquifer Subbasin affects implementation of the Plan for this Subbasin, further Plan review by the Department may be required.

² Water Code § 10720 *et seq.*

³ 23 CCR § 350 *et seq.*

⁴ 23 CCR § 350 *et seq.*

progress toward achieving the sustainability goal through annual reporting and future periodic evaluations of the GSP and its implementation.

- ***Based on the current evaluation of the Plan, Department staff recommend the GSP be approved with the recommended corrective actions described herein.***

This assessment includes five sections:

- **Section 1 – Summary**: Overview of Department staff’s assessment and recommendations.
- **Section 2 – Evaluation Criteria**: Describes the legislative requirements and the Department’s evaluation criteria.
- **Section 3 – Required Conditions**: Describes the submission requirements, Plan completeness, and subbasin coverage required for a GSP to be evaluated by the Department.
- **Section 4 – Plan Evaluation**: Provides an assessment of the contents included in the GSP organized by each Subarticle outline in the GSP Regulations.
- **Section 5 – Staff Recommendation**: Includes the staff recommendation for the Plan and any recommended or required corrective actions, as applicable.

1 SUMMARY

Department staff recommend approval of the Forebay Aquifer Subbasin GSP. The GSAs have identified areas for improvement of their Plan (e.g., addressing data gaps related to the hydrogeological conceptual model, expanding monitoring networks, updating the data management system, and refining projects and management actions). Department staff concur that those items are important and recommend the GSAs address them as soon as possible. Department staff have also identified additional recommended corrective actions within this assessment that the GSAs should consider addressing by the first periodic evaluation of the Plan. The recommended corrective actions generally focus on the following:

- (1) conducting necessary investigations or studies to understand the degree to which groundwater extraction affects groundwater quality in the Subbasin,
- (2) clarifying the GSAs’ plan to conduct further investigations to assess the connectivity of the upper saturated zone to the principal aquifer in the Subbasin,
- (3) clarifying the GSAs’ plan to conduct field studies related to groundwater dependent ecosystem (GDE) identification,

- (4) further assessing the potential impact of established minimum thresholds for chronic lowering of groundwater levels on supply wells, including domestic wells,
- (5) revising the definition of undesirable results for degraded water quality so that exceedances of minimum thresholds caused by groundwater extraction, whether the GSAs have implemented pumping regulations or not, is considered in the assessment of undesirable results,
- (6) providing additional details related to the data used as baseline conditions for establishing minimum thresholds for degraded water quality, and
- (7) continuing to fill data gaps, collecting additional monitoring data, and coordinating with resources agencies and interested parties to understand beneficial uses and users that may be impacted by depletions of interconnected surface water caused by groundwater pumping, and potentially refine sustainable management criteria.

Addressing the recommended corrective actions identified in [Section 5](#) of this assessment will be important to demonstrate, on an ongoing basis, that implementation of the Plan is likely to achieve the sustainability goal.

2 EVALUATION CRITERIA

The GSAs submitted a single GSP to the Department to evaluate whether the Plan conforms to specified SGMA requirements⁵ and is likely to achieve the sustainability goal for the Forebay Aquifer Subbasin.⁶ To achieve the sustainability goal for the Subbasin, the GSP must demonstrate that implementation of the Plan will lead to sustainable groundwater management, which means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.⁷ Undesirable results must be defined quantitatively by the GSAs.⁸ The Department is also required to evaluate whether the GSP will adversely affect the ability of an adjacent subbasin to implement its GSP or achieve its sustainability goal.⁹

For the GSP to be evaluated by the Department, it must first be determined that the Plan was submitted by the statutory deadline,¹⁰ and that it is complete and covers the entire basin.¹¹ If these conditions are satisfied, the Department evaluates the Plan to determine whether it complies with specific SGMA requirements and substantially complies with the

⁵ Water Code §§ 10727.2, 10727.4.

⁶ Water Code § 10733(a).

⁷ Water Code § 10721(v).

⁸ 23 CCR § 354.26 *et seq.*

⁹ Water Code § 10733(c).

¹⁰ 23 CCR § 355.4(a)(1).

¹¹ 23 CCR §§ 355.4(a)(2), 355.4(a)(3).

GSP Regulations.¹² Substantial compliance means that the supporting information is sufficiently detailed and the analyses sufficiently thorough and reasonable, in the judgment of the Department, to evaluate the Plan, and the Department determines that any discrepancy would not materially affect the ability of the Agency to achieve the sustainability goal for the basin, or the ability of the Department to evaluate the likelihood of the Plan to attain that goal.¹³

When evaluating whether the Plan is likely to achieve the sustainability goal for the Subbasin, Department staff reviewed the information provided and relied upon in the GSP for sufficiency, credibility, and consistency with scientific and engineering professional standards of practice.¹⁴ The Department's review considers whether there is a reasonable relationship between the information provided and the assumptions and conclusions made by the GSAs, including whether the interests of the beneficial uses and users of groundwater in the Subbasin have been considered; whether sustainable management criteria and projects and management actions described in the Plan are commensurate with the level of understanding of the basin setting; and whether those projects and management actions are feasible and likely to prevent undesirable results.¹⁵

The Department also considers whether the GSAs has the legal authority and financial resources necessary to implement the Plan.¹⁶

To the extent overdraft is present in a Subbasin, the Department evaluates whether the Plan provides a reasonable assessment of the overdraft and includes reasonable means to mitigate the overdraft.¹⁷ The Department also considers whether the Plan provides reasonable measures and schedules to eliminate identified data gaps.¹⁸ Lastly, the Department's review considers the comments submitted on the Plan and evaluates whether the GSAs adequately responded to the comments that raise credible technical or policy issues with the Plan.¹⁹

The Department is required to evaluate the Plan within two years of its submittal date and issue a written assessment of the Plan.²⁰ The assessment is required to include a determination of the Plan's status.²¹ The GSP Regulations define the three options for determining the status of a Plan: Approved,²² Incomplete,²³ or Inadequate.²⁴

¹² 23 CCR § 350 *et seq.*

¹³ 23 CCR § 355.4(b).

¹⁴ 23 CCR § 351(h).

¹⁵ 23 CCR §§ 355.4(b)(1), (3), (4) and (5).

¹⁶ 23 CCR § 355.4(b)(9).

¹⁷ 23 CCR § 355.4(b)(6).

¹⁸ 23 CCR § 355.4(b)(2).

¹⁹ 23 CCR § 355.4(b)(10).

²⁰ Water Code § 10733.4(d); 23 CCR § 355.2(e).

²¹ Water Code § 10733.4(d); 23 CCR § 355.2(e).

²² 23 CCR § 355.2(e)(1).

²³ 23 CCR § 355.2(e)(2).

²⁴ 23 CCR § 355.2(e)(3).

Even when review indicates that the GSP satisfies the requirements of SGMA and is in substantial compliance with the GSP Regulations, the Department may recommend corrective actions.²⁵ Recommended corrective actions are intended to facilitate progress in achieving the sustainability goal within the Subbasin and the Department's future evaluations, and to allow the Department to better evaluate whether the Plan adversely affects adjacent subbasins. While the issues addressed by the recommended corrective actions do not, at this time, preclude approval of the Plan, the Department recommends that the issues be addressed to ensure the Plan's implementation continues to be consistent with SGMA and the Department is able to assess progress in achieving the sustainability goal within the Subbasin.²⁶ Unless otherwise noted, the Department proposes that recommended corrective actions be addressed by the submission date for the first five-year assessment.²⁷

The staff assessment of the GSP involves the review of information presented by the GSAs, including models and assumptions, and an evaluation of that information based on scientific reasonableness, including standard or accepted professional and scientific methods and practices. The assessment does not require Department staff to recalculate or reevaluate technical information provided in the Plan or to perform its own geologic or engineering analysis of that information. The staff recommendation to approve a Plan does not signify that Department staff, were they to exercise the professional judgment required to develop a GSP for the Subbasin, would make the same assumptions and interpretations as those contained in the Plan, but simply that Department staff have determined that the assumptions and interpretations relied upon by the submitting GSAs are supported by adequate, credible evidence, and are scientifically reasonable.

Lastly, the Department's review and approval of the Plan is a continual process. Both SGMA and the GSP Regulations provide the Department with the ongoing authority and duty to review the implementation of the Plan.²⁸ Also, GSAs have an ongoing duty to provide reports to the Department, periodically reassess their plans, and, when necessary, update or amend their plans.²⁹ The passage of time or new information may make what is reasonable and feasible at the time of this review to not be so in the future. The emphasis of the Department's periodic reviews will be to assess the progress toward achieving the sustainability goal for the Subbasin and whether Plan implementation adversely affects the ability of adjacent subbasins to achieve their sustainability goals.

²⁵ Water Code § 10733.4(d).

²⁶ Water Code § 10733.8.

²⁷ 23 CCR § 356.4 *et seq.*

²⁸ Water Code § 10733.8; 23 CCR § 355.6.

²⁹ Water Code §§ 10728 *et seq.*, 10728.2.

3 REQUIRED CONDITIONS

A GSP, to be evaluated by the Department, must be submitted within the applicable statutory deadline. The GSP must also be complete and must, either on its own or in coordination with other GSPs, cover the entire Subbasin.

3.1 SUBMISSION DEADLINE

SGMA required basins categorized as high- or medium-priority and not subject to critical conditions of overdraft to submit a GSP no later than January 31, 2022.³⁰

The GSAs submitted its Plan on January 24, 2022.

3.2 COMPLETENESS

GSP Regulations specify that the Department shall evaluate a GSP if that GSP is complete and includes the information required by SGMA and the GSP Regulations.³¹

The GSAs submitted an adopted GSP for the entire Subbasin. After an initial, preliminary review, Department staff found the GSP to be complete and appearing to include the required information, sufficient to warrant a thorough evaluation by the Department. The Department posted the GSP to its website on February 7, 2022.³²

3.3 BASIN COVERAGE

A GSP, either on its own or in coordination with other GSPs, must cover the entire Subbasin.³³ A GSP that is intended to cover the entire Subbasin may be presumed to do so if the Subbasin is fully contained within the jurisdictional boundaries of the submitting GSAs.

The GSP intends to manage the entire Forebay Aquifer Subbasin and the jurisdictional boundary of the submitting GSAs covers the entire Subbasin.³⁴

4 PLAN EVALUATION

As stated in Section 355.4 of the GSP Regulations, a basin “shall be sustainably managed within 20 years of the applicable statutory deadline consistent with the objectives of the Act.” The Department’s assessment is based on a number of related factors including whether the elements of a GSP were developed in the manner required by the GSP Regulations, whether the GSP was developed using appropriate data and methodologies

³⁰ Water Code § 10720.7(a)(2).

³¹ 23 CCR § 355.4(a)(2).

³² <https://sgma.water.ca.gov/portal/gsp/preview/116>.

³³ Water Code § 10727(b); 23 CCR § 355.4(a)(3).

³⁴ Forebay Aquifer GSP Section 3, p. 60 and Figure 1-2, p. 35.

and whether its conclusions are scientifically reasonable, and whether the GSP, through the implementation of clearly defined and technically feasible projects and management actions, is likely to achieve a tenable sustainability goal for the basin. The Department staff's evaluation of the likelihood of the Plan to attain the sustainability goal for the Subbasin is provided below.

4.1 ADMINISTRATIVE INFORMATION

The GSP Regulations require each Plan to include administrative information identifying the submitting Agency, its decision-making process, and its legal authority;³⁵ a description of the Plan area and identification of beneficial uses and users in the Plan area;³⁶ and a description of the ability of the submitting Agency to develop and implement a Plan for that area.³⁷

The GSP provides administrative information identifying the submitting agencies as the Salinas Valley Basin GSA and Arroyo Seco GSA.³⁸ The GSP describes in an understandable format, the Plan area (i.e., the Forebay Aquifer Subbasin) and the legal authority of the GSAs and their ability to manage groundwater in the Subbasin, as summarized below.

The Forebay Aquifer Subbasin covers an area of approximately 94,000 acres (147 square miles) of the central portion of the Salinas Valley Groundwater Basin, in Monterey County. The Subbasin is one of nine subbasins within the Salinas Valley Groundwater Basin; six of these subbasins (including the Forebay Aquifer Subbasin) lie in Monterey County. The Forebay Aquifer Subbasin is bordered on the east by the Gabilan Range, on the north by the East Side Aquifer Subbasin and 180/400-Foot Aquifer Subbasin, on the west by the Sierra de Salinas, and on the south by the Upper Valley Aquifer Subbasin. The Salinas River flows through the Subbasin, entering from the Upper Valley Aquifer Subbasin in the south, and draining north into the 180/400-Foot Aquifer Subbasin. The Arroyo Seco, a major tributary of the Salinas River, flows from the Sierra de Salinas mountains and joins the Salinas River in the middle of the Subbasin. Over time, the Arroyo Seco formed a large alluvial fan covering approximately 22,000 acres of the Subbasin near Greenfield, referred to as the Arroyo Seco Cone. The Arroyo Seco Cone area is managed by the Arroyo Seco GSA and the remaining area of the Subbasin is managed by the Salinas Valley Basin GSA. A map showing the location of the Subbasin and adjacent subbasins is presented as Figure 1 below.

³⁵ 23 CCR § 354.6 *et seq.*

³⁶ 23 CCR § 354.8 *et seq.*

³⁷ 23 CCR § 354.6(e).

³⁸ Forebay Aquifer GSP, Sections 1.2, p. 34.

