Groundwater Sustainability Plan

Monterey Subbasin

Marina Coast Water District Groundwater Sustainability Agency

Salinas Valley Basin Groundwater Sustainability Agency

DRAFT Chapters 1 through 4

January 12, 2021

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Monterey Subbasin

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EXECUTIVE SUMMARY

TO BE COMPLETED AS PART OF FINAL DRAFT REVISION

1 INTRODUCTION

1.1 Purpose of the Groundwater Sustainability Plan (GSP or Plan)

The purpose of this Groundwater Sustainability Plan (GSP) is to meet the regulatory requirements set forth in the three-bill legislative package consisting of Assembly Bill (AB) 1739 (Dickinson), Senate Bill (SB) 1168 (Pavley), and SB 1319 (Pavley), collectively known as the Sustainable Groundwater Management Act (SGMA). SGMA defines sustainable groundwater management as the "management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results". Undesirable results are defined by the Sustainable Groundwater Management Act (SGMA) as any of the following effects caused by groundwater conditions occurring throughout the basin:

- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply;
- Significant and unreasonable reduction of groundwater storage;
- Significant and unreasonable seawater intrusion;
- Significant and unreasonable degraded water quality;
- Significant and unreasonable land subsidence; and/or
- Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

The Monterey Subbasin has been designated by the California Department of Water Resources (DWR) as medium priority. The Monterey Subbasin is one of the nine subbasins in the Salinas Valley. It is located at the northwestern end of the Salinas Valley and borders the Pacific Ocean (**Figure 1-1**). This document satisfies the GSP requirement for the Monterey Subbasin and meets all of the regulatory standards.

This GSP has been co-developed by the Marina Coast Water District Groundwater Sustainability Agency (MCWD GSA) and the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) to meet SGMA regulatory requirements by the January 31, 2022, deadline for medium and high priority basins while reflecting local needs and preserving local control over water resources. This GSP provides a path to achieve and document sustainable groundwater management within 20 years following Plan adoption and preserves the long-term sustainability of locally-managed groundwater resources now and into the future. This GSP was approved by the MCWD GSA Board on DATE and by the SVBGSA Board on DATE (Appendix N).

1.2 Sustainability Goal

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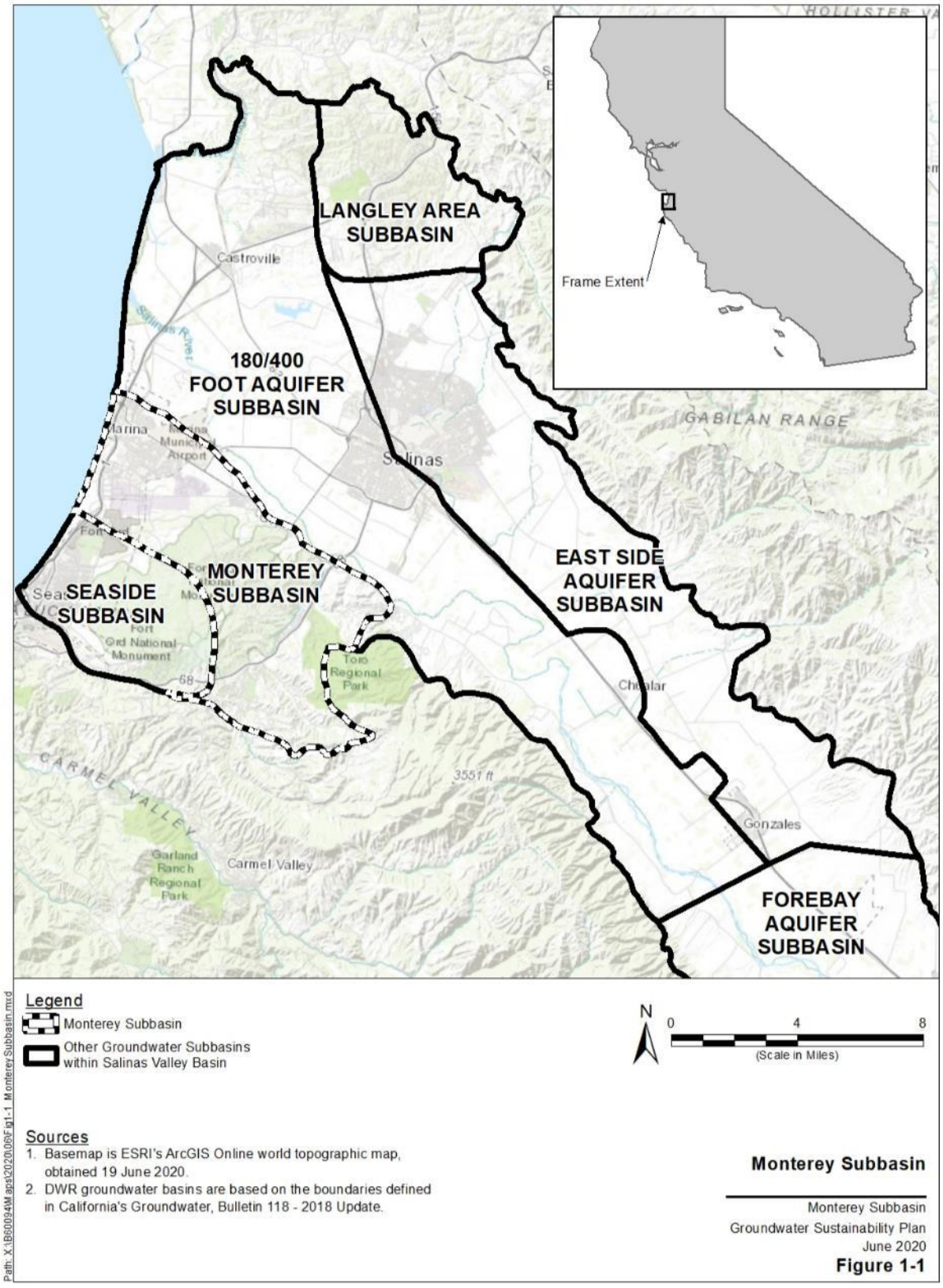
LANGLEY AREA SUBBASIN
180/400 FOOT AQUIFER SUBBASIN
MONTEREY SUBBASIN
SEASIDE SUBBASIN
EAST SIDE AQUIFER SUBBASIN
FOREBAY AQUIFER SUBBASIN
Frame Extent
Castroville
Salinas
Marina
GABILAN RANGE
CARMEL VALLEY
Carmel Valley
Gonzales
Chualar
3551 ft
Legend
Monterey Subbasin
Other Groundwater Subbasins within Salinas Valley Basin
N
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8
(Scale in Miles)
Sources
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 19 June 2020.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater, Bulletin 118 - 2018 Update.
Monterey Subbasin
Monterey Subbasin
Groundwater Sustainability Plan
June 2020
Figure 1-1
Path: X:\B60094\Maps\2020\06\Fig1-1_MontereySubbasin.mxd

1.3 Agency Information

The Monterey Subbasin is within the jurisdiction of the MCWD GSA and SVBGSA. The GSA boundaries are shown on **Figure 1-2.**

1.3.1 Name and Mailing Address of the Agency

This GSP has been prepared by MCWD GSA and SVBGSA. The following contact information is provided for each GSA that is a signatory to this GSP, pursuant to California Water Code § 10723.8.

Marina Coast Water District Groundwater Sustainability Agency
Attn.: Keith Van Der Maaten, General Manager
11 Reservation Road
Marina, CA 93933
http://www.mcwd.org

Salinas Valley Groundwater Sustainability Agency
Attn.: Donna Meyers, General Manager
1441 Schilling Place
Salinas, CA 93901
https://svbgsa.org

1.3.2 Organization and Management Structure of the Agencies

1.3.2.1 *MCWD GSA*

The MCWD GSA is a single agency GSA formed by MCWD and covering the areas within the MCWD service area within Monterey Subbasin, except for those areas owned by a federal government entity and thus not subject to SGMA. The GSA areas are shown on **Figure 1-2**. The MCWD GSA Board is comprised of the members of the MCWD Board.

1.3.2.2 *SVBGSA*

The SVBGSA is a Joint Powers Authority (JPA). The JPA membership comprises the County of Monterey, Water Resources Agency of Monterey County, City of Salinas, City of Soledad, City of Gonzales, City of King, the Castroville Community Services District (CSD), and Monterey One Water (formerly the Monterey Regional Water Pollution Control Agency). The SVBGSA is governed and administered by an eleven-member Board of Directors, representing public and private groundwater interests throughout the Valley. When a quorum is present, a Majority Vote is required to conduct business. Some business items require a Super Majority Vote or a Super Majority Plus Vote. A Super Majority requires an affirmative vote by eight of the eleven Board members. A Super Majority Vote is required for:

- Approval of a GSP
- Amendment of budget and transfer of appropriations
- Withdrawal or termination of Agency members

A Super Majority Plus requires an affirmative vote by eight of the eleven Board members, including an affirmative vote by three of the four agricultural representatives. A Super Majority Plus Vote is required for:

- Decisions to impose fees not requiring a vote of the electorate or property owners
- Proposals to submit to the electorate or property owners' decisions to impose fees or taxes
- Limitations on well extractions (pumping limits)

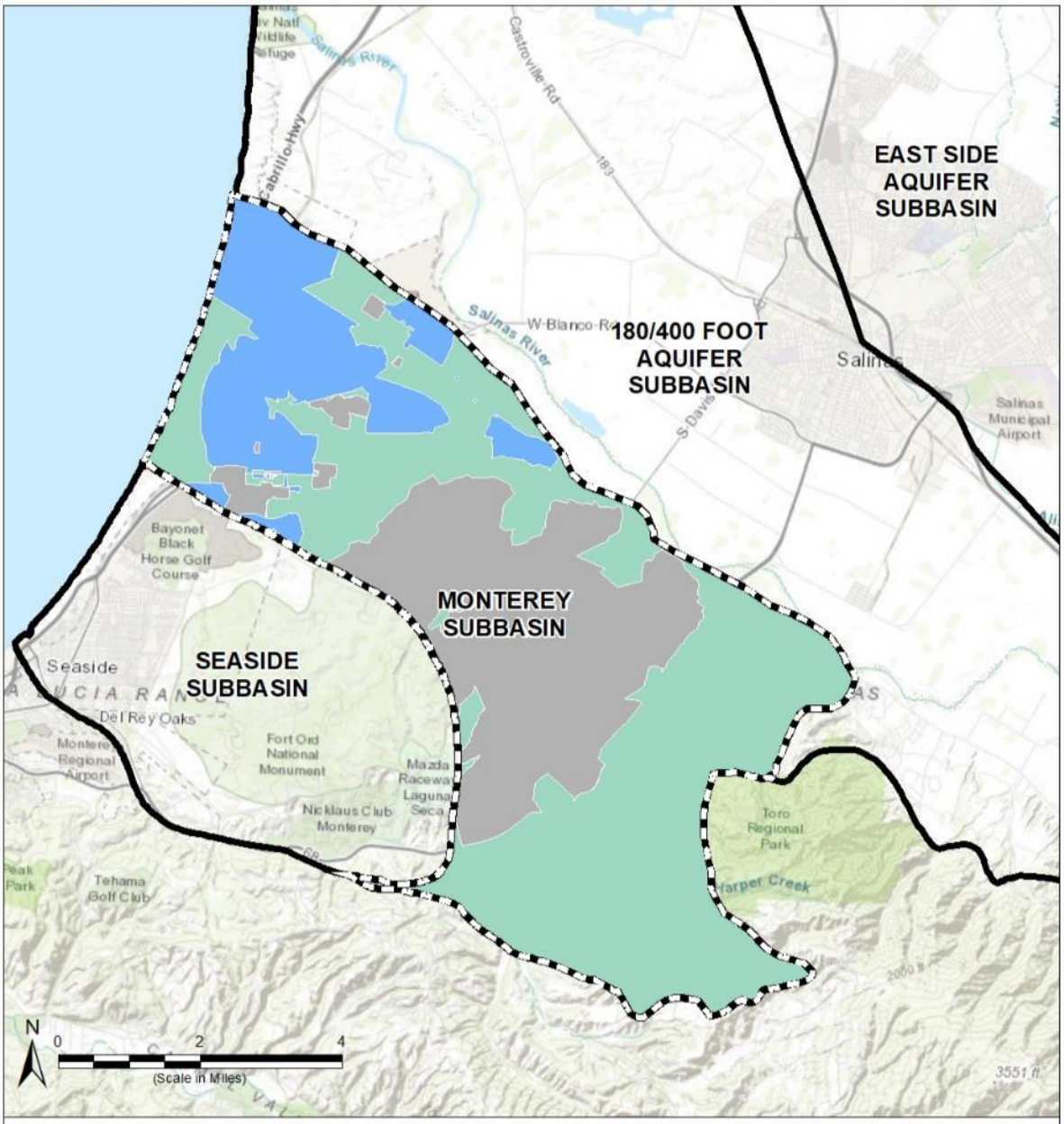
In addition to the Board of Directors, SVBGSA includes an Advisory Committee consisting of Directors and non-Directors. The Advisory Committee is designed to ensure participation by, and input to, the Board of Director by constituencies whose interests are not directly represented on the Board. The SVBGSA's GSA activities are led by a contract General Manager.

1.3.3 Plan Managers

The plan managers for this GSP are Keith Van Der Maaten, General Manager of the MCWD, and Donna Meyers, General Manager of the SVBGSA. The contact information for Mr. Van Der Maaten and Ms. Meyers is provided below.

Keith Van Der Maaten
General Manager
Marina Coast Water District
11 Reservation Road, Marina, CA93933-2099
831-883-5910
kvandermaaten@mcwd.org

Donna Meyers
General Manager
Salinas Valley Basin Groundwater Sustainability Agency
1441 Schilling Place
Salinas, CA 93901
meyersd@svbgsa.org
https://svbgsa.org



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin
- SVBGSA
- MCWD GSA
- Federal Land (Source 3)

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 19 June 2020.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater, Bulletin 118 - 2018 Update.
3. Parcels retained by the federal government in the former Fort Ord are provided by Army Corps of Engineers on 12 Spetember 2019.

Basin GSAs

Monterey Subbasin
Groundwater Sustainability Plan
June 2020
Figure 1-2

Path: X:\B60094M.aps\2020\06\Fig1-2_Basin GSAs.mxd

1.3.4 Legal Authority of the GSAs

Both GSAs involved in the development of this GSP were formed in accordance with the requirements of California Water Code § 10723 et seq.

1.3.4.1 *MCWD GSA*

MCWD GSA is formed in accordance with the requirements of California Water District Law, California Water Code §34000 by MCWD. MCWD provides water supply to residents within its service area within the City of Marina and the former Fort Ord, and is therefore a local agency under California Water Code §10721 with the authority to establish itself as a GSA.

1.3.4.2 *SVBGSA*

SVBGSA is a JPA that was formed in accordance with the requirements of California Government Code § 6500 et seq. In accordance with California Water Code § 10723 et seq, the JPA signatories are all cities, counties, and water agencies with water or land use authority and are all independently eligible to serve as GSAs:

- The County of Monterey has land use authority over the unincorporated areas of the County, including areas overlying the 180/400-Foot Aquifer Subbasin. The County of Monterey is therefore a local agency under California Water Code § 10721 with the authority to establish itself as a GSA.
- The Monterey County Water Resources Agency (MCWRA) is a California Special Act District with broad water management authority in Monterey County. The MCWRA is therefore a local agency under California Water Code § 10721 with the authority to establish itself as a GSA.
- The City of Salinas is incorporated under the laws of the State of California. The City provides water supply and land use planning services to its residents. The City is therefore a local agency under California Water Code § 10721 with the authority to establish itself as a GSA.
- The City of Soledad is incorporated under the laws of the State of California. The City provides water supply and land use planning services to its residents. The City is therefore a local agency under California Water Code § 10721 with the authority to establish itself as a GSA.
- The City of Gonzales is incorporated under the laws of the State of California. The City provides water supply and land use planning services to its residents. The City is therefore a local agency under California Water Code § 10721 with the authority to establish itself as a GSA.
- The City of King is incorporated under the laws of the State of California. The City provides water supply and land use planning services to its residents. The City is therefore a local agency under California Water Code § 10721 with the authority to establish itself as a GSA.
- The Castroville Community Services District is a local public agency of the State of California, organized and operating under the Community Services District Law, Government Code § 6100 et seq. Castroville CSD provides water services to its residents. Castroville CSD is therefore a local agency under California Water Code § 10721 with the authority to establish itself as a GSA.

- Monterey One Water is itself a joint powers authority whose members include many members of the SVBGSA. Monterey One Water is a local agency under California Water Code § 10721 with authority to establish itself as a GSA.

Upon establishing itself as a GSA, the SVBGSA retains all the rights and authorities provided to GSAs under California Water Code § 10725 et seq. as well as the powers held in common by the members.

1.3.5 Coordination Agreements

As the MCWD GSA and SVBGSA have developed a single GSP for the entire Monterey Subbasin, a Coordination Agreement per GSP Regulation §357.4 is not required between these two parties. Nonetheless, MCWD GSA and SVBGSA have successfully entered into a Framework Agreement regarding responsibilities and coordination for GSP development in the 180/400 Subbasin and the Monterey Subbasin, included as Appendix 1-A. The Framework Agreement was adopted by MCWD GSA on December 2018 and SVBGSA on January 2019.

The Framework Agreement outlines the Management Areas to be established within the Subbasin, which are later formalized in this GSP (see **Figure 1-3** and detailed discussion below). According to the Framework Agreement, MCWD GSA has prepared GSP components for the Marina-Ord Management Area and SVBGSA has prepared GSP components for the Corral de Tierra Management Area. The Framework Agreement further establishes a basis for information developed by the two agencies to be integrated into a single GSP for the Monterey Subbasin, including a coordination and stakeholder engagement process, information exchange principles, as well as the acknowledgement that coordinated methodologies are to be developed for the water budget and monitoring network analysis.

1.4 Management Areas

This GSP establishes two Management Areas within the Monterey Subbasin in accordance with GSP Regulations § 351(r) and § 354.20. The Management Areas include

- Marina-Ord Area: This Management Area consists of the lands within the City of Marina and the former Fort Ord, which are generally located north of State Route 68; and
- Corral de Tierra Area: This Management Area consists of the remainder of the subbasin, which are generally south of State Route 68 and includes a parcel located between the City of Marina and the former Fort Ord.

The Management Areas are developed considering the differences in jurisdictional, water use sector, and aquifer characteristics within these areas.

Jurisdictional and water use sector information for the Subbasin is presented in Section 3.1. Water use sectors within the Marina-Ord Area includes municipal water use and minimal groundwater remediation use. The sole water purveyor within the Marina-Ord Area is the MCWD, which serves water within its service area and will serve any future redevelopment within the former Fort Ord. Water use sectors in the Corral de Tierra Area includes municipal water use supplied by various small water systems as well as agricultural and grazing water use.

Aquifer characteristics within these Management Areas are discussed in Section 4.2. In general, hydrostratigraphy in the vicinity of the City of Marina consists of a series of laterally continuous aquifers consistent with the aquifers that form the distinguishing features of the northern Salinas Valley. Within the southern Corral de Tierra area, the typical aquifer sequence recognized in the Salinas Valley is not present.

The Management Areas are developed to facilitate GSP implementation in these areas. Specifically, the establishment of the Marina-Ord Area allows MCWD GSA to plan, fund, and implement sustainable groundwater management for the redevelopment of the former Fort Ord, within and outside of its current jurisdictional area. Whereas, management approach to be undertaken by SVBGSA in the Corral de Tierra area will be tailored towards small individual water users.

1.5 Estimated Cost of Implementing the GSP and the Agencies' Approach to Meet Costs

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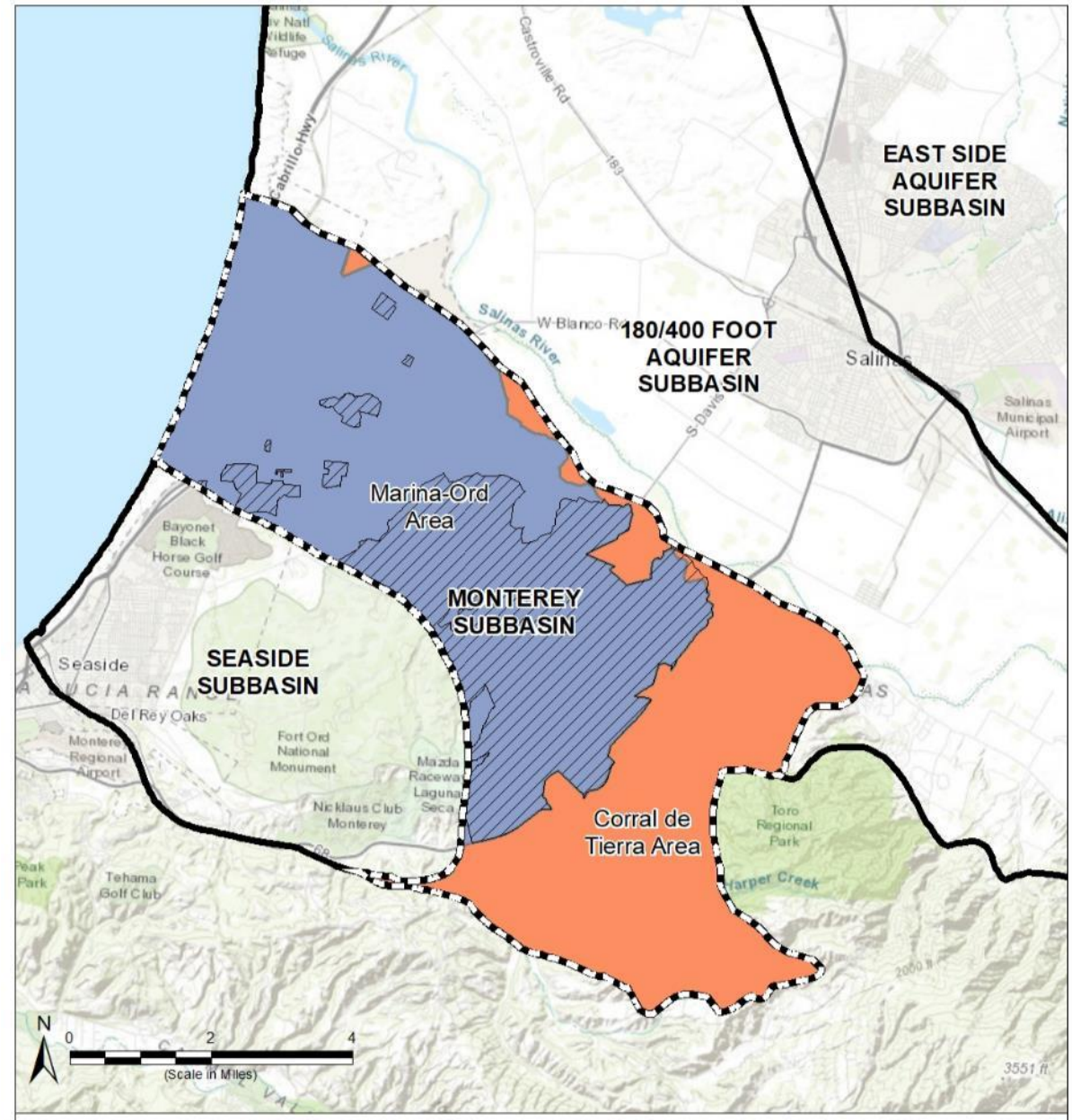

Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin
- Federal Lands

Management Areas

- Marina-Ord Area
- Corral de Tierra

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 22 June 2020.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater, Bulletin 118 - 2018 Update.

Management Areas

Monterey Subbasin
Groundwater Sustainability Plan
June 2020
Figure 1-3

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1.6 Overview of this GSP

The GSP covers the entire Monterey Subbasin and is developed jointly by the MCWD GSA and the SVBGSA. This GSP is developed in concert with GSPs for five other Salinas Valley Groundwater Basin subbasins subject to SGMA: the 180/400-Foot Aquifer Subbasin, the Forebay Aquifer Subbasin, the Upper Valley Aquifer Subbasin, the Langley Area Subbasin, and the Eastside Aquifer Subbasin. Some of the projects and programs presented in this GSP are part of a cohesive set of projects and programs designed to achieve sustainability throughout the entire Salinas Valley Groundwater Basin. The Monterey Subbasin is referred to as the Subbasin throughout this GSP, and the collection of Salinas Valley Groundwater Basin subbasins are collectively referred to as the Basin or the Valley.

Chapter 2 details the stakeholders that participated, and process followed to develop this GSP. Stakeholders worked together to gather existing information, define sustainable management criteria for the Subbasin, and develop a list of projects and management actions.

Chapters 3 through 6 describes the basin setting, presents the hydrogeologic conceptual model, and describes historical and current groundwater conditions. It further establishes estimates of the historical, current, and future water budgets based on the best available information.

Chapter 7 and 8 proceeds to detail required monitoring networks and defines local sustainable management criteria.

Chapter 9 outlines projects and programs for reaching sustainability in the Subbasin by 2042.

Additionally, GSP topics are discussed respectively for the Marina-Ord and Corral de Tierra Areas as necessary, acknowledging the hydrogeological differences and data gaps between in these management areas. As part of the two GSAs collaborative GSP development process, components for the Marina-Ord Area were prepared by MCWD GSA and components for the Corral de Tierra Area were prepared by SVBGSA.

This GSP will be updated and adapted as new information and more refined models become available. This includes updating sustainable management criteria as well as projects and management actions to reflect updates and future conditions. Adaptive management will be reflected in the required five-year updates to GSPs and annual reports.

2 STAKEHOLDER ENGAGEMENT AND COMMUNICATION STRATEGY

TO BE ADDED

3 PLAN AREA

This section presents a description of the Plan Area, and a summary of the relevant jurisdictional boundaries and other key land use features potentially relevant to the sustainable management of groundwater in the Monterey Subbasin. This section also describes the water monitoring programs, water management programs, and general plans relevant to the Subbasin and their influence on the development and execution of this Groundwater Sustainability Plan (GSP).

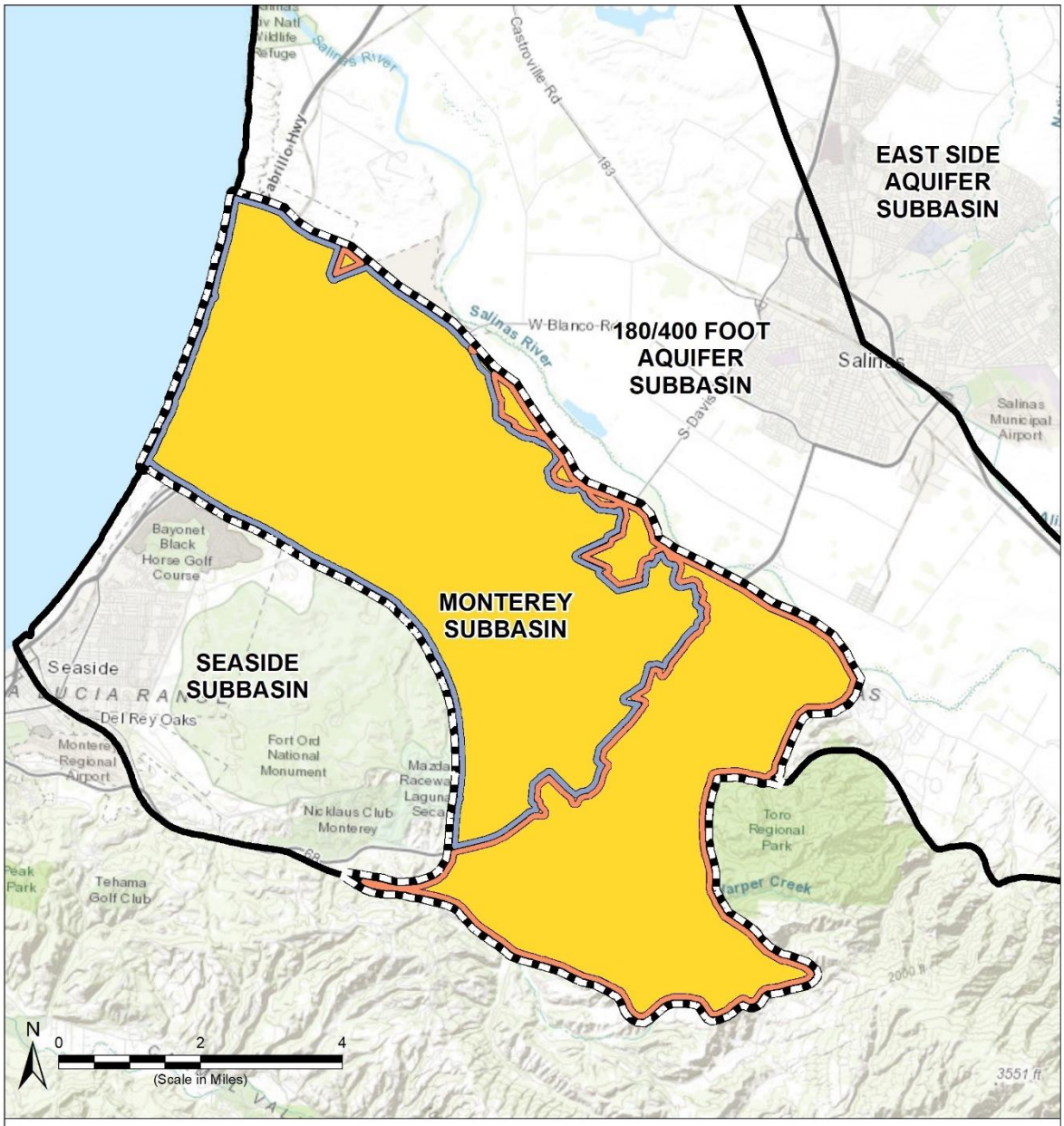
3.1 Summary of Jurisdictional Areas and Other Features

3.1.1 Plan Area Setting

This GSP covers the entire Monterey Subbasin (Department of Water Resources [DWR] Basin 3-004.10), which encompasses 30,850 acres (or 48.2 square miles) in the northwestern Salinas Valley Groundwater Basin in the Central Coast region of California (see **Figure 3-1**). The Subbasin is covered by the Marina Coast Water District Groundwater Sustainability Agency (MCWD GSA) and the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) and lies entirely within Monterey County. The Subbasin is bounded on the northeast by the 180/400 Foot Aquifer Subbasin (DWR Basin 3-004.01) and on the southwest by the Seaside Subbasin (DWR Basin 3-004.08).

The GSAs have established two Management Areas within the subbasin, as discussed in Section 1.4 and shown on **Figure 3-1**. These Management Areas are described as follows:

- Marina-Ord Area: This Management Area consists of the lands within the City of Marina and the former Fort Ord; and
- Corral de Tierra Area: This Management Area consists of the remainder of the subbasin, which are generally south of State Route 68 and includes a parcel located between the City of Marina and the former Fort Ord.



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin
- Plan Area

Management Areas

- Marina-Ord Area
- Corral de Tierra Area

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 21 December 2020.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater, Bulletin 118 - 2018 Update.

Plan Area (Monterey Subbasin)

Monterey Subbasin
Groundwater Sustainability Plan
December 2020
Figure 3-1

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3.1.2 Jurisdictional Boundaries

The Subbasin falls entirely within Monterey County and contains the municipalities of Marina and Seaside. The City of Marina is located in the northern portion of the Subbasin and is a community of approximately 22,000 residents (DOF, 2020). The City of Seaside is on Highway 1 approximately two miles south of the City of Marina and has a population of approximately 34,000 (DOF, 2020).

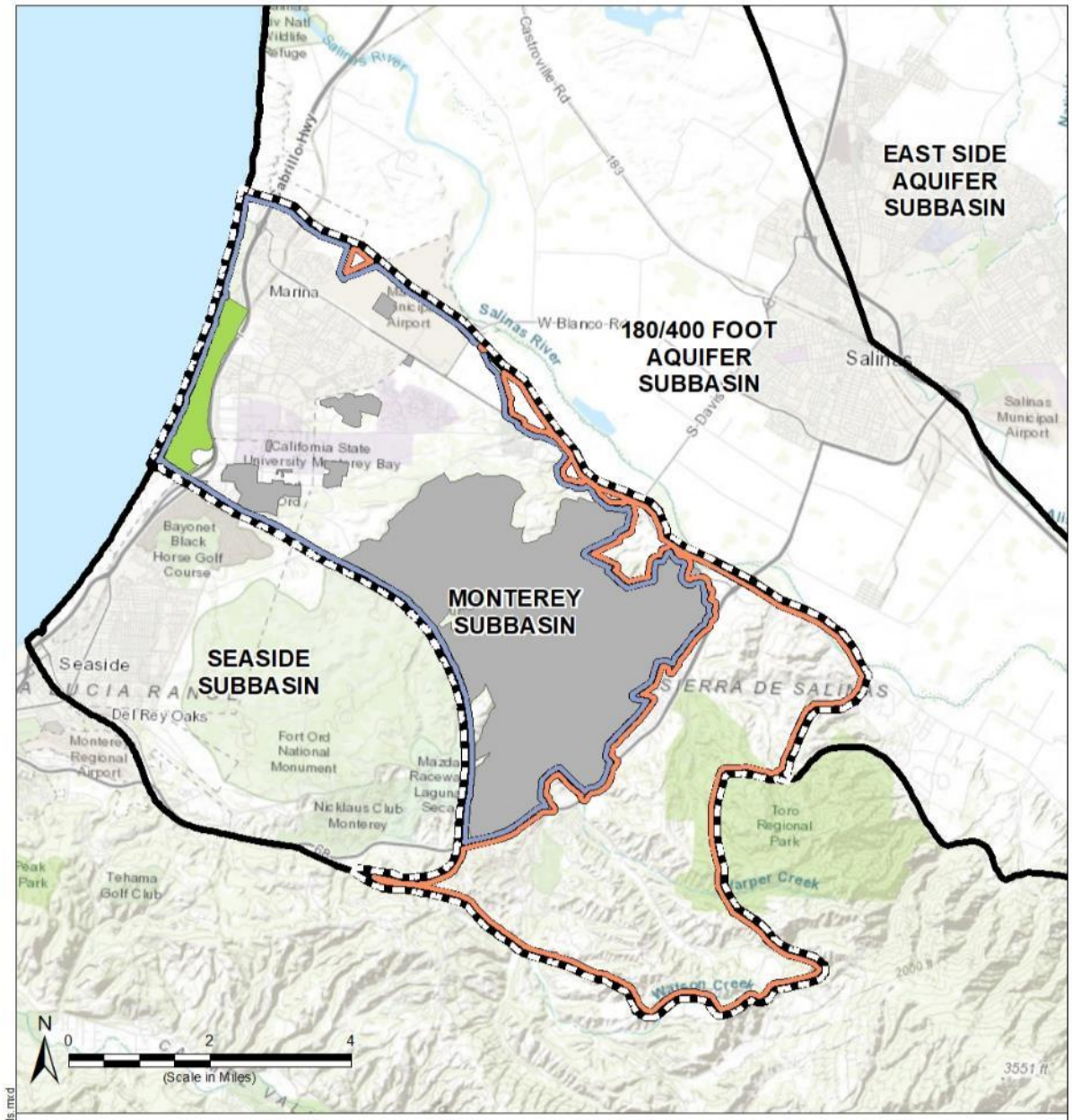
A large portion of the Subbasin was home to the 45-square mile former Fort Ord military base. The base was closed 1994 and has since been undergoing conversion to civilian use. As of 2019, most of the property transfers have been completed and environmental cleanup is ongoing. A large portion of the land is transferred to the Bureau of Land Management (BLM) as part of the National Conservation Lands and consists of the Fort Ord National Monument. A small portion of the base was retained by the U.S. Army for active military installation. As shown on **Figure 3-2**, a total of 9,200 acres of the Subbasin is federally owned lands managed by the U.S. Army and the BLM located at the former Fort Ord. Those lands are not subject to the Sustainable Groundwater Management Act (SGMA).

The Fort Ord Dunes State Park, a state-owned park, is located along the western boundary of the Subbasin adjacent to the Pacific Ocean, with a total area of 916 acres.

According to the information made available by the DWR[1] in support of GSP development, there are no tribal lands within or in the vicinity of the Subbasin.

Areas under federal and state jurisdiction are shown on **Figure 3-2**.

[1] SGMA Data Viewer: https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Management Areas

- Marina-Ord Area
- Corral de Tierra

Federal and State Jurisdiction

- State
- Federal

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 22 June 2020.
2. State land information obtained from DWR Dataset.
3. Parcels retained by the federal government in the former Fort Ord area are provided by Army Corps of Engineers on 12 September 2019.

Path: X:\B60094M\gis\2020\060Fig3-2 Federal and State Lands.mxd

Federal and State Jurisdictional Areas

Monterey Subbasin
Groundwater Sustainability Plan
June 2020
Figure 3-2

3.1.3 Agencies with Water Management Responsibilities

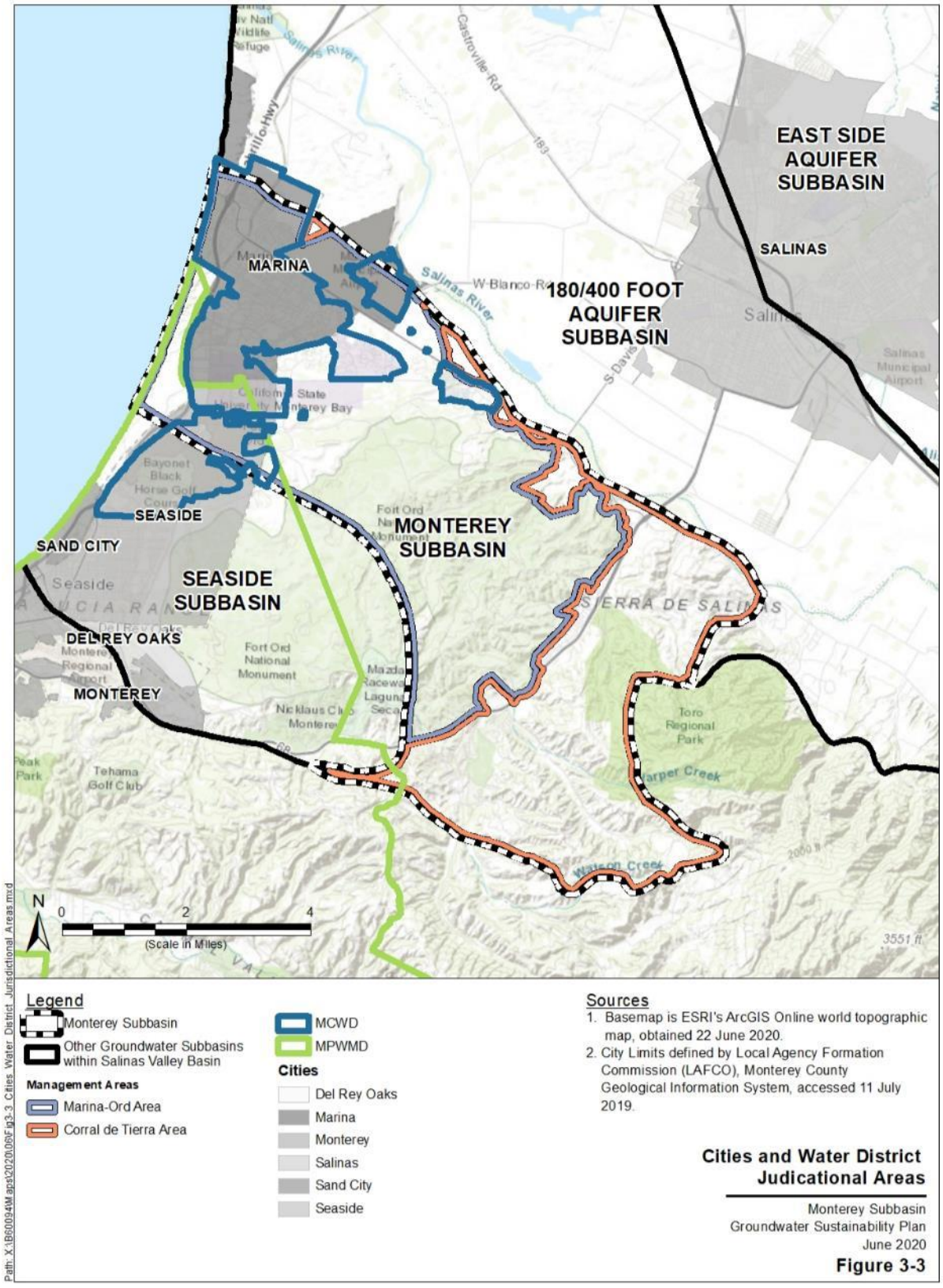
As shown on **Figure 3-3**, the main water supplier in the Subbasin is MCWD, which has a service area covering the entire City of Marina and all parcels within the Ord Subaarea that currently receive potable water or that have received final land use development approvals by the applicable land use jurisdiction within its jurisdictional boundary. Within the former Fort Ord, MCWD is the exclusive water purveyor to all non-Federal lands and to the U.S. Army for all Army and Federal facilities. By a 2001 deed from the Army through the Fort Ord Reuse Authority, MCWD owns all the water infrastructure within the former Fort Ord (MCWD, 2016). A small portion of MCWD's service area further extends into the 180/400-Foot Aquifer Subbasin.

The MCWD provides sewer collection services within its jurisdictional boundaries. Wastewater collected by MCWD is conveyed to the Monterey One Water (formerly Monterey Regional Water Pollution Control Agency) Regional Treatment Plant located in the 180/400 Foot Aquifer Subbasin.

The municipal water providers in the whole Monterey Subbasin are listed in **Table 3-1** and shown on **Figure 3-4**. There are also over 200 State Small Water Systems (5-14 connections) and Local Small Water Systems (2-4 connections) in the Monterey Subbasin that provide water.

Table 3-1: Municipal Water Providers in the Monterey Subbasin

Water System No	Agency Name	Acres
CA2710017	Marina Coast Water District	19,476
CA2710012	California Water Service Company - Salinas Hills	2,626
CA2710004	California American Water Company - Monterey District	2,368
CA2710021	Toro Water Service No 2710021	2,168
CA2702009	Laguna Seca Recreation Water System	487
CA2700612	Laguna Seca Water Company	77
CA2702315	Corral De Tierra Country Club Water System	71
CA2701367	Tierra Meadows Home Owners Association Water System	44
CA2700775	Tierra Verde Mutual Water Company	21
CA2700731	Z Ranch Mutual Water Company	18
CA2702030	Cypress Community Church Water System	17
CA2700536	Corral De Tierra Estates Water Company	6
CA2701740	Bluffs Water System	6
CA2701681	Exxon Station Water System	1
	Total	**27,385**


EAST SIDE AQUIFER SUBBASIN
SALINAS
MARINA
180/400 FOOT AQUIFER SUBBASIN
SEASIDE
SAND CITY
SEASIDE SUBBASIN
MONTEREY SUBBASIN
DEL REY OAKS
MONTEREY
SIERRA DE SALINAS
Salinas River
Fort Ord National Monument
Toro Regional Park
Tehama Golf Club
Monterey Regional Airport
Salinas Municipal Airport
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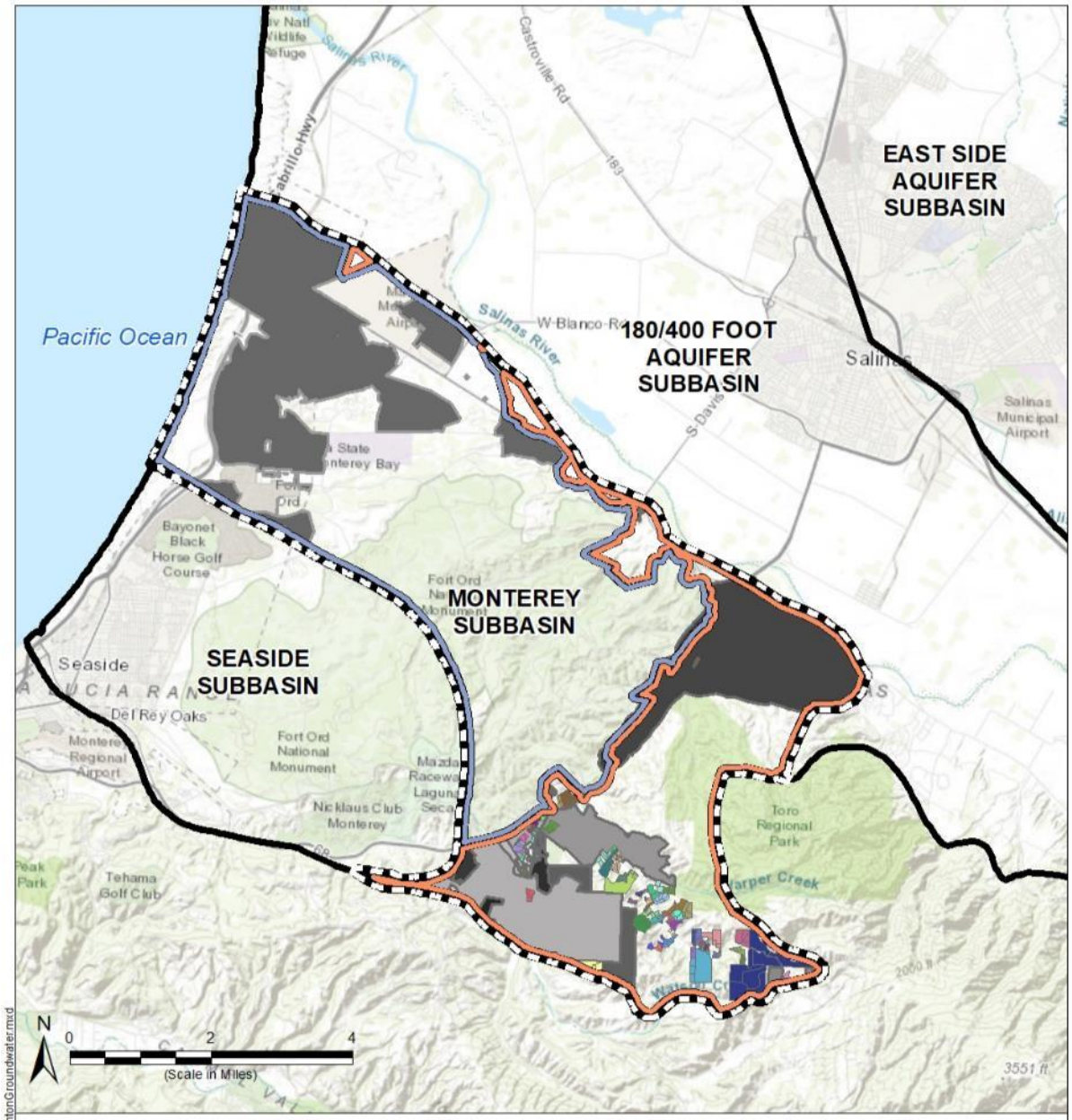
(Scale in Miles)
Legend
Monterey Subbasin
Other Groundwater Subbasins within Salinas Valley Basin
Management Areas
Marina-Ord Area
Corral de Tierra Area
MCWD
MPWMD
Cities
Del Rey Oaks
Marina
Monterey
Salinas
Sand City
Seaside
Sources
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 22 June 2020.
2. City Limits defined by Local Agency Formation Commission (LAFCO), Monterey County Geological Information System, accessed 11 July 2019.
Cities and Water District Judicational Areas
Monterey Subbasin
Groundwater Sustainability Plan
June 2020
Figure 3-3
Path: X:\B60094\Maps\2020\06\fig3-3_Cities_Water_District_Jurisdictional_Areas.mxd



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Management Areas

- Marina-Ord
- Corral de Tierra
- Public Water Supply Service Areas
- Small Local and Small State Water Systems

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 19 June 2020.
2. Municipal areas shown as public water system service areas dependent on groundwater, obtained from Tracking California https://trackingcalifornia.org/water/download.

Municipal Areas Dependent on Groundwater

Monterey Subbasin
Groundwater Sustainability Plan
June 2020
Figure 3-4

Path: X:\B60094\Maps\2020\06\Fig3-4_MunicipalAreasDependentonGroundwater.mxd

Other agencies with water management responsibilities within the Subbasin include the Monterey County Water Resources Agency (MCWRA) and the Monterey Peninsula Water Management District (MPWMD). MCWRA governance areas includes all lands within Monterey County, which includes the subbasin. MPMWD manages groundwater and surface water in areas on the Monterey Peninsula and in the Carmel River Basin and includes the City of Seaside, which extends into the subbasin. Management programs of these agencies are further discussed in Section 3.2.

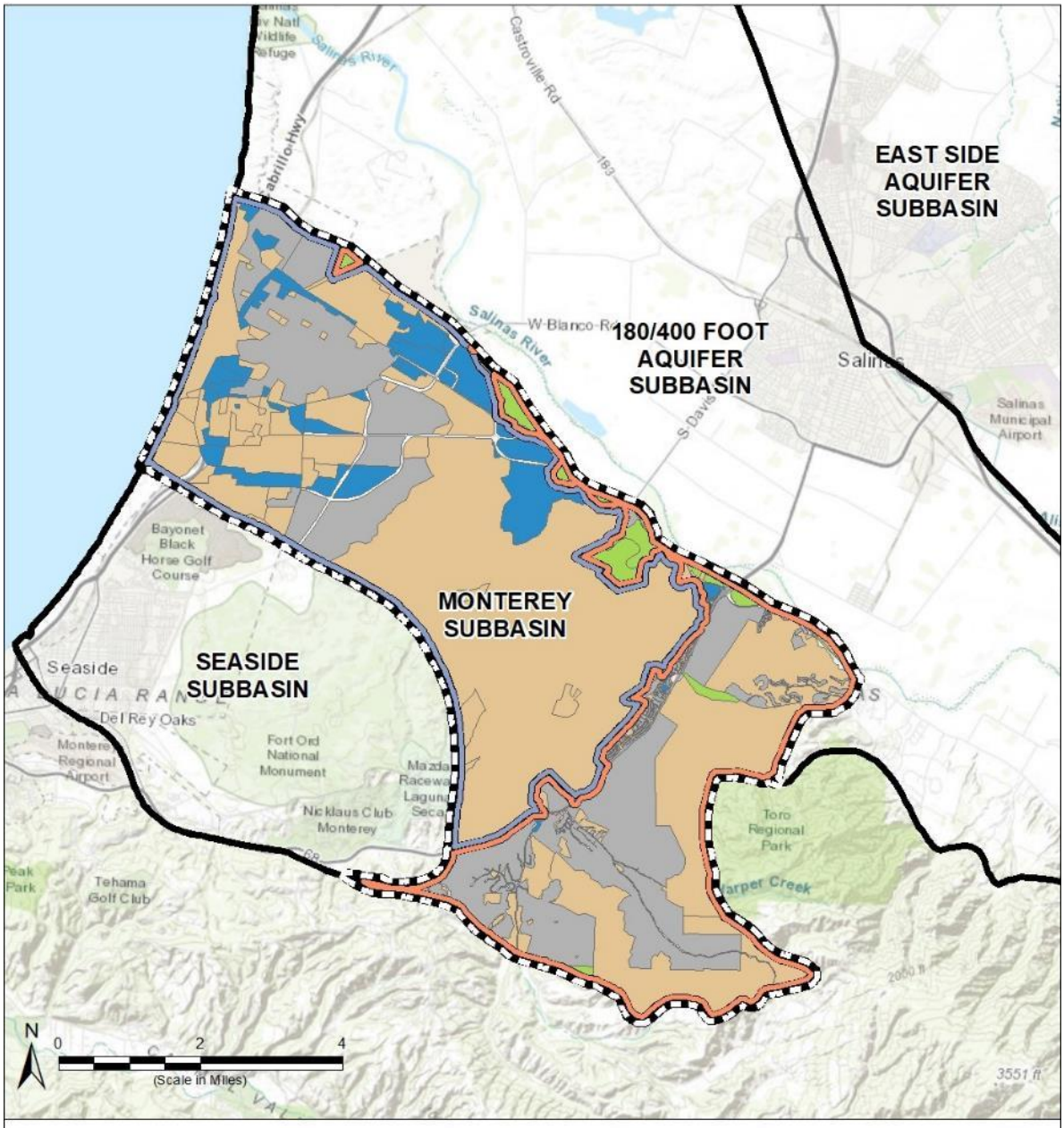
3.1.4 Adjudicated areas and Alternative areas

The Subbasin is not adjudicated and does not contain any areas covered by an Alternative plan. However, this subbasin shares a jurisdictional boundary with the Seaside Adjudicated Subbasin. This boundary is based on a presumed groundwater flow divide between the two subbasins and may be vulnerable to future pumping or impacts to the groundwater conditions in either subbasin. The adjudicated area is not managed by MCWD nor the SVBGSA. The adjudicated Seaside Subbasin is managed by the Seaside Basin Watermaster.

3.1.5 Existing Land Use and Water Use

Land use planning authority in the Subbasin is the responsibility of the County of Monterey, the cities of Marina and Seaside, and the Fort Ord Reuse Authority, who oversees reuse planning at the former Fort Ord.

Figure 3-5 shows simplified land use designations within the Monterey Subbasin. The majority of the subbasin is undeveloped land. Urban is the primary developed land use within the subbasin, with approximately 5,500 acres of urban coverage. Small areas of agriculture, approximately 500 acres of truck nursery and berry crops, are located along the northern subbasin boundary adjoining the 180/400 Foot Aquifer Subbasin. Urban and agriculture water uses in the subbasin relies entirely on groundwater.



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Management Areas

- Marina-Ord Area
- Corral de Tierra

Current Land Use

- Open/Public/Military
- Agriculture
- Municipal
- Residential

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 22 June 2020.
2. Land use information are obtained from Monterey County Open Data, accessed 12 June 2020.

Land Use

Monterey Subbasin
Groundwater Sustainability Plan
June 2020
Figure 3-5

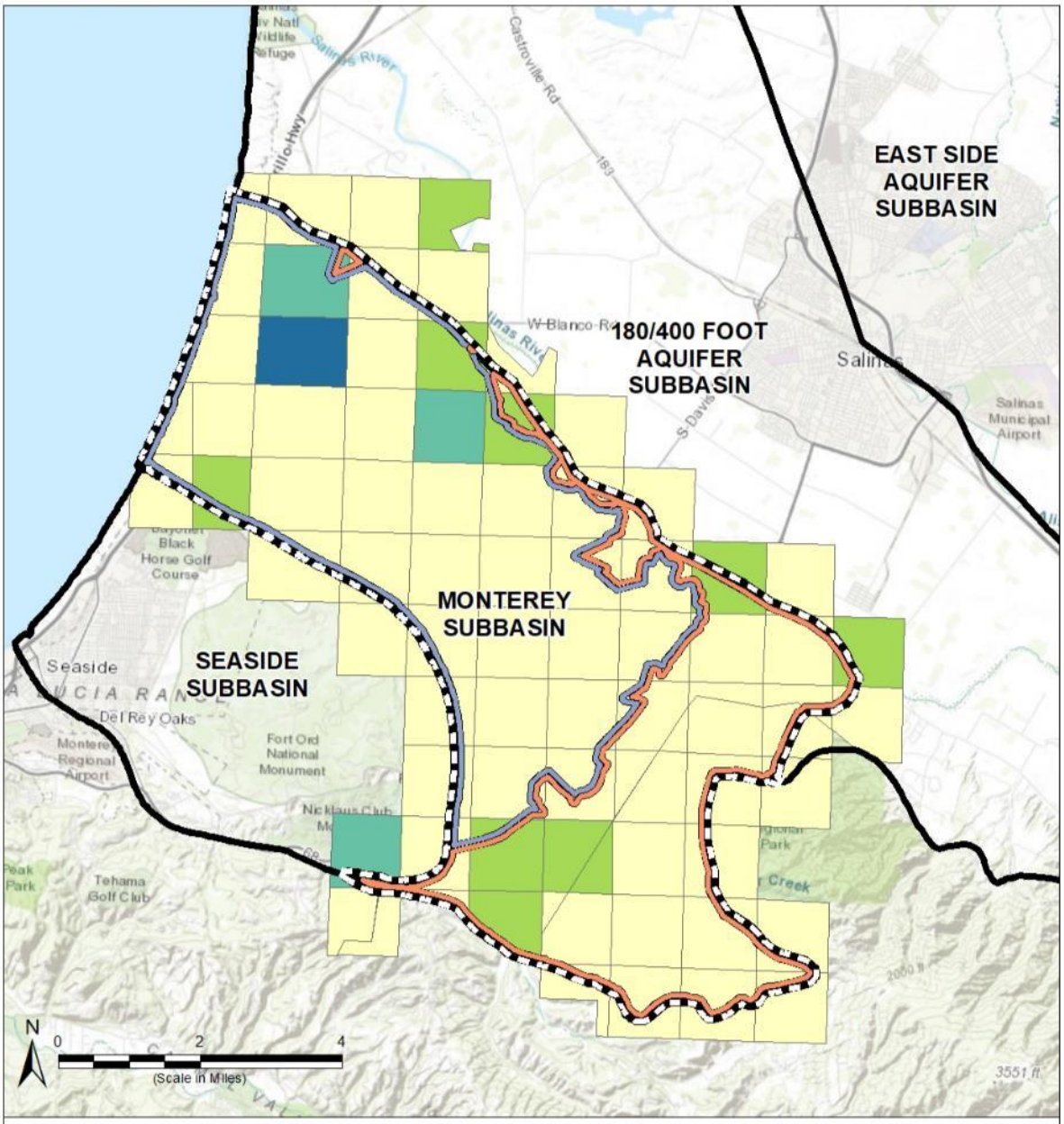
3.1.6 Well Density per Square Mile

Figure 3-6 through **Figure 3-8** show the density of wells per square mile within the subbasin, based on Well Completion Report records compiled by DWR. According to these records, 102 production wells, 304 domestic wells, and 17 public supply wells have been installed within the Public Land Survey Systems (PLSS) sections that fall partially or entirely within the subbasin.

Groundwater is the primary water source for all water use sectors in the subbasin. Municipal areas dependent on groundwater within the subbasin are shown on **Figure 3-4**.

Within the Marina-Ord Area, MCWD is the exclusive water purveyor to all non-federal lands and to the Army for all Army and Federal facilities within the former Fort Ord. Due to well installation requirements of the Monterey County and the City of Marina (see Section 3.5.4), only a very small number of domestic wells that pre-date County and City ordinances exist within the Marina-Ord Area. Fort Ord contamination and seawater intrusion limits use of the majority of these wells. In turn, these communities rely on water service provided by MCWD. MCWD currently operates seven active production wells that supplies approximately 3,200 acre-feet per year (AFY) to its residents.

Within the Corral de Tierra Area, there are hundreds of domestic wells and small community water system wells shown in **Figure 3-4** (GeoSyntec, 2007). The majority of these small systems are clustered in the Watson Creek and Harper Creek watersheds The most recent and best available published groundwater demand in the Corral de Tierra Area estimated a groundwater extraction rate of 1,256 AFY for the El Toro Planning area which is an area that encompasses the Calera Creek, Watson Creek, Corral de Tierra, San Benancio Gulch, and El Toro Creek watersheds. The report estimated this groundwater extraction based on reports published and data collected in the 1990s (GeoSyntec, 2007). The El Toro Planning area encompasses a large portion of the Corral de Tierra Area within the Monterey Subbasin as well as communities in the Sierra de Salinas immediately outside of the Subbasin. Therefore, the estimated volumes are not perfectly representative of the current water use in the Corral de Tierra Area. Groundwater is primarily used for municipal, domestic, and agricultural purposes.



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Management Areas

- Marina-Ord Area
- Corral de Tierra Area

Public Well Density

- 0
- 1
- 2
- 3 - 5
- 6 - 7

Notes

1. All locations are approximate.
2. Well density is shown on PLSS sections within the Subbasin.

Sources

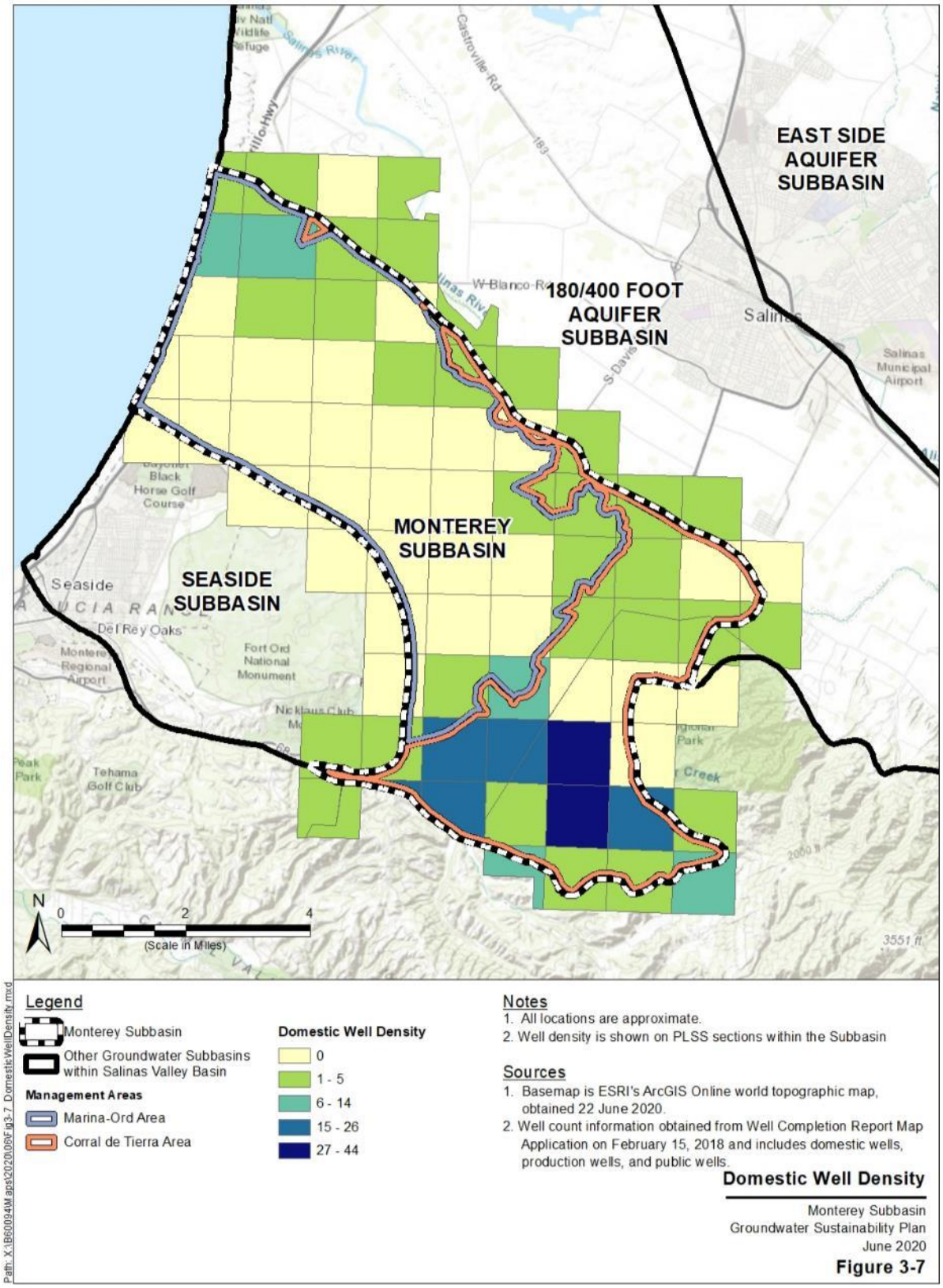
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 22 June 2020.
2. Well count information obtained from Well Completion Report Map Application on February 15, 2018 and includes domestic wells, production wells, and public wells.

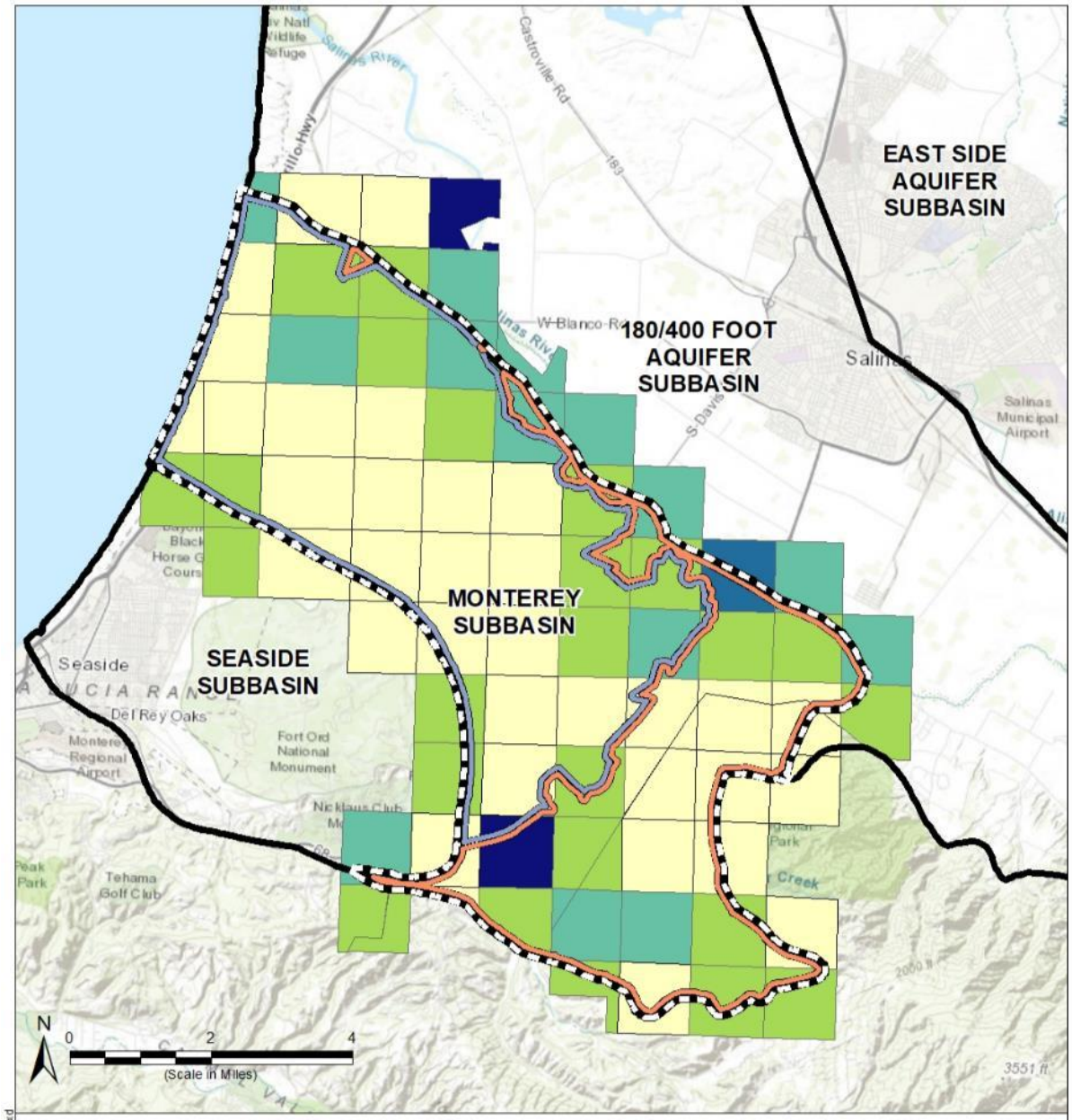
Path: X:\B60094\Maps\2020\06Fig3-6_PublicWellDensity.mxd

Public Well Density

Monterey Subbasin
Groundwater Sustainability Plan
June 2020

Figure 3-6


EAST SIDE
AQUIFER
SUBBASIN
180/400 FOOT
AQUIFER
SUBBASIN
MONTEREY
SUBBASIN
SEASIDE
SUBBASIN
Salinas River
Castroville Rd
W Blanco Rd
Salinas
Salinas Municipal Airport
Black Horse Golf Course
Seaside
Del Rey Oaks
Monterey Regional Airport
Fort Ord National Monument
Tehama Golf Club
N
0
2
4
(Scale in Miles)
3551 ft
Legend
Monterey Subbasin
Other Groundwater Subbasins within Salinas Valley Basin
Management Areas
Marina-Ord Area
Corral de Tierra Area
Domestic Well Density
0
1 - 5
6 - 14
15 - 26
27 - 44
Notes
1. All locations are approximate.
2. Well density is shown on PLSS sections within the Subbasin
Sources
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 22 June 2020.
2. Well count information obtained from Well Completion Report Map Application on February 15, 2018 and includes domestic wells, production wells, and public wells.
Domestic Well Density
Monterey Subbasin
Groundwater Sustainability Plan
June 2020
Figure 3-7
Path: X:\B60094M.aps\2020\06Fig3-7_DomesticWellDensity.mxd



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Management Areas

- Marina-Ord Area
- Corral de Tierra Area

Production Well Density

- 0
- 1 - 2
- 3 - 5
- 6 - 8
- 9 - 11

Notes

1. All locations are approximate.
2. Well density is shown on PLSS sections within the Subbasin

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 22 June 2020.
2. Well count information obtained from Well Completion Report Map Application on February 15, 2018 and includes domestic wells, production wells, and public wells.

Production Well Density

Monterey Subbasin
Groundwater Sustainability Plan
June 2020

Figure 3-8

Path: X:\B60094\Maps\2020\06Fig3-8_ProductionWellDensity.mxd

3.2 Water Resources Monitoring and Management Programs

3.2.1 Existing Monitoring Programs

Existing groundwater monitoring in the Subbasin include:

- The California Statewide Groundwater Elevation Monitoring (CASGEM) Program tracks long-term groundwater elevation trends in groundwater basins throughout California. The CASGEM program's mission is to establish a permanent, locally-managed program of regular and systematic monitoring in all of California's alluvial groundwater basins. In the Subbasin, MCWRA and MPWMD are the CASGEM monitoring entities.
- The United States Geological Survey (USGS) collects surface water and groundwater data across the United States. Existing USGS monitoring wells and stream gauges are located within the Monterey Subbasin.
- The Groundwater Ambient Monitoring and Assessment (GAMA) Program which is California's comprehensive groundwater quality monitoring program that was created by the State Water Resources Control Board (SWRCB) in 2000. The GAMA Program monitors groundwater quality trends throughout California, including within the Monterey Subbasin.
- The SWRCB's Division of Drinking Water monitors groundwater quality from public water system wells. There are 15 active public water systems located within the Subbasin.
- MCWD, MCWRA, and MPWMD each conduct periodic monitoring for groundwater elevation and quality in their production wells or selected wells in their respective areas. Additionally, MCWD has installed transducers in selected production wells.
- MCWRA collects groundwater extraction information from production wells in the Subbasin that have discharge pipes of three inches or greater in diameter. These data have been collected since 1993. Extraction information is self-reported by well owners and may be sparsely available.
- Multiple sites are monitoring groundwater quality as part of investigation or compliance monitoring programs through the Central Coast Regional Water Quality Control Board (CCRWQCB)
- The U.S. Army Corps of Engineers (the Army) conducts periodic monitoring for groundwater elevation and quality for remediation purposes in the former Fort Ord. Several additional sites are monitoring groundwater elevation and quality as part of investigation or compliance monitoring programs through the Central Coast Regional Water Quality Control Board.

Well locations of the above monitoring programs are shown on **Figure 3-9**.

