Attachment A

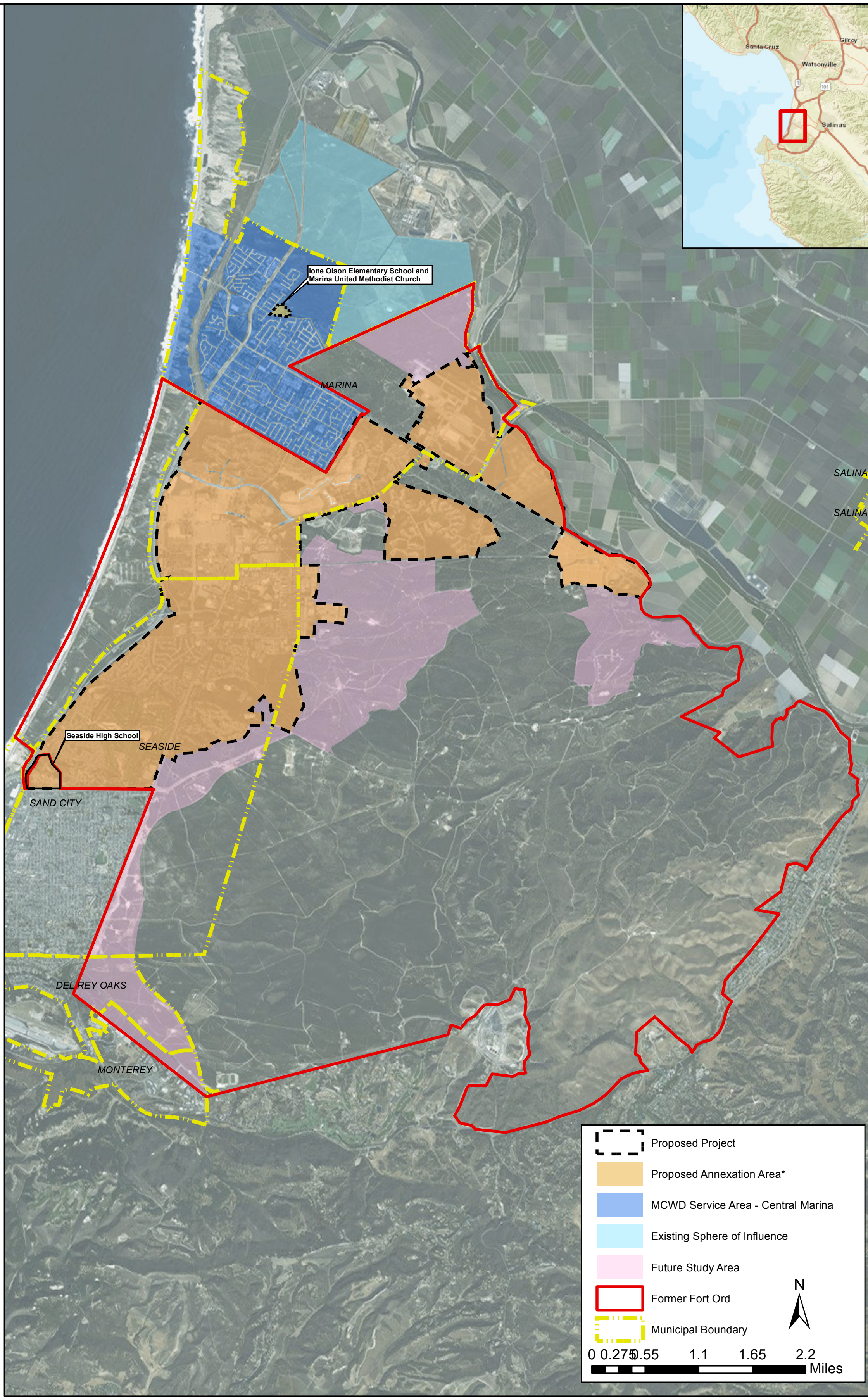
Attachments to Comment Letters D & F

This Page Intentionally Left Blank

Attachment A-1

Attachments to Comment Letter D

This Page Intentionally Left Blank



Document Path: C:\GIS\GIS_Projects\2010-13 MCWD Fort Ord Annex\Final Products\2017\MCWD SA Updated_forGraphics.mxd