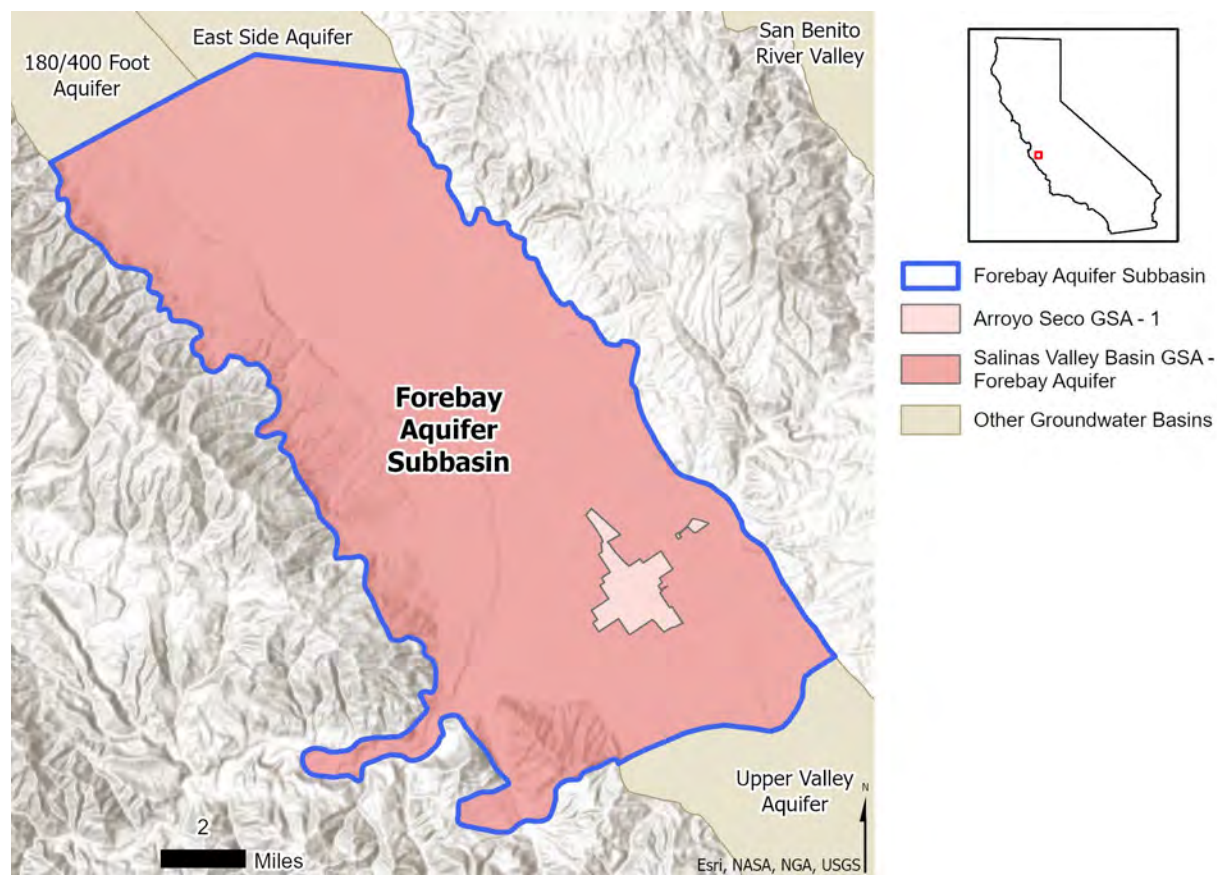


Figure 1: Forebay Aquifer Subbasin Location Map

Based on information presented in the GSP, land use includes agriculture (approximately 93 %); institutional (approximately 2%); rural (approximately 2%); urban residential (approximately 1%); and commercial, industrial, miscellaneous, multi-family, and unclassified (each less than 1%).³⁹

The GSP states that the County of Monterey (County) has jurisdiction over the unincorporated areas of the Subbasin, and the Monterey County Water Resources Agency (MCWRA) has broad water management authority in the County. Municipalities with water management authority in the Subbasin are the cities of Soledad and Greenfield. Areas under federal jurisdiction (U.S. Bureau of Land Management) include a 27.5-acre parcel in the Salinas River floodplain approximately 3.5 miles north of Greenfield and several parcels of land approximately 5.5 miles southwest of Soledad. Areas under state jurisdiction include the California Department of Corrections and Rehabilitation’s Salinas Valley State Prison and an adjacent correctional training facility, both located approximately 5 miles north of Soledad. According to the GSP, there are no tribal lands within the Subbasin.⁴⁰

³⁹ Forebay Aquifer GSP, Section 3.2, Table 3-1, p. 65.

⁴⁰ Forebay Aquifer GSP, Section 3.1.2, p. 62, and Figure 3-1, p. 63.

The GSP identifies four types of beneficial uses and users of groundwater in the Subbasin: agriculture, domestic (urban and rural), industrial, and environmental.⁴¹ The GSP also includes an inventory of wells and well-density maps based on data from the Department’s Online System for Well Completion Report dataset.⁴² Approximately 68% of wells in the Subbasin are production wells (irrigation, municipal, and industrial), approximately 29% are domestic wells, and approximately 4% are public supply wells.⁴³

The GSP states that groundwater is the primary water source for all water use sectors in the Subbasin.⁴⁴ The GSP does not provide an estimate of how much of the Subbasin’s total water use is from groundwater; however, based on the Subbasin’s 2021 annual report, groundwater accounted for approximately 91% of the total water use in the Subbasin.⁴⁵ Surface water diversions from the Salinas River and its tributaries account for the remaining applied water use in the Subbasin,⁴⁶ as no recycled water or imported water is used in the Subbasin.⁴⁷

Agriculture is the largest water use sector in the Subbasin. Based on water budget information presented in the GSP, approximately 97% of groundwater extracted in the Subbasin from 1995 to 2016 was for agricultural use.⁴⁸

The GSP includes information on groundwater and surface water monitoring, and regulatory programs currently operating in the Subbasin, including existing water management plans.⁴⁹ As detailed in the GSP, groundwater management actions have been ongoing in the Subbasin for decades. The MCWRA has funded multiple hydrogeologic investigations; developed subbasin-wide monitoring networks; and develops and maintains programs to assess and manage conditions related to groundwater levels, seawater intrusion, and water quality degradation, including a well extraction reporting system. The MCWRA also operates the Nacimiento and San Antonio Reservoirs to control floods and support groundwater recharge of the Salinas Valley Groundwater Basin. The GSA intends to work collaboratively with the MCWRA to support existing groundwater management efforts and build upon them to achieve sustainable groundwater management in the Subbasin.

The GSP relies upon the existing groundwater management programs operating in the Subbasin to describe groundwater conditions and establish sustainable management criteria included in the GSP for groundwater levels, groundwater storage, and interconnected surface water are based on data collected from MCWRA’s existing

⁴¹ Forebay Aquifer GSP, Section 2.2, pp. 40-41.

⁴² Forebay Aquifer GSP, Section 3.3, pp. 72-75.

⁴³ Percentages add up to 101% due to rounding of numbers. Note: total well count in Table 3-2 is incorrect.

⁴⁴ Forebay Aquifer GSP, Section 3.2.1, p. 67.

⁴⁵ Salinas Valley Groundwater Basin, Forebay Aquifer Subbasin, Water Year 2021 Annual Report.

⁴⁶ Forebay Aquifer GSP, Section 3.2.1, p. 67, and Figure 3-5, p. 68.

⁴⁷ Forebay Aquifer GSP, Section 3.2.1, p. 67, and Section 4.5.2, p. 127.

⁴⁸ Forebay Aquifer GSP, Table 6-8, p. 179.

⁴⁹ Forebay Aquifer GSP, Section 3.4 through 3.6, pp. 76-83.

monitoring programs. The GSP also utilizes water use data compiled from the MCWRA's well extraction reporting program. The groundwater quality content in the GSP is based on existing local and state regulatory programs. Additionally, monitoring networks established in the GSP to monitor and evaluate groundwater levels, water quality, and interconnected rely on existing monitoring wells/sites in the Subbasin.

The GSP describes in sufficient detail the organizational structure of the GSAs and their legal authority to manage groundwater in the Subbasin and finance projects and management actions. The Salinas Valley Basin GSA was formed as a Joint Powers Authority (JPA) with membership comprising local agencies with water or land authority. It is governed and administered by an 11-member Board of Directors representing public and private groundwater interests throughout the Salinas Valley Groundwater Basin. The Salinas Valley Basin GSA includes a Budget and Finance Committee, an Executive Committee, and an Advisory Committee (that ensures participation by constituencies whose interests are not directly represented on the Board of Directors). A Subbasin Planning Committee was also established to inform and guide planning of the GSP, which will transition to being an implementation committee during implementation of the GSP. The Arroyo Seco GSA was formed through agreement with the City of Greenfield and nearby lands, consisting of the Clark Colony Water Company and contiguous surrounding lands, and is governed and administered by a 5-member Board of Directors representing public and private groundwater interests throughout the Arroyo Seco area. The Arroyo Seco GSA also consists of an Advisory Committee which includes Greenfield City residents and environmental interests, and was formed to ensure participation by, and input to, the Board of Directors by constituencies whose interests are not directly represented on the Board.⁵⁰

The GSP states that the Salinas Valley Basin GSA and Arroyo Seco GSA “completed a Forebay Subbasin Groundwater Sustainability Plan Implementation Agreement (Forebay Implementation Agreement) in April 2021”⁵¹ which establishes a Coordination Committee to provide a forum for the GSAs to consult on progress of GSP implementation, and management of the Arroyo Seco Cone Management Area and the rest of the Forebay Aquifer Subbasin. The Forebay Implementation Agreement is not included in the GSP.

The GSP provides the GSAs long-term funding strategy to support their administrative and related operational activities and includes an estimate of planning-level costs (\$633,000) for the first five years of implementation.⁵² Implementation of the Forebay Aquifer Subbasin GSP will be done in coordination with the other five GSPs⁵³ developed for the Monterey County portion of the Salinas Valley Groundwater Basin and costs that directly benefit the Forebay Aquifer Subbasin are separated out. The GSP also includes

⁵⁰ Forebay Aquifer GSP, Section 1.2.2 through 1.2.4, pp. 36-38.

⁵¹ Forebay Aquifer GSP, Section 1.2.4.3, p. 38.

⁵² Forebay Aquifer GSP, Section 10.5.1 and 10.5.2, pp. 343-344, and Table 10-1, p. 345.

⁵³ GSPs for the 180/400-Foot Aquifer, Monterey, Langley Area, East Side Aquifer, and Forebay Aquifer Subbasins.

detailed cost estimates for the proposed projects⁵⁴ and describes a funding mechanism for the projects and management actions that includes grant funding; contributions from local jurisdictions, partner agencies, organizations, and companies; benefit assessments; fees; fines and penalties; and special taxes. The GSP states that a water charges framework and water marketing are potential, but not preferred, funding mechanisms.⁵⁵

The GSP describes the GSAs communication and public engagement efforts during the development phase of the GSP, including their decision-making process.⁵⁶ The GSP also describes the communication and public involvement approach that the GSAs will use during the GSP implementation phase.⁵⁷ The GSAs provide a list of public meetings, materials, and notifications on their websites, and include in the GSP a table that lists meetings where the GSP was discussed or considered, including public comments and how they were addressed by the GSAs.⁵⁸

Department staff conclude that the administrative information included in the GSP substantially complies with the requirements outlined in the GSP Regulations.

4.2 BASIN SETTING

GSP Regulations require information about the physical setting and characteristics of the basin and current conditions of the basin, including a hydrogeologic conceptual model; a description of historical and current groundwater conditions; and a water budget accounting for total annual volume of groundwater and surface water entering and leaving the basin, including historical, current, and projected water budget conditions.⁵⁹

4.2.1 Hydrogeologic Conceptual Model

The hydrogeologic conceptual model is a non-numerical model of the physical setting, characteristics, and processes that govern groundwater occurrence within a basin, and represents a local agency's understanding of the geology and hydrology of the basin that support the geologic assumptions used in developing mathematical models, such as those that allow for quantification of the water budget.⁶⁰ The GSP Regulations require a descriptive hydrogeologic conceptual model that includes a written description of geologic conditions, supported by cross sections and maps,⁶¹ and includes a description of basin

⁵⁴ Forebay Aquifer GSP, Appendix 9A, pp. 1286-1290.

⁵⁵ Forebay Aquifer GSP, Section 10.5.3, p. 346.

⁵⁶ Forebay Aquifer GSP, Section 2.5 through 2.8, pp. 47-59.

⁵⁷ Forebay Aquifer GSP, Section 10.2, pp. 337-340.

⁵⁸ Forebay Aquifer GSP, Appendix 2-A, pp. 414-941.

⁵⁹ 23 CCR § 354.12.

⁶⁰ Department of Water Resources, *Best Management Practices for the Sustainable Management of Groundwater: Hydrogeologic Conceptual Model*, December 2016: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-3-Hydrogeologic-Conceptual-Model_ay_19.pdf.

⁶¹ 23 CCR §§ 354.14 (a), 354.14 (c).

boundaries and the bottom of the basin,⁶² principal aquifers and aquitards,⁶³ and data gaps.⁶⁴

The GSP includes a description of the geology of the Subbasin, including the regional geologic setting, the Subbasin’s lateral and vertical extents, pertinent geologic structures, stratigraphy, geologic formations, and soils, supported by maps and cross sections.