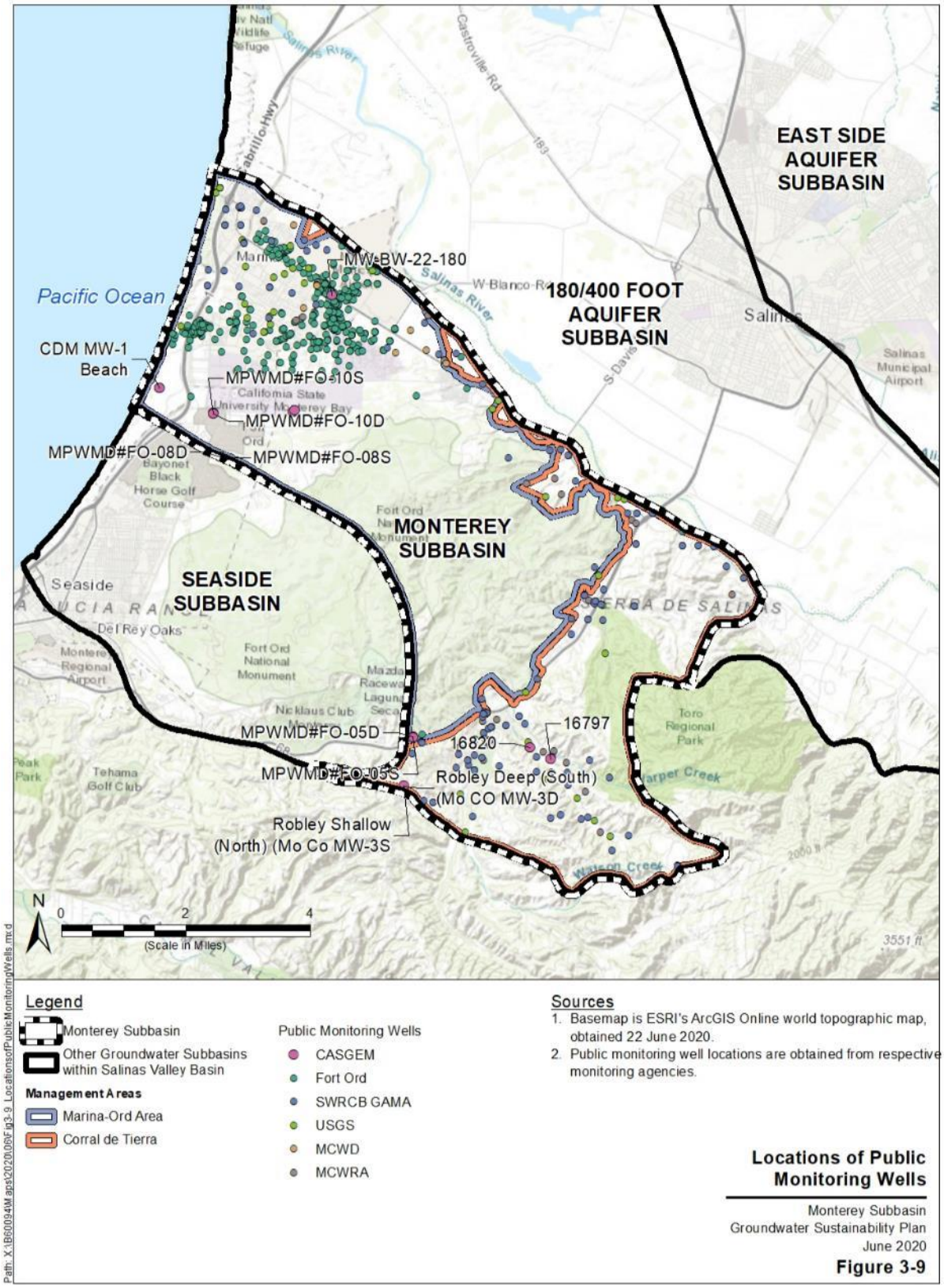
Groundwater elevation from CASGEM, USGS, SWRCB, as well as MCWRA, MPMWD, and the Army's monitoring networks, have been used to characterize groundwater level conditions (see Section 5.1 Groundwater Elevations and Flow Direction). Water quality data from MCWRA, MPMWD, and the Army's monitoring networks, in coordination the Airborne Electromagnetic (AEM) Surveys have been used to characterize seawater intrusion and identify water quality concerns (see Section 5.3 Seawater Intrusion and Section 5.4 Groundwater Quality Concerns).

For surface water, there are no surface water inflows beyond those produced from seasonal precipitation in the Subbasin (GeoSyntec, 2007). The USGS monitored stream flows for El Toro Creek at station 11152540 until 2001 (GeoSyntec, 2007). The logarithmic mean of 525 AFY is representative of average flows as shown in **Figure 4-24** and **Figure 4-25** in Section 4 (GeoSyntec, 2007). As of 2020, there are no active surface gauges in the Corral de Tierra area.

3.2.1.1 *Limits to Operational Flexibility*

The existing monitoring networks will be integral to the on-going monitoring and reporting that will be conducted pursuant to this GSP. For the above-mentioned monitoring programs, the Monterey Subbasin GSP will incorporate the CASGEM program into its monitoring network, as applicable. The MCWD, MCWRA (a member of SVBGSA), and MPWMD also conduct routine groundwater quality monitoring as part of their management efforts. These existing programs will continue and will inform GSP implementation. The Monterey Subbasin Monitoring Network is further described in Section 7 Monitoring Network.

Will revisit this discussion after development of the Monitoring Network chapter


EAST SIDE AQUIFER SUBBASIN
180/400 FOOT AQUIFER SUBBASIN
MONTEREY SUBBASIN
SEASIDE SUBBASIN
Pacific Ocean
MW-BW-22-180
CDM MW-1
Beach
MPWMD#FO-10S
MPWMD#FO-10D
MPWMD#FO-08D
MPWMD#FO-08S
MPWMD#FO-05D
MPWMD#FO-05S
16797
16820
Robley Deep (South)
(Mo CO MW-3D
Robley Shallow
(North) (Mo Co MW-3S
Salinas River
Castroville Rd
W Blanco Rd
S Davis
Salinas Municipal Airport
Fort Ord National Monument
Seaside
Del Rey Oaks
Monterey Regional Airport
Toro Regional Park
Tehama Golf Club
Bayonet Black Horse Golf Course
Harper Creek
Watson Creek
N
0
2
4
(Scale in Miles)
3551 ft
Legend
Monterey Subbasin
Other Groundwater Subbasins within Salinas Valley Basin
Management Areas
Marina-Ord Area
Corral de Tierra
Public Monitoring Wells
CASGEM
Fort Ord
SWRCB GAMA
USGS
MCWD
MCWRA
Sources
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 22 June 2020.
2. Public monitoring well locations are obtained from respective monitoring agencies.
Locations of Public Monitoring Wells
Monterey Subbasin
Groundwater Sustainability Plan
June 2020
Figure 3-9
Path: X:\B60094\Maps\2020\06\Fig3-9_LocationsofPublicMonitoringWells.mxd

3.2.2 Existing Management Programs

The following groundwater management programs exists within the Monterey Subbasin.

3.2.2.1 *Integrated Regional Water Management*

The majority of the Monterey Subbasin falls within the Greater Monterey County Integrated Regional Water Management Region (Greater Monterey County Region), while a portion of the Subbasin along the southern boundary is within the Monterey Peninsula-Carmel Bay- South Monterey Bay Region (Monterey Peninsula Region). These portions of the Subbasin are therefore included in the Greater Monterey County Integrated Regional Water Management Plan (IWRMP) and the Monterey Peninsula Region IWRMP, respectively.

The Greater Monterey County Region includes the entire Monterey County excluding the Pajaro River Watershed Region and the Monterey Peninsula Region. The Greater Monterey County IRWMP was adopted in April 2013 and updated in September 2018. The water supply goals for the Greater Monterey County Region, according to the IRWMP (Monterey County, 2018), include the following:

- Improve water supply reliability and protect groundwater and surface water supplies;
- Protect and improve surface, groundwater, estuarine and coast water quality, and ensure the provision of high-quality, potable, affordable drinking water for all communities in the region;
- Develop, fund, and implement integrated watershed approaches to flood management through collaborative and community supported processes;
- Protect, enhance, and restore the region's ecological resources while respecting the rights of private property owners;
- Promote regional communication, cooperation, and education regarding water resources management;
- Ensure the provision of high-quality, potable, affordable water and healthy conditions for disadvantage communities (DACs); and
- Adapt the region's water management approach to deal with impacts of climate change using science-based approaches, and minimize the regional causal effects.

The Monterey Peninsula Region consists of approximately 350 square miles along the Monterey Bay and the Carmel River Valley. The Monterey Peninsula IRWMP was adopted in 2014 and is currently undergoing an update to comply with new IRWM Program Guidelines. Key goals and priorities for the Monterey Peninsula Region, according to the IRWMP (2014), include the following:

- Meet existing water supply replacement needs for the Carmel River system and Seaside Subbasin;
- Maximize use of recycled water and other reuse, including gray water systems, and stormwater capture and use;
- Improve ocean water quality, including Areas of Special Biological Significance (ASBS), by minimizing pollutants in stormwater discharges;
- Improve inland surface water quality for environmental resources (e.g. steelhead) and potable water supplies;
- Protect and improve water quality in groundwater basins;

- Develop regional projects and plans necessary to protect existing infrastructure and sensitive habitats from flood damage, erosion, and sea level rise, in particular, along the South Monterey Bay shoreline and Carmel Valley;
- Identify cooperative, integrate strategies for protecting both infrastructure and environmental resources, including from climate change impacts; and
- Foster collaboration among regional entities as an alternative to litigation.

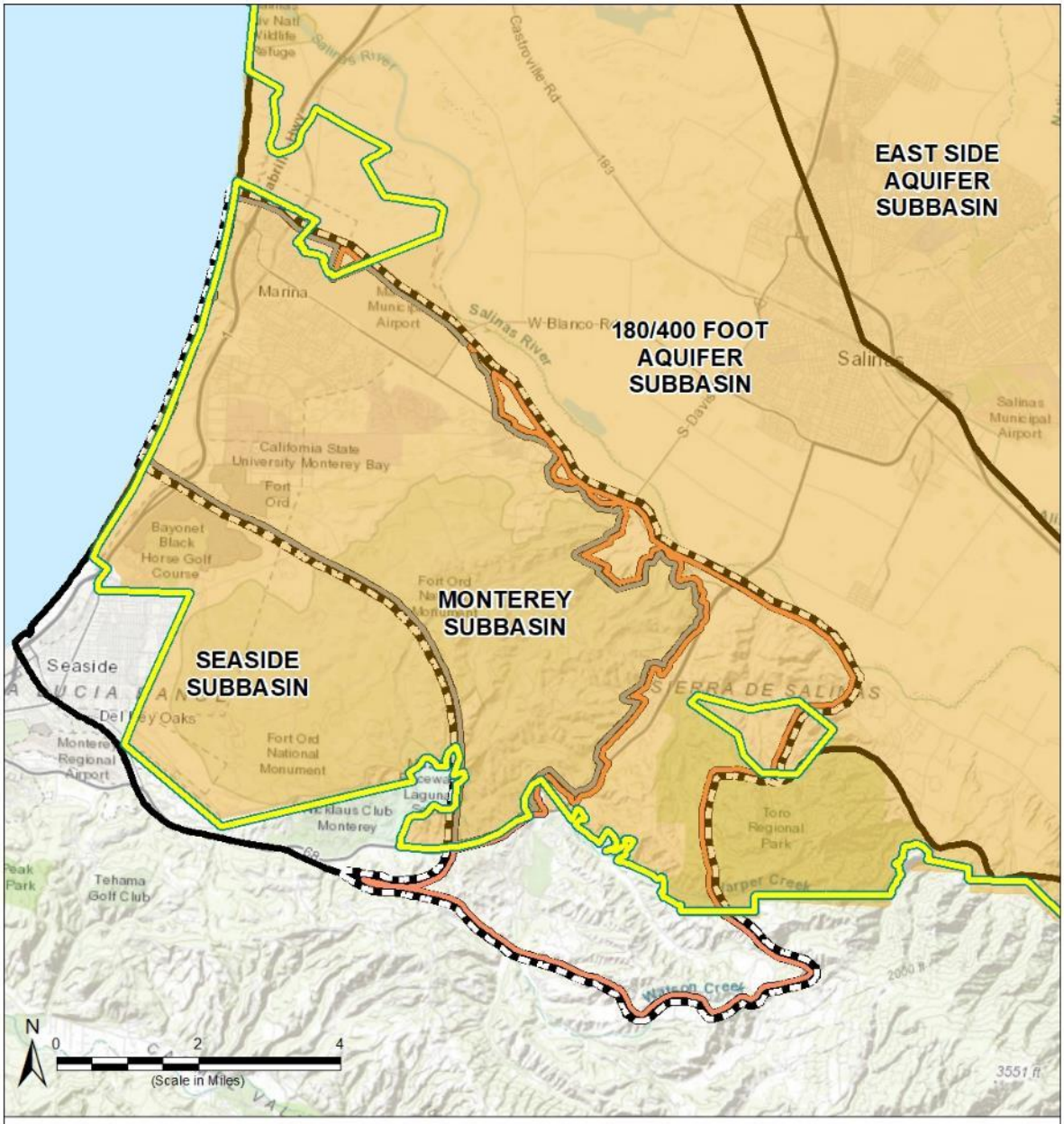
IRWMP and GSP development are complimentary management processes. To the extent that the issues identified for the greater IRWMP regions affect the Subbasin, these issues will be identified in the following sections of this GSP. The implementation of this GSP will contribute to the sustainable use of water supplies within the IRWMP regions. The IRWM program is not expected to limit operational flexibility in the Subbasin.

3.2.2.2 *MCWRA Management of the Salinas Valley Groundwater Basin*

The MCWRA was formed in 1947 by State law, originally as the Monterey County Flood Control and Water Conservation District (MCFCWCD) and established by the Monterey County Flood Control and Water Conservation District Act (District Act). The prevention of seawater intrusion was a principal reason for the enactment of the District Act in 1947. Since then, the MCWRA has developed projects and programs to reduce the adverse impacts from pumping and seawater intrusion within the 180/400-Foot Aquifer Subbasin. As shown on **Figure 3-10**, Zones 2C, 2Y, and 2Z cover a majority of the Monterey Subbasin including most of the land north of Harper Canyon. The areas not covered by these zones include a small portion of the City of Marina, and San Benoncio Gulch and Calera Canyon along Corral de Tierra Road up to the intersection with State Route 68. A description of the zones is provided below[2]:

- Under provisions of the District Act, the MCFCWCD established the Zone 2 and Zone 2A benefit assessment zones to fund the construction of Nacimiento Reservoir and the San Antonio Reservoir, respectively. In 2003, MCWRA created 2C to fund operation and maintenance of the reservoirs and eliminate charges in Zones 2 and 2A.
- Zone 2Y was established to collect assessments for the operation and maintenance of the Castroville Seawater Intrusion Project.
- Zone 2Z was established to collect assessment for the operation and maintenance of the Salinas Valley Reclamation Project.

[2] Annexation Zone https://www.co.monterey.ca.us/home/showdocument?id=22209


EAST SIDE AQUIFER SUBBASIN
180/400 FOOT AQUIFER SUBBASIN
MONTEREY SUBBASIN
SEASIDE SUBBASIN
Marina
Seaside
Del Rey Oaks
Salinas River
Castroville Rd
California State University Monterey Bay
Fort Ord
Fort Ord National Monument
Bayonet Black Horse Golf Course
Monterey Regional Airport
Salinas Municipal Airport
Toro Regional Park
Tehama Golf Club
SIERRA DE SALINAS
N
0
2
4
(Scale in Miles)
3551 ft
Legend
Monterey Subbasin
Management Areas
Marina-Ord Area
Corral de Tierra
Other Groundwater Subbasins within Salinas Valley Basin
MCWRA Zone 2C
MCWRA Zone 2Y
MCWRA Zone 2Z
Sources
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 26 June 2020.
2. MCWRA Zone 2C boundary obtained from Monterey County Open Data, accessed 10 June 2020.
MCWRA Zones
Monterey Subbasin
Groundwater Sustainability Plan
June 2020
Figure 3-10
Path: X:\B60\0194M\gis\2020\06\Fig3-10_MCWRA_Zones.mxd

In 1990, the District Act was repealed and replaced by the existing Monterey County Water Resources Agency Act (Agency Act); however, much of the District Act was carried over into the Agency Act. The District Act and then the Agency Act have been the foundation of groundwater management within the Monterey County. Additional information on MCWRA monitoring programs and well permitting programs are provided in Sections 3.2.1 and 3.5.4, respectively.

1993 and 1996 Annexation Agreements. MCWRA established annexation zones to institute water supply projects and collect assessments to fund them under various Monterey County Ordinances. The two major historic groundwater users within the Subbasin, the Federal Government and the MCWD, respectively entered into annexation agreements with MCWRA in 1993 and 1996 to be annexed to Zones 2 and 2A[3]. The 1996 Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands was the fifteenth annexation to Zones 2 and 2A since 1991.[4] In the annexation agreements, the MCWRA recognized that MCWD and the Federal Government had been pumping groundwater for many years and had strong claims to groundwater rights[5] MCWD and the Federal Government agreed that all non-Federal lands within the annexed areas would pay assessments to MCWRA Zones 2 and 2A (later superseded by Zones 2C, 2Y, and 2Z) for regional projects to protect the Salinas Valley Groundwater Basin and reduce seawater intrusion. The Annexation Agreements are attached as Appendix 3-A.

This GSP will identify the amount of assessments paid by Marina area and non-Federal Fort Ord lands, what those funds were used for, what benefits those lands have received from those payments, and what benefits those lands could receive in the future to help achieve groundwater sustainability within the Monterey Subbasin.

Under 1993 and 1996 Annexation Agreements, the Federal Government agreed to limit groundwater pumping from the Salinas Valley Groundwater Basin ("Basin") to 6,600 AFY, and MCWD agreed to limit pumping from the Basin to 3,020 AFY, respectively; MCWD's share to be used to serve the City of Marina[6](MCWRA/U.S. Army, 1993; MCWRA/MCWD, 1996). In 2001, the Federal Government transferred ownership of the Fort Ord water system infrastructure to MCWD, including the ability to pump no more than 4,871 AFY[7] of groundwater (of the 6,600 AFY described in the 1993 Agreement) from the Basin.

[3] The MCWRA Board of Directors adopted an Annexation Policy dated March 29, 1993, which provided for the process for lands not then included within Zones 2 and 2A to be annexed into both zones subject to the annexation process in Agency Act § 43, the preparation of final environmental documents, and the setting of annexation fees.

[4] 1996 Annexation Agreement, Section 3.1.

[5] Section 45 of the Agency Act provided MCWRA to develop a water allocation formula for groundwater users in the County "to preserve agricultural access to an adequate water supply and to preserve agriculture as a mainstay of the Salinas Valley economy". Board of Supervisors Resolution 91-476 adopted September 24, 1991, directed MCWRA staff to prepare information for a water allocation formula for Zone 2 and 2A and bring it back to the Board on or before January 1, 1992, and further directed MCWRA staff to prepare an emergency allocation ordinance for Zones 2 and 2A for consideration by the Board no later than April 1, 1992. While a draft report was prepared, the draft report was never approved by the Board.

[6] In addition, under the 1996 Annexation Agreement, 920 AFY of groundwater was allocated to Armstrong Ranch development, and 500 AFY (of brackish water) to CEMEX in the adjacent 180/400 Foot Aquifer Subbasin.

[7] Under Article 2.a of Amendment No. 1 dated October 23, 2001, to the Memorandum of Agreement between the U.S. Government acting through the Secretary of the Army and FORA, the Army agreed to reserve only 1,691 AFY, or 38 AFY less than the amount actually reserved by the Army in the October 23, 2001 deed. The 38 AFY was to be transferred to FORA and then to MCWD. FORA was to allocate the 38 AFY to the City of Seaside for the benefit of Bay View Mobile Home Park subject

MCWD is using the 4,871 AFY of groundwater to provide water service to those jurisdictions within the former Fort Ord, which are entitled to water service pursuant to the Fort Ord Base Reuse Plan (Section 3.5.1.4). Under a long-term water service agreement with the Army, MCWD provides water service to all Federal activities within the former Fort Ord utilizing the Army's groundwater pumping rights.

To protect the 180-foot and 400-foot aquifers, the 1993 and 1996 Annexation Agreements limit the volume of groundwater that MCWD can extract from the 180-foot aquifer and 400-foot aquifer. To offset that limitation, the 1996 Annexation Agreement provides "*…that the '900-foot'*[8] *aquifer should be managed to provide safe, sustained use of the water resource, and to preserve to MCWD the continued availability of water from the '900-foot' aquifer."*

The 1993 and 1996 Annexation Agreements further provided that MCWRA will seek to develop a replacement potable water supply, such that most groundwater pumping within Fort Ord and Marina Area Lands could be curtailed. However, by Resolution 00-172 adopted on 25 April 2000, the Board of Supervisors of the MCWRA indicated that the MCWRA has no contractual obligation to fund such a system using assessments from MCWRA Zones 2A or 2B (the resolution does not mention other potential sources of funds). MCWD is developing new water supplies to support redevelopment of the former Fort Ord and to supplement its groundwater supplies. These efforts are incorporated in this GSP and discussed further in Section 9.1 Project Descriptions.

MCWRA Groundwater Export Prohibition. The Monterey County Water Resources Agency Act, § 52.21 prohibits the export of groundwater from any part of the Salinas Valley Groundwater Basin, including the Monterey Subbasin. In particular, the Act states:

> *For the purpose of preserving [the balance between extraction and recharge], no groundwater from that basin may be exported for any use outside the basin, except that use of water from the basin on any part of Fort Ord shall not be deemed such an export. If any export of water from the basin is attempted, the Agency may obtain from the superior court, and the court shall grant, injunctive relief prohibiting that exportation of groundwater.*

The Agency Act was adopted at a time when the Seaside Basin was considered to be hydrologically separate from the Salinas Valley Groundwater Basin, but the above Agency Act section expressly made use of Salinas Valley groundwater within any part of Fort Ord, even though within the Seaside Basin, as being exempt from the export prohibition. In 2003, DWR included the Seaside Basin within the Salinas Valley Groundwater Basin, which DWR now designates as the Seaside Subbasin.

County Moratorium on Accepting and Processing New Well Permits. On May 22, 2018, the Monterey County Board of Supervisors adopted Ordinance No. 5302 pursuant to Government Code Section 65858. The ordinance was an Interim Urgency Ordinance, which took effect immediately upon adoption. The ordinance prohibits the acceptance or processing of any applications for new wells in the defined Area of Impact within the Monterey Subbasin and the 180/400-Foot Aquifer Subbasin, with stated exceptions

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to use limitations prescribed in Amendment No. 1 to be administered by the City of Seaside pursuant to its land use authority. MCWD has requested FORA and the City of Seaside to correct this oversight with the Army but it has not been yet corrected.

[8] aka the Deep Aquifer. Section 5.3 of the 1996 Annexation Agreement.

including municipal wells and replacement wells. Pursuant to Section 65858, the ordinance was originally only effective for 45 days to July 5, 2018, but at the June 26, 2018 Board meeting, the Board of Supervisors on a 4-1 vote extended the ordinance to May 21, 2020, by adoption of Ordinance No. 5303. During the moratorium, the County has stated that it will conduct further studies to assess groundwater conditions in the Subbasin. The ordinance expired on May 21, 2020. The County has initiated a planning process to receive input on a possible new ordinance and to address the California Supreme Court's decision in *Protecting Our Water & Environmental Resources v. County of Stanislaus* (2020), 10 Cal. 5th 479, concerning environmental review of new well permits.

TO BE UPDATED TO REFLECT OUTCOME OF THE ORDINANCE EXTENSION

3.2.2.3 *Groundwater Management Plans*

MCWRA developed a Groundwater Management Plan (GMP) that is compliant with Assembly Bill 3030 and Senate Bill 1938 legislation (MCWRA, 2006). This GMP exclusively covered the Salinas Valley in Monterey County. As discussed above, the MCWRA was established in 1947 with the responsibility to manage water resources in the Salinas Valley. Therefore prior to 2006, MCWRA has already been implementing a formal groundwater management program including surface water monitoring and groundwater monitoring. The GMP was developed to formalized and extend those ongoing management efforts in the Salinas Valley Groundwater Basin.

The GMP identified three objectives for groundwater management:

- **Objective 1**: Development of Integrated Water Supplies to Meet Existing and Projected Water Requirements. This objective encourages the integrated uses of various water sources, such as surface water, groundwater, recycled water, and possibly desalinated brackish and saline water to meet the water demand.
- **Objective 2**: Determination of Sustainable Yield and Avoidance of Overdraft. This objective is to assess groundwater basin conditions by quantifying basin yield and evaluating historical impacts including seawater intrusion and groundwater storage decline and to implement existing and new management measures to address those issues.
- **Objective 3**: Preservation of Groundwater Quality for Beneficial Use. This objective is to preserve groundwater quality by minimizing seawater intrusion and accumulations of minerals in the groundwater basin.

To meet these three objectives, the plan identified 14 elements that should be implemented by MCWRA:

- **Plan Element 1:** Monitoring of Groundwater Levels, Quality, Production, and Subsidence
- **Plan Element 2:** Monitoring of Surface Water Storage, Flow, and Quality
- **Plan Element 3:** Determination of Basin Yield and Avoidance of Overdraft
- **Plan Element 4:** Development of Regular and Dry Year Water Supply
- **Plan Element 5:** Continuation of Conjunctive Use Operations
- **Plan Element 6:** Short-Term and Long-Term Water Quality Management

- **Plan Element 7:** Continued Integration of Recycled Water
- **Plan Element 8:** Identification and Mitigation of Groundwater Contamination
- **Plan Element 9:** Identification and Management of Recharge Areas and Wellhead Protection Areas
- **Plan Element 10:** Identification of Well Construction, Abandonment, and Destruction Policies
- **Plan Element 11:** Continuation of Local, State and Federal Agency Relationships
- **Plan Element 12:** Continuation of Public Education and Water Conservation Programs
- **Plan Element 13:** Groundwater Management Reports
- **Plan Element 14:** Provisions to Update the Groundwater Management Plan

The GMP and GSP developments are complimentary management processes. To the extent that the issues identified for Monterey County affect the Monterey Subbasin, these issues will be identified in the following sections of this GSP. The implementation of this GSP will contribute to the sustainable use of water supplies within Monterey County.

3.2.2.4 *Urban Water Management Plans*

THIS SECTION IS CURRENTLY BASED ON 2015 UWMPS AND WILL BE REWRITTEN BEFORE FINAL DRAFT TO REFLECT 2020 UWMP

Marina Coast Water District 2015 Urban Water Management Plan

The Marina Coast Water District was formed in 1960. Today MCWD serves municipal and industrial water uses within the City of Marina and the former Fort Ord. The MCWD most recently updated its Urban Water Management Plan (UWMP) in 2016 (MCWD, 2016). The UWMP describes the service area; reports historic and projected population; identifies historic and projected water demand by category (single-family, multi-family, commercial, industrial, institutional/government, and other); and describes the distribution system and identifies losses.

Water use during 2015 within the MCWD service area was approximately 3,200 AFY. The 2015 UWMP anticipates that projected water demand within the entire District would be 12,197 AFY by 2035, including 3,905 AFY within the City of Marina and 8,293 AFY for the existing and future developments within the Ord Community (i.e. former Fort Ord). This projected water demand by 2035 within the Ord Community is 1,693 AFY short of the 6,600 AFY groundwater supply outlined in the 1993 Annexation Agreement (MCWRA/U.S. Army, 1993; see Section 3.2.2.2)[10]. However, MCWD's recent water demand projection in its 2020 Master Plan (MCWD, 2020) projects that total buildout water demand (i.e. beyond 2035) for the entire District sums to approximately 9,300 AFY, significantly lower than that projected in the 2015 UWMP.

[10] The 6,600 AFY of groundwater supply for MCWD's Ord Community service area was further allocated by FORA to each land use jurisdiction within the area. The 2015 UWMP further compared projected water demand by 2035 with groundwater supply allocation for each jurisdiction. Considering only the jurisdictions with shortfalls, the sum of jurisdictional shortfalls is anticipated to be 2,901 AFY by 2035.

Additional water supplies such as recycled water will be used to meet this potential shortfall within the Ord Community. In 2021, MCWD will take delivery the first 600 AFY of advanced treated water from the Pure Water Monterey (PWM) Project out of MCWD's total 1,427 AFY PWM entitlement (see discussion of the PWM Project in Section 9.1 Project Descriptions). Post development of the 2015 UWMP, MCWD conducted a joint-study with FORA and Monterey One Water (M1W) that identified a new indirect potable reuse project to develop an additional 927 AFY identified as an additional water supply need under the Fort Ord Base Reuse Plan (EKI, 2020). The project is further described in Section 9.1.

MCWD is also a key potable and recycled water transmission hub owner connecting the North Marina and North Ord areas with the yet to be developed South Ord area, which includes portions of the Cities of Seaside, Del Rey Oaks, and Monterey. MCWD owns the potable water transmission pipeline, which MCWD will use to serve the South Ord area. The pipeline is currently being used by Cal Am for its Carmel River ASR Project to convey injection water and to convey recovered water to its Monterey District, but MCWD has the first priority of use as the pipeline's owner. It is anticipated that this potable pipeline will also be used to convey recovered PWM water for direct use in California American Water's Monterey District although no agreement for such use has been negotiated. MCWD also owns the new 10-mile transmission pipeline for the PWM Project, which will deliver advanced treated water to MCWD recycled water customers and to the PWM injection wells in the Seaside Subbasin.

In addition, the MCWD UWMP includes a number of demand management measures including:

- Water Waste Prevention Ordinances
- Metering
- Conservation Pricing
- Public Education and Outreach
- Programs to Assess and Manage Distribution System Real Loss
- Water Conservation Program Coordination and Staffing Support
- Water Survey Programs for Residential Customers
- Residential Plumbing Retrofits
- Residential Ultra-Low Flow Toilet Replacement Programs
- High-Efficiency Washing Machine Rebate Programs
- Commercial, Industrial, and Institutional Accounts
- Landscape Conservation Programs and Incentives

MCWD's implementation of demand management measures resulted in MCWD receiving state-wide recognition of its water conservation achievements during the last drought.

California Water Service – Salinas District 2015 Urban Water Management Plan

A portion of the California Water Service area extends into the area located along the northern portion of State Route 68 in the Corral de Tierra Area of the subbasin. Its 2015 Urban Water Management Plan

(UWMP) (California Water Service, 2016) describes the service area; reports historic and projected population; identifies historical and projected water demand by category such as single-family, multi-family, commercial, industrial, institutional/government, and other; and describes the distribution system and identifies system losses.

The California Water Service UWMP also includes a number of demand management measures including:

- Water Waste Prevention Ordinances
- Metering
- Conservation Pricing
- Public Education and Outreach
- Programs to Assess and Manage Distribution System Real Loss
- Water Conservation Program Coordination and Staffing Support
- Rebates and give-aways
- Plumbing fixture replacement and Direct Installation Programs
- Irrigation equipment and landscape efficiency improvements

California Water Service's UWMP notes that groundwater will continue to remain as its sole supply due to uncertainties regarding the cost and implementation other options, such as surface water diversion or desalination. However, the UWMP recognizes that it would be beneficial for California Water Service to diversify its supply portfolio. There is currently one active production well and four inactive production wells within the Subbasin.

3.2.2.5 *CCRWQCB Agricultural Order*

In 2017 the Central Coast Regional Water Quality Control Board (CCRWQCB) issued Agricultural Order No. R3-2017-0002, a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (CCRWQCB, 2017). The permit requires that growers implement practices to reduce nitrate leaching into groundwater and improve receiving water quality. Specific requirements for individual growers are structured into three tiers based on the relative risk their operations pose to water quality.

Growers must enroll, pay fees, and meet various monitoring and reporting requirements according to the tier to which they are assigned. All growers are required to implement groundwater monitoring, either individually or as part of a cooperative regional monitoring program. Growers electing to implement individual monitoring and not participate in the regional monitoring program implemented by the Central Coast Groundwater Coalition (CCGC) are required to test all on-farm domestic wells and the primary irrigation supply well for nitrate or nitrate plus nitrite, and general minerals; including, but not limited to, TDS, sodium, chloride and sulfate.

Negotiations with the CCRWQCB staff and Board Members for the next iteration of the Agricultural Order are on-going, and expected to be finalized in early 2021, with the adoption of a new Irrigated Lands Regulatory Program (ILRP) Waste Discharge Requirements (WDR) for farming operations in the Salinas Valley Groundwater Basin area. As mandated by the SWRCB, specific reporting requirements for nitrogen

applications and removal, irrigation and surface water discharge management, and groundwater quality monitoring will be included with quantifiable milestones. While the outcome is not certain, the expectation is that the next Agricultural Order will be more complex with additional compliance reporting measures for all growers.

3.2.2.6 *Water Quality Control Plan for the Central Coast Basins*

The Water Quality Control Plan for the Central Coastal Basin was most recently updated in September 2017 (SWRCB, 2017). The objective of the Basin Plan is to outline how the quality of the surface water and groundwater in the Central Coast Region should be managed to provide the highest water quality reasonably possible. Water Quality Objectives for both groundwater (drinking water and irrigation) and surface water are provided in the Basin Plan.

The Basin Plan lists beneficial users, describes the water quality which must be maintained to allow those uses, provides an implementation plan, details SWRCB and CCRWQCB plans and policies to protect water quality and a statewide surveillance and monitoring program, as well as regional surveillance and monitoring programs. The SWRCB's Sources of Drinking Water Policy, adopted in Resolution No. 88-63 and incorporated in its entirety in the CCRWQCB's Basin Plan, provides that water with TDS less than or equal to 3,000 mg/L is considered suitable or potentially suitable for drinking water beneficial uses.

Present and potential future beneficial uses for inland waters in the Basin are: surface water and groundwater as municipal supply; agricultural; groundwater recharge; recreational water; sport fishing; warm fresh water habitat; wildlife habitat; rare, threatened or endangered species; and, spawning, reproduction, and/or early development of fish.

3.2.2.7 *Title 22 Drinking Water Program*

The SWRCB Division of Drinking Water (DDW) regulates public water systems in the State to ensure the delivery of safe drinking water to the public. A public water system is defined as a system for the provision of water for human consumption that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. Private domestic wells, wells associated with drinking water systems with less than 15 residential service connections, industrial, and irrigation wells are not regulated by the DDW.

The DDW enforces the monitoring requirements established in Title 22 of the California Code of Regulations (CCR) for public water system wells, and all the data collected must be reported to the DDW. Title 22 also designates the Maximum Contaminant Levels (MCLs) for various waterborne contaminants, including volatile organic compounds, non-volatile synthetic organic compounds, inorganic chemicals, radionuclides, disinfection byproducts, general physical constituents, and other parameters.

3.2.2.8 *Limits to Operational Flexibility*

This GSP has been developed to be coordinated with the requirements, management plans and monitoring programs administered by other jurisdictions in the area, including SVBGSA, MCWRA, MCWD GSA, CCRWQCB, and the Federal Government. For example:

- The IRWMP and GSP development are complimentary management processes. To the extent that the issues identified for the greater IRWMP region affect the Subbasin, these issues will be

discussed in the following sections of this GSP. The implementation of this GSP will contribute to the sustainable use of water supplies within the IRWMP region and the IRWMP is not expected to limit operational flexibility in the Subbasin.

- The purpose and objective of MCWRA's groundwater management of the Subbasin, which focuses on providing regional solutions to protection of the basin and preventing seawater intrusion, aligns with the goals of this GSP. The GSP will augment and integrate with MCWRA's historical management of the subbasin.

Some of the existing management and regulatory programs include well registration, extraction monitoring, new well restrictions, pumping allowances and restrictions, recharge requirements and/or water quality protection standards that will limit operational flexibility. These limits to operational flexibility have already been incorporated into the projects and programs included in this GSP. Examples of limits on operational flexibility include:

- Pumping allowances in the MCWRA annexation agreements with MCWD and the Federal Government may restrict groundwater use. However, current groundwater use by MCWD within the City of Marina and the former Fort Ord are well below the annexation agreement pumping allowances. These agreements are not expected to adversely affect the Subbasin's ability to reach sustainability.
- The groundwater export prohibition included in the Agency Act prevents export of water out of the Subbasin. This prohibition is not expected to adversely affect the Subbasin's ability to reach sustainability.
- The Basin Plan and the Title 22 Drinking Water Program restrict the quality of water that can be recharged into the Subbasin as well as the location of groundwater recharge.
- Well construction restrictions within the Former Fort Ord (see Section 3.5.4.2) as well as the County's Interim Urgency Ordinance, which imposes a temporary moratorium on wells in the Area of Impact (see Section 3.5.4.3), may limit certain activities and the Subbasin GSAs' ability to access certain sources of water. However, the moratorium is not expected to adversely affect the Subbasin's ability to reach sustainability.

3.3 Conjunctive Use Programs

There is no existing conjunctive use program within the Monterey Subbasin. The Pure Water Monterey Project is an advance water recycling project with a conjunctive use component under by development MPWMD, M1W, and MCWD. The project is discussed in Section 9.1 Project Descriptions.

3.4 Groundwater Cleanup at the Former Fort Ord

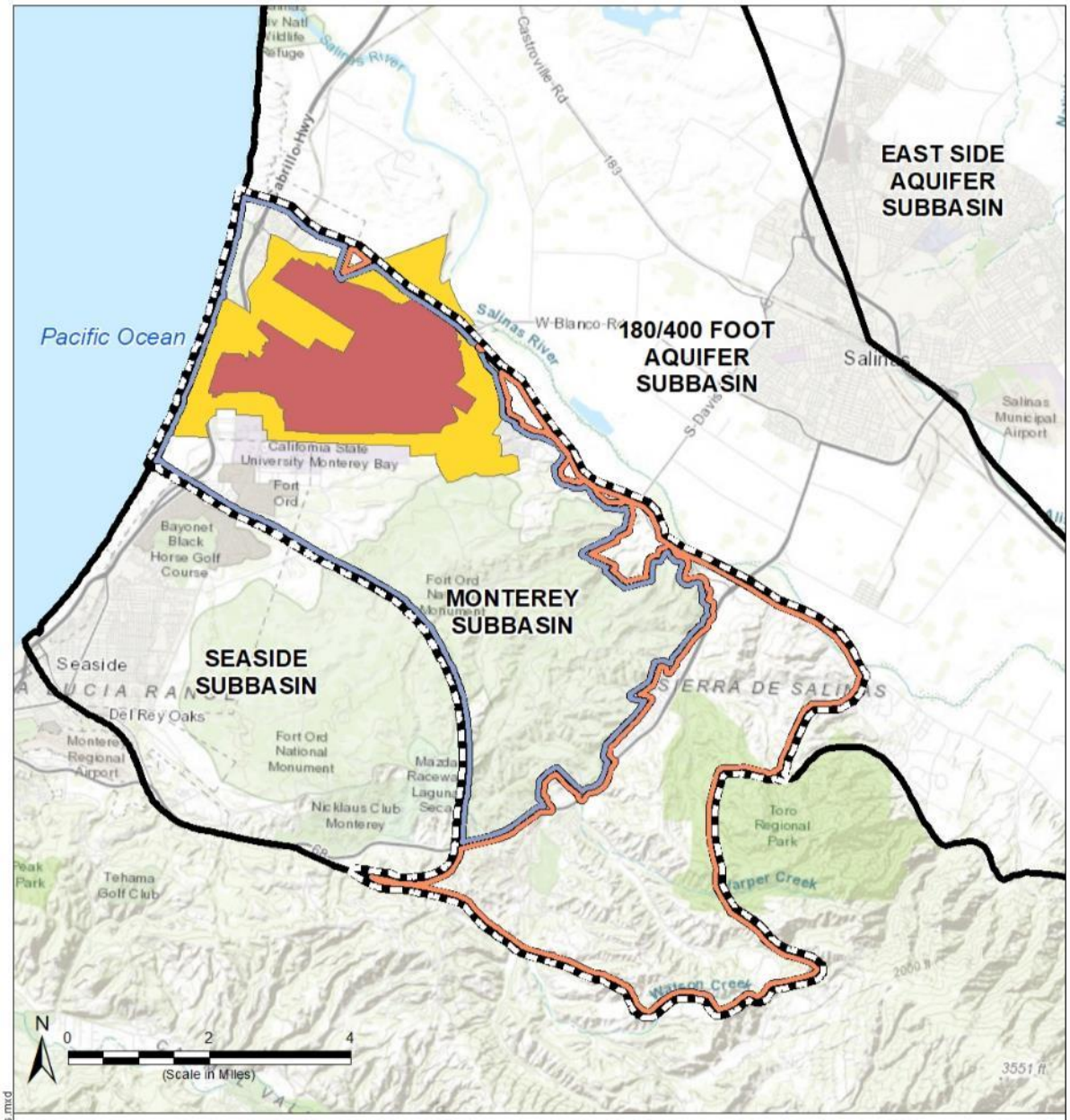
The former Fort Ord military base consists of 27,827 acres across the Monterey, 180/400 Foot Aquifer, and Seaside Subbasins. Within the Monterey Subbasin, the former Fort Ord encompasses more than one

half of the Subbasin's area. The Fort Ord military base was established in 1917 by the U.S. Army as a maneuver area and field artillery target range. The base was officially closed in 1994.

Remedial investigation and cleanup action at Fort Ord lead by the Army began in 1986. The cleanup activities at Fort Ord has included groundwater and soil remediation associated with industrial and waste disposal activities, and later included munitions cleanup. The site was added to the National Priorities List on 21 February 1990. The Army was designed as the lead agency and the U.S. Environmental Protection Agency (EPA) was designated as the lead regulatory agency for the Superfund process at Fort Ord. A Federal Facility Agreement was signed by the Army, U.S. EPA, the California Department of Toxic Substances Control, and the CCRWQCB in 1990.

As of 2020, groundwater remediation is ongoing at three sites: Operable Unit (OU) 2, Sites 2 and 12, and Operable Unit Carbon Tetrachloride Plume (OUCTP), for volatile organic compound (VOC) constituents of concern.

Activity and use limitations are in place at the such as zoning restrictions, deed or access restrictions, and well installation restrictions. County Ordinance No. 04011 of 2005 was adopted to prohibit and/or regulate new water wells in areas within the former Fort Ord due to groundwater contamination constraints. Well construction is prohibited in areas overlying or adjacent to the contamination plumes in the former Fort Ord (i.e. Prohibition Zone) and is subject to special review in areas that may be impacted by the contamination plumes (i.e. Consultation Zone). The Prohibition and Consultation Zones were last updated in 2016 and are shown on **Figure 3-11**.



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Management Areas

- Marina-Ord
- Corral de Tierra

Fort Ord Special Groundwater Protection Zones

- Prohibition Zone
- Consultation Zone

Notes

1. All locations are approximate.
2. Monterey County Ordinance No. 04001 (Monterey County Code Title 15, Chapter 15.08.140) prohibits and/or regulates contruction of new water wells within the Fort Ord groundwater protection zones shown herein, which overlay or are adjacent to the contamination plumes on the former Fort Ord. Current groundwater protection zone are obtained from Source 2.

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 19 June 2020.
2. U.S. Department of the Army, 2017. Final 4th Five-Year Review Report for Fort Ord Superfund Site, Monterey County, California, prepared by the Fort Ord Base Realignment and Closure Office, dated September 2017.

Fort Ord Special Groundwater Protection (Contamination) Zones

Monterey Subbasin
Groundwater Sustainability Plan
June 2020

Figure 3-11

Path: X:\B60094M.aps\2020\06Fig3-11_FortOrdProhibitionZones.mxd

3.5 Land Use Elements or Topic Categories of Applicable General Plans

Monterey County and the cities of Marina and Seaside have land use authority over all or portions of the Monterey Subbasin. Additionally, the Fort Ord Reuse Authority oversees reuse of the former Fort Ord army base within the subbasin. Land use is an important factor in water management as described below. The following sections provide a general description of these land use plans and how implementation may affect groundwater in the Monterey Subbasin. The following descriptions were taken from publicly available general plans at the time of the GSP preparation.

3.5.1 General Plans and Other Land Use Plans

This section identifies relevant policies in the current General Plans that could: (1) affect water demands in the Monterey Subbasin (e.g., due to population growth and development of the built environment), (2) influence the GSP's ability to achieve sustainable groundwater use, and (3) affect implementation of General Plan land use policies.

3.5.1.1 *Monterey County General Plan*

Relevant elements of the Monterey County General Plan (Monterey County 2010) are summarized in **Table 3-2**.

Table 3-2. Monterey County General Plan Summary

Element	Goal / Policy	
Land Use	LU-1.4	Growth areas shall be designated only where an adequate level of services and facilities such as water, sewerage, fire and police protection, transportation, and schools exist or can be assured concurrent with growth and development. Phasing of development shall be required as necessary in growth areas in order to provide a basis for long-range services and facilities planning.
Open Space	OS-3.8	The County shall cooperate with appropriate regional, state and federal agencies to provide public education/outreach and technical assistance programs on erosion and sediment control, efficient water use, water conservation and re-use, and groundwater management. This cooperative effort shall be centered through the Monterey County Water Resources Agency.
***et. seq.* Public Services**	GOAL PS-2	Assure an adequate and safe water supply to meet the county's current and long-term needs.
	PS-2.1	Coordination among, and consolidation with, those public water service providers drawing from a common water table to prevent overdrawing the water table is encouraged.

Element	Goal / Policy	
	PS-2.2	The County of Monterey shall assure adequate monitoring of wells in those areas experiencing rapid growth provided adequate funding mechanisms for monitoring are established in the CIFP.
	PS-2.3	New development shall be required to connect to existing water service providers where feasible. Connection to public utilities is preferable to other providers.
	PS-2.4	Regulations for installing any new domestic well located in consolidated materials (e.g., hard rock areas) shall be enacted by the County.
	PS-2.5	Regulations shall be developed for water quality testing for new individual domestic wells on a single lot of record to identify: a) Water quality testing parameters for a one-time required water quality test for individual wells at the time of well construction. b) A process that allows the required one-time water quality test results to be available to future owners of the well. Regulations pursuant to this policy shall not establish criteria that will prevent the use of the well in the development of the property. Agricultural wells shall be exempt from the regulation.
	GOAL PS-3	Ensure that new development is assured a long-term sustainable water supply.
	PS-3.1	Except as specifically set forth below, new development for which a discretionary permit is required, and that will use or require the use of water, shall be prohibited without proof, based on specific findings and supported by evidence, that there is a long-term, sustainable water supply, both in quality and quantity to serve the development [see Plan for list].
	PS-3.2	Specific criteria for proof of a Long-Term Sustainable Water Supply and an Adequate Water Supply System for new development requiring a discretionary permit, including but not limited to residential or commercial subdivisions, shall be developed by ordinance with the advice of the General Manager of the Water Resources Agency and the Director of the Environmental Health Bureau. A determination of a Long-Term Sustainable Water Supply shall be made upon the advice of the General Manager of the Water Resources Agency. The following factors shall be used in developing the criteria for proof of a long-term sustainable water supply and an adequate water supply system: [see Plan for list]
	PS-3.3	Specific criteria shall be developed by ordinance for use in the evaluation and approval of adequacy of all domestic wells. The following factors shall be used in developing criteria for both water quality and quantity including, but not limited to: [see Plan for list]
	PS-3.4	The County shall request an assessment of impacts on adjacent wells and instream flows for new high-capacity wells, including high-capacity urban and agricultural production wells, where there may be a potential to affect existing adjacent domestic or water system wells adversely or in-stream

Element	Goal / Policy	
		flows, as determined by the Monterey County Water Resources Agency. In the case of new high-capacity wells for which an assessment shows the potential for significant adverse well interference, the County shall require that the proposed well site be relocated or otherwise mitigated to avoid significant interference. The following factors shall be used in developing criteria by ordinance for use in the evaluation and approval of adequacy of all such high-capacity wells, including but not limited to: a) Effect on wells in the immediate vicinity as required by the Monterey County Water Resources Agency or Environmental Health Bureau. b) Effects of additional extractions or diversion of water on in-stream flows necessary to support riparian vegetation, wetlands, fish, and other aquatic life including migration potential for steelhead, for the purpose of minimizing impacts to those resources and species. This policy is not intended to apply to replacement wells.
	PS-3.5	The Monterey County Health Department shall not allow construction of any new wells in known areas of saltwater intrusion as identified by Monterey County Water Resources Agency or other applicable water management agencies: a) Until such time as a program has been approved and funded that will minimize or avoid expansion of salt water intrusion into useable groundwater supplies in that area; or b) Unless approved by the applicable water resource agency. This policy shall not apply to deepening or replacement of existing wells, or wells used in conjunction with a desalination project.
	PS-3.6	The County shall coordinate and collaborate with all agencies responsible for the management of existing and new water resources.
	PS-3.7	A program to eliminate overdraft of water basins shall be developed as part of the Capital Improvement and Financing Plan (CIFP) for this Plan using a variety of strategies, which may include but are not limited to: a) Water banking; b) Groundwater and aquifer recharge and recovery; c) Desalination; d) Pipelines to new supplies; and/or e) A variety of conjunctive use techniques. The CIFP shall be reviewed every five years in order to evaluate the effectiveness of meeting the strategies noted in this policy. Areas identified to be at or near overdraft shall be a high priority for funding.
	PS-3.8	Developments that use gray water and cisterns for multi-family residential and commercial landscaping shall be encouraged, subject to a discretionary permit.

Element	Goal / Policy	
	PS-3.9	A tentative subdivision map and/or vesting tentative subdivision map application for either a standard or minor subdivision shall not be approved until the applicant provides evidence of a long-term sustainable water supply in terms of yield and quality for all lots that are to be created through subdivision.
	PS-3.10	In order to maximize agricultural water conservation measures to improve water use efficiency and reduce overall water demand, the County shall establish an ordinance identifying conservation measures that reduce agricultural water demand.
	PS-3.11	In order to maximize urban water conservation measures to improve water use efficiency and reduce overall water demand, the County shall establish an ordinance identifying conservation measures that reduce potable water demand
	PS-3.12	The County shall maximize the use of recycled water as a potable water offset to manage water demands and meet regulatory requirements for wastewater discharge, by employing strategies including, but not limited to, the following: a) Increase the use of treated water where the quality of recycled water is maintained, meets all applicable regulatory standards, is appropriate for the intended use, and re-use will not significantly impact beneficial uses of other water resources. b) Work with the agricultural community to develop new uses for tertiary recycled water and increase the use of tertiary recycled water for irrigation of lands currently being irrigated by groundwater pumping. c) Work with urban water providers to emphasize use of tertiary recycled water for irrigation of parks, playfields, schools, golf courses, and other landscape areas to reduce potable water demand. d) d. Work with urban water providers to convert existing potable water customers to tertiary recycled water as infrastructure and water supply become available.
	PS-3.13	To ensure accuracy and consistency in the evaluation of water supply availability, the Monterey County Health Department, in coordination with the MCWRA, shall develop guidelines and procedures for conducting water supply assessments and determining water availability. Adequate availability and provision of water supply, treatment, and conveyance facilities shall be assured to the satisfaction of the County prior to approval of final subdivision maps or any changes in the General Plan Land Use or Zoning designations.
	PS-3.14	The County will participate in regional coalitions for the purpose of identifying and supporting a variety of new water supply projects, water management programs, and multiple agency agreements that will provide additional domestic water supplies for the Monterey Peninsula and Seaside basin, while continuing to protect the Salinas and Pajaro River groundwater basins from saltwater intrusion. The County will also participate in regional groups including representatives of the Pajaro Valley Water Management

Element	Goal / Policy	
		Agency and the County of Santa Cruz to identify and support a variety of new water supply, water management and multiple agency agreement that will provide additional domestic water supplies for the Pajaro Groundwater Basin. The County's general objective, while recognizing that timeframes will be dependent on the dynamics of each of the regional groups, will be to complete the cooperative planning of these water supply alternatives within five years of the adoption of the General Plan and to implement the selected alternatives within five years after that time.
	PS-3.15	The County will pursue expansion of the Salinas Valley Water Project (SVWP) by investigating expansion of the capacity for the Salinas River water storage and distribution system. This shall also include, but not be limited to, investigations of expanded conjunctive use, use of recycled water for groundwater recharge and seawater intrusion barrier, and changes in operations of the reservoirs. The County's overall objective is to have an expansion planned and in service by the date that the extractions from the Salinas Valley groundwater basin are predicted to reach the levels estimated for 2030 in the EIR for the Salinas Valley Water Project. The County shall review these extraction data trends at five-year intervals. The County shall also assess the degree to which the Salinas Valley Groundwater Basin (Zone 2C) has responded with respect to water supply and the reversal of seawater intrusion based upon the modeling protocol utilized in the Salinas Valley Water Project EIR. If the examination indicates that the growth in extractions predicted for 2030 are likely to be attained within ten years of the date of the review, or the groundwater basin has not responded with respect to water supply and reversal of seawater intrusion as predicted by the model, then the County shall convene and coordinate a working group made up of the Salinas Valley cities, the MCWRA, and other affected entities. The purpose will be to identify new water supply projects, water management programs, and multiple agency agreements that will provide additional domestic water supplies for the Salinas Valley. These may include, but not be limited to, expanded conjunctive use programs, further improvements to the upriver reservoirs, additional pipelines to provide more efficient distribution, and expanded use of recycled water to reinforce the hydraulic barrier against seawater intrusion. The county's objective will be to complete the cooperative planning of these water supply alternatives within five years and to have the projects on-line five years following identification of water supply alternatives.

The Monterey County General Plan does not include population projections; however, the Association of Monterey Bay Area Governments (AMBAG) has developed population projections through 2050, as shown in **Table 3-3.**

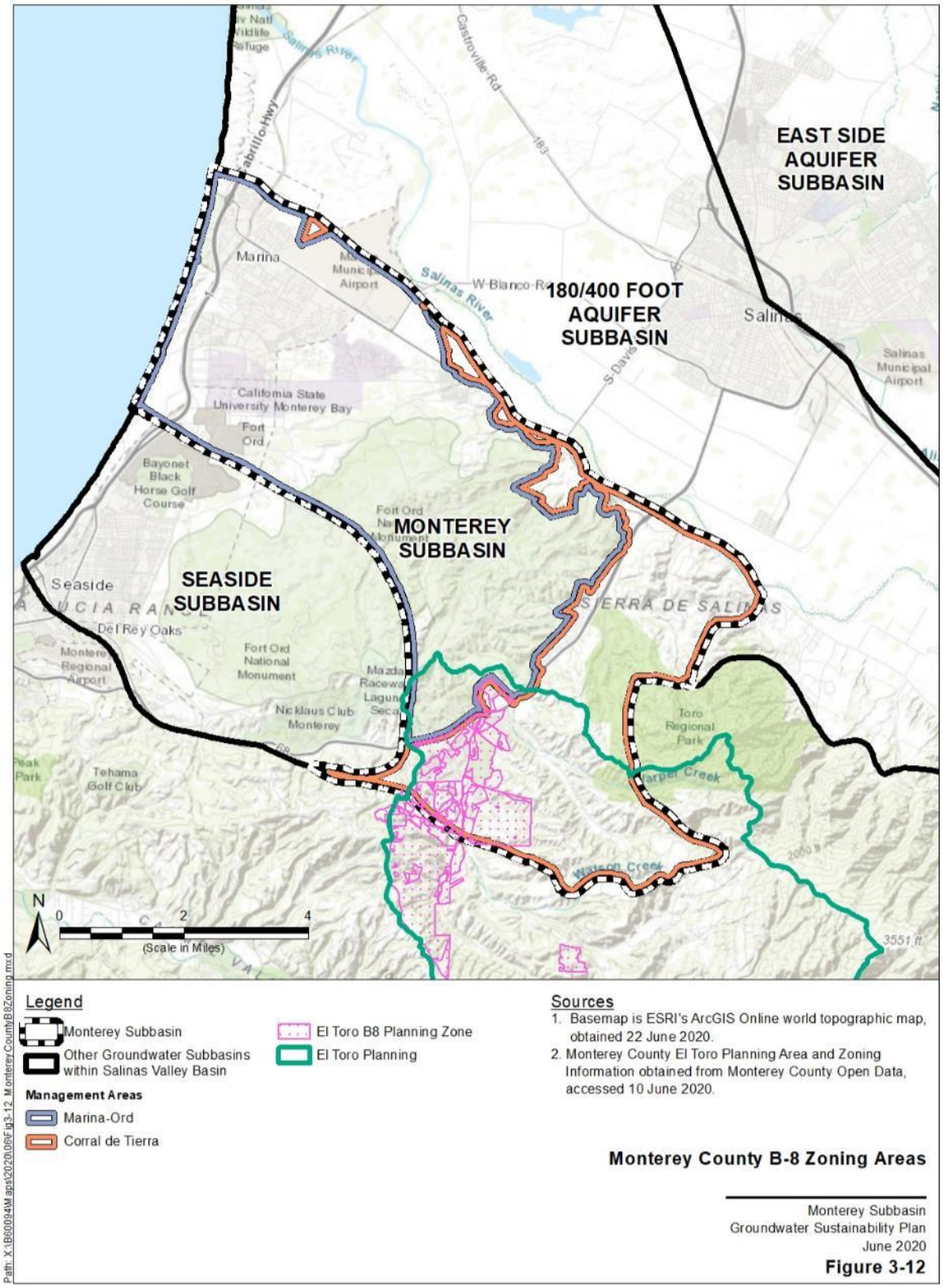
The County imposed a B-8 Zoning overlay in 1992 to the western portions of the El Toro Planning area due to declining groundwater elevations and the concern for build-out demand negatively impacting future supplies. This overlay is shown in **Figure 3-12**. This zoning limits any development to single-family homes

on lots that existed before 1991. This zoning overlay only covers a small portion of the Corral de Tierra Management area.

***Table 3-3**. Monterey County Population Projections (AMBAG, 2018)*

Geography	2015	2020	2025	2030	2035	2040	Change 2015-2040 Numeric	Change 2015-2040 Percent
AMBAG Region	**762,676**	**791,600**	**816,900**	**840,100**	**862,200**	**883,300**	**120,624**	**16%**
Monterey County	**432,637**	**448,211**	**462,678**	**476,588**	**489,451**	**501,751**	**69,114**	**16%**
Carmel-By-The-Sea	3,824	3,833	3,843	3,857	3,869	3,876	52	1%
Del Rey Oaks	1,655	1,949	2,268	2,591	2,835	2,987	1,332	80%
Gonzales	8,411	8,827	10,592	13,006	15,942	18,756	10,345	123%
Greenfield	16,947	18,192	19,425	20,424	21,362	22,327	5,380	32%
King City	14,008	14,957	15,574	15,806	15,959	16,063	2,055	15%
Marina	20,496	23,470	26,188	28,515	29,554	30,510	10,014	49%
Marina balance	19,476	20,957	22,205	22,957	23,621	24,202	4,726	24%
CSUMB (portion)	1,020	2,513	3,983	5,558	5,933	6,308	5,288	518%
Monterey	28,576	28,726	29,328	29,881	30,460	30,976	2,400	8%
Monterey balance	24,572	24,722	25,324	25,877	26,456	26,972	2,400	10%
DLI & Naval Postgrad	4,004	4,004	4,004	4,004	4,004	4,004	0	0%
Pacific Grove	15,251	15,349	15,468	15,598	15,808	16,138	887	6%
Salinas	159,486	166,303	170,824	175,442	180,072	184,599	25,113	16%
Sand City	376	544	710	891	1,190	1,494	1,118	297%
Seaside	34,185	34,301	35,242	36,285	37,056	37,802	3,617	11%
Seaside balance	26,799	27,003	27,264	27,632	28,078	28,529	1,730	6%
Fort Ord (portion)	4,450	4,290	4,340	4,490	4,690	4,860	410	9%
CSUMB (portion)	2,936	3,008	3,638	4,163	4,288	4,413	1,477	86%
Soledad	24,809	26,399	27,534	28,285	29,021	29,805	4,996	20%
Soledad balance	16,510	18,100	19,235	19,986	20,722	21,506	4,996	30%
SVSP & CTF	8,299	8,299	8,299	8,299	8,299	8,299	0	0%
Balance Of County	104,613	105,361	105,682	106,007	106,323	106,418	1,805	2%
San Benito County	**56,445**	**62,242**	**66,522**	**69,274**	**72,064**	**74,668**	**18,223**	**32%**
Hollister	36,291	39,862	41,685	43,247	44,747	46,222	9,931	27%
San Juan Bautista	1,846	2,020	2,092	2,148	2,201	2,251	405	22%
Balance Of County	18,308	20,360	22,745	23,879	25,116	26,195	7,887	43%
Santa Cruz County	**273,594**	**281,147**	**287,700**	**294,238**	**300,685**	**306,881**	**33,287**	**12%**
Capitola	10,087	10,194	10,312	10,451	10,622	10,809	722	7%
Santa Cruz	63,830	68,381	72,091	75,571	79,027	82,266	18,436	29%
Santa Cruz balance	46,554	49,331	51,091	52,571	54,027	55,266	8,712	19%
UCSC	17,276	19,050	21,000	23,000	25,000	27,000	9,724	56%
Scotts Valley	12,073	12,145	12,214	12,282	12,348	12,418	345	3%
Watsonville	52,562	53,536	55,187	56,829	58,332	59,743	7,181	14%
Balance Of County	135,042	136,891	137,896	139,105	140,356	141,645	6,603	5%

Sources: Data for 2015 are from the U.S. Census Bureau and California Department of Finance. Forecast years were prepared by AMBAG and PRB.


EAST SIDE AQUIFER SUBBASIN
180/400 FOOT AQUIFER SUBBASIN
MONTEREY SUBBASIN
SEASIDE SUBBASIN
Marina
Salinas
Seaside
Del Rey Oaks
Fort Ord National Monument
California State University Monterey Bay
Bayonet Black Horse Golf Course
Monterey Regional Airport
Salinas Municipal Airport
Toro Regional Park
Tehama Golf Club
Nicklaus Club Monterey
Castroville Blvd
Salinas River
W Blanco Rd
S Davis Rd
Harper Creek
Watson Creek
3551 ft
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2
4
(Scale in Miles)
Legend
Monterey Subbasin
Other Groundwater Subbasins within Salinas Valley Basin
Management Areas
Marina-Ord
Corral de Tierra
El Toro B8 Planning Zone
El Toro Planning
Sources
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 22 June 2020.
2. Monterey County El Toro Planning Area and Zoning Information obtained from Monterey County Open Data, accessed 10 June 2020.
Monterey County B-8 Zoning Areas
Monterey Subbasin
Groundwater Sustainability Plan
June 2020
Figure 3-12
Path: X:\B60094M\gis\2020\06\Fig3-12_MontereyCountyB8Zoning.mxd

3.5.1.2 *City of Marina General Plan*

The City of Marina was founded in 1915 and incorporated in 1975. The first General Plan was adopted in 1978. The overall goal of the Marina General Plan is "the creation of a community which provides a high quality of life for all its residents; which offers a broad range of housing, transportation, and recreation choices; and which conserves irreplaceable natural resources" (City of Marina, 2010).

The General Plan recognizes that future water demands will require changes in the management of water resources in the area. Water conservation, reclamation, and reuse will constitute major components of future water management efforts. The policies and programs of the General Plan are designed to promote water conservation, the use of recycled water to protect water quality, and to ensure that the demand of future community development does not exceed the capacity to provide water in an environmentally acceptable way [3.42].

The General Plan includes the following measures related to water-supply planning:

- New developments must have identified water sources [3.45].
- A 15% reserve will be maintained between demand and supply. When demand exceeds 85% of the available supply, no new development will be allowed until supplemental water sources are identified [3.47].

The primary responsibility for water resource management in Marina rests with MCWD as the water purveyor, and MCWRA as the entity responsible for managing the surface water and groundwater resources of the Salinas Valley Groundwater Basin.

3.5.1.3 *City of Seaside General Plan*

The City of Seaside is in the process of updating its general plan to a planning horizon of 2040. The plan "seeks to protect the coastal system and preserve the natural habitat that extends beyond the City's boundaries in balance with Seaside's desire to be developed as a well-rounded mixed-use community. Equity, sustainability, collaboration, and innovation are centrally embedded in the General Plan goals, policies, and actions to achieve a mixed use urbanscape." (Seaside, 2019)

The primary responsibility for water resource management in the City of Seaside within the Monterey Subbasin rests with MCWD, as the water purveyor, and MCWRA, which is as the entity responsible for managing the surface water and groundwater resources of the Salinas Valley Groundwater Basin. The plan acknowledges an inadequate supply of water on the Monterey Peninsula as a constraint for new developments and establishes programs to work with MCWD to develop water conservation methods and secure water supply for both existing and proposed uses within the city.

The Seaside General Plan includes the following goals, policies, and implementation measures that are related to groundwater or land use management, and that could potentially influence the implementation of this GSP.

- **Goal HSC-8**: Buildings and landscapes that promote water conservation, efficiency, and the increased use of recycled water.
- **Goal HSC-11**: New construction that meets a high-level of environmental performance.

- **Goal CFI-2:** A sustainable water supply that supports existing community needs and long-term growth.
- **Goal CFI-3:** Clean and sustainable groundwater.

3.5.1.4 *Fort Ord Base Reuse Plan*

The former Fort Ord, which cover more than one half of the Subbasin's area, is currently under redevelopment. Redevelopment of the former Fort Ord was under oversight of the Fort Ord Reuse Authority (FORA), established in 1994 and recently terminated in June 2020. Prior to its termination, FORA allocated assets/liabilities and transitioned land use planning within former Fort Ord to each of the local jurisdictions, including the Cities of Marina and Seaside, the City of Monterey, and the County of Monterey. The governing document of Fort Ord's redevelopment, the Fort Ord Base Reuse Plan was incorporated into each individual jurisdictional area's land use plans, which are then incorporated into MCWD's UWMP as described in Section 3.2.2.4.

The Fort Ord Base Reuse Plan, Final Reassessment Report (EMC, 2012) projected a total water demand of 9,000 AFY at buildout. This projected water demand is an additional 2,400 AFY over and above the 6,600 AFY groundwater supply described under the 1993 Annexation Agreement (MCWRA/U.S. Army, 1993; see Section 3.2.2.2). Development of the 2,400 AFY of additional water supply was identified as one of the mitigation measures for redevelopment of the former Fort Ord. As described in Section 3.4 above, within the former Fort Ord, MCWD has been designated as the exclusive (1) water and sewer collection service provider and (2) developer and implementer of all new water supplies for all non-Federal lands. Under an exclusive contract with the Army, MCWD is responsible for providing water and sewer collection services for the Army and other Federal agencies within the former Fort Ord. Water demand projections associated with implementation of the Fort Ord Base Reuse Plan are included in MCWD's UWMP (Section 3.2.2.4).

The following efforts have been conducted by FORA and MCWD to support implementation of the Fort Ord Base Reuse Plan:

In 2005, the FORA and MCWD Boards of Directors both approved the Regional Urban Water Augmentation Project (RUWAP) Hybrid Alternative, which included recycled water and desalination supply components providing 1,200 AFY each. FORA and MCWD then agreed upon a modified RUWAP Hybrid Alternative that would provide 1,427 AFY of recycled water to the former Fort Ord (via the M1W Pure Water Monterey Project described in Section 9.1). The FORA Board Resolution No. 07-10 (May 2007) allocated the 1,427 AFY of RUWAP recycled water to the various land use jurisdictions (EMC, 2012).

In 2015, the FORA Board of Directors endorsed a joint water supply planning process between FORA, M1W, and MCWD to identify the "Additional Water Augmentation Component." In 2016, MCWD, M1W, and FORA entered into an agreement to fund an analysis to identify alternatives to supply the additional 973 AFY of Water Augmentation (i.e., the total of 2,400 AFY required by the EIR subtracted by 1,427 AFY to be provided by the RUWAP). The Three Parties (FORA, MCWD, and M1W) recognize there may be a number of options to meet the 973 AFY "Additional Water Augmentation Component," and through this Water Supply Augmentation Study, aim to systematically identify and evaluate the potential supply augmentation alternatives, and select a preferred option. The three-party Water Supply Augmentation

Study began in 2018 and was completed in June 2020. Water supply options being evaluated include brackish water and seawater desalination, increased water conservation measures, additional ATW, and indirect potable reuse/groundwater recharge and replenishment (IPR). IPR was selected by the study as the water supply alternative and is discussed further in Section 9.1 Project Descriptions.

3.5.1.5 *California Coastal Act and Local Coastal Programs*

The Subbasin consists of approximately three miles of Monterey Bay coastline that are within the California Coastal Zone.

The California Coastal Act requires that local governments in the Coastal Zone create and implement Local Coastal Programs (LCPs) to conserve coastal dependent land use. The Cities of Marina and Seaside have approved LCPs for Coastal Zones within their respective incorporated limits. The LCPs each consists of a Local Coastal Land Use Plan (LCLUP) and a Local Coastal Implementation Plan (LCIP) (City of Marina 2013a, 2013b; City of Seaside 2013a, 2013b). Additionally, a portion of the Subbasin's Coastal Zone consists of the Fort Ord Dunes State Park managed by the California Department of Parks and Recreation which islocated west of Highway 1 and south of the City of Marina.

This GSP has been developed to be coordinated with the goals, policies, and requirements administered by the Marina and Seaside LCLUPs as well as the California Coastal Commission. Policies in the local LCLUPs related to habitat management have been incorporated into the sustainable management criteria included in this GSP. Requirements to obtain and comply with coastal development permits have been incorporated into the projects and management actions included in this GSP.

3.5.2 **Effects of Land Use Plan Implementation on Water Demand**

The general plans detailed above guide future growth and development within their jurisdictional areas. This additional growth, particularly with redevelopment of the former Fort Ord, may place additional demands on groundwater resources within the Subbasin. However, the goals, policies, and implementation measures established by the existing land use plans are complementary to sustainable groundwater management of the Subbasin relative to future land use development and conservation. For example:

- The Monterey County General Plan encourages the growth areas to be designated only where adequate level of services and facilities such as water exists or can be ensured concurrent with growth and development. The plan initiates a program to eliminate overdraft of water basins as part pf the Capital Improvement and Financing Plan (CIFP). The program includes various strategies such as water banking, groundwater and aquifer recharge as well as looking for new water sources such as expansion of the Salinas Valley Water Project (SVWP). The Monterey County General Plan aligns with the GSP.
- The City of Marina General Plan prohibits any new development that requires water allocation in excess of the available supply or in excess of its designated water allocation for that portion of former Fort Ord within the City. The plan encourages the City works closely with MCWD to supply water to the current infrastructures prior to or concurrent with new developments while the existing or new developments should utilize water more efficiently.

- The City of Seaside plans to remove water supply constraints for development and redevelopment of the City by working with regional water suppliers. The plan also encourages coordination with regional and local water suppliers and participations in water conservation programs.
- The Fort Ord Reuse Plan relies on the nearby cities, such as City of Seaside and City of Marina, and Monterey County to manage the former Ford Ord area. Implementation of former Fort Ord's redevelopment will be pursuant to these local jurisdictions' land use plans and policies.

3.5.3 Effects of GSP Implementation on Water Supply Assumptions

Successful implementation of this GSP will help to ensure that the subbasin groundwater supply is sustainably managed as set forth by SGMA. Therefore, implementation of this GSP is not anticipated to significantly affect the current water supply assumptions or land use plans.

Within the Marina-Ord Area, implementation of this GSP may induce management and project costs to be funded by MCWD to secure water supply for future development within the former Fort Ord, which will be supported by fees levied on such new developments for new water supplies. Within the Corral de Tierra Area, the water charges framework will promote voluntary pumping reductions and impose a tiered pumping fee structure. Therefore, implementation of this GSP may induce changes in the cost of groundwater, and as a result, changes in land use changes based on financial decisions by individual development within this area. However, there is no direct impact from the GSP implementation on land use management.

3.5.4 Well Permitting Process

The Monterey County Well Program[11] is responsible for well permitting within the subbasin, including the construction, destruction, and repairs or modifications of domestic, irrigation, agricultural, cathodic protection, monitoring or heat exchange wells.

The Public Service element of the Monterey County General Plan addresses permitting of individual wells in rural or suburban areas. New residential or commercial lots in rural or suburban areas with limited utility services must be a minimum area of 2.5 acres if a well is the water source. Existing lots (of any size) can use an on-site well if they are outside of a water system service area. Existing lots within an established water system service area can use wells if they are greater than 2.5 acres or have a connection to a public sewage system. **Table 3-4** summarizes the Monterey County General Plan's water supply guidelines for new lots (Monterey County, 2010, Table PS-1). **Table 3-5** depicts the decision matrix from the Monterey County General Plan for permitting new wells for existing lots (Monterey County, 2010, Table 3-2).