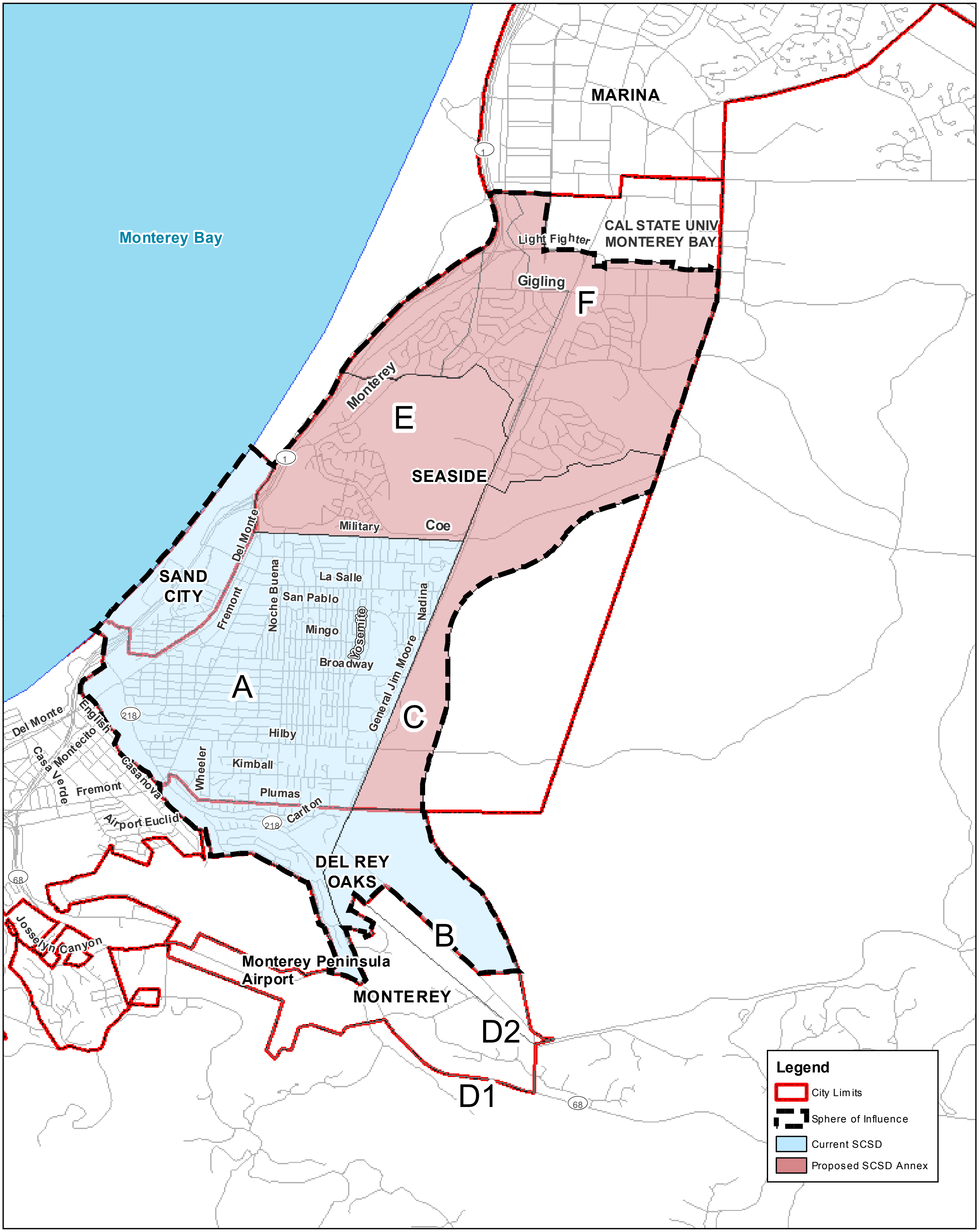
*Service Area is coterminus with SOI Amendment Area