The Subbasin is in the central portion of the Salinas Valley Groundwater Basin, an approximately 90-mile-long alluvial basin oriented southeast to northwest, with several streams that drain the mountains on the western and eastern sides of the valley. The streams flow into the Salinas River which drains towards the northwest to the Pacific Monterey Bay. The Subbasin is described as having been formed through episodes of structural deformation and episodes of marine and terrestrial sedimentation in a tectonically active area.⁶⁵

The GSP identifies one principal aquifer in the Subbasin, referred to as the Basin Fill Aquifer, which is characterized by sandy water-bearing layers that roughly correlate to, and are hydraulically connected to the 180-Foot, 400-Foot, and the Deep Aquifers of the neighboring 180/400-Foot Aquifer Subbasin. The GSP points out that the Salinas Valley Aquitard present in the neighboring 180/400-Foot Aquifer Subbasin does not extend into the Forebay Aquifer Subbasin, and that it is not known if the Deep Aquifers present in the 180/400-Foot Aquifer Subbasin extend into the Forebay Aquifer Subbasin because the deeper portions of the Basin Fill Aquifer have not been fully investigated. The GSP states that “[u]nderstanding the complete depth and extent of the Basin Fill Aquifer, as well as the presence of the sediments which comprise the deeper sediments, is a data gap that will be addressed during implementation.”⁶⁶ The Basin Fill Aquifer also consists of sediment that formed the Arroyo Seco Cone, which is generally of a more coarse-grained alluvial fill than that found in the rest of the Subbasin.⁶⁷

The GSP states that the thickness of the Basin Fill Aquifer increases from approximately 200 feet at the eastern edge of the Subbasin to more than 2,000 feet along the western edge of the Subbasin. According to the GSP, there is no well-defined bottom of the aquifer as there is no sharp interface between permeable sediments and low-permeable basement rock across the entire Subbasin. The GSP adopts the bottom of the aquifer defined by the United States Geological Survey (USGS) and extrapolates that surface to the Subbasin’s boundary.⁶⁸ There are no known structural features that restrict groundwater flow in the Subbasin. The Reliz fault is mapped on the western side of the

⁶² 23 CCR §§ 354.14 (b)(2-3).

⁶³ 23 CCR § 354.14 (b)(4) *et seq.*

⁶⁴ 23 CCR § 354.14 (b)(5).

⁶⁵ Forebay Aquifer GSP, Section 4.1 through 4.3, pp. 88-100.

⁶⁶ Forebay Aquifer GSP, Section 4.4.1.1, p. 102.

⁶⁷ Forebay Aquifer GSP, Section 4.4, pp. 101-102.

⁶⁸ Forebay Aquifer GSP, Section 4.3.2, p. 98.

Subbasin, and according to the GSP, there is no evidence that the fault restricts groundwater flow.⁶⁹

As stated in the GSP, primary uses of groundwater from the Subbasin's principal aquifer include domestic, irrigation, and municipal water supply uses.⁷⁰

The GSAs recognize that there are data gaps in the Subbasin's hydrogeological conceptual model that warrant further study. Specifically, the GSP states that there is need to develop better understanding of the aquifer properties such as hydraulic conductivity and specific yield, and how these properties differ between the Arroyo Seco Cone and the rest of the Subbasin; a need to develop better understanding of the Subbasin's hydrostratigraphy and its vertical and horizontal extents; and the need to map recharge and discharge areas of the Salinas River.⁷¹ The GSP includes a general schedule which shows that the GSAs will address the data gaps within the first five years of Plan implementation.⁷²

The information provided to characterize the hydrogeologic conceptual model substantially complies with the requirements outlined in the GSP Regulations. In general, the Plan's descriptions of the regional geologic setting, the Subbasin's physical characteristics, the principal aquifer, and hydrogeologic conceptual model appear to utilize the best available information and science. Department staff are aware of no significant inconsistencies or contrary technical information to that presented in the Plan.

4.2.2 Groundwater Conditions

The GSP Regulations require a written description of historical and current groundwater conditions for each of the applicable sustainability indicators and groundwater dependent ecosystems that includes the following: groundwater elevation contour maps and hydrographs,⁷³ a graph depicting change in groundwater storage,⁷⁴ maps and cross-sections of the seawater intrusion front,⁷⁵ maps of groundwater contamination sites and plumes,⁷⁶ maps depicting total subsidence,⁷⁷ identification of interconnected surface water systems and an estimate of the quantity and timing of depletions of those systems,⁷⁸ and identification of groundwater dependent ecosystems.⁷⁹

The GSP includes a summary of current and historical groundwater elevations, including maps of monitoring locations, groundwater elevation contour maps, and hydrographs

⁶⁹ Forebay Aquifer GSP, Section 4.2.2, p. 94.

⁷⁰ Forebay Aquifer GSP, Section 4.4.3, p. 113.

⁷¹ Forebay Aquifer GSP, Section 4.7, p. 129.

⁷² Forebay Aquifer GSP, Figure 10-1, p. 348.

⁷³ 23 CCR § 354.16 (a)(1-2).

⁷⁴ 23 CCR § 354.16 (b).

⁷⁵ 23 CCR § 354.16 (c).

⁷⁶ 23 CCR § 354.16 (d).

⁷⁷ 23 CCR § 354.16 (e).

⁷⁸ 23 CCR § 354.16 (f).

⁷⁹ 23 CCR § 354.16 (g).

showing groundwater elevation trends.⁸⁰ The GSAs rely mainly on groundwater monitoring data collected by the MCWRA from 1944 through 2019. Hydrographs presented in the GSP (in Appendix 5A and Figure 5-5) generally depict long-term stable groundwater level trends in most wells, punctuated by a few declines during drought conditions which rebound in subsequent wetter conditions. The long-term stable groundwater level trends observed in the majority of wells are attributed to releases of water from the San Antonio and Nacimiento Reservoirs to the Salinas River, that recharge the Subbasin. The elevation contour information presented in the GSP show that groundwater in the Subbasin generally flows from the south-southeast to the north-northwest and had a gradient of approximately 0.0011 feet per foot in Spring of 2019. The lowest groundwater elevations in the Subbasin occur along the Subbasin's shared boundary with the 180/400-Foot Aquifer and East Side Aquifer Subbasins; groundwater elevations in this area were approximately 100 feet (based on the North American Vertical Datum of 1998 [NAVD88]) in the spring and fall of 2019. The highest groundwater elevations occur at the Subbasin's southern boundary with the Upper Valley Aquifer Subbasin (greater than 230 feet NAVD88).⁸¹

The GSP provides change in groundwater storage information for the Subbasin that is derived using two methods: (1) using the cumulative subbasin-wide average change in groundwater elevations from 1944 through 2019 and (2) subtracting the fall 1995 from the fall 2019 groundwater elevation maps. Each method relies on observed groundwater elevation changes, which are multiplied by the Subbasin's storage coefficient and area to determine change in storage. The GSP includes a graph depicting the estimated annual and cumulative changes in groundwater storage in the Subbasin based on groundwater levels from 1944 to 2019 which includes water year type information from 1940 to 2021, a graph depicting annual groundwater use data from 1995 to 2019,⁸² and a map depicting change in storage from 1995 to 2019 across an area of the Subbasin that has groundwater elevation contour information.⁸³

Based on method (1), the GSP estimates an annual rate of decline in groundwater storage of 970 acre-feet per year between 1944 and 2019, most of which occurred after the mid-1980s.⁸⁴ Figure 5-11, generated based on method (2), shows that much of the subbasin has experienced groundwater storage declines during the 1995 to 2019 period, with the greatest loss occurring in areas adjacent to the Cities of Soledad and Greenfield. Loss in groundwater storage ranged from approximately 5,950 to 11,900 acre-feet around Soledad, and from approximately 3,300 to 6,600 acres-feet near Greenfield. A small area in the northeastern corner of the Subbasin, located between Soledad and the border with the 180/400-Foot Aquifer Subbasin experienced an increase in groundwater storage (of

⁸⁰ Forebay Aquifer GSP, Section 5, pp. 130-143.

⁸¹ Forebay Aquifer GSP, Section 5.1.2, p. 136.

⁸² Forebay Aquifer GSP, Figure 5-10, p. 146.

⁸³ Forebay Aquifer GSP, Figure 5-11, p. 147.

⁸⁴ Forebay Aquifer GSP, Section 5.2.2, p. 145.

up to 5 acre-feet per acre).⁸⁵ The GSP deduces that the loss in storage “is minimal and does not indicate that the Subbasin is unsustainable, especially as groundwater elevations are not in chronic decline and rebound after wet years.”⁸⁶ Department staff note that while the Subbasin does not have a long-term decrease in groundwater storage, this is largely due to conservation releases overseen by the MCWRA which provide recharge to the Subbasin. During periods of drought when conservation releases are not made, the Subbasin can experience large temporary losses of groundwater storage (approximately 300,000 acre-feet during the 2012-2016 drought period).⁸⁷

The Forebay Aquifer Subbasin is geographically located farther inland from the ocean and according to the GSP, no seawater intrusion has been recorded in the Subbasin.⁸⁸

The GSP includes a description of current and historical groundwater quality issues in the Subbasin and states that degradation of groundwater quality in the Subbasin is from both point and non-point sources. The GSP identifies nitrate as the most prevalent non-point source constituent of concern in the Subbasin, stating that elevated nitrate concentrations have been present in the Subbasin for 20 to 30 years and the areal extent of elevated nitrate concentrations has increased over time. Based on regional data collected from 2008 to 2018, 66% of on-farm domestic wells and 45% of irrigation supply wells had detections of nitrate at concentrations exceeding the regulatory standards.⁸⁹ Based on data collected from January 1983 to December 2019 for public supply wells, 12% of public supply wells had nitrate at concentrations above the regulatory standards.⁹⁰ Other constituents of concern identified as being present at concentrations exceeding regulatory standards are listed in Table 5-3 of the GSP, with iron, manganese, sulfate, vinyl chloride, and total dissolved solids, being among the most detected constituents of concern.

The GSP states that the degree to which pumping affects groundwater quality, which among other factors, is influenced by aquifer properties, distance to contamination, and constituent characteristics, has not been analyzed in the Subbasin.⁹¹ However, Department staff note that the GSP does not identify this as a data gap. Staff recommend that the GSAs pursue the necessary steps to improve understanding of the degree to which pumping affects groundwater quality in the Subbasin because understanding the effects of groundwater pumping on water quality is necessary for the GSAs to effectively manage groundwater quality in the Subbasin (see [Recommended Corrective Action 1](#)).

The GSP states that land subsidence due to groundwater extraction has been negligible in the Subbasin and references the Department’s Interferometric Synthetic Aperture

⁸⁵ Forebay Aquifer GSP, Figure 5-11, p. 147.

⁸⁶ Forebay Aquifer GSP, Section 5.2.2, p. 144.

⁸⁷ Forebay Aquifer GSP, Figure 5-10, p. 146.

⁸⁸ Forebay Aquifer GSP, Section 4.6.2, p. 129.

⁸⁹ Forebay Aquifer GSP, Sections 5.3.2 and 5.3.3, pp. 148-154.

⁹⁰ Forebay Aquifer GSP, Table 5-3, p. 154.

⁹¹ Forebay Aquifer GSP, Section 5.3.3, p. 150.

Radar (InSAR) data for the period between June 2015 and June 2019, which shows that no measurable subsidence has occurred during this period.⁹²

The GSP includes information about surface waters hydraulically connected to groundwater using simulated results from the provisional Salinas Valley Integrated Hydrologic Model (SVIHM), which was calibrated to measured groundwater levels and stream flows.⁹³ Results from the SVIHM suggest hydraulic connections between surface water and groundwater are potentially present along the entire length of the Salinas River within the Subbasin, including some portions of its tributaries.⁹⁴ The SVIHM simulated streamflow and stream-aquifer interaction are used to evaluate stream depletion due to groundwater pumping. The GSP provides estimates of average stream depletion rates due to groundwater pumping for the Salinas River and for what the GSP refers to as “other surface water bodies” in the Subbasin. For the Salinas River, the GSP provides average stream depletion rates for two periods – for the peak conservation release period from June through September and for the non-peak conservation release period from October through May. For the other surface water bodies, the GSP provides an average stream depletion rate for an entire year. Stream depletion from the Salinas River is estimated as 9,300 acre-feet per year for the period from June through September and as 20,400 acre-feet per year for the period from October through May. Stream depletion for the other surface water bodies in the Subbasin is estimated as 2,100 acre-feet per year.⁹⁵

The GSP also includes discussion of GDEs in the Subbasin and provides a map identifying their potential locations. The GSP states that areas where GDEs may be found are mainly along the Salinas River and in tributary canyons and washes where shallow alluvium is present. The GSP further states that “[t]he shallow alluvium along the Salinas River may be saturated, but more investigation is needed to determine whether a continuous saturated zone connects to the principal aquifer.”⁹⁶ However, the GSP does not specify how or when the additional investigation will be conducted. Department staff recommend the GSAs clarify their plan to perform the additional investigation to determine if a continuous upper saturated zone connects to the principal aquifer in the Subbasin, and update future iterations of the GSP with the results of the investigation (see [Recommended Corrective Action 2](#)).

The GSP relied on information from various resources to develop an initial mapping of GDEs in the Subbasin and states that field data are needed to identify/confirm the locations of GDEs.⁹⁷ Again, the GSP does not state how or when this field data will be collected. Department staff agree that field-based data reconnaissance to identify GDEs

⁹² Forebay Aquifer GSP, Section 5.4.2, p. 156.

⁹³ Forebay Aquifer GSP, Section 4.4.5.1, p. 117.

⁹⁴ Forebay Aquifer GSP, Figure 4-14, p.118.

⁹⁵ Forebay Aquifer GSP, Section 5.5.2, p. 159, and Table 5-4, p. 160.

⁹⁶ Forebay Aquifer GSP, Section 4.4.5.2, p.120.