Table 3-4. Monterey County Water Supply Guidelines for New Lots

Major Land Groups	Water Well Guidelines
Public Lands	Individual Wells Permitted in Areas with Proven Long-Term Water Supply

[11] https://www.co.monterey.ca.us/government/departments-a-h/health/environmental-health/drinking-water-protection/wells

Agriculture Lands	Individual Wells Permitted in Areas with Proven Long-Term Water Supply
Rural Lands	Individual Wells Permitted in Areas with Proven Long-Term Water Supply
Rural Centers	Public System; Individual Wells Allowed in limited situations
Community Areas	Public System

Table 3-5. Monterey County Well Permitting Guidelines for Existing Lots

Characteristics of Property	Water Connection Existing or Available from the Water System	Not Within a Water System or a Water Connection Unavailable
Greater than or equal to 2.5 Acres connected to a Public Sewage System or an on-site wastewater treatment system	Process Water Well Permit	Process Water Well Permit
Less than 2.5 Acres and connected to a Public Sewage System	Process Water Well Permit	Process Water Well Permit
Less than 2.5 Acres and connected to an on-site wastewater treatment system	Do not Process Water Well Permit	Process Water Well Permit

On August 29, 2018, the State Third Appellate District Court of Appeal published an opinion in *Environmental Law Foundation v. State Water Resources Control Board* (No. C083239), a case that has the potential to impact future permitting of wells near navigable surface waters to which they may be hydrologically connected. The Court of Appeal found that while groundwater itself is not protected by the public trust doctrine, the doctrine does protect navigable waters from harm caused by extraction of groundwater if it adversely affects public trust uses. Further, it found that the County (Siskiyou County in this case), as a subdivision of the State, shares responsibility for administering the public trust. Monterey County is responsible for well permitting. Therefore, it has a responsibility to consider the potential impacts of groundwater withdrawals on public trust resources when permitting wells near areas where groundwater may be interconnected with navigable surface waters.

Additional prohibitions and restrictions on well drilling within the Monterey Subbasin area described below.

3.5.4.1 *Marina Coast Water District Ordinance No. 31*

MCWD Ordinance No. 31 (codified as Chapter 3.32 of the MCWD Code and Ordinances) prohibits water wells to be constructed or reconstructed within the boundary of MCWD, except wells constructed by the District. Exceptions apply to shallow wells that are less than one-hundred feet deep for non-potable purposes and wells that predate the ordinance.

3.5.4.2 *Well Construction Restrictions within the Former Fort Ord*

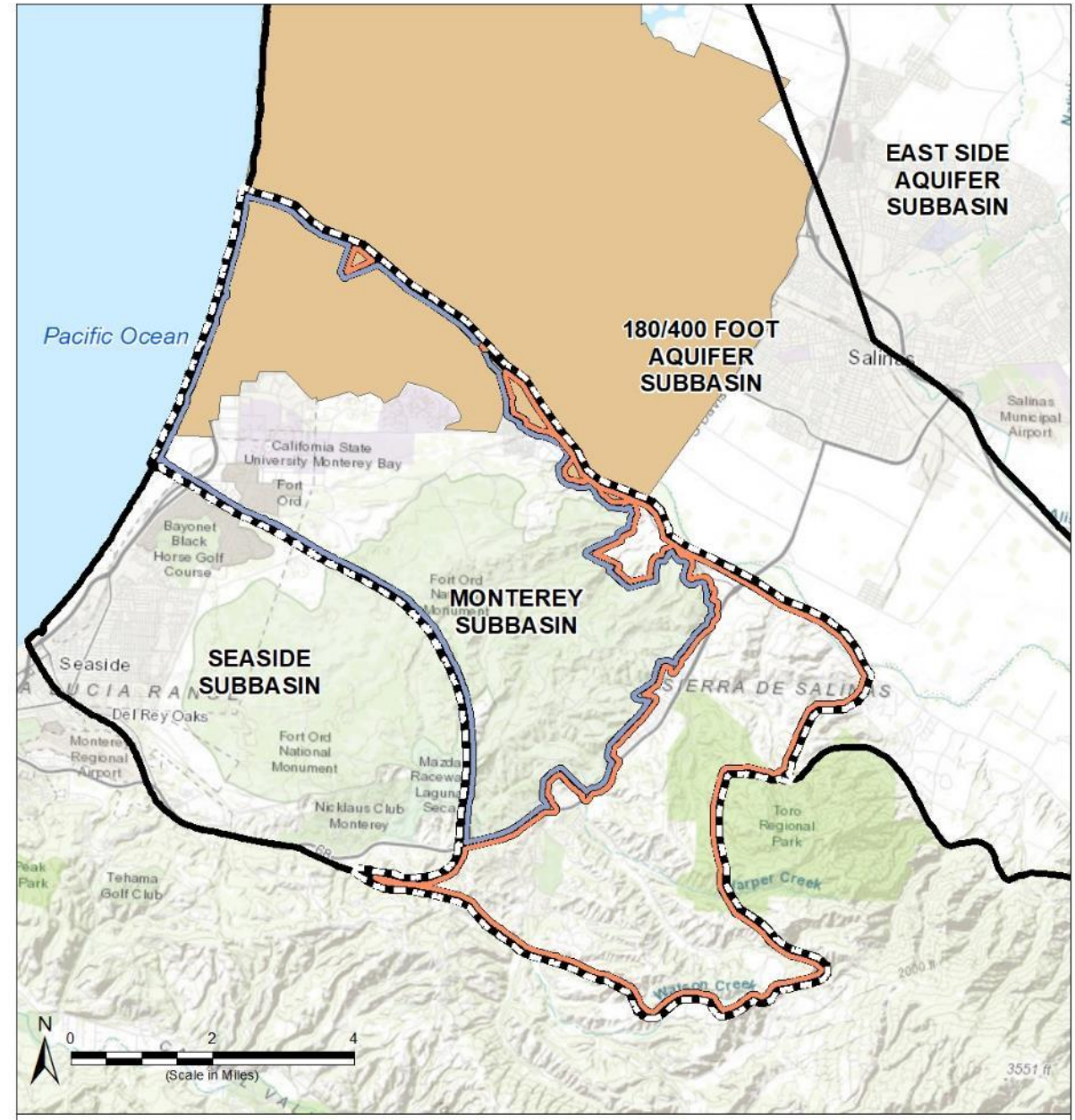
County Ordinance No. 04011 of 2005 was adopted to prohibit and/or regulate new water wells in areas within the former Fort Ord due to groundwater contamination constraints. Well construction is prohibited in areas overlying or adjacent to the contamination plumes in the former Fort Ord (i.e. Prohibition Zone) and is subject to special review in areas that may be impacted by the contamination plumes (i.e.

Consultation Zone). The Prohibition Zone and Consultation Zone within the former Fort Ord is shown on **Figure 3-11** above**.**

3.5.4.3 *Interim Moratorium on New Well Permits within Area of Impact*

On May 22, 2018, the Monterey County Board of Supervisors adopted Ordinance No. 5302 pursuant to Government Code Section 65858. The interim ordinance was an urgency measure to prohibit approval of wells in a defined, seawater intruded "Area of Impact" and in the Deep Aquifers of the Salinas Valley Groundwater Basin in the unincorporated area of Monterey County, due to the immediate threat to the public health, safety, and welfare posed by new wells in these areas. The ordinance imposed a moratorium on the County Health Department accepting and processing new well permits; it was not a moratorium on additional groundwater pumping from existing wells. It also had stated exceptions, including municipal wells and replacement wells. The ordinance was an Interim Urgency Ordinance which took effect immediately upon adoption. Pursuant to Section 65858, the ordinance was originally only effective for 45 days to July 5, 2018, but at the June 26 Board meeting, the Board of Supervisors on a 4-1 vote extended the ordinance to May 21, 2020, by adoption of Ordinance No. 5303.The "Area of Impact" overlaps with the northern third of the Subbasin, as shown on **Figure 3-13**. The County has indicated that it will conduct studies during the moratorium.

TO BE UPDATED TO REFLECT OUTCOME OF THE ORDINANCE EXTENSION


EAST SIDE AQUIFER SUBBASIN
180/400 FOOT AQUIFER SUBBASIN
Pacific Ocean
Salinas
Salinas Municipal Airport
California State University Monterey Bay
Fort Ord
Bayonet Black Horse Golf Course
Fort Ord National Monument
MONTEREY SUBBASIN
SEASIDE SUBBASIN
Seaside
Del Rey Oaks
Monterey Regional Airport
Fort Ord National Monument
Mazda Raceway Laguna Seca
Nicklaus Club Monterey
Toro Regional Park
Tehama Golf Club
Harper Creek
Watson Creek
SIERRA DE SALINAS
3551 ft
N
0
2
4
(Scale in Miles)
Legend
Monterey Subbasin
Other Groundwater Subbasins within Salinas Valley Basin
Area of Impact
Management Areas
Marina-Ord Area
Corral de Tierra Area
Sources
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 26 June 2020.
2. Area of impact obtained from Exhibit B of Monterey County Urgency Ordinance No. 5302.
Monterey County Ordinance No. 5303 Area of Impact
Monterey Subbasin
Groundwater Sustainability Plan
June 2020
Figure 3-13
Path: X:\BE600946\Maps\20200106\Fig3-13_Area_of_Impact.mxd

3.6 Additional GSP Elements

This section will be completed at a later stage of GSP development to address any component of the list below that was not addressed elsewhere in the GSP. If addressed in the GSP, a reference to where it is addressed will be provided.

(a) Control of saline water intrusion

(b) Wellhead protection

(c) Migration of contaminated groundwater

(d) Well abandonment and well destruction program

(e) Replenishment of groundwater extractions

(f) Conjunctive use and underground storage

(g) Well construction policies

(h) Groundwater contamination cleanup, recharge, diversions to storage, conservation, water recycling, conveyance, and extraction projects

(i) Efficient water management practices

(j) Relationships with State and federal regulatory agencies

(k) Land use plans and efforts to coordinate with land use planning agencies to assess activities that potentially create risks to groundwater quality or quantity

(l) *Impacts on Groundwater Dependent Ecosystems*

4 HYDROGEOLOGIC CONCEPTUAL MODEL

This section presents the hydrogeologic conceptual model (HCM) for the Subbasin. As described in the Hydrogeological Conceptual Model Best Management Practices (BMP) document (DWR, 2016), an HCM provides, through descriptive and graphical means, and understanding of the physical characteristics of an area that affect the occurrence and movement of groundwater, including geology, hydrology, land use, aquifers and aquitards, and water quality. This HCM serves as a foundation for subsequent Basin Setting analysis including water budgets (Section 6), numerical models, monitoring network development (Section 7), and the development of sustainable management criteria (Section 8).

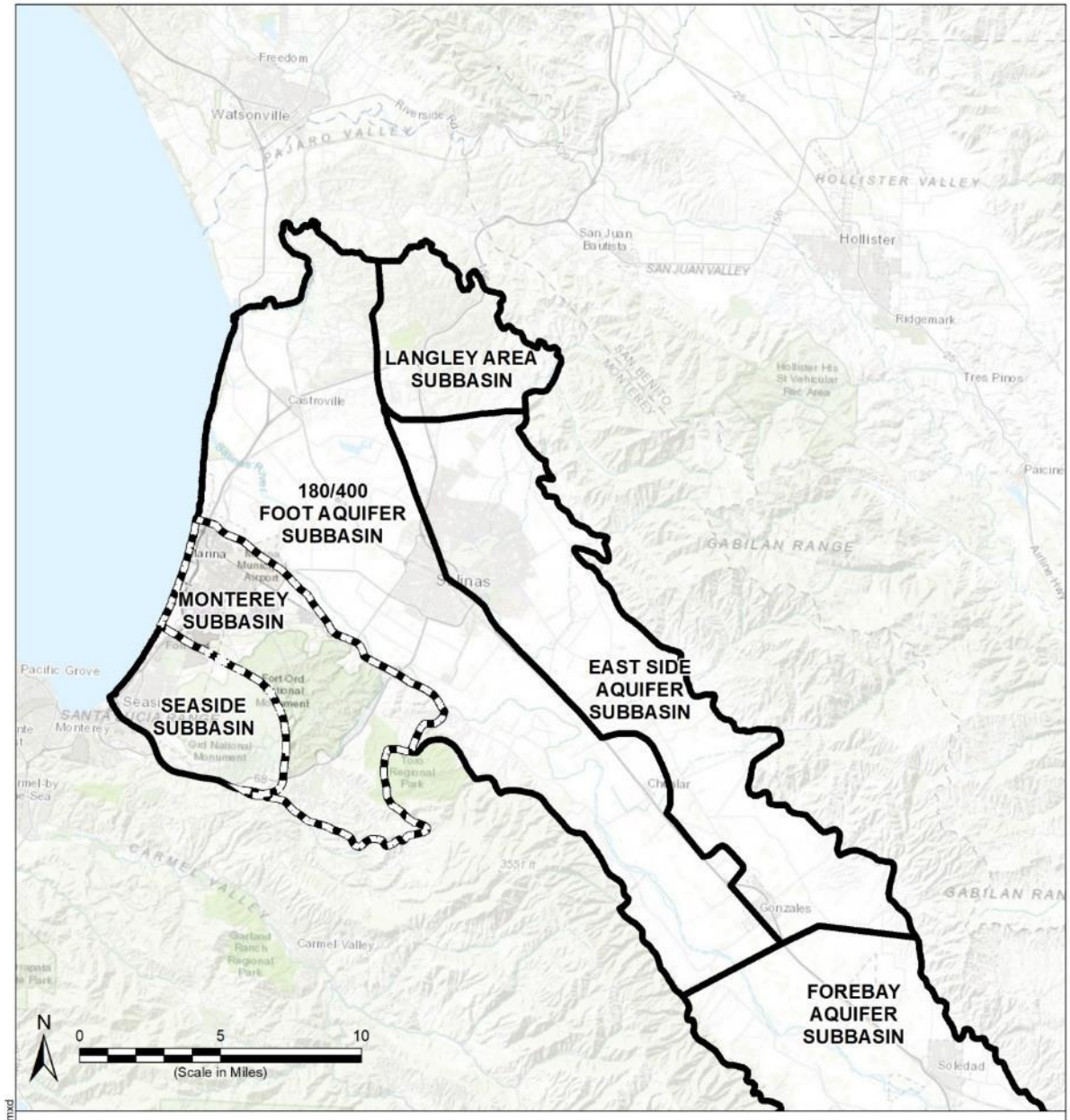
4.1 General Description

The Monterey Subbasin (Subbasin; DWR Basin No. 3-004.10) is located at the northwestern end of the Salinas Valley Groundwater Basin, an approximately 90-mile long alluvial basin underlying the elongated, intermountain valley of the Salinas River. The Subbasin includes the portions of the Monterey Bay coastal plain, south of the approximate location of the Reliz Fault, as well as upland areas to the southeast of the coastal plain. The Subbasin is bordered by the 180/400-Foot Aquifer Subbasin to the northeast and by the adjudicated Seaside Subbasin to the southwest (**Figure 4-1** and **Figure 4-2**).

4.1.1 Geological and Structural Setting

The Subbasin geology forms the physical framework in which groundwater occurs and moves. The geology described here is based on previously published scientific reports from investigations conducted by the USGS, State of California, other consulting firms, and academic institutions.

The Salinas Valley was formed through periods of structural deformation and periods of marine and terrestrial sedimentation in a tectonically active area on the eastern edge of the Pacific Plate. The water bearing sediments of the Salinas Valley are over 2,000 feet thick in places and are composed of unconsolidated marine and alluvial sediments of Pliocene and younger age (Brown & Caldwell, 2015). Within the Monterey Subbasin, the water-bearing strata include river and sand dune deposits of Holocene and Pleistocene age, the Aromas Sand and Paso Robles Formation of Plio-Pleistocene age, the Purisima Formation of Pliocene age, and the Santa Margarita Formation of Miocene age (Greene, 1970; Harding ESE, 2001; Geosyntec, 2007). The Monterey Formation of Miocene age represents the relatively non-water-bearing bedrock that underlies the Subbasin (see Section 4.1.2.2, Bottom of the Basin).



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Sources

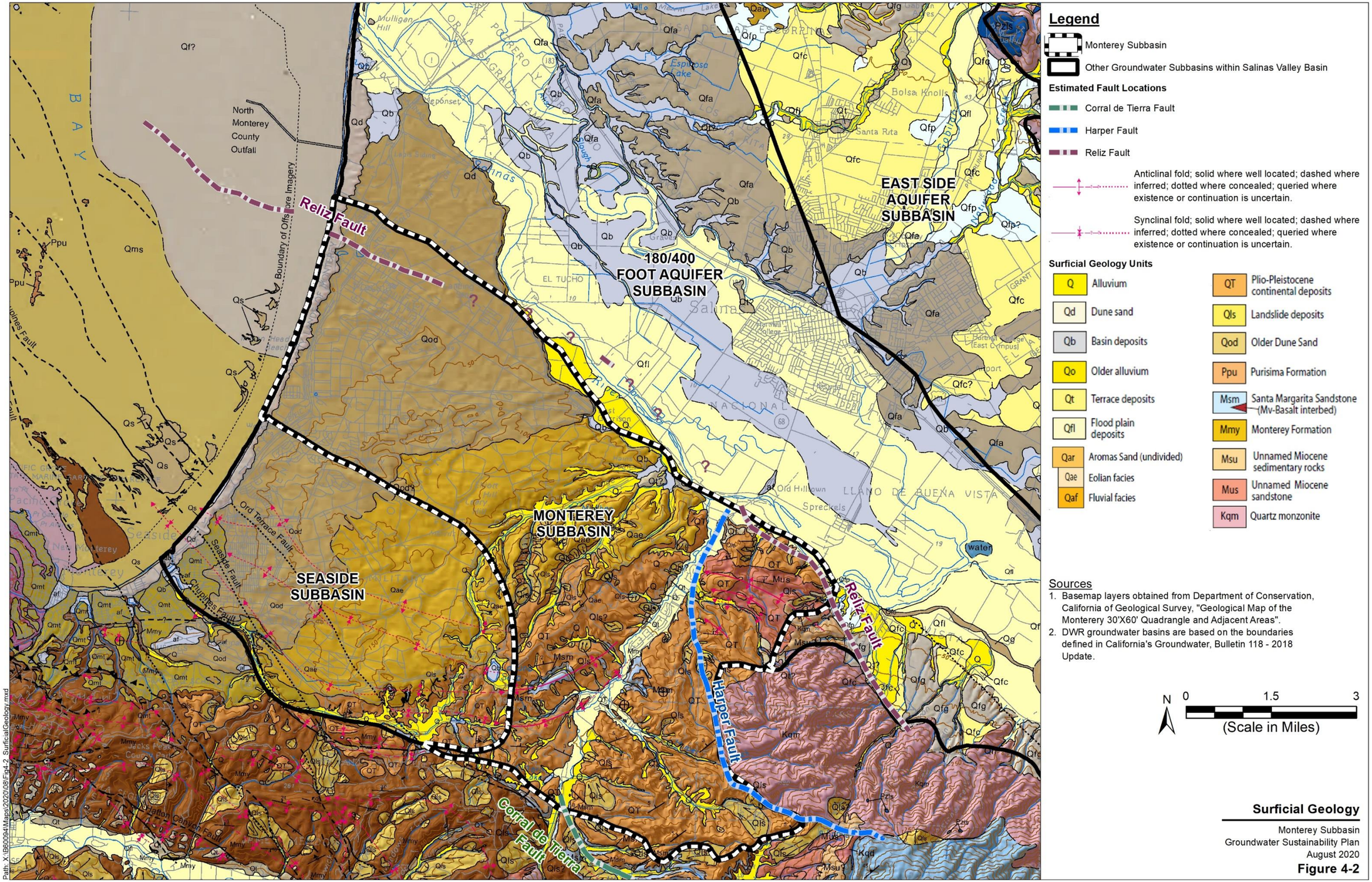
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 25 June 2020.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater, Bulletin 118 - 2018 Update.

Path: X:\B60094\Maps\2020\06\Fig4-1_SalinasValleySubbasins.mxd

Salinas Valley Subbasins

Monterey Subbasin
Groundwater Sustainability Plan
June 2020

Figure 4-1


Legend
Monterey Subbasin
Other Groundwater Subbasins within Salinas Valley Basin
Estimated Fault Locations
Corral de Tierra Fault
Harper Fault
Reliz Fault
Anticlinal fold; solid where well located; dashed where inferred; dotted where concealed; queried where existence or continuation is uncertain.
Synclinal fold; solid where well located; dashed where inferred; dotted where concealed; queried where existence or continuation is uncertain.
Surficial Geology Units
Q Alluvium
Qd Dune sand
Qb Basin deposits
Qo Older alluvium
Qt Terrace deposits
Qfl Flood plain deposits
Qar Aromas Sand (undivided)
Qae Eolian facies
Qaf Fluvial facies
QT Plio-Pleistocene continental deposits
Qls Landslide deposits
Qod Older Dune Sand
Ppu Purisima Formation
Msm Santa Margarita Sandstone (Mv-Basalt interbed)
Mmy Monterey Formation
Msu Unnamed Miocene sedimentary rocks
Mus Unnamed Miocene sandstone
Kqm Quartz monzonite
Sources
1. Basemap layers obtained from Department of Conservation, California of Geological Survey, "Geological Map of the Monterery 30'X60' Quadrangle and Adjacent Areas".
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater, Bulletin 118 - 2018 Update.
N
0
1.5
3
(Scale in Miles)
Surficial Geology
Monterey Subbasin
Groundwater Sustainability Plan
August 2020
Figure 4-2
EAST SIDE AQUIFER SUBBASIN
180/400 FOOT AQUIFER SUBBASIN
MONTEREY SUBBASIN
SEASIDE SUBBASIN
Reliz Fault
Harper Fault
Corral de Tierra Fault
Ord Terrace Fault
Seaside Fault
Chupines Fault
Boundary of Offshore Imagery
North Monterey County Outfall
Path: X:\B0094\Maps\2020\08\Fig4-2_SurficialGeology.mxd

4.1.1.1 *Geologic Formations*

Major geologic units of the Monterey Subbasin are described below, starting at the ground surface and moving downwards through the strata from youngest to oldest. The corresponding designation on **Figure 4-2** Surficial Geology are provided in parenthesis.

- *Alluvium, Flood Plain Deposits, Landslide Deposits (Q, Qfl, Qls)* – Holocene Alluvium consists of unconsolidated stream and basin deposits occur at the base of eastern Subbasin hillslopes. These deposits have gradational contacts the Floodplain Deposits (Qfl) that occur along El Toro Creek and its tributaries. The Floodplain Deposits consist predominately of unconsolidated layers of mixed sand, gravel, silt, and clay that were deposited in a fluvial environment by the Salinas River and its tributaries. Numerous landslides are present in upland portions of the subbasin such as San Benancio, Harper, and Corral de Tierra Canyons.
- *Older Dune Sand (Qod)* – This Pleistocene unit blankets most of the northwestern portions of the Subbasin and is the predominant surface deposit present in approximately one third of the Subbasin. This unit only exists southwest of the Salinas River and is up to 250 feet thick. This sand is predominately fine- to medium-grained, with thin, gentle to moderate cross-bedding (Harding ESE, 2001).
- *Older Alluvium (Qo)* – This Pleistocene unit comprises alternating, interconnected beds of fine-grained and coarse-grained deposits, predominately associated with alluvial fan depositional environments. The Older Alluvium underlies coastal Marina-Ord Area but is not exposed at the ground surface. This unit underlies the Older Dune Sand, and in the Marina-Ord Area has been referred to in some reports as Valley Fill Deposits, which is described as including an estuarine clay layer (Salinas Valley Aquitard) and an underlying sand and gravel fluvial sequence (Harding ESE, 2001).
- *Aromas Sand (Qae)* – This Pleistocene unit is composed of cross-bedded sands containing some clayey layers (Harding ESE, 2001). This unit was deposited in predominately in an eolian, high-energy alluvial, alluvial fan, and shoreline environments, with the predominant deposition environment being eolian (Harding ESE, 2001; Greene, 1970; Dupre, 1990). The Aromas Sand likely extends into the northern portion of the 180/400 Foot Aquifer Subbasin (MCWRA, 2017). The Aromas Sand is exposed throughout the ridge and hilltops in the southeastern portion of the Subbasin, while the unit is buried beneath Older Dune Sand and Alluvium in the vicinity of the City of Marina. Thickness of the Aromas Sand varies within the Subbasin and is up to 300 feet thick (Harding ESE, 2001; Muir, 1982). Although a clayey or hard red bed is often observed at the basal contact with the underlying Paso Robles Formation, the stratigraphic relationship between the Aromas Sand and the Paso Robles Formation is difficult to discern due to lithologic similarities and the complex interface between them (Harding ESE, 2001; Dupre, 1990)
- *Paso Robles Formation (QT)* – This Pliocene to lower Pleistocene unit is composed of lenticular beds of sand, gravel, silt, and clay from terrestrial deposition (Thorup, 1976; Durbin *et al*, 1978). The depositional environment is largely fluvial but also includes alluvial fan, lake and floodplain deposition (Durbin, 1974; Harding ESE, 2001; Thorup, 1976; Greene, 1970). The individual beds of fine and coarse materials typically have thicknesses of 20 to 60 feet (Durbin *et al*, 1978).

Durham (1974) reports that the thickness of the Paso Robles Formation is variable due to erosion of the upper part of the unit. Varying thicknesses ranging from 500 feet to 1,000 feet are found within the Subbasin. Outcrops of the Paso Robles Formation occur in the central and southern portions of the Subbasin.

- *Purisima Formation (Ppu)* – This Pliocene unit consists of interbedded siltstone, sandstone, conglomerate, clay and shale deposited in a shallow marine environment (Greene, 1977; Harding ESE, 2001). The Purisima Formation has been found in boreholes near the cities of Marina and Seaside; however, the unit is missing from the more inland portions of the Monterey and Seaside Subbasins (Harding ESE, 2001; HydroMetrics, 2009; Geosyntec, 200766). The Purisima Formation ranges in thickness from 500 to 1,000 feet (Feeney and Rosenberg, 2003).
- *Santa Margarita Sandstone (Msm)* –The Miocene Santa Margarita Sandstone is a friable, arkosic sandstone. In the northern portion of the Subbasin, the Paso Robles Formation conformably overlays the Purisima Formation, which interfingers with the Santa Margarita Sandstone (Durbin, 2007; Hydrometrics, 2009). Towards the boundaries with the Seaside Subbasin and the Corral de Tierra Area, the Paso Robles unconformably overlays over the Santa Margarita Sandstone. Outcrops of the Santa Margarita Sandstone are found in the Corral de Tierra Area.
- *Monterey Formation (Mmy)* – The Monterey Formation (Miocene) is a shale or mudstone deposited in a shallow marine environment (Harding ESE, 2001; Greene, 1977). As discussed below, the Monterey Formation is relatively impervious. The top of the Monterey Formation is defined as the bottom of the Subbasin (Section 4.1.2.2).
- *Unnamed Miocene Sandstone (Mus)* – An unnamed Miocene sandstone unit (Mus) underlies the Monterey Formation. The Mus unit consists of an upper part of marine arkosic sandstone and conglomerate; and a lower part of continental sandstone and conglomerate (Wagner, et al. 2002). This unit is exposed in the Corral de Tierra Area near the eastern and southern Subbasin boundaries. This unit is sometimes referred to as the Basal Sandstone in other reports (GeoSyntec, 2007).
- *Unnamed Miocene Sedimentary Rocks (Msu)* – Miocene metamorphic sedimentary rocks (Msu) are deposited on granitic rocks of the Galiban Range (Kqm). The Msu unit is comprised of granitic conglomerate and arkosic sandstone of marine and non-marine sources (Wagner, et al. 2002). This unit is exposed in the Corral de Tierra Area near the eastern Subbasin boundary. These unnamed Miocene units (i.e. Mus and Msu) are approximately 250 feet thick (Geosyntec, 2007).

4.1.1.2 *Surface Geology*

As shown on **Figure 4-2**, the predominant surficial geologic unit covering the coastal plain portion of the Subbasin is "Qod" (i.e., Older Dune Sand [Pleistocene]). South of the coastal plain area, the Eolian facies of Aroma Sand “Qae” (Pleistocene) comprises the hills of the Fort Ord area. Further south near Highway 68 and in the Corral de Tierra area, the predominant surficial geologic unit is “QT” (Paso Robles Formation

[Plio-Pleistocene]). Other minor units in the area include "Q" (Alluvium [Holocene]), and "Qls" (Landslide Deposits [Pleisto-Holocene]), found in thin strips along the intermittent tributaries to El Toro Creek, which is a tributary to the Salinas River (as discussed above); and "Qls" (landslide deposits) that exist in pockets in the upland areas.

4.1.2 Subbasin Extent

4.1.2.1 *Lateral Basin Boundaries*

The Monterey Subbasin is bounded by the following combination of Subbasin boundaries and physical boundaries of the Salinas Valley Basin:

Two subbasins are adjacent to the Monterey Subbasin.

1. The 180/400-Foot Aquifer Subbasin. The northeastern boundary with the 180/400-Foot Aquifer Subbasin is divided into two parts: the northern part coincides with a buried trace of the Reliz Fault (DWR, 2016); the southern part follows the contact between Aromas Sand / Paso Robles Formations (Qae/QT) and alluvium (Q). The Reliz Fault does not appear to be a barrier to groundwater flow between these subbasins (see Section 4.2.3).
2. The Seaside Subbasin. The southwestern boundary with the Seaside Subbasin is based on an inferred groundwater divide. The boundary with the Seaside Subbasin was formally established in the Seaside Basin Adjudication Amended Decision (Superior Court of California, 2007).

Two additional physical features bound the Monterey Subbasin.

1. The Monterey Bay shoreline bounds the northwestern edge of the Subbasin.
2. The Sierra de Salinas bound the eastern and southern edge of the Subbasin. One part of this boundary follows the contact between Pleistocene units and the Cretaceous quartz monzonite, and another part of this boundary generally follows the contact between Pleistocene units and Miocene rocks as shown on **Figure 4-2**.

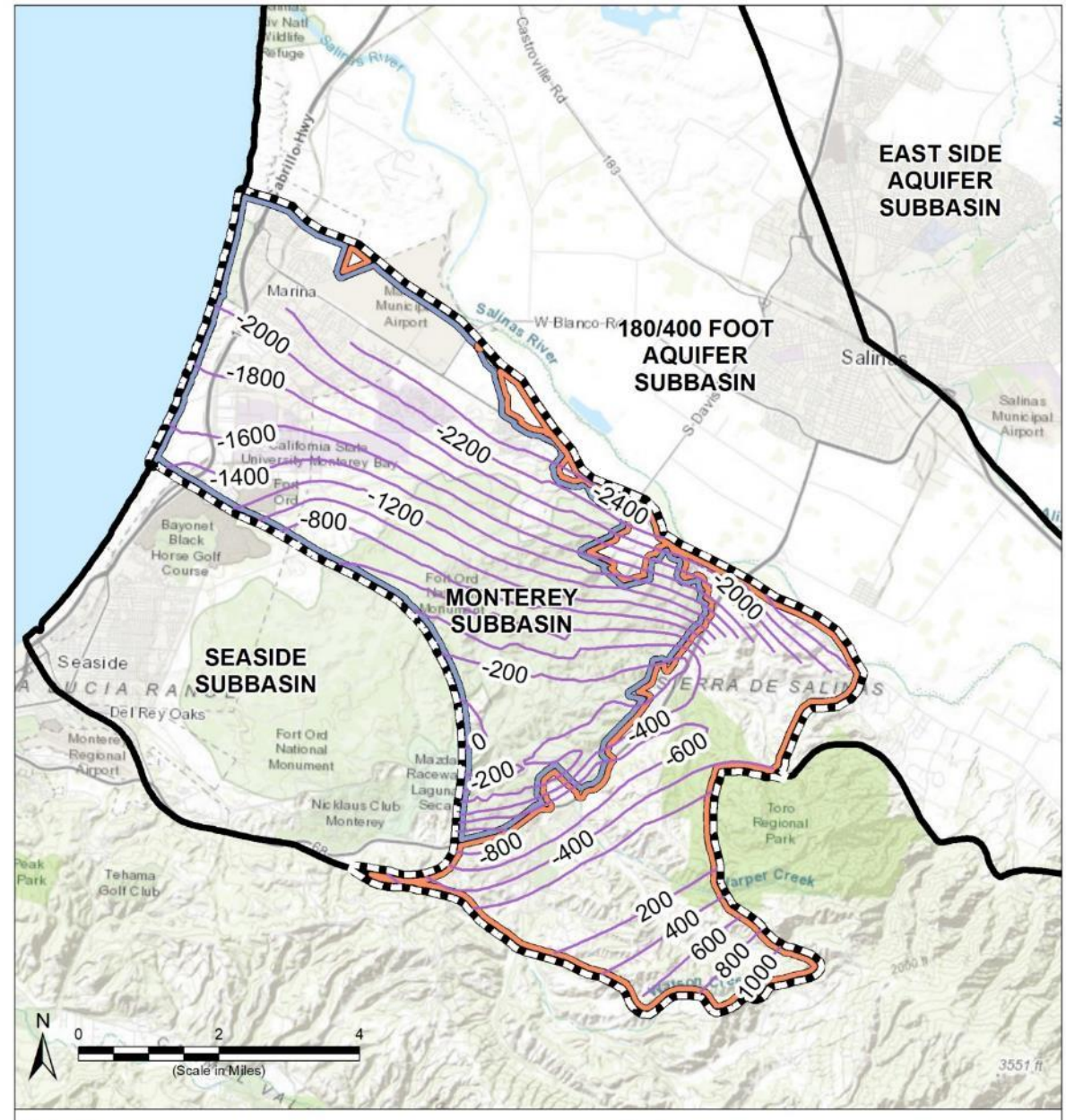
4.1.2.2 *Bottom of the Basin*

The bottom of the Monterey Subbasin is defined herein as the top of Monterey Formation. The Monterey Formation has low hydraulic conductivity as it is comprised of shale and diatomite (Yates, 2002) and yields water that is generally of low water quality (Geosyntec, 2007). **Figure 4-3** shows contours that define the top elevation of the Monterey Formation for most of the Monterey Subbasin.

The deepest groundwater production wells in the Subbasin generally extend to depths within the Purisima or Santa Margarita Formations above the Monterey Formation, and are found closer to the coast. Along the northeastern boundary of the Subbasin, where the Monterey Formation is overlain by the Purisima Formation (Durbin 2007, Yates and others 2005, Greene 1970, Greene 1977), the deepest groundwater extractions are from MCWD wells MCWD-10, -11, and -12, which are screened across Paso Robles and Purisima Formations from 780 ft bgs to 1,840 ft bgs. In the Corral de Tierra Area, many wells are screened in the Aromas Sand and Paso Robles Formation continental deposits as well as the Santa Margarita Sandstone. Slightly south of the Corral de Tierra Area, outside of the Subbasin, a number of wells tap both

the Monterey Formation and the unnamed sandstone and conglomerate unit (GeoSyntec, 2007; Feeney, 2003).

The top of the Monterey Formation ranges from an elevation of 1,000 feet in the Corral de Tierra area to -2,400 feet near the coast, or from approximately 700 feet below land surface in the Corral de Tierra area to over 2,000 feet below land surface near the coast. As shown on **Figure 4-3** and **Figure 4-4**, there is a set of an east/northeast trending highs and lows on the surface of the Monterey Formation near the Ord-Corral de Tierra boundary. This reflects the mapped structural deformation of the unit in this area illustrated by the pink anticline and synclines in **Figure 4-2**. Additionally, the depth to the Monterey Formation can illustrate the structural, depositional, and erosional complexity which defines this hydrostratigraphic setting (**Figure 4-6**).



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin
- Top of Monterey Fm. ft MSL

Management Areas

- Marina-Ord Area
- Corral de Tierra Area

Abbreviations

Fm. = formation
Ft MSL = feet mean sea level

Notes

1. All locations are approximate.

Sources

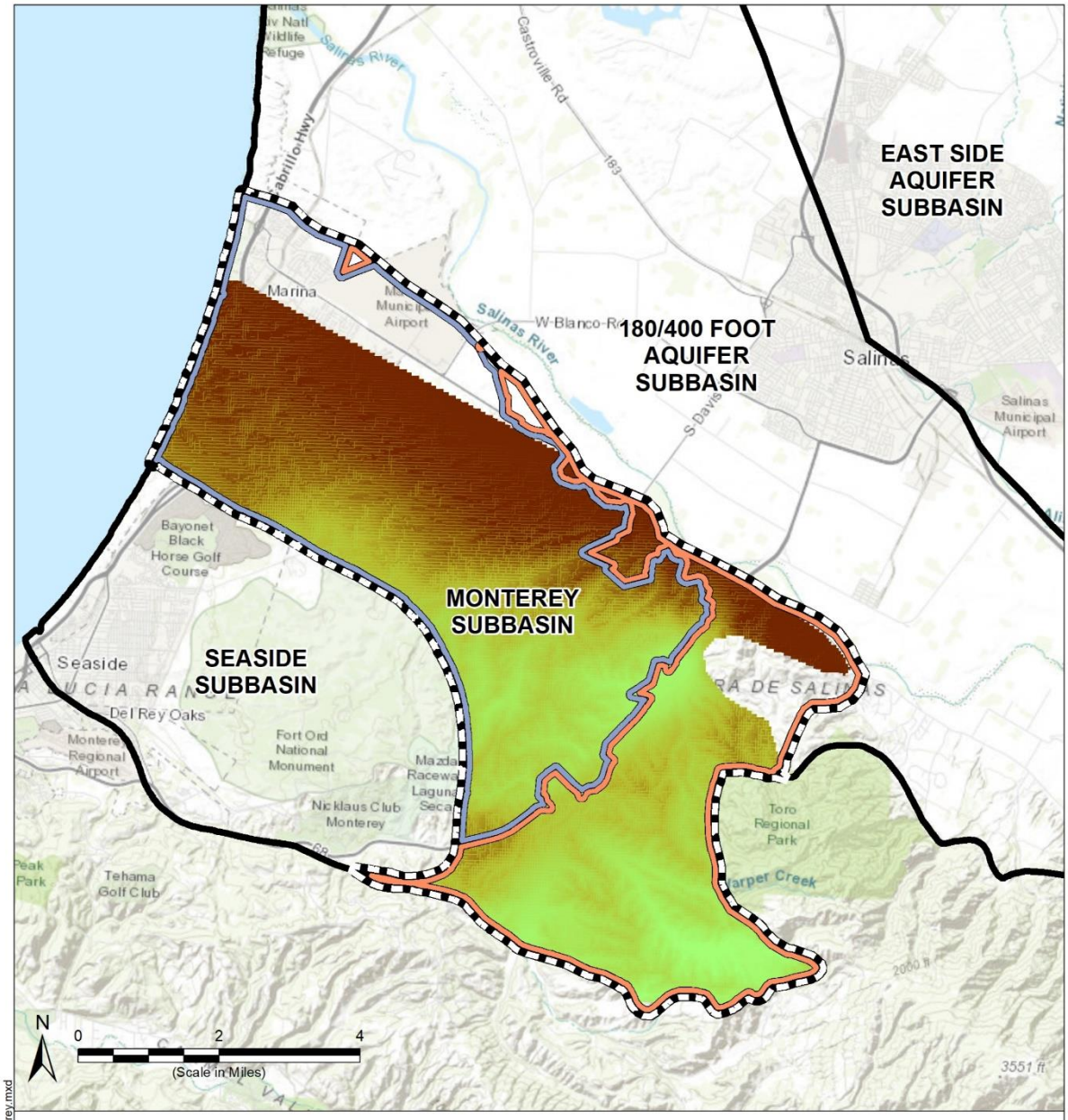
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 25 June 2020.
2. The elevations of the top of Monterey Fm. are obtained from the sources below:
   - Rosenberg (2001, 2009)
   - Staal. Gardner and Dunne (1987)
   - Feeney and Rosenberg (2003)

Bottom of the Basin – Top of the Monterey Formation

Monterey Subbasin
Groundwater Sustainability Plan
June 2020

Figure 4-3

Path: X:\B60094\Maps\2020\06\Fig4-3_Top_of_Monterey.mxd



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Management

- Marina-Ord
- Corral de Tierra

Depth to Top of Monterey Formation (ft bgs)

133

2735

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 18 August 2020.
2. The depth to the top of the Monterey Formation are obtained from subracting the elevation of the top of the Monterey Formation (Figure 4-3) from ground surface elevation.

Abbreviations

DEM	= digital elevation model
Fm.	= formation
Ft bgs	= feet below ground surface

Notes

1. All locations are approximate.

Depth to Top of the Monterey Formation

Monterey Subbasin
Groundwater Sustainability Plan
August 2020

Figure 4-4

Path: X:\B60094\Maps\2020\08\Fig4-4 Depth_to_Top_of_Monterey.mxd

4.1.3 Physical Characteristics

4.1.3.1 *Topographic Information*

Figure 4-55 shows the topography within the Monterey Subbasin. Topography generally slopes down to the northwest towards Monterey Bay, ranging from sea level at the shoreline to 1,900 ft msl in the southeastern corner of the Subbasin.

In the coastal area of the Subbasin, the topography is shaped by active coastal sand dunes, followed by a coastal plain and older stabilized sand dunes. Coastal sand dunes are present along a narrow quarter-mile-wide stretch of land where the Subbasin meets the bay. These coastal dunes rise to approximately 100 feet in elevation and grade eastward into a narrow coastal plain varying in width from one to two miles. Older sand dunes dominate the topography in the northwestern portion of the Subbasin and the majority of the Marina-Ord Area (CH2M, 2004).

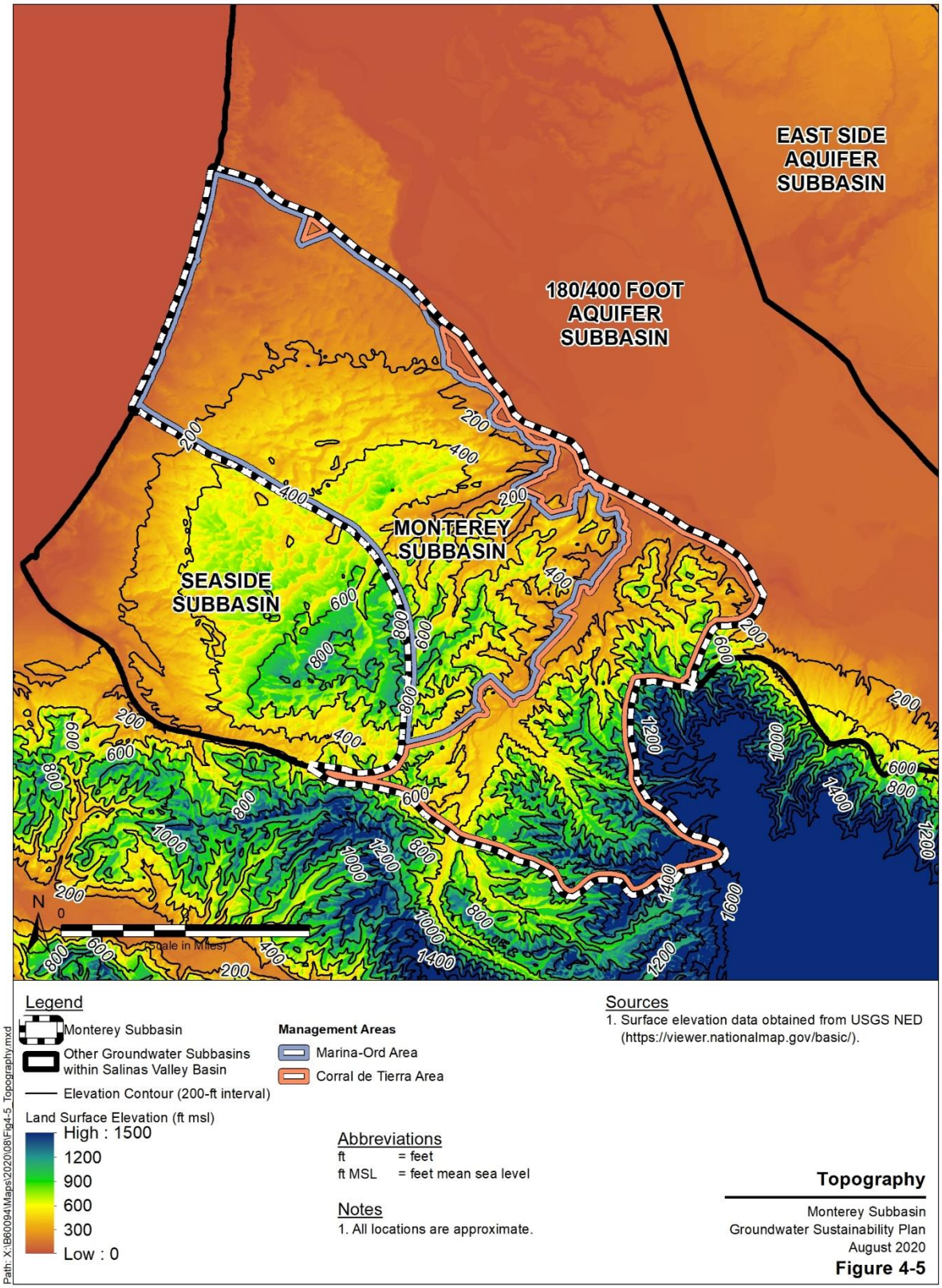
The topography of the southeastern uplands area is characterized by low hills and small sub-watersheds with well-defined drainages. Runoff from these areas is northeastward towards the Salinas River Valley by way of El Toro Creek or other smaller tributaries.

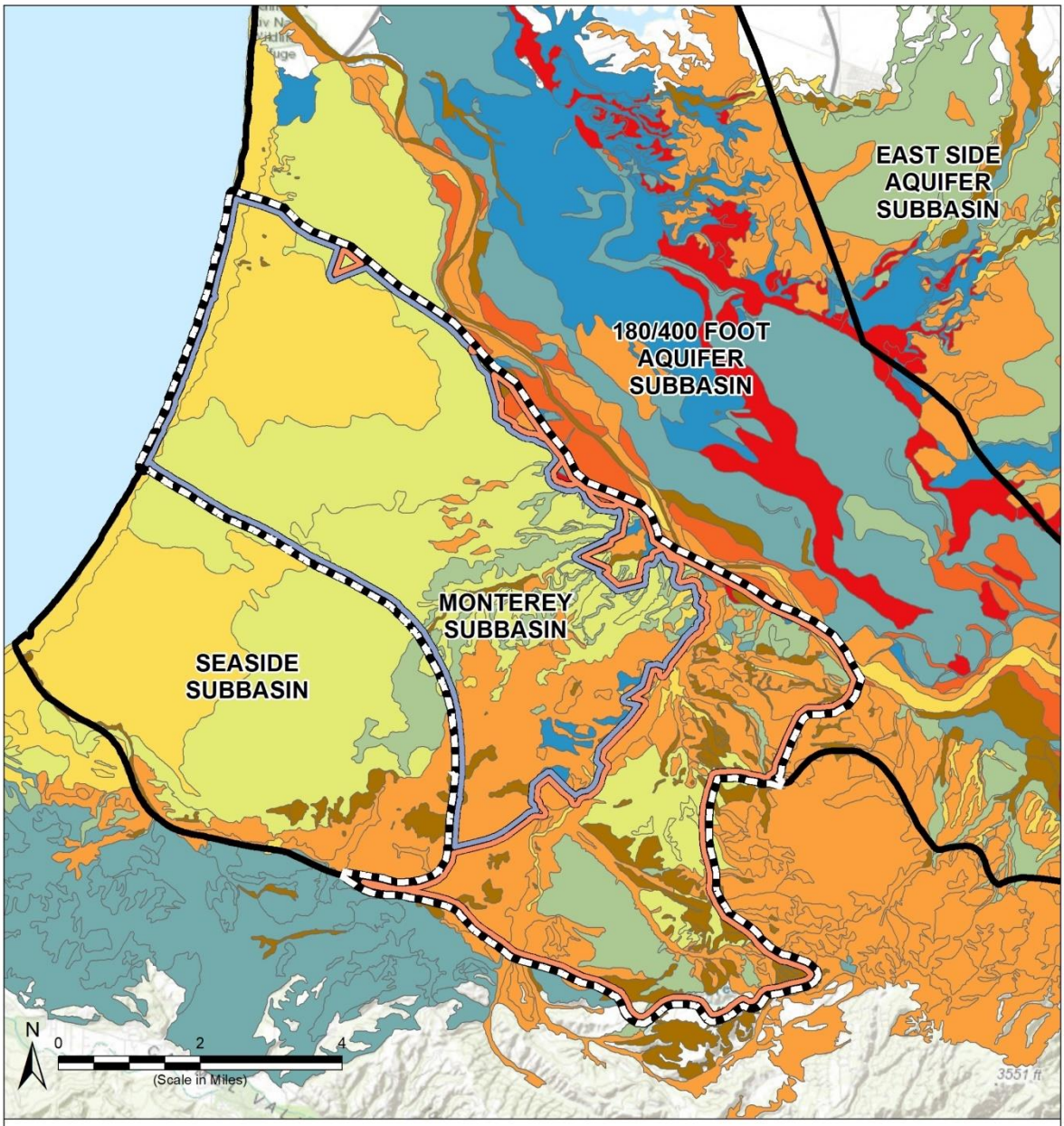
4.1.3.2 *Soil Characteristics*

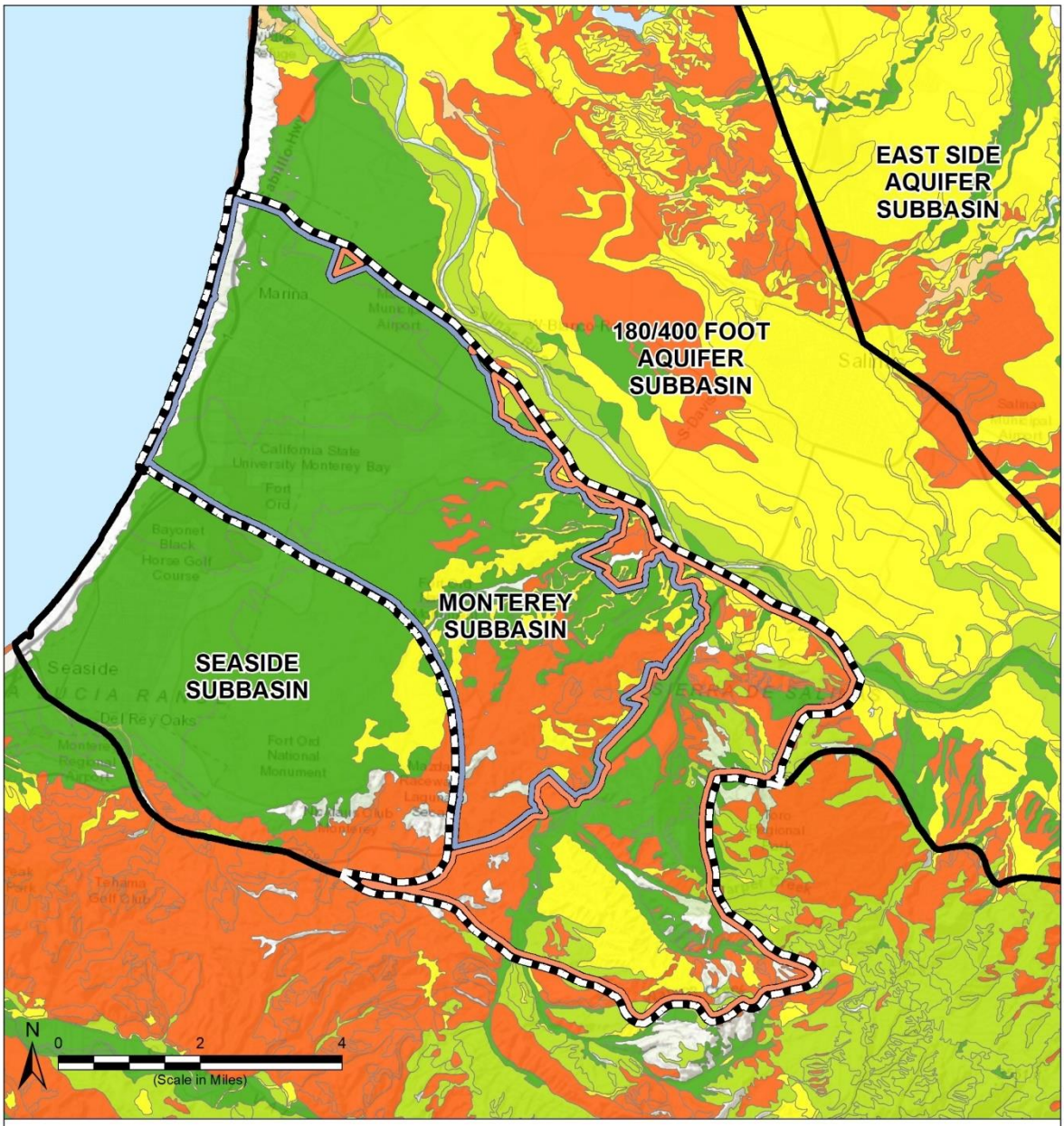
The soils of the Subbasin are derived from the underlying geologic formations and influenced by the historical and current patterns of climate and hydrology. Soil types can influence groundwater recharge and are an important consideration for the siting of potential artificial recharge projects.

Soils within the Subbasin are shown on **Figure 4-6**, and are based on the U.S Department of Agriculture Natural Resources Conservation Service (USDA-NRCS) Soil Survey Geographic Database (SSURGO). Soils within the Subbasin are relatively coarse in texture, with the predominant types being sand, loamy sand, and fine sandy loam. Textures are generally coarser near the coast and finer to the south.

Figure 4-7 shows the infiltration potential of soils based on SSURGO's Hydrologic Soil Group designations. Soils within the subbasin are predominantly of Hydrologic Soil Group A in the coastal plain area, indicating high infiltration rates and low runoff potential. In the Fort Ord hills area, soils predominately belong to Hydrologic Soil Groups C and D, with below average and low infiltration rates, respectively, and moderately high and high runoff potential, respectively. A mix of Hydrologic Soil Groups A through D exist in the Corral de Tierra area east of El Toro Creek.


EAST SIDE AQUIFER SUBBASIN
180/400 FOOT AQUIFER SUBBASIN
MONTEREY SUBBASIN
SEASIDE SUBBASIN
N
0
Scale in Miles)
Legend
Monterey Subbasin
Other Groundwater Subbasins within Salinas Valley Basin
Elevation Contour (200-ft interval)
Land Surface Elevation (ft msl)
High : 1500
1200
900
600
300
Low : 0
Management Areas
Marina-Ord Area
Corral de Tierra Area
Abbreviations
ft = feet
ft MSL = feet mean sea level
Notes
1. All locations are approximate.
Sources
1. Surface elevation data obtained from USGS NED (https://viewer.nationalmap.gov/basic/).
Path: X:\B60094\Maps\2020\08\Fig4-5_Topography.mxd
Topography
Monterey Subbasin
Groundwater Sustainability Plan
August 2020
Figure 4-5


EAST SIDE
AQUIFER
SUBBASIN
180/400 FOOT
AQUIFER
SUBBASIN
MONTEREY
SUBBASIN
SEASIDE
SUBBASIN
N
0
2
4
(Scale in Miles)
3551 ft
Legend
Monterey Subbasin
Other Groundwater Subbasins within Salinas Valley Basin
Management Areas
Marina-Ord Area
Corral de Tierra
Soil Texture
Other
Clay
Clay Loam
Loam
Loamy Sand
Sand
Sandy Loam
Silt Loam
Silty Clay
Abbreviations
DWR = California Department of Water Resources
MCWD = Marina Coast Water District
SSURGO = Soil Survey Geographic Database
Notes
1. All locations are approximate.
2. Soil textures are based on map units extracted from SSURGO database (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx) and generalized into soil texture categories. Only the soil units of greatest extent are included in their own category. Additonal soil units grouped as "Other".
Sources
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 13 August 2020.
2. Soil data is obtained from SSURGO (https://gdg.sc.egov.usda.gov/GDGOrder.aspx#).
Soil Map Units
Monterey Subbasin
Groundwater Sustainability Plan
August 2020
Figure 4-6
Path: X:\B60094\Maps\2020\08\Fig4-6_SoilMapUnit.mxd



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Management Areas

- Marina-Ord Area
- Corral de Tierra

Hydrologic Soil Groups

- A: High Infiltration Rate
- A (Drained Areas) /D (Undrained Areas)
- B: Moderate Infiltration Rate
- C: Slow Infiltration Rate
- C (Drained Areas) /D (Undrained Areas)
- D: Very Slow Infiltration Rate
- Unspecified

Abbreviations
SSURGO = Soil Survey Geographic Database

Notes
1. All locations are approximate.
2. Hydrologic soil groups are per Source 2.

Sources
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 13 August 2020.
2. Soil data is obtained from SSURGO (https://gdg.sc.egov.usda.gov/GDGOrder.aspx#).

Path: X:\B60094\Maps\2020\08\Fig4-7_HydroSoilGroup.mxd

Hydrologic Soil Groups

Monterey Subbasin
Groundwater Sustainability Plan
August 2020

Figure 4-7

4.1.3.3 *Recharge and Discharge Areas*

Most of the Marina-Ord Area has good recharge potential for the Dune Sand Aquifer which subsequently recharges the underlying 180-Foot and 400-Foot Aquifers due to the high infiltration potential of the soils. This recharge is discussed further below in the general water quality section. There is uncertainty regarding the location and recharge mechanism for the Deep Aquifers (see discussion for each aquifer in Section 4.2.2). Additionally, due to the prevailing hydraulic gradient, the Subbasin currently receives inflow of seawater across the coastal northwestern boundary. Return flow from urban irrigation is not likely a significant source of recharge, and there are currently no artificial recharge projects within the Subbasin. Discharge of groundwater from the subbasin is predominantly through groundwater pumping from private and municipal supply wells, as well as groundwater remediation extraction wells.

Soils of varying infiltration potential exist in the Corral de Tierra area. Recharge from precipitation to the Aromas Sand/Paso Robles continental deposits and the Santa Margarita Sandstone in the southern Corral de Tierra Area is approximately 2 to 3 inches of the total annual precipitation (GeoSyntec, 2007; Fugro, 1996). This equals around 10 to 20 percent of average precipitation, which is approximately 16 inches of rain per year (Fugro, 1996). There is also a minimal volume of recharge from septic systems, and it is assumed that this recharge is to the shallow alluvial sediments (Yates, 2002). Recharge to the unnamed sandstone and conglomerate likely occurs in areas of higher elevation in the Sierra de Salinas south of the Monterey Subbasin (GeoSyntec, 2007).

Groundwater discharge to El Toro Creek causes the creek to flow perennially starting at a location below the Corral de Tierra Country Club, according to several previous investigations. Streamflow data for the period 1961 to 2002 from USGS gage 11152540, located north of San Benancio Rd, indicate a mean annual streamflow of 1,590 AFY (GeoSyntec, 2007). It has not been determined what portion of this mean annual streamflow is attributable to groundwater discharge and what portion is attributable to runoff.

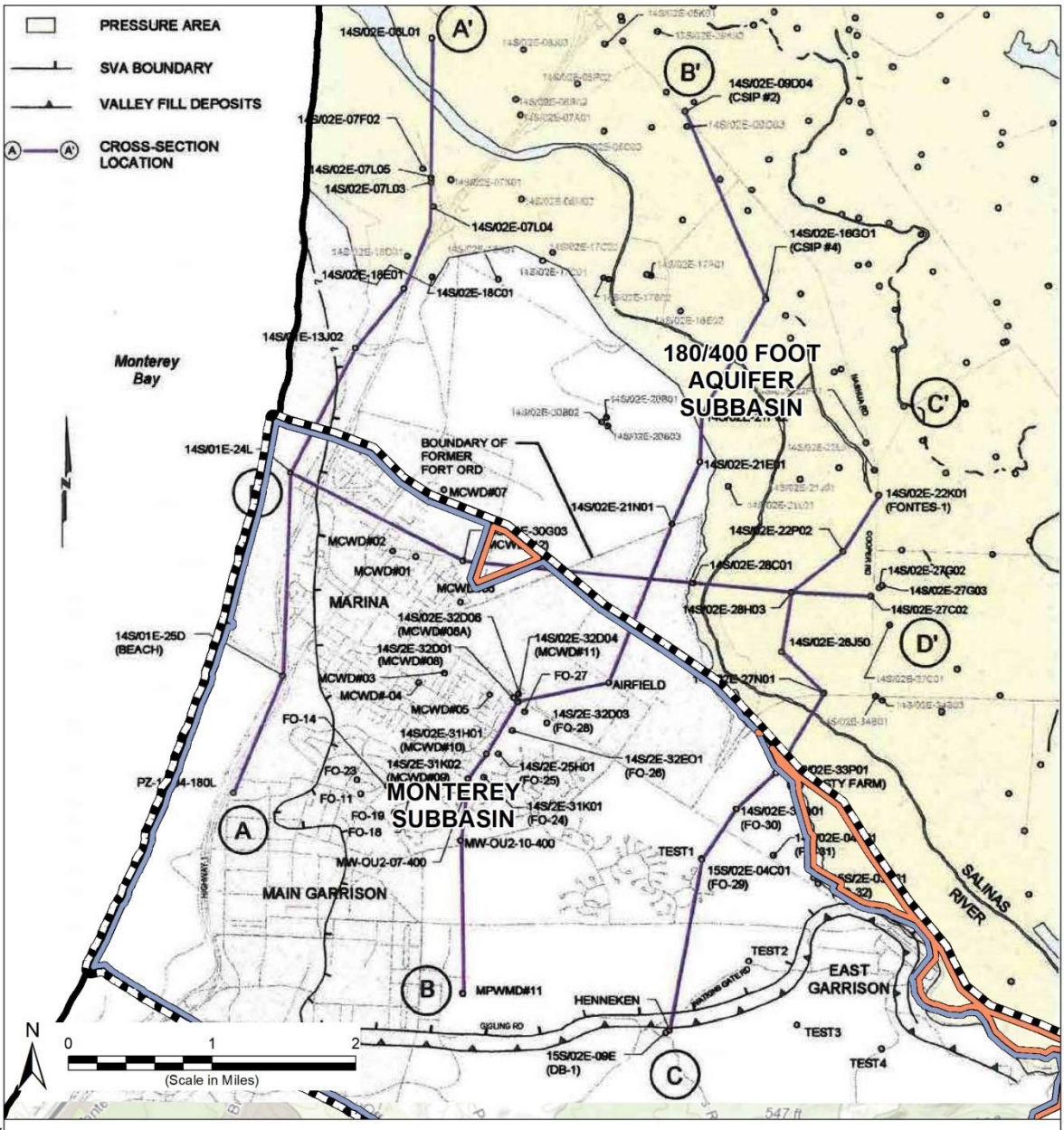
4.2 Subbasin Hydrogeology

The Monterey Subbasin is hydrostratigraphically complex and represents a transition zone between the more defined, laterally continuous aquifer system along the central axis of the Salinas Valley and the less continuous aquifer systems towards the Sierra de Salinas. Past hydrostratigraphic analyses of the Subbasin hav generally focused on areas where groundwater production and remediation activities have occurred, i.e., in the vicinity of the City of Marina, in the eastern portion of the former Fort Ord, and within the southern Corral de Tierra area. Limited subsurface information exists in the central portion of the basin (i.e. the BLM-managed Federal Land area). The description of the hydrogeology presented herein is based on best available information for the subbasin. Hydrogeologic information for the Marina-Ord Area and the Corral de Tierra Area are described independently given the uncertainty regarding the connections between the different aquifers and strata identified in these areas.

4.2.1 Cross Sections

4.2.1.1 *Cross Sections in the Marina-Ord Area*

Figure 4-8 through Figure 4-12 present cross-sections that illustrate the geologic setting and hydrostratigraphy beneath the Marina-Ord Area. These cross-sections are derived from *Hydrogeologic Investigation of the Salina Valley Basin in the Vicinity of the Fort Ord and Marina* (Harding ESE, 2001).



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Management Areas

- Marina-Ord Area
- Corral de Tierra

Notes

1. All locations are approximate.

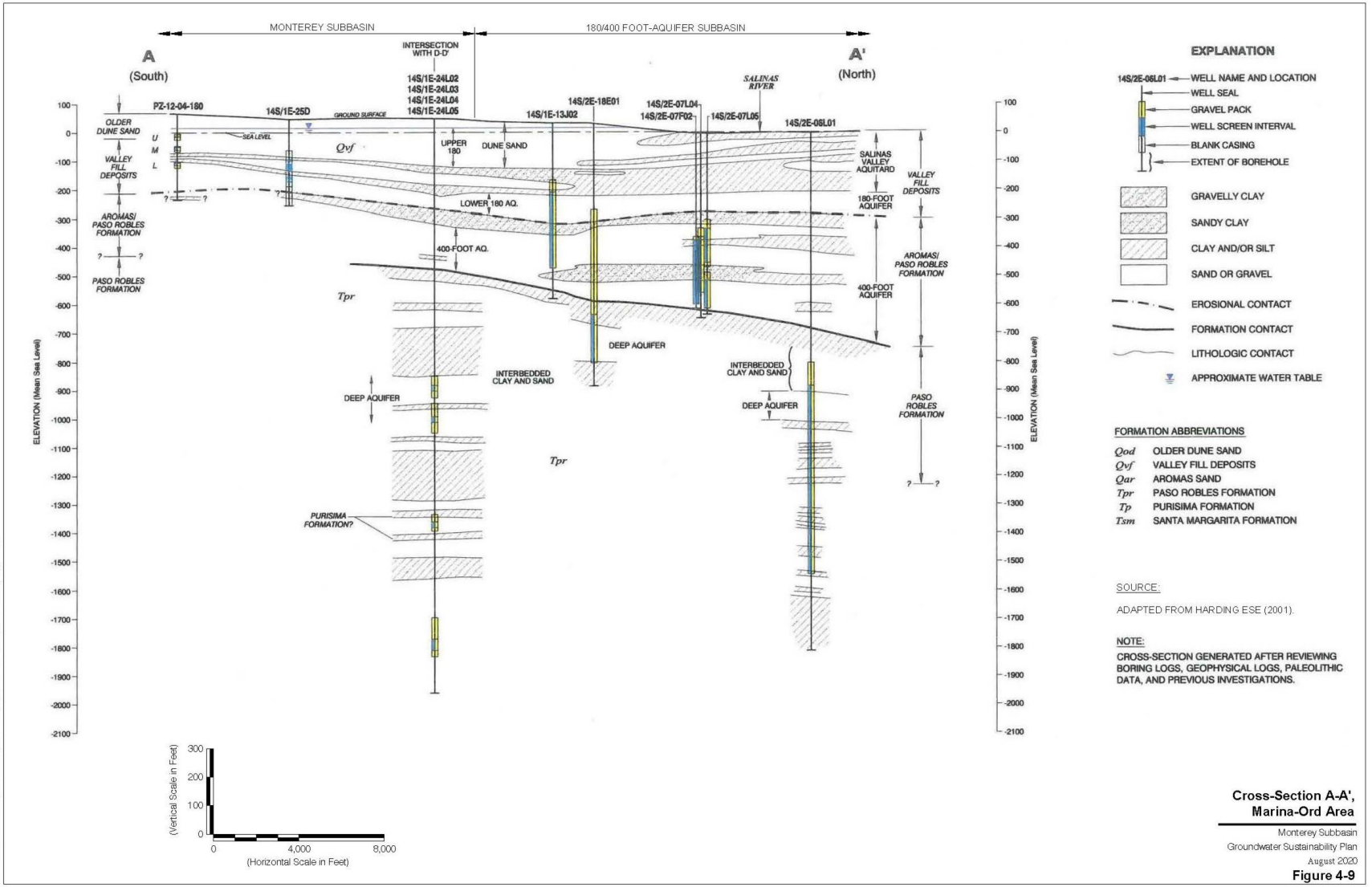
Sources

1. DWR groundwater basins are based on the boundaries defined in California's Groundwater, Bulletin 118 - 2018 Update.
2. Basemap adapted from Plate 2 of Harding ESE, 2001.