Title:

MCWD Proposed SOI Amendment and Annexation Area

Monterey | San Jose
Denise Duffy and Associates, Inc.
Environmental Consultants Resource Planners
947 Cass Street, Suite 5
Monterey, CA 93940
(831) 373-4341

Figure
2



WALLACE GROUP

CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL

612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

SEASIDE COUNTY SANITATION DISTRICT
LAFCO APPLICATION

FIGURE 1: PROPOSED ANNEXATION BOUNDARY

NOTES:
BASEMAP PROVIDED BY SCSD. WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED DECEMBER 2017.

SEASIDE COUNTY SANITATION DISTRICT

ENGINEERING ANALYSIS
Seaside County Sanitation District LAFCO Application for Sphere of Influence Amendment and Service Area Annexation
December 2017

District Board

Chair: Mayor Ralph Rubio Representing Seaside

Vice Chair: Council Member Jerry Blackwelder Representing Sand City

2nd Vice Chair: Council Member Pat Lintell Representing Del Rey Oaks

District Staff

District Manager: Craig Malin

District Engineer: Richard Riedl, PE

District Administrative Services Director: Daphne Hodgson

District Legal Counsel: Jesse Avila

District Secretary: Lesley Milton-Rerig

Approved By:

Richard Riedl   Jan. 3, 2018

Richard Riedl, P.E. 49631
District Engineer

Prepared By:

Kari Wagner   12/20/17

Kari Wagner, P.E. 66026
Senior Civil Engineer

REGISTERED PROFESSIONAL ENGINEER
KARI E. WAGNER
66026
CIVIL
STATE OF CALIFORNIA

WALLACE GROUP®

This Page Intentionally Left Blank

Table of Contents

Executive Summary

This report was prepared as a technical supporting document for the Local Agency Formation Commission (LAFCO) of Monterey County application, which is being submitted by Seaside County Sanitation District (SCSD). SCSD currently provides wastewater collection service to Region A as shown on Figure 1. Region B, which currently is 100% vacant, is part of the City of Del Rey Oaks and is already included in SCSD's wastewater service area. SCSD is preparing a LAFCO application to expand the sphere of influence and annex Regions C, E, and F into the SCSD wastewater collection service area. Following an evaluation of the collection system facilities, it is proposed that the entire California State University Monterey Bay (CSUMB) campus remain part of the Marina Coast Water District (MCWD) wastewater collection service area even though a portion of the campus resides within the City of Seaside.

Land Use

The purpose of identifying the existing conditions and researching the anticipated land uses is to better understand the existing wastewater infrastructure and master plan for the future undeveloped or under-utilized land. Region C, part of the Former Ford Ord Area, is in the City of Seaside and is comprised of primarily low density residential with open space and some recreational uses. Region C is currently mostly undeveloped. There are approximately 325 acres of proposed low density residential, which equates to approximately 2,600 residential units. Region E includes residential developments, schools, two golf courses, a proposed resort and open space. A large portion of the region is occupied by the golf courses which require minimal sanitary sewer infrastructure. Region F has a mix of residential developments, retail areas, schools, and parks. CSUMB is located immediately north of this region. The sanitary sewer collection facilities in this area flow north toward the City of Marina.

Existing Wastewater Collection System

This section presents an overview of the existing wastewater collection system. Since Region C is mostly vacant at this time with almost no existing collection system, this section will focus on the sewer collection requirements of Regions E and F.

Figure 4 illustrates the collection system within Region E. Region E is comprised of the area known as Seaside Highlands, Hayes Park, and Bayonet and Black Horse Golf Courses located at the proposed Seaside Resort. The wastewater collection system has approximately 38,700 feet (7.3 miles) of sewer main that range in size from 6- to 15-inch[1]. Region E has a total of 183 manholes and one lift station known as Ord Village Lift Station. All wastewater within Region E flows west to the Ord Village Lift Station, which then is pumped north to Region F and then ultimately flows to the Monterey One Water Regional Lift Station located in the City of Marina.