⁹⁷ Forebay Aquifer GSP, Section 4.4.5.2, pp. 119-121.

is warranted and recommend the GSAs clarify their plan to conduct the necessary field reconnaissance for GDE identification, and update future iterations of the GSP with the results of the field reconnaissance (see [Recommended Corrective Action 3](#)).

Despite the recommended corrective actions described above, overall, the GSP sufficiently describes the historical and current groundwater conditions throughout the Subbasin based on what seems to be the best available information. The GSP also acknowledges data gaps present that warrant further study. Therefore, Department staff conclude that the information included in the GSP regarding the Subbasin’s groundwater conditions substantially complies with the requirements outlined in the GSP Regulations.

4.2.3 Water Budget

GSP Regulations require a water budget for the basin that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including historical; current; and projected water budget conditions,⁹⁸ and the sustainable yield.⁹⁹

The GSP presents historical, current, and projected water budgets for the whole Forebay Aquifer Subbasin and for the Arroyo Seco Cone Management Area; the Arroyo Seco Cone Management Area water budget is presented as a subset of the Forebay Aquifer Subbasin water budget. The water budgets describe an accounting of inflows and outflows for the surface water and groundwater systems, including groundwater storage changes, presented in tabular and/or graphical format.

The historical and current water budgets are computed using the provisional SVIHM. The historical water budget is based on a time period covering Water Year (WY) 1980 through WY 2016 and the current water budget is based on WY 2016. In addition, the Arroyo Seco GSA provided independent estimates for various components of the historical water budget based on the period from 1996 to 2009, using two linked modeling tools, a rainfall-runoff-recharge (RRR) model and the FFM18 groundwater flow model, to estimate historical water budget components.¹⁰⁰

The projected water budgets are computed with the provisional Salinas Valley Operational Model (SVOM), which is based on the same framework and processes as the SVIHM. The projected water budgets are developed for the years 2030 and 2070 using simulated future hydrologic conditions, based on current reservoir operations, projected climate change, and estimated sea level rise. The GSP presents the projected groundwater budgets as future baseline conditions and do not account for implementation of projects and management actions. The GSP states that the SVIHM “needs more review and broader acceptance by stakeholders before it will be suitable for designing and evaluating management actions or projects.”¹⁰¹ The GSP does not provide a timeline for

⁹⁸ 23 CCR §§ 354.18 (a), 354.18 (c) *et seq.*

⁹⁹ 23 CCR § 354.18 (b)(7).

¹⁰⁰ Forebay Aquifer GSP, Section 6, pp. 161-168.

¹⁰¹ Forebay Aquifer GSP, Section 6.1, p. 162.

when review and acceptance of the model by stakeholders will likely occur, but it does state that there is currently no need to implement projects or management actions in the Subbasin.¹⁰²

The GSP estimates the historical total average groundwater inflow for the entire Subbasin's groundwater system to be 142,500 acre-feet per year and the total average outflow to be 199,200 acre-feet per year. The Subbasin's current total inflow and total outflow are estimated to be 120,400 acre-feet per year and 186,700 acre-feet per year, respectively.¹⁰³ For the Arroyo Seco Cone Management Area, the historical total average groundwater inflow is estimated to be 34,100 acre-feet per year and the total average outflow to be 51,700 acre-feet per year; the current total inflow and total outflow are estimated to be 33,400 acre-feet per year and 53,800 acre-feet per year, respectively.¹⁰⁴

For the year 2030, the GSP projects the Subbasin's total average groundwater inflow and total average outflow to be 158,900 acre-feet per year and 208,500 acre-feet per year, respectively. For the year 2070, the Subbasin's total average groundwater inflow and outflow are projected to be 166,000 acre-feet per year and 219,100 acre-feet per year, respectively.¹⁰⁵ The Arroyo Seco Cone Management Area's projected total average groundwater inflow and outflow for 2030 are estimated to be 39,100 acre-feet per year and 55,700 acre-feet per year, respectively. In 2070, the total average inflow and total average outflow are projected to be 40,400 acre-feet per year and 58,300 acre-feet per year, respectively.¹⁰⁶

The GSP describes the change in groundwater storage as being calculated by determining the difference between the inflow into groundwater storage and the outflow from groundwater storage. However, the net changes in groundwater storage presented in the tabulated groundwater budgets for the Subbasin-wide and the Arroyo Seco Cone Management Area (i.e., Tables 6-10, 6-16, 6-24, and 6-29) are not reflective of the inflow and outflow values presented in the same tables. While the GSP does not specifically discuss these discrepancies, the GSP acknowledges that there are errors or inaccuracies in the model output data relating to groundwater extracted amounts and storage changes, and the simulated percolation for the Arroyo Seco.¹⁰⁷ The SVIHM estimated a gain in storage for the Subbasin of 1,800 acre-feet per year for the historical period from 1980 to 2016. The alternative estimate of storage change developed by the Arroyo Seco GSA using the FFM18 model for the historical period from 1996 to 2009 determined a storage loss of 3,729 for the entire Subbasin.¹⁰⁸ The GSAs, however, consider the Subbasin to

¹⁰² Forebay Aquifer GSP, Section 9.5, p. 309 and Section 10, p. 332.

¹⁰³ Forebay Aquifer GSP, Table 6-10, p. 183.

¹⁰⁴ Forebay Aquifer GSP, Table 6-24, p. 200.

¹⁰⁵ Forebay Aquifer GSP, Table 6-16, p. 188.

¹⁰⁶ Forebay Aquifer GSP, Table 6-29, p. 203.

¹⁰⁷ Forebay Aquifer GSP, Section 6.1, p. 162.

¹⁰⁸ Forebay Aquifer GSP, Section 6.3.2, p.182.

not have historically been in overdraft and therefore, consider the net change in storage for the historical and projected time periods to be zero acre-feet per year.

The GSAs plan to update the water budgets in future GSP iterations after the models are finalized and formally released by the USGS. The GSAs also plan to update and recalibrate the models with new data as GSP implementation proceeds, to better inform model simulations of historical, current, and projected water budgets.¹⁰⁹ Department staff encourage the GSAs to address the relevant data gaps to reduce uncertainty in the estimate for extracted groundwater and groundwater storage loss by the earliest possible opportunity, and to recalibrate the models to reduce the error in water budget terms. Staff recommend the GSAs ensure that updated water budget tabular values do not contain mathematical errors or discrepancies.

Because the GSAs consider the Subbasin to not have historically been in overdraft based on analysis and comparison of groundwater level changes over time, the GSAs assume the historical sustainable yield to be equivalent to the estimated range of historical pumping of 150,900 to 174,300 acre-feet per year.¹¹⁰ The GSAs also assume no loss in storage for the projected groundwater budget and estimate the projected sustainable yield for 2030 to be 171,500 acre-feet per year and for 2070 to be 181,200 acre-feet per year.¹¹¹

For the Arroyo Seco Cone Management Area, the sustainable yield for the historical period is estimated to be equivalent to the estimated range of historical pumping of 44,400 to 53,000 acre-feet per year. The projected sustainable is also estimated on the basis of no storage loss in the projected groundwater budget and estimated to be 52,000 acre-feet per year in 2030 and 55,300 acre-feet per year in 2070.¹¹²

The GSP points out that the sustainable yield estimates are subject to change with model updates and refinements, as Subbasin conditions and the understanding of Subbasin conditions change over time. Department staff note that the sustainable yield estimates provided in the GSP do not seem to consider how avoiding undesirable results affects the maximum quantity of groundwater that can be extracted. Staff recommend the GSA determine the Subbasin's sustainable yield as the maximum quantity of water, calculated over a base period representative of long-term conditions in the Subbasin and including any temporary surplus, that can be withdrawn annually without causing undesirable results in the Subbasin.

Although additional work and data are required to update and recalibrate the models to reduce the uncertainty and errors in the Subbasin's water budgets, Department staff conclude that the historical, current, and projected water budgets included in the Plan are informative in showing the relative magnitude of various water budget components and

¹⁰⁹ Forebay Aquifer GSP, Section 6.2, p. 169.

¹¹⁰ Forebay Aquifer GSP, Section 6.3.4, p. 183, and Table 6-11, p. 184.

¹¹¹ Forebay Aquifer GSP, Section 6.4.4 and Table 6-18, p. 189.

¹¹² Forebay Aquifer GSP, Section 6.7.4 and Table 6-31, p. 204.

substantially comply with the requirements outlined in the GSP Regulations. The GSP provides the required historical, current, and future accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the Subbasin, including an estimate of the sustainable yield of the Subbasin and projected future water demands, using the best available tools and information available at the time of preparation of the GSP.

4.2.4 Management Areas

The GSP Regulations provide the option for one or more management areas to be defined within a basin if the GSA has determined that the creation of the management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives, provided that undesirable results are defined consistently throughout the basin.¹¹³

The GSP defines one management area within the Subbasin – the Arroyo Seco Cone Management Area – managed by the Arroyo Seco GSA. According to the GSP, the Arroyo Seco Cone Management Area was established to account for differences in hydrogeologic, water quality, and water supply characteristics, between the Arroyo Seco Cone and the rest of the Subbasin.¹¹⁴

The Plan does not define different minimum thresholds or propose to operate the Arroyo Seco Cone Management Area to different measurable objectives than the Subbasin at large (i.e., the minimum thresholds and measurable objectives for the Arroyo Seco Cone Management Area are established using the same methods, metrics, and criteria used to define the minimum thresholds and measurable objectives for the rest of the Subbasin). Additionally, undesirable results for each sustainability indicator are defined consistently throughout the Subbasin.¹¹⁵ The Arroyo Seco Cone Management Area also consists of the same monitoring networks for each relevant sustainability indicator as the rest of the Subbasin. The quantity and density of monitoring sites, including those planned by the GSAs to fill identified data gaps, seem sufficient to evaluate conditions of the management area.¹¹⁶

Department staff find the GSP's discussion and presentation of information on the Arroyo Seco Cone Management Area to be based on what seems to be the best available information and to substantially comply with the specific items listed in the GSP Regulations. Staff are aware of no significant inconsistencies or contrary information to that presented in the GSP.

¹¹³ 23 CCR § 354.20.

¹¹⁴ Forebay Aquifer GSP, Section 3, p. 60.

¹¹⁵ Forebay Aquifer GSP, Section 7.1.3, p. 207.

¹¹⁶ Forebay Aquifer GSP, Section 7.1.3, p. 207.

4.3 SUSTAINABLE MANAGEMENT CRITERIA

GSP Regulations require each Plan to include a sustainability goal for the basin and to characterize and establish undesirable results, minimum thresholds, and measurable objectives for each applicable sustainability indicator, as appropriate. The GSP Regulations require each Plan to define conditions that constitute sustainable groundwater management for the basin including the process by which the GSA characterizes undesirable results and establishes minimum thresholds and measurable objectives for each applicable sustainability indicator.¹¹⁷

4.3.1 Sustainability Goal

GSP Regulations require that GSAs establish a sustainability goal for the basin. The sustainability goal should be based on information provided in the GSP’s basin setting and should include an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation.¹¹⁸

The sustainability goal, as defined in the Plan, is “...to manage the groundwater resources for long-term community, financial, and environmental benefits to the Subbasin’s residents and businesses.”¹¹⁹The Plan further states the GSP will ensure long-term viable water supplies while maintaining the unique cultural, community, and business aspects of the Subbasin, with the goal to balance the needs of all water users in the Subbasin.

The GSP describes an approach to achieve measurable objectives within 20 years of GSP implementation and maintain long-term sustainability, that includes implementing management actions and projects on an as-needed basis and tracking hydrologic conditions to ensure the Subbasin is operated within its sustainable yield. The GSAs intend to adaptively manage groundwater and the implementation of the GSP. Additionally, to achieve the Subbasin’s sustainability goal, the GSAs recognizes the need for integration and coordination with the GSPs developed for the other five subbasins in the Monterey County portion of the Salinas Valley Groundwater Basin.¹²⁰

Based on the information provided in the Plan for the sustainability goal, Department staff conclude that the Plan substantially complies with the GSP Regulations.

4.3.2 Sustainability Indicators

Sustainability indicators are defined as any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results.¹²¹ Sustainability indicators thus correspond with the six undesirable results – chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon, significant

¹¹⁷ 23 CCR § 354.22 *et seq.*

¹¹⁸ 23 CCR § 354.24.

¹¹⁹ Forebay Aquifer GSP, Section 8.2, p. 228.

¹²⁰ Forebay Aquifer GSP, Section 10.6, p. 347.

¹²¹ 23 CCR § 351(ah).

and unreasonable reduction of groundwater storage, significant and unreasonable seawater intrusion, significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies, land subsidence that substantially interferes with surface land uses, and depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water¹²² – but refer to groundwater conditions that are not, in and of themselves, significant and unreasonable. Rather, sustainability indicators refer to the effects caused by changing groundwater conditions that are monitored, and for which criteria in the form of minimum thresholds are established by the agency to define when the effect becomes significant and unreasonable, producing an undesirable result.