Cross-Section Locations

Monterey Subbasin
Groundwater Sustainability Plan
August 2020
Figure 4-8

Path: X:\B60094\Maps\2020\08\Fig4-8_CrossSectLocations.mxd

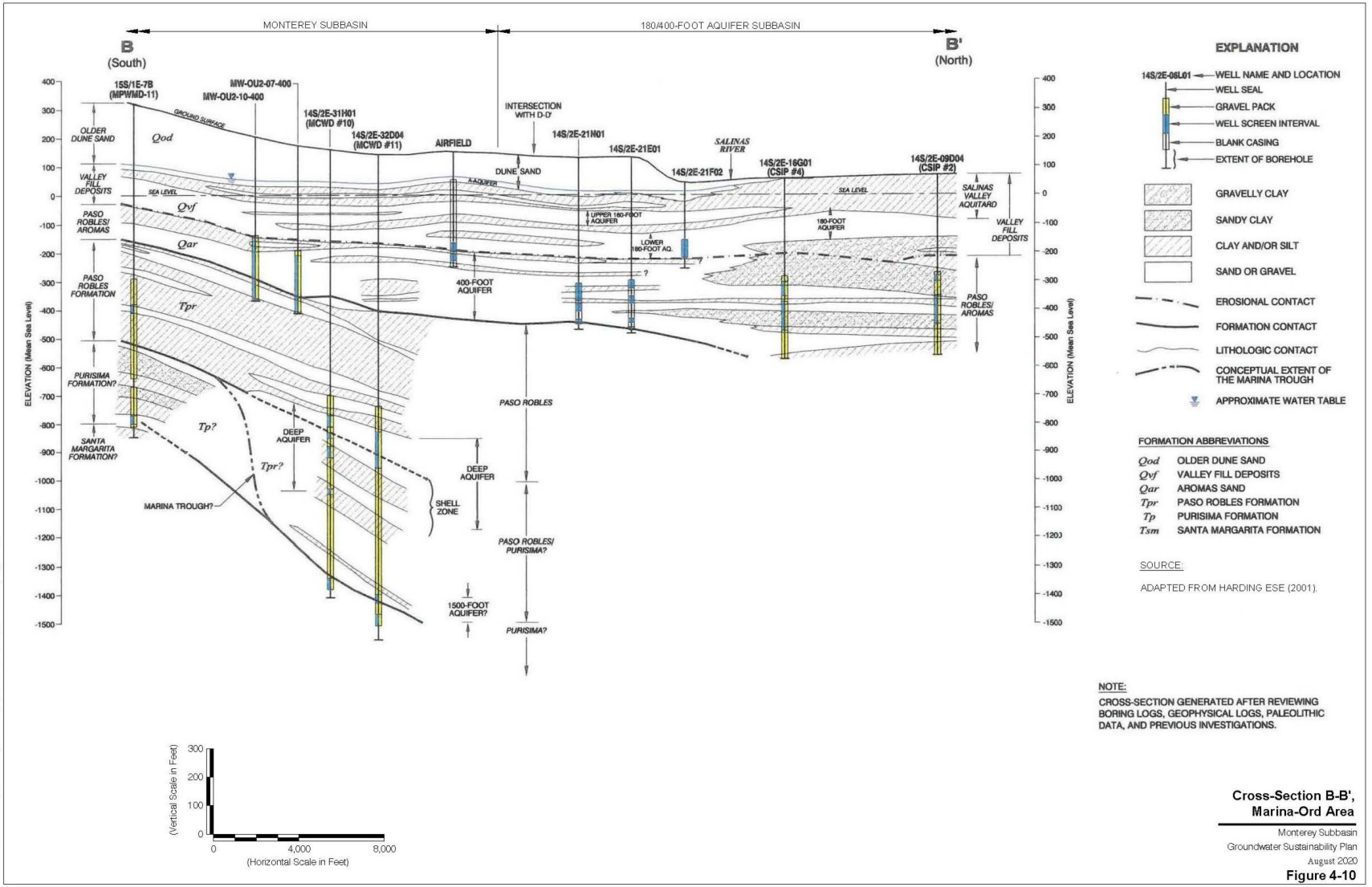


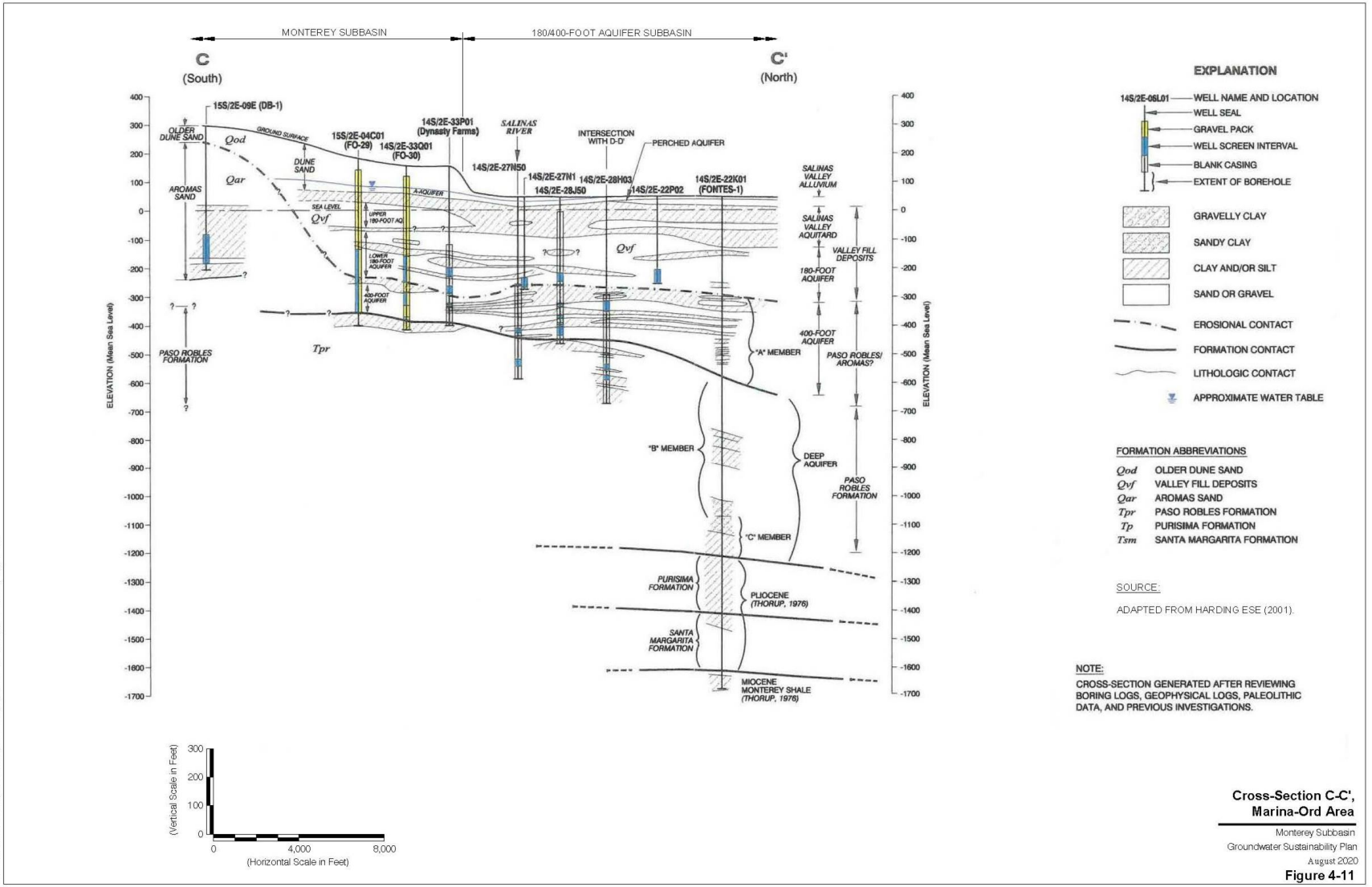
20200623 121603 G:\860094.03\2020-06\Figure 4-18 through 4-31.dwg Fig 4-18

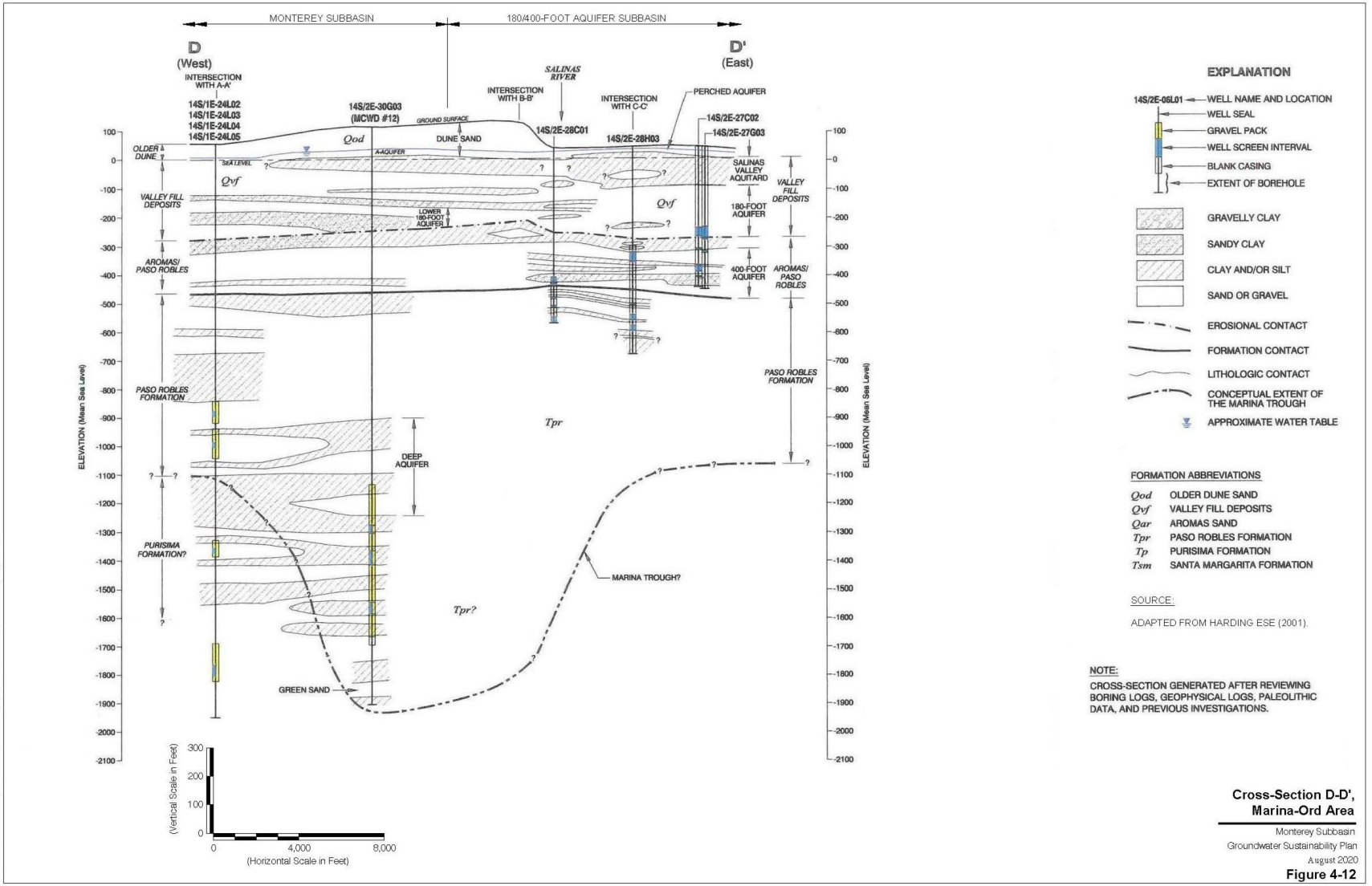
Cross-Section A-A', Marina-Ord Area

Monterey Subbasin
Groundwater Sustainability Plan
August 2020

Figure 4-9


MONTEREY SUBBASIN
180/400-FOOT AQUIFER SUBBASIN
B
(South)
B'
(North)
15S/1E-7B (MPWMD-11)
MW-OU2-07-400
MW-OU2-10-400
14S/2E-31H01 (MCWD #10)
14S/2E-32D04 (MCWD #11)
AIRFIELD
INTERSECTION WITH D-D'
14S/2E-21N01
14S/2E-21E01
SALINAS RIVER
14S/2E-21F02
14S/2E-16G01 (CSIP #4)
14S/2E-09D04 (CSIP #2)
GROUND SURFACE
SEA LEVEL
OLDER DUNE SAND
Qod
VALLEY FILL DEPOSITS
Qvf
PASO ROBLES/ AROMAS
Qar
PASO ROBLES FORMATION
Tpr
PURISIMA FORMATION?
Tp?
SANTA MARGARITA FORMATION?
Tpr?
MARINA TROUGH?
DUNE SAND
A-AQUIFER
UPPER 180-FOOT AQUIFER
LOWER 180-FOOT AQ.
180-FOOT AQUIFER
400-FOOT AQUIFER
DEEP AQUIFER
SHELL ZONE
PASO ROBLES
PASO ROBLES/ PURISIMA?
1500-FOOT AQUIFER?
PURISIMA?
SALINAS VALLEY AQUITARD
VALLEY FILL DEPOSITS
PASO ROBLES/ AROMAS
ELEVATION (Mean Sea Level)
(Vertical Scale in Feet)
(Horizontal Scale in Feet)
EXPLANATION
14S/2E-06L01
WELL NAME AND LOCATION
WELL SEAL
GRAVEL PACK
WELL SCREEN INTERVAL
BLANK CASING
EXTENT OF BOREHOLE
GRAVELLY CLAY
SANDY CLAY
CLAY AND/OR SILT
SAND OR GRAVEL
EROSIONAL CONTACT
FORMATION CONTACT
LITHOLOGIC CONTACT
CONCEPTUAL EXTENT OF THE MARINA TROUGH
APPROXIMATE WATER TABLE
FORMATION ABBREVIATIONS
Qod OLDER DUNE SAND
Qvf VALLEY FILL DEPOSITS
Qar AROMAS SAND
Tpr PASO ROBLES FORMATION
Tp PURISIMA FORMATION
Tsm SANTA MARGARITA FORMATION
SOURCE:
ADAPTED FROM HARDING ESE (2001).
NOTE:
CROSS-SECTION GENERATED AFTER REVIEWING BORING LOGS, GEOPHYSICAL LOGS, PALEOLITHIC DATA, AND PREVIOUS INVESTIGATIONS.
Cross-Section B-B', Marina-Ord Area
Monterey Subbasin
Groundwater Sustainability Plan
August 2020
Figure 4-10
20200623.121603 G:\860094.03\2020-06\Figure 4-18 through 4-31.dwg Fig 4-18

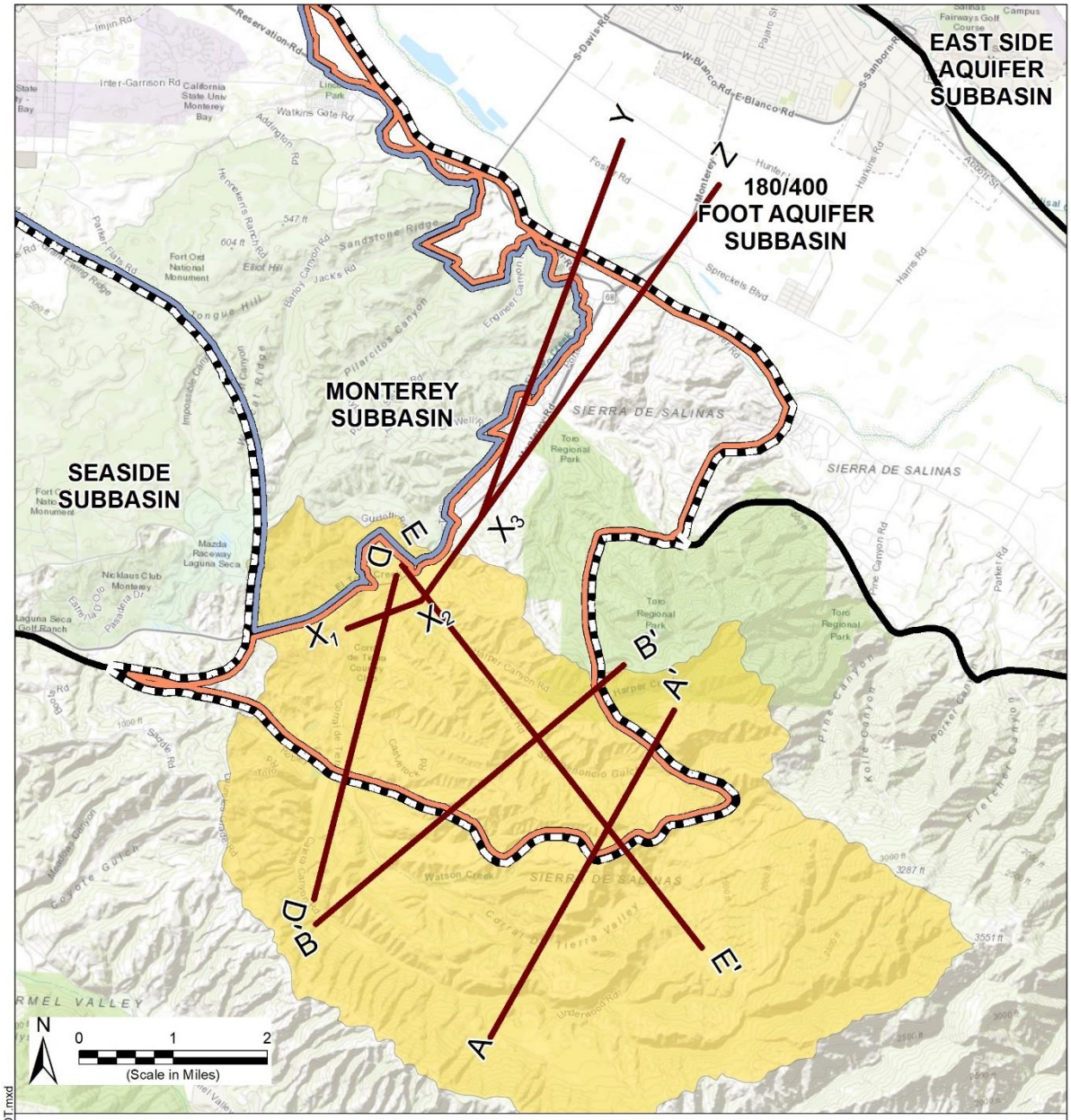

MONTEREY SUBBASIN
180/400-FOOT AQUIFER SUBBASIN
C
(South)
C'
(North)
15S/2E-09E (DB-1)
OLDER DUNE SAND
Qod
GROUND SURFACE
15S/2E-04C01 (FO-29)
14S/2E-33Q01 (FO-30)
14S/2E-33P01 (Dynasty Farms)
SALINAS RIVER
INTERSECTION WITH D-D'
PERCHED AQUIFER
DUNE SAND
Qar
AROMAS SAND
SEA LEVEL
Qvf
A-AQUIFER
UPPER 180-FOOT AQ
LOWER 180-FOOT AQUIFER
400-FOOT AQUIFER
14S/2E-27N50
14S/2E-27N1
14S/2E-28J50
14S/2E-28H03
14S/2E-22P02
14S/2E-22K01 (FONTES-1)
SALINAS VALLEY ALLUVIUM
SALINAS VALLEY AQUITARD
VALLEY FILL DEPOSITS
180-FOOT AQUIFER
400-FOOT AQUIFER
PASO ROBLES/ AROMAS?
PASO ROBLES FORMATION
Tpr
"A" MEMBER
"B" MEMBER
DEEP AQUIFER
PASO ROBLES FORMATION
"C" MEMBER
PURISIMA FORMATION
PLIOCENE (THORUP, 1976)
SANTA MARGARITA FORMATION
MIOCENE MONTEREY SHALE (THORUP, 1976)
ELEVATION (Mean Sea Level)
(Vertical Scale in Feet)
(Horizontal Scale in Feet)
0
4,000
8,000
EXPLANATION
14S/2E-06L01
WELL NAME AND LOCATION
WELL SEAL
GRAVEL PACK
WELL SCREEN INTERVAL
BLANK CASING
EXTENT OF BOREHOLE
GRAVELLY CLAY
SANDY CLAY
CLAY AND/OR SILT
SAND OR GRAVEL
EROSIONAL CONTACT
FORMATION CONTACT
LITHOLOGIC CONTACT
APPROXIMATE WATER TABLE
FORMATION ABBREVIATIONS
Qod OLDER DUNE SAND
Qvf VALLEY FILL DEPOSITS
Qar AROMAS SAND
Tpr PASO ROBLES FORMATION
Tp PURISIMA FORMATION
Tsm SANTA MARGARITA FORMATION
SOURCE:
ADAPTED FROM HARDING ESE (2001).
NOTE:
CROSS-SECTION GENERATED AFTER REVIEWING BORING LOGS, GEOPHYSICAL LOGS, PALEOLITHIC DATA, AND PREVIOUS INVESTIGATIONS.
Cross-Section C-C', Marina-Ord Area
Monterey Subbasin
Groundwater Sustainability Plan
August 2020
Figure 4-11
20200623.121603 G:\860094.03\2020-06\Figure 4-18 through 4-31.dwg Fig 4-18

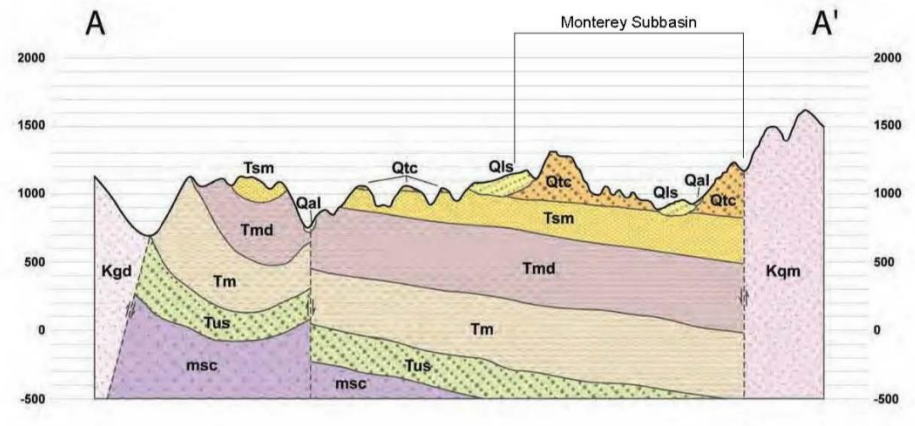

MONTEREY SUBBASIN
180/400-FOOT AQUIFER SUBBASIN
D
(West)
D'
(East)
INTERSECTION WITH A-A'
INTERSECTION WITH B-B'
INTERSECTION WITH C-C'
SALINAS RIVER
PERCHED AQUIFER
14S/1E-24L02
14S/1E-24L03
14S/1E-24L04
14S/1E-24L05
14S/2E-30G03 (MCWD #12)
14S/2E-28C01
14S/2E-28H03
14S/2E-27C02
14S/2E-27G03
GROUND SURFACE
SEA LEVEL
A-AQUIFER
LOWER 180-FOOT AQUIFER
OLDER DUNE
VALLEY FILL DEPOSITS
AROMAS/ PASO ROBLES
PASO ROBLES FORMATION
PURISIMA FORMATION?
DUNE SAND
SALINAS VALLEY AQUITARD
180-FOOT AQUIFER
400-FOOT AQUIFER
DEEP AQUIFER
GREEN SAND
MARINA TROUGH?
Qod
Qvf
Tpr
Tpr?
ELEVATION (Mean Sea Level)
(Vertical Scale in Feet)
(Horizontal Scale in Feet)
EXPLANATION
WELL NAME AND LOCATION
WELL SEAL
GRAVEL PACK
WELL SCREEN INTERVAL
BLANK CASING
EXTENT OF BOREHOLE
GRAVELLY CLAY
SANDY CLAY
CLAY AND/OR SILT
SAND OR GRAVEL
EROSIONAL CONTACT
FORMATION CONTACT
LITHOLOGIC CONTACT
CONCEPTUAL EXTENT OF THE MARINA TROUGH
APPROXIMATE WATER TABLE
FORMATION ABBREVIATIONS
Qod OLDER DUNE SAND
Qvf VALLEY FILL DEPOSITS
Qar AROMAS SAND
Tpr PASO ROBLES FORMATION
Tp PURISIMA FORMATION
Tsm SANTA MARGARITA FORMATION
SOURCE:
ADAPTED FROM HARDING ESE (2001).
NOTE:
CROSS-SECTION GENERATED AFTER REVIEWING BORING LOGS, GEOPHYSICAL LOGS, PALEOLITHIC DATA, AND PREVIOUS INVESTIGATIONS.
Cross-Section D-D', Marina-Ord Area
Monterey Subbasin
Groundwater Sustainability Plan
August 2020
Figure 4-12
20200623.121603 G:\860094.03\2020-06\Figure 4-18 through 4-31.dwg Fig 4-18

4.2.1.2 *Cross Sections in the Corral de Tierra Area*

Figure 4-13 through Figure 4-18 present cross-sections that illustrate the geologic setting beneath the Corral de Tierra Area as well as a geologic map of the area that shows the geologic formations present at ground surface. The legends in each of the figures presents the age sequence of the geologic materials from the youngest unconsolidated Quaternary sediments to the oldest pre-Cretaceous basement rock where it may be present.

The cross-sections for the Corral de Tierra Area are derived from the *El Toro Groundwater Study* (GeoSyntec, 2007) and the *Supplement to the El Toro Study* (GeoSyntec, 2010). These cross-sections illustrate the faulted and warped geologic features of the area.


EAST SIDE AQUIFER SUBBASIN
180/400 FOOT AQUIFER SUBBASIN
MONTEREY SUBBASIN
SEASIDE SUBBASIN
SIERRA DE SALINAS
Y
Y'
N
N'
X1
X2
X3
D
E
B
B'
A
A'
D'
E'
N
0
1
2
(Scale in Miles)
Legend
Monterey Subbasin
Other Groundwater Subbasins within Salinas Valley Basin
Management Areas
Marina-Ord Area
Corral de Tierra Area
Cross-Section Locations
El Toro Planning Area (Note
Sources
1. DWR groundwater basins are based on the boundaries defined in California's Groundwater, Bulletin 118 - 2018 Update.
2. Basemap adapted from Plate 2 of Harding ESE, 2001.
Notes
1. All locations are approximate.
2. Area of interest of the 2007 El Toro Groundwater Study (Geosyntec, 2007).
Cross-Section Locations
Corral de Tierra Area
Monterey Subbasin
Groundwater Sustainability Plan
December 2020
Figure 4-13
Path: X:\B60094\Maps\2020\12\Fig4-13_CrossSectLocations_CDT.mxd

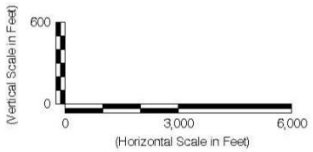


Legend:

- Qal - Alluvial Deposits
- Qls - Landslide Deposits
- Qtc - Continental Deposits (Aromas - Paso Robles)
- Tsm - Santa Margarita*
- Tmd - Monterey Formation (Upper Formation)
- Tm - Monterey Formation (Lower Formation)
- Tus - Basal Sands
- Kgd - Granodiorite
- Kqm - Garnetiferous Quartz Monzonite
- msu - Schist

* El Toro Primary Aquifer System

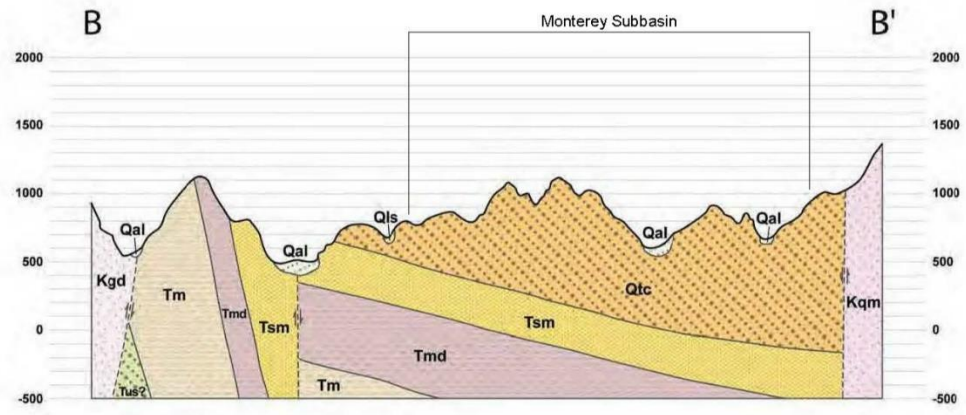
Source:
Adapted from GeoSyntec (2007).



Cross-Section A-A', Corral de Tierra Area

Monterey Subbasin
Groundwater Sustainability Plan
December 2020
Figure 4-14

20200623.121603 G:\B60294.03\2020-09\Figure 4-18 through 4-31.dwg Fig 4-18



Legend:

- Qal - Alluvial Deposits
- Qls - Landslide Deposits
- Qtc - Continental Deposits (Aromas - Paso Robles)
- Tsm - Santa Margarita*
- Tmd - Monterey Formation (Upper Formation)
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- Tus - Basal Sands
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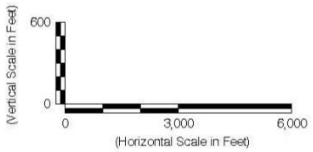
- msu - Schist

* El Toro Primary Aquifer System

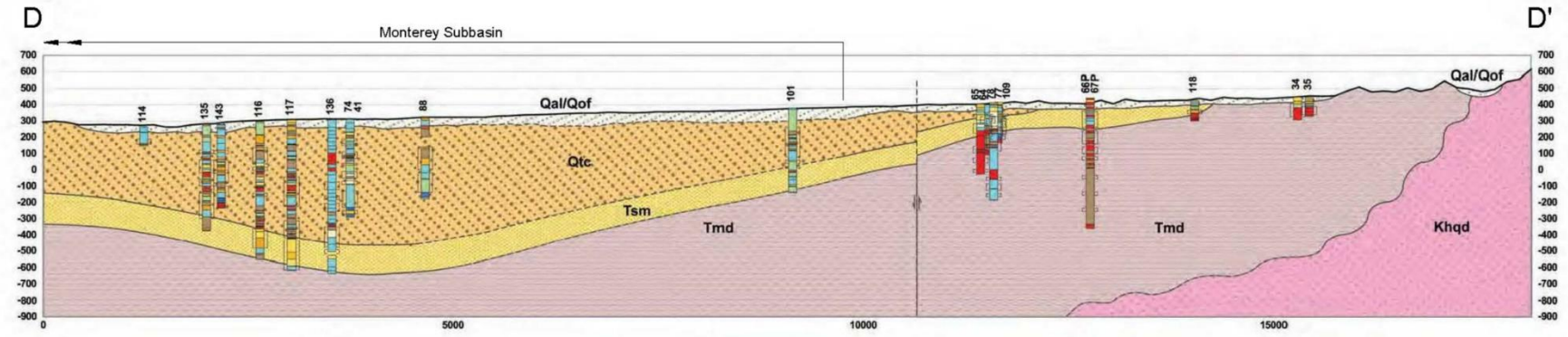
Source:
Adapted from GeoSyntec (2007).



Cross-Section B-B', Corral de Tierra Area

Monterey Subbasin
Groundwater Sustainability Plan
December 2020
Figure 4-15

20200623.121603 G:\B60294.03\2020--06\Figure 4--18 through 4--31.dwg Fig 4--18



Legend

- Qal - Alluvial Deposits
- Qtc - Continental Deposits (Aromas - Paso Robles)*
- Tsm - Santa Margarita*
- Tmd - Monterey Formation
- Tus - Basal sands
- Khqd - Granite

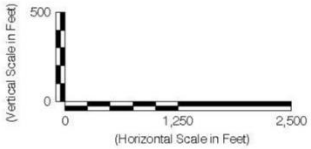
* El Toro Primary Aquifer System

Key To Boring Log

- 26 Well Name
- Boring Log
- Well Screen Interval
- P Projected onto Cross-section

Key To Boring Log Classifications

- COARSE GRAVEL/SAND
- GRAVEL
- BOULDERS
- COBBLES
- GRAVEL/SAND
- TOPSOIL
- SAND
- SAND, BLUE
- SAND, RED
- SAND,WHITE
- SAND, YELLOW
- COARSE SAND
- FINE SAND
- QUICKSAND
- SEDIMENT
- SANDSTONE
- GRAVEL/CLAY
- GRAVELLY CLAY
- GRAVEL/ROCKS/CLAY
- SANDY BLUE CLAY
- SAND/GRAVEL/CLAY
- SAND/CLAY
- SANDY CLAY
- ADOBE
- DECOMPOSED GRANITE
- CLAY, BLUE
- CLAY, BROWN
- CLAY, RED
- CLAY, WHITE
- CLAY, YELLOW
- CLAY
- SHALE
- GRANITE
- BEDROCK
- HARD HILL
- SEEPAGE

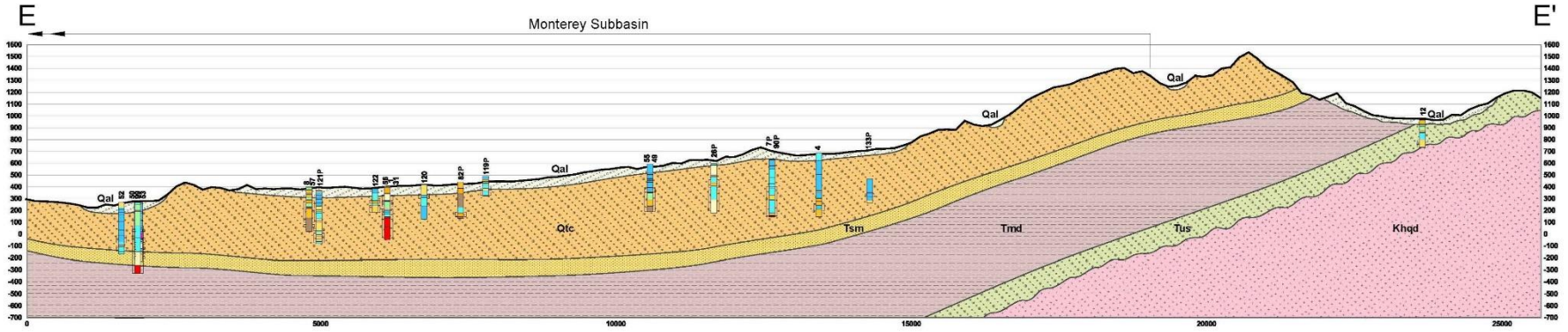


Source:
Adapted from GeoSyntec (2007).

Cross-Section D-D', Corral de Tierra Area

Monterey Subbasin
Groundwater Sustainability Plan
December 2020
Figure 4-16

20210623.121603 C:\860094.031\2020-061\Figure 4-18 through 4-31.dwg Fig 4-18



Legend

- Qal - Alluvial Deposits
- Qtc - Continental Deposits (Aromas - Paso Robles)*
- Tsm - Santa Margarita*
- Tmd - Monterey Formation
- Tus - Basal sands
- Khqd - Granite

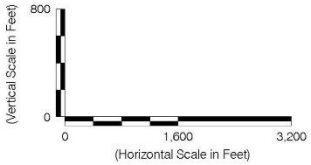
* El Toro Primary Aquifer System

Key To Boring Log

- 26 Well Name
- Boring Log
- Well Screen Interval
- P Projected onto Cross-section

Key To Boring Log Classifications

COARSE GRAVEL/SAND	SAND,WHITE	GRAVEL/ROCKS/CLAY	CLAY, RED
GRAVEL	SAND, YELLOW	SANDY BLUE CLAY	CLAY, WHITE
BOULDERS	COARSE SAND	SAND/GRAVEL/CLAY	CLAY, YELLOW
COBBLES	FINE SAND	SAND/CLAY	CLAY
GRAVEL/SAND	QUICKSAND	SANDY CLAY	SHALE
TOPSOIL	SEDIMENT	ADOBE	GRANITE
SAND	SANDSTONE	DECOMPOSED GRANITE	BEDROCK
SAND, BLUE	GRAVEL/CLAY	CLAY, BLUE	HARD HILL
SAND, RED	GRAVELLY CLAY	CLAY, BROWN	SEEPAGE

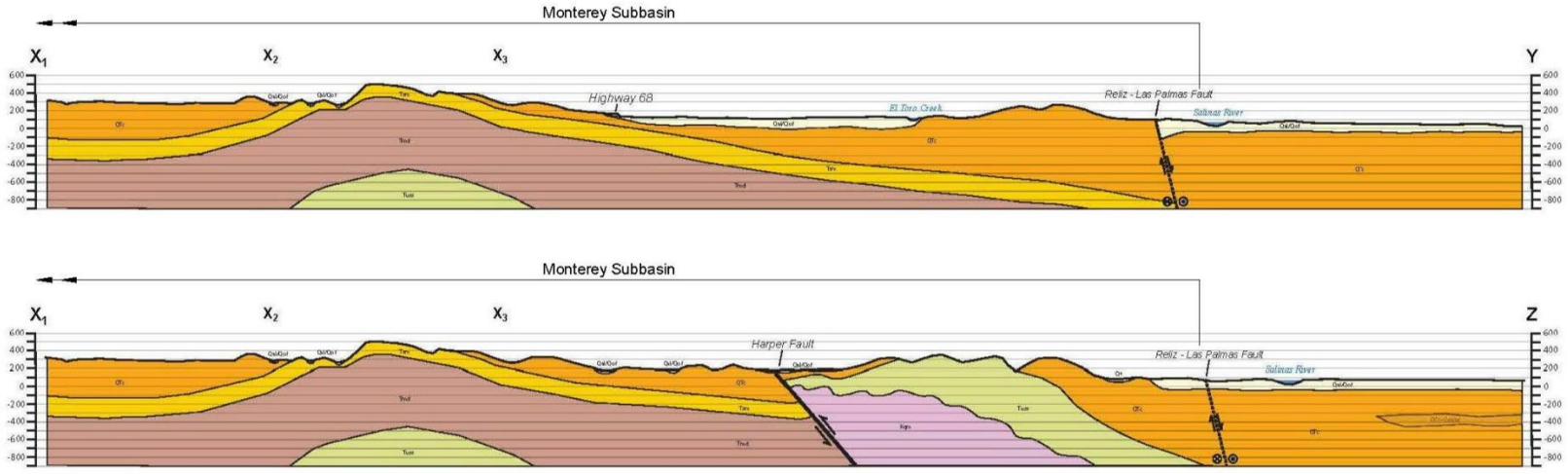


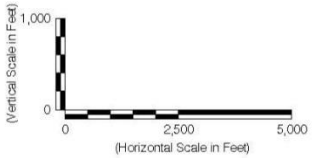
Source:
Adapted from GeoSyntec (2007).

Cross-Section E-E', Corral de Tierra Area

Monterey Subbasin
Groundwater Sustainability Plan
December 2020
Figure 4-17

20200923.121603 G:\860294.031_2020-06\Figure 4-18 through 4-31.dwg Fig 4-18





Source:
Adapted from GeoSyntec (2010).

Cross-Sections X-Y and X-Z
Corral de Tierra Area

Monterey Subbasin
Groundwater Sustainability Plan
December 2020
Figure 4-18

20200623.121603 G:\B60294.03\2020-06\Figure 4-18 through 4-31.dwg Fig 4-18

4.2.2 Principal Aquifers and Aquitards

Hydrostratigraphy in the Marina-Ord Area consists of a series of laterally continuous aquifers consistent with the aquifers that form the distinguishing features of the northern Salinas Valley. The aquifers that have historically been identified in the Marina-Ord Area in previous reports include the unconfined Dune Sand Aquifer and the confined aquifers known as the 180-Foot Aquifer, the 400-Foot Aquifer, and the Deep Aquifers. Within the southern Corral de Tierra area, the aquifers have historically been described by their geologic names, such as the Aromas Sand, Paso Robles Formation, and Santa Margarita Sandstone (Geosyntec, 2007; Yates 2005). Based on best available information, these geologic formations are grouped together to form the El Toro Primary Aquifer System for the Corral de Tierra Area, which is described in more detail below. These geologic formations also comprise portions of the 400-Foot Aquifer and the Deep Aquifers in the northern Salinas Valley including the Marina-Ord Area. Even though the geology is the foundation for the principal aquifers of the subbasin, the principal aquifers are not solely determined by the geologic formations. These relationships will be described in more detail in the sections below.

The following set of principal aquifers are defined in the Monterey Subbasin:

- Dune Sand Aquifer
- Fort-Ord/Salinas Valley Aquitard
- 180-Foot Aquifer
- 180/400-Foot Aquitard
- 400-Foot Aquifer
- 400-Foot/Deep Aquitard
- Deep Aquifers
- El Toro Primary Aquifer System

Not all of these principal aquifers occur across the entire Monterey Subbasin due to the complex geologic setting present. The Dune Sand and 180-Foot Aquifers are generally not present in the Corral de Tierra Area, although they are present in the Marina-Ord area. In the Marina-Ord area the 180-Foot Aquifer is connected to the 180-Foot Aquifer in the 180/400-Foot Aquifer Subbasin. The Paso Robles, Santa Margarita, and Purisima Formations are generally present across the whole subbasin, even though the correlated principal aquifers are not. These formations and correlated principal aquifers are also in connection with the equivalent principal aquifers in the 180/400-Foot and Seaside Subbasins. The geologic and hydrostratigraphic transition between Marina-Ord and Corral de Tierra areas through former Fort Ord is not well studied or understood.

4.2.2.1 *Marina-Ord Area*

The principal aquifer and aquitard designations and relationships to geologic formations are illustrated in Table 4-1. This table is based on the 2017 Monterey County Water Resources Agency's *Recommendations*

to address the expansion of seawater intrusion in the Salinas Valley groundwater basin report, but has been modified to reflect specific hydrogeologic conditions and relationships within the subbasin (Harding ESE, 2001; Rosenberg & Feeney, 2003).

Table 4-1. Generalized Geologic-Hydrogeologic Relationships

<table>
<tr><th>Period/Epoch</th><th>Geological Unit</th><th>Principal Aquifers and Aquitards</th></tr>
<tr><td>Holocene</td><td>Recent Dune Sand (Qd)
Older Dune Sand (Qod)</td><td>Dune Sand Aquifer</td></tr>
<tr><td rowspan="6">Pleistocene</td><td rowspan="2">Old Alluvium / Valley Fill Deposits (Qo/Qvf)</td><td>Fort Ord-Salinas Valley Aquitard</td></tr>
<tr><td rowspan="2">180-Foot Aquifer</td></tr>
<tr><td rowspan="2">Aromas Sand (Qae)</td></tr>
<tr><td>180/400-Foot Aquitard</td></tr>
<tr><td rowspan="2">Paso Robles Formation (QT)</td><td rowspan="2">400-Foot Aquifer</td></tr>
<tr><td>400-Foot/Deep Aquitard</td></tr>
<tr><td rowspan="2">Pliocene</td><td>Purisima Formation (Ppu)</td><td rowspan="3">Deep Aquifers</td></tr>
<tr><td rowspan="2">Santa Margarita Formation (Msm)</td></tr>
<tr><td rowspan="2">Miocene</td></tr>
<tr><td>Monterey Formation (</td><td>N/A
(Minimally Water-Bearing)</td></tr>
</table>

4.2.2.1.1 Dune Sand Aquifer

The Dune Sand Aquifer is composed of fine to medium, well sorted dune sands of Holocene age (Ahtna Engineering, 2013). The Dune Sand Aquifer is also sometimes referred to as the “A-Aquifer” beneath Fort Ord (Harding Lawson Associates (HLA, 1994; Jordan et al., 2005; Harding ESE, 2001). Groundwater in the Dune Sand Aquifer is unconfined. The aquifer is perched away from the coast, in areas where the Fort Ord-Salinas Valley Aquitard (FO-SVA) exists and groundwater in the 180-Foot Aquifer has fallen below the bottom elevation of the FO-SVA. It is hydraulically connected to the underlying 180-Foot Aquifer in areas nearer to the coast. The average saturated thickness of the Dune Sand Aquifer is approximately 50 feet. As shown on **Figure 4-7**, the sandy soils of this aquifer have high infiltration potential.

A north-south trending groundwater divide exists in the Dune Sand Aquifer. West of the groundwater divide, groundwater in the Dune Sand Aquifer flows westward and both recharges the 180-Foot Aquifer

and flows to the Pacific Ocean near the edge of the FO-SVA. Water from the Dune Sand Aquifer that recharges the 180-Foot Aquifer flows in response to gradients in the 180-Foot Aquifer, which is currently eastward (i.e. inland). East of the groundwater divide, groundwater in the Dune Sand Aquifer flows northeastward towards the Salinas River. A conceptual model of this groundwater flow is shown on Figure 4-19 below.

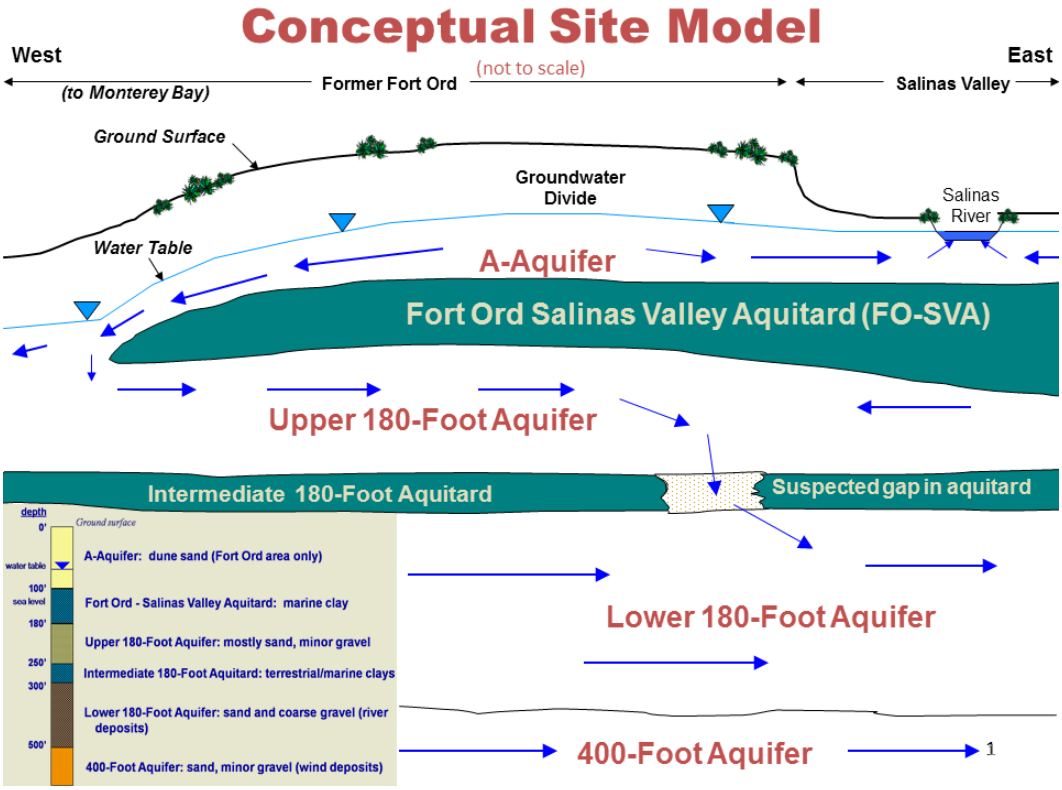


Figure 4-19. Conceptual Model of Principal Aquifers in the Marina-Ord Area

This aquifer is recharged primarily by rainfall infiltration and in turn provides a source of deep percolation into the upper 180-Foot aquifer and eventually into the lower 180-Foot and 400-Foot Aquifers in the Monterey Subbasin (HLA, 1994).

Extraction and infiltration activities associated with remediation in the former Fort Ord take place within the Dune Sand Aquifer.

4.2.2.1.2 Fort Ord-Salinas Valley Aquitard

The Fort Ord-Salinas Valley Aquitard (FO-SVA) is an aquitard composed of laterally extensive blue or yellow sandy clay layers with minor interbedded sand layers (Harding ESE, 2001; DWR, 2003). The FO-SVA generally correlates to the Pleistocene Older Alluvium stratigraphic unit, which is shown as Valley Fill. The FO-SVA was deposited in a shallow sea during a period of relatively high sea level. Harding ESE noted that the FO-SVA beneath the former Fort Ord may be formed under a different depositional event than the Salinas Valley Aquitard (SVA) unit beneath the Salinas Valley (e.g. estuarine deposits vs. flood plain deposits). However, the two clay units are hydraulically equivalent (Harding ESE, 2001).

The FO-SVA is generally encountered at depths of less than 150 feet. While this clay layer is relatively continuous in the northern portion of the Valley, it is not monolithic across the subbasin. The clay layer is missing in some areas and pinches out in certain areas.

Within the Subbasin, the FO-SVA is continuous beneath the City of Marina and most of Fort Ord (Harding ESE, 2001; Kennedy/Jenks, 2004; Ahtna Engineering, 2013; MACTEC, 2006). The extent of the FO-SVA is illustrated on Figure 4-20. The FO-SVA thins towards the Monterey Subbasin/Seaside Subbasin boundary as well as toward the coast, where it appears to pinch out near Highway 1 (Harding ESE, 2001). The thinning and pinching out of the FO-SVA in these locations increases the vertical hydraulic connection between the Dune Sand Aquifer and underlying 180-Foot Aquifer.

4.2.2.1.3 180-Foot Aquifer

The FO-SVA generally overlies and confines the 180-Foot Aquifer. The 180-Foot Aquifer consists of interconnected sand and gravel beds that are from 50 to 150 feet thick. The sand and gravel layers of this aquifer are interlayered with clay lenses (Ahtna Engineering, 2013). This aquifer is correlated to the Older Alluvium (Valley Fill) or upper Aromas Sand formations (Harding ESE, 2001; Kennedy-Jenks, 2004; Ahtna Engineering, 2013).

The gravels, sands, and interspersed clays of the 180-Foot Aquifer are found in the vicinity of the City of Marina and extend a short distance southwest beyond the extent of the FO-SVA (HLA, 1994). Beneath the ocean, the sediments "extend to submarine outcrops on the floor and canyon walls of Monterey Bay (Harding ESE, 2001; Todd Engineers, 1989; Greene, 1977; DWR, 1946). As discussed above, the aquifer is confined where overlain by the FO-SVA. It may become unsaturated where groundwater elevation is lower than the bottom elevation of the FO-SVA, or unconfined where the FO-SVA pinches out. The 180-Foot Aquifer is found generally at depths between 100 and 400 ft bgs beneath the Marina-Ord Area, with varying thickness.

South of the City of Marina, in a portion of the former Fort Ord, the 180-Foot Aquifer is separated into an "upper" zone of sandy deposits with some gravel and a "lower" zone of gravel with sand and clay lenses; the two zones are separated by a thin clay layer (Ahtna Engineering, 2013). Data collected within the former Fort Ord show that significant head differences exist between the upper and lower zones of the 180-Foot Aquifer.

The 180-Foot Aquifer receives recharge from the overlying Dune Sand Aquifer as well as percolation through the FO-SVA, and rainfall and surface water infiltration in areas where the FO-SVA does not exist. This recharge mechanism is also supported by the similar geochemistry between the Dune Sand Aquifer and the 180-Foot Aquifer (Section 4.2.4.1). Subsurface inflows and outflows to the 180-Foot Aquifer also occur from 180-Foot Aquifer of the 180/400 Foot Aquifer Subbasin and from the Aromas Sand southeast of the former Fort Ord where there may be hydrologic connection (HLA, 1994).

The primary uses of the 180-Foot Aquifer are for municipal water supply in the lower 180-Foot Aquifer. Extraction and infiltration activities associated with remediation in the former Fort Ord also take place within the 180-Foot Aquifer.

4.2.2.1.4 180/400-Foot Aquitard

The base of the 180-Foot Aquifer is the 180/400-Foot Aquitard. This aquitard consists of interlayered clay and sand layers, including a marine blue clay layer (DWR, 2003). The 180/400-Foot aquitard varies in thickness and quality across the basin, and "varies laterally throughout the Fort Ord area" (MACTEC, 2006). Therefore, areas of hydrologic connection between the 400-Foot and 180-Foot Aquifers exist, and Fort Ord is one of several locations where this aquitard is thin or discontinuous (Kennedy-Jenks, 2004).

4.2.2.1.5 400-Foot Aquifer

The 400-Foot Aquifer is comprised of fine to medium-grained sand with varying degrees of interbedded clay lenses (Ahtna Engineering, 2013). The 400-Foot Aquifer appears to be composed of portions of the Aromas Sand near the coast, and the upper 200 feet of the Paso Robles Formation (HLA, 1994; Harding ESE, 2001), although it is sometimes difficult to delineate the transition between the two formations (Harding ESE, 2001). It is usually encountered between 270 and 470 feet below ground surface in the Marina-Ord area. The upper portion of the 400-Foot Aquifer merges and interfingers with the 180-Foot Aquifer in some areas where the 180/400-Foot Aquitard is missing (DWR, 1973).

Due to its geologic composition, the 400-Foot Aquifer has been believed to be connected to the shallow Paso Robles aquifer in Seaside Subbasin (Yates, 2005). In the Seaside Basin, this aquifer consists of several continuous water producing zones and unconfined zones where granular materials of the Paso Robles Formation are in contact with surficial deposits.

Recharge to this aquifer likely occurs from both the overlying 180-Foot Aquifer and outcrops of the Aromas Sand and Paso Robles Formations in and near the Corral de Tierra Area. Groundwater flow direction in the 400-Foot Aquifer is influenced by groundwater pumping, and the connection with neighboring Subbasins.

The primary uses of the 400-Foot Aquifer are for municipal supply in the Marina-Ord Area.

4.2.2.1.6 400-Foot/Deep Aquitard

The base of the 400-Foot Aquifer is the 400-Foot/Deep Aquitard. In some areas of the Salinas Valley Basin, this aquitard can be several hundred feet thick (Kennedy-Jenks, 2004). However, boring logs in the Marina-Ord Area indicates that a series of aquitards underly 400-Foot Aquifer and extend into the Deep Aquifers. There is no analysis available for the spatial occurrence or geologic composition of the 400-Foot/Deep Aquitard. It is likely comprised of Paso Robles Formation deposits.

4.2.2.1.7 Deep Aquifers

The Deep Aquifers are also collectively referred to as the 900-Foot Aquifer or 900-Foot and 1500-Foot Aquifers in the northern Salinas Valley. The Deep Aquifers are up to 900 feet thick and have alternating sandy-gravel layers and clay layers which do not differentiate into distinct aquifer and aquitard units (DWR, 2003). The Deep Aquifers may also refer to all the water-bearing sediments beneath the 400-Foot Aquifer.

Within the Monterey Subbasin, the Deep Aquifers comprise the middle and lower portions of the Paso Robles Formation, the Purisima Formation and the Santa Margarita Sandstone (Hanson et al., 2002; Yates, 2005). The Deep Aquifers are also likely connected to the deep Santa Margarita aquifer in Seaside

Subbasin (Yates, 2005). The Deep Aquifers overlie the low permeability Monterey Formation, which is the bottom of the subbasin.

Due to the geologic formations' depositional environments, the Deep Aquifers consist of alternating layers of sand and gravel mixtures with discontinuous clays rather than distinct, coherent aquifers and aquitards (Brown and Caldwell, 2015). There is a strong likelihood of flow through these confining layers (MCWRA, 2018).

The recharge mechanisms for the Deep Aquifers are not well known. There is likely some recharge from overlying aquifers, as downward vertical gradients exist (Thorup, 1976; Feeney and Rosenberg, 2003). Additional recharge may come from outcrops of Santa Margarita Sandstone or Paso Robles Formation in the Corral de Tierra area. There are no known recharge mechanisms or pathways for the Purisima Formation other than from leakage from overlying aquifers and there are no surficial outcrops of the Purisima Formation in the Salinas Valley Basin (Feeney and Rosenberg, 2003). Some extractions may be supported by depletion of ground water storage (Feeney and Rosenberg, 2003). Specific storage was calculated at 0.000013, which suggests that the volume of ground water that can be removed from storage is not large (Feeney and Rosenberg, 2003).

Oxygen and deuterium analyses of water from the Deep Aquifers suggest that, unlike the upper aquifer system (i.e. 180-Foot and 400-Foot Aquifers), water in the Deep was not recharged under current climatic conditions (MCWRA, 2017). Additionally, tritium and carbon-14 analyses of Deep Aquifers water indicate that it was recharged thousands of years before present (Hanson et al., 2002). Age dating of groundwater by USGS indicates that groundwater in the Deep Aquifers near the Monterey Coast may be 25,000 to 30,000 years old (Hanson et al., 2002).

The Deep Aquifers are used primarily for municipal water supply in the Marina-Ord Area.

4.2.2.2 *Corral de Tierra Area*

There is one single principal aquifer in the Corral de Tierra Area called the El Toro Primary Aquifer System. Groundwater is produced from the following water-bearing geologic units: the Aromas Sands, the Paso Robles Formation, and the Santa Margarita Sandstone. These water-bearing geologic units are grouped together to form the El Toro Primary Aquifer System (GeoSyntec, 2007). These formations are grouped into one functional primary aquifer due to many wells being screened across more than one formation in this area. The longer screen lengths allow for better well yields as this design accesses more saturated thickness of the aquifer.

The shallowest water-bearing sediments within the Corral de Tierra Area are thin and occur along stream corridors. These sediments range from 0 to 120 feet thick and are a part of the Holocene alluvium unit (GeoSyntec, 2007). The geologic map in Figure 4-2 shows this unit as Q; the cross-sections in Figure 4-26 through Figure 4-29 show this unit as Qal and Qof. Several small domestic wells draw groundwater from these local alluvial aquifers, but these volumes of groundwater are minimal (GeoSyntec, 2007). Since this volume of groundwater is neither economic nor significant, these shallow sediments are not considered a principal aquifer, nor are they included in the El Toro Primary Aquifer System. Groundwater in these sediments is hydraulically connected to both the small streams found in the area and the principal aquifer

due to a lack of continuous or regional aquitard to interrupt infiltration and percolation (El Toro Creek, San Benancio Gulch, Watson Creek, and Calera Creek; see Section 4.3) (GeoSyntec, 2007).

Beneath the shallow sediments, the following principal aquifer is recognized as the distinguishing hydrostratigraphic feature of this area:

- El Toro Primary Aquifer System

Immediately outside the southern end of the Subbasin, small amounts of groundwater are also produced from the Monterey Formation and the unnamed sandstone which underlies the Monterey Formation (Anderson-Nichols and Co., 1981). Additional information regarding hydrogeology of these formations can be found in the *El Toro Groundwater Study* and the *Seaside Groundwater Basin Modeling and Protective Groundwater Elevations* report (Geosyntec, 2007; HydroMetrics, 2009). This volume of groundwater is neither economic nor significant, there is no known extraction from the unnamed sandstone within the Corral de Tierra Area. Additionally, the Monterey Formation is defined as the bottom of the basin. As such, neither the Monterey Formation nor the unnamed sandstone are considered a principal aquifer, nor are they included in the El Toro Primary Aquifer System.

4.2.2.2.1 El Toro Primary Aquifer System

The El Toro Primary Aquifer System is comprised of the Aromas Sands, the Paso Robles Formation, and the Santa Margarita Sandstone together since many production wells are screened across more than one unit in the Corral de Tierra Area, thereby causing the hydrostratigraphy to effectively function as one aquifer.

Within the Corral de Tierra Area, the eolian Aromas Sands deposits are up to 200 feet thick and comprise the hills in the Area. The Paso Robles Formation comprises a series of nonmarine, semi-consolidated continental deposits that consist of fine to coarse-grained sands and gravels of Plio-Pleistocene age. Due to local variations of conformability and similarity of sediments, these units are sometimes referred to collectively as continental deposits (GeoSyntec, 2007). The geologic map in Figure 4-2 shows the Aromas Sand and Paso Robles Formation units as Qae and QT, respectively. The Aromas Sand and Paso Robles units are grouped together and shown on the cross-sections as undifferentiated Qtc.

The Paso Robles Formation is frequently found at the surface in the Corral de Tierra area. The uppermost 200 feet of the Paso Robles Formation deposits are recognized as forming much of the 400-Foot Aquifers in the greater Salinas Valley Groundwater Basin (Harding ESE, 2001). The remaining portions of the Paso Robles Formation form portions of the Deep Aquifers closer to the coast. Erosion has impacted the available thickness of the Paso Robles Formation, and the transition between the outcropped locations in the Corral de Tierra area to the subterranean portions in the Marina-Ord area is not well understood due to the lack of available data through the Fort Ord area. Subsequently, the relationship to the 400-Foot Aquifer through this area is not yet defined.

The Santa Margarita Sandstone is a Miocene-aged, marine, white, thick and locally cross-bedded, very fine to coarse-grained sandstone with an average thickness of 100 to 300 feet in the Subbasin. The geologic map in Figure 4-2 shows this unit as Msm. In the geologic cross-sections, this unit is shown as Tsm. The Santa Margarita Sandstone correlated with the Deep Aquifers closer to the coast, and where it is encountered at significant depth from the surface. However, there are portions of the Santa Margarita

Sandstone that crop out in the hills northwest of highway 68, which is more northwest than the cross-sections shown in Figure 4-27 and Figure 4-28. This exemplifies the extent to which structural deformation has shaped this region's hydrostratigraphy and added complexity to understanding the principal aquifers across the subbasin.

Recharge to the El Toro Principal Aquifer System is through precipitation and through the streambeds and alluvial sediments. Groundwater flow direction is generally northward, and towards heavy pumping centers like the Laguna Seca region and the lower Corral de Tierra Canyon region.

The primary use of groundwater from the El Toro Primary Aquifer System is urban (municipal and domestic), with minimal agricultural supply.

4.2.3 Structural Restrictions to Flow

There are no known structural restrictions to flow beneath the Marina-Ord Area.

A buried trace of the Reliz Fault (also known as the Reliz-King City Fault or King City Fault) has been said to generally align with the boundary between the Monterey Subbasin and the 180/400-Foot Aquifer Subbasin. However, the location of this fault is poorly constrained or defined. Beneath the bottom of the Subbasin, the Monterey Formation is displaced downward on the northeast side of the Reliz Fault by as much as 1,000 ft (Durbin, 2007). There is no sign of fault affecting "late Pleistocene or younger sediments" (HLA, 1994; Feeney and Rosenberg, 2003). This fault does not appear to impede groundwater flow in the Dune Sand Aquifer, the 180-Foot Aquifer, or the 400-Foot Aquifer, based on observed groundwater elevation and seawater intrusion conditions across the Subbasin boundary (see Chapter 5).

The Corral de Tierra Area is surrounded by several structural features. It is bounded on the east by the Reliz Fault and the Corral de Tierra Fault to the southwest (GeoSyntec, 2007). The Harper Fault is between these two other faults, closer to the Reliz Fault (GeoSyntec, 2007). All of these faults strike to the northwest and steeply dip to the northeast. A northeast striking syncline occurs roughly along Highway 68. A deeper anticlinal feature is shown in Figure 4-2 near San Benancio Creek and appears to be orthogonal to the syncline which parallels Highway 68 (GeoSyntec 2010). Additional east-trending anticlines are shown near the boundary between the Seaside Subbasin and the Corral de Tierra Area. Despite all structural features which bound and deform the Corral de Tierra area, none seem to indicate any barrier to flow to the rest of the Monterey Subbasin, or to the neighboring Seaside or 180/400-Foot Aquifer Subbasins. Rather, the corner of the Seaside and Corral de Tierra boundary seems to be a location of divergence of groundwater flow, where some groundwater continues to the Seaside Subbasin by way of the Laguna Seca area, and some groundwater continues to the Marina area by way of the Fort Ord National Monument, as shown in Chapter 5. This corner features a dip-rise-dip appearance in the surface of the Monterey Formation.

4.2.4 General Water Quality

This section presents a general discussion of the natural fresh groundwater quality in the Monterey Subbasin, focusing on general geochemistry. The distribution and concentrations of specific constituents of concern, including seawater intrusion, are discussed further in Chapter 5. This discussion is based on data from previous reports. Key diagrams are included in Appendix 4-A.

4.2.4.1 *Marina-Ord Area*

Dune Sand Aquifer

Groundwater in the Dune Sand Aquifer has a sodium-chloride chemical character. Groundwater in this aquifer is primarily fresh; minimal seawater intrusion has occurred in this aquifer.

180-Foot Aquifer

Water quality in the 180-Foot Aquifer beneath the Marina-Ord Area is distinct from the water quality in the Salinas Valley and has a more sodium-chloride chemical character (i.e., a higher proportion of sodium and chloride) (HLA, 1994). West of the SVA, groundwater quality is similar throughout the combined Dune Sand Aquifer and 180-Foot Aquifer (HLA, 1994). Groundwater in both aquifers is likely recharged from precipitation infiltrating through similar geologic materials.

The Dune Sand Aquifer contributes recharge to the 180-Foot Aquifer, as groundwater from this aquifer flows westward until it reaches the SVA, after which it turns eastward within the 180-Foot aquifer.While seawater intrusion has occurred in the lower 180-Foot Aquifer in the northern portion of the Subbasin, groundwater the upper 180-Foot Aquifer remains fresh.

400-Foot Aquifer

Water quality in the 400-Foot Aquifer is chemically distinct from the water quality of the overlying Dune Sand and 180-Foot Aquifer. The 400-Foot Aquifer has a calcium-bicarbonate chemical character (HLA, 1994). However, some wells have higher concentrations of chloride, which is indicative of seawater intrusion. Wells screened in the gravel layers of the 400-Foot Aquifer have elevated concentrations of sodium. This characteristic is similar to that of wells screened in the gravel layers of the 180-Foot Aquifer and those in the Salinas Valley (HLA, 1994).

Seawater intrusion has occurred in the 400-Foot Aquifer in the northern portion of the Subbasin.

Deep Aquifers

Groundwater in the Deep Aquifer system is distinct from the overlaying aquifers, having a sodium-bicarbonate chemical character with relatively low concentrations of calcium (Harding ESE, 2001; Hanson et al., 2002). Water quality generally worsens (i.e., increasing chloride concentrations) with depth (Feeney and Rosenberg, 2003). Ratios of chloride-to-boron and isotope analysis (18O, 2H, 3H, 14C) were used to infer the sources and age of groundwater (Hanson et al., 2002). Groundwater in the upper portions of the Deep Aquifers had similar chloride-to-boron ratios to groundwater in the overlaying aquifers, which suggests a similar source of recharge. Groundwater in the deepest sections of the Deep Aquifers is enriched in chloride with respect to surface waters in the Salinas Valley and isotope analysis indicated the Deep Aquifers were not recharged under recent climatic conditions. Isotope analysis also revealed that the groundwater in the Deep Aquifers may have been recharged thousands of years ago (Hanson et al., 2002).

No seawater intrusion has been observed in the Deep Aquifers.

4.2.4.2 *Corral de Tierra Area*

Groundwater in the El Toro Primary Aquifer System has an intermediate chemical character (no dominant cation or anion) but the chemical composition varies slightly between lithologic units. Uniform moderate to high TDS concentrations were found throughout the El Toro Primary Aquifer System, which supports the hydraulically connected geologic units. Isotope analysis further indicates that groundwater throughout the El Toro Primary Aquifer System has similar recharge sources (Geosyntec, 2007).

4.2.5 **Aquifer Properties**

4.2.5.1 *Marina-Ord Area*

Hydraulic conductivity of the aquifers underlying the Marina-Ord Area are obtained from previous reports and presented below. Transmissivity information are included in Appendix 4-A.

Dune Sand Aquifer

The measured horizontal hydraulic conductivity of the Dune Sand Aquifer ranges from 0.14 to 120 feet per day (ft/d), and vertical conductivity ranges from 0.6 to 4.0 ft/d (HLA, 1994; HLA, 1999; MACTEC, 2006; HydroGeoLogic, Inc., 2006; Jordan et al., 2005). Measured horizontal hydraulic conductivity of the Dune Sand Aquifer is shown on Figure 4-20.

180-Foot Aquifer

Measured horizontal hydraulic conductivities in the 180-Foot Aquifer in the Fort Ord area range from 1.7 to 390 ft/d (HLA, 1994; HLA, 1999; MACTEC, 2006; HydroGeoLogic, Inc., 2006; Jordan et al., 2005). Measured horizontal hydraulic conductivities of the 180-Foot and 400-Foot Aquifers are shown on Figure 4-21.

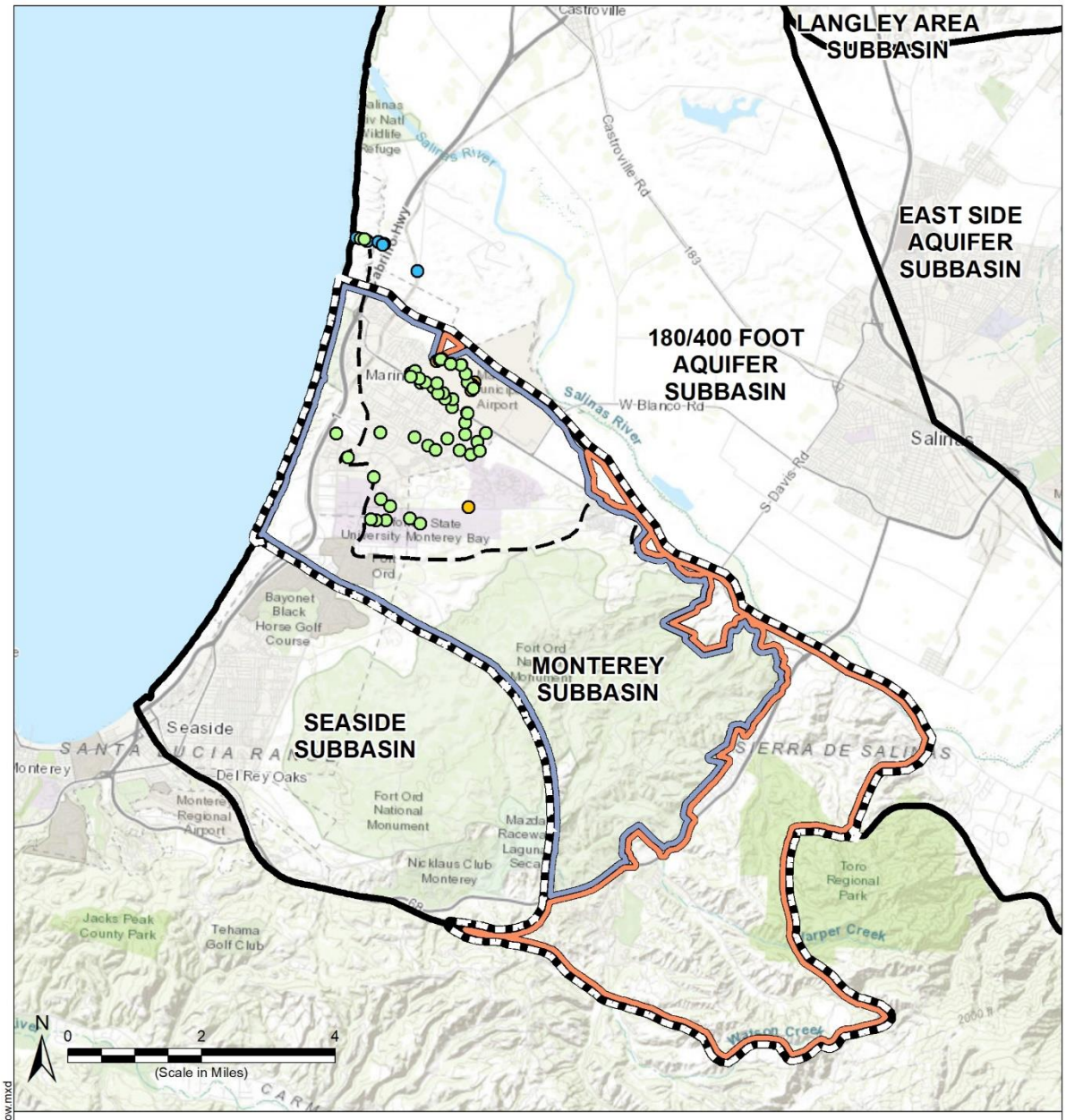
400-Foot Aquifer

Measured horizontal hydraulic conductivities in the 400-Foot Aquifer in the Fort Ord area range from 33 to 237 ft/d. MCWD's production wells MCWD-29, MCWD-30, and MCWD-31 have specific capacities ranging from 70 gallons per minute per foot ("gpm/ft") to 127.3 gpm/ft (MCWD, 2019).

Deep Aquifers

Measured horizontal hydraulic conductivities in the Deep Aquifers are generally lower than the overlying 180-Foot and 400-Foot Aquifers. The measured horizontal hydraulic conductivity in Deep Aquifers ranges from 2.2 to 37 ft/d (Figure 4-22). Specific capacities of MCWD's Deep Aquifer wells range from 10.8 gpm/ft to 22.5 gpm/ft (MCWD, 2019).

Age dating of groundwater by USGS indicates that groundwater in the Deep Aquifers near the Monterey Coast may be 25,000 to 30,000 years old (Hanson et al., 2002). An interval with dated marine water was found at approximately 1,000 ft bgs in this area. Additional work is scheduled to be conducted by MCWRA to assess the recharge to this aquifer zone (SVBGSA, 2020).