[1] Information provided by MCWD to SCSD in December 2013 as a GIS database.

Figure 5 illustrates the collection system within Region F. Region F is significantly larger than Region E and encompasses lands of the former Ford Ord and the Presidio of Monterey Annex. There are three wastewater drainage basins within Region F. Figure 5 illustrates the three drainage basins as F1 through F3. Region F1 has approximate 22,090 LF of sewer mains that range in size from 6- to 15-inch, with 60% of the system 6-inch. Region F1 has a total of 65 manholes and one lift station known as Giggling Lift Station. In addition, Region F1 receives all flow from Region E.

Region F2 has approximately 31,860 LF of sewer mains that range in size from 6- to 16-inch and has a total of 112 manholes. All wastewater flow from Region F2 flows by gravity to the north through a 12-inch sewer main.

Region F3 has approximately 71,225 LF of sewer mains that range in size from 6- to 21-inch and has a total of 275 manholes. Region F3 also has one pocket lift station known as Hatten Lift Station, which only receives a small amount of wastewater flow. The wastewater from Region F3 flows by gravity to the north, ultimately collecting all flow from Regions E and F1 via the Giggling Lift Station Force Main. Regions F2 and F3 sewer mains join in the City of Marina, just north of the City of Marina/City of Seaside border. All the wastewater then flows to the north to the Monterey One Water Regional Lift Station.

The area north of Region F4 is comprised entirely of CSUMB. Since CSUMB is not proposed to be annexed into SCSD, its collection system will not be reviewed.

Existing Wastewater Flows

Region A's wastewater flows were obtained from SCSD's 2011 Sewer Master Plan. Region E and F's wastewater flows were obtained for MCWD's 2005 Sewer Master Plan. Table E-1 provides a summary of the existing wastewater flows for each region within the SCSD's Sphere of Influence.

Table E-1 – Existing Wastewater Flows by Wastewater Service Area Region

Wastewater Service Area Region	Average Daily Flow	Maximum Day Dry Weather Flow		Peak Hour Dry Weather Flow	
	mgd	mgd	Peaking Factor[2]	mgd	Peaking Factor
Region A	1.80	2.72	1.5	3.78	2.1
Region E[1]	0.39	0.59	1.5	1.18	3.0
Region F1[1]	0.11	0.17	1.5	0.34	3.1
Region F2[1]	0.13	0.19	1.5	0.38	2.9
Region F3[1]	0.37	0.56	1.5	1.12	3.0
Total	**2.8**	**4.23**	**--**	**6.8**	**--**

[1] Flows obtained from Table 7-2 of the Marina Coast Water District 2005 Sewer Master Plan.
[2] Peaking factor is the ratio of the MDDWF or PHDWF to the ADF.

Future Wastewater Flows

The future wastewater flows for each region within the SCSD's Sphere of Influence is based on the future development potential. Information for Regions A, B, and C was obtained from SCSD Sewer Master Plan. Information for Regions E and F was obtained from the MCWD Master Plan. Table E-2 provides a summary of the future anticipated wastewater flows for each region within the SCSD's Sphere of Influence.

Table E-2 – Summary of Future Wastewater Flows by Region

Wastewater Service Area Region	Average Daily Flow	Maximum Day Dry Weather Flow		Peak Hour Dry Weather Flow	
	mgd	mgd	Peaking Factor[2]	mgd	Peaking Factor[2]
Region A	2.36	3.54	1.5	4.96	2.1
Region B	0.91	1.37	1.5	1.91	2.1
Region C	0.56	0.84	1.5	1.18	2.1
Region E[1]	0.39	0.59	1.5	1.17	3.0
Region F1[1]	0.11	0.17	1.5	0.33	3.0
Region F2[1]	0.13	0.20	1.5	0.39	3.0
Region F3[1]	0.46	0.69	1.5	1.38	3.0
Total	**4.92**	**7.40**	**--**	**11.32**	**--**

[1] Flows obtained from Table 7-2 of the Marina Coast Water District 2005 Sewer Master Plan.
[2] Peaking factor is the ratio of the MDDWF or PHDWF to the ADF.