GSP Regulations require that GSAs provide descriptions of undesirable results including defining what are significant and unreasonable potential effects to beneficial uses and users for each sustainability indicator.¹²³ GSP Regulations also require GSPs provide the criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each applicable sustainability indicator. The criteria shall be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.¹²⁴

GSP Regulations require that the description of minimum thresholds include the information and criteria relied upon to establish and justify the minimum threshold for each sustainability indicator.¹²⁵ GSAs are required to describe how conditions at minimum thresholds may affect beneficial uses and users,¹²⁶ and the relationship between the minimum thresholds for each sustainability indicator, including an explanation for how the GSA has determined conditions at each minimum threshold will avoid causing undesirable results for other sustainability indicators.¹²⁷

GSP Regulations require that GSPs include a description of the criteria used to select measurable objectives, including interim milestones, to achieve the sustainability goal within 20 years.¹²⁸ GSP Regulations also require that the measurable objectives be established based on the same metrics and monitoring sites as those used to define minimum thresholds.¹²⁹

The following subsections thus consolidate three facets of sustainable management criteria: undesirable results, minimum thresholds, and measurable objectives. Information, as presented in the Plan, pertaining to the processes and criteria relied upon to define undesirable results applicable to the Subbasin, as quantified through the

¹²² Water Code § 10721(x).

¹²³ 23 CCR §§ 354.26 (a), 354.26 (b)(c).

¹²⁴ 23 CCR § 354.26 (b)(2).

¹²⁵ 23 CCR § 354.28 (b)(1).

¹²⁶ 23 CCR § 354.28 (b)(4).

¹²⁷ 23 CCR § 354.28 (b)(2).

¹²⁸ 23 CCR § 354.30 (a).

¹²⁹ 23 CCR § 354.30 (b).

establishment of minimum thresholds, are addressed for each applicable sustainability indicator. A submitting agency is not required to establish criteria for undesirable results that the agency can demonstrate are not present and are not likely to occur in a basin.¹³⁰

4.3.2.1 Chronic Lowering of Groundwater Levels

In addition to components identified in 23 CCR §§ 354.28 (a-b), for the chronic lowering of groundwater, the GSP Regulations require the minimum threshold for chronic lowering of groundwater levels to be the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results that is supported by information about groundwater elevation conditions and potential effects on other sustainability indicators.¹³¹

As described in the GSP, “significant and unreasonable groundwater elevations in the Subbasin are those that:

- Are at or below the observed groundwater elevations in December 2015. Public and stakeholder input identified these historical groundwater elevations as significant and unreasonable.
- Cause significant financial burden to local agricultural interests.
- Interfere with other sustainability indicators”¹³²

The GSP defines an undesirable result as occurring when “[m]ore than 15% of the groundwater elevation minimum thresholds are exceeded.”¹³³ Since no time period is provided in the GSP, Department staff infer that undesirable results will occur if 15% of the groundwater elevation minimum thresholds are exceeded at any time during a routine groundwater level measuring event. Department staff encourage the GSA to update the GSP to clearly state how undesirable results will be defined based on the number and timing of measurements.

The GSP justifies the criteria selected for defining the undesirable result by explaining that it balances the allowance for unanticipated hydrologic conditions and the avoidance of significant and unreasonable conditions for beneficial users.¹³⁴ The GSP includes descriptions of groundwater conditions that could lead to undesirable results and general discussion of the potential effects of undesirable results on beneficial users and uses.¹³⁵

The GSP sets the minimum thresholds for chronic lowering of groundwater levels “to December 2015 groundwater elevations.”¹³⁶ The minimum thresholds are set at 39 representative monitoring wells, 16 of which are within the Arroyo Seco Cone

¹³⁰ 23 CCR § 354.26 (d).

¹³¹ 23 CCR § 354.28(c)(1) *et seq.*

¹³² Forebay Aquifer GSP, Section 8.6.1, p. 234.

¹³³ Forebay Aquifer GSP, Section 8.6.4.1, p. 247.

¹³⁴ Forebay Aquifer GSP, Section 8.6.4.1, pp. 247-248.

¹³⁵ Forebay Aquifer GSP, Section 8.6.4.2 through 8.6.4.3, pp. 248-249.

¹³⁶ Forebay Aquifer GSP, Section 8.6.2, p. 234.

Management Area.¹³⁷ The GSP describes the process used to establish the minimum thresholds as having included feedback from stakeholders and review of current and historical groundwater elevation data.¹³⁸ The GSP provides general descriptions of the effects of the minimum thresholds on other sustainability indicators and on beneficial uses and users of groundwater in the Subbasin (i.e., agricultural land uses and users, domestic land uses and users, urban land uses and users, and ecological land uses and users).¹³⁹

The GSP sets the measurable objectives for chronic lowering of groundwater “to 2015 groundwater elevations plus 75% of the difference between 2015 and 1998 groundwater elevations.”¹⁴⁰ According to the GSP, the selected measurable objectives are reasonably achievable based on historical trends and provide operational flexibility.¹⁴¹ The GSP also sets initial interim milestones which the GSP states will be “modified as better data, analyses, and project designs become available.”¹⁴²

The GSAs conducted a domestic well impact analysis to evaluate the effects of the selected minimum thresholds for groundwater levels on domestic wells in the Subbasin. The GSAs analyzed domestic wells using well information from the Department’s Online System for Well Completion Reports (OSWCR) database. Results of the analysis showed that 100% of domestic wells in the Subbasin will contain at least 25 feet of water if groundwater elevations remain above minimum thresholds. The results also showed that 100% of domestic wells will contain at least 25 feet of water at the measurable objective. According to the GSP, the impact analysis was limited to domestic wells that are active, have accurate locations, and are installed in the principal aquifer. Therefore, eight wells out of the 154 wells identified from the OSWCR database were analyzed. Because the analysis was based on a limited number of wells, the GSP states that the GSAs may conduct further assessment when more data becomes available. The GSP also states that it would be impractical to manage the entire Subbasin to fully protect impacts to the shallowest domestic wells.¹⁴³

Department staff agree that further assessment of the selected minimum thresholds on domestic wells should be conducted when more data becomes available. Staff recommend the GSAs work to obtain additional well information and consider potential impacts to supply wells, including domestic wells, at the selected minimum threshold for chronic lowering of groundwater levels. The GSA should consider the degree/extent of potential impacts including the percentage, number, and location of potentially impacted wells at the proposed minimum thresholds for chronic lowering of groundwater levels (see [Recommended Corrective Action 4](#)).

¹³⁷ Forebay Aquifer GSP, Table 8-2, p. 235, and Figure 8-1, p. 236.

¹³⁸ Forebay Aquifer GSP, Section 8.6.2.1, pp. 237-238.

¹³⁹ Forebay Aquifer GSP, Section 8.6.2.5, pp. 242-243.

¹⁴⁰ Forebay Aquifer GSP, Section 8.6.3, p. 243.

¹⁴¹ Forebay Aquifer GSP, Section 8.6.3.1, p. 243.

¹⁴² Forebay Aquifer GSP, Section 8.6.3.2 and Table 8-3, pp. 246-247.

¹⁴³ Forebay Aquifer GSP, Section 8.6.2.2, p. 240.

Department staff conclude that the GSP’s discussion of sustainable management criteria for groundwater levels is commensurate with the level of understanding of the Subbasin and includes adequate information to understand the GSAs’ process and rationale. Staff also find that the GSP’s discussion and presentation of information substantially covers the specific items listed in the GSP Regulations. Maintaining groundwater levels above the levels observed in December 2015, which are higher than the lowest levels historically observed in the Subbasin, is a reasonable approach that will likely help avoid a new significant and unreasonable depletion of supply in the Subbasin.

4.3.2.2 *Reduction of Groundwater Storage*

In addition to components identified in 23 CCR §§ 354.28 (a-b), for the reduction of groundwater storage, the GSP Regulations require the minimum threshold for the reduction of groundwater storage to be a total volume of groundwater that can be withdrawn from the basin without causing conditions that may lead to undesirable results. Minimum thresholds for reduction of groundwater storage shall be supported by the sustainable yield of the basin, calculated based on historical trends, water year type, and projected water use in the basin.¹⁴⁴

As described in the GSP, “significant and unreasonable conditions in groundwater storage in the Subbasin are those that:

- Lead to chronic, long-term reduction in groundwater storage, or
- Interfere with other sustainability indicators”¹⁴⁵

The GSP defines an undesirable result for the reduction of groundwater storage as an occurrence of “an exceedance of the minimum threshold.”¹⁴⁶ As required by the GSP Regulations, the Plan includes descriptions of groundwater conditions that could cause undesirable results and discussion of the potential effects of undesirable results on beneficial users and uses.¹⁴⁷

The GSP uses groundwater elevations as a proxy to establish the minimum threshold and measurable objective for the reduction of groundwater storage sustainability indicator.

As stated in the GSP, “[t]he minimum threshold for reduction in groundwater storage is 267,000 acre-feet below the measurable objective. This reduction is based on the groundwater level minimum thresholds. This number will be refined as additional data are collected and other projects are implemented.”¹⁴⁸ The GSP includes discussion of the potential effects of the minimum threshold for reduction of groundwater storage on other

¹⁴⁴ 23 CCR § 354.28(c)(2).

¹⁴⁵ Forebay Aquifer GSP, Section 8.7.1, p. 249.

¹⁴⁶ Forebay Aquifer GSP, Section 8.7.4.2, p. 255.

¹⁴⁷ Forebay Aquifer GSP, Section 8.7.4.2 and 8.7.4.3, pp. 255-256.

¹⁴⁸ Forebay Aquifer GSP, Section 8.7.2, p. 249.

sustainability indicators applicable to the Subbasin,¹⁴⁹ as well as discussion of how the minimum threshold for reduction of groundwater storage may affect the interests of beneficial uses and users in the Subbasin.¹⁵⁰

Per the GSP, “[t]he measurable objective for reduction in groundwater storage ... is [zero] when the groundwater elevations are held at the groundwater level measurable objectives.”¹⁵¹ The GSP also establishes interim milestones for reduction of groundwater storage in increments of five years to track progress towards achieving the sustainability goal.¹⁵²

To support using groundwater levels as a proxy for reduction of groundwater storage, the GSP compares plots of the Subbasin’s cumulative change in storage modeled by the provisional SVIHM and the average change in groundwater elevations data obtained from the groundwater elevation network, for the period from 1980 to 2016.¹⁵³ The GSP also uses a scatter plot and trend lines to identify the correlation between the cumulative change in storage and average change in groundwater elevations.¹⁵⁴ Results from the plot generally show a strong positive correlation for data from 1998 to 2016 and a weaker, but still positive, correlation if the entire period from 1980 to 2016 is considered. Based on the information provided and the results from the plots, Department staff conclude that the GSA’s rationale to use groundwater levels as a proxy seems reasonable. Staff encourage the GSAs to update these analyses as necessary when additional data are gathered to reduce uncertainty in SVIHM and when SVIHM is finalized and formally released by the USGS. Staff also conclude that the discussion and information presented for the sustainable management criteria for reduction in groundwater storage substantially complies with the GSP Regulations.

4.3.2.3 Seawater Intrusion

In addition to components identified in 23 CCR §§ 354.28 (a-b), for seawater intrusion, the GSP Regulations require the minimum threshold for seawater intrusion to be defined by a chloride concentration isocontour for each principal aquifer where seawater intrusion may lead to undesirable results.¹⁵⁵

The GSP explains that seawater intrusion has not occurred in the Subbasin and is not likely to occur, because the Subbasin is located farther inland from the coastline and groundwater elevations in the Subbasin remain above sea level, thereby maintaining a

¹⁴⁹ Forebay Aquifer GSP, Section 8.7.2.2, pp. 252-253.

¹⁵⁰ Forebay Aquifer GSP, Section 8.7.2.4, pp. 253-254.

¹⁵¹ Forebay Aquifer GSP, Section 8.7.3, p. 254.

¹⁵² Forebay Aquifer GSP, Section 8.7.3.2, p. 255.

¹⁵³ Forebay Aquifer GSP, Figure 8-4, p. 251.

¹⁵⁴ Forebay Aquifer GSP, Figure 8-5, p. 252.

¹⁵⁵ 23 CCR § 354.28(c)(3).

groundwater gradient towards the coast.¹⁵⁶ Therefore, the GSAs do not establish sustainable management criteria for the seawater intrusion sustainability indicator.

Given the physical setting of the Subbasin and considering that measures have been established to prevent seawater intrusion in the subbasins located along or near the coastline where seawater would have to pass through prior to reaching the Forebay Aquifer Subbasin, Department staff regard these reasons to be sufficient to support the GSAs decision at this time.

4.3.2.4 Degraded Water Quality

In addition to components identified in 23 CCR §§ 354.28 (a-b), for degraded water quality, the GSP Regulations require the minimum threshold for degraded water quality to be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality as determined by the Agency that may lead to undesirable results. The minimum threshold shall be based on the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations of constituents determined by the Agency to be of concern for the basin. In setting minimum thresholds for degraded water quality, the Agency shall consider local, state, and federal water quality standards applicable to the basin.¹⁵⁷

The GSP establishes sustainable management criteria for degraded water quality based on California's Title 22 drinking water standards (i.e., Maximum Contaminant Levels [MCLs] or secondary Maximum Contaminant Levels [SMCLs]) for drinking supply wells. For irrigation supply wells, the GSP establishes sustainable management criteria based on the water quality objectives designated by the Basin Plan (adopted by the Central Coast Regional Water Quality Control Board [Central Coast Water Board]).¹⁵⁸

The GSP describes significant and unreasonable degraded water quality conditions as "increases in a [constituent of concern] caused by a direct result of a GSA groundwater management action that either:

- Result in groundwater concentrations in a potable water supply well above an established MCL or SMCL, or
- Lead to significantly reduced crop production."¹⁵⁹

The GSP defines undesirable results as occurring when "[f]uture or new minimum thresholds exceedances are caused by a direct result of GSA groundwater management action(s), including projects or management actions and regulation of groundwater extraction."¹⁶⁰ The GSP includes descriptions of conditions that may lead to undesirable results due to degraded water quality, which include changes in pumping, altered

¹⁵⁶ Forebay Aquifer GSP, Section 4.6.2, p. 129.