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin
- Extent of FO-SVA (Harding ESE, 2001)

Hydraulic Conductivity (ft/d)

- Less than 1
- 1-10
- 10-100
- 100-1,000
- Greater than 1,000

Management Areas

- Marina-Ord Area
- Corral de Tierra Area

Abbreviations

ft/d = feet per day

Notes

1. All locations are approximate.

Sources

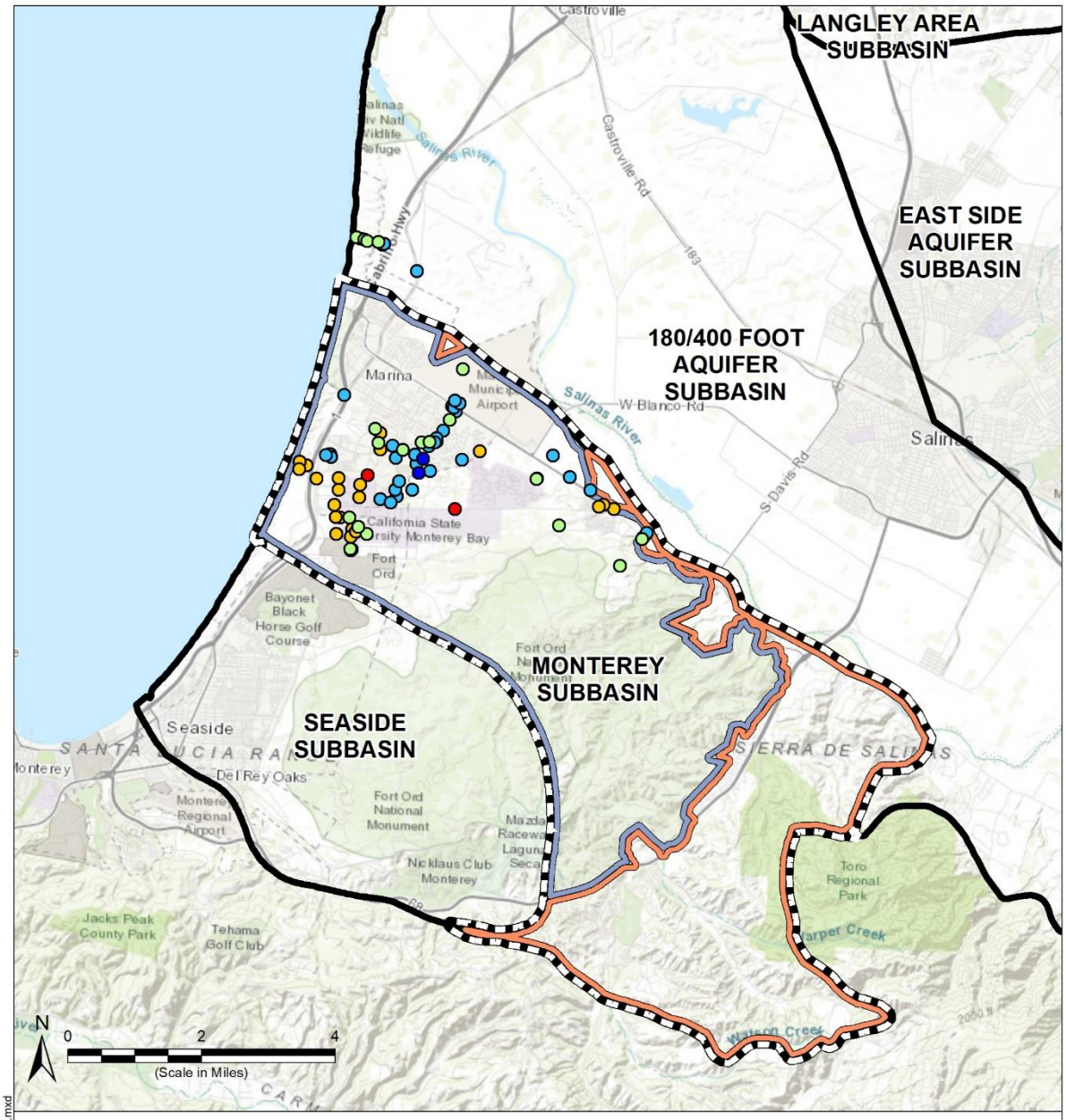
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 21 December 2020.
2. Hydraulic conductivies are obtained from the sources below:
   HLA, 1994
   HLA, 1999
   GeoScience, 2014
   GeoScience, 2016
   Jordan et al., 2005
   MACTEC, 2006
   USACE, 2006
   USGS, 2002
   MCWD, 2019

Measured Hydraulic Conductivities in the Dune Sand Aquifer

Monterey Subbasin
Groundwater Sustainability Plan
December 2020

Figure 4-20

Path: X:\B60094\Maps\2020\12\Fig4-20 HydraulicConduct_Shallow.mxd



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Hydraulic Conductivity (ft/d)

- Less than 1
- 1-10
- 10-100
- 100-1,000
- Greater than 1,000

Management Areas

- Marina-Ord Area
- Corral de Tierra Area

Abbreviations

ft/d = feet per day

Notes

1. All locations are approximate.

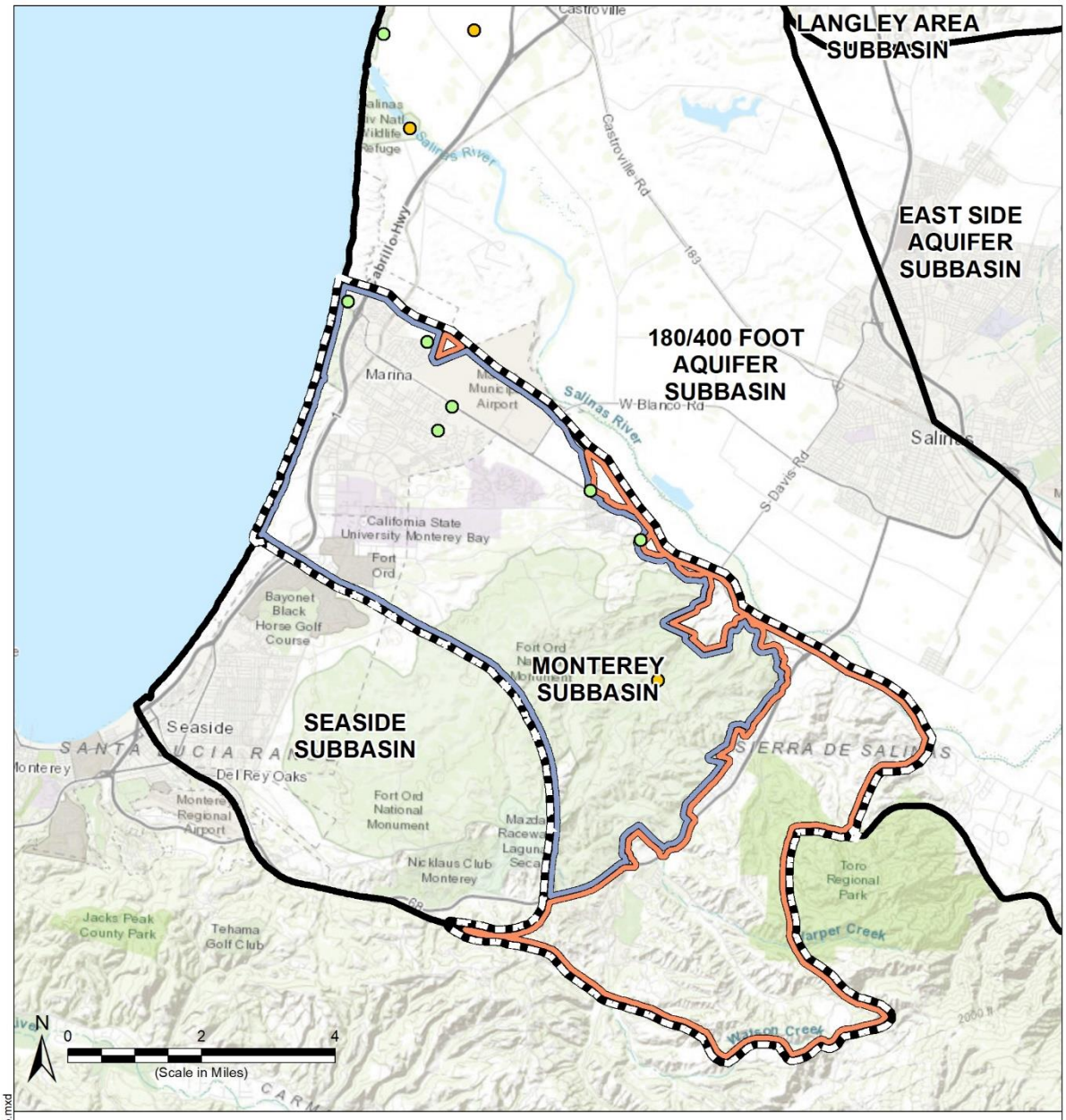
Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 21 December 2020.
2. Hydraulic conductivies are obtained from the sources below:
   HLA, 1994
   HLA, 1999
   GeoScience, 2014
   GeoScience, 2016
   Jordan et al., 2005
   MACTEC, 2006
   USACE, 2006
   USGS, 2002
   MCWD, 2019

Measured Hydraulic Conductivities in the 180-Foot Aquifer and 400-Foot Aquifer

Monterey Subbasin
Groundwater Sustainability Plan
December 2020
Figure 4-21

Path: X:\B60094\Maps\2020\12\Fig4-21 HydraulicConduct_400ft.mxd



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Hydraulic Conductivity (ft/d)

- Less than 1
- 1-10
- 10-100
- 100-1,000
- Greater than 1,000

Management Areas

- Marina-Ord Area
- Corral de Tierra Area

Abbreviations

ft/d = feet per day

Notes

1. All locations are approximate.

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 21 December 2020.
2. Hydraulic conductivies are obtained from the sources below:
   HLA, 1994
   HLA, 1999
   GeoScience, 2014
   GeoScience, 2016
   Jordan et al., 2005
   MACTEC, 2006
   USACE, 2006
   USGS, 2002
   MCWD, 2019

Measured Hydraulic Conductivities in the Deep Aquifer

Monterey Subbasin
Groundwater Sustainability Plan
December 2020

Figure 4-22

Path: X:\B60094\Maps\2020\12\Fig4-22 HydraulicConduct_Deep.mxd

4.2.5.2 *Corral de Tierra Area*

The most comprehensive compilation of hydraulic conductivities in the Corral de Tierra Area comes from the *Seaside Groundwater Basin Modeling and Protective Groundwater Elevations* (HydroMetrics, 2009). This study describes a model that covers the adjudicated Seaside Subbasin and the Monterey Subbasin. This study collected previously published hydraulic conductivity values for the geologic units encountered in the region. The model separates the aquifer by geologic formation, and Table 4-2 shows hydraulic conductivity estimated for the Paso Robles Formation and the Santa Margarita Sandstone.

The study also estimated storage coefficients, which relate to an aquifer's ability to store groundwater, for each of the principal aquifers. These include specific yield (set at a value of 0.08 for the unconfined aquifers), and specific storage (set at a value of 0.0006 for the confined aquifers) (HydroMetrics, 2009). These values were selected for the Seaside model. Specific storage values range from 5×10^{-5} to 5×10^{-3} for confined aquifers, and specific yield values may range from 0.1 to 0.01 in unconfined aquifers (Todd, 1980).

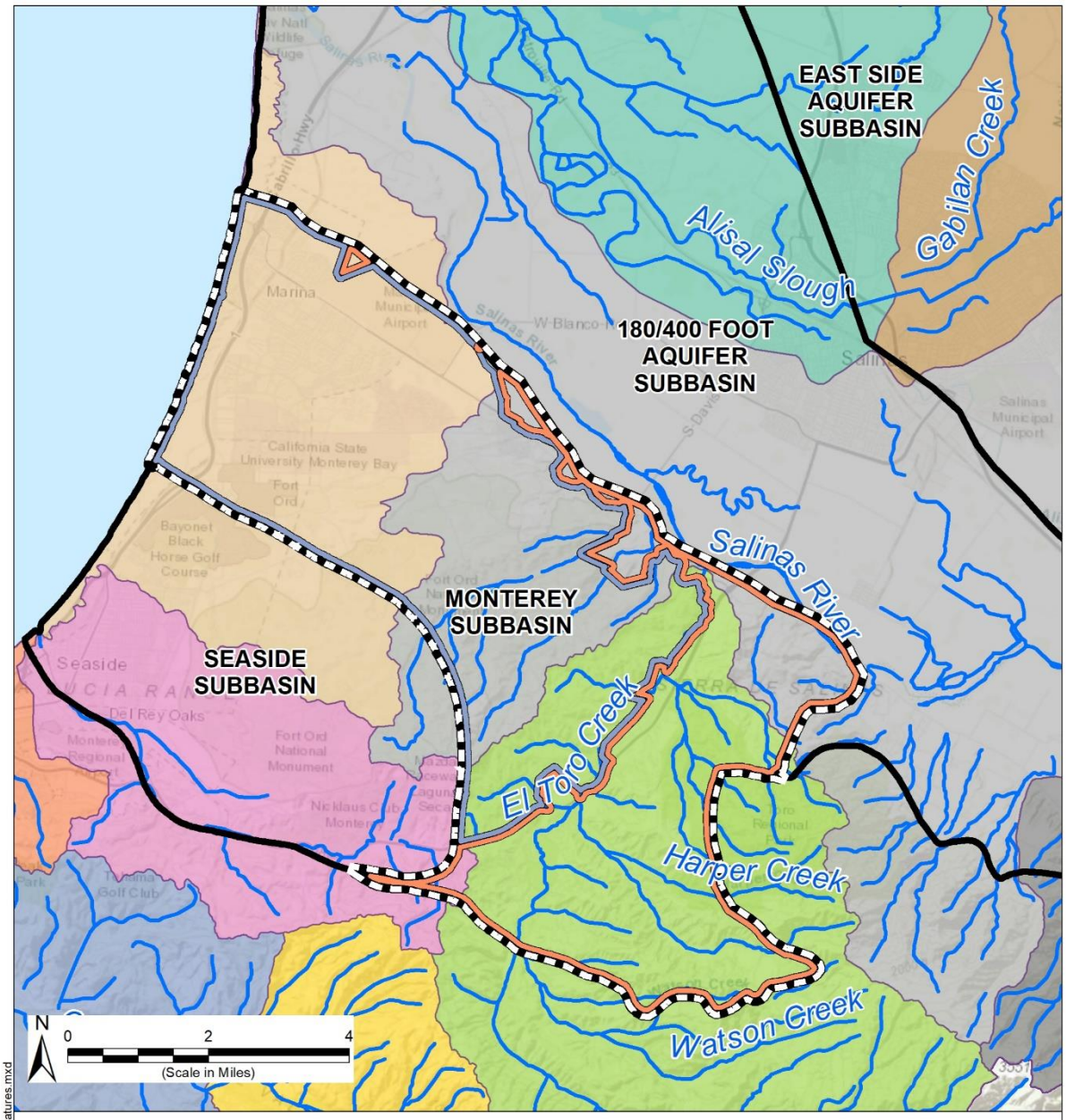
Table 4-2. El Toro Primary Aquifer Hydraulic Conductivity Values (modified from HydroMetrics WRI, 2009)

Principal Aquifer	Geologic Formation	Hydraulic Conductivity (feet per day)	Source	Reference
El Toro Primary Aquifer System	Paso Robles	20	Pump Test	Fugro West, Inc., 1997
		2	Model Calibration	Yates et al., 2005
	Santa Margarita	63	Pump Test	Fugro West, Inc., 1997
		3-5	Model Calibration	Yates et al., 2005

Since many wells are screened across both the Paso Robles Formation and the Santa Margarita Sandstone, aquifer properties for the El Toro Primary Aquifer System reflect a composite of properties (GeoSyntec, 2007). The saturated thickness of the El Toro Primary Aquifer System is greatest near highway 68, as shown by high well yields and significant storage (GeoSyntec, 2007).

4.3 Surface Water Bodies

Surface water features and subwatersheds at the 12-digit Hydrological Code (HUC-12) level within the Subbasin are shown on Figure 4-23.



Path: X:\B60094\Maps\2020\12\Fig4-23_NaturalSurfaceWaterFeatures.mxd

Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Natural Surface Water Features

- Stream/River

Management Areas

- Marina-Ord
- Corral de Tierra

Watersheds (HUC 12)

- 180600051507
- Alisal Creek-Salinas River
- Alisal Slough-Tembladero Slough
- Canyon Del Rey
- El Toro Creek
- Las Gazas Creek-Carmel River
- Nativdad Creek-Gabilan Creek
- Parker Flats-Frontal Monterey Bay
- Potrero Canyon-Carmel River
- Seal Rock Creek-Frontal Monterey Bay

Notes

1. Watersheds with a 12-digit hydrologic unit code (HUC 12) are shown. HUC 12 is generally a local sub-watershed level that captures tributary systems.

Sources

1. Surface water features and watersheds from NHD website: (https://viewer.nationalmap.gov/basic/).

Abbreviations

HUC = Hydrologic Unit Code
NHD = National Hydrography Dataset

Natural Surface Water Features

Monterey Subbasin
Groundwater Sustainability Plan
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Figure 4-23

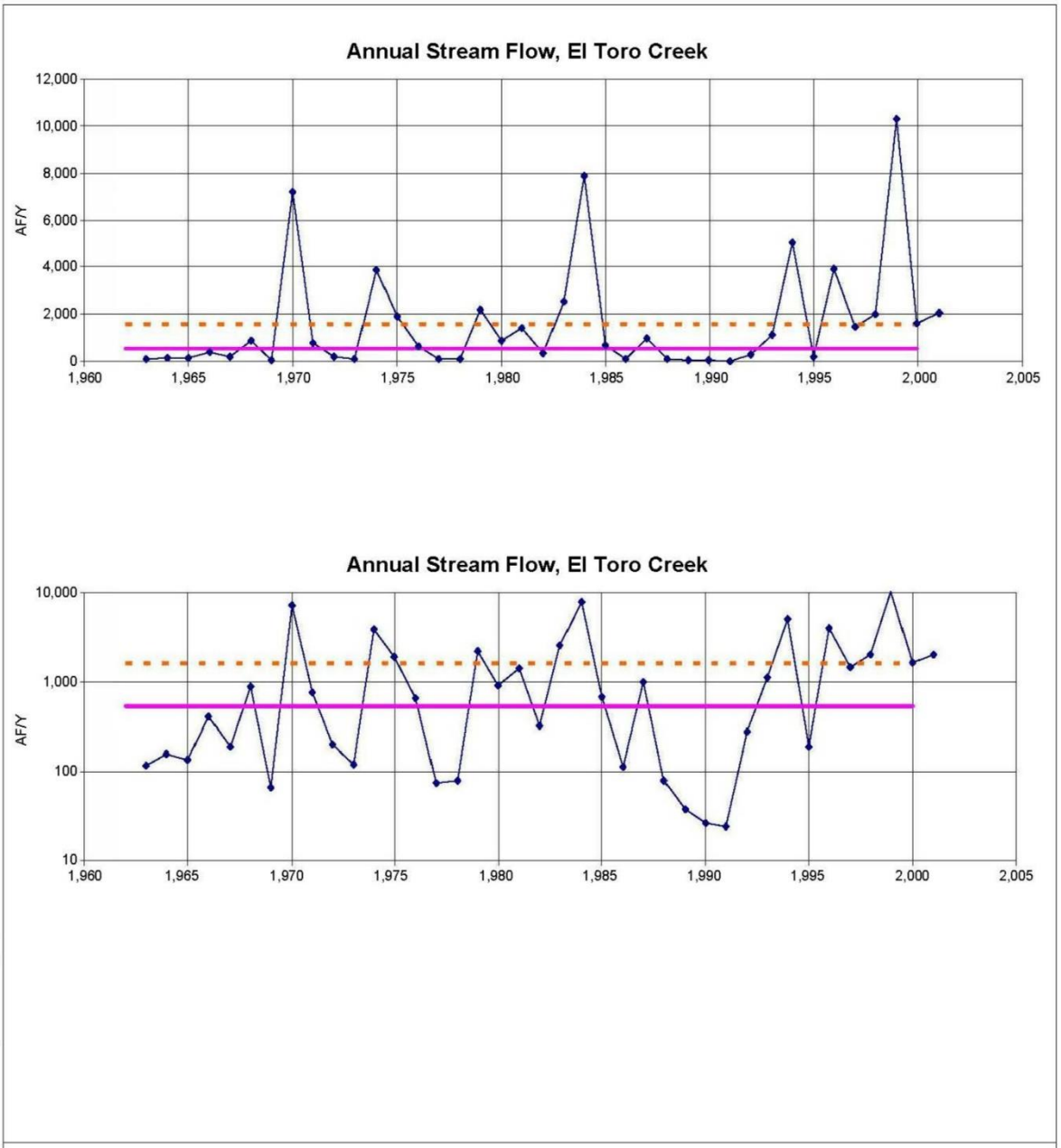
Coastal areas of the Subbasin drain toward Monterey Bay. Runoff is minimal due to the high rate of surface water infiltration into the permeable dune sand. Consequently, well-developed natural drainages are absent throughout much of this area (Harding, 2004).

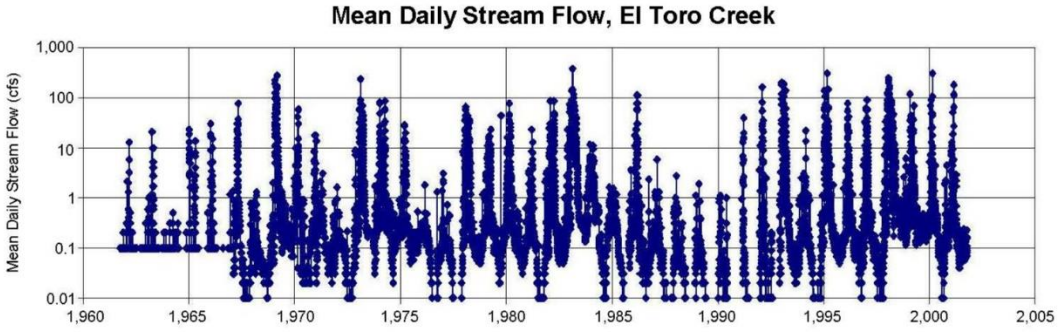
Small intermittent streams found in the Subbasin include the San Benancio Gulch, Watson Creek, and Calera Creek (GeoSyntec, 2007). These streams generally flow northeastward and are tributaries to the Salinas River. Flows in these creeks respond rapidly to rainfall, and they are usually dry in the summer months. These creeks have a "flashy" nature and readily lose water to streambed seepage. (Hydrometrics, 2009). These streams flow less than 25 percent of the year (GeoSyntec, 2007).

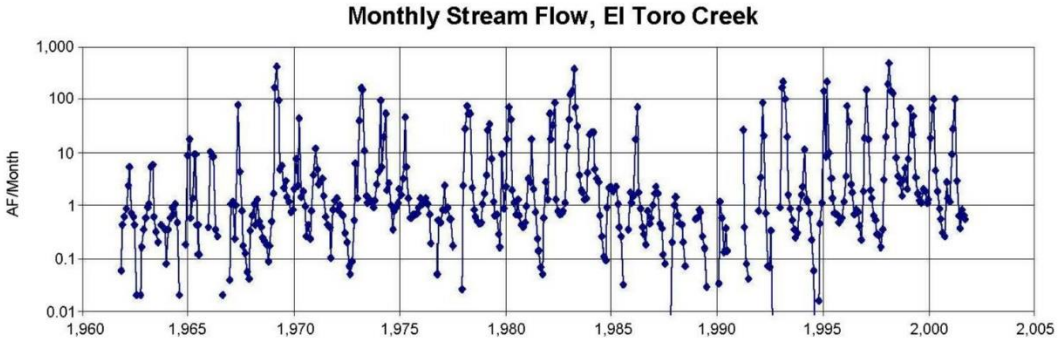
El Toro Creek is a perennial stream below the confluence with Watson Creek below the Corral de Tierra golf course (Feikert, 2001). Recorded streamflows at USGS gage 11152540 from 1961 to 2001 indicate a mean annual streamflow of 1,590 AFY (GeoSyntec, 2007). This mean annual streamflow was calculated for the entire record from 1961 to 2001. However, El Toro Creek did not record flow every year, with notable dry periods from 1985 to 1992 (Figure 4-24).

Yates and others (2005) concluded that local streams (i.e., El Toro Creek and smaller streams) contribute insignificantly to groundwater recharge. Along limited reaches, these streams gain streamflow from groundwater discharge. However, the stream-aquifer exchanges are not thought to be significant to either the groundwater budget or to the response of the groundwater basin to pumping (Durbin, 2007).

Due to the intermittent nature and minimal amount of streamflow, there are no surface water rights registered with the SWRCB within the Subbasin.


Annual Stream Flow, El Toro Creek
AF/Y
12,000
10,000
8,000
6,000
4,000
2,000
0
1,960
1,965
1,970
1,975
1,980
1,985
1,990
1,995
2,000
2,005
Annual Stream Flow, El Toro Creek
AF/Y
10,000
1,000
100
10
1,960
1,965
1,970
1,975
1,980
1,985
1,990
1,995
2,000
2,005
Legend:
Mean Annual Flow (AF/Y)
Mean Annual Log Q = 525 AF/Y
Mean Annual Q = 1,590 AF/Y
Source:
Adapted from GeoSyntec (2007).
Annual Stream Flow, El Toro Creek
Monterey Subbasin
Groundwater Sustainability Plan
December 2020
Figure 4-24
20200623.121603 G:\B60094.03\2020-06\Figure 4-18 through 4-31.dwg Fig 4-18





Legend:

Mean Daily and Monthly Flow

Source:

Adapted from GeoSyntec (2007).

Daily and Monthly Stream Flow, El Toro Creek

Monterey Subbasin
Groundwater Sustainability Plan
December 2020

Figure 4-25

20200623.121603 G:\860094.03\2020-06\Figure 4-18 through 4-31.dwg Fig 4-18

4.3.1 Source and Point of Delivery for Imported Water Supplies

There are no known sources of imported water for this subbasin. Groundwater is the only source of water for this subbasin.

4.4 Data Gaps

A significant portion of the subbasin remains undeveloped to date, which includes federal lands located in the Fort Ord hills area and lands in the lower El Toro Creek area (i.e. northern portion of the Corral de Tierra area). As such, limited to no subsurface information is available in these areas. Regardless, many comprehensive studies have been conducted in areas where groundwater development has been active; and the hydrogeologic conceptual model for those areas is well developed.

One significant data gap exists in the hydrogeologic conceptual model for the Subbasin. This data gap relates to the location and magnitude of recharge to the Marina-Ord Area Deep Aquifers, one of the major production aquifers within the Subbasin and within other subbasins of the Salinas Valley Groundwater Basin. As described in Chapters 7, the GSP will include ongoing data collection and monitoring that will allow continued refinement and quantification of the groundwater system. Chapter 10 includes activities to address the identified data gaps and improve the hydrogeologic conceptual model.

Appendix 3A

1993 and 1996 Annexation Agreements

MCWRA/U.S. Army, 1993. Agreement No. A-06404 - Agreement between the United States of America and the Monterey County Water Resources Agency Concerning Annexation of the Fort Ord Into Zones 2 and 2A of the Monterey County Water Resources Agency, dated September 1993.

MCWRA/MCWD, 1996. Annexation Agreement and Groundwater Mitigation Framework for Marina Area Land, dated March 1996.

AGREEMENT NO. A-06404

AGREEMENT BETWEEN THE UNITED STATES OF AMERICA
AND THE
MONTEREY COUNTY WATER RESOURCES AGENCY
CONCERNING
ANNEXATION OF FORT ORD INTO ZONES 2 AND 2A
OF THE
MONTEREY COUNTY WATER RESOURCES AGENCY

This Agreement is entered into this 21st day of September, 1993, by and between the Government of the United States of America ("Government"), represented by the United States Army, and the Monterey County Water Resources Agency ("MCWRA"), a political subdivision of the State of California, represented by the Monterey County Board of Supervisors.

1. Purpose and Authority:

a. Purpose: The purpose of this agreement is to provide the terms and conditions under which the Fort Ord Lands will be annexed into the Zones.

b. Authority:

(1) By California law, the MCWRA is responsible for managing the surface water and groundwater resources in the Salinas Valley and providing flood control and water conservation services throughout Monterey County. The authority for the MCWRA to enter into this agreement is cited in California Water Code, Appendix 52-43 (Appendix "A"). The MCWRA has the authority to annex the Fort Ord Lands overlying the Seaside Basin based on a Memorandum Of Agreement between the MCWRA, the MPWMD, and the Pajaro Valley Water Management Agency, dated May 10, 1993 (Appendix "B").

(2) The authority for the Government to enter into this agreement was provided in Public Law 101-510 (National Defense Authorization Act for Fiscal Year 1991), Section 2101, dated November 5, 1990 and amended by Public Law 102-190 (National Defense Authorization Act for Fiscal Years 1992 and 1993), Section 2702, dated December 5, 1991. The funding for the Government to enter into this agreement was provided by Public Law 101-519 (Military Construction Appropriations Act, 1991), dated November 5, 1990.

2. Definitions:

a. United States Army Engineer District, Sacramento, California ("Corps"): A field operating agency of the Army Corps of Engineers, a major command of the Army; the agency that will execute this agreement on behalf of the Government;

b. Fort Ord: An existing Army installation in north Monterey County currently operating under the Army Forces Command; Fort Ord will realign to an enclave under provisions of Public Law 101-510 (Defense Base Closure and Realignment Act of 1990); on October 1, 1994, this installation will no longer be known as Fort Ord and will instead be known as the Presidio of Monterey Annex under the Army Training and Doctrine Command; disposal of excess Fort Ord property pursuant to Public Law 101-510 could begin before October 1, 1994 provided the Army has issued a Record of Decision on the Environmental Impact Statement for the Disposal and Reuse of Fort Ord; parts of Fort Ord were leased on a long term basis prior to the realignment decision;

c. Presidio of Monterey Annex ("POM Annex"): The proposed residual military mission enclave remaining on Fort Ord after its realignment; this annex shall continue operations in support of the Department of Defense and other federal agencies in the Monterey Peninsula area; the boundaries of the POM Annex should be finalized by early 1994;

d. Presidio of Monterey ("POM"): An existing Army installation in Monterey County operating under the Army Forces Command; on October 1, 1994, will be under the Army Training and Doctrine Command; POM is the home of the Defense Language Institute; POM will also be responsible for the proposed POM Annex;

e. Reserve Center ("RC"): An existing Army Reserve Center located on 12 acres of Fort Ord not contiguous to the POM Annex; the RC will remain after the realignment of Fort Ord;

f. Fort Ord Lands: A term denoting all lands within the existing boundaries of Fort Ord including: property needed to support the Army's future mission requirements (POM Annex and RC); property under a long term lease; property awaiting disposal either in a caretaker status or under an interim lease; and property already disposed;

g. Salinas Basin: The Salinas River Groundwater Basin; the Salinas Basin generally underlies the northwestern portion of Fort Ord;

h. Seaside Basin: The Seaside Groundwater Basin; the Seaside Basin generally underlies the southwestern portion of Fort Ord;

i. Monterey Peninsula Water Management District ("MPWMD"): A California Special District created by the State Legislature in 1978 having water management authority over the Seaside Basin;

j. Project: A future, long term, reliable, potable water system for the POM Annex/RC and other areas; the Project will provide at least 6,600 acre-feet per year which will permit all Salinas Basin wells on Fort Ord Lands to be shut down except during

emergencies; stopping all pumping from the Salinas Basin on Fort Ord Lands is necessary to mitigate seawater intrusion; the MCWRA is currently developing such a Project to supply water to the Fort Ord Lands, Marina, Salinas, Toro Park, and perhaps other areas in north Monterey County; it is also possible that another water agency, district, utility, or purveyor could develop a smaller scale Project to supply water for just the Fort Ord Lands;

k. Project Implementation: The potable water system cited in paragraph 2.j. shall be considered "implemented" upon both the completion of construction and the delivery of potable water to POM Annex/RC from the completed water system;

l. Zones: Zones 2 and 2A of the MCWRA which are the zones of benefit for the MCWRA Nacimiento and San Antonio Dams, respectively.

3. Problem and Scope:

a. Fort Ord overlies two groundwater basins, the Salinas Basin and the Seaside Basin. See Appendix "C" for a map. Most of the installation's facilities and all of its potable wells overlie the Salinas Basin. The portion of the installation which overlies the Seaside basin has less development consisting mostly of family housing and recreational facilities. Fort Ord's only active well in the Seaside Basin is a non-potable well to irrigate the golf courses. Fort Ord's peak annual withdrawal from the Salinas basin from 1980 to 1992 was 6,600 acre-feet in 1984; and the peak withdrawal from the Seaside Basin from 1986 to 1989 was 424 acre-feet in 1989.

b. The Salinas Basin has had a problem with seawater intrusion since the 1940's. Seawater intrusion occurs when groundwater levels fall below sea level. This is caused by pumping more water out of an aquifer than is being recharged into it. Pumping by Fort Ord has contributed to this problem, but only to a limited extent as the Fort Ord pumping from the Salinas Basin from 1988 to 1992 averaged only 5,200 acre-feet per year and the estimated Salinas Basin overdraft (amount that pumping exceeds recharge) is about 50,000 acre-feet per year. Seawater intrusion has forced the abandonment of many wells along the coast, and required Fort Ord to relocate their well field inland in 1986. In contrast to the Salinas Basin, the Seaside Basin appears to be in a nearly balanced condition.

c. Because of the magnitude of the seawater intrusion problem, a regional solution is needed. Without a regional solution, Fort Ord's remaining potable wells will eventually become contaminated by seawater. The MCWRA is developing a Project to provide a regional water supply system. The MCWRA is also developing the Castroville Sewage Reclamation/Irrigation Project. Both of these projects are intended to mitigate the effects of seawater intrusion in the Salinas Basin.

d. As long as there is an Army enclave on Fort Ord Lands, the Army will need a reliable potable water supply. In view of the limited life of Fort Ord's remaining potable wells, annexation is prudent because it will permit access to water produced by a future MCWRA project. Additionally, annexation will facilitate the disposal and reuse of Fort Ord Lands, and enhance the market value of any property which is sold. This is because, without annexation, the existing Salinas Basin overdraft could significantly limit the water rights of Fort Ord Lands except for the POM Annex/RC.

e. There have been questions raised over Fort Ord's right to withdraw groundwater from the Salinas Basin. Fort Ord/POM Annex/RC claim certain legal rights to the use of water from the Salinas Basin due to their federal status. However, the MCWRA claims limited regulatory authority over Fort Ord/POM Annex/RC's use of Salinas Basin water with respect to withdrawals of polluted or contaminated groundwater; and the MCWRA also claims ownership rights over water used by Fort Ord/POM Annex/RC which is released into the Salinas Basin from the Nacimiento and San Antonio Dams. Annexation and the terms of this agreement will clarify the water rights of both parties.

4. Terms and Conditions:

a. Execution of this agreement, which includes the Annexation Assembly and Evaluation Report (Appendix "D"), shall be deemed to be a petition by the Government, as the present owner of all Fort Ord Lands, to permit the annexation of the Fort Ord Lands by the MCWRA into Zones 2 and 2A. The MCWRA shall thereafter promptly commence proceedings for such annexation, and will diligently and in good faith pursue such annexation proceedings to completion.

b. The parties have discussed and agreed on payment of a fee by the Government totaling $7,400,000, as authorized by Public Law 101-510 and appropriated by Public Law 101-519. The basis for this fee is discussed in section IV.F.1. of the attached Annexation

Assembly and Evaluation Report. Fort Ord will be annexed into the Zones in consideration of the payment of the fee. The Government shall have no further financial responsibility or obligation of any kind to the MCWRA with respect to existing water project costs, e.g., Nacimiento and San Antonio Reservoirs. Further, the MCWRA releases the Government from any and all claims related to Fort Ord's groundwater withdrawals from the Salinas Basin prior to this agreement, and from any claims related to any Government action that may have caused or contributed to seawater intrusion in the Salinas Basin.

c. After execution of this agreement and until Project Implementation, Fort Ord/POM Annex/RC may withdraw a maximum of 6,600 acre-feet of water per year from the Salinas Basin, provided no more than 5,200 acre-feet per year are withdrawn from the 180-foot aquifer and 400-foot aquifer. The 6,600 and 5,200 acre-feet thresholds correspond to the annual peak (1984) and recent average (1988-1992) amounts of potable water Fort Ord has withdrawn from the Salinas Basin (does not include pumpage from the non-potable golf course well in the Seaside Basin). Groundwater withdrawals from the Salinas Basin by Fort Ord/POM Annex/RC for the purpose of environmental restoration shall not count toward the 6,600 and 5,200 acre-feet thresholds. Additionally, groundwater withdrawals from the non-potable golf course well shall not count toward the 6,600 and 5,200 acre-feet thresholds because this well is located in the Seaside Basin. The MCWRA agrees not to object to any Fort Ord/POM Annex/RC withdrawal under 6,600 acre-feet per year, except in compliance with California Water Code Appendix, Chapter 52, Section 22. If the MCWRA is concerned about a withdrawal, the MCWRA will first notify the Fort Ord/POM Annex Commander. The parties agree to make every effort to first resolve seawater intrusion disputes through mutual agreement. In any event, the MCWRA, after notice from the Fort Ord/POM Annex Commander, will not object to withdrawals in support of war, national emergency, contingency operation, troop mobilization, or unexpected mission requirements, and such withdrawals shall not count toward the 6,600 and 5,200 acre-feet thresholds. The Government will develop a water conservation program at Fort Ord/POM Annex/RC and will institute, in its discretion, measures to conserve water. The Government will participate in MCWRA water conservation initiatives and programs as mutually agreed by the parties.

d. Until Project Implementation, Fort Ord/POM Annex shall have exclusive ownership and operation of potable wells #24, #29, #30, #31, #32, Jacks well, and Pilarcitos well in the Salinas Basin, and the non-potable golf course well #1 in the Seaside Basin. See Appendix "C" for the locations of these wells. Jacks well, Pilarcitos well, and well #24 are inactive; well #32 has

recently failed; and the rest are active. The MCWRA agrees not to object to Fort Ord/POM Annex/RC replacing any existing well or adding any new well on Fort Ord Lands subject to the conditions described in paragraph 4.c. above. Also until Project Implementation, Fort Ord/POM Annex/RC shall be the sole user of the aforementioned wells, provided that the Government, in its sole discretion, may permit the use of the Salinas Basin wells by others for use on Fort Ord Lands, or may provide water from the Salinas Basin wells to others on Fort Ord Lands in connection with any reuse plans. The Government shall retain all reasonable and necessary utilities and reserve all necessary easements to operate and maintain all Fort Ord/POM Annex/RC wells. After Project Implementation, Fort Ord/POM Annex shall retain ownership of the aforementioned wells, and the Government agrees to stop pumping from the Salinas Basin wells except for an emergency such as fire fighting or a situation as described at the end of paragraph 4.c. above. Project Implementation shall be no cause to curtail or stop pumping from any Seaside Basin well on Fort Ord Lands.

e. The Government will not pay any MCWRA assessments (such as standby charges, water delivery charges, water project assessments, etc.) until a MCWRA developed Project is implemented. This applies to not only the portions of Fort Ord retained by the Army, but also to any other portions of Fort Ord transferred to federal entities. See paragraphs 4.j.(3) and 4.j.(4) for a discussion of these future assessments.

f. The annexation into the Zones shall provide the Government with appropriate representation in Zone administration and decision making.

g. Should future litigation, regulation or other unforeseen action diminish the total water supply available to the MCWRA, the MCWRA agrees that it will consult with the Fort Ord/POM Annex Commander. Also, in such an event, the MCWRA agrees to exercise its powers in a manner such that Fort Ord/POM Annex/RC shall be no more severely affected in a proportional sense than the other members of the Zones.

h. If prior to Project Implementation, any Fort Ord/POM Annex well (including any located in the Seaside Basin) becomes contaminated with seawater, or is adversely affected by regulatory or legal action, the MCWRA: shall cooperate with the Government in finding an interim water supply; shall assist the Government in any permit processes necessary to obtain such an interim water supply; and shall provide the same services to the Government as it would to any other municipal water supplier in the Zones under similar circumstances. The Government will bear the costs of obtaining

such an interim water supply. Such costs will not include the cost of MCWRA staff time in providing services to the Government hereunder. The MCWRA will continue to monitor the rate of seawater intrusion, and will keep the Fort Ord/POM Annex Commander informed as to: the rate of seawater intrusion; the progress of plans for its Project; and the estimated remaining life of the Fort Ord/POM Annex wells. The MCWRA shall pass to the Fort Ord/POM Annex Commander any information they may obtain related to the continuing yield of Fort Ord/POM Annex wells located in the Seaside Basin.

i. As part of the disposal of Fort Ord, the Government is considering transferring the ownership and operation of the Fort Ord wells and water distribution system to a successor water purveyor, utility, or agency. Under such a transfer, the MCWRA agrees that the Government, in its sole discretion, may transfer its applicable water rights under this agreement to the successor water purveyor, utility, or agency. The MCWRA also agrees not to object to such a successor obtaining or developing a water supply from outside the Salinas Basin for the Fort Ord Lands.

j. If the opportunity arises and it is in the Government's best interests, the Government, in its sole discretion, may participate in a Project developed by an organization other than the MCWRA. In any event, Government participation in a MCWRA developed Project would be contingent on the following:

(1) The MCWRA shall, upon Project Implementation, continue to provide water and related services to Fort Ord/POM Annex/RC and shall provide for Government representation in MCWRA decisions affecting Fort Ord/POM Annex/RC, and in MCWRA's administration of the Project.

(2) The water allocation to be made available to POM Annex/RC from the Project shall be based only on the water needed to support the Army's future, long term mission requirements, or as otherwise agreed to by the parties. By the time of Project Implementation, all excess Fort Ord Lands should have been disposed. The water allocation to be made available to the disposed property from the Project shall be an issue between these property owners and the MCWRA.

(3) The capital cost for the Project shall be distributed among all properties within the Zones in an equitable manner. The Government would favorably consider a funding plan similar to the MCWRA's proposed funding plan for the Castroville Sewage Reclamation/Irrigation project in which approximately 50 percent of the capital cost is funded by the MCWRA members receiving the water, and 50 percent is funded by other members in

the Zones. An acceptable funding plan will also require that the capital cost paid by each member receiving water from the Project generally be proportional to their water allocation from the system. In any funding plan, the Government will reserve the right to pay the capital cost through either periodic assessments, or by a lump sum amount. The Government does not intend to be a party to any agreement in which military appropriations fund an inequitable portion of the capital cost of the Project. The $7,400,000 annexation fee shall not count toward the Government's share of the Project's capital cost.

(4) The MCWRA's cost to operate and maintain (O&M) the Project should be distributed on the basis of water usage or allocation. If the MCWRA proposes to distribute O&M costs on the basis of property area, then the Government only intends to pay such an assessment and any applicable standby charges on the Fort Ord Lands needed to support Army missions, i.e., POM Annex and RC. The Government will not pay O&M assessments or standby charges for any Fort Ord property in a caretaker status awaiting disposal. Any federal entities which have acquired portions of Fort Ord will not pay standby charges on property which is unsuitable for development.

(5) Prior to either the initiation or commitment of any military appropriations to the Project by the Government, the MCWRA shall complete all appropriate feasibility studies and environmental reviews. With respect to only Fort Ord Lands under Army control, participation in the Project, or any other water supply project is subject to compliance with applicable federal laws and regulations, e.g., Army Regulation 420-41 and Federal acquisition regulations; and subject to final review and approval by the Government.

(6) As Fort Ord/POM Annex/RC will, upon Project Implementation, rely on the MCWRA's ability to provide potable water, the MCWRA shall defend the rights of Fort Ord/POM Annex/RC to a water supply upon implementation of the Project as though those rights were its own.

5. Funding:

a. The Government hereby obligates, pursuant to section 2702 of Public Law 102-190, $7,400,000 for the annexation fee, the basis of which is set forth in Appendix D, section IV.F.1. Upon completion of the annexation, the Government shall make payment to the MCWRA in the amount of $7,400,000.

b. The $7,400,000 annexation fee shall be the maximum Government payment in consideration for the annexation of the Fort Ord Lands and the execution of this agreement.

c. The parties recognize that this agreement is subject to the availability of funds provided by Congress.

6. Duration of Agreement:

a. If the Government decides to participate in a Project developed by an organization other than the MCWRA pursuant to paragraph 4.j. of this agreement, the MCWRA agrees to either terminate this agreement or negotiate modifications to it if so requested by the Government.

b. In the event the Army ends its presence at Fort Ord, the MCWRA agrees to either terminate this agreement or negotiate modifications to it if so requested by the Government.

c. If Fort Ord has not been annexed to the Zones by September 30, 1995, the MCWRA agrees to either terminate this agreement or negotiate modifications to it if so requested by the Government.

d. If the MCWRA has not achieved reasonable progress by December 31, 1999, toward implementation of a MCWRA developed project; or a MCWRA developed Project has not been implemented by December 31, 1999, and the Government is not convinced that the MCWRA can achieve Project Implementation within a time frame deemed reasonable by the Government, then the MCWRA agrees to either terminate this agreement or negotiate modifications to it if so requested by the Government.

e. In the event this Agreement is terminated before the annexation has been completed, the MCWRA, in its sole discretion, may continue with the annexation; however, in such circumstance, the Government shall not make any payment for such annexation. In the event this agreement is terminated after the Fort Ord Lands have been annexed into the Zones, the Government will not demand return of the payment. In the event this agreement is terminated by the Government pursuant to any of the above conditions, the MCWRA agrees not to file any claim against the Government related to the termination.

SUBJECT: Annexation of Fort Ord into Zones 2 and 2A of the Monterey County Water Resources Agency

7. Binding on Successors: This agreement shall be binding upon and shall inure to the benefit of the non-federal successors and assigns of the Government's interest in the property now known and referred to as Fort Ord, California, except that this agreement shall not exempt any such non-federal successor or assign, whether of fee title or some lesser interest in the property, from any ordinance or other regulation enacted by the MCWRA or from any assessment, charge, tax, or other monetary exaction levied by the MCWRA. All such non-federal successors and assigns shall be subject to regulation and be subject to assessment, charge, tax, or other monetary exaction to the extent allowed by law at the time such enactment or levy is in effect.

FOR THE UNITED STATES OF AMERICA

Acting Assistant Secretary of the Army for Installations, Logistics and Environment

9/10/93
Date

FOR THE MONTEREY COUNTY WATER RESOURCES AGENCY

Monterey County Board of Supervisors

September 21, 1993
Date

Appendices:

A - California Water Code, Appendix 52-43
B - Addendum No. 1 to the Memorandum Of Agreement Between the MCWRA, the Monterey Peninsula Water Management District, and the Pajaro Valley Water Management Agency
C - Location of the Existing Wells
D - Annexation Assembly and Evaluation Report

§ 52–43. Annexation to zones

Sec. 43. (a) In addition, or as an alternative, to the procedures for amending zones described in Section 7, any territory in the agency lying within the watershed within which a zone is situated may be annexed to that zone pursuant to this section. Territory which is in, or annexed to, one zone may be annexed to another zone pursuant to this section.

(b) The following applies with respect to the annexation of new territory to any zone pursuant to this section:

(1) (A) A petition for annexation by election signed by 25 percent of the freeholders residing in the territory proposed to be annexed as shown by the last equalized assessment roll of the county shall be presented to the board.

(B) The petition shall designate specifically the boundaries of the territory proposed to be annexed and its assessed valuation as shown by the last equalized assessment roll and shall ask that the territory be annexed to the zone. The petition shall be accompanied by a bond in the sum of not less than one hundred dollars ($100), to be approved by the board and filed with the clerk of the board as security for the payment by the petitioners of the reasonable cost of the election on annexation, in the event that at the election less than a majority of the votes cast are in favor of annexation. The petition shall be verified by the affidavit of one of the petitioners.

(C) The petitioner shall be published by the petitioners for at least two weeks preceding its hearing in a newspaper of general circulation published in the zone, if there is one, or, if not, in a newspaper of general circulation published in the agency, together with a notice stating the number of signers of the petition, the time when the petition will be presented to the board and that all persons interested may appear and be heard. It shall not be necessary to publish the names of the signers.

(D) At the time specified for the hearing, the board shall hear the petition and may adjourn the hearing from time to time. Upon final hearing of the petition, the board, if it approves the petition as originally presented or in a modified form, shall make an order describing the exterior boundaries of the territory proposed to be annexed and ordering that an election be held in such territory for the purpose of determining whether or not the territory shall be annexed to the zone. The order shall fix the day of the election, which shall be within 60 days from the date of the order, and shall show the boundaries of the territory proposed to be annexed to the zone and shall set forth the measure to be submitted to the voters of such territory and shall designate the precincts, polling places and election officers for such election and state the times between which the polls shall be open. The order shall be published pursuant to Section 6066 of the Government Code. This order shall be entered in the minutes and is conclusive evidence of a due presentation of a proper petition, and of the fact that each of the petitioners was, at the time of the signing and presentation of the petition, qualified to sign.

(E) The election shall be held and conducted as provided in Chapter 1 (commencing with section 22000) of Part 1 of Division 12 of the Elections Code and sample ballots and polling place cards shall be mailed as provided in section 10012 of the Elections Code. If a majority of the votes in the territory proposed to be annexed at an election called therein by the board for that purpose are in favor of the annexation, the clerk of the board shall make and cause to be entered in the minutes and endorsed on the petition an order approving the petition and the petition shall be filed. The entry is conclusive evidence of the fact and regularity of all prior proceedings of every kind required by law and of the facts stated in the entry. The board at its next regular meeting after the entry shall, by an order, alter the boundaries of the zone and annex to it the territory described in the petition. The order of the board is conclusive evidence of the validity of all prior proceedings leading up to the annexation and recited in the order, and from and after the order the territory is part of the zone. If, at the election, less a majority of the votes in a territory proposed to be annexed are in favor of the annexation of the territory to the zone, the signers of the petition shall, within 10 days after the canvassing of the votes of the election, pay to the board the reasonable cost of the election and, if not paid within 10 days, the board may sue on the bond to recover the cost of the election. If the result of the election is against annexation, the board shall, by order, disapprove the petition and enter the order in its minutes. No other proceeding shall be taken in relation thereto until the expiration of six months from the presentation of the petition, except to collect the costs of the election.

(2) (A) A petition for annexation without election signed by the owners of real property in the territory proposed to be annexed which real property represents at least 75 percent of the total assessed valuation of real property in the territory as shown by the last equalized county assessment roll, shall be presented to the board.

(B) The petition shall designate specifically the boundaries of the territory and the assessed valuation of real property therein as shown by the last equalized county assessment roll and shall show the amount of real property owned by each of the petitioners and its assessed valuation as shown by the last equalized county assessment roll. The petition shall ask that the territory be annexed to the zone. The petition shall be verified by the affidavit of one of the petitioners.

(C) The petition shall be published by petitioners at least two weeks preceding the hearing in a newspaper of general circulation published in the zone, if there is one, or, if not, in a newspaper of general circulation published in the agency. With the petition there shall be published a notice stating the number of signers of the petition, the time when the petition will be presented to the board and stating that all persons interested may appear and be heard. It shall not be necessary to publish the names of the signers. A printed copy of the petition and notice as so published shall be mailed pursuant to Sections 53520 to 53523, inclusive, of the Government Code.

(D) At the time designated the board shall hear the petition and any person interested, and may adjourn the hearing from time to time. Upon the hearing of the petition, the board shall determine whether or not it is in the best interests of the zone and the territory that the territory be annexed to the zone and the board may modify the boundaries of the territory proposed to be annexed as set forth in the petition by decreasing the area of the territory. If the board upon final hearing determines that it is in the best interests of the zone and of the territory proposed to be annexed that the territory be annexed, it shall make an order describing the boundaries of the territory proposed to be annexed and shall alter the boundaries of the zone and annex to it the territory described in the petition and the territory is then a part of the zone.

(3) A petition for annexation without election signed by 100 percent of the owners of real property in the territory proposed to be annexed may be presented to the board. The petition shall designate specifically the boundaries of the territory and shall ask that the territory be annexed to the zone. The petition shall be verified by the affidavit of one of the petitioners. The board shall determine, upon reviewing the petition, whether or not it is in the best interest of the zone and the territory that the territory be annexed to the zone. The board may modify the boundaries of the territory proposed to be annexed as stated in the petition by decreasing the area of the territory. If the board determines that it is in the best interest of the zone and of the territory proposed to be annexed that the territory be annexed, the board shall make an order describing the boundaries of the territory proposed to be annexed and shall alter the boundaries of the zone and annex to it the territory described in the petition, and the territory is then a part of the zone.

(4) No petition or request for annexation pursuant to paragraphs (1) to (3), inclusive, may be accepted by the board if a zone annexation petition involving any of the same territory is pending before it for annexation to the same zone.

(5) An order for annexation may be by ordinance or resolution. Whenever any new territory is annexed to a zone, the territory thereupon becomes subject to all the liabilities and entitled to all the benefits of the zone. Any order for annexation may provide for, or be made subject to, the payment of a fixed or determinable amount of money for the acquisition, transfer, use, or right of use of all or any part of the existing property, real or personal, of the zone. The board may provide that payment of the amounts shall be either: (1) in lump sums or (2) in semiannual installments with interest thereon at a rate not to exceed 12 percent over a period not to exceed 10 years beginning on July 1 following the next succeeding March 1. If the payment is in semiannual installments, the board shall provide in the ordinance that the total of each sum to be paid by each parcel shall constitute a lien on the parcel as of noon on the next succeeding March 1, the same as the lien for general agency and zone taxes; that the semiannual installments shall be paid and collected at the same time and in the same manner and by the same persons as, and together with and not separately from, general agency and zone taxes and shall be delinquent at the same time and thereafter subject to the same thereafter sell, lease, or otherwise dispose of the property in the manner prescribed by law for counties.

(Stats.1990, c. 1159 (S.B.2580), § 41.)

Historical and Statutory Notes

Derivation: Former § 52-31, enacted by Stats.1947, c. 699, § 31.

A

ADDENDUM NO. 1 TO MEMORANDUM OF AGREEMENT BETWEEN THE MONTEREY COUNTY WATER RESOURCES AGENCY, THE MONTEREY PENINSULA WATER MANAGEMENT DISTRICT AND THE PAJARO VALLEY WATER MANAGEMENT AGENCY

This is Addendum No. 1 to the memorandum of agreement (MOA) between and among the Monterey County Water Resources Agency (MCWRA), the Monterey Peninsula Water Management District (MPWMD) and the Pajaro Valley Water Management Agency (PVWMA), dated December 15, 1991. The date of this addendum for reference purposes is September 28, 1992.

RECITALS

This addendum to the MOA is entered into in light of the following facts:

A. MCWRA is developing a Seawater Intrusion Program (SIP) to mitigate the effects of seawater intrusion into the groundwater basin along the coast under Ft. Ord, Marina, and the Castroville area. This program has been in the planning stages for several years. As part of this program, it has been proposed that pumping from existing groundwater wells supplying Fort Ord and the Marina County Water District (MCWD) be curtailed or eliminated, the construction of additional wells in the seawater intrusion area be limited or prohibited, and a replacement potable water supply be provided to Fort Ord and the MCWD by MCWRA, from wells to be constructed in the Salinas Valley. In order to control pumping from existing wells, MCWRA may acquire the existing wells. MCWRA may at some time seek to levy assessments within the subject area, to impose charges for water provided to the subject area, and to raise revenues from within the subject area in other ways, in order to operate, maintain, and improve the SIP in that area. MCWRA decisions on whether to proceed with this project will be made in the future.

B. MPWMD has an interest in this part of the SIP, in that part of Fort Ord and adjacent areas are within MPWMD's boundaries. Nevertheless, MPWMD does not wish to participate in the SIP, and does not wish to impede its implementation.

C. The impending closure of Ft. Ord calls for additional coordination among the three parties to this MOA.

D. The Board of Directors and/or Board of Supervisors of the Monterey County Water Resources Agency has requested changes in the original MOA.

APPENDIX B

AGREEMENTS

1. Consent to project within territory of Ft. Ord. The parties hereto agree that MCWRA may carry out the SIP within the territory presently occupied by Fort Ord and northwards along the coast, may acquire existing wells drawing water from the Salinas Valley and other property within the territory, may provide water to the territory in connection with the SIP, and may exercise any regulatory authority within that territory as may be needed in connection with the SIP and may levy assessments and impose charges in connection with the SIP for water provided within such territory, without any further compliance with the terms of the MOA, notwithstanding that any part of such territory may be located within the boundaries of MPWMD.

2. Future expansion of MPWMD boundaries. If MPWMD boundaries are expanded to include additional territory involved in the SIP, MPWMD will not object to the continued operation of the SIP in that area.

3. Coordination of programs and activities in connection with closure of Fort Ord. The MCWRA, PVWMA, and MPWMD will coordinate programs related to the closure of Fort Ord and will cooperate in the implementation of future developments within the Fort Ord area. In anticipation that a portion of the future water delivery system to the Fort Ord area will be located within the MPWMD area and that the water supply for that system will be developed from the MCWRA area which is outside of the MPWMD area, the MPWMD and the MCWRA will comply with one another's ordinances as follows:

(a) The MCWRA shall have exclusive authority to regulate water delivery systems that deliver water to the area that is both within the present Fort Ord boundaries and within the MPWMD boundaries in existence at the time of the regulation, and the MPWMD will comply with any such ordinance enacted by the MCWRA.

(b) The MPWMD shall have exclusive authority to regulate the management of the Seaside groundwater basin within the present Fort Ord boundaries, and the MCWRA will comply with any such ordinance enacted by the MPWMD.

(c) This Memorandum of Agreement does not commit the MCWRA to provide any specific quantity of water to Fort Ord or to any portion of it, nor does it commit the MCWRA to provide any water to Fort Ord from the Salinas Valley Groundwater Basin. It also does not give to an other agency the authority to compel provision of water to Fort Ord.

4. Deletion of paragraph 18. Paragraph 18 is deleted from the original MOA.

(MOA.ADD - 3/15/93)

B

5. Deletion of paragraph 19. Paragraph 19 is deleted from the original MOA.

IN WITNESS WHEREOF, the parties execute this memorandum of agreement as follows:

MONTEREY COUNTY WATER RESOURCES AGENCY:

Dated: May 25, 1993 By _____
Chair, Board of Supervisors

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT:

Dated: 15 APRIL 1993 By _____
Chair, Board of Directors

PAJARO VALLEY WATER MANAGEMENT AGENCY:

Dated: 7/14/93 By _____
Chair, Board of Directors

* *

Approved as to form:

_____
Counsel for MCWRA

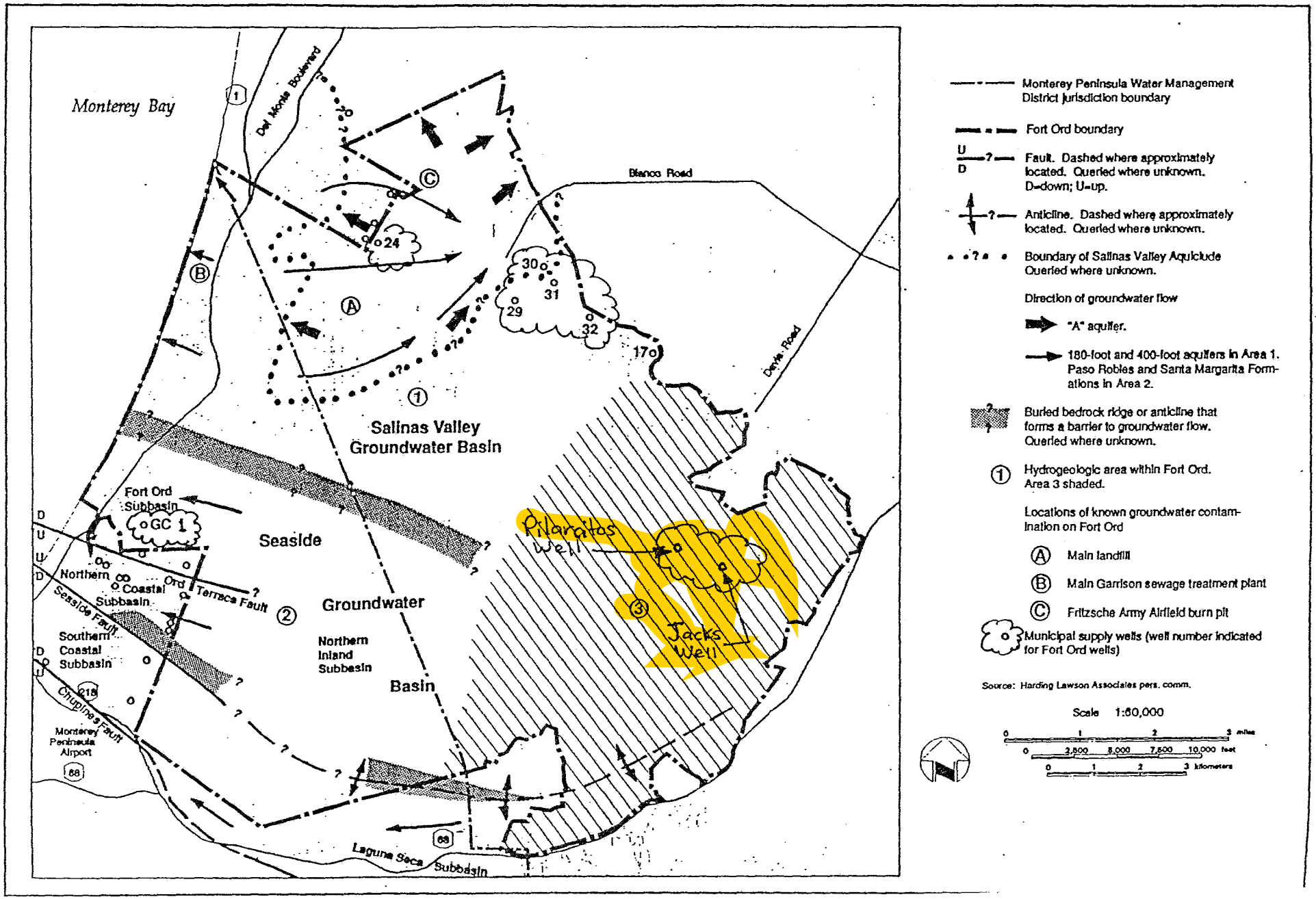
Dated: 5/6/93

Approved as to form:

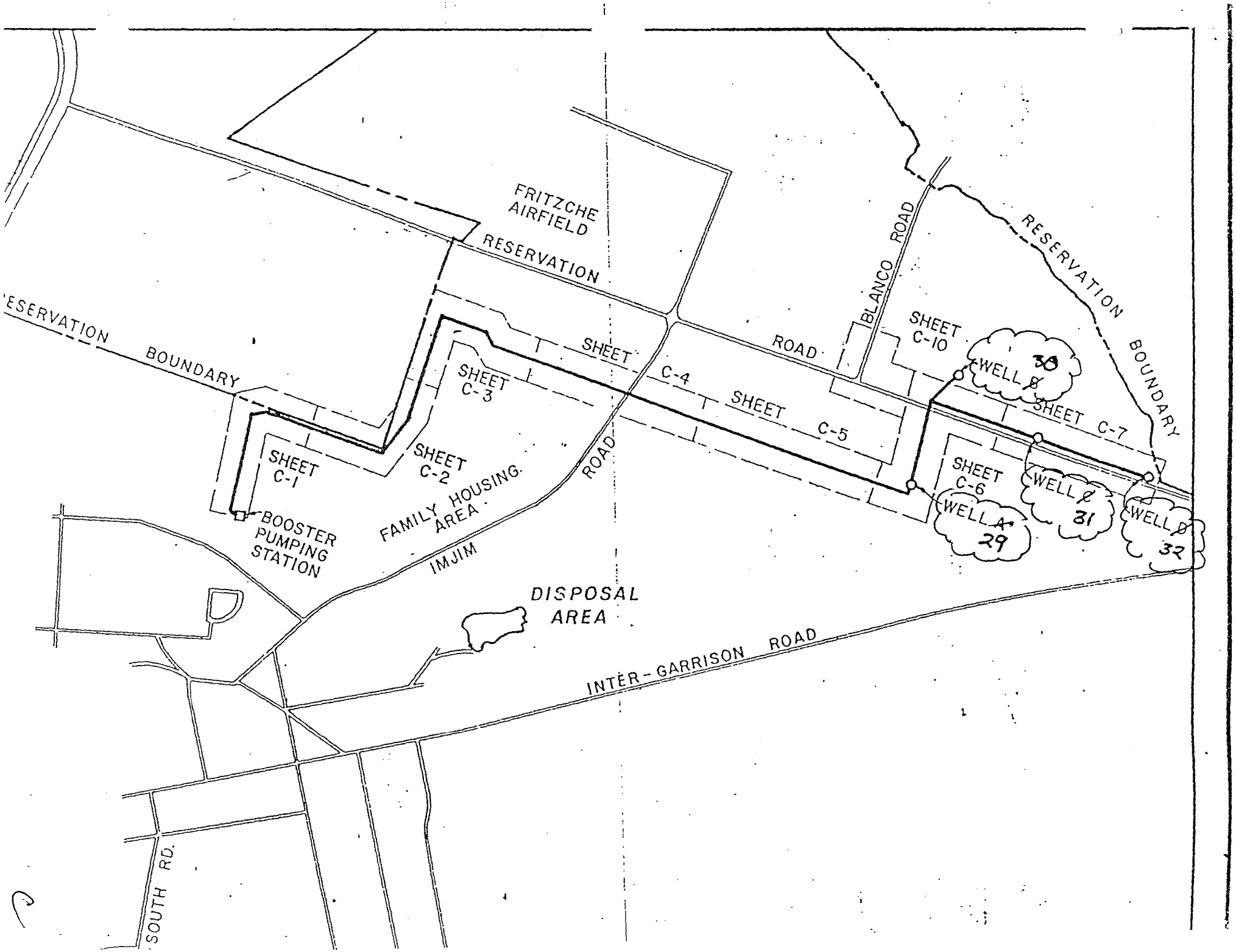
_____
Counsel for MPWMD and PVWMA

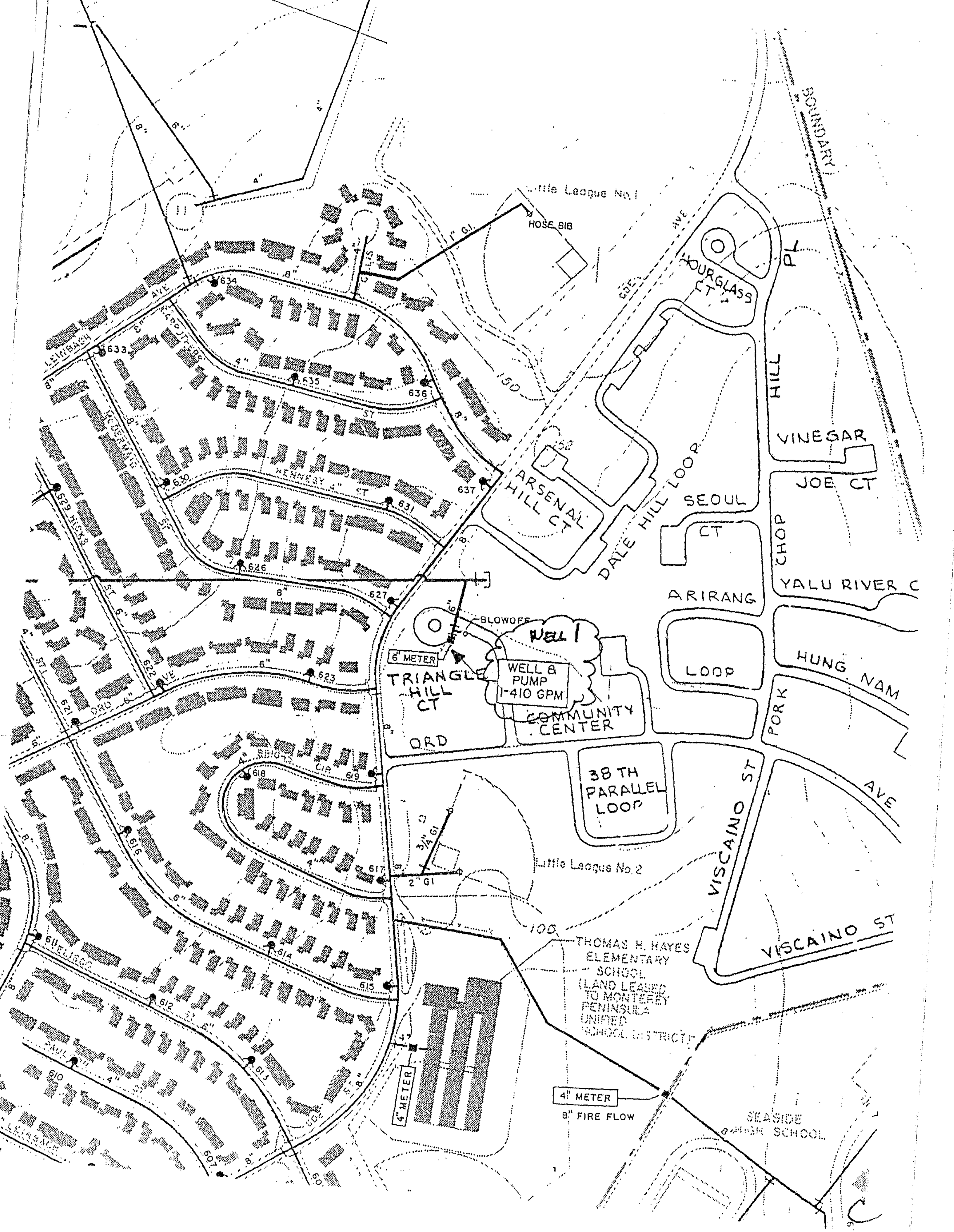
Dated: April 7, 1993

Hydrogeologic Conditions in the Fort Ord Vicinity



APPENDIX B


FRITZCHE AIRFIELD
RESERVATION
RESERVATION BOUNDARY
BLANCO ROAD
RESERVATION BOUNDARY
SHEET C-10
WELL 30
ROAD
SHEET C-4
SHEET C-5
SHEET C-7
SHEET C-3
SHEET C-2
SHEET C-1
SHEET C-6
WELL 31
WELL 29
WELL 32
BOOSTER PUMPING STATION
FAMILY HOUSING AREA
IMJIM ROAD
DISPOSAL AREA
INTER-GARRISON ROAD
SOUTH RD.



BOUNDARY
Little League No.1
HOSE BIB
1" GI
HOURGLASS CT
PL
HILL
VINEGAR
JOE CT
SEOUL CT
CHOP
ARSENAL HILL CT
DALE HILL LOOP
YALU RIVER C
ARIRANG LOOP
HUNG NAM
PORK
AVE
BLOWOFF
WELL 1
6" METER
WELL & PUMP 1-410 GPM
TRIANGLE HILL CT
COMMUNITY CENTER
ORD
38 TH PARALLEL LOOP
VISCAINO ST
VISCAINO ST
3/4" GI
2" GI
Little League No.2
THOMAS H. HAYES ELEMENTARY SCHOOL (LAND LEASED TO MONTEREY PENINSULA UNIFIED SCHOOL DISTRICT)
4" METER
4" METER
8" FIRE FLOW
SEASIDE HIGH SCHOOL
150
100
634
633
635
636
637
630
631
629
626
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ANNEXATION ASSEMBLY AND EVALUATION REPORT FOR THE ANNEXATION OF FORT ORD BY THE MONTEREY COUNTY WATER RESOURCES AGENCY 10 SEPTEMBER 1993

I. EXECUTIVE SUMMARY. The purpose of this annexation by the Monterey County Water Resources Agency (MCWRA) is to provide the basis for a long term, reliable, potable water supply to support the Army's residual mission at Fort Ord after it is realigned per the Base Closure and Realignment Act of 1990. Annexation will also facilitate the disposal and reuse of the portions of Fort Ord not needed to support the Army's residual mission. This report provides the background and justification for the annexation, which is contingent on the conditions in the accompanying Agreement. See Exhibit 1 for a regional map showing Fort Ord, and Exhibit 2 for the location of cities surrounding Fort Ord.

II. INTRODUCTION.

A. Overview of Annexation.

1. Fort Ord, like all large communities in North Monterey County, obtains all of its water supply from groundwater. From the map at Exhibit 3, it can be seen that the northwestern part of Fort Ord (Area 1) overlies part of the Salinas Valley Groundwater Basin (Salinas Basin). Within Area 1, there are three aquifers known as the 180-foot, 400-foot, and 900-foot aquifers. These aquifers are not necessarily found in every location of Area 1. Presently, Fort Ord has three active potable wells in the 180-foot and 400-foot aquifers of the Salinas Basin (wells 29, 30, and 31). By California law, the MCWRA has water management authority over the Salinas Basin. The Salinas Basin has been in an overdraft condition for many years.

2. The southwestern part of Fort Ord (Area 2 on the map) overlies the Seaside Groundwater Basin (Seaside Basin), which is divided into several subbasins due to geologic conditions. The part of Fort Ord which overlies the Seaside Basin supplies a substantial amount of recharge to this basin. Presently, Fort Ord has only one active well in the Seaside Basin to irrigate the Fort Ord golf courses (well 1). Due to occasional high salinity, water from this well is considered to be non-potable. By California law, the Monterey Peninsula Water Management District (MPWMD) has water Management authority over the Seaside Basin. In contrast to the Salinas Basin, the Seaside Basin appears to be in a nearly balanced condition.

3. In the eastern part of Fort Ord (Area 3 on the map), the boundary between the Salinas and Seaside Basins is not defined. This is not a significant issue since this area has a low

APPENDIX D

infiltration rate and subsurface permeability. As a result, the area is unsuitable for significant groundwater development, and it probably doesn't contribute a substantial amount of recharge to the western basins.

4. Pumping by Fort Ord has contributed to the Salinas Basin overdraft, but only to a limited extent as the Fort Ord withdrawals from 1988 to 1992 averaged only 5,200 acre-feet per year compared to the estimated Salinas Basin overdraft of about 50,000 acre-feet per year. The overdraft has resulted in the intrusion of seawater into the Salinas Basin which has caused the contamination of many wells along the entire coastal region, including several on Fort Ord. Although recent studies show that the rate of seawater intrusion may have slowed in the Fort Ord area, the seawater is continuing at a rapid pace in the Castroville-Salinas area several miles north of Fort Ord. Exhibit 4 shows the seawater intrusion problem. The MCWRA has requested the annexation of all of Fort Ord as part of its long term effort to halt all pumping along the Salinas Basin coastal region by providing a replacement water supply. In this manner, the seawater intrusion could be stopped and perhaps even reversed.

5. Fort Ord realized that the seawater intrusion would eventually contaminate its remaining wells, so in January 1990 the President requested Congress approve a military construction project for $7,400,000 to "Purchase part of a regional water supply system, as the first phase of a two-phase regional water supply project to provide a dependable long-term water supply for Fort Ord and the cities of Marina and Castroville." The fiscal year 1991 Defense legislation provided a $7,400,000 authorization and appropriation for the annexation of Fort Ord into the MCWRA. Additional funds for the Army's share of the regional water supply project (second phase) were never budgeted because the 1991 Defense Base Realignment and Closure process (BRAC 91) dictated that the 7th Light Infantry Division stationed at Fort Ord relocate to Fort Lewis, Washington. As a consequence, the Army deferred action on the annexation until the future status of Fort Ord was determined, and more information was available on the cost for the Army to participate in a regional water supply project.

6. Pursuant to BRAC 91, part of Fort Ord will be retained to support the Defense Language Institute (DLI) at the nearby Presidio of Monterey (POM). This Fort Ord enclave is designated as the POM Annex. Additionally, a 12 acre Reserve Center within Fort Ord will be retained (not contiguous to the POM Annex). As part of the BRAC 93 process, the Army recommended that the POM and POM Annex be closed, and the DLI be relocated to Fort Huachuca, Arizona. However, the 1993 Defense Base Closure and Realignment Commission's recommendations, which the President endorsed to Congress, call for the DLI to remain at the POM, and for the POM Annex to be downsized to only include housing and the commissary, child care facility, and post exchange. Congress is not expected to disapprove the Commission's recommendations.

7. With a BRAC 93 decision to retain an Army presence at Fort Ord, it is imperative that the Army obtain a reliable water supply to support the residual mission. For the Army to gain access to a regional water supply project being developed by the MCWRA, annexation is required. Annexation will also benefit the Army by facilitating the disposal and reuse of the parts of Fort Ord to be excessed. More detail on these and other benefits is provided in section IV.E. of this report.

B. Area to be Annexed. The area to be annexed is the whole of Fort Ord, California, which is made up of 28,602.84 acres. Refer to Exhibits 14 through 18 for real estate maps of the installation.

C. Purpose of the Area and Mission Objectives. Prior to BRAC 91, Fort Ord's primary purpose was to station the 7th Light Infantry Division. Subsequent to BRAC 93, the installation's primary purpose will be to provide housing and other facilities in support of the nearby POM and Naval Post Graduate School.

D. Present and Future Uses of the Property. Relocation of the 7th Light Infantry Division is in progress with the last units scheduled for departure by December 1993. Pursuant to BRAC 91, the Army is disposing of excess property in accordance with applicable law. To support the residual mission, the POM Annex is presently configured to occupy about 1,500 acres. However, under BRAC 93, the POM Annex is to be downsized by excessing facilities such as both golf courses. The Environmental Impact Statement for the disposal and reuse of Fort Ord, which is nearing completion, has identified the following possible uses for the parts of Fort Ord to be excessed: educational, office park (private and government), commercial, recreational, aviation, natural resource management, and housing.

E. Acquisition Origin of Fort Ord. The original Fort Ord reservation comprising 15,809.50 acres was purchased by the United States from the David Jacks Corporation on 4 August 1917. After 1940, an additional 12,793.34 acres were acquired. The total area is 28,602.84 acres.

F. Political Subdivision Seeking Annexation. The subdivision seeking annexation of all the lands comprising Fort Ord is the MCWRA which, per California law, is responsible for managing the surface water and groundwater resources in the Salinas Valley and providing flood control and water conservation services throughout Monterey County. MCWRA is requesting that Fort Ord be annexed into Zones 2 and 2A. The MCWRA established Zone 2 as the benefit assessment zone in connection with the construction of Nacimiento Reservoir (completed in 1957), and established Zone 2A as the benefit assessment zone in connection with the construction of San Antonio Reservoir (completed in 1967). Since the construction of these reservoirs, the MCWRA has operated a groundwater recharge program for the benefit of Zones 2 and 2A, using waters from the

two reservoirs and other programs to enhance natural percolation in the Salinas Basin. It is appropriate for Fort Ord to be annexed into Zones 2 and 2A because Fort Ord's potable water supply has historically come from the Salinas Basin. Per a Memorandum of Agreement signed in May 1993 between the MPWMD and MCWRA, the MPWMD does not object to the MCWRA annexing that part of Fort Ord overlying the Seaside basin provided that the MPWMD retains water management authority over the portion of the Seaside Basin underlying Fort Ord. Refer to Exhibit 19 for a large map showing the existing boundaries of Fort Ord and Zones 2 and 2A. Note that although a small portion of Fort Ord is currently shown to be within Zones 2 and 2A, the property is not presently annexed. Refer to Exhibit 20 for a large map showing the entire area of Zones 2 and 2A.

III. LEGAL STATUS OF THE PROPERTY

A. Title Held by the Government. The Army has a fee title interest in the property proposed for annexation. This action by the MCWRA will not affect the Army's title.

B. Degree of Legislative Jurisdiction. The degree of jurisdiction over most of the property is exclusive federal jurisdiction. Annexation will not alter this jurisdiction and it will not interfere with official Army activities or functions including those remaining after realignment and closure.

C. Applicable State Annexation Laws and Ordinances. The procedures for annexation are found in California Water Code, Appendix 52-43 (see Appendix A to the Agreement). The Army intends to petition the MCWRA Board of Supervisors for annexation pursuant to section 43.(b)(3). Pursuant to section 43.(b)(5), annexation may require a fee. See section IV.F. of this report for a discussion of the annexation fee.

D. Regulations on Annexation. The following govern the actions of the Army in annexations:

1. Army Regulation 405-25, Annexation (1 April 1974).

2. Engineering Regulation 405-1-12, Chapter 9, Federal Legislative Jurisdiction and Annexation (Change 4, 5 September 1978).

IV. POTENTIAL IMPACT OF ANNEXATION.

A. Source of Utilities. Water is the only utility that will be affected by the proposed annexation. Fort Ord now receives all of its water from wells on Fort Ord that are owned and operated by the Army. Since seawater intrusion is threatening these wells, the Army needs a long term, reliable, replacement water supply. Such

a water supply would likely come from a future MCWRA project; however, the Agreement provides the Army with the flexibility to obtain a replacement water supply from another source if the opportunity arises and it is in the Army's best interests. The replacement water supply system will provide water in bulk to the installation. The Army or a successor entity will continue to be responsible for operating and maintaining the water distribution system on Fort Ord Lands. Paragraph 4.d. of the Agreement addresses the fact that the Army will retain the necessary easements to operate and maintain Army wells.

B. Adverse Impacts on the Mission.

1. Utilities and Services. Annexation will have no impact on Fort Ord utilities and services, or the installation's plan to find a water purveyor to take over the water distribution system.

2. Taxation and Licensing. Municipalities acquire the power to tax private persons and private property by annexation. Military personnel, to some extent, and Government instrumentalities such as Post Exchanges are exempt from such taxation. The Agreement states that the Army will provide the MCWRA with $7,400,000 in consideration for the annexation. However, the Agreement also stipulates that the Army will not pay any MCWRA assessments (including standby charges) until after the POM Annex and Reserve Center gain access to a replacement water supply provided by the MCWRA (see paragraph IV.F.2.). To the extent that federal property may be exempt from local assessments, a utility service contract in accordance with AR 420-41 between the Army and the MCWRA may require the payment of a contractual fee to replace any assessments. Such fee will be mutually agreed upon.

C. Effect on Installation Master Plans. Upon annexation, the MCWRA will acquire some control over Fort Ord's water supply. From a practical standpoint, this control should not prevent the Army from constructing any projects needed to support Fort Ord's residual mission. Additionally, the Agreement provides Fort Ord with special rights to obtain any water needed in the event of war, national emergency, contingency operation, troop mobilization, or unexpected mission requirements.

D. Annexor's Capability to Furnish Benefits.

1. The main benefit the Army expects to receive from the MCWRA is a long term, reliable water supply. Based on its charter, the MCWRA should be the most capable organization to plan, finance, construct, and operate a regional water supply system. The MCWRA's first attempt to develop a water supply system for Fort Ord and Marina was halted in 1992 due to opposition from land owners in and around the proposed Buena Vista well field (located inland from Fort Ord). This project had a capacity of 11,600 acre-feet/year.

2. An alternative project now being studied by the MCWRA consists of dispersed wells along a 20 mile stretch of the Salinas River and storing excess runoff from the Arroyo Seco River (a tributary of the Salinas River) in a shallow aquifer using percolation ponds. Water would then be pumped from the dispersed well system and from the shallow aquifer to replace the potable wells serving Fort Ord, Marina, Salinas, Toro Park, and perhaps other areas in north Monterey County. Water would also be provided to recharge the Salinas Basin near the coast to raise the groundwater level and halt (or even reverse) the seawater intrusion. The Water Transfer Project is being planned for a capacity of about 50,000 acre-feet per year. Construction completion is planned by the year 2000. The MCWRA's current estimated cost of this project is $157 million, which equates to a capital cost of $3,155 per acre-foot per year.

3. There is another MCWRA project to mitigate seawater intrusion which is already under design. The project will upgrade the existing regional sewage treatment plant to tertiary standards, and pipe the effluent to Castroville for crop irrigation. This project should provide about 19,500 acre-feet per year, and is estimated to cost $71 million. When this project comes on line (maybe as early as 1996), the estimated 50,000 acre-feet per year Salinas Basin overdraft will be significantly reduced. This should extend the life of all wells near the coast, including those on Fort Ord. The MCWRA intends to use the Army's $7.4 million annexation fee to complete design of the Castroville Project.

4. Based on the above reasons, it is concluded that the MCWRA is the most capable organization to provide a reliable water supply for the Fort Ord Lands. This is a challenging task as the MCWRA is under considerable pressure to develop a regional water supply project quickly because the wells serving over 100,000 people in the coastal region are being threatened by seawater intrusion. Because of this threat, the State Water Resources Control Board is monitoring the MCWRA's progress in this area. If the MCWRA, for whatever reason, is unable to develop a regional water supply system, then the Agreement permits the Army to obtain a long term water supply for the POM Annex and Reserve Center from another party. Additionally, even if the MCWRA is making progress in developing a regional water supply project, the Agreement provides the Army the option of obtaining a long term water supply for the POM Annex and Reserve Center from another party if it is in the Army's best interests, e.g., the other water source is less costly or available at a more advantageous time.

E. Benefits to Accrue from Annexation. Upon annexation of Fort Ord into Zones 2 and 2A, the MCWRA will not immediately provide any direct governmental service on the installation. The benefits of annexation will accrue initially on an indirect basis, and direct services will be provided later. The benefits to the Army from annexation are as follows:

1. The most important benefit of annexation is that it will allow the Fort Ord Lands to gain access to a regional water supply project being developed by the MCWRA. Fort Ord's existing wells are being threatened by seawater intrusion due to the existing Salinas Basin overdraft. The MCWRA is the most capable, and most likely entity to implement a regional water supply project to support the POM Annex and Reserve Center.

2. Another important benefit is that annexation will facilitate the disposal and reuse of the parts of Fort Ord to be excessed under base closure and realignment. This is the main reason for annexing all Fort Ord Lands at this time instead of waiting to annex just the POM Annex and Reserve Center after the MCWRA has better defined its proposed regional water supply project, i.e., all environmental permits and approvals obtained. Under the Agreement, the new owners of Fort Ord excessed property would have the right to drill and pump on their property subject to the conditions described in paragraph IV.E.3. below, and paragraph 4.c. of the Agreement. Also, property which has already been annexed by the MCWRA will be easier to dispose because of its potential access to a long term water supply project being developed by the MCWRA, and a short term water supply from Fort Ord's existing wells (see paragraph IV.E.3. below). Without annexation, the MCWRA or state regulatory agencies could object to the Army providing water to owners of excessed Fort Ord property, even if only for a short duration. Additionally, these same agencies could severely limit or control pumping by the owners of excessed Fort Ord property due to the Salinas Basin overdraft. Lastly, even if all of these new property owners wanted to be annexed, it would be an administrative burden for the MCWRA compared to annexing just Fort Ord.

3. Until the MCWRA's regional water supply project is implemented, annexation will give the Army the right to withdraw up to 6,600 acre-feet per year from the Salinas Basin underlying Fort Ord Lands, and allow the Army to allocate some of this water for reuse. The Army or its successor water purveyor, utility, or agency may also develop groundwater supplies located outside the Salinas Basin. The amount of water needed to support the Fort Ord residual mission was the subject of a June 1993 Report titled "Water Requirements at Fort Ord Under Base Realignment and Closure", which was prepared under the supervision of the Army Corps of Engineers, Institute for Water Resources (IWR). This report concluded that the POM Annex, as presently configured, would require in fiscal year 1995 1,085 acre-feet of potable water provided that additional water conservation measures are implemented. This report also estimated that 403 acre-feet of non-potable water would be used in fiscal year 1995. The non-potable water is pumped for the golf courses from a well located in the Seaside Basin. These requirements would decrease if the POM Annex is downsized in accordance with BRAC 93. Based on a POM Annex potable water requirement of 1,429 acre-feet per year (IWR estimate plus appropriate adjustments computed by Fort Ord), there could be

up to 5,171 acre-feet per year of water available for reuse and to maintain any undisposed Fort Ord Lands and facilities in a caretaker status. Note that the Agreement only allows 5,200 of the 6,600 acre-feet per year threshold to be pumped from the 180-foot and 400-foot aquifers in the Salinas Basin. Fort Ord's active potable wells draw from the 180-foot aquifer, so a new well into the 900-foot aquifer would be needed to gain access to the additional 1,400 acre-feet per year. The Agreement also states that Fort Ord groundwater withdrawals for environmental restoration will not count toward the 6,600 acre-feet per year threshold because either the withdrawals will be small, or if they are large, the water will probably be disposed in the sanitary sewer system where it will be used by the Castroville Sewage Reclamation/Irrigation Project to help reduce seawater intrusion.

4. There is concern that the Fort Ord wells could become contaminated with seawater before the MCWRA implements their regional water supply project. In this event, annexation would be a benefit to the Army because the MCWRA will provide Fort Ord with the same services as they would provide to any other municipal water supplier in the Zones under this circumstance, i.e., assistance in finding an interim water supply and in obtaining any permits. The Army would bear the cost of obtaining this interim water supply. Under the Agreement, the MCWRA will periodically provide Fort Ord with the estimated remaining life of their wells, and the progress on the MCWRA Water Transfer Project.

5. Annexation will resolve questions concerning Fort Ord's right to withdraw groundwater from the Salinas Basin. The Agreement states that in consideration of the $7,400,000 annexation fee, the MCWRA will release the Government from any financial responsibility for existing MCWRA water projects from which Fort Ord may have benefitted (Nacimiento and San Antonio Reservoirs). Additionally, the Agreement states the MCWRA will release the Government from any claims related to seawater intrusion in the Salinas basin.

6. Under California law, annexation will provide the Fort Ord with the same representation in MCWRA matters as any other property owner in Zones 2 and 2A.

7. Another benefit of annexation is that the enclosed Agreement includes some of the conditions which must be satisfied for the Army to participate in a future MCWRA regional water supply project. The objective of these conditions is to assure that the regional water project costs assigned to the Army are equitable in comparison to the Army's allocation of water from the project. These protections are very important in view of the fact that the Army believed it was being saddled with a disproportionate cost share of the original Buena Vista project, and the fact that the POM Annex will only require a small part of the capacity of MCWRA's proposed regional water project. The Army strongly believes that part of the cost of a regional water project must be funded by all

members of Zones 2 and 2A. The water supply project is just as important to halting seawater intrusion as the Castroville Sewage Reclamation and Irrigation project, and the MCWRA plans to have 50 percent of this project funded by Zone 2 and 2A members not receiving water from the Castroville project.

F. Effect on the Budget of the Installation.

1. Annexation Fee: The Army and the MCWRA have agreed upon an annexation fee of $7,400,000, which was authorized and appropriated by Congress in the fiscal year 1991 Defense legislation. The amount of the fee is related to the benefits provided by MCWRA's existing water projects (Nacimiento and San Antonio Dams) and water management practices which protect the yield of the Salinas Basin. It is from this basin that Fort Ord has historically obtained its potable water supply. The annexation fee is consistent with the current MCWRA Annexation Policy at Exhibit 5. There are two components of the fee - for area and water use. The area component is the area to be annexed in acres times $277. The $277 is the sum of the present worth capital cost of each dam divided by the acreage of its respective zone. The water use component is $783 times the maximum amount of water to be pumped from the Salinas Basin in acre-feet per year. The $783 is the present worth, on a acre-foot per year basis, of past operation and maintenance costs for Zones 2 and 2A. Based on information from current and former Fort Ord personnel, it appears that MCWRA's current annexation policy was in effect when the Congressional budget estimate for the annexation fee was developed in 1989. The area component of the fee was apparently computed by using 8,000 acres multiplied by $277/acre or $2,216,000. Since the existing Fort Ord developed area is about 5,000 acres, the 8,000 acre figure was apparently used to account for future growth. The water use component apparently was developed using the peak withdrawal of 6,600 acre-feet/year (1984) multiplied by $783/acre-foot/year or $5,167,000. The area and water use components total $7,383,800, which was rounded to $7,400,000. The Agreement stipulates that the $7,400,000 fee will be paid to the MCWRA after completeion of the annexation.

2. Annual Assessments: The Agreement stipulates that until the POM Annex and Reserve Center receive water from a MCWRA water supply project, the Army shall not pay any assessments such as standby charges, water delivery charges, or water project assessments. Standby charges, which generally fund the MCWRA administrative costs, vary from year to year and have increased over time. At present, these charges are limited to a maximum of $15 per acre per year for each zone, per the California Water Code, Appendix 52-12. For the POM Annex and the Reserve Center, which after annexation will be in two zones (2 and 2A), this would amount to a maximum of $30 per acre. The Army's potential water project assessments (capital costs) and water delivery charges (operation and maintenance) are discussed in Agreement paragraphs 4.j.(3) and

4.j.(4), respectively. The Agreement stipulates that the Army will not pay any assessments or charges on Fort Ord property in a caretaker status awaiting disposal. Additionally, paragraph 7 of the Agreement provides the MCWRA with expanded authority to collect assessments from Fort Ord property leased to private interests by the Army.

V. POSITION OF COUNTY AND OTHER GOVERNMENT ENTITIES ON ANNEXATION.

A. MCWRA. The MCWRA initiated the annexation of Fort Ord to help solve the Salinas Basin seawater intrusion problem, and guarantee a continuing supply of potable water for Fort Ord. Annexation is a necessary step in this process. The MCWRA is moving toward annexing all property within the Salinas Basin so they can effectively manage the aquifer. With the annexation of Fort Ord and Marina, which are both in progress, all major properties within the Salinas Basin will be annexed.

B. Other Political Subdivisions. Letters were sent by the MCWRA to other communities and agencies that share boundaries with Fort Ord or have an interest in the annexation of Fort Ord by the MCWRA. The respondents, with their comments, are listed below. A sample copy of the letter is attached (Exhibit 6), as well as copies of the responses.

1. City of Monterey, CA; voted not to oppose annexation (Exhibit 7).

2. Monterey County Local Agency Formation Commission; voted to support (Exhibit 8).

3. Marina Coast Water District (formerly known as the Marina County Water District); voted not to oppose annexation (Exhibit 9). The Marina Coast Water District is currently working with the MCWRA to be annexed into zones 2 and 2A because of their concerns over the long term reliability of their existing groundwater supply.

4. Monterey Peninsula Water Management District; approved the annexation (Exhibit 10).

5. City of Del Rey Oaks, CA; voted not to oppose annexation (Exhibit 11).

6. City of Marina, CA; initially voted to table consideration of support or opposition to the annexation. The City of Marina has subsequently agreed not to oppose annexation provided that the Agreement stipulates that Fort Ord may pump up to 6,600 acre-feet of water per year from its wells, and that water not needed for the residual mission can be provided for reuse (Exhibit 12). This provision is contained in paragraph 4.c. of the Agreement.

7. City of Seaside, CA; opposes the annexation (Exhibit 13). It is concluded that in spite of this opposing response, Fort Ord should be annexed by the MCWRA. The first reason is that annexation under the terms of the attached Agreement is in the Army's best interest. The second reason is that the Army concludes there is no reasonable basis for a conflict because the Seaside groundwater supply, which is managed by the MPWMD, will not be affected by the MCWRA's annexation of Fort Ord.

VI. CONCLUSION AND RECOMMENDATIONS. This annexation is in the best interests of the Government, and it is recommended that it be approved contingent on the provisions in the attached Agreement.

EXHIBITS:

1 - Regional map
2 - Vicinity map
3 - Map of the Salinas Valley Groundwater Basin
4 - Figures showing the seawater intrusion problem
5 - MCWRA annexation policy
6 - Typical MCWRA letter sent to local interests to obtain comments on the MCWRA's proposed annexation of Fort Ord
7 - Response, City of Monterey
8 - Response, Monterey County Local Agency Formation Commission
9 - Response, Marina Coast Water District
10 - Response, Monterey Peninsula Management District
11 - Response, City of Del Rey Oaks
12 - Response, City of Marina
13 - Response, City of Seaside
14 - Fort Ord real estate map, entire installation
15 - Fort Ord real estate map, segment 1A
16 - Fort Ord real estate map, segment 1B
17 - Fort Ord real estate map, segment 1C
18 - Fort Ord real estate map, segment 1D
19 - Map showing boundaries of Fort Ord and Zones 2 and 2A
20 - Map showing entire Zones 2 and 2A

REPORT TO THE BOARD OF SUPERVISORS OF THE
MONTEREY COUNTY WATER RESOURCES AGENCY

COPY

SUBJECT	BOARD MEETING DATE	AGENDA NUMBER
APPROVE AND AUTHORIZE THE CHAIR TO SIGN THE AGREEMENT AND ANNEXATION RESOLUTION OUTLINING THE TERMS AND CONDITIONS TO ANNEX FORT ORD INTO MONTEREY COUNTY WATER RESOURCES AGENCY ZONES 2 AND 2A	9-21-93 10:50 AM	
WATER RESOURCES AGENCY		

RECOMMENDATION

Approve and authorize the Chair to sign the Agreement and Annexation Resolution outlining the terms and conditions to annex Fort Ord into Monterey County Water Resource Agency Zones 2 and 2A.

SUMMARY

The United States Army has presented the Monterey County Water Resources Agency (MCWRA) with a petition to be annexed into MCWRA's Zones 2 and 2A. The petition includes an Agreement covering the terms and conditions for the annexation (copy attached). On September 13, 1993 the MCWRA Board of Directors received the Agreement and voted to recommend it be approved by your Board. Since the Agreement has been signed by the authorized representative for the Army, your Board's approval and signature by your Board Chair on the Agreement and Annexation Resolution will complete the annexation action and obligate the Army to a payment of $7.4 million to the MCWRA.

DISCUSSION

✓ On July 10, 1990 the Monterey County Board of Supervisors, acting then for the Monterey County Flood Control and Water Conservation District, authorized the Chair of the Board of Supervisors to sign a Memorandum of Agreement (MOA) that contained the terms and conditions for the annexation of Fort Ord into MCWRA Zones 2 and 2A. The MOA was never co-signed by the Army at that time because it did not address the closure of Fort Ord.

✓ On April, 1993 Army officials on Fort Ord submitted an MOA to the MCWRA for approval. This MOA was approved by the Board of Supervisors on April 20, 1993. When this version of the MOA was received by Army officials in Washington DC, it was rejected on the grounds that it did not sufficiently address the down-sizing of Fort Ord or the Installation's future reuse.

The MOA was changed to an "Agreement" and re-written by Army officials in the Pentagon. The Agreement as is now being presented preserves the key components of the earlier MOA and more completely addresses the Army's declining presence on Fort Ord. It establishes a total cap on groundwater pumping from the Salinas Groundwater Basin, quantifies the amount of water the Army will need for their residual presence and quantifies the amount of water that will be available for civilian reuse.

Approval of the Agreement and the Annexation Resolution by the Board of Supervisors at this time will complete the annexation. The Army will become contractually obligated to pay the agreed annexation fee of $7,400,000 upon being presented with the signed Agreement and Annexation Resolution.

The Agreement consists of the Petition for Annexation and Appendices A, B, C, and D. Exhibits to Appendix D, are available upon request at the offices of the MCWRA.

OTHER AGENCY INVOLVEMENT

In August of 1992 the MCWRA sent a letter to all the Communities surrounding Fort Ord and to other agencies that might be affected by the annexation of the Fort into MCWRA Zones 2 and 2A. The letter indicated the MCWRA's intent to pursue the annexation and it asked the addressees to indicate their support or opposition to the intended action. A summary of the responses is shown on pages 10 and 11 of Appendix D, the Annexation Assembly and Evaluation Report. In addition, on September 9, 1993 the Fort Ord Reuse Group wrote a letter to the Army in support of the annexation.

FINANCING

There is no impact to the General Fund. After annexation, the MCWRA would receive $7.4 million from FY 1991 Military Construction Army appropriated funds. The full amount is scheduled to be applied against the costs of the Castroville Reclamation and Irrigation Project.

William F. Hurst
General Manager

Before the Board of Supervisors in and for the County of Monterey, State of California

COPY

Agreement No. A-06404 --)
Agreement Between the United States of)
America and the Monterey County Water)
Resources Agency Concerning Annexation of)
Fort Ord Into Zones 2 and 2A of the Monterey)
County Water Resources Agency, Approved;)
Chairwoman Authorized to Sign . . . . .)

Upon motion of Supervisor Johnsen, seconded by Supervisor Strasser Kauffman, and carried, the Board hereby approves Agreement No. A-06404 between the United States of America and the Monterey County Water Resources Agency concerning annexation of Fort Ord into Zones 2 and 2A of the Monterey County Water Resources Agency, and authorizes the Chairwoman to sign said agreement.

PASSED AND ADOPTED this 21st day of September, 1993, by the following vote, to-wit:

AYES: Supervisors Salinas, Shipnuck, Perkins, Johnsen and Karas.

NOES: None.

ABSENT: None.

I, ERNEST K. MORISHITA, Clerk of the Board of Supervisors of the County of Monterey, State of California, hereby certify that the foregoing is a true copy of an original order of said Board of Supervisors duly made and entered in the minutes thereof at page -- of Minute Book 67, on September 21, 1993

Dated: September 21, 1993

ERNEST K. MORISHITA, Clerk of the Board of Supervisors, County of Monterey, State of California.

By Nancy Lukenbill Deputy

Before the Board of Supervisors in and for the County of Monterey, State of California

Resolution No. 93-387 --)
A Resolution of the Board of Supervisors)
of the Monterey County Water Resources)
Agency Making findings for the Annexation)
of Certain Territory, Known as the Ft. Ord)
Annexation, to Zones 2 and 2A of the)
Monterey County Water Resources Agency,)
Setting Forth the Conditions for Said)
Annexation, and Approving Said Annexation.)

WHEREAS,

A. For many years, the territory known as Ft. Ord, in Monterey County, California, has obtained its potable water from the Salinas Valley Groundwater Basin.

B. Much of the water in the Salinas Valley Groundwater Basin is derived from the Groundwater recharge program made possible through the operation of Lake Nacimiento and Lake San Antonio. The dams that impound these lakes were built and are operated by the Monterey County Water Resources Agency (MCWRA). The capital, operating and maintenance expenses of these reservoirs have been paid for by the property owners in MCWRA Zones 2 and 2A.

C. Ft. Ord is not in Zones 2 and 2A, and has never paid any of the assessments for the reservoirs, although it has benefited from the groundwater recharge program maintained by Zones 2 and 2A.

D. Over the years, seawater intrusion has progressively advanced into the northern portions of the Salinas Valley Groundwater Basin, rendering wells useless for potable and agricultural purposes and threatening nearby water supplies. Several wells previously used to supply water to Fort Ord have been lost to seawater intrusion.

E. The MCWRA proposes to develop a seawater intrusion program that would replace groundwater wells in the northern portion of the Salinas Valley. The program would rely on groundwater or surface water developed in Zones 2 and 2A. The program would require that all properties to be benefited by the program be in Zones 2 and 2A.

F. The territory of Fort Ord is not in Zone 2 and 2A. The U. S. Government, as owner of said property, desires that the territory of Fort Ord be annexed to Zones 2 and 2A, in order to compensate Zones 2 and 2A for past benefits received and to insure the territory's right to participate in the seawater

intrusion program, should a water project be built in Zones 2 and 2A for the benefit of this area.

G. The proposed annexation is not a project within the meaning of CEQA because (1) the terms of the annexation limit the use of water on Ft. Ord to present or historical levels of water use, pending the completion of a water supply project for the benefit of this area, and (2) the annexation does not commit the MCWRA or Ft. Ord to the development of any particular water project or to any other action that will result in changes in the environment. Therefore, it can be seen with certainty that there is no possibility that the annexation will result in significant environmental effects.

H. This annexation is conducted pursuant to the Monterey County Water Resources Agency Act, Section 43.

NOW, THEREFORE BE IT RESOLVED:

1. It is in the best interest of Zones 2 and 2A and the territory described in Exhibit A, referred to herein as the Ft. Ord annexation, that the territory described in Exhibit A be annexed to the zones.

2. The boundaries of the territory to be annexed, as set forth in Exhibit A, are appropriate and need not be modified.

3. There are no other annexation petitions pending before the Agency that involve annexation of any of the same territory to the same zones.

4. The territory described in Exhibit A is hereby annexed to Monterey County Water Resources Agency Zones 2 and 2A, subject to the conditions set forth in the annexation agreement, attached hereto as Exhibit B. The annexation fee shall be paid as provided in Exhibit B.

5. The annexation shall take effect immediately upon the adoption of this resolution.

6. On the effective date of the annexation, the territory described in Exhibit A shall be subject to all the liabilities and entitled to all the benefits of the zone, except as otherwise provided in the annexation agreement, attached hereto as Exhibit B.

Upon motion of Supervisor Johnsen, seconded by Supervisor Karas, the foregoing resolution is adopted this 21st day of September, 1993, by the following vote, to-wit:

AYES: Supervisors Salinas, Shipnuck, Perkins, Johnsen and Karas.

NOES: None.

ABSENT: None.

I, ERNEST K. MORISHITA, Clerk of the Board of Supervisors of the County of Monterey, State of California, hereby certify that the foregoing is a true copy of an original order of said Board of Supervisors duly made and entered in the minutes thereof at page -- of Minute Book 67, on September 21, 1993

Dated: September 21, 1993

ERNEST K. MORISHITA, Clerk of the Board
of Supervisors, County of Monterey,
State of California.

D. Bardell

PETITION FOR ANNEXATION
TO ZONES 2 AND 2A
MONTEREY COUNTY WATER RESOURCE AGENCY
MONTEREY COUNTY, CALIFORNIA

AFFIDAVIT

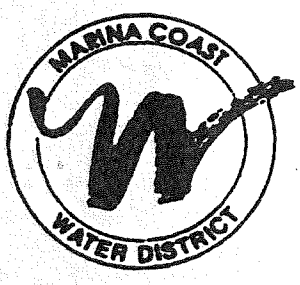
I, the undersigned, declare under penalty of perjury under the laws of the State of California that the attached Memorandum of Agreement with attachments, when executed by the parties thereto, constitutes a petition for the annexation of the territory of Fort Ord, in Monterey County, California, to Zones 2 and 2A of the Monterey County Water Resource Agency, Monterey County, California, by 100 per cent of the owners of the land described therein, and I am informed and believe that the information contained therein is true and correct.

Dated: 9/10/93

Signature

Name: MICHAEL W. OWEN

Title: Acting Assistant Secretary of the Army
(Installations, Logistics and Environment)



Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands

March 1996

ANNEXATION AGREEMENT AND GROUNDWATER MITIGATION FRAMEWORK FOR MARINA AREA LANDS

EXECUTIVE SUMMARY

PURPOSE--Groundwater Planning. This Agreement and Framework provides for annexing lands in the Marina area to MCWRA Zones 2 and 2A, the benefit assessment zones for the Nacimiento and San Antonio reservoirs. The Agreement and Framework establishes a groundwater mitigation framework process for the lands to be annexed, and provides money from the Marina area for Basin management planning.

ANNEXATION TO ZONES 2 AND 2A--MCWD, Armstrong, Lonestar. Annexation proceeds under section 7 of the MCWRA Act for lands within the service area of MCWD, and lands owned by Armstrong and Lonestar. Annexation of the MCWD service area was effective immediately upon approval by the MCWRA Board of Supervisors. The Armstrong Ranch annexation will be effective when LAFCO approves concurrent annexation to MCWD and the City of Marina on conditions satisfactory to Armstrong (including recordation of a final subdivision map). The Lonestar annexation will take effect when the Lonestar Property is annexed to MCWD.

Annexation Fees--more than $3,500,000. Annexation fees are based on $277/acre of land annexed, and $783/af of water to be used. The fee for land on which water is not used is $27.70/acre. The fee for agricultural water is $261/af. Annexation fees total more than $3,500,000, plus interest, as follows:

Fees for MCWD are $2,449,410, based on 1,750 acres @ $277/ac. and 3,020 afy of water @ $783/af, and a credit of $400,000 already paid by MCWD for groundwater management planning.

Fees for Armstrong will be about $970,000 for Area A (urban), based on 900 acres @ $277/ac. and 900 afy @ $783/af, and an amount subject to final determination upon actual annexation for Area B (irrigated and unirrigated agriculture). If the annexation of the Armstrong Ranch occurs more than seven years after MCWRA approves the Annexation Agreement, Armstrong will pay the then-current annexation fees. If the agricultural water use on Area B of the Armstrong Ranch changes, Armstrong will pay an additional 2/3 of the then-current water charge portion of the annexation fee, and if water is used on any area annexed as unirrigated, Armstrong will pay an additional 9/10 of the then current land charge.

Fees for Lonestar will be $166,621, based on 104 acres using water @ $277/ac., and 264 acres of unirrigated, vacant land @ $27.70/ac., and 500 afy of water with quality below agricultural standards @ $261/af. If Lonestar's use changes to a potable use, or if Lonestar is supplied water from the MCWD or has water available from the BMP, or if Lonestar uses water on the open-space area, Lonestar will pay the other two-thirds of the water charge.

Payments for MCWD, Armstrong and Lonestar may be in a lump sum, or in installments over 10 years from the date of annexation, with 6% annual interest.

Annexation fees will be dedicated to paying costs of a BMP process that includes benefits for the Marina Area, and for management and protection of the deep aquifer.

Annual Assessments. After annexation, Marina area lands will pay annual assessments for MCWRA Zones 2, 2A and 2Z.

GROUNDWATER LIMITS--4,440 AFY

Pumping Limits. Under the Agreement and Framework, the present MCWD service area is limited to **3020** afy of potable groundwater. Non-agricultural use of Basin groundwater on the Armstrong Ranch is limited to **920** afy, 20 afy when the Agreement and Framework becomes effective, an additional 150 afy upon annexation, and additional increments of 150 afy every two years thereafter. Groundwater underlying approximately 730 acres of the Armstrong Ranch is limited to agricultural use, except that **20** afy can be used for potable uses, and water from that area can also be used at the regional treatment plant. Lonestar will limit its pumping to its current use of **500** afy.

Reclaimed Water Management. MCWD has the right to receive tertiary treated water from the SVRP plant. MCWD will defer taking summer flows of more than 300 afy (all summer flows if a reservoir is built). MCWD will take its entitlement over 300 afy from winter flows, and plan to store the water for use in the summer. MCWD will pay MCWRA for each acre-foot of reclaimed water received from the SVRP, with the price determined each year by a formula.

Water Storage Site. Armstrong will reserve not more than 250 acres of land for the MCWD for a possible water storage site, subject to planning and CEQA compliance. Armstrong will donate the land over about 12 years, as Armstrong's entitlement to potable groundwater use increases in 150 afy increments, or MCWD can acquire land as needed by paying $25,000 per acre (which can be recovered in Armstrong's fees to annex land to MCWD). MCWD, MCWRA, the City of Marina (and MRWPCA, if it signs the Addendum) agree not to take any more land on the Armstrong Ranch, except for specified, limited purposes. Armstrong has reserved well

sites to irrigate Area B and to provide water for MRWPCA's regional treatment plant.

Alternate Water Supplies--300 afy of new water.

BMP. MCWRA's BMP planning will include consideration of the Marina area for a Basin alternative to groundwater pumping in the Marina area.

MCWD. MCWD will continue to plan for new water supplies, such as wastewater reclamation and desalination, to replace and supplement groundwater pumping.

Deep Aquifer Management. MCWRA and MCWD will manage the 900' aquifer to protect and preserve it and to sustain a secure water supply source for MCWD.

Water Source for Fort Ord. MCWD's deep wells may be used to provide up to 1400 afy of water already allocated to Fort Ord as part of the Fort Ord annexation to Zones 2 and 2A.

CONSERVATION. MCWD's aggressive water conservation program will continue in the Marina area.

EQUAL TREATMENT. The MCWRA will not impose greater restrictions on the Marina area's water use from the Basin than are imposed on water use or supply for use within the City of Salinas.

MRWPCA ADDENDUM. The Addendum attached to the Agreement and Framework as Exhibit "G" would provide for MRWPCA to join the Agreement and Framework on terms which would include possible acquisition of a buffer zone for the Regional Treatment Plant, and agreement to the other terms of the Agreement and Framework.

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EXHIBITS

ANNEXATION AGREEMENT AND GROUNDWATER MITIGATION FRAMEWORK FOR MARINA AREA LANDS

SUBJECT: **Management and Protection of Salinas River Groundwater Basin; Annexation of Marina Area Lands To Zones 2 and 2A of the Monterey County Water Resources Agency**

1. PURPOSE AND AUTHORITY.

1.1. Purpose. The purpose of this Agreement and Framework is to help reduce seawater intrusion and protect the groundwater resource and preserve the environment of the Salinas River Groundwater Basin through voluntary commitments by the Parties to limit, conserve and manage the use of groundwater from the Salinas River groundwater basin, and to provide the terms and conditions for the annexation of certain territory in the Marina area to the Monterey County Water Resources Agency's benefit assessment Zones 2 and 2A as a financing mechanism providing additional revenues to the Monterey County Water Resources Agency to manage and protect the groundwater resource in the Salinas River Groundwater Basin and to reduce seawater intrusion.

1.2. Authority. This Agreement and Framework is entered into under the authority of the Agency Act, the California Water Code, and the California Government Code.

2. DEFINITIONS AND DESIGNATIONS. The following definitions and designations apply to this Agreement and Framework:

2.1. Parties.

2.1.1. Marina Coast Water District ("MCWD"). A political subdivision of the State of California, located in Monterey County, governed by MCWD's Board of Directors.

2.1.2. Monterey County Water Resources Agency ("MCWRA"). A water and flood control agency created by the State of California, with jurisdiction coextensive with Monterey County, governed by the Monterey County Water Resources Agency Board of Supervisors.

2.1.3. J. G. Armstrong Family Members ("Armstrong"). The owners of the Armstrong Ranch in the Marina area of Monterey County.

2.1.4. RMC Lonestar ("Lonestar"). A California general partnership and owner of the Lonestar property in the Marina area of Monterey County.

2.1.5. City of Marina ("City"). An incorporated municipality within Monterey County, organized and operating under the laws of the State of California, governed by its City Council.

2.2. AFY. Acre-feet per year.

2.3. Agency Act. MCWRA's enabling legislation adopted by Chapter 1159 of the Statutes of 1990, and Chapter 1130 of the Statutes of 1991, set forth in full in West's California Water Code Appendix, Chapter 52.

2.4. Armstrong Ranch. About 1850 acres of land in the Marina area, as shown on Exhibit "C," about 322 acres of which is within the City of Marina, plus an additional 150 acres not shown on Exhibit "C" which is already in the Zones.

2.5. Basin. The Salinas River Groundwater Basin.

2.6. BMP. The MCWRA's Basin Management Plan for the Salinas River Groundwater Basin.

2.7. CEQA. The California Environmental Quality Act, Public Resources Code sections 21000 and following.

2.8. CSIP. The Castroville Seawater Intrusion Project, a distribution system project already approved and being implemented by MCWRA to provide reclaimed water for irrigation in the Castroville Area of Monterey County.

2.9. Effective Date. Subject to paragraph 4, this Agreement and Framework shall be fully effective when executed by all the Parties.

2.10. Exhibits.

"A" The general geographic relationship of MCWD, Armstrong and Lonestar to the Basin and to the Zones is shown on the diagram attached to this Agreement and Framework as Exhibit "A."

"B" MCWD service area to be annexed

"C" Armstrong Ranch land to be annexed

"D" Lonestar property to be annexed

"E" Calculation of Incremental Cost for Tertiary Treated Water

"F" Armstrong Areas Reserved For Transfer to MCWD

"G" MRWPCA Addendum

2.11. FEIR. The Final Environmental Impact Report for the Salinas Valley Seawater Intrusion Program (February 1992).

2.12. Fort Ord. The land within the boundaries of the former Fort Ord Military Reservation.

2.13. Lonestar Property. A parcel containing about 400 acres of land in the Marina area, as shown on Exhibit "D."

2.14. Marina Area. Lands served by, adjacent to, or within the sphere of influence of MCWD.

2.15. MCWD Water Plans. The Urban Water Master Plan and the Urban Water Shortage Contingency Plan adopted by MCWD.

2.16. MCWRA/MRWPCA Agreement. Monterey County Agreement No. A-6078, "Agreement Between The Monterey County Water Resources Agency And The Monterey Regional Water Pollution Control Agency For Construction And Operation Of A Tertiary Treatment System," dated for reference purposes June 16, 1992, as amended on or before December 1, 1995.

2.17. Mitigation Plan. A plan for a potable water supply capable of mitigating the effects of seawater intrusion and providing a long-term potable water supply to MCWD's distribution system.

2.18. Mitigation Plan Implementation. The Mitigation Plan shall be considered "implemented" upon the delivery of potable water to MCWD's distribution system from a completed, long-term, potable water supply system, after system testing has been successfully completed.

2.19. Agreement and Framework. This Annexation Agreement and Groundwater Framework for Marina Area Lands.

2.20. Monterey Regional Water Pollution Control Agency ("MRWPCA"). A joint powers authority providing sewage treatment service to its member entities in Northern Monterey County, governed by its Board of Directors.

2.21. MRWPCA Annexation Agreement. "Annexation Agreement Between The Marina County Water District And The Monterey Regional Water Pollution Control Agency," dated April 25, 1989, as amended on or before December 1, 1995.

2.22. 1990 Agreement. Monterey County Agreement No. A-5471, "Preliminary Agreement Between United States of America, Marina Coast Water District, and Monterey County Flood Control and Water Conservation District," dated July 12, 1990.

2.23. SVRP. The Salinas Valley Reclamation Project, a project already approved and being implemented by MCWRA, in

cooperation with MRWPCA, to reclaim water at the MRWPCA's regional treatment plant, for irrigation through the CSIP.

2.24. Zones. Zones 2 and 2A of the MCWRA, which are the zones of benefit and assessment for the MCWRA's Nacimiento and San Antonio reservoirs.

3. FACTS AND CIRCUMSTANCES. This Agreement and Framework is entered into with regard to the following facts and circumstances:

3.1. The MCWRA has approved fourteen other annexations to Zones 2 and 2A since 1991. Like other areas which have been annexed, the Marina area is within the Salinas River Groundwater Basin, has been using groundwater for many years, and has strong claims to groundwater rights. Since the Fort Ord annexation in 1993, the Marina area is surrounded on three sides by Zones 2 and 2A, and by Monterey Bay to the west.

3.2. MCWRA agreed in the 1990 Agreement to "encourage and support" annexing MCWD to Zones 2 and 2A. MCWD has worked for about thirteen years with the MCWRA on plans for a reliable, long-term water supply for the northern Basin area, including the Marina area and Fort Ord. MCWD's participation has included payment of money to assist the planning effort. As part of the 1990 Agreement, MCWD paid for survey and planning work for the long-term water supply effort. Sums paid by MCWD to MCWRA total over $400,000. The work for which MCWD paid will be useful for the Mitigation Plan.

3.3. MCWD, City, Armstrong and Lonestar claim the right to use groundwater from the Basin, to the full extent provided by law. MCWD takes water from wells owned and operated by MCWD and drilled into the "180-foot", "400-foot" and "900-foot" aquifers in the Basin. About ninety-eight percent of potable water used currently by MCWD comes from the 900-foot aquifer. MCWD's current maximum pumping capacity is 5,800 gpm (9,350 afy) of potable water and 1,100 gpm (1,770 afy) of other usable water. Allowing for routine maintenance and providing a contingency factor for emergency shutdown, MCWD's current estimated operational pumping capacity for potable water is 3900 gpm (6,000 afy).

3.4. MCWD agreed in writing in 1988 to cooperate with the City in providing water service to the Lonestar property and the Armstrong Ranch. A coordinated and centralized water supply for the Marina Area in furtherance of that 1988 agreement will facilitate management and protection of the groundwater resource in the Marina Area. Armstrong claims the right and ability to use not less than 920 afy of potable water from the Basin to provide potable water service to the Armstrong Ranch, and the right to use water for agricultural purposes. MCWD currently supplies some water to the Armstrong Ranch. The Armstrong Ranch will need reclaimed water for golf course purposes, park purposes and such other general uses as may be required by any agency having

jurisdiction as a condition of development. The Lonestar property currently uses about 500 afy of groundwater from the Basin.

3.5. The MCWD Water Plans are based on a total need within MCWD's current boundaries of 3,020 afy of water for potable uses and about 280 afy additional water suitable for irrigation, and on additional projected need by the rest of the Marina area as specified in the MCWD Water Plans.

3.6. MCWRA has previously annexed Fort Ord into Zones 2 and 2A. The September 1993 Agreement for that annexation provides that until implementation of a project to provide a substitute supply, a maximum of 6,600 afy may be withdrawn from the Basin for use on Fort Ord lands, provided no more than 5,200 afy are withdrawn from the 180-foot aquifer and 400-foot aquifer. The USA received a credit against annexation fees for about $400,000 paid under the 1990 Agreement.

3.7. Pursuant to paragraph 12 of the MRWPCA Annexation Agreement, MCWD has the right to obtain from the MRWPCA, at the regional treatment plant, treated wastewater for reuse by the MCWD in quantities equal to the volume of MCWD wastewater treated by MRWPCA and such additional quantities as from time to time are not committed to any other users for beneficial use. MCWD's cost for such treated wastewater will be the MRWPCA's incremental cost over secondary treatment, to meet applicable local, state and federal requirements for water reuse.

3.8. The MCWRA/MRWPCA Agreement provides that the SVRP shall be designed and built for tertiary treatment of wastewater to be used for irrigation through the CSIP. That Agreement also mentions possible future interties with other agencies. The MCWRA/MRWPCA Agreement commits flows of wastewater to the CSIP as provided in Article IV and Exhibit C of that Agreement, excepting flows taken by MCWD pursuant to the MRWPCA Annexation Agreement.

4. REQUEST FOR ANNEXATION.

4.1. Request by MCWD, Armstrong, and Lonestar. Execution of this Agreement and Framework shall be deemed to be a formal and joint request by the signatories that the MCWRA's Board of Supervisors exercise their authority under section 7 of the Agency Act (West's California Water Code App. § 52-7) to annex to the Zones the lands described in Exhibits "B", "C" and "D" to this Agreement and Framework, on the terms and conditions of this Agreement and Framework as executed by the requesting signatories. No other terms or conditions shall apply to any annexation under this Agreement and Framework without the written agreement of all the Parties affected by the change.

4.2. Request by MCWD. MCWD is requesting immediate annexation of all the lands described in Exhibit "B." The lands to be annexed include the land which contains Olson School and the Methodist Church.

4.3. Request by Armstrong. Armstrong is requesting annexation of its land described in Exhibit "C", which annexation would take effect as provided in paragraph 6.2 of this Agreement and Framework.

4.4. Request by Lonestar. Lonestar is requesting immediate annexation of its land described in Exhibit "D", which annexation would take effect as provided in paragraph 7.3. of this Agreement and Framework.

4.5. Effect of Request. Other than to serve as a formal annexation request pursuant to section 7 of the Agency Act, this Agreement and Framework shall have no effect until its execution by the MCWRA.

5. TERMS AND CONDITIONS--MCWD.

5.1. Quantity limitations on MCWD's groundwater pumping.

5.1.1. Commencing on the effective date of this Agreement and Framework and continuing until Mitigation Plan Implementation, MCWD will limit its withdrawal of potable groundwater from the Basin for land in the Marina area and outside the former Fort Ord Military Reservation to 3,020 afy of potable groundwater, and only such additional quantities as are permitted by this paragraph 5.1. MCWRA's groundwater resource planning for the existing MCWD service area will be based on the latest information and projections contained in the MCWD Water Plans, using 3,020 afy as a planning guideline for potable water use.

5.1.1.1. After compliance with all applicable requirements of law, including but not limited to CEQA, MCWD may improve the interconnection between the MCWD water system and the water system serving Fort Ord, to provide for joint, conjunctive and concurrent use of all system facilities to serve Fort Ord and other areas served by MCWD, and the other Parties will cooperate on MCWD's increased withdrawal of potable groundwater by up to 1,400 afy from the 900-foot aquifer to enable the increased withdrawals from 5200 afy to 6600 afy for use on Fort Ord, as provided in paragraph 4.c. of the September 1993 Agreement between The United States of America and the MCWRA.

5.1.1.2. If the Armstrong property has been annexed to the Zones, the other Parties will cooperate on MCWD's increased withdrawal of up to 920 afy from the Basin, on the condition that such withdrawals shall be used only to provide water to the Armstrong Ranch and, to the extent that such water is requested and accepted by Armstrong, such use shall in its entirety be applied to the satisfaction of Armstrong's entitlement under paragraph 6.9. of this Agreement and Framework.

5.1.1.3. If the Lonestar property has been annexed to the Zones, the other Parties will cooperate on MCWD's

increased withdrawal of up to 500 afy from the Basin, on the condition that such withdrawals shall be used only to provide water to the Lonestar property, and, to the extent that such water is requested and accepted by Lonestar, such use shall in its entirety be applied to the satisfaction of Lonestar's entitlement under paragraph 7.2. of this Agreement and Framework.

5.1.2. Conditioned upon MCWRA's compliance with paragraphs 5.1, 5.2, 5.3., 5.5, 5.7, 8.1, 8.2 and 8.3, after Mitigation Plan Implementation, MCWD will be governed by such limitations on the withdrawal of water from the Basin as shall be included in the terms of the Mitigation Plan.

5.2. No objection by MCWRA to MCWD withdrawals except pursuant to section 22 of Agency Act. The MCWRA shall not object to any withdrawal by MCWD which is mentioned in section 5.1 above, except in compliance with section 22 of the Agency Act. All groundwater withdrawn from the Basin by MCWD may be used only within the Basin.

5.3. Management of 900-foot aquifer. The Parties agree that the "900-foot" aquifer should be managed to provide safe, sustained use of the water resource, and to preserve to MCWD the continued availability of water from the "900-foot" aquifer. The Parties will work to include in a Mitigation Plan the concept that water from the Mitigation Plan which costs less than the cost of desalinated water should be the primary source of potable water for the lands described in Exhibits "B", "C", and "D", and wells in the "900-foot" aquifer should be a secondary source, if seawater intrusion is shown to be affecting the "900-foot" aquifer by credible scientific evidence. The Parties will also work together on measures to protect the "900-foot" aquifer.

5.4. Compliance with CEQA and other applicable laws. MCWD's participation in the Mitigation Plan or any other alternative water supply plan is subject to compliance with all applicable laws, including but not limited to CEQA, and to review and approval by the MCWD.

5.5. MCWD development of alternative water supplies. MCWRA agrees that it is appropriate for MCWD to plan for and develop any new water supplies, including but not limited to wastewater reclamation and desalination, that help to meet MCWD's needs, except that the MCWRA believes that the unilateral development of water by MCWD would not be appropriate from any of the following sources: the 180-foot and 400-foot confined aquifers in the Pressure Area of the Salinas Valley Groundwater Basin, the unconfined aquifer in the three other areas in the Salinas Valley Groundwater Basin (East side, Forebay, and Upper Valley), and the Salinas River and its tributaries.

5.6. MCWD payment to MCWRA for tertiary treated water. In satisfaction of paragraph 12 of the MRWPCA Annexation Agreement, MCWD will pay to MCWRA the incremental cost over secondary

treatment to receive tertiary treated water from MRWPCA's planned tertiary treatment facilities at its regional treatment plant. The Parties agree that this cost shall be calculated as set forth on Exhibit "E" to this Agreement and Framework.

5.7. MCWD right to receive tertiary treated water from MRWPCA plant.

5.7.1. Pursuant to the MRWPCA Annexation Agreement, on or after the date of first delivery of water from the CSIP and upon compliance with all then-applicable requirements of law, including but not limited to CEQA, MCWD shall have the right to receive tertiary treated water from the tertiary treatment plant constructed and maintained pursuant to the SVRP, as provided herein.

5.7.2. The CSIP requires maximum available reclaimed water flows from the SVRP during the months of April through September to replace historically high uses of groundwater during those months, and to thereby maximize environmental benefits. Accordingly, during the months of April through September, MCWD agrees to defer taking any water over 300 afy it is entitled to take from the tertiary treatment plant under the MRWPCA Annexation Agreement. MCWD will also defer taking the first 300 afy of such flows to which it is entitled, if and after MCWD constructs a reservoir to store replacement winter flows.

5.7.3. During the months of October through March, MCWD may take the full amount of the reclaimed water to which it would, under the MRWPCA Annexation Agreement, have first priority during those months, together with an amount of water equal to the amount deferred during the immediately preceding months of April through September under paragraph 5.7.2. above. MCWD will take the deferred amount in equal or approximately equal monthly portions spread throughout the October-March period, or as otherwise agreed in writing by the MCWD and the MCWRA.

5.7.4. If MCWD's ability to supply reclaimed water is interrupted for any reason, MCWD and MCWRA will act jointly and diligently, together and with MRWPCA, to mitigate possible damage to users of such flows, including possible interim use of MCWD's wells to provide a substitute source of water.

5.8. Effective date of annexation. The annexation to Zones 2 and 2A of the MCWD lands described in Exhibit "B" shall take effect immediately upon approval of the annexation by the MCWRA Board of Supervisors on the terms of this Agreement and Framework, or, if the annexation is approved by ordinance, then thirty (30) days after adoption of an ordinance approving the terms of this Agreement and Framework.

5.9. Annexation fee.

5.9.1. Amount of MCWD annexation fee. To annex all the land described in Exhibit "B" to the Zones, MCWD shall pay to MCWRA an annexation fee in the amount of Two Million Eight Hundred Forty-Nine Thousand Four Hundred and Ten Dollars ($2,849,410.00) (based on 1750 acres in the MCWD service area and water extraction use of 3020 afy). MCWD shall pay this amount, subject to any adjustments hereinafter described, in semi-annual installments as provided in paragraph 5.9.3. below. By giving written notice to MCWRA on or before May 1, 1997, MCWD may elect to pay the annexation fee in full, without interest, in one lump sum on or before July 1, 1997.

5.9.2. Credit. MCWD shall have a credit of $400,000 against the annexation fee, based on the 1990 Agreement and the similar credit previously given to the U.S.A. on the annexation of Fort Ord to the Zones.

5.9.3. Payment of annexation fee. MCWD shall pay its annexation fee as follows:

5.9.3.1. From the total amount of the annexation fee, subtract the credit of $400,000, to determine the "net annexation fee." MCWD may elect to pay the net annexation fee in one lump sum, as provided in paragraph 5.9.1, or may pay in installments as provided below. If MCWD elects to pay in one lump sum, any late payment shall bear interest at the annual rate of 6% from the due date and shall be subject to the same penalties and collections procedures as are set forth in paragraph 6.7. of this Agreement and Framework.

5.9.3.2. MCWD may pay in twenty semi-annual installments, beginning in the fiscal year commencing on July 1, 1997, with interest at the annual rate of six percent (6%) on the unpaid principal balance accruing from July 1, 1997, and with semi-annual payments due on November 1 and February 1 and delinquent on December 10 and April 10 each fiscal year. The interest included in payments consisting of both principal and interest shall be calculated as though the installment were paid on the last day before delinquency, even if the installment is paid in advance of that date. The total amount of each installment paid on the net annexation fee shall be sufficient to amortize the full amount of principal and interest in twenty (20) equal semi-annual installments. There shall be no pre-payment penalty.

5.10. MCWD use of revenues prior to full payment of annexation fee. Until MCWD pays or receives credit for the entire annexation fee and all accrued interest on the fee, all revenue received by MCWD from the lands annexed to the Zones pursuant to this Agreement and Framework for or in connection with providing water and sewer service to the lands shall be used only for activities and functions duly performed by MCWD in connection with

providing water and sewer service, including, but not limited to, the payments required under this Agreement and Framework.

6. TERMS AND CONDITIONS--ARMSTRONG.

6.1. Ranch Areas. Annexation of the Armstrong Ranch to the Zones contemplates two general areas of the Ranch, which are designated for convenience "Area A" and "Area B." Area A consists of about 900 acres which is expected to be developed for urban uses. Area B consists of about 950 acres, a portion of which is expected to be used for irrigated agriculture, and about 220 acres of which is expected to be given to MCWD to store treated water. For purposes of determining assessments, standby charges and the like, the initial classification of the land within Area B will be determined at the time of annexation.

6.2. Effective Date of Annexation. Approval of this Agreement and Framework by the MCWRA Board of Supervisors shall constitute approval for annexation of the Armstrong Ranch to the Zones at the time and on conditions approved by LAFCO and satisfactory to Armstrong for concurrent annexation of the Armstrong Ranch to MCWD and the City of Marina, including recordation of a final subdivision map upon conditions satisfactory to Armstrong.

6.3. Participation by Armstrong in MCWD water sources. Subject to compliance with all then-applicable requirements of law, including but not limited to CEQA, Armstrong Ranch shall be entitled at all times to participate on an equitable basis with MCWD in potable water sources developed by MCWD pursuant to paragraph 5.5. of this Agreement and Framework, in which event the limitations concerning the use of water on the Armstrong Ranch, as set forth in paragraph 6.9. shall not be applicable to using potable water developed pursuant to paragraph 5.5.

6.4. Prerequisites to annexation to MCWD and the City of Marina. Any application to LAFCO for annexation of any Armstrong Ranch property to either MCWD or the City of Marina shall be concurrently submitted by the City and MCWD, and shall provide that such property to be annexed shall be within the boundaries of both MCWD and the City of Marina.

6.5. Annexation fee.

6.5.1. When the Armstrong Ranch has been annexed to the Zones, Armstrong will pay to MCWRA an annexation fee computed as the sum of

6.5.1.1. the product of multiplying the number of acres annexed by $277/acre for land intended for urban or irrigated use and $27.70/acre for land intended for grazing, dry land farming or other unirrigated use, and

6.5.1.2. the product of multiplying the number of afy of water from the Basin or the Mitigation Plan allocated to the annexed land by $783/af for potable water intended for urban use and $261/af for water intended for agricultural use. Such charge shall not be applicable to any water from a source other than the Salinas Valley Groundwater Basin or the Salinas River and its tributaries.

6.5.2. Fees for Armstrong are estimated to be about $969,660 for Area A, based on 900 acres @ $277/ac. and 920 afy @ $783/af, and an amount subject to final determination upon actual annexation for Area B. For example, based on 250 irrigated acres @ $277/ac., 700 unirrigated acres @ $27.70/ac., and 650 afy of water @ $261/af, the annexation fees for Area B would be about $258,000.

6.5.3. If annexation of the Armstrong Ranch occurs more than seven years after MCWRA approves this Agreement and Framework, Armstrong shall pay the then-current annexation fees, instead of the fees set forth in paragraph 6.5.1 above.

6.5.4. Armstrong may elect to pay the annexation fee in a lump sum as provided in paragraph 6.6 below, or may pay the annexation fee in installments as provided in paragraph 6.7 below. There shall be no prepayment penalty.

6.5.5. If the agricultural water use on Area B is changed to a potable or industrial use, then Armstrong shall pay to the MCWRA as an additional annexation fee, an additional water charge computed as two-thirds (2/3rds) of the product of the number of afy changed multiplied by the then-current annexation water charge. If Armstrong uses water on any part of the Armstrong Ranch which is initially annexed as land for unirrigated use, Armstrong shall pay an additional land fee of nine times the land fee specified for such land in 6.5.1.1 above. The additional water charge or land fee will be paid either in one lump sum, due and payable on the July 1 immediately following the change in water use, or in twenty (20) equal semi-annual installments over ten (10) years, with the payment period and interest accrual beginning on that July 1, in the same manner as prescribed for Armstrong's original annexation fee and subject to the same rules.

6.6. Payment of annexation fee in lump sum. If paid in a lump sum, the annexation fee shall be due and payable in full on July 1, next succeeding the first March 1 after the effective date of the annexation. Armstrong may elect to pay the annexation fee in full in one lump sum by giving written notice of such election to MCWRA not later than the May 1 immediately preceding the date payment is due. Any late payment shall bear interest at the annual rate of 6% from the due date, and shall be subject to the same penalties and collection procedures as are set forth in paragraph 6.7.

6.7. Payment of annexation fee in installments.

6.7.1. If paid in installments, the installments shall include interest on the unpaid principal balance at the annual rate determined in the manner hereinafter set forth, which interest shall begin to accrue on July 1, next succeeding the first March 1 after the effective date of the annexation. The interest rate on installments shall be six percent per annum. The interest included in each installment shall be calculated as though the installment were paid on the last day before delinquency, even if the installment is paid in advance of that date.

6.7.2. The amount of each semi-annual installment shall be sufficient to amortize the full amount of principal and interest in twenty (20) equal semi-annual installments.

6.7.3. The semi-annual installments shall be paid and collected at the same time and in the same manner and by the same persons as, and together with and not separately from, general agency and zone taxes and shall be delinquent at the same time and thereafter subject to the same delinquency penalties. The first installment shall be due on November 1 following July 1, next succeeding the first March 1 after the effective date of the annexation and shall be delinquent if not paid on or before the following December 10. The second installment shall be due on the following February 1 and shall be delinquent if not paid on or before the following April 10. Thereafter, installments shall fall due and become delinquent on the same dates each year.

6.7.4. The full amount of principal and interest shall be paid not later than April 10, in the tenth year following July 1, next succeeding the first March 1 after the effective date of the annexation.

6.7.5. The amount of each installment shall constitute a lien on each annexed parcel as of noon on the March 1 immediately preceding the fiscal year (July 1-June 30) in which payment of the installment will be due. If the property is subdivided, then a prorata share of the annexation fee shall become a lien on each individual parcel, based upon the ratio that the land area of the individual parcel bears to the total land area of all parcels against which the annexation fee is a lien. All laws applicable to the levy, collection and enforcement of general agency and zone taxes, including, but not limited to, those pertaining to delinquency, correction, cancellation, refund and redemption, shall be applicable to such installments.

6.7.6. MCWD shall pay to MCWRA any fees to annex the lands within the MCWD Reserved Area described in paragraph 6.10 and shown on Exhibit "F" to this Agreement and Framework.

6.8. Costs, assessments, fees and charges. Costs, assessments, fees and charges imposed by MCWD in connection with providing water and wastewater treatment capacity and service to

the Armstrong Ranch must be equitable and reasonable and must be reasonably related to services and benefits received, consistent with the County Water District Law (Water Code sections 30,000 and following), with Government Code sections 50076 and 66013, and with applicable case law.

6.9. Quantity limitations on Armstrong water use.

6.9.1. Armstrong shall have the right to utilize on the Armstrong Ranch groundwater for irrigation, and 920 afy of additional water for potable uses withdrawn from the Basin, subject to the limitations set forth herein. Armstrong shall limit potable water withdrawn from the Basin and used for potable purposes on the Armstrong Ranch to no more than 20 afy when this Agreement and Framework becomes effective, 150 afy upon annexation to the Zones, and an additional 150 afy every two years thereafter, up to the total of 920 afy for potable purposes from the Basin.

6.9.2. MCWD shall provide Armstrong with water service for all residential, municipal and industrial uses on the Armstrong Ranch. In providing such service, the water allocation for Armstrong, set forth above in paragraph 6.9.1., shall be added to the MCWD water allocation, as provided in paragraph 5.1.

6.9.3. Groundwater underlying Area B shall be used solely for agricultural activities conducted on Area B, except that not more than 20 afy of such groundwater may be used for potable uses on the Armstrong Ranch, and additional groundwater underlying Area B also may be used by the MCWD on the part of Area B conveyed to MCWD and may also be used on the adjacent lands of the MRWPCA.

6.9.4. The limits on water use provided by this paragraph 6.9. shall not apply to use of reclaimed water or of potable water developed from a source other than the Salinas Valley Groundwater Basin or the Salinas River and its tributaries.

6.10. Reservation of lands for MCWD.

6.10.1. MCWD Reserved Area . Armstrong shall reserve, for use by MCWD, the area shown diagrammatically on Exhibit "F" to this Agreement and Framework as "MCWD Reserved Area", and the non-exclusive easements shown on Exhibits "C" and "F" in favor of MCWD, appurtenant to said MCWD Reserved Area and to MCWD's reclaimed water system and transferrable with either, for construction, roads, utilities (including communications), pipelines, and any other purpose for which a road may be used, subject to the non-exclusive easements shown on Exhibits "C" and "F" to be reserved in favor of Armstrong, which said reserved easements in favor of Armstrong shall be for wells (located within the southerly 60' of the 160' x 1000' strip as shown on Exhibit "F", which wells may be relocated within said strip from time to time, on well sites which may extend north of the southerly 60' of the strip) for agricultural irrigation, roads, utilities (including

communications), pipelines, and any other purpose for which a road may be used, shall be freely assignable and usable by others, and not subject to being extinguished or limited because of overburden or surcharge, and which said reserved easements shall not interfere or be used so as to interfere with the use of the balance of said MCWD Reserved Area for the production, storage, or distribution of treated water (tertiary treatment or its equivalent), or potable water. Before either MCWD or Armstrong installs any facilities in the reserved easements, MCWD and Armstrong will meet and confer to assure that their respective uses of and facilities in the said reserved easements will not conflict. Both parties shall act reasonably in considering the needs of the other. MCWD shall not place any non-potable water impoundment within the 160' x 1000' strip, nor any non-potable water pipeline closer than 110' north of the southerly boundary. MCWD shall not be required to move any facilities the installation of which has been approved by Armstrong. Water from wells located in said reserved strip shall be used only on lands of Armstrong and also may be used by the MCWD on the part of Area B conveyed to MCWD and may also be used on the adjacent lands of the MRWPCA.

6.10.1.1. The MCWD Reserved Area, which shall not exceed 250 acres within the boundaries shown on Exhibit "F", will be "office" surveyed at the expense of MCWD within sixty days, and "field" surveyed at the expense of MCWD within one year, following approval by the MCWRA Board of Supervisors of this Agreement and Framework.

6.10.1.2. MCWD will diligently undertake, and MCWRA, City and Armstrong will cooperate in the planning and conduct of, the appropriate environmental review and application for appropriate permits to use MCWD Reserved Area for facilities for the production, storage, or distribution of treated water (tertiary treatment or its equivalent), or potable water. Any use other than for the production, storage, or distribution of treated water (tertiary treatment or its equivalent), or potable water, shall require the prior written approval of Armstrong, and any conveyances from Armstrong to MCWD shall contain appropriate restrictions on such additional use in the form of a condition subsequent to the conveyances and a power of termination in favor of Armstrong. Any attempt to condemn the power of termination shall be subject to the provisions of paragraph 6.10.3. as if it were a condemnation of fee title.

6.10.1.3. MCWD may use and take conveyance of the MCWD Reserved Area in phases of not less than 40 acres. Armstrong's obligation to reserve the MCWD Reserved Area shall expire at midnight on June 30, 2003, or upon delivery to Armstrong of written notice from MCWD cancelling MCWD's right to receive conveyance of the MCWD Reserved Area. Armstrong's obligation to reserve the MCWD Reserved Area shall be extended to July 1, 2010, if MCWD has begun to use at least 40 acres of the MCWD Reserved Area by June 30, 2003.

6.10.2. Gift by Armstrong or payment by MCWD. Armstrong has offered to make a gift to MCWD, at the agreed value of $25,000 per acre, of 50 acres of the MCWD Reserved Area for the first 150 afy of water which Armstrong is entitled to withdraw from the Basin as provided in paragraph 6.9. of this Agreement and Framework, and 40 acres for each additional 150 afy which Armstrong may withdraw pursuant to paragraph 6.9, or less than 40 acres for the last 150 afy, if the last remaining portion of the MCWD Reserved Area is less than 40 acres, but in no event to exceed the total acreage of the area shown as the MCWD Reserved Area on Exhibit "F" to this Agreement and Framework. This offer may be accepted by MCWD following such final annexation at any time during the time Armstrong is reserving the MCWD Reserved Area. In any event, however, and notwithstanding the foregoing, upon receipt by Armstrong of written request from MCWD, Armstrong will forthwith convey all or part of the MCWD Reserved Area to MCWD by grant deed. Any such part must begin in the southwest corner of MCWD Reserved Area, must be parallel to the southerly and westerly boundaries of the MCWD Reserved Area, must be rectangular or trapezoidal in shape, must be at least 40 acres in size, and must be free of any financial encumbrances except taxes and assessments not delinquent, but subject to all other encumbrances, and further subject to all laws, ordinances, regulations and rights of all governmental bodies having jurisdiction in, on or over the subject real property as they may from time to time exist. Title shall also be subject to the lien of a first deed of trust for each conveyance, executed by MCWD in favor of Armstrong securing the obligation of MCWD in favor of Armstrong next hereinafter referred to. Beginning six months after conveyance of any part of the MCWD Reserved Area which is not conveyed as a gift to MCWD, MCWD shall commence paying to Armstrong a sum calculated by multiplying the number of acres in such conveyance by Twenty-Five Thousand Dollars ($25,000.00). The price of $25,000 per acre shall be adjusted as of July 1, 2003, if Armstrong's obligation to reserve the property is extended to 2010 pursuant to paragraph 6.10.1.3. of this Agreement and Framework. In such event, the price per acre shall be computed by multiplying $25,000 by the percentage increase or decrease in the Cost of Living Index for all urban consumers in the San Francisco-Oakland-San Jose Area (1982-1984=100), occurring between July 1, 1997 and July 1, 2003, or the closest dates to such dates for which figures are available. Payment shall be made in 20 equal semi-annual payments, commencing six months after such conveyance, sufficient to amortize the obligation fully, with the unpaid principal balance bearing interest from the date of conveyance to MCWD, at the prime rate of the Bank of America in San Francisco, California, as of July 1 each year during the term of this obligation, but not to exceed the maximum rate permitted by law to be charged by Armstrong in such transaction. Any such payments made or to be made by MCWD, together with interest from the date of MCWD's payment, through December 31, 2010, at the prime rate of interest of the Bank of America in San Francisco, California, shall be included in computing annexation fees, capacity charges and service charges charged by MCWD for the part of the Armstrong Ranch to which the payments made by MCWD to Armstrong relate.