¹⁵⁷ 23 CCR § 354.28(c)(4).

¹⁵⁸ Forebay Aquifer GSP, Section 8.8.2, pp. 256-257.

¹⁵⁹ Forebay Aquifer GSP, Section 8.8.1, p. 256.

¹⁶⁰ Forebay Aquifer GSP, Section 8.8.4.1, pp. 264-265.

hydraulic gradients due to active recharge, and use of poor-quality water for recharging the Subbasin.¹⁶¹ According to the GSP, “[if] the GSA has not implemented any groundwater management actions in the Subbasin, including projects, management actions, or pumping management, no such management actions constitute an undesirable result.”¹⁶² The GSP states that the GSAs will assess an occurrence of a minimum threshold exceedance to determine if it is a direct result of GSP implementation action, and includes a general process that will be used to assess whether an exceedance of a minimum threshold is due to GSP implementation activities. The GSP also states that the GSAs will work in coordination with regulatory agencies that have authority over water quality to review and assess water quality data, and discuss any action needed to address water quality degradation.¹⁶³

The GSP’s definition of undesirable results for degraded water quality, which solely focuses on water quality impacts caused directly by the GSAs implementing an action, is incorrect. SGMA includes in its definition of undesirable results the “significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.”¹⁶⁴ SGMA specifies that the significant and unreasonable effects are those “caused by groundwater conditions occurring throughout the basin,” which does not limit them to only impacts directly caused by a GSA’s implementation of physical projects or actions in the basin. As currently defined, if, for instance, a minimum threshold exceedance occurs because of mobilization of naturally occurring constituents or migration of a contaminant plume to supply wells caused by groundwater pumping in the Subbasin, but the GSAs have not implemented any pumping regulations, the GSAs would not identify this as an undesirable result. Staff consider this to be inconsistent with the intent of SGMA, which requires GSAs to ensure management of groundwater conditions in the Subbasin, including any action taken by the GSAs, will not significantly and unreasonably degrade water quality. Therefore, degraded water quality caused by groundwater pumping, changes in groundwater levels, changes in the direction of groundwater flow, or changes in horizontal or vertical movement of groundwater within the Subbasin, whether the GSAs have implemented pumping regulations or not, should be considered in the assessment of undesirable results in the Subbasin. Department staff recommend the GSAs revise the definition of their overly-narrow definition of undesirable results such that groundwater pumping and other factors, whether due to action or inaction of the GSAs with respect to Subbasin management, is considered and not excluded in the undesirable result definition (see [Recommended Corrective Action 5](#)).

The GSP defines minimum thresholds for degraded water quality as “zero additional exceedances of the regulatory drinking water standards (potable supply wells) or Basin Plan objectives (irrigation supply wells) beyond those observed on December 2019 for

¹⁶¹ Forebay Aquifer GSP, Section 8.8.4.2, p. 265.

¹⁶² Forebay Aquifer GSP, Section 8.8.4.1, p. 264.

¹⁶³ Forebay Aquifer GSP, Section 8.8.4.1, pp. 264-265.

¹⁶⁴ Water Code § 10721(x).

groundwater quality constituents of concern.”¹⁶⁵ The GSP leverages existing water quality data from regulatory programs operating in the Subbasin to assess degraded water quality and establish the minimum thresholds.¹⁶⁶ The GSP identifies three different sets of supply wells (public supply, on-farm domestic, and irrigation) that are included in the Subbasin’s monitoring network and will be assessed for the various groundwater constituents of concern listed in Table 8-6 of the GSP.¹⁶⁷ The GSP explains that should additional constituents not listed in Table 8-4 be detected in the future at levels above regulatory standards, those constituents will be added to the list of constituents of concern for the Subbasin.¹⁶⁸ The GSP discusses the effects of the minimum thresholds for degraded water quality on other sustainability indicators¹⁶⁹ and on interests of agricultural land uses and users; urban land use and users; domestic land uses and users; and ecological land uses and users.¹⁷⁰

The measurable objectives and interim milestones for degraded water quality are defined the same as the minimum thresholds.¹⁷¹

While GSAs are not required to address undesirable results that occurred and were not corrected prior to January 1, 2015, GSAs are required to address undesirable results that occur after January 1, 2015. The GSAs use 2019 concentration data instead of 2015 concentration data as the baseline for establishing the minimum thresholds for degraded water quality, but do not explain whether the number of representative monitoring wells with constituents of concern exceeding the regulatory standard in 2019 was the same as in 2015. Department staff recommend the GSAs provide the rationale for establishing the minimum thresholds for degraded water quality based on 2019 data instead of 2015 data and describe how the 2019 conditions compare to the 2015 conditions (see [Recommended Corrective Action 6](#)).

Despite the identified recommended corrective actions surrounding the definition of undesirable results being tied solely to GSA actions and the use of 2019 concentration data, Department staff consider the GSP’s approach of using newly impacted wells as the basis for its water quality sustainable management criteria to be generally reasonable and consistent with the GSP Regulations. Additionally, staff conclude that the GSP’s discussion and presentation of information on degradation of water quality substantially covers the specific items listed in the Regulations in an understandable format. Addressing the recommended corrective actions by the next periodic update to the GSP is sufficient at this time because the minimum thresholds for degraded water quality are set to prevent an increase in the number of supply wells with exceedances of regulatory

¹⁶⁵ Forebay Aquifer GSP, Section 8.8.2, p. 256.

¹⁶⁶ Forebay Aquifer GSP, Section 8.8.2.1, pp. 258-259.

¹⁶⁷ Forebay Aquifer GSP, Table 8-4, p. 259.

¹⁶⁸ Forebay Aquifer GSP, Section 8.8.2.6, p. 263.

¹⁶⁹ Forebay Aquifer GSP, Section 8.8.2.2, p. 261.

¹⁷⁰ Forebay Aquifer GSP, Section 8.8.2.4, p. 262.

¹⁷¹ Forebay Aquifer GSP, Section 8.8.3, p. 263.

standards beyond those observed in 2019 and the GSAs have until 2042 to address any undesirable results that may have occurred between 2015 and 2019. Additionally, based on the minimum thresholds established for groundwater levels, the GSAs do not intend to lower groundwater levels below the lowest levels historically observed in the Subbasin, which would otherwise, potentially result in the migration of contaminant plumes, changes in concentrations of contaminants due to reduction in volume of groundwater in the Subbasin, or release of naturally occurring constituents.

4.3.2.5 Land Subsidence

In addition to components identified in 23 CCR §§ 354.28 (a-b), the GSP Regulations require the minimum threshold for land subsidence to be the rate and extent of subsidence that substantially interferes with surface land uses and may lead to undesirable results.¹⁷² Minimum thresholds for land subsidence shall be supported by identification of land uses and property interests that have been affected or are likely to be affected by land subsidence in the basin, including an explanation of how the Agency has determined and considered those uses and interests, and the Agency’s rationale for establishing minimum thresholds in light of those effects and maps and graphs showing the extent and rate of land subsidence in the basin that defines the minimum thresholds and measurable objectives.¹⁷³

The GSP states that no measurable subsidence has been recorded in the Subbasin and relies on the Department’s InSAR data to establish sustainable management criteria for land subsidence.

As stated in the GSP, “significant and unreasonable subsidence in the Subbasin is defined as follows:

- Any inelastic land subsidence that impacts infrastructure and is caused by lowering of groundwater elevations occurring in the Subbasin or
- Any inelastic subsidence that causes an increase of flood risk”¹⁷⁴

The GSP defines an undesirable result as “an exceedance of the minimum threshold for land subsidence due to lowered groundwater elevations that surpass historical lows.”¹⁷⁵

The GSP defines the minimum threshold for land subsidence as “0.133 feet per year. This is the rate that results in less than 1 foot of cumulative subsidence over a 30-year implementation horizon, plus 0.1 feet per year of estimated land movement to account for InSAR measurement errors.”¹⁷⁶ The GSP states that if land subsidence is observed in the Subbasin, the GSAs will establish whether the subsidence is elastic or inelastic by checking if groundwater elevations have declined below historical lows and correlate the

¹⁷² 23 CCR § 354.28(c)(5).

¹⁷³ 23 CCR §§ 354.28(c)(5)(A-B).

¹⁷⁴ Forebay Aquifer GSP, Section 8.9.1, pp. 265-266.

¹⁷⁵ Forebay Aquifer GSP, Section 8.9.4.1, p. 269.

¹⁷⁶ Forebay Aquifer GSP, Section 8.9.2, p. 266.

observed subsidence with measured groundwater elevations. The GSP also states that the GSAs will assess subsidence that is observed in multiple consecutive years to confirm that it is InSAR error-related and not actual net long-term subsidence.¹⁷⁷ The GSP includes discussion of conditions that could potentially lead to land subsidence¹⁷⁸ and the effects of the selected minimum threshold on other sustainability indicators and on beneficial uses and users.¹⁷⁹ Because the minimum threshold is set to avoid any long-term subsidence, the GSAs do not expect a negative impact on other sustainable indicators and on beneficial users and uses of groundwater.

The GSP defines the measurable objective for land subsidence as “0.1 foot per year. This is a long-term rate of zero feet per year plus 0.1 foot per year of estimated land movement to account for InSAR measurement errors.”¹⁸⁰

Department staff find the GSP’s discussion and presentation of information for land subsidence to substantially cover the specific items listed in the GSP Regulations and is based on the best available information and science. Department staff are aware of no significant inconsistencies or contrary information to what is presented in the GSP and therefore, have no significant concerns regarding the quality, data, and discussion of land subsidence and the associated sustainable management criteria.

4.3.2.6 Depletions of Interconnected Surface Water

SGMA defines undesirable results for the depletion of interconnected surface water as those that have significant and unreasonable adverse impacts on beneficial uses of surface water and are caused by groundwater conditions occurring throughout the basin.¹⁸¹ The GSP Regulations require that a Plan identify the presence of interconnected surface water systems in the basin and estimate the quantity and timing of depletions of those systems.¹⁸² The GSP Regulations further require that minimum thresholds be set based on the rate or volume of surface water depletions caused by groundwater use, supported by information including the location, quantity, and timing of depletions, that adversely impact beneficial uses of the surface water and may lead to undesirable results.¹⁸³

The Plan acknowledges the presence of interconnected surface waters in the Subbasin and identifies their location using the provisional SVIHM.¹⁸⁴ The GSP states that additional stream and groundwater level data are needed to reduce uncertainty in the model results. The GSAs plan to supplement the model analyses of locations of groundwater and surface water connectivity with data from shallow groundwater

¹⁷⁷ Forebay Aquifer GSP, Section 8.9.4.1, p. 269.

¹⁷⁸ Forebay Aquifer GSP, Section 8.9.4.2, p. 269.

¹⁷⁹ Forebay Aquifer GSP, Section 8.9.2.2, p. 267, and Section 8.9.2.4, p. 268.

¹⁸⁰ Forebay Aquifer GSP, Section 8.9.3, p. 268.

¹⁸¹ Water Code § 10721(x)(6).

¹⁸² 23 CCR § 354.16 (f).

¹⁸³ 23 CCR § 354.28 (c)(6).

¹⁸⁴ Forebay Aquifer GSP, Section 4.4.5.1, p. 117, and Figure 4-14, p. 118.

monitoring wells, USGS stream gauges, and the MCWRA river measurement sites, which will all be incorporated into the monitoring network for interconnected surface water.¹⁸⁵ Department staff are satisfied that the GSAs have adopted a reasonable approach to identify the location of interconnected surface waters in the Subbasin.

The GSP uses the provisional SVIHM to quantify the volume of surface water depletion caused by groundwater use, estimating the depletion at 31,800 acre-feet per year for the Subbasin.¹⁸⁶ However, the GSP does not establish the rate or volume of surface water depletions caused by groundwater use as the sustainable management criteria. Instead, the GSP proposes to use shallow groundwater levels near locations of interconnected surface water as a proxy for the rate/volume of depletions. The GSP argues for the use of shallow groundwater levels as a proxy for depletions of interconnected surface water by stating that “[n]o existing estimations of the quantity and timing of depletions of [interconnected surface water] exist, nor data available to make estimations, so the hydraulic principles provide the best available information.”¹⁸⁷ However, the lack of other data does not amount to a technical justification for the use of groundwater elevations as a proxy for quantifying the location, quantity, and timing of depletions of interconnected surface water due to groundwater extraction. As a result, the GSA has not demonstrated by adequate evidence that groundwater elevation can serve as a sustainability indicator for the depletion of interconnected surface water.

As stated in the GSP, “significant and unreasonable depletion of [interconnected surface water] in the Subbasin is defined as:

- Depletions from groundwater extraction that would result in a significant and unreasonable impact on other beneficial uses and users such as riparian water rights holders, appropriative surface water rights holders, ecological surface water users, and recreational surface water uses.
- Depletion from groundwater extraction more than observed in December 2015, as measured by shallow groundwater elevations near locations of interconnected surface water. While a documented determination of whether past depletions was significant is not available, staying above December 2015 depletions was determined to be a reasonable balance for all the beneficial uses and users.”¹⁸⁸

The GSP defines an undesirable result for depletions of interconnected surface water as “an exceedance of the minimum threshold in a shallow groundwater monitoring well used to monitor interconnected surface water.”¹⁸⁹ The GSP identifies localized pumping near locations of interconnected surface water, expansion of riparian water rights, changes in reservoir releases, and departure from the GSP’s climatic assumptions, including

¹⁸⁵ Forebay Aquifer GSP, Section 8.10.2, p. 271.

¹⁸⁶ Forebay Aquifer GSP, Table 5-4, p. 160.

¹⁸⁷ Forebay Aquifer GSP, Section 8.10.2.1.1, p. 272.

¹⁸⁸ Forebay Aquifer GSP, Section 8.10.1, p. 270.

¹⁸⁹ Forebay Aquifer GSP, Section 8.10.4.1, p. 277.

extensive and unanticipated drought, as potential conditions that may cause an undesirable result for interconnected surface water in the Subbasin.¹⁹⁰

The GSP establishes minimum thresholds for depletions of interconnected surface water “by proxy using shallow groundwater elevations observed in December 2015 near locations of interconnected surface water.”¹⁹¹ This metric was selected based on what the GSAs, with stakeholder input, consider significant and unreasonable conditions for depletions of interconnected surface water. The beneficial uses and users of surface water considered when setting the minimum thresholds included riparian rights holders, appropriative rights holders, ecological surface water users, and recreational surface water users.

The GSP justifies using the December 2015 groundwater elevations as the minimum threshold by stating that there are no known water rights litigation or water rights enforcement actions along the Salinas River in the Subbasin, which according to the GSP, suggests that current and historical depletions have not resulted in significant and unreasonable impacts to surface water rights holders. Regarding potential effects on recreational surface water users, the GSP states that no recreational activities such as boating occur on surface water in the Subbasin.¹⁹² For ecological surface water users, the GSP explains that currently, there is no biological opinion or habitat conservation plan that shows that additional protection is needed for species identified under the Endangered Species Act, but should it be determined that additional protection is needed because of streamflow loss due to groundwater use, the GSAs will adapt to comply with the environmental laws.¹⁹³ Additionally, the GSP states that there is currently no data that determines what level of depletion has an adverse impact on Steelhead trout or other beneficial use or user of interconnected surface water; however, should new information come to light, the GSAs will reconsider how they locally define significant and unreasonable conditions for depletions of interconnected surface water due to groundwater use during the GSP periodic evaluation.¹⁹⁴ Department staff do not consider the GSP’s references to a lack of litigation or water right enforcement actions to be appropriate proxies to set minimum thresholds. While biological opinions and habitat conservation plans may be important considerations, minimum thresholds must be set based on undesirable results for all beneficial uses and users.

In its discussion of minimum thresholds, the GSP states that “[n]o minimum thresholds are established for times when flow in a river is due to conservation releases from a reservoir. One purpose for these conservation releases is to recharge the Salinas Valley Groundwater Basin. Therefore, depletion of conservation releases is a desired outcome,

¹⁹⁰ Forebay Aquifer GSP, Section 8.10.4.2, pp. 277-278.

¹⁹¹ Forebay Aquifer GSP, Section 8.10.2, p. 270.

¹⁹² Forebay Aquifer GSP, Section 8.10.2.1.2, pp. 272-273.

¹⁹³ Forebay Aquifer GSP, Section 8.10.4.1, p. 277.

¹⁹⁴ Forebay Aquifer GSP, Section 8.10.1, p. 270.

and the minimum thresholds and measurable objectives do not apply to these flows.”¹⁹⁵ The exclusion of times when river flow is due to reservoir releases from sustainable management criteria mistakes the objective of SGMA and the GSP Regulations to be a quantification of the flow from the river into the aquifer. Although that information will be required to define a water budget for the Subbasin, it does not define the undesirable results for depletions of interconnected surface water, which SGMA defines as those that have significant and unreasonable adverse impacts on beneficial uses of the surface water and are caused by groundwater conditions occurring throughout the basin.¹⁹⁶ Department staff recommend the GSA establish sustainable management criteria for all conditions within the Subbasin regardless of whether conservation releases are occurring or not (see [Recommended Corrective Action 7a](#)).

The GSP establishes measurable objectives for depletions of interconnected surface water “by proxy using shallow groundwater elevations near locations of interconnected surface water and are set to 75% of the distance between 2015 and 1998 shallow groundwater elevations.”¹⁹⁷

The GSP states that the Salinas Valley Basin GSA will work with the National Marine Fisheries Service and MCWRA to further evaluate the effects of the established sustainable management criteria for interconnected surface water, on surface water flows and beneficial users.¹⁹⁸ Department staff support the GSAs’ plan to coordinate with these two agencies regarding the management of depletions of interconnected surface water in the Subbasin. Department staff encourage the GSAs to also coordinate with other parties who are interested in the management of depletions of interconnected surface water in the Subbasin.

Multiple public comments were received expressing concern about the proposed management of depletions of interconnected surface water in the Plan. Department Staff conclude there appears to be uncertainty regarding what scientific studies, reports, information, and biological, physical, or ecological factors are best suited to use when developing sustainable management criteria in the basin for depletions of interconnected surface water under SGMA. Additionally, there appears to be other state and federal agencies that are or may act under other laws and authorities to address biological or ecological concerns regarding low instream flows in portions of the Salinas River, which appear to be caused by numerous factors of which depletions of interconnected surface waters from groundwater extractions in the Subbasin is only one. Department staff conclude that at this time, the GSA has considered this issue and explained and supported its choices adequately. It may be that alternative choices or methodology could

¹⁹⁵ Forebay Aquifer GSP, Section 8.10.2, p. 271.

¹⁹⁶ Water Code § 10721(x)(6).

¹⁹⁷ Forebay Aquifer GSP, Section 8.10.3, p. 276.

¹⁹⁸ Forebay Aquifer GSP, Section 8.10.4.3, p. 278.

also be supported by other studies or data, but it does not appear that there is a clear or convincing case that the GSA's choices or explanation are inappropriate.

Department staff understand that quantifying depletions of surface water from groundwater extractions is a complex task that likely requires developing new, specialized tools, models, and methods to understand local hydrogeologic conditions, interactions, and responses. During the initial review of GSPs, Department staff have observed that most GSAs have struggled with this new requirement of SGMA. However, staff believe that most GSAs will more fully comply with regulatory requirements after several years of Plan implementation that includes projects and management actions to address the data gaps and other issues necessary to understand, quantify, and manage depletions of interconnected surface waters. Department staff further advise that at this stage in SGMA implementation it is appropriate to approve Plans with recommended corrective actions to address deficiencies related to interconnected surface water depletion where GSAs are still working to fill data gaps related to interconnected surface water and where these data will be used to inform plan components that will be subject to future review. Accordingly, Department staff believe that affording GSAs adequate time to refine their Plans to address interconnected surface waters is appropriate and remains consistent with SGMA's timelines and local control preferences.

The Department will continue to support GSAs in this regard by providing, as appropriate, financial and technical assistance to GSAs, including the development of guidance describing appropriate methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water caused by groundwater extractions. Once the Department's guidance related to depletions of interconnected surface water is publicly available, the GSA, where applicable, should consider incorporating appropriate guidance approaches into their future periodic updates to the GSP (see [Recommended Corrective Action 7b](#)). GSAs should consider availing themselves of the Department's financial or technical assistance, but in any event must continue to fill data gaps, collect additional monitoring data, and implement strategies to better understand and manage depletions of interconnected surface water caused by groundwater extractions and define segments of interconnectivity and timing within their jurisdictional area (see [Recommended Corrective Action 7c](#)). Furthermore, GSAs should coordinate with local, state, and federal resources agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion (see [Recommended Corrective Action 7d](#)).

4.4 MONITORING NETWORKS

The GSP Regulations describe the monitoring network that must be developed for each sustainability indicator including monitoring objectives, monitoring protocols, and data reporting requirements. Collecting monitoring data of a sufficient quality and quantity is necessary for the successful implementation of a groundwater sustainability plan. The GSP Regulations require a monitoring network of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the basin

and evaluate changing conditions that occur through implementation of the Plan.¹⁹⁹ Specifically, a monitoring network must be able to monitor impacts to beneficial uses and users,²⁰⁰ monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds,²⁰¹ capture seasonal low and high conditions,²⁰² include required information such as location and well construction and include maps and tables clearly showing the monitoring site type, location, and frequency.²⁰³ Department staff encourage GSAs to collect monitoring data as specified in the GSP, follow SGMA data and reporting standards,²⁰⁴ fill data gaps identified in the GSP prior to the first periodic update,²⁰⁵ update monitoring network information as needed, follow monitoring best management practices,²⁰⁶ and submit all monitoring data to the Department’s Monitoring Network Module immediately after collection including any additional groundwater monitoring data that is collected within the Plan area that is used for groundwater management decisions. Department staff note that if GSAs do not fill their identified data gaps, the GSA’s basin understanding may not represent the best available science for use to monitor basin conditions.

The GSP describes monitoring networks for the five sustainability indicators relevant to the Subbasin: chronic lowering of groundwater levels, reduction in groundwater storage, degraded water quality, land subsidence, and depletions of interconnected surface water. As stated in the GSP, the objective of the Subbasin’s monitoring network is to monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds; demonstrate progress toward achieving measurable objectives; monitor impacts to the beneficial uses or users of groundwater; and quantify annual changes in water budget components.²⁰⁷

The groundwater level monitoring network consists of 39 wells, a subset of existing wells monitored by the MCWRA. The 39 monitoring wells were selected based on available well construction information, the presence of reasonably long historical monitoring records, and geographic distribution.²⁰⁸ Based on available information, the wells range in depth from approximately 95 to 830 feet below surface ground.²⁰⁹ Department staff note that the Department’s Monitoring Network Module displays a total of 42 wells in the groundwater level monitoring network with all 42 of those wells being listed as

¹⁹⁹ 23 CCR § 354.32.

²⁰⁰ 23 CCR § 354.34(b)(2).

²⁰¹ 23 CCR § 354.34(b)(3).

²⁰² 23 CCR § 354.34(c)(1)(B).

²⁰³ 23 CCR §§ 354.34(g-h).

²⁰⁴ 23 CCR § 352.4 *et seq.*

²⁰⁵ 23 CCR § 354.38(d).

²⁰⁶ Department of Water Resources, 2016, [Best Management Practices and Guidance Documents](#).

²⁰⁷ Forebay Aquifer GSP, Section 7.1.1, p. 206.

²⁰⁸ Forebay Aquifer GSP, Section 7.2, pp. 207-208

²⁰⁹ Forebay Aquifer GSP, Table 7-1, pp. 211-212.

representative monitoring sites (RMS) for the chronic lowering of groundwater levels sustainability indicator.

The GSAs plan to collect groundwater level measurements at least twice a year, to represent seasonal low and seasonal high groundwater conditions. The GSAs recognize that although the number of representative monitoring wells selected for monitoring groundwater levels exceeds the range of density of monitoring wells recommended by the Department's Best Management Practices,²¹⁰ by visual inspection, the GSAs identified a data gap near where the Arroyo Seco enters the Subbasin. The GSAs also identified a lack of well construction information for some wells in the established monitoring network. The GSAs intend to address these data gaps during GSP implementation.²¹¹ The GSP provides few details on the schedule to fill the data gaps, other than a generalized schedule presented in Figure 10-1 that shows data gap filling will occur during the first five years of GSP implementation.²¹² Department staff recommend the GSAs provide detailed updates on yearly progress toward expanding the monitoring network in its annual reports and that future iterations of the GSP include more detail on how and when data gaps related to monitoring network expansion will be addressed.

The GSAs use groundwater levels as a proxy for reduction of groundwater storage. Therefore, the GSAs plan to use the monitoring network established for groundwater levels to monitor and evaluate reduction of groundwater storage.

The GSP establishes the monitoring network and frequency for evaluating degradation of groundwater water quality based on two existing water quality regulatory programs operating in the Subbasin – the State Water Resource Control Board's Division of Drinking Water and the Central Coast Water Board Irrigated Lands Regulatory Program. The GSP proposes to use three sets of wells that are routinely sampled under these programs. Within each set of wells, a specific number of constituents of concern will be monitored. In total, the monitoring network consists of 45 public supply wells, 296 on-farm domestic wells, and 323 irrigation supply wells. The GSP states that the Irrigated Lands Regulatory Program monitoring network will be revisited and revised when the Central Coast Water Board adopts Agricultural Order 4.0.²¹³

The GSAs plan to utilize the Department's InSAR remote sensing dataset to monitor and evaluate land subsidence in the Subbasin.²¹⁴ The InSAR dataset provides good spatial coverage and is likely the best available tool for monitoring land subsidence in the Subbasin.

²¹⁰ Department of Water Resources, 2016, [Monitoring Networks and Identification of Data Gaps BMP](#).

²¹¹ Forebay Aquifer GSP, Section 7.2.2, p. 213.

²¹² Forebay Aquifer GSP, Figure 10-1, p. 348.

²¹³ Forebay Aquifer GSP, Section 7.4, pp. 216-218.

²¹⁴ Forebay Aquifer GSP, Section 7.5, pp. 219-220.

For monitoring and evaluating depletions of interconnected surface water, the GSAs plan to use shallow monitoring wells located adjacent to the Salinas River, the Arroyo Seco, and other streams in the Subbasin, and in the vicinity of USGS river gauges or MCWRA river measurement sites. The GSAs propose using a combination of groundwater elevation data and streamflow data to assess changes due to variations in stream discharge and regional groundwater extractions, and other factors (not specified in the GSP) that may inform assessment of adverse impacts on beneficial uses of surface water.²¹⁵ The GSP identifies a data gap along the Arroyo Seco; the GSAs plan to address this data gap during GSP implementation. Based on Figure 7-1 of the GSP, the proposed monitoring network for interconnected surface water will consist of three existing monitoring wells plus one monitoring well planned to fill the identified data gap; one MCWRA river measurement site; and three USGS stream gauge locations.²¹⁶ Department staff were unable to assess the appropriateness of the proposed interconnected surface water monitoring network due to the lack of well construction information for two of the identified shallow monitoring wells. Department staff recommend that the plan be revised to present well construction information, including the depth range for the screened interval, for all proposed monitoring wells.