6.10.3. Waiver of further acquisitions by MCWD, MCWRA, and City of Marina; liquidated damages. Except for incidental water system and wastewater system and storm water system easements, incidental access easements, incidental road easements, and incidental utility easements, as may be necessary from time to time, and further excepting land dedicated to public uses through the development process as a condition of development, MCWD, City, and MCWRA shall not seek to acquire fee title to land or easements thereon on any part of the Armstrong Ranch by eminent domain for use in providing water or wastewater service, or for any other public purpose whatsoever, except that, as to City only, said prohibition shall apply only with respect to eminent domain for water or sanitary sewer facilities and shall not be applicable to eminent domain for other public purposes; provided, however, that in the event that any of said agencies shall, notwithstanding the foregoing covenant, warranty and representation, seek to exercise the power of eminent domain for any other purpose except as excepted above, then, and in that event, all Parties hereto hereby agree that the fair market value of and the price to be paid for all such land lying within MCWD Reserved Area as shown on Exhibit "F" hereto (and any additional area shown on an exhibit to a fully executed addendum to this Agreement and Framework) shall be the sum of Twenty-Five Thousand Dollars ($25,000.00) cash per acre and the fair market value and purchase price for all land lying outside of said MCWD Reserved Area as shown on Exhibit "F" hereto (and any additional area shown on an exhibit to a fully executed addendum to this Agreement and Framework) shall be the sum of ONE HUNDRED THOUSAND Dollars ($100,000.00) cash per acre. FURTHERMORE, IN THE EVENT THAT MCWD, CITY, AND MCWRA, OR ANY OF THEM, SHOULD BREACH THIS COVENANT, WARRANTY AND REPRESENTATION, THEN, AND IN THAT EVENT, THE PARTIES AGREE THAT ARMSTRONG SHALL BE ENTITLED TO RECOVER FROM SUCH BREACHING PARTY, AS LIQUIDATED DAMAGES, AN AMOUNT EQUAL TO THE DIFFERENCE BETWEEN THE PRICE PER ACRE ACTUALLY PAID AND TWENTY-FIVE THOUSAND DOLLARS ($25,000.00) PER ACRE MULTIPLIED BY THE NUMBER OF ACRES SO TAKEN IN THE CASE OF LAND WITHIN SAID MCWD RESERVED AREA (AND ANY ADDITIONAL AREA SHOWN ON AN EXHIBIT TO A FULLY EXECUTED ADDENDUM TO THIS AGREEMENT AND FRAMEWORK), AND THE DIFFERENCE BETWEEN THE PRICE PER ACRE ACTUALLY PAID AND ONE HUNDRED THOUSAND DOLLARS ($100,000.00) PER ACRE MULTIPLIED BY THE NUMBER OF ACRES TAKEN IN THE CASE OF LAND LYING OUTSIDE OF MCWD RESERVED AREA (AND ANY ADDITIONAL AREA SHOWN ON AN EXHIBIT TO A FULLY EXECUTED ADDENDUM TO THIS AGREEMENT AND FRAMEWORK), AS LIQUIDATED DAMAGES, WHICH THE PARTIES AGREE IS A REASONABLE SUM CONSIDERING ALL THE CIRCUMSTANCES EXISTING ON THE DATE OF THIS AGREEMENT AND FRAMEWORK, INCLUDING THE RELATIONSHIP OF THE SUM TO THE RANGE OF HARM TO ARMSTRONG THAT REASONABLY COULD BE ANTICIPATED AND THE ANTICIPATION THAT PROOF OF ACTUAL DAMAGES WOULD BE COSTLY OR INCONVENIENT. IN PLACING THEIR SIGNATURES BELOW, EACH PARTY SPECIFICALLY CONFIRMS THE ACCURACY OF THE STATEMENTS MADE ABOVE AND THE FACT THAT EACH PARTY WAS REPRESENTED BY COUNSEL WHO EXPLAINED THE CONSEQUENCES OF THIS LIQUIDATED DAMAGES PROVISION AT THE TIME THIS AGREEMENT AND FRAMEWORK WAS MADE.

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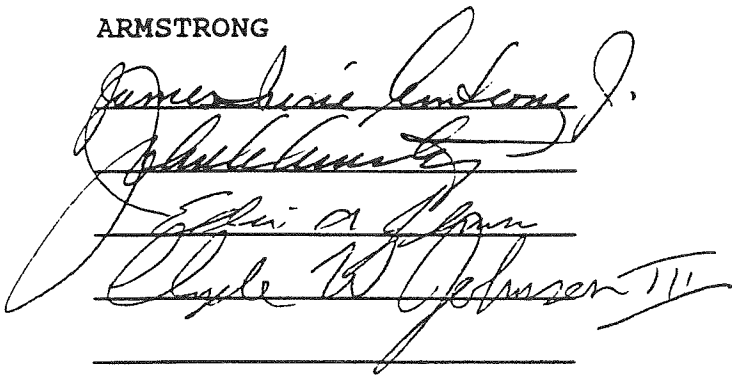

MCWD

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MCWRA

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7. TERMS AND CONDITIONS--LONESTAR.

7.1. Compliance with Agency Act Section 22. The MCWRA acknowledges that it may not object to any withdrawal by Lonestar permitted by this section 7, except in compliance with section 22 of the Agency Act. All groundwater withdrawn from the Basin by Lonestar may be used only within the Basin.

7.2. Quantity Limitations. Commencing on the effective date of this Agreement and Framework, Lonestar shall limit withdrawal and use of groundwater from the Basin to Lonestar's historical use of 500 afy of groundwater.

7.3. Annexation of Lonestar Property to the Zones. Approval of this Agreement and Framework by the MCWRA Board of Supervisors shall constitute approval for annexation of the Lonestar Property in accordance with the terms of this Agreement and Framework. The actual annexation will occur as follows: The Lonestar Property annexation to the Zones will not take effect until the Lonestar Property has been approved for prior or concurrent annexation into MCWD. When such approval has been

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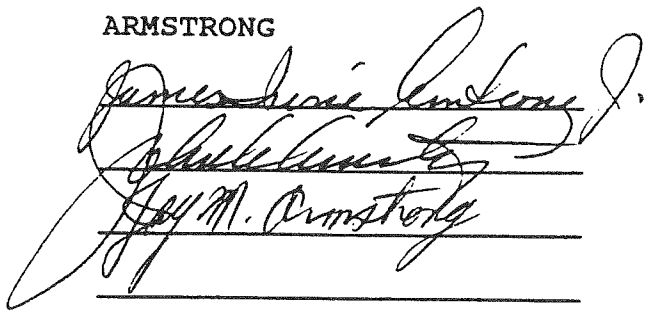

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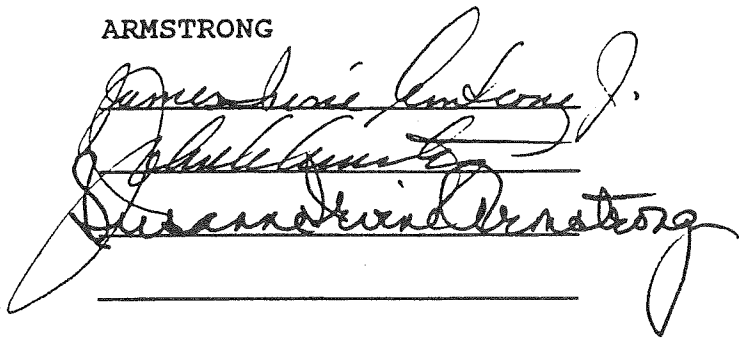

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MCWD

Thomas P. Moore April 12, 1

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Edith Johnson

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obtained, Lonestar shall notify MCWRA, and the MCWRA Board of Supervisors shall declare by resolution the effective date of the annexation.

7.4. Annexation fee.

7.4.1. Amount of original annexation fee. When the Lonestar Property has been annexed to the Zones, Lonestar will pay to MCWRA an annexation fee computed as follows:

104 acres x $277 (land fee)	=	$ 28,808
264 acres x $27.70 (open space)	=	7,313
500 afy x $783/3 (water charge)	=	130,500
Total principal (original fee)	=	166,621
Total interest @ 6%	=	57,370
Total payment	=	223,991
Semi-annual payments	=	11,200

7.4.2. Choice of lump sum or installment. Lonestar may elect to pay the annexation fee in one lump sum or may pay in semi-annual installments.

7.4.3. Lump sum payment. If paid in a lump sum, the original annexation fee shall be due and payable in full on July 1, next succeeding the first March 1 after the effective date of the annexation. Lonestar may elect to pay the annexation fee in full in one lump sum by giving written notice of such election to MCWRA not later than the May 1 immediately preceding the date payment in a lump sum would be due. Any late payment shall bear interest at the annual rate of 6% from the due date, and shall be subject to the same penalties and collection procedures as are set forth in paragraph 7.4.4.

7.4.4. Installment payments.

7.4.4.1. If the original annexation fee or any addition thereto is paid in installments, the installments shall include interest on the unpaid principal balance at the annual rate determined pursuant to this Agreement and Framework. The interest rate on installments on the original annexation fee shall be six (6) percent per annum and shall begin to accrue on July 1, next succeeding the first March 1 after the effective date of the annexation. The interest rate for the additional water charge shall be equivalent to that which the County would pay for funds borrowed at the time the additional water charge is determined and shall begin to accrue at the beginning of the applicable payment period. The interest included in each installment shall be calculated as though the installment were paid on the last day

before delinquency, even if the installment is paid in advance of that date.

7.4.4.2. The amount of each semi-annual installment shall be sufficient to amortize the full amount of principal and interest in twenty (20) equal semi-annual installments.

7.4.4.3. The semi-annual installments shall be paid and collected at the same time and in the same manner and by the same persons as, and together with and not separately from, general agency and zone taxes and shall be delinquent at the same time and thereafter subject to the same delinquency penalties. The first installment shall be due on November 1 following July 1, next succeeding the first March 1 after the effective date of the annexation and shall be delinquent if not paid on or before the following December 10. The second installment shall be due on the following February 1 and shall be delinquent if not paid on or before the following April 10. Thereafter, installments shall fall due and become delinquent on the same dates each year.

7.4.4.4. The full amount of principal and interest shall be paid not later than April 10, in the tenth year following July 1, next succeeding the first March 1 after the effective date of the annexation.

7.4.4.5. The amount of each installment shall constitute a lien on the annexed property as of noon on the March 1 immediately preceding the fiscal year (July 1-June 30) in which payment of the installment will be due. If the property is subdivided, then a prorata share of the annexation fee shall become a lien on each individual parcel, based upon the ratio that the land area of the individual parcel bears to the total land area of all parcels against which the annexation fee is a lien. All laws applicable to the levy, collection and enforcement of general agency and zone taxes, including, but not limited to, those pertaining to delinquency, correction, cancellation, refund and redemption, shall be applicable to such installments.

7.4.5. Additional annexation fee for change in water use. If the water use on the Lonestar Property is changed from an industrial or agricultural use to a potable or other use, or if MCWD delivers potable water to the Lonestar Property pursuant to paragraph 5.1.1.3., then Lonestar shall pay to the MCWRA as an additional annexation fee, an additional water charge computed as two-thirds (2/3rds) of the product of 500 afy multiplied by the then-current annexation water charge. If Lonestar uses water on the 264-acre open-space area, Lonestar shall pay an additional land fee of nine times the land fee specified for the area in 7.4.1. above. The additional water charge or land fee will be paid either in one lump sum, due and payable on July 1, immediately following the change in water use, or in twenty (20) equal semi-annual installments over ten (10) years, with the payment period and interest accrual beginning on that July 1, in the same manner as

prescribed for Lonestar's original annexation fee and subject to the same rules.

7.4.6. Additional annexation fee for Mitigation Plan water supply allocation. If a substitute supply of potable Mitigation Plan water is approved for the Lonestar Property pursuant to Section 22 of the MCWRA Act, then, when the contract for construction of the Mitigation Plan has been approved by the MCWRA Board of Supervisors, and when Lonestar begins using water for potable uses, Lonestar will pay as an addition to its annexation fee an additional water charge computed as two-thirds (2/3rds) of the product of the amount so allocated multiplied by the then-current annexation water charge. The additional water charge will be paid either in one lump sum, due and payable on July 1, immediately following approval of both the Mitigation Plan water supply for Lonestar and the construction contract for the Mitigation Plan, or in twenty (20) equal semi-annual installments over ten (10) years, with the payment period and the interest accrual beginning on that July 1, in the same manner as prescribed for Lonestar's original annexation fee and subject to the same rules.

7.4.7. Non-duplication of additional annexation fees. The additional annexation fees set forth in paragraphs 7.4.5 and 7.4.6 above are not intended to be cumulative. If Lonestar becomes liable to pay both of the additional annexation fees, then Lonestar shall be obligated to pay only the higher of the two fees, and any amounts previously paid towards the lower additional fees shall be credited towards payment of the higher.

8. TERMS AND CONDITIONS--GENERAL.

8.1. Equal treatment by MCWRA and MCWD. If future litigation, regulation or other unforeseen action diminishes the total water supply available to MCWRA, MCWRA agrees that it will exercise its powers so that MCWD, Armstrong and Lonestar shall be no more severely affected in a proportional sense than other lawful users of water from the Zones, based on the right before the imposition of any uniform and generally applicable restrictions as described in paragraph 8.2 to use at least the quantities of water from the Basin described in paragraphs 5.1., 6.9., and 7.2. MCWRA shall not at any time seek to impose greater restrictions on water use from the Basin by MCWD, Armstrong or Lonestar than are imposed on users either supplying water for use or using water within the city limits of the City of Salinas. MCWD, Armstrong and Lonestar will comply with any basin-wide or area-wide water allocation plans established by the MCWRA which include MCWD, Armstrong and Lonestar, and which do not impose on use of water on the lands described in Exhibits "B", "C", and "D" restrictions greater than are imposed on users either supplying water for use or using water within the City of Salinas, and which satisfy the requirements of paragraph 5.2 of this Agreement and Framework.

8.2. Water Conservation Measures. MCWD, Armstrong and Lonestar shall use, and MCWD may require the use of reasonable and appropriate water conservation measures on the lands described in Exhibits "B", "C" and "D" to this Agreement and Framework, which water conservation measures shall be uniformly applied and may be more restrictive but shall not be less restrictive than measures implemented by MCWRA as part of a Basin-wide or area-wide water conservation program. All planning and environmental review for the lands described in Exhibits "B", "C", and "D" to this Agreement and Framework shall be based on the requirement that development on such lands shall use reasonable and appropriate water conservation measures comparable to measures implemented by MCWRA as part of a Basin-wide or area-wide water conservation program, and by MCWD as part of a water conservation program applicable uniformly within MCWD's service area.

8.3. Defense of Rights. Upon Mitigation Plan Implementation, MCWRA will defend the rights of MCWD, Armstrong and Lonestar to a supply of water from the Mitigation Plan, as though those rights were the rights of MCWRA. Participation by MCWD, Armstrong and Lonestar in the Mitigation Plan or any other alternative water supply plan is subject to compliance with all applicable laws, including but not limited to CEQA.

8.4. Use of Annexation Fees. Annexation fees from the MCWD service area, the Armstrong Ranch and the Lonestar Property shall be used by MCWRA to pay the costs of a BMP process that includes mitigation plans for the Marina Area based on the planning guidelines contained in this Agreement and Framework. Such annexation fees shall also be used for management and protection of the "900-foot aquifer."

8.5. Assessments. After approval by the Board of Supervisors of annexation to the Zones of any property described in the exhibits to this Agreement and Framework, each parcel annexed shall be subject to all uniform assessments, charges, fees, and other exactions levied in Zones 2 and 2A for the fiscal year beginning on July 1, next succeeding the first March 1 after the effective date of the annexation, and shall remain subject thereto for as long as such exactions are levied and the parcel remains within the levying zone.

8.6. Recordation. Upon approval of this Agreement and Framework by the Board of Supervisors and execution by all Parties, this Agreement and Framework shall be recorded in the office of the Monterey County Recorder. All signatures shall be notarized as necessary to record the Agreement and Framework.

9. DISPUTE RESOLUTION PROCEDURE.

9.1. If any dispute arises between the Parties as to the proper interpretation or application of this Agreement and Framework, the Parties shall first seek to resolve the dispute in accordance with this Agreement and Framework, and the Parties must

meet and confer under this Agreement and Framework before filing any court action.

9.2. If any dispute under this Agreement and Framework arises, the Parties shall first meet and confer, in an attempt to resolve the matter between themselves. Each party shall make all reasonable efforts to provide to the other Parties all the information that the party has in its possession that is relevant to the dispute, so that all Parties will have ample information with which to reach a decision.

9.3. If, notwithstanding the good faith efforts of a party requesting in writing the resolution of a dispute under this Agreement and Framework, a dispute remains unresolved sixty-one (61) days after delivery of the request to the other party, the party requesting resolution may file suit for legal and equitable relief, including specific performance, as appropriate.

10. CHALLENGE OF LAWS. Nothing herein contained shall be construed as stopping or otherwise preventing any party to this Agreement and Framework from contesting by litigation or other lawful means the validity, constitutionality, construction, or application of any law of this State, any ordinance of the public entities that are Parties hereto, or any rule, regulation or practice of the public entities that are Parties hereto.

11. WAIVER OF RIGHTS. Any waiver at any time by any party hereto of its rights with respect to a default or any other matter arising in connection with this Agreement and Framework shall not be deemed to be a waiver with respect to any other default or matter. None of the covenants or agreements herein contained can be waived except by the written consent of the waiving party.

12. NOTICES. All notices and demands required under this Agreement and Framework shall be deemed given by one party when delivered personally to the principal office of the other party; when faxed to the other party, to the fax number provided by the receiving party; or five days after the document is placed in the United States mail, first class, registered mail, or certified mail, postage prepaid, addressed to the other party as follows:

To MCWD:
11 Reservation Road
Marina, CA 93933-2099
Phone No.: (408) 384-6131
Fax No.: (408) 384-2479

To MCWRA:
General Manager
P. O. Box 930
Salinas, CA 93902-0930
Phone No.: (408)
Fax No.: (408) 424-7935

To City:	City Manager 211 Hillcrest Avenue Marina, CA 93933 Phone No.: (408) 384-3715 Fax No.: (408) 384-0425
To Armstrong:	John A. Armstrong 270 River Road Salinas, CA 93908 Phone No.: (408) 455-1907 Fax No.: (408) 455-2817
To Lonestar:	RMC LONESTAR Attention: Mr. John Rubiales P.O. Box 5252 Pleasanton, CA 94566 Phone No.: (510) 426-8787 Fax No.: (510) 426-2225

The address or fax number to which any notice or other writing may be given or made or sent to any party may be changed upon written notice given by such party as above provided.

13. SEVERABILITY. If any one or more of the covenants or agreements set forth in this Agreement and Framework on the part of MCWRA, MCWD, City, Armstrong or Lonestar, or any of them, to be performed should be contrary to any provision of law or contrary to the policy of law to such extent as to be unenforceable in any court of competent jurisdiction, then such covenant or covenants, agreement or agreements, shall be null and void and shall be deemed separable from the remaining covenants and agreements and shall in no way affect the validity of this Agreement and Framework; provided, that if voiding of such individual covenants or agreements without voiding the whole agreement would frustrate a material purpose of Lonestar in entering into this Agreement and Framework, then this whole Agreement and Framework shall be null and void ab initio as to Lonestar only.

14. PARAGRAPH HEADINGS. Paragraph headings in this Agreement and Framework are for convenience only and are not to be construed as a part of this Agreement and Framework or in any way limiting or amplifying the provisions hereof.

15. SUCCESSORS AND ASSIGNS. This Agreement and Framework and all the terms, covenants, agreements and conditions herein contained shall inure to the benefit of and be binding upon the successors and assigns of the Parties hereto.

16. ADMINISTRATORS. MCWD and MCWRA hereby designate their respective General Managers as their Administrators for this Agreement and Framework. City designates its City Manager as City's Agreement and Framework Administrator. Armstrong designates Mr. John A. Armstrong as its Agreement and Framework Administrator. Lonestar designates Mr. John Rubiales as its Agreement and

Framework Administrator. All matters concerning this Agreement and Framework shall be submitted to the Agreement and Framework Administrators or such other representatives as the Agreement and Framework Administrators may designate for their respective agencies. Any party may, in its sole discretion, change its designation of the Agreement and Framework administrator and shall promptly give written notice to the other Parties of any such change.

17. NEGOTIATED AGREEMENT AND FRAMEWORK. This Agreement and Framework has been arrived at through negotiation between the Parties. Neither party is to be deemed the party which prepared this Agreement and Framework within the meaning of Civil Code section 1654.

18. AMENDMENT. This Agreement and Framework may be amended only by a writing signed by the Parties affected by the amendment.

19. COUNTERPARTS. This Agreement and Framework may be executed in counterparts. Each fully executed counterpart shall be deemed a duplicate original, and all counterparts which together contain the signatures of all the Parties shall be deemed, when attached together, one complete and integrated original document.

20. ADDENDUM. A form of Addendum for the MRWPCA is attached hereto as Exhibit "G." When the Addendum is fully executed in its present form or in an amended form, it shall be attached to this Agreement and Framework as an integral part of this Agreement and Framework, and the provisions of the Addendum shall be deemed specifically and fully incorporated into this Agreement and Framework by this reference.

IN WITNESS WHEREOF, the Parties execute this Agreement and Framework as follows:

Dated: March 26, 1996

MONTEREY COUNTY WATER RESOURCES AGENCY

By Edith Johnsen
Edith Johnsen
Chair, Board of Supervisors

Dated: _____, 1996

MARINA COAST WATER DISTRICT

By _____
Thomas P. Moore
President, Board of Directors

By _____
Malcolm D. Crawford
Secretary, Board of Directors

STATE OF CALIFORNIA)
COUNTY OF MONTEREY) ss.

On this 26th day of March, 1996, before me, Ernest K. Morishita, Clerk of the Board of Supervisors, in and for said County and State, personally appeared Edith Johnson, known to me to be the Chairperson of said Board of Supervisors of the County of Monterey, and known to me to be the person who executed the within instrument on behalf of said political subdivision, and acknowledged to me that such County of Monterey executed the same.

ERNEST K. MORISHITA, Clerk of the
Board of Supervisors of Monterey
County, State of California

By: Pamela Olivas
Deputy Clerk

Framework Administrator. All matters concerning this Agreement and Framework shall be submitted to the Agreement and Framework Administrators or such other representatives as the Agreement and Framework Administrators may designate for their respective agencies. Any party may, in its sole discretion, change its designation of the Agreement and Framework administrator and shall promptly give written notice to the other Parties of any such change.

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IN WITNESS WHEREOF, the Parties execute this Agreement and Framework as follows:

Dated: _____, 1996

MONTEREY COUNTY WATER RESOURCES AGENCY

By _____
Edith Johnsen
Chair, Board of Supervisors

Dated: April — 12, 1996

MARINA COAST WATER DISTRICT

By Thomas P. Moore
Thomas P. Moore
President, Board of Directors

By Malcolm D. Crawford
Malcolm D. Crawford
Secretary, Board of Directors

Dated: Apr 18, 1996

Jay Max Armstrong
JAY MAX ARMSTRONG

Dated: _____, 1996

THE SANDRA ARMSTRONG MURRAY REVOCABLE TRUST UTA dated March 7, 1989

By _____
DARRELL L. MURRAY, Trustee

Dated: _____, 1996

THE LOIS AND CLYDE JOHNSON, JR., 1989 IRREVOCABLE TRUST

By _____
CLYDE W. JOHNSON III, Trustee

Dated: _____, 1996

THE JOHNSON FAMILY REVOCABLE LIVING TRUST UTA dated November 29, 1989

By _____
CLYDE W. JOHNSON III, Trustee

Dated: _____, 1996

_____
CLYDE W. JOHNSON III

Dated: _____, 1996

_____
EDWIN A. JOHNSON

Dated: Mar 29, 1996

John A. Armstrong II
JOHN A. ARMSTRONG II

Dated: _____, 1996

_____
SUSANNE IRVINE ARMSTRONG

Dated: Mar. 29, 1996

James Irvine Armstrong Jr.
JAMES IRVINE ARMSTRONG, JR.

Dated: _____, 1996

_____
JAY MAX ARMSTRONG

Dated: _____, 1996

THE SANDRA ARMSTRONG MURRAY REVOCABLE TRUST UTA dated March 7, 1989

By _____ 4/4/96
DARRELL L. MURRAY, Trustee

Dated: _____, 1996

THE LOIS AND CLYDE JOHNSON, JR., 1989 IRREVOCABLE TRUST

By _____
CLYDE W. JOHNSON III, Trustee

Dated: _____, 1996

THE JOHNSON FAMILY REVOCABLE LIVING TRUST UTA dated November 29, 1989

By _____
CLYDE W. JOHNSON III, Trustee

Dated: _____, 1996

_____
CLYDE W. JOHNSON III

Dated: _____, 1996

_____
EDWIN A. JOHNSON

Dated: Mar 29, 1996

_____
JOHN A. ARMSTRONG II

Dated: _____, 1996

_____
SUSANNE IRVINE ARMSTRONG

Dated: Mar. 29, 1996

_____
JAMES IRVINE ARMSTRONG, JR.

Dated: _____, 1996

_____
JAY MAX ARMSTRONG

Dated: _____, 1996

THE SANDRA ARMSTRONG MURRAY REVOCABLE TRUST UTA dated March 7, 1989

By _____
DARRELL L. MURRAY, Trustee

Dated: 4-4-, 1996

THE LOIS AND CLYDE JOHNSON, JR., 1989 IRREVOCABLE TRUST

By _____ Trustee
CLYDE W. JOHNSON III, Trustee

Dated: 4-4, 1996

THE JOHNSON FAMILY REVOCABLE LIVING TRUST UTA dated November 29, 1989

By _____ Trustee
CLYDE W. JOHNSON III, Trustee

Dated: 4-4, 1996

_____
CLYDE W. JOHNSON III

Dated: 4-4, 1996

_____
EDWIN A. JOHNSON

Dated: Mar 29, 1996

_____
JOHN A. ARMSTRONG II

Dated: _____, 1996

_____
SUSANNE IRVINE ARMSTRONG

Dated: Mar. 29, 1996

_____
JAMES IRVINE ARMSTRONG, JR.

Dated: _____, 1996

_____
JAY MAX ARMSTRONG

Dated: _____, 1996

THE SANDRA ARMSTRONG MURRAY REVOCABLE TRUST UTA dated March 7, 1989

By _____
DARRELL L. MURRAY, Trustee

Dated: _____, 1996

THE LOIS AND CLYDE JOHNSON, JR., 1989 IRREVOCABLE TRUST

By _____
CLYDE W. JOHNSON III, Trustee

Dated: _____, 1996

THE JOHNSON FAMILY REVOCABLE LIVING TRUST UTA dated November 29, 1989

By _____
CLYDE W. JOHNSON III, Trustee

Dated: _____, 1996

_____
CLYDE W. JOHNSON III

Dated: _____, 1996

_____
EDWIN A. JOHNSON

Dated: Mar 29, 1996

_____
JOHN A. ARMSTRONG II

Dated: _____, 1996

_____
SUSANNE IRVINE ARMSTRONG

Dated: Mar. 29, 1996

_____
JAMES IRVINE ARMSTRONG, JR.

Dated: _____, 1996

_____
JAY MAX ARMSTRONG

Dated: _____, 1996

THE SANDRA ARMSTRONG MURRAY REVOCABLE TRUST UTA dated March 7, 1989

By _____
DARRELL L. MURRAY, Trustee

Dated: _____, 1996

THE LOIS AND CLYDE JOHNSON, JR., 1989 IRREVOCABLE TRUST

By _____
CLYDE W. JOHNSON III, Trustee

Dated: _____, 1996

THE JOHNSON FAMILY REVOCABLE LIVING TRUST UTA dated November 29, 1989

By _____
CLYDE W. JOHNSON III, Trustee

Dated: _____, 1996

_____
CLYDE W. JOHNSON III

Dated: _____, 1996

_____
EDWIN A. JOHNSON

Dated: Mar 29, 1996

_____
JOHN A. ARMSTRONG II

Dated: _____, 1996

_____
SUSANNE IRVINE ARMSTRONG

Dated: Mar. 29, 1996

_____
JAMES IRVINE ARMSTRONG, JR.

SUSANNE IRVINE ARMSTRONG, JAMES IRVINE ARMSTRONG, JR., and JOHN A. ARMSTRONG II, as Trustees of the Trust for the benefit of MARY JANET ARMSTRONG WEBER as set forth in the Order Settling Report of Trustees due to the death of Lois Armstrong, etc., in the Estate of Irvine Armstrong, also known as James Irvine Armstrong, Deceased, recorded January 4, 1988, in Reel 2191, Official Records of Monterey County at page 643 therein (hereinafter referred to as the "Mary Janet Armstrong Weber Trust")

Dated: Apr. 4, 1996

By _____
SUSANNE IRVINE ARMSTRONG, Trustee

Dated: Mar 29, 1996

By _____
JOHN A. ARMSTRONG II, Trustee

Dated: Mar. 29, 1996

By _____
JAMES IRVINE ARMSTRONG, JR., Trustee

Dated: _____, 1996

THE 1990 ARMSTRONG FAMILY TRUST established by Declaration dated July 2, 1990

By _____
Walter J. McCullough

By _____
Elizabeth S. Armstrong

Dated: _____, 1996

RMC LONESTAR, a California general partnership

By _____

Dated: _____, 1996

CITY OF MARINA

By _____
James L. Vocelka, Mayor

SUSANNE IRVINE ARMSTRONG, JAMES IRVINE ARMSTRONG, JR., and JOHN A. ARMSTRONG II, as Trustees of the Trust for the benefit of MARY JANET ARMSTRONG WEBER as set forth in the Order Settling Report of Trustees due to the death of Lois Armstrong, etc., in the Estate of Irvine Armstrong, also known as James Irvine Armstrong, Deceased, recorded January 4, 1988, in Reel 2191, Official Records of Monterey County at page 643 therein (hereinafter referred to as the "Mary Janet Armstrong Weber Trust")

Dated: _____, 1996

By _____
SUSANNE IRVINE ARMSTRONG, Trustee

Dated: Mar 29, 1996

By _____ Trustee
JOHN A. ARMSTRONG II, Trustee

Dated: Mar. 29, 1996

By _____ Trustee
JAMES IRVINE ARMSTRONG, JR., Trustee

Dated: _____, 1996

THE 1990 ARMSTRONG FAMILY TRUST established by Declaration dated July 2, 1990

By _____
Walter J. McCullough

By _____
Elizabeth S. Armstrong

Dated: _____, 1996

RMC LONESTAR, a California general partnership

By _____

Dated: _____, 1996

CITY OF MARINA

By _____
James L. Vocelka, Mayor

SUSANNE IRVINE ARMSTRONG, JAMES IRVINE ARMSTRONG, JR., and JOHN A. ARMSTRONG II, as Trustees of the Trust for the benefit of MARY JANET ARMSTRONG WEBER as set forth in the Order Settling Report of Trustees due to the death of Lois Armstrong, etc., in the Estate of Irvine Armstrong, also known as James Irvine Armstrong, Deceased, recorded January 4, 1988, in Reel 2191, Official Records of Monterey County at page 643 therein (hereinafter referred to as the "Mary Janet Armstrong Weber Trust")

Dated: _____, 1996

By _____
SUSANNE IRVINE ARMSTRONG, Trustee

Dated: Mar 29, 1996

By _____ Trustee
JOHN A. ARMSTRONG II, Trustee

Dated: Mar. 29, 1996

By _____
JAMES IRVINE ARMSTRONG, JR., Trustee

Dated: _____, 1996

THE 1990 ARMSTRONG FAMILY TRUST established by Declaration dated July 2, 1990

By _____
Walter J. McCullough

By _____
Elizabeth S. Armstrong

Dated: _____, 1996

RMC LONESTAR, a California general partnership

By _____

Dated: _____, 1996

CITY OF MARINA

By _____
James L. Vocelka, Mayor

Dated: _____, 1996

SUSANNE IRVINE ARMSTRONG, JAMES IRVINE ARMSTRONG, JR., and JOHN A. ARMSTRONG II, as Trustees of the Trust for the benefit of MARY JANET ARMSTRONG WEBER as set forth in the Order Settling Report of Trustees due to the death of Lois Armstrong, etc., in the Estate of Irvine Armstrong, also known as James Irvine Armstrong, Deceased, recorded January 4, 1988, in Reel 2191, Official Records of Monterey County at page 643 therein (hereinafter referred to as the "Mary Janet Armstrong Weber Trust")

By _____
_____, Trustee

Dated: _____, 1996

_____
JAMES IRVINE ARMSTRONG, JR.

Dated: _____, 1996

THE 1990 ARMSTRONG FAMILY TRUST established by Declaration dated July 2, 1990

By _____
Walter J. McCullough

By _____
Elizabeth S. Armstrong

Dated: 11/AR 26, 1996

RMC LONESTAR, a California general partnership

By Ronald J. Block

Dated: _____, 1996

CITY OF MARINA

By _____
James L. Vocelka, Mayor

Dated: _____, 1996

SUSANNE IRVINE ARMSTRONG, JAMES IRVINE ARMSTRONG, JR., and JOHN A. ARMSTRONG II, as Trustees of the Trust for the benefit of MARY JANET ARMSTRONG WEBER as set forth in the Order Settling Report of Trustees due to the death of Lois Armstrong, etc., in the Estate of Irvine Armstrong, also known as James Irvine Armstrong, Deceased, recorded January 4, 1988, in Reel 2191, Official Records of Monterey County at page 643 therein (hereinafter referred to as the "Mary Janet Armstrong Weber Trust")

By _____
_____, Trustee

Dated: _____, 1996

_____
JAMES IRVINE ARMSTRONG, JR.

Dated: _____, 1996

THE 1990 ARMSTRONG FAMILY TRUST established by Declaration dated July 2, 1990

By _____
Walter J. McCullough

By _____
Elizabeth S. Armstrong

Dated: _____, 1996

RMC LONESTAR, a California general partnership

By _____

Dated: 4/8/96, 1996

CITY OF MARINA

By _____
James L. Vocelka, Mayor

APPROVED AS TO FORM:

Dated: 8/5, 1996

William K. Rentz

WILLIAM K. RENTZ
Deputy County Counsel, Monterey County

Dated: _____, 1996

NOLAND, HAMERLY, ETIENNE & HOSS
A Professional Corporation

By _____
Lloyd W. Lowrey, Jr.
Legal Counsel for MARINA COAST WATER DISTRICT

Dated: _____, 1996

_____
ROBERT R. WELLINGTON
Legal Counsel for CITY OF MARINA

Dated: _____, 1996

THOMPSON, HUBBARD & OMETER
A Law Corporation

By _____
Donald G. Hubbard
Legal Counsel for J.G. ARMSTRONG FAMILY MEMBERS

Dated: _____, 1996

PILLSBURY, MADISON AND SUTRO

By _____
Thomas P. O'Donnell
Legal Counsel for RMC LONESTAR

APPROVED AS TO FORM:

Dated: _____, 1996

_____
WILLIAM K. RENTZ
Deputy County Counsel, Monterey County

Dated: March 26, 1996

NOLAND, HAMERLY, ETIENNE & HOSS
A Professional Corporation

By _____
Lloyd W. Lowrey, Jr.
Legal Counsel for MARINA COAST WATER DISTRICT

Dated: _____, 1996

_____
ROBERT R. WELLINGTON
Legal Counsel for CITY OF MARINA

Dated: _____, 1996

THOMPSON, HUBBARD & OMETER
A Law Corporation

By _____
Donald G. Hubbard
Legal Counsel for J.G. ARMSTRONG FAMILY MEMBERS

Dated: _____, 1996

PILLSBURY, MADISON AND SUTRO

By _____
Thomas P. O'Donnell
Legal Counsel for RMC LONESTAR

APPROVED AS TO FORM:

Dated: _____, 1996

WILLIAM K. RENTZ
Deputy County Counsel, Monterey County

Dated: _____, 1996

NOLAND, HAMERLY, ETIENNE & HOSS
A Professional Corporation

By _____
Lloyd W. Lowrey, Jr.
Legal Counsel for MARINA COAST WATER DISTRICT

Dated: July 29, 1996

Robert R. Wellington
ROBERT R. WELLINGTON
Legal Counsel for CITY OF MARINA

Dated: _____, 1996

THOMPSON, HUBBARD & OMETER
A Law Corporation

By _____
Donald G. Hubbard
Legal Counsel for J.G. ARMSTRONG FAMILY MEMBERS

Dated: _____, 1996

PILLSBURY, MADISON AND SUTRO

By _____
Thomas P. O'Donnell
Legal Counsel for RMC LONESTAR

APPROVED AS TO FORM:

Dated: _____, 1996

_____
WILLIAM K. RENTZ
Deputy County Counsel, Monterey County

Dated: _____, 1996

NOLAND, HAMERLY, ETIENNE & HOSS
A Professional Corporation

By _____
Lloyd W. Lowrey, Jr.
Legal Counsel for MARINA COAST WATER DISTRICT

Dated: _____, 1996

_____
ROBERT R. WELLINGTON
Legal Counsel for CITY OF MARINA

Dated: MARCH 29, 1996

THOMPSON, HUBBARD & OMETER
A Law Corporation

By _____
Donald G. Hubbard
Legal Counsel for J.G. ARMSTRONG FAMILY MEMBERS

Dated: _____, 1996

PILLSBURY, MADISON AND SUTRO

By _____
Thomas P. O'Donnell
Legal Counsel for RMC LONESTAR

APPROVED AS TO FORM:

Dated: _____, 1996

_____
WILLIAM K. RENTZ
Deputy County Counsel, Monterey County

Dated: _____, 1996

NOLAND, HAMERLY, ETIENNE & HOSS
A Professional Corporation

By _____
Lloyd W. Lowrey, Jr.
Legal Counsel for MARINA COAST WATER DISTRICT

Dated: _____, 1996

_____
ROBERT R. WELLINGTON
Legal Counsel for CITY OF MARINA

Dated: _____, 1996

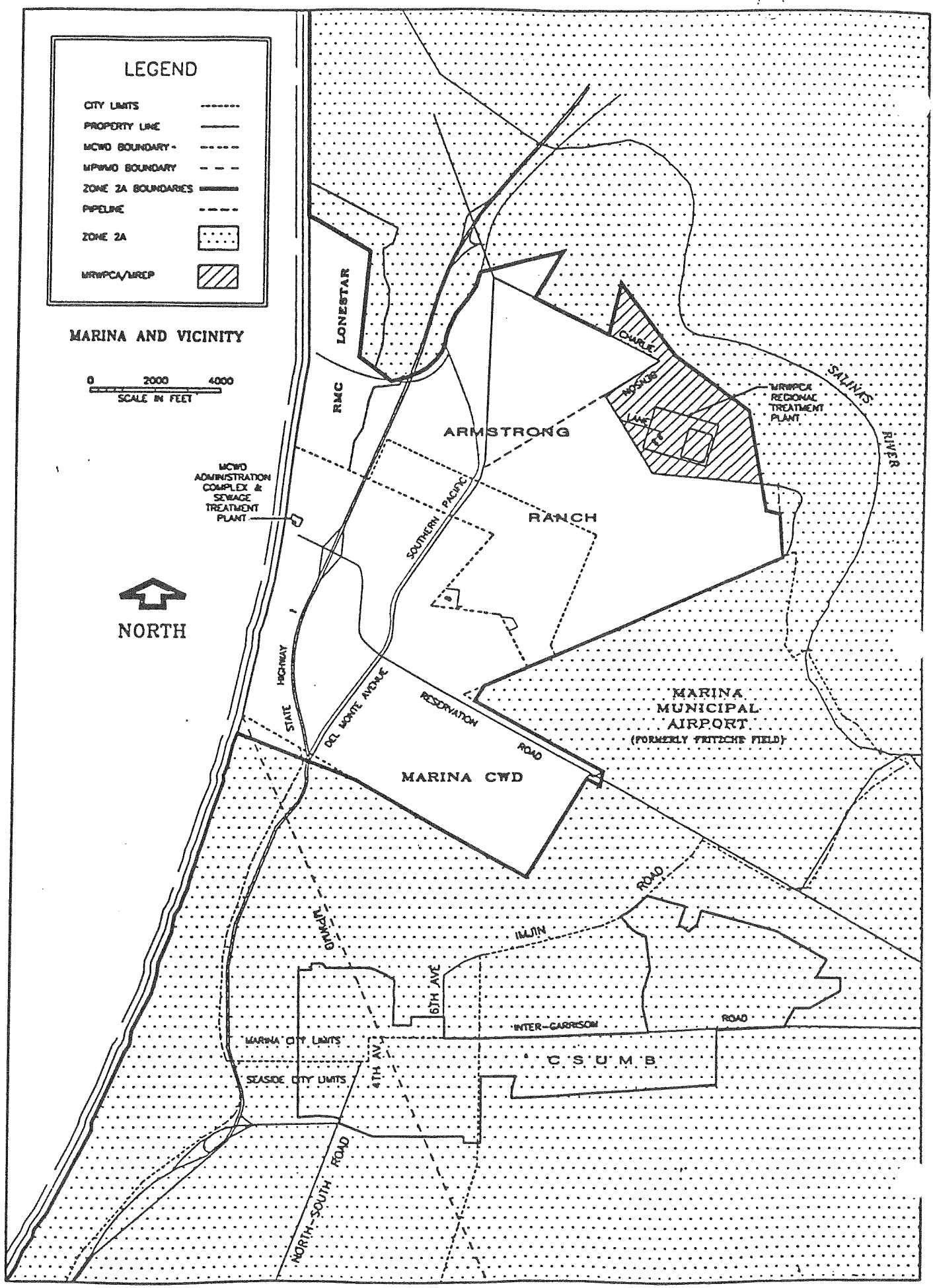
THOMPSON, HUBBARD & OMETER
A Law Corporation

By _____
Donald G. Hubbard
Legal Counsel for J.G. ARMSTRONG FAMILY MEMBERS

Dated: March 26, 1996

~~PILLSBURY, MADISON AND SUTRO~~ Genesis Law Group LLP

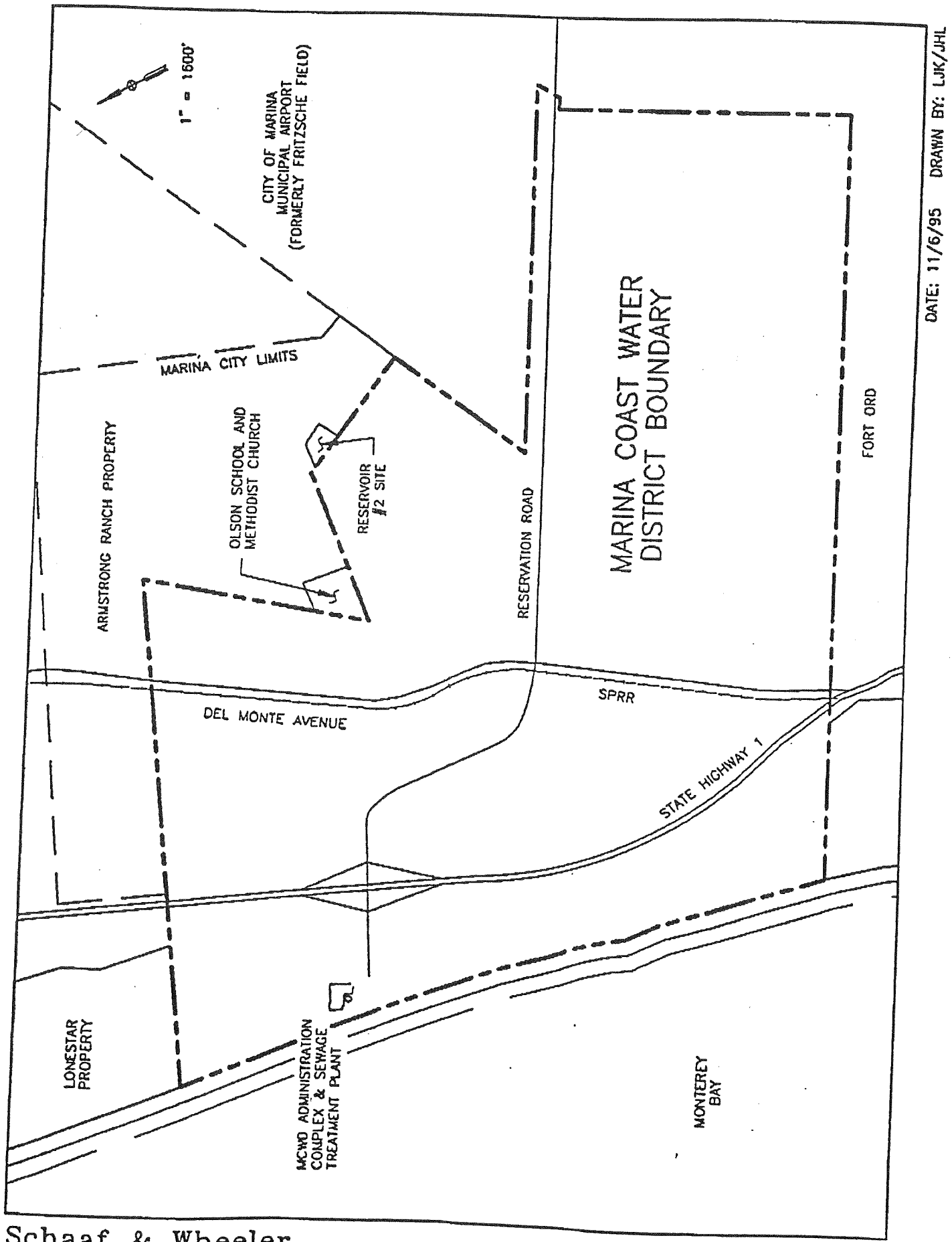
By _____
Thomas P. O'Donnell
Legal Counsel for RMC LONESTAR



DATE: 10/23/95 DRAWN BY: LJK/JHL

Schaaf & Wheeler

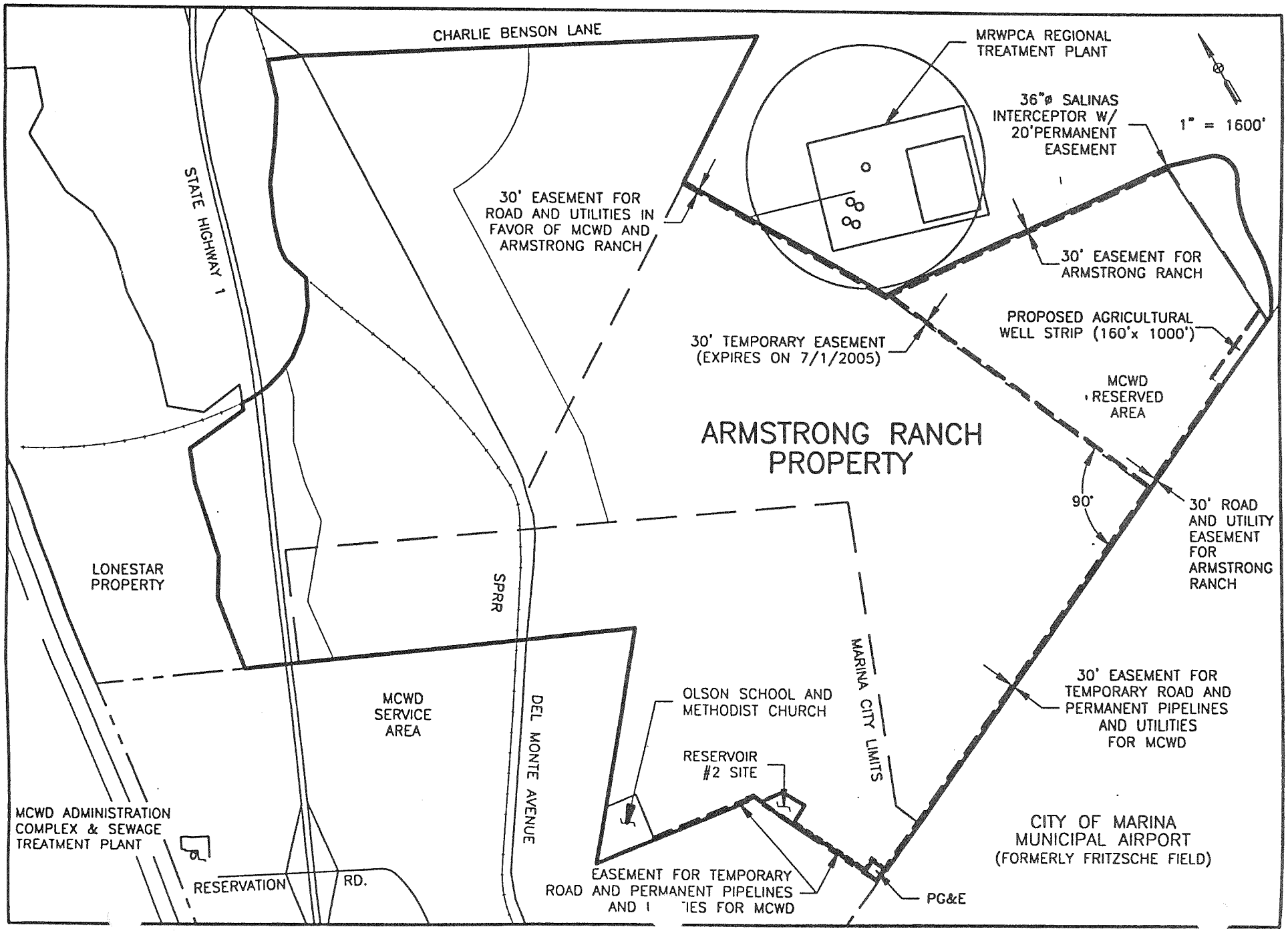
EXHIBIT "A"



Schaaf & Wheeler

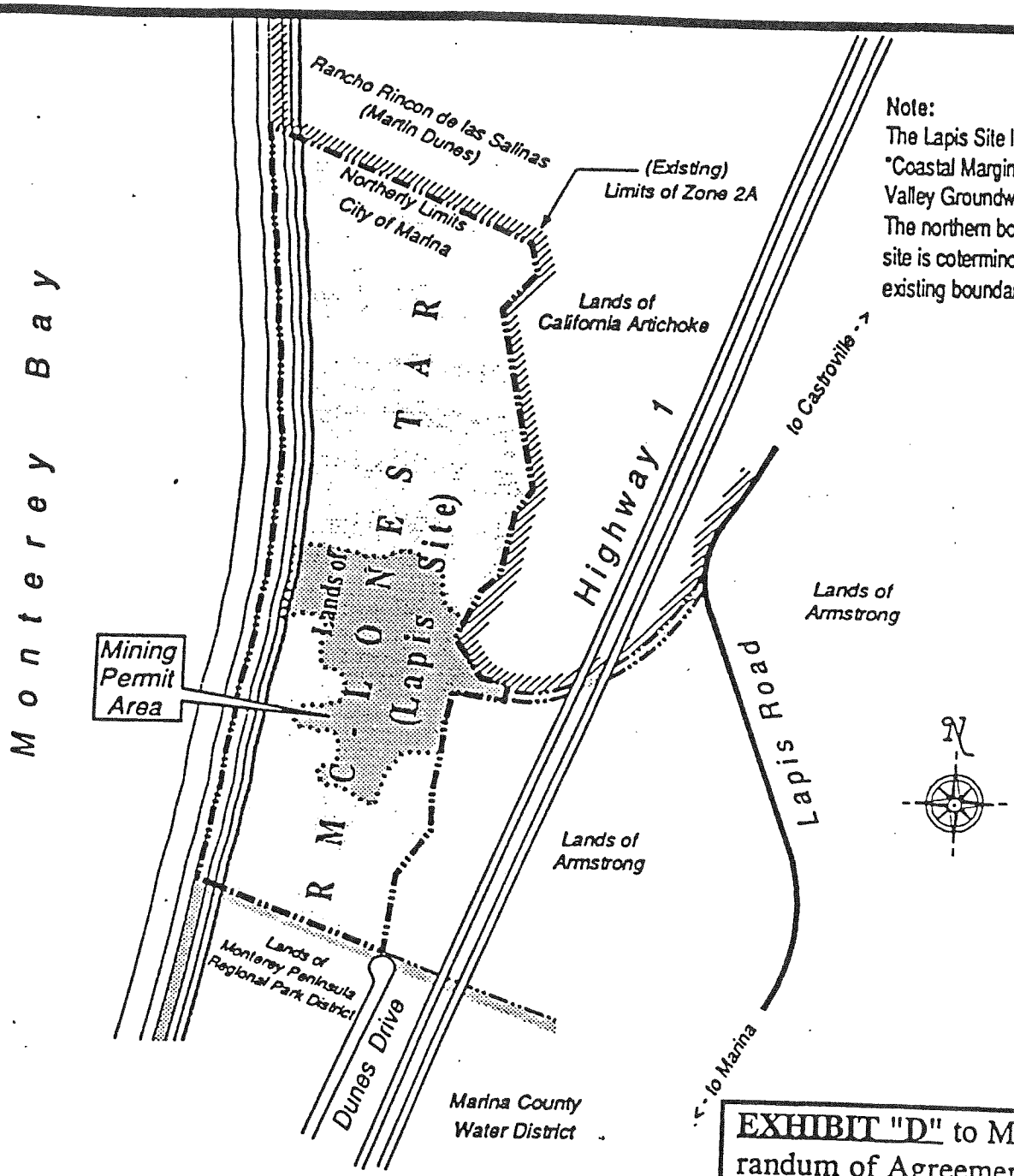
EXHIBIT "B"

Schaaf & Wheeler



DATE: 3/5/96 DRAWN BY: LJK/JHL

EXHIBIT "C"



Note:
The Lapis Site lies within the "Coastal Margin of the Salinas Valley Groundwater Basin". The northern boundary of the site is coterminous with the existing boundary of Zone 2A.

EXHIBIT "D" to Memorandum of Agreement: "Lonestar Property to be Annexed."

VICINITY MAP

Grant Deed

Grant deed dated April 22, 1929
recorded August 29, 1929
Volume 204 Official Records, at page 127.
(See Exhibit D1 for Legal Description)

Assessor's Parcel Numbers

203-011-01
203-011-16
203-011-17
203-011-19
203-011-20

michael d. ashley:
CIVIL ENGINEER
(415) 341-2669

EXHIBIT "D1"

LEGAL DESCRIPTION - LANDS OF RMC-LONESTAR

(based on preliminary report from Western Title Insurance Company dated December 12, 1986)

Said land is situate in the County of Monterey, State of California, and is described as follows:

PARCEL 1

A part of Monterey City Lands Tract No. 1 embracing the sand dunes along the shore of Monterey Bay, described as follows, to-wit:

BEGINNING at the common corner of the Rancho Rincon de las Salinas and the Monterey City Lands Tract No. 1 on the shore of Monterey Bay, from which an old Four inch by Four inch post marked "R S 3 Wit" standing on Rancho boundary bears South 63° 20' East Twelve and 79/100 chains distant; thence Variation 16° 50' East, following the shore line of bay South 1° 05' West Sixty and 00/100 chains to station; thence South 5° 40' West Thirty-three and 00/100 chains to station; thence South 11° 30' West Thirty-one and 02/100 chains to the Northerly boundary of the land of David Jacks; thence leaving the shore of the Monterey Bay and following the fence along the Northerly line of the land of David Jacks Corporation South 65° 30' East, Twenty-three and 61/100 chains to station; thence South 65° 12' East Five and 31/100 chains a Four inch by Four inch post marked "E. B. & A. L. S. Cor. No. 1" standing at the foot of sand hills and at the Easterly side thereof, Seven and 23/100 chains to station from which the point of intersection of Jacks boundary fence with the center line of the S. P. R. R. at station 281 plus Fifty-one and 6/10 bears South 65° 12' East Fifty-one and 73/100 chains distant; thence leaving the Jacks boundary and following the old fence skirting the Easterly side of sand dunes North 7° 30' East Eleven and 00/100 chains; thence North 15° 15' East Five and 87/100 chains to station; thence North 34° East Six and 92/100 chains to station; thence North 11° 30' East One and 00/100 chains to station; thence North 5° 45' West Five and 18/100 chains to station; thence North 12° 15' East Five and 66/100 chains to station; thence North 4° West 3 and 60/100 chains to station; thence North 34° East One and 27/100 chains to station; thence North 14° 30 East Three and 29/100 chains to station; thence North 6° 45' West Three and 83/100 chains to center line of Lapis Spur track; thence North 0° 15' East Five and 51/100 chains to station; thence North 22° 30' East Four and 10/100 chains to station; thence North 16° 45' East Five and 05/100 chains to station; thence North 34° East Four and 17/100 chains to station; thence North 13° East Ten and 15/100 chains to station; thence North 30° 45' East Two and 45/100 chains to

station; thence North 13° 40′ East Two and 72/100 chains to an old fence corner; thence North 9° 35′ West One and 83/100 chains to station 17; thence North 9° 35′ West Twenty-seven and 60/100 chains to station 18; thence North 32° 40′ East Five and 21/100 chains to station 19; thence North 70° East Two and 27/100 chains to station 20; thence North 46° 50′ East Two and 16/100 chains to station 21; thence North 12° 45′ West Three and 05/100 chains to station 22; thence North 26° 30′ East One and 92/100 chains to a Four inch by Four inch post marked E. B. & A. L. S. Cor. No. 23" standing in the fence on the line between the Monterey City Lands and the Rancho Rincon de las Salinas, thence leaving foot of sand hills and following said line fence across same North 63° 20′′ West Forty-two and 02/100 chains to the place of beginning.

PARCEL 2

All those certain lots, pieces or parcels of land situate, lying and being in the County of Monterey, State of California, described as follows:

A PART of Monterey City Lands Tract No. 1, described as follows:

A strip of land one hundred feet wide measured at right angles to and lying fifty feet on each side of a line located and described as follows:

BEGINNING at a point on the Eastern boundary of the piece of land here-in-before described as Parcel 1, said point bearing North 6° 45′ West from station numbered 9 on said boundary line and distant Two hundred fifty-two and 5/10 feet therefrom thence by a straight line bearing South 77° 29′ East Five hundred seventy-nine and 38/100 feet; thence by a 6° 00′ curve to the left (radius 955.04 feet), Five hundred seventy-six and 81/100 feet; thence by a straight line bearing North 67° 54-1/2′ East Six hundred forty-eight and 08/100 feet; thence by a 5° 00′ curve to the left (radius 1146.01 feet) Eleven hundred thirty-nine and 2/10 feet, more or less, to the Western line of the Southern Pacific Company's Railroad right of way.

EXCEPTING THEREFROM that portion conveyed to the State of California by deed dated May 31, 1974 and recorded August 19, 1974, on Reel 930, Official Records, at page 909, Monterey County Records.

PARCEL 3

All those certain lots, pieces or parcels of land situate, lying and being in the County of Monterey, State of California, described as follows:

All that portion of Monterey City Lands Tract No. 1 lying between the Western boundary line of Parcel 1 of the property described in the deed from John A. Armstrong et al, to E. B. & A. L. Stone Company, a corporation, dated January 24, 1907, and recorded January 24, 1907 in Liber 95 of Deeds, page 388, and the Western boundary line of the property patented to the City of Monterey, by patent, dated November 19, 1891, and recorded November 16, 1896 in Liber "F" of patents at page 178.

PARCEL 4

All those certain lots, pieces or parcels of land situate, lying and being in the County of Monterey, State of California, described as follows:

All that part of Monterey City Lands Tract No. 1 described as follows:

BEGINNING at a Four inch by Four inch post marked "B 6" standing in the Eastern Boundary of the certain 399.70 acre tract conveyed by J. G. Armstrong Co., a corporation, to the E. B. & A. L. Stone Co., a corporation by deed dated January 31, 1911, and recorded in volume 117, of Deeds at page 283, Monterey County Records, from which station 9 of said boundary bears South 6° 45′ East one hundred ninety-five and 08/100 feet distant; thence along said Eastern boundary North 6° 45′ West Fifty-seven and 7/10 feet to a station in center line of one hundred foot right of way as shown in above mentioned deed; thence North 0° 15′ East, still along said Eastern boundary three hundred sixty-three and 6/10 feet to a station; thence North 22° 30′ East one hundred seven and 0/10 feet to a four inch by four inch post marked "B 1" in said Eastern boundary; thence leave said boundary South 29° 50′ East three hundred ninety-two and 2/10 feet to a four inch by four inch post marked "b 2"; thence South 45° 29′ East one hundred thirty-one and 0/10 feet to a four inch by four inch post marked "B 3"; thence South 77° 40′ East two hundred seventy-six and 0/10 feet to a four inch by four inch post marked "B 4"; thence South 12° 20′ West, at fourth-nine and 9/10 feet to the Northern line of above mentioned one hundred foot right of way at one hundred forty-nine and 9/10 feet the Southern line of same, one hundred fifty-five and 0/10 feet to a four inch by four inch post marked "b 5", thence North 77° 40′ West, five feet southerly of and parallel with the Southern line of said right of way five hundred seventy-four and 3/10 feet to the place of beginning.

Courses all true variation of magnetic needle being 17° 15′ East. Surveyed by Cozzens & Davies, Salinas, California, March 1922

EXHIBIT E

ELEMENTS OF YEARLY INCREMENTAL COSTS
FOR ADD-ON OF RECLAIMED WATER FOR M & I PUROSES OVER AND ABOVE
THAT COMMITTED TO THE CASTROVILLLE SEAWATER IRRIGATION PROJECT

1) Operation and Maintenace (O&M) Element of costs to provide tertiary treatment (in $/acre-foot for the year of ?). Costs for the previous year will be used to estimate the next year costs. An adjustment will be included in the following year to reflect actual costs. The next year flow volume demand for MCWD will be based on a projection submitted by the MCWD to the MCWRA by June 30, three months before delivery of next year reclaimed water to the MCWD reservoir.

- Chemical costs
- Power costs
- Sludge management costs
- Labor costs
- Repair and replacement costs

$$\text{O\&M ELEMENT (in \$/acre-foot)} = \frac{\sum \text{chemicals + power + sludge mgmt. + labor + repair \& replacement costs}}{\text{Projected Next Year Flow Volume Demand [CSIP(afy) + MCWD(afy)]}} \pm \text{adjustment for previous year}$$

2) Bureau of Reclamation Loan Element (BRLE). Includes Reimbursible Interest During Construction (RIDC) and Emergency Reserve Fund Contribution (ERFC) in $ / acre-foot for the year of ?.

$$\text{APPLICABLE ANNUAL PERCENTAGE for M\&I (AAPM\&I)} = \frac{\text{Projected next year flow volume demand for MCWD (afy)}}{\text{Projected Next Year Flow Volume Demand [CSIP(afy) + MCWD(afy)]}}$$

$$\text{BRLE(\$) FOR YEAR (?)} = \frac{\text{AAPM\&I x [PRINCIPAL + INTEREST(7.625\%) ON OUTSTANDING PRINCIPAL + RIDC + ERFC FOR YEAR(?)]}}{\text{Projected next year flow volume demand for MCWD (afy)}}$$

3) Increased capital cost element to cover M&I for the MCWD.

No additional capital costs.

4) Capital Risk Share Element (CRSE) in $ / acre-foot for the year of ?.

$$\text{CRSE (\$)} = \frac{\text{AAPM\&I x [SVRP Debt Service for State Revolving Fund(Schedule A Line 18)+ 1/3 of Bonds (Schedule A, Line 25) FOR YEAR(?)]}}{\text{Projected next year flow volume demand for MCWD (afy)}}$$

SVRP ANNUAL DEBT SERVICE - SCHEDULE A

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Fiscal Year Ending	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total 2011-2037	($ Thousands) TOTAL
US Bureau of Reclamation Loan - SVRP																		
Principal Payment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	588.6	588.6	588.6	588.6	588.6	588.6	588.6	588.6	15891.4	20600.0
Interest Payment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1570.8	1535.0	1496.5	1455.0	1410.4	1362.4	1310.8	1255.2	8802.9	
Interest Payment - 22%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	345.6	337.7	329.2	320.1	310.3	299.7	288.4	276.1	1936.6	6220.2
RIDC Payment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	1255.5	1627.5
Emergency Reserve Fund Contributions	0.0	0.0	0.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	0.0	0.0	0.0	130.0
Total US Bureau of Reclamation Debt Service SVRP	*0.0*	*0.0*	*0.0*	*13.0*	*13.0*	*13.0*	*13.0*	*13.0*	*993.7*	*985.8*	*977.3*	*968.2*	*958.4*	*934.8*	*923.5*	*911.2*	19083.5	*28577.7*
Line 6 + Line 7 + Line 9 + Line 10									2218.9	2183.1	2144.6	2103.1	2058.5	1997.5	1945.9	1890.3		
State Revolving Fund Loan - SVRP																		
Principal Payment	0.0	0.0	0.0	0.0	347.2	358.0	369.2	380.7	392.6	404.9	417.6	430.6	444.1	457.9	472.3	487.0	4077.1	9448.1
Interest Payment	0.0	0.0	0.0	0.0	295.3	284.5	273.3	261.7	249.8	237.6	224.9	211.8	198.4	184.5	170.2	155.4	247.1	3400.4
Emergency Reserve Fund Contributions	0.0	0.0	0.0	0.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	0.0	0.0	0.0	130.0
Total State Revolving Fund Debt Service SVRP	*0.0*	*0.0*	*0.0*	*0.0*	*687.5*	*687.5*	*687.5*	*687.5*	*687.5*	*687.5*	*687.5*	*687.5*	*687.5*	*687.5*	*642.5*	*642.5*	4324.2	*12978.5*
Bonds - Variable/Fixed																		
Principal Payment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	65.6	70.3	75.4	80.8	86.6	92.8	99.5	106.7	8792.8	9470.5
Interest Payment	0.0	0.0	0.0	1387.5	2322.4	1896.7	1437.6	995.9	681.9	677.2	672.1	666.7	660.9	654.6	647.9	640.8	11388.5	130.0
Total Bond Debt Service	0.0	0.0	0.0	1387.5	2322.4	1896.7	1437.6	995.9	747.5	747.5	747.5	747.5	747.5	747.4	747.4	747.5	20181.3	9600.5
Total Bond Debt Service for SVRP (1/3 of Total)	*0.0*	*0.0*	*0.0*	*462.0*	*773.4*	*631.6*	*478.7*	*331.6*	*248.9*	*248.9*	*248.9*	*248.9*	*248.9*	*248.9*	*248.9*	*248.9*	6720.4	*3197.0*
																		130.0
TOTAL ANNUAL DEBT SERVICE FOR SVRP - INCLUDES $4,000,000 FOR PIPELINE	*0.0*	*0.0*	*0.0*	*475.0*	*1473.8*	*1332.1*	*1179.2*	*1032.1*	*1930.0*	*1922.2*	*1913.7*	*1904.6*	*1894.8*	*1871.2*	*1814.8*	*1802.6*	30126.1	*44753.2*
Line 18 + Line 25				462.0	1460.8	1319.1	1166.2	1019.1	936.4	936.4	936.4	936.4	936.4	936.3	891.3	891.4		
Annual Demand Projections																		
Projected CSIP Demand (afy)	0	0	15000.0	16,000	17,000	18,000	19,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000		
Projected MCWD M&I Demand (afy)	0	0	70	100	150	500	1,550	1,800	2,000	2,200	2,200	2,200	2,200	2,200	2,200	2,200		
Total CSIP + MCWD Pojected Demand	0	0	15,070	16,100	17,150	18,500	20,550	21,800	22,000	22,200	22,200	22,200	22,200	22,200	22,200	22,200		
AAPM & I	0.0000	0.0000	0.0046	0.0062	0.0087	0.0270	0.0754	0.0826	0.0909	0.0991	0.0991	0.0991	0.0991	0.0991	0.0991	0.0991		
Elements of Incremental M&I Costs - See Exhibit E																		
O&M Element for M&I - See Exhibit E Item 1																		
Projected O&M Cost –																		
PCA LETTER OF 10/24/95	0	0	1,667	1,717	1,769	1,822	1,876	1,933	1,990	2,050	2,112	2,175	2,240	2,308	2,377	2,448		
$1,526,000, 1994 @ 3%/YR																		
O&M Element in $/acre ft																		
Projected O&M Cost in $/acre ft / Total CSIP + MC	0	0	111	107	103	98	91	89	90	92	95	98	101	104	107	110		
Bureau Loan Element - See Exhibit E Item 2																		
(BRLE) in $/acre ft																		
(Line 12 x Line 38) / Line 36	0	0	0	0	0	0	0	0	101	98	97	95	93	90	88	85		
Increase in Capital Costs for M & I Element																		
No increase in Capital $	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Capital Risk Share Element (CRSE) - See Exhibit E Item 4																		
Line 29 x Line 38 / Line 36 in $/acre ft	0.0	0.0	0.0	28.7	85.2	71.3	56.7	46.7	42.6	42.2	42.2	42.2	42.2	42.2	40.2	40.2		
Total Incremental Cost																		
Line 46 + Line 51 + Line 54 + Line 57	0.0	0.0	110.6	135.3	188.3	169.8	148.0	135.4	233.9	232.9	233.9	234.9	235.8	236.1	234.9	235.6		
									28446.1	31008.8	31008.8	31008.8	31008.8	31008.8	31008.8	31008.8		
Amortization of $4,000,000 @ flow share									14.2	14.1	14.1	14.1	14.1	14.1	14.1	14.1		

Schaaf & Wheeler

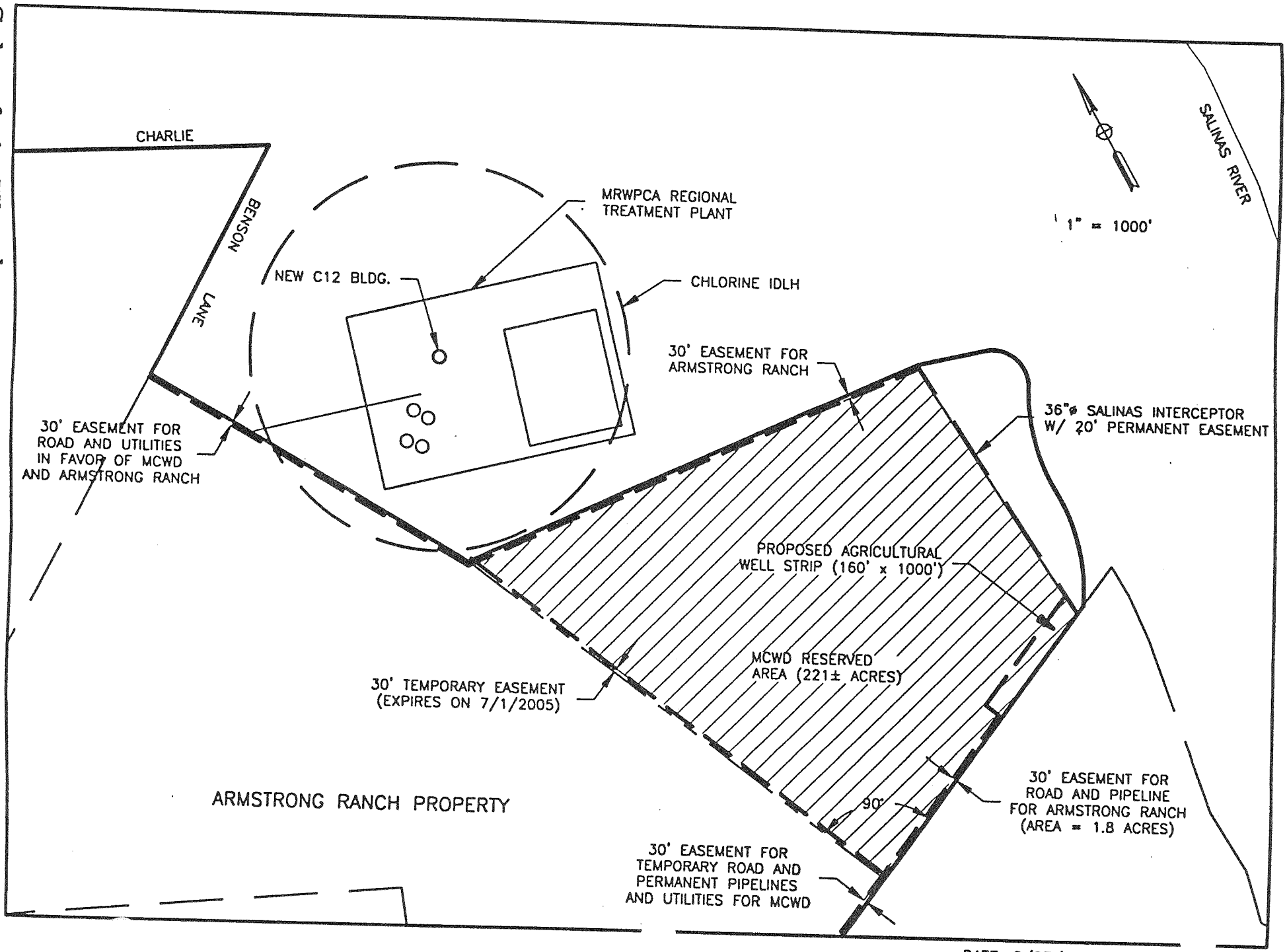


EXHIBIT "F"

DATE: 2/27/96 DRAWN BY: LJK/JHL

EXHIBIT G

MONTEREY REGIONAL WATER POLLUTION CONTROL AGENCY
ADDENDUM TO

ANNEXATION AGREEMENT AND GROUNDWATER MITIGATION FRAMEWORK
FOR
MARINA AREA LANDS

1. PURPOSE. The Parties to the Agreement and Framework agree with the Monterey Regional Water Pollution Control Agency ("MRWPCA") that it is in the best interests of all of them and the persons they represent if the MRWPCA is also a party to the Agreement and Framework, with certain additional terms specific to the MRWPCA. If this Addendum is approved by the MRWPCA within one year of approval of the Agreement and Framework and this Addendum by the other Parties, this Addendum will become part of the Agreement and Framework, and the MRWPCA will be considered a party to the Agreement and Framework, effective from the date the Agreement and Framework and this Addendum are approved by the Board of Supervisors of the MCWRA.