The description of the monitoring networks included in the Plan substantially complies with the requirements outlined in the GSP Regulations. At this time, the Plan describes in sufficient detail a monitoring network that promotes the collection of data of sufficient quality, frequency, and distribution, to characterize groundwater conditions in the Subbasin and evaluate changing conditions that occur through Plan implementation. The Plan also describes existing data gaps and the GSAs intention to fill the data gaps and improve the monitoring networks. Department staff will evaluate the GSAs' progress of filling data gaps through annual reporting and GSP updates.

4.5 PROJECTS AND MANAGEMENT ACTIONS

The GSP Regulations require a description of the projects and management actions the submitting Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.²¹⁷ Each Plan's description of projects and management actions must include details such as: how projects and management actions in the GSP will achieve sustainability, the implementation process and expected benefits, and prioritization and criteria used to initiate projects and management actions.²¹⁸

To achieve the sustainability goal and avoid undesirable results in the Subbasin, the GSP describes seven management actions and two projects that the GSAs may implement as necessary. The GSP also describes five implementation actions, which according to the

²¹⁵ Forebay Aquifer GSP, Section 7.6, p. 220.

²¹⁶ Forebay Aquifer GSP, Figure 7-1, p. 221.

²¹⁷ 23 CCR § 354.44 (a).

²¹⁸ 23 CCR § 354.44 (b) *et seq.*

GSP, do not directly maintain sustainability, but help with groundwater management in the Subbasin. Projects and management actions within the Arroyo Seco Cone Management Area will be implemented by the Arroyo Seco GSA, while the Salinas Valley Basin GSA will implement projects and management actions in the remainder of the Forebay Aquifer Subbasin.²¹⁹

The projects and management actions presented in the GSP are part of a larger set of projects and management actions for the entire Salinas Valley Basin. The Plan focuses on projects that directly benefit the Forebay Aquifer Subbasin, but also include multi-basin projects outside the Forebay Aquifer Subbasin that will likely benefit the Subbasin. The GSAs plan to follow an adaptive management strategy and to implement the proposed projects and management actions in coordination with the other five GSPs developed for the Monterey County portion of the Salinas Valley Groundwater Basin.²²⁰ The proposed projects and management actions presented in the GSP generally benefit the Subbasin by increasing groundwater in storage through direct/indirect recharge and groundwater demand management, and improving/protecting water quality.²²¹

The management actions listed and described in the GSP include the following:

- A1: Forebay SMC Technical Advisory Committee (TAC) – entails establishing a sustainable management criteria TAC to review groundwater conditions and provide advice on implementation of projects and management actions; benefits have not yet been quantified.²²²
- A2: Conservation and Agricultural BMPs – promotes conservation of groundwater through agricultural best management practices; benefits have not yet been quantified.²²³
- A3: Improve Rural Residential Water Quality – aims to educate rural residents about common groundwater quality issues and options for obtaining safe and aesthetic potable water for domestic use; benefits have not yet been quantified.²²⁴
- A4: Watershed Protection Policy for Arroyo Seco River – entails establishing a Watershed Protection Policy for protecting the Arroyo Seco River watershed, with the benefit of ensuring continued recharge from the Arroyo Seco River and protection of habitat for threatened fish; benefits are not quantified.²²⁵
- A5: Fallowing, Fallow Bank, and Agricultural Land Retirement – aims to reduce groundwater demand; benefits are dependent on participation.²²⁶

²¹⁹ Forebay Aquifer GSP, Section 1.2, p. 34, Section 9.1, pp. 279-280, Section 10.2, p. 338.

²²⁰ Forebay Aquifer GSP, Section 9.1 through 9.3, pp. 279-283.

²²¹ Forebay Aquifer GSP, Section 9.3, p. 283 and Table 9-1, pp. 284-285.

²²² Forebay Aquifer GSP, Table 9-1, p. 284, and Section 9.4.1, pp. 287-291.

²²³ Forebay Aquifer GSP, Table 9-1, p. 284, and Section 9.4.2, pp. 291-293.

²²⁴ Forebay Aquifer GSP, Table 9-1, p. 284, and Section 9.4.3, pp. 294-296.

²²⁵ Forebay Aquifer GSP, Table 9-1, p. 284, and Section 9.4.4, pp. 296-299.

²²⁶ Forebay Aquifer GSP, Table 9-1, p. 284, and Section 9.4.5, pp. 299-302.

- A6: MCWRA Drought Reoperations – involves the GSAs supporting the existing MWCRA’s Drought-TAC with developing plans for how to manage reservoir releases during drought conditions, with the expected benefit of additional regular winter reservoir release and promoting drought resilience; benefits have not yet been quantified.²²⁷
- A7: Reservoir Reoperation – involves the GSAs collaborating with the MCWRA to evaluate potential reservoir reoperation, with the aim of increasing regular annual reservoir releases; benefits have not yet been quantified.²²⁸

The projects listed and described in the GSP include the following:

- B1: Multi-benefit Stream Channel Improvements – consists of three components (stream maintenance program, invasive species eradication, and floodplain enhancement and recharge). Benefits from the first component have not yet been determined. Benefits from the second component range from 2,790 to 20,880 acre-feet per year in increased regional recharge. Up to 400 acre-feet per year in increased recharge for the Subbasin is expected from the third component.²²⁹
- B2: Managed Aquifer Recharge with Overland Flow – consists of constructing four managed aquifer recharge basins, each with an expected benefit of 100 acre-feet per year of recharge (a total of 400 acre-feet per year).²³⁰

The implementation actions include the following:

- C1: Well Registration,
- C2: Groundwater Extraction Management System Expansion,
- C3: Dry Well Notification System,
- C4: Water Quality Coordination Group, and
- C5: Land Use jurisdiction Coordination Program.²³¹

Generally, the GSP describes the proposed projects and management actions in a manner that is consistent and substantially complies with the GSP Regulations.²³² The management actions and projects, which focus largely on groundwater demand management and increased recharge, are directly related to the sustainable management criteria and appear to present a generally feasible approach to achieving the sustainability goal of the Subbasin. However, as additional information is gathered to better define the proposed projects and management actions, Department staff recommend the GSAs update the GSP to provide, clearly defined triggers for implementing the projects and

²²⁷ Forebay Aquifer GSP, Table 9-1, p. 285, and Section 9.4.6, pp. 302-305.

²²⁸ Forebay Aquifer GSP, Table 9-1, p. 285, and Section 9.4.7, pp. 306-309.

²²⁹ Forebay Aquifer GSP, Table 9-1, p. 285, and Section 9.5.1, pp. 310-322.

²³⁰ Forebay Aquifer GSP, Table 9-1, p. 285, and Section 9.5.2, pp. 322-327.

²³¹ Forebay Aquifer GSP, Table 9-1, pp. 285-286 and Section 9.6.1 through 9.6.5, pp. 327-330.

²³² 23 CCR §§ 354.44 (a), 354.44 (b), 354.44 (c), 354.44 (d).

management actions; complete benefits, timelines, costs, and how those costs will be met; and any other updates from the Subbasin’s adaptive management strategy. Additionally, as projects and management actions are implemented, the Department expects progress to be included in annual reports and any addition or removal of project and management actions be documented in periodic updates.

The Department received multiple public comments on the GSP concerning the projects and management actions proposed by the GSAs. These comments, submitted by interested parties in the area, express concern about the alignment of projects and management actions proposed in this GSP with other projects and management actions proposed by the Salinas Valley Basin GSA in the previously approved 180/400-Foot Aquifer Subbasin GSP. While it appears that some of the regional projects proposed in the 180/400-Foot Aquifer GSP may no longer be proposed in this GSP, Department staff understand projects and management actions are subject to change during plan implementation and encourage each GSA to coordinate with interested parties in the area when prioritizing plan implementation activities. The Department evaluates each GSP individually and has determined implementation of the GSP, as submitted, will likely achieve the sustainability goal defined for the Subbasin at this time. Department staff will continue to monitor and evaluate the Subbasin’s progress toward achieving the sustainability goal through annual reporting and future periodic evaluations of the GSP and its implementation.

4.6 CONSIDERATION OF ADJACENT BASINS/SUBBASINS

SGMA requires the Department to “...evaluate whether a groundwater sustainability plan adversely affects the ability of an adjacent basin to implement their groundwater sustainability plan or impedes achievement of sustainability goals in an adjacent basin.”²³³ Furthermore, the GSP Regulations state that minimum thresholds defined in each GSP be designed to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.²³⁴

The Forebay Aquifer Subbasin has three adjacent subbasins: 180/400-Foot Aquifer Subbasin, East Side Aquifer Subbasin, and Upper Valley Aquifer Subbasin. All three adjacent subbasins are located within the Salinas Valley Groundwater Basin and are hydrologically connected to the Forebay Aquifer Subbasin. The 180/400-Foot Aquifer Subbasin is designated as high-priority and critically overdrafted, the East Side Aquifer Subbasin as high-priority, and the Upper Valley Aquifer Subbasin as medium-priority. All of the three adjacent subbasins are subject to SGMA and therefore, are required to be managed under a GSP.

The Salinas Valley Basin GSA is either the exclusive GSA or one of the coordinating GSAs for the adjacent subbasins. The GSA plans to coordinate implementation of the

²³³ Water Code § 10733(c).

²³⁴ 23 CCR § 354.28(b)(3).

GSPs developed for each of the subbasins, including the Forebay Aquifer Subbasin GSP, to ensure the established sustainable management criteria will not prevent the neighboring subbasins from achieving or maintaining sustainability. Department staff will continue to review periodic updates to the Plan to assess whether implementation of the Forebay Aquifer Subbasin GSP is potentially impacting adjacent subbasins.

4.7 CONSIDERATION OF CLIMATE CHANGE AND FUTURE CONDITIONS

The GSP Regulations require a GSA to consider future conditions and project how future water use may change due to multiple factors including climate change.²³⁵

Since the GSP was adopted and submitted, climate change conditions have advanced faster and more dramatically. It is anticipated that the hotter, drier conditions will result in a loss of 10% of California's water supply. As California adapts to a hotter, drier climate, GSAs should be preparing for these changing conditions as they work to sustainably manage groundwater within their jurisdictional areas. Specifically, the Department encourages GSAs to:

1. Explore how their proposed groundwater level thresholds have been established in consideration of groundwater level conditions in the basin based on current and future drought conditions;
2. Explore how groundwater level data from the existing monitoring network will be used to make progress towards sustainable management of the basin given increasing aridification and effects of climate change, such as prolonged drought;
3. Take into consideration changes to surface water reliability and that impact on groundwater conditions;
4. Evaluate updated watershed studies that may modify assumed frequency and magnitude of recharge projects, if applicable, and
5. Continually coordinate with the appropriate groundwater users, including but not limited to domestic well owners and state small water systems, and the appropriate overlying county jurisdictions developing drought plans and establishing local drought task forces²³⁶ to evaluate how their Plan's groundwater management strategy aligns with drought planning, response, and mitigation efforts within the basin.

²³⁵ 23 CCR § 354.18.

²³⁶ Water Code § 10609.50.

5 STAFF RECOMMENDATION

Department staff recommend approval of the GSP with the recommended corrective actions listed below. The Forebay Aquifer Subbasin GSP conforms with Water Code Sections 10727.2 and 10727.4 of SGMA and substantially complies with the GSP Regulations. Implementation of the GSP will likely achieve the sustainability goal for the Forebay Aquifer Subbasin.

The GSAs have identified several areas for improvement of the Plan and Department staff concur that those items are important and should be addressed as soon as possible. Department staff have also identified additional recommended corrective actions that should be considered by the GSAs for the first five-year assessment of its GSP. Addressing these recommended corrective actions will be important to demonstrate that implementation of the Plan is likely to achieve the sustainability goal. The recommended corrective actions include:

RECOMMENDED CORRECTIVE ACTION 1

Conduct necessary investigations or studies to understand the degree to which groundwater extraction affects groundwater quality in the Subbasin.

RECOMMENDED CORRECTIVE ACTION 2

Investigate the connectivity of the upper saturated zone to the principal aquifer to determine if a continuous upper saturated zone connects to the principal aquifer.

RECOMMENDED CORRECTIVE ACTION 3

Conduct necessary field reconnaissance for GDE identification. Update future iterations of the GSP with the results of the field studies to identify GDEs in the Subbasin.

RECOMMENDED CORRECTIVE ACTION 4

Provide more information about how the proposed minimum thresholds for the chronic lowering groundwater levels may impact beneficial uses and users. Specifically, work to obtain additional well information and consider the impact of the selected minimum threshold levels on supply wells. The consideration should identify the degree/extent of potential impact including the percentage, number and location of potentially impacted wells at the proposed minimum thresholds for chronic lowering of groundwater levels.

RECOMMENDED CORRECTIVE ACTION 5

Revise the definition of undesirable results so that exceedances of minimum thresholds caused by groundwater extraction, whether the GSAs have implemented pumping regulations or not, are considered in the assessment of undesirable results in the Subbasin.

RECOMMENDED CORRECTIVE ACTION 6

Provide the rationale for using 2019 concentration data instead of 2015 concentration data as the baseline for setting minimum thresholds for degraded water quality.

RECOMMENDED CORRECTIVE ACTION 7

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSAs should work to address the following items by the first periodic update:

- a. Establish sustainable management criteria for all conditions within the Subbasin regardless of whether conservation releases are occurring or not.
- b. Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.
- c. Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.
- d. Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSAs jurisdictional area.