2. MRWPCA. MRWPCA is a joint powers authority providing sewage treatment service to its member entities in Northern Monterey County, governed by its Board of Directors.

3. MRWPCA SUPPORT FOR ANNEXATION. MRWPCA is supporting the request for annexation contained in paragraph 4.1 of the Agreement and Framework to encourage reasonable and beneficial water reuse, and to help implement the MCWRA/MRWPCA Agreement, the MRWPCA Annexation Agreement, and the SVRP.

4. RESERVATION FOR MRWPCA. Armstrong shall reserve, for use by MRWPCA, the area shown diagrammatically on Exhibit "I" to this Addendum (hereinafter the "MRWPCA Reserved Area"), subject to the non-exclusive easements shown on Exhibit "I" to be reserved in favor of Armstrong and MCWD, which said reserved easements in favor of Armstrong and MCWD shall be for roads, utilities (including communications), pipelines, and any other purpose for which a road may be used, shall be freely assignable and usable by others, and not subject to surcharge.

4.1. Survey. The MRWPCA Reserved Area, which shall not exceed 10 acres, will be "field" surveyed at the expense of MRWPCA within one year following approval by the MCWRA Board of Supervisors of the annexation to the Zones of any of the lands described in Exhibit "C" to the Agreement and Framework.

4.2. Use. MRWPCA will diligently undertake, and MCWD, City, MCWRA and Armstrong will cooperate in the planning and conduct of, the appropriate environmental review and application for appropriate permits to use the MRWPCA Reserved Area solely and

exclusively as a buffer zone between the existing Regional Treatment Plant and the Armstrong Ranch. Any additional use is subject to the written approval of Armstrong first had and obtained, and any conveyance from Armstrong to MRWPCA shall contain appropriate restrictions on such additional use in the form of a condition subsequent and a power of termination in favor of Armstrong. Any attempt to condemn the power of termination shall be subject to the provisions of paragraph 6.10.3 as if it were a condemnation of fee title.

4.3. Expiration of Reservation. Armstrong's obligation to reserve the MRWPCA Reserved Area shall expire at midnight on June 30, 2003, or upon delivery to Armstrong of written notice from MRWPCA cancelling MRWPCA's right to receive conveyance of the MRWPCA Reserved Area.

4.4. Payment. Upon conveyance of the MRWPCA Reserved Area to MRWPCA, MRWPCA shall pay to Armstrong a sum calculated by multiplying the number of acres in such conveyance by Twenty-Five Thousand Dollars ($25,000.00).

4.5. Title. Upon receipt by Armstrong of written request from MCWD, Armstrong will forthwith convey all or part of the MRWPCA Reserved Area to MRWPCA by grant deed, free of any financial encumbrances except taxes and assessments not delinquent, but subject to all other encumbrances, and further subject to all laws, ordinances, regulations and rights of all governmental bodies having jurisdiction in, on or over the subject real property as they may from time to time exist.

5. ATTACHMENT TO AGREEMENT AND FRAMEWORK; INCORPORATION BY REFERENCE. When this Addendum is fully executed, it shall be attached to the Agreement and Framework as an integral part of the Agreement and Framework, and the provisions of Sections 1, 2, 3, 8, and 9 through 20, inclusive, and paragraphs 4.5, 5.6, 5.7 and 6.10.3 of the Agreement and Framework are specifically incorporated into this Addendum by this reference and shall apply to the terms of this Addendum and as fully to MRWPCA as though MRWPCA had signed the Agreement and Framework. A person duly authorized by MRWPCA places his or her initials here to indicate MRWPCA's specific agreement to the provisions of paragraph 6.10.3:

Signature: _____

Printed Name and Title: _____

STATE OF CALIFORNIA)
COUNTY OF MONTEREY) ss.

On this 26th day of March, 1996, before me, Ernest K. Morishita, Clerk of the Board of Supervisors, in and for said County and State, personally appeared Edith Johnsen, known to me to be the Chairperson of said Board of Supervisors of the County of Monterey, and known to me to be the person who executed the within instrument on behalf of said political subdivision, and acknowledged to me that such County of Monterey executed the same.

ERNEST K. MORISHITA, Clerk of the
Board of Supervisors of Monterey
County, State of California

By: Pamela Olivas
Deputy Clerk

6. NOTICES. Notices to MRWPCA under this Addendum and the Agreement and Framework shall be addressed as follows:

General Manager
5 Harris Court, Building D
Monterey, CA 93940
Phone No.: (408) 372-3367
Fax No.: (408) 372-6178

The address or fax number to which any notice or other writing may be given or made or sent may be changed upon written notice given as provided in paragraph 12 of the Agreement and Framework.

7. ADMINISTRATOR. MRWPCA hereby designates MRWPCA's General Manager as its Administrator for this Agreement and Framework.

IN WITNESS WHEREOF, the Parties execute this Addendum as follows:

Dated: _____, 1996 MRWPCA

By _____
Keith Israel, Agency Director

Dated: March 26, 1996 MONTEREY COUNTY WATER RESOURCES AGENCY

By Edith Johnsen
Edith Johnsen
Chair, Board of Supervisors

Dated: _____, 1996 MARINA COAST WATER DISTRICT

By _____
Thomas P. Moore
President, Board of Directors

By _____
Malcolm D. Crawford
Secretary, Board of Directors

Dated: _____, 1996

_____
JAY MAX ARMSTRONG

6. NOTICES. Notices to MRWPCA under this Addendum and the Agreement and Framework shall be addressed as follows:

General Manager
5 Harris Court, Building D
Monterey, CA 93940
Phone No.: (408) 372-3367
Fax No.: (408) 372-6178

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By _____
Keith Israel, Agency Director

Dated: _____, 1996 MONTEREY COUNTY WATER RESOURCES AGENCY

By _____
Edith Johnsen
Chair, Board of Supervisors

Dated: _____, 1996 MARINA COAST WATER DISTRICT

By Thomas P. Moore
Thomas P. Moore
President, Board of Directors

By Malcolm D. Crawford
Malcolm D. Crawford
Secretary, Board of Directors

Dated: _____, 1996

_____
JAY MAX ARMSTRONG

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7. ADMINISTRATOR. MRWPCA hereby designates MRWPCA's General Manager as its Administrator for this Agreement and Framework.

IN WITNESS WHEREOF, the Parties execute this Addendum as follows:

Dated: _____, 1996 MRWPCA

By _____
Keith Israel, Agency Director

Dated: _____, 1996 MONTEREY COUNTY WATER RESOURCES AGENCY

By _____
Edith Johnsen
Chair, Board of Supervisors

Dated: _____, 1996 MARINA COAST WATER DISTRICT

By _____
Thomas P. Moore
President, Board of Directors

By _____
Malcolm D. Crawford
Secretary, Board of Directors

Dated: April 8, 1996

Jay M. Armstrong
JAY MAX ARMSTRONG

Dated: _____, 1996

THE SANDRA ARMSTRONG MURRAY REVOCABLE TRUST UTA dated March 7, 1989

By _____ 4/4/96
DARRELL L. MURRAY, Trustee

Dated: _____, 1996

THE LOIS AND CLYDE JOHNSON, JR., 1989 IRREVOCABLE TRUST

By _____
CLYDE W. JOHNSON III, Trustee

Dated: _____, 1996

THE JOHNSON FAMILY REVOCABLE LIVING TRUST UTA dated November 29, 1989

By _____
CLYDE W. JOHNSON III, Trustee

Dated: _____, 1996

_____
CLYDE W. JOHNSON III

Dated: _____, 1996

_____
EDWIN A. JOHNSON

Dated: Mar 29, 1996

_____
JOHN A. ARMSTRONG II

Dated: _____, 1996

_____
SUSANNE IRVINE ARMSTRONG

Dated: Mar. 29, 1996

_____
JAMES IRVINE ARMSTRONG, JR.

Dated: _____, 1996

THE SANDRA ARMSTRONG MURRAY REVOCABLE TRUST UTA dated March 7, 1989

By _____
DARRELL L. MURRAY, Trustee

Dated: 4-4, 1996

THE LOIS AND CLYDE JOHNSON, JR., 1989 IRREVOCABLE TRUST

By _____
CLYDE W. JOHNSON III, Trustee

Dated: 4-4, 1996

THE JOHNSON FAMILY REVOCABLE LIVING TRUST UTA dated November 29, 1989

By _____
CLYDE W. JOHNSON III, Trustee

Dated: 4-4, 1996

_____
CLYDE W. JOHNSON III

Dated: 4-4, 1996

_____
EDWIN A. JOHNSON

Dated: Mar 29, 1996

_____
JOHN A. ARMSTRONG II

Dated: _____, 1996

_____
SUSANNE IRVINE ARMSTRONG

Dated: Mar. 29, 1996

_____
JAMES IRVINE ARMSTRONG, JR.

Dated: _____, 1996

THE SANDRA ARMSTRONG MURRAY REVOCABLE TRUST UTA dated March 7, 1989

By _____
DARRELL L. MURRAY, Trustee

Dated: _____, 1996

THE LOIS AND CLYDE JOHNSON, JR., 1989 IRREVOCABLE TRUST

By _____
CLYDE W. JOHNSON III, Trustee

Dated: _____, 1996

THE JOHNSON FAMILY REVOCABLE LIVING TRUST UTA dated November 29, 1989

By _____
CLYDE W. JOHNSON III, Trustee

Dated: _____, 1996

_____
CLYDE W. JOHNSON III

Dated: _____, 1996

_____
EDWIN A. JOHNSON

Dated: Mar 29, 1996

_____
JOHN A. ARMSTRONG II

Dated: Apr. 4, 1996

_____
SUSANNE IRVINE ARMSTRONG

Dated: Mar. 29, 1996

_____
JAMES IRVINE ARMSTRONG, JR.

SUSANNE IRVINE ARMSTRONG, JAMES IRVINE ARMSTRONG, JR., and JOHN A. ARMSTRONG II, as Trustees of the Trust for the benefit of MARY JANET ARMSTRONG WEBER as set forth in the Order Settling Report of Trustees due to the death of Lois Armstrong, etc., in the Estate of Irvine Armstrong, also known as James Irvine Armstrong, Deceased, recorded January 4, 1988, in Reel 2191, Official Records of Monterey County at page 643 therein (hereinafter referred to as the "Mary Janet Armstrong Weber Trust")

Dated: Mar 4, 1996

By _____
SUSANNE IRVINE ARMSTRONG, Trustee

Dated: Mar 29, 1996

By _____
JOHN A. ARMSTRONG II, Trustee

Dated: Mar. 29, 1996

By _____
JAMES IRVINE ARMSTRONG, JR., Trustee

Dated: _____, 1996

THE 1990 ARMSTRONG FAMILY TRUST established by Declaration dated July 2, 1990

By _____
Walter J. McCullough

By _____
Elizabeth S. Armstrong

Dated: _____, 1996

RMC LONESTAR, a California general partnership

By _____

Dated: _____, 1996

CITY OF MARINA

By _____
James L. Vocelka, Mayor

SUSANNE IRVINE ARMSTRONG, JAMES IRVINE ARMSTRONG, JR., and JOHN A. ARMSTRONG II, as Trustees of the Trust for the benefit of MARY JANET ARMSTRONG WEBER as set forth in the Order Settling Report of Trustees due to the death of Lois Armstrong, etc., in the Estate of Irvine Armstrong, also known as James Irvine Armstrong, Deceased, recorded January 4, 1988, in Reel 2191, Official Records of Monterey County at page 643 therein (hereinafter referred to as the "Mary Janet Armstrong Weber Trust")

Dated: _____, 1996

By _____
SUSANNE IRVINE ARMSTRONG, Trustee

Dated: Mar 29, 1996

By _____
JOHN A. ARMSTRONG II, Trustee

Dated: Mar. 29, 1996

By _____
JAMES IRVINE ARMSTRONG, JR., Trustee

Dated: _____, 1996

THE 1990 ARMSTRONG FAMILY TRUST established by Declaration dated July 2, 1990

By _____
Walter J. McCullough

By _____
Elizabeth S. Armstrong

Dated: _____, 1996

RMC LONESTAR, a California general partnership

By _____

Dated: _____, 1996

CITY OF MARINA

By _____
James L. Vocelka, Mayor

SUSANNE IRVINE ARMSTRONG, JAMES IRVINE ARMSTRONG, JR., and JOHN A. ARMSTRONG II, as Trustees of the Trust for the benefit of MARY JANET ARMSTRONG WEBER as set forth in the Order Settling Report of Trustees due to the death of Lois Armstrong, etc., in the Estate of Irvine Armstrong, also known as James Irvine Armstrong, Deceased, recorded January 4, 1988, in Reel 2191, Official Records of Monterey County at page 643 therein (hereinafter referred to as the "Mary Janet Armstrong Weber Trust")

Dated: _____, 1996

By _____
SUSANNE IRVINE ARMSTRONG, Trustee

Dated: Mar 29, 1996

By _____
JOHN A. ARMSTRONG II, Trustee

Dated: Mar. 29, 1996

By _____
JAMES IRVINE ARMSTRONG, JR., Trustee

Dated: _____, 1996

THE 1990 ARMSTRONG FAMILY TRUST established by Declaration dated July 2, 1990

By _____
Walter J. McCullough

By _____
Elizabeth S. Armstrong

Dated: _____, 1996

RMC LONESTAR, a California general partnership

By _____

Dated: _____, 1996

CITY OF MARINA

By _____
James L. Vocelka, Mayor

Dated: _____, 1996

SUSANNE IRVINE ARMSTRONG, JAMES IRVINE ARMSTRONG, JR., and JOHN A. ARMSTRONG II, as Trustees of the Trust for the benefit of MARY JANET ARMSTRONG WEBER as set forth in the Order Settling Report of Trustees due to the death of Lois Armstrong, etc., in the Estate of Irvine Armstrong, also known as James Irvine Armstrong, Deceased, recorded January 4, 1988, in Reel 2191, Official Records of Monterey County at page 643 therein (hereinafter referred to as the "Mary Janet Armstrong Weber Trust")

By _____
_____, Trustee

Dated: _____, 1996

_____
JAMES IRVINE ARMSTRONG, JR.

Dated: _____, 1996

THE 1990 ARMSTRONG FAMILY TRUST established by Declaration dated July 2, 1990

By _____
Walter J. McCullough

By _____
Elizabeth S. Armstrong

Dated: MAR 26, 1996

RMC LONESTAR, a California general partnership

By Ronald B Block

Dated: _____, 1996

CITY OF MARINA

By _____
James L. Vocelka, Mayor

Dated: _____, 1996

SUSANNE IRVINE ARMSTRONG, JAMES IRVINE ARMSTRONG, JR., and JOHN A. ARMSTRONG II, as Trustees of the Trust for the benefit of MARY JANET ARMSTRONG WEBER as set forth in the Order Settling Report of Trustees due to the death of Lois Armstrong, etc., in the Estate of Irvine Armstrong, also known as James Irvine Armstrong, Deceased, recorded January 4, 1988, in Reel 2191, Official Records of Monterey County at page 643 therein (hereinafter referred to as the "Mary Janet Armstrong Weber Trust")

By _____
_____, Trustee

Dated: _____, 1996

_____
JAMES IRVINE ARMSTRONG, JR.

Dated: _____, 1996

THE 1990 ARMSTRONG FAMILY TRUST established by Declaration dated July 2, 1990

By _____
Walter J. McCullough

By _____
Elizabeth S. Armstrong

Dated: _____, 1996

RMC LONESTAR, a California general partnership

By _____

Dated: 4/8/96, 1996

CITY OF MARINA

By _____
James L. Vocelka, Mayor

APPROVED AS TO FORM:

Dated: 8/5, 1996

William K. Rentz

WILLIAM K. RENTZ
Deputy County Counsel, Monterey County

Dated: _____, 1996

NOLAND, HAMERLY, ETIENNE & HOSS
A Professional Corporation

By _____
Lloyd W. Lowrey, Jr.
Legal Counsel for MARINA COAST WATER DISTRICT

Dated: _____, 1996

_____
ROBERT R. WELLINGTON
Legal Counsel for CITY OF MARINA

Dated: _____, 1996

_____
ROBERT R. WELLINGTON
Legal Counsel for MRWPCA

Dated: _____, 1996

THOMPSON, HUBBARD AND OMETER
A Law Corporation

By _____
Donald G. Hubbard
Legal Counsel for J.G. ARMSTRONG FAMILY MEMBERS

Dated: _____, 1996

PILLSBURY, MADISON AND SUTRO

By _____
Thomas P. O'Donnell
Legal Counsel for RMC LONESTAR

APPROVED AS TO FORM:

Dated: _____, 1996

WILLIAM K. RENTZ
Deputy County Counsel, Monterey County

Dated: March 26, 1996

NOLAND, HAMERLY, ETIENNE & HOSS
A Professional Corporation

By _____
Lloyd W. Lowrey, Jr.
Legal Counsel for MARINA COAST WATER DISTRICT

Dated: _____, 1996

ROBERT R. WELLINGTON
Legal Counsel for CITY OF MARINA

Dated: _____, 1996

ROBERT R. WELLINGTON
Legal Counsel for MRWPCA

Dated: _____, 1996

THOMPSON, HUBBARD AND OMETER
A Law Corporation

By _____
Donald G. Hubbard
Legal Counsel for J.G. ARMSTRONG FAMILY MEMBERS

Dated: _____, 1996

PILLSBURY, MADISON AND SUTRO

By _____
Thomas P. O'Donnell
Legal Counsel for RMC LONESTAR

APPROVED AS TO FORM:

Dated: _____, 1996

_____
WILLIAM K. RENTZ
Deputy County Counsel, Monterey County

Dated: _____, 1996

NOLAND, HAMERLY, ETIENNE & HOSS
A Professional Corporation

By _____
Lloyd W. Lowrey, Jr.
Legal Counsel for MARINA COAST WATER DISTRICT

Dated: July 29, 1996

_____
ROBERT R. WELLINGTON
Legal Counsel for CITY OF MARINA

Dated: July 29, 1996

_____
ROBERT R. WELLINGTON
Legal Counsel for MRWPCA

Dated: _____, 1996

THOMPSON, HUBBARD AND OMETER
A Law Corporation

By _____
Donald G. Hubbard
Legal Counsel for J.G. ARMSTRONG FAMILY MEMBERS

Dated: _____, 1996

PILLSBURY, MADISON AND SUTRO

By _____
Thomas P. O'Donnell
Legal Counsel for RMC LONESTAR

APPROVED AS TO FORM:

Dated: _____, 1996

_____
WILLIAM K. RENTZ
Deputy County Counsel, Monterey County

Dated: _____, 1996

NOLAND, HAMERLY, ETIENNE & HOSS
A Professional Corporation

By _____
Lloyd W. Lowrey, Jr.
Legal Counsel for MARINA COAST WATER DISTRICT

Dated: _____, 1996

_____
ROBERT R. WELLINGTON
Legal Counsel for CITY OF MARINA

Dated: _____, 1996

_____
ROBERT R. WELLINGTON
Legal Counsel for MRWPCA

Dated: MARCH 29, 1996

THOMPSON, HUBBARD AND OMETER
A Law Corporation

By _____
Donald G. Hubbard
Legal Counsel for J.G. ARMSTRONG FAMILY MEMBERS

Dated: _____, 1996

PILLSBURY, MADISON AND SUTRO

By _____
Thomas P. O'Donnell
Legal Counsel for RMC LONESTAR

APPROVED AS TO FORM:

Dated: _____, 1996

_____
WILLIAM K. RENTZ
Deputy County Counsel, Monterey County

Dated: _____, 1996

NOLAND, HAMERLY, ETIENNE & HOSS
A Professional Corporation

By _____
Lloyd W. Lowrey, Jr.
Legal Counsel for MARINA COAST WATER DISTRICT

Dated: _____, 1996

_____
ROBERT R. WELLINGTON
Legal Counsel for CITY OF MARINA

Dated: _____, 1996

_____
ROBERT R. WELLINGTON
Legal Counsel for MRWPCA

Dated: _____, 1996

THOMPSON, HUBBARD AND OMETER
A Law Corporation

By _____
Donald G. Hubbard
Legal Counsel for J.G. ARMSTRONG FAMILY MEMBERS

Dated: March 26, 1996

~~PILLSBURY, MADISON AND SUTRO~~ The Genesis Law Group

By _____
~~Thomas P. O'Donnell~~
Legal Counsel for RMC LONESTAR

Schaaf & Wheeler

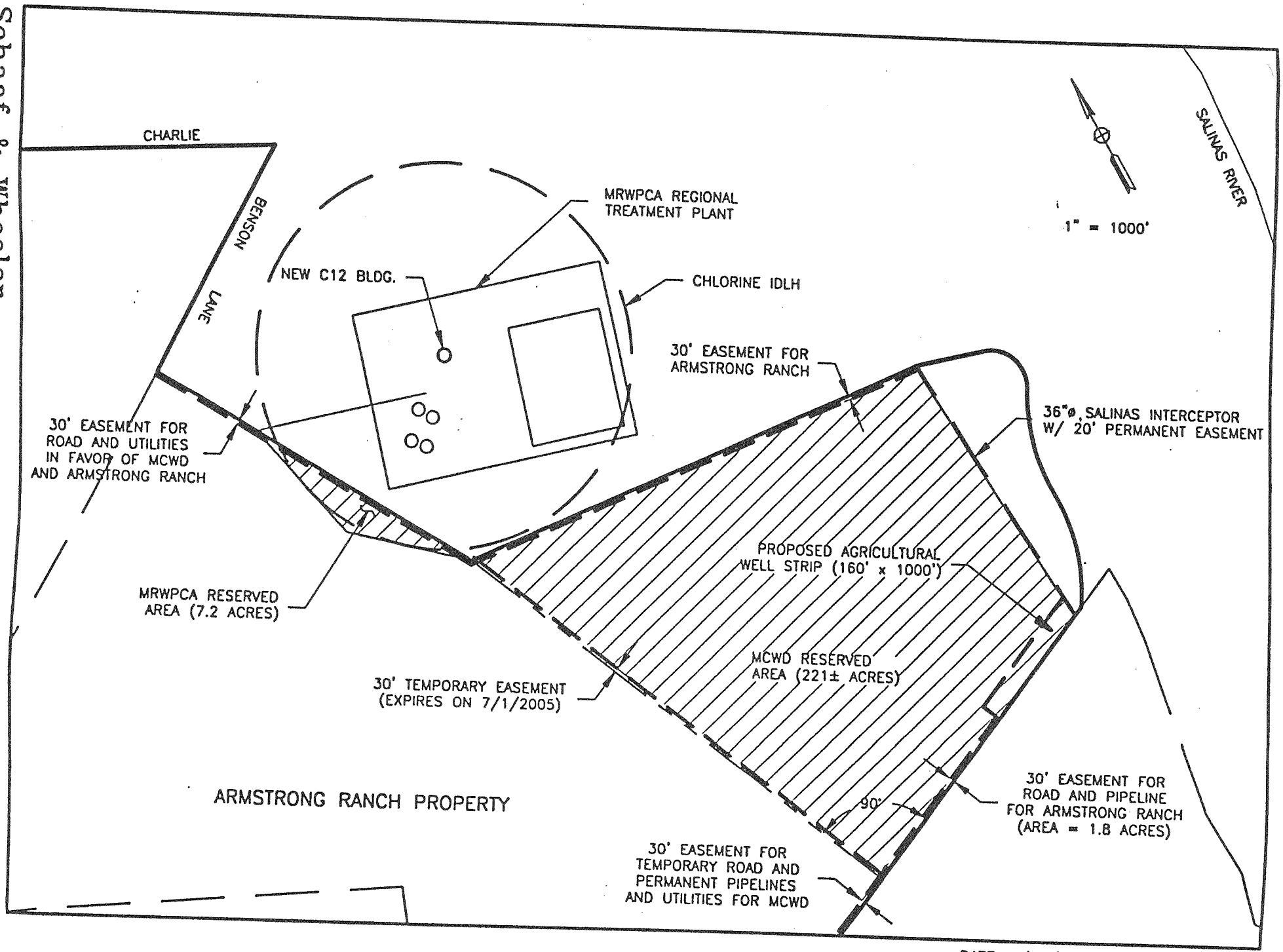


EXHIBIT "1"

DATE: 2/27/96 DRAWN BY: LJK/JJL

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of CALIFORNIA

County of MONTEREY

On 04-12-96 (Date) before me, *SONIA L. ANGELO, NOTARY PUBLIC* * (Name and Title of Officer (e.g., "Jane Doe, Notary Public"))

personally appeared * * * * * *THOMAS P. MOORE* * * * * * (Name(s) of Signer(s))

☐ personally known to me – **OR** – ☒ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

SONIA L. ANGELO
Comm. # 1087856
NOTARY PUBLIC - CALIFORNIA
Monterey County
My Comm. Expires Feb. 16, 2000

Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: ANNEXATION AGREEMENT AND GROUNDSWATER MITIGATION FRAMEWORK FOR MARINA AREA LANDS

Document Date: APRIL 12, 1996 Number of Pages: 27 w/ EXH A-F

Signer(s) Other Than Named Above: NONE

Capacity(ies) Claimed by Signer(s)

Signer's Name: THOMAS P MOORE

☐ Individual
☒ Corporate Officer
Title(s): PRESIDENT, BOARD OF DIRECTORS
☐ Partner — ☐ Limited ☐ General
☐ Attorney-in-Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer Is Representing:

MARINA WATER COAST DISTRICT

Signer's Name: _____

☐ Individual
☐ Corporate Officer
Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Attorney-in-Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer Is Representing:

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of CALIFORNIA

County of MONTEREY

On APRIL 17, 1996 (Date) before me, * *SONIA L. ANGELO, NOTARY PUBLIC* * (Name and Title of Officer (e.g., "Jane Doe, Notary Public"))

personally appeared * *MALCOLM D. CRAWFORD* * * * * * * (Name(s) of Signer(s))

☐ personally known to me – OR – XX proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

SONIA L. ANGELO
Comm. # 1087856
NOTARY PUBLIC - CALIFORNIA
Monterey County
My Comm. Expires Feb. 16, 2000

WITNESS my hand and official seal.

Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: ANNEXATION AGREEMENT AND GROUNDSWATER MITIGATION FRAMEWORK FOR MARINA AREA LANDS

Document Date: APRIL 17, 1996 Number of Pages: 27 w/EXH A-F

Signer(s) Other Than Named Above: NONE

Capacity(ies) Claimed by Signer(s)

Signer's Name: MALCOLM D. CRAWFORD

☐ Individual
☒ Corporate Officer
Title(s): SECRETARY, BOARD OF DIRECTORS
☐ Partner — ☐ Limited ☐ General
☐ Attorney-in-Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer Is Representing:

MARINA WATER COAST DISTRICT

Signer's Name: _____

☐ Individual
☐ Corporate Officer
Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Attorney-in-Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer Is Representing:

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of CALIFORNIA

County of MONTEREY

On APRIL 12, 1996 (Date) before me, * *SONIA L. ANGELO, NOTARY PUBLIC* * * * (Name and Title of Officer (e.g., "Jane Doe, Notary Public"))

personally appeared * *THOMAS P. MOORE* * * * * * * (Name(s) of Signer(s))

☐ personally known to me – **OR** – ☒ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she~~/~~they~~ executed the same in his/~~her~~/~~their~~ authorized capacity(~~ies~~), and that by his/~~her~~/~~their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

SONIA L. ANGELO
Comm. # 1087856
NOTARY PUBLIC - CALIFORNIA
Monterey County
My Comm. Expires Feb. 16, 2000

WITNESS my hand and official seal.

Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

EXHIBIT G

Title or Type of Document: MONTEREY REGIONAL WATER POLLUTION CONTROL AGENCY ADDENDUM TO ANNEXATIO AGREEMENT AND GROUNDWATER MITIGATION FRAMEWORK FOR MARINA AREAL LANDS

Document Date: APRIL 12, 1996 Number of Pages: SIX

Signer(s) Other Than Named Above: NONE

Capacity(ies) Claimed by Signer(s)

Signer's Name: THOMAS P. MOORE

☐ Individual
☒ Corporate Officer
Title(s): PRESIDENT, BOARD OF DIRECTORS
☐ Partner — ☐ Limited ☐ General
☐ Attorney-in-Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer Is Representing:

MARINA COAST WATER DISTRICT

Signer's Name: _____

☐ Individual
☐ Corporate Officer
Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Attorney-in-Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer Is Representing:

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of CALIFORNIA

County of MONTEREY

On 04-17-96 (Date) before me, *SONIA L. ANGELO, NOTARY PUBLIC* * * (Name and Title of Officer (e.g., "Jane Doe, Notary Public"))

personally appeared * * *MALCOLM D. CRAWFORD* * * * * * * (Name(s) of Signer(s))

☐ personally known to me – OR – XX proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

SONIA L. ANGELO
Comm. # 1087856
NOTARY PUBLIC - CALIFORNIA
Monterey County
My Comm. Expires Feb. 16, 2000

WITNESS my hand and official seal.

Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

EXHIBIT G

Title or Type of Document: MONTEREY REGIONAL WATER POLLUTION CONTROL AGENCY ADDENDUM TO ANNEXATION AGREEMENT AND GROUNDWATER MITIGATION FRAMEWORK FOR MARINA AREA LANDS

Document Date: APRIL 17, 1996 Number of Pages: 6

Signer(s) Other Than Named Above: NONE

Capacity(ies) Claimed by Signer(s)

Signer's Name: MALCOLM D. CRAWFORD

☐ Individual
XX Corporate Officer
Title(s): SECRETARY, BOARD OF DIRECTORS
☐ Partner — ☐ Limited ☐ General
☐ Attorney-in-Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer Is Representing:

MARINA COAST WATER DISTRICT

Signer's Name: _____

☐ Individual
☐ Corporate Officer
Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Attorney-in-Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer Is Representing:

ACKNOWLEDGMENT

STATE OF New Mexico)
: ss.
COUNTY OF Bernalillo)

On April 8, 1996, before me, Lupe Estrada, a Notary Public, duly commissioned and sworn, personally appeared JAY MAX ARMSTRONG

☐ personally known to me, or

☒ proved to me on the basis of satisfactory evidence

to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the same.

WITNESS my hand and official seal.

Lupe Estrada
Signature

OFFICIAL SEAL
LUPE ESTRADA
NOTARY PUBLIC-STATE OF NEW MEXICO
My commission expires: 3-29-98

{Seal}

ACKNOWLEDGMENT

STATE OF WASH)
: ss.
COUNTY OF KING)

On 4/4, 1996, before me, SANDRA G. HARVEY, a Notary Public, duly commissioned and sworn, personally appeared DARRELL L. MURRAY

☑ personally known to me, or

☐ proved to me on the basis of satisfactory evidence

to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the same.

WITNESS my hand and official seal.

Sandra G. Harvey
Signature

SANDRA G. HARVEY NOTARY PUBLIC STATE OF WASHINGTON COMMISSION EXPIRES 3-11-97

{Seal}

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
: ss.
COUNTY OF FRESNO)

On April 4, 1996, 1996, before me, Lupe M. Perez, a Notary Public, duly commissioned and sworn, personally appeared CLYDE W. JOHNSON III

☐ personally known to me, or

☑ proved to me on the basis of satisfactory evidence

to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the same.

WITNESS my hand and official seal.

Signature _____

LUPE M. PEREZ
NOTARY PUBLIC-CALIFORNIA
FRESNO COUNTY
MY COMMISSION EXPIRES
SEPTEMBER 7, 1996

{Seal}

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
: ss.
COUNTY OF Fresno)

On April 4, 1996, before me, Lupe M. Perez, a Notary Public, duly commissioned and sworn, personally appeared EDWIN A. JOHNSON

☐ personally known to me, or

☒ proved to me on the basis of satisfactory evidence

to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the same.

WITNESS my hand and official seal.

Signature _____

LUPE M. PEREZ
COMM. #972946
NOTARY PUBLIC-CALIFORNIA
FRESNO COUNTY
MY COMMISSION EXPIRES
SEPTEMBER 7, 1996

{Seal}

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
: ss.
COUNTY OF MONTEREY)

On March 29, 1996, before me, Jeannine L. Kreider, a Notary Public, duly commissioned and sworn, personally appeared JOHN A. ARMSTRONG II

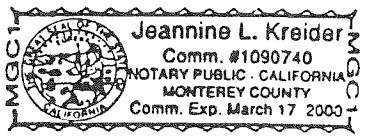
☒ personally known to me, or

☐ proved to me on the basis of satisfactory evidence

to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the same.

WITNESS my hand and official seal.

Signature {Seal}



ACKNOWLEDGMENT

STATE OF CALIFORNIA)
: ss.
COUNTY OF MONTEREY)

On March 29, 1996, before me, Jeannine L. Kreider, a Notary Public, duly commissioned and sworn, personally appeared JAMES IRVINE ARMSTRONG, JR.

☒ personally known to me, or

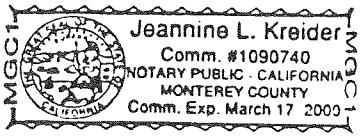
☐ proved to me on the basis of satisfactory evidence

to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the same.

WITNESS my hand and official seal.

Signature

{Seal}



ACKNOWLEDGMENT

STATE OF CALIFORNIA)
: ss.
COUNTY OF Yolo)

On April 4, 1996, before me, Kara K Walker, a Notary Public, duly commissioned and sworn, personally appeared SUSANNE IRVINE ARMSTRONG

☒ personally known to me, or

☐ proved to me on the basis of satisfactory evidence

to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same in her authorized capacity, and that by her signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the same.

WITNESS my hand and official seal.

Kara K. Walker
Signature

{Seal}

KARA K. WALKER
Comm. #992609
NOTARY PUBLIC - CALIFORNIA
YOLO COUNTY
Comm. Expires April 25, 1997

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
: ss.
COUNTY OF Monterey)

On MAY 6, 1996, before me, Paul M. Hamerly, a Notary Public, duly commissioned and sworn, personally appeared WALTER J. McCULLOUGH

☑ personally known to me, or

☐ proved to me on the basis of satisfactory evidence

to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the same.

WITNESS my hand and official seal.

Paul M. Hamerly
Signature

{Seal}

VRS2 PAUL M. HAMERLY
COMM. #1033393
Notary Public-California
Monterey County
My Comm. Exp. Sept. 20, 1998 VRS2

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
: ss.
COUNTY OF MONTEREY)

On MAY 6, 1996, before me, PAUL M. HAMERLY, a Notary Public, duly commissioned and sworn, personally appeared ELIZABETH S. ARMSTRONG

☑ personally known to me, or

☐ proved to me on the basis of satisfactory evidence

to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same in her authorized capacity, and that by her signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the same.

WITNESS my hand and official seal.

Paul M Hamerly
Signature {Seal}

VRS2 PAUL M. HAMERLY COMM. #1033393 Notary Public-California Monterey County My Comm. Exp. Sept. 20, 1998 VRS2

State of California

County of Alameda

On April 1, 1996, before me, Judith Ann Duit/Notary Public, personally appeared Ronald L. Blick, personally known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Judith Ann Duit, Notary Public

PWR1 JUDITH ANN DUIT Comm. # 1036845 NOTARY PUBLIC - CALIFORNIA Alameda County My Comm. Expires Aug. 21, 1998 PWR1

OPTIONAL INFORMATION

The information below is not required by law. However, it could prevent fraudulent attachment of this acknowledgment to an unauthorized document.

CAPACITY CLAIMED BY SIGNER (PRINCIPAL)

- ☐ INDIVIDUAL
- ☑ CORPORATE OFFICER

President RMC LONESTAR
TITLE(S)

- ☐ PARTNER(S)
- ☐ ATTORNEY-IN-FACT
- ☐ TRUSTEE(S)
- ☐ GUARDIAN/CONSERVATOR
- ☐ OTHER:

SIGNER IS REPRESENTING:
Name of person(s) or entity(ies)
RMC LONESTAR

DESCRIPTION OF ATTACHED DOCUMENT

Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands
TITLE OR TYPE OF DOCUMENT

27 plus exhibit A - I
NUMBER OF PAGES

3/26/96
DATE OF DOCUMENT

OTHER

City of Marina

211 HILLCREST AVENUE
MARINA, CA 93933
TELEPHONE (408) 384-3715
FAX (408) 384-0425

CERTIFICATE OF ACKNOWLEDGEMENT

STATE OF CALIFORNIA)
) *ss.*
County of Monterey)

On April 5, 1996, before me, Joy P. Junsay, City Clerk of the City of Marina, California, personally appeared James L. Vocelka, Mayor of the City of Marina, California, personally known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal of the City of Marina, California.

Dated this 8th day of April, 1996.

Joy P. Junsay, City Clerk

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
: ss.
COUNTY OF MONTEREY)

On March 29, 1996, before me, Jeannine L. Kreider, a Notary Public, duly commissioned and sworn, personally appeared DONALD G. HUBBARD

☒ personally known to me, or

☐ proved to me on the basis of satisfactory evidence

to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument, the person, or the entity upon behalf of which the person acted, executed the same.

WITNESS my hand and official seal.

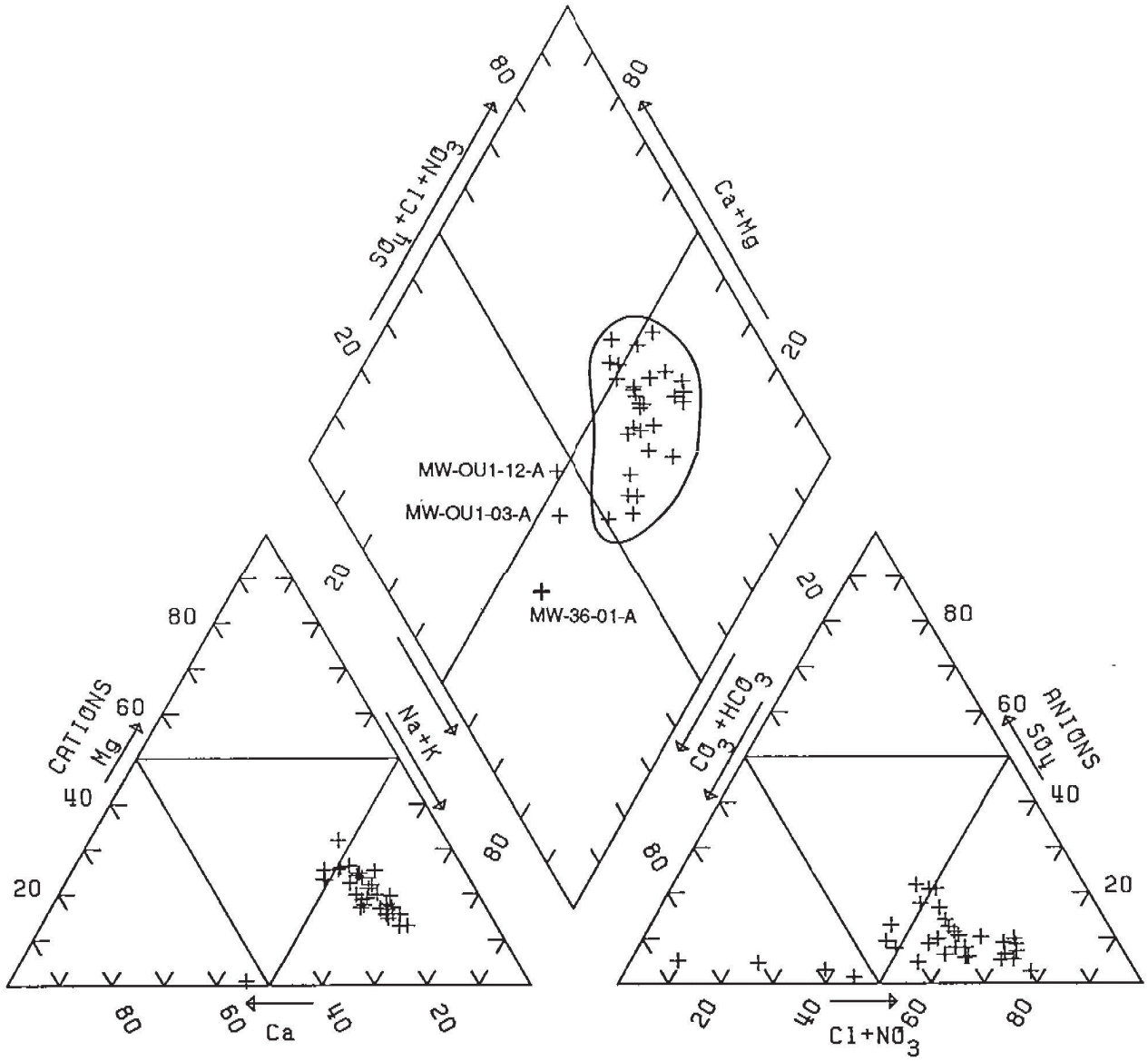
Signature

{Seal}

MGC1 Jeannine L. Kreider Comm. #1090740 NOTARY PUBLIC - CALIFORNIA MONTEREY COUNTY Comm. Exp. March 17 2000 MGC1

Appendix 4A

Supplemental Hydrogeologic Conceptual Model Figures



Legend:

+ A-Aquifer Water Sample

D Ford Ord A-Aquifer Water Quality

Source:

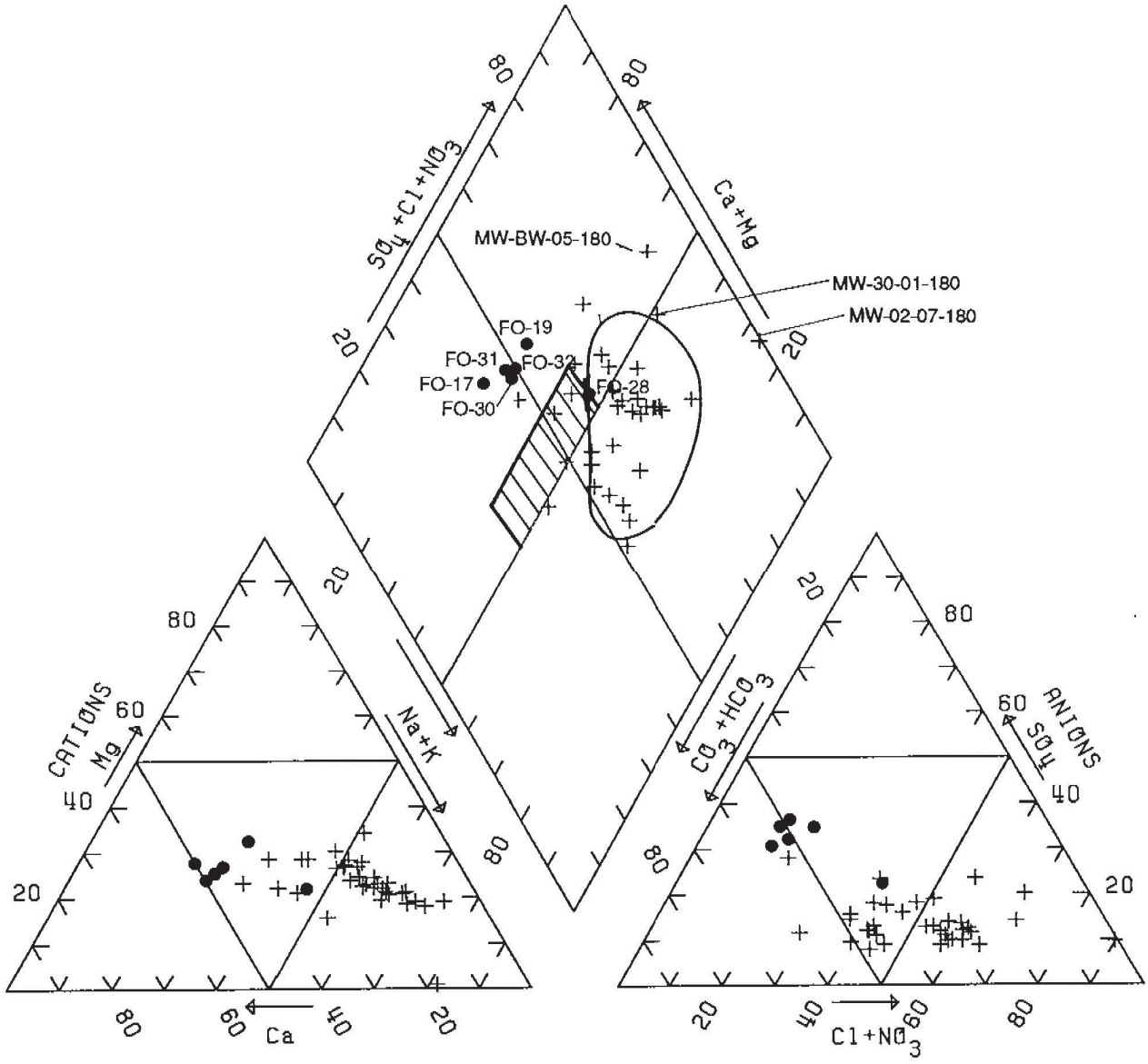
Adapted from HLA (1994).

Piper Diagram, Dune Sand Aquifer

Monterey Subbasin
Groundwater Sustainability Plan
December 2020

Figure A4-1

20200623.121603 G:\B60094.03\2020-06\Figure 4-18 through 4-31.dwg Fig 4-18



Legend:

180-Foot Aquifer Water Sample (1992 Data)

Ford Ord Water-Supply Water Sample (1985 Data)

Ford Ord A-Aquifer Water Quality

Salinas Valley 180-Foot Aquifer Water Quality *(DKT, 1989)*

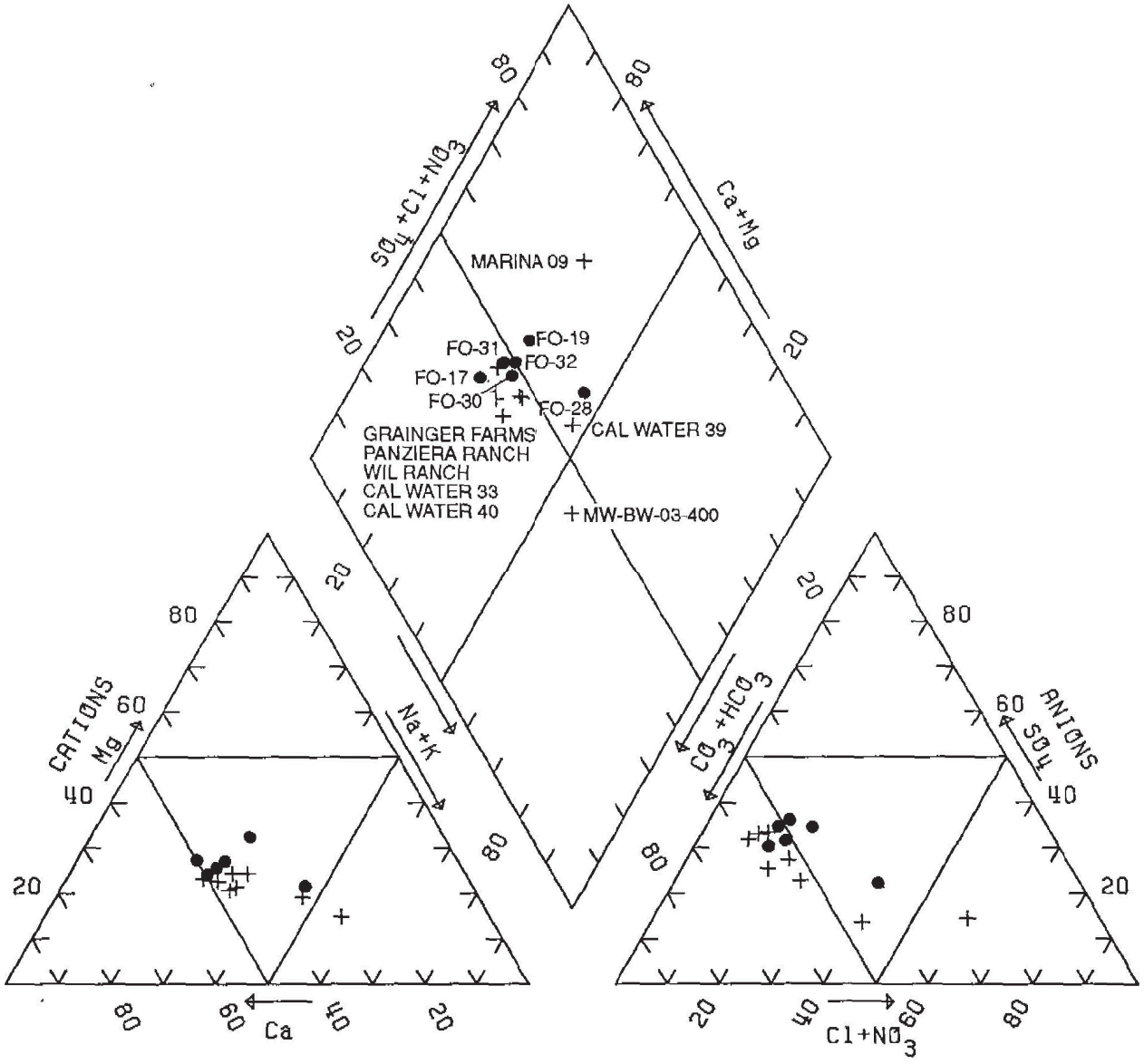
Source:

Adapted from HLA (1994).

Piper Diagram, 180-Foot Aquifer

Monterey Subbasin
Groundwater Sustainability Plan
December 2020

Figure A4-2



Legend:

+ 400-Foot Aquifer Water Sample (1992 Data)

● Ford Ord Water-Supply Water Sample (1985 Data)

Ford Ord A-Aquifer Water Quality

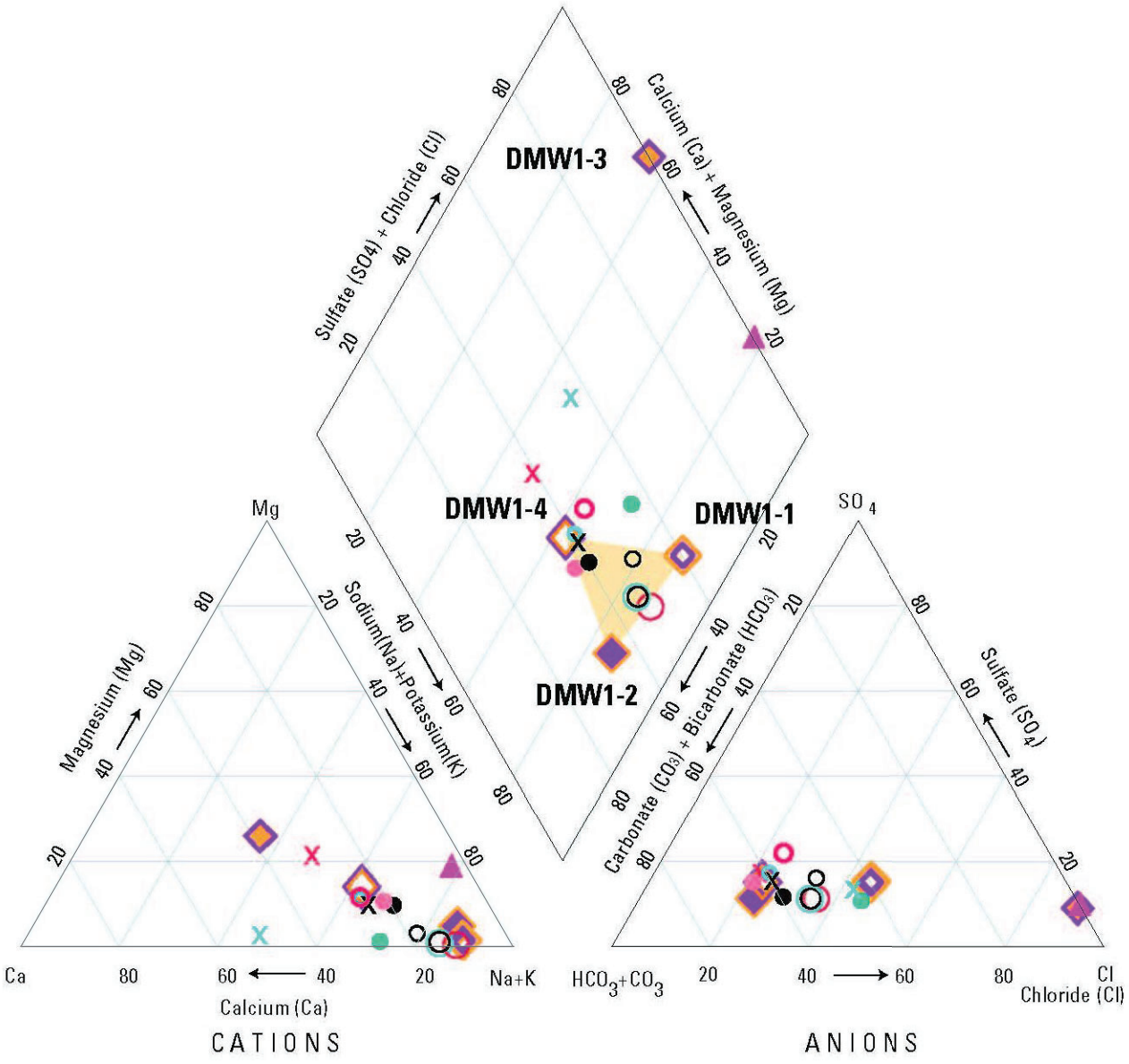
Source:

Adapted from HLA (1994).

Piper Diagram, 400-Foot Aquifer

Monterey Subbasin
Groundwater Sustainability Plan
December 2020

Figure A4-3



Legend:

Wells - Deep Aquifer Monitoring
14S/1E

- 24L5 [DMW1-4] (930'-950')
- 24L4 [DMW1-3] (1,040'-1,060')
- 24L3 [DMW1-2] (1,410'-1,430')
- 24L2 [DMW1-1] (1,820'-1,860')

(') - Indicatesdepth in feet below land surface

Seawater

Wells - Water Supply
14S/2E

	1995	1997	2000	MCWD Well Number
31K2M	X	X	X	9
32	O	O	O	10
32D1	●	●	●	11
30	O	O	O	12

Source:

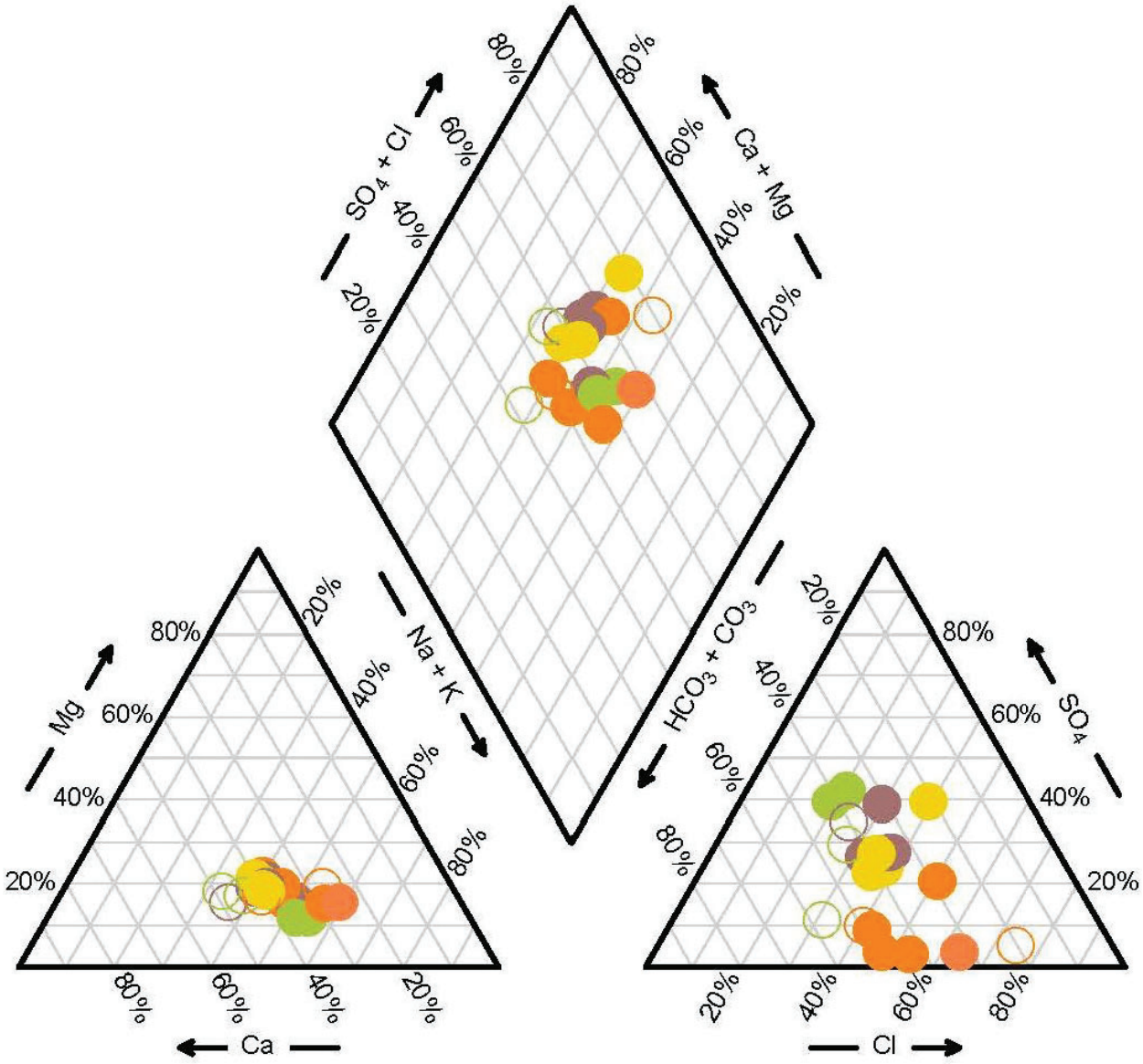
Adapted from USGS (2002).

Notes:

1. Trilinear diagram of major-ion chemistry for selected groundwater samples drom the deep-aquifer system in the Salinas Valley, 1995, 1997, and 2000 with samples from DMW1 wells, 2000.

Piper Diagram, Deep Aquifer

Monterey Subbasin
Groundwater Sustainability Plan
December 2020
Figure A4-4



Legend:

- QTc
- QTc + Tsm
- Tsm
- QTc + Tmd
- Tmd
- Tmd + Tus
- Tus

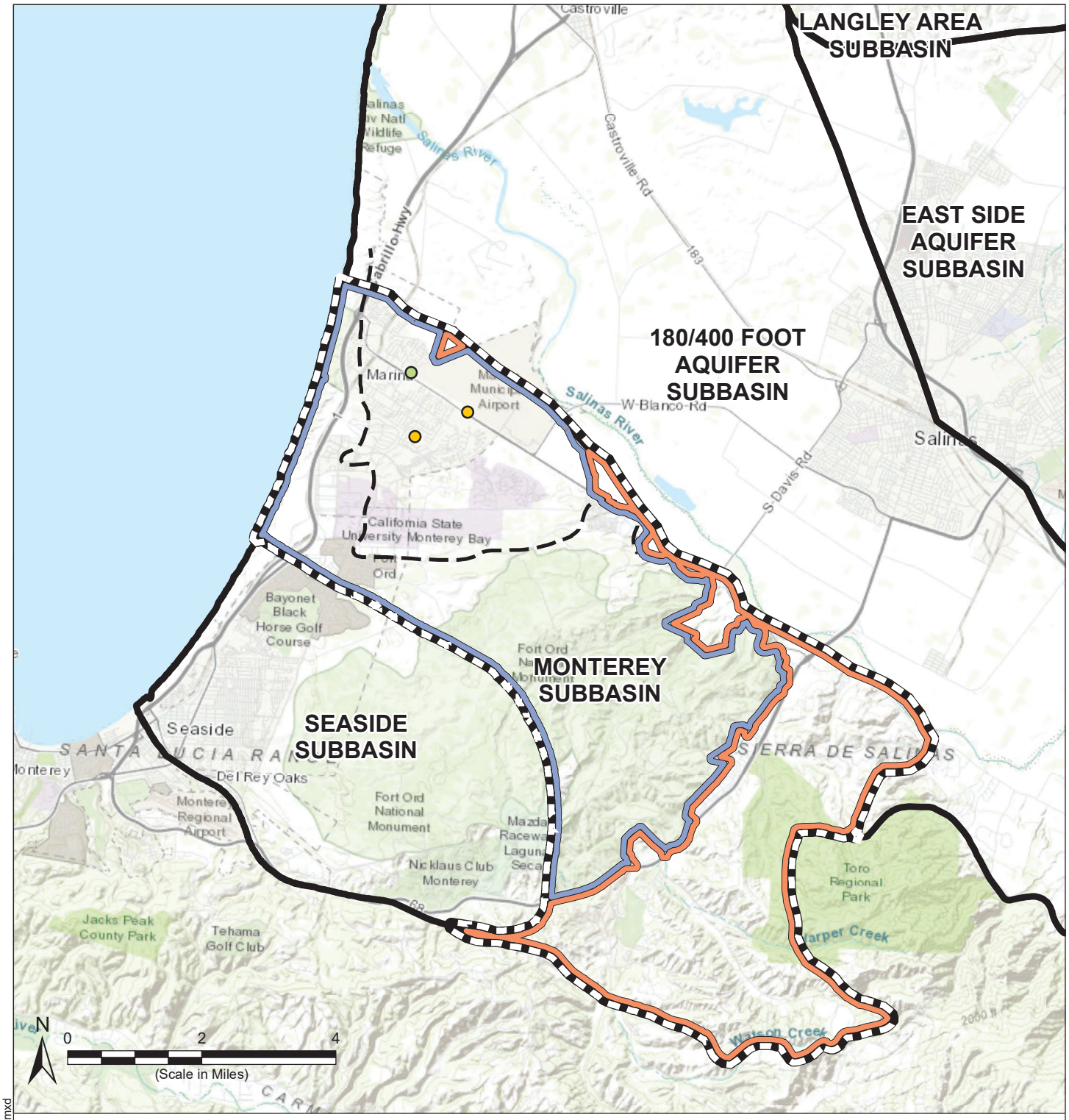
Source:

Adapted from GeoSyntec (2007).

Piper Diagram, Corral de Tierra Area

Monterey Subbasin
Groundwater Sustainability Plan
December 2020

Figure A4-5



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin
- Extent of FO-SVA (Harding ESE, 2001)

Transmissivity (ft^2/d)

- Less than 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- 10,000 - 30,000
- Greater than 30,000

Management Areas

- Marina-Ord Area
- Corral de Tierra Area

Abbreviations

ft^2/d = square feet per day

Notes

1. All locations are approximate.

Sources

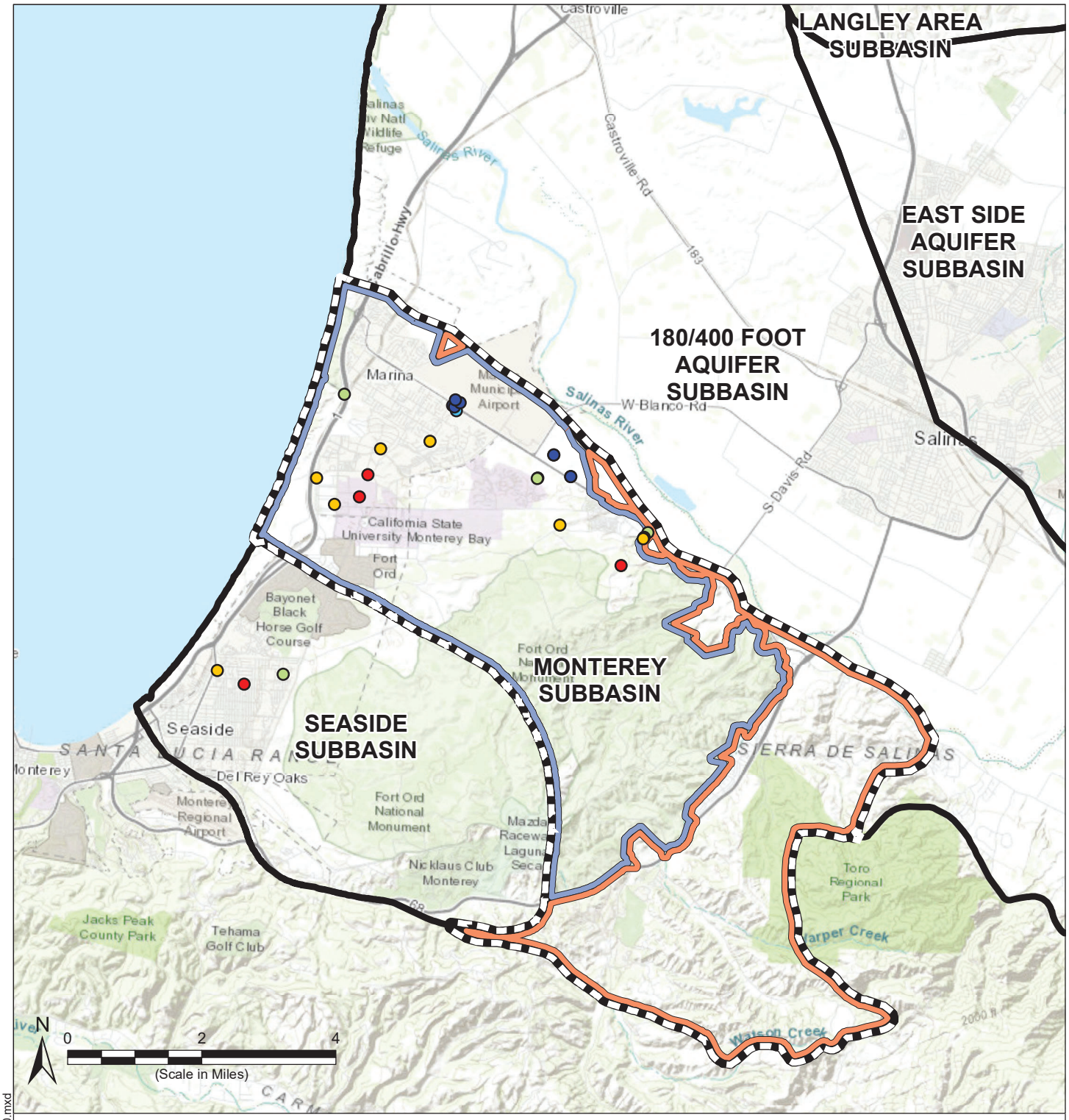
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 16 December 2020.
2. Transmissivities are obtained from the sources below:
   HLA, 1994
   HLA, 1999
   MACTEC, 2006
   USACE, 2006
   USGS, 2002
   MCWD, 2019

Measured Transmissivities in the Dune Sand Aquifer

Monterey Subbasin
Groundwater Sustainability Plan
December 2020

Figure 4A-6

Path: X:\B60094\Maps\2020\12\FigA4-6_Transmissivity_Shallow.mxd



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Transmissivity (ft^2/d)

- Less than 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- 10,000 - 30,000
- Greater than 30,000

Management Areas

- Marina-Ord Area
- Corral de Tierra Area

Abbreviations

ft^2/d = square feet per day

Notes

1. All locations are approximate.

Sources

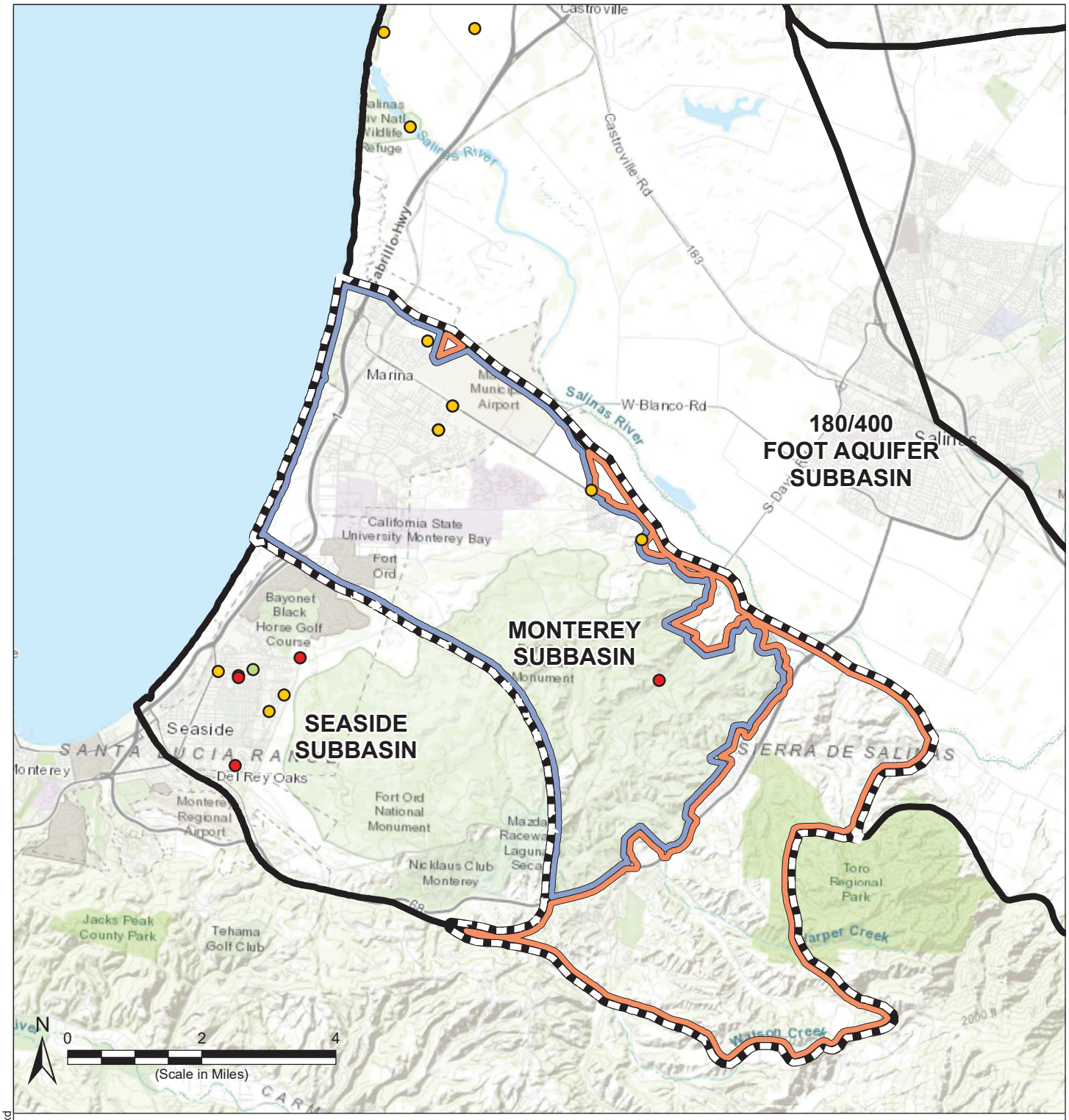
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 16 December 2020.
2. Transmissivities are obtained from the sources below:
   HLA, 1994
   HLA, 1999
   MACTEC, 2006
   USACE, 2006
   USGS, 2002
   MCWD, 2019

Measured Transmissivities in the 180-Foot Aquifer and 400-Foot Aquifer

Monterey Subbasin
Groundwater Sustainability Plan
December 2020

Figure 4A-7

Path: X:\B60094\Maps\2020\12\FigA4-7_Transmissivity_180_400.mxd



Legend

- Monterey Subbasin
- Other Groundwater Subbasins within Salinas Valley Basin

Transmissivity (ft^2/d)

- Less than 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- 10,000 - 30,000
- Greater than 30,000

Management Areas

- Marina-Ord Area
- Corral de Tierra Area

Abbreviations

ft^2/d = square feet per day

Notes

1. All locations are approximate.

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 16 December 2020.
2. Transmissivities are obtained from the sources below:
   HLA, 1994
   HLA, 1999
   MACTEC, 2006
   USACE, 2006
   USGS, 2002
   MCWD, 2019

Measured Transmissivities in the Deep Aquifer

Monterey Subbasin
Groundwater Sustainability Plan
December 2020

Figure 4A-8

Path: X:\B60094\Maps\2020\12\FigA4-8_Transmissivity_Deep.mxd