Proposed Improvements

This section presents the physical constraints and the recommended projects required for SCSD to expand their service area to include Regions C, E, and F.

Region C

Region C is an undeveloped area that currently does not have sanitary sewer service. The 2011 SCSD Sewer Master Plan evaluated the impacts of Region C on SCSD's existing infrastructure along with Region B, which also consists of all vacant land, but is already within the SCSD's wastewater service area boundary. These two Regions are capable of being served through a gravity collection system without the need for any new lift stations. Table 9-7 in the 2011 Sewer Master Plan provides a summary of the recommended projects to meet the demands within Regions B and C and their proportional share for the upgrades.

Regions E and F

Regions E and F contain existing sewer facilities that are currently being served by MCWD. Figures 7 and 8 identify the proposed capital improvements to facilitate the proposed service area annexation. The following is a discussion of the areas that are impacted by the annexation and the alternatives for altering the collection system to meet the needs of the community and the annexation.

Sewer Master Plan Update

MCWD completed a sewer master plan in 2005. Since 2005, development and flow patterns have changed. It is recommended that a Sewer Master Plan Update be prepared to confirm the proposed Capital Improvement Projects. The cost to complete the Sewer Master Plan Update is estimated at $200,000.

6th Street and Colonel Durham Street

It is recommended that the sewer main serving a small section of the community on 6th Street, south of Colonel Durham Street, be re-directed to flow west with the installation of a new sewer main along Colonel Durham Street. This would require the construction of approximately 1,200 LF of new 8" pipe. It is estimated that this project will cost $429,000.

1st Avenue and Divarty Street

All wastewater from Regions E and F flows to the northwest of the service area either by gravity flow, force main, or a combination of the two. Two parallel sewer mains carry the wastewater flow from the City of Seaside north into the City of Marina and towards the Monterey One Water Regional Lift Station (see Figure 8), which is located approximately 4,800 feet northwest of the city limit line between the City of Seaside and the City of Marina. This sewer main is not a dedicated sewer main from Regions E and F to Monterey One Water's Regional Lift Station as it also receives wastewater from MCWD customers and CSUMB.

There are two options for future operations. The first option is, prior to annexing regions E and F to SCSD, an agreement between SCSD and MCWD be prepared. This agreement would determine future operational and maintenance responsibilities and costs. Currently, the sewer trunk main on 1st Avenue is flowing approximately one-third full under peak dry weather conditions. There is significant development that is proposed in Region F. In addition, CSUMB and the City of Marina are also proposing development. It is estimated that the future development on CSUMB will add a peak demand of 1.3 mgd per Schaaf & Wheelers 2004 report for the CEQA document prepared for CSUMB. The proposed development will impact the trunk line on 1st Avenue. However, it is estimated that this sewer trunk main is capable of handling up to 15 mgd under peak conditions, which is greater than the anticipated flow from CSUMB and development that will occur within the City of Marina and future development within Regions E and F.

The following options are recommended:

Option 1: SCSD Operate and Maintain Sewer Trunk Mains with Access Easement

SCSD would operate and maintain the trunk line all the way to the Monterey One Water Regional Lift Station.

Cost: There are no physical construction costs to implement Option 1. There will be administrative/legal costs to complete the easement documents and costs to conduct the flow metering. If desired by both parties, a new flow meter could be installed permanently to monitor flows on a continuous basis. This cost is not included in the cost estimate provided. *Cost Estimate - $55,000. There will be on-going monthly fees paid by MCWD to SCSD for O&M and potential future upgrades.*

Option 2: MCWD Operate and Maintain Sewer Trunk Mains

Option 2 is similar to Option 1 except that MCWD would operate and maintain the sewer trunk main from the City border to the Monterey One Water Regional Lift Station. Again, costs to operate and maintain the trunk main would be based on a percentage of flow.

Cost: There are no physical construction costs to implement Option 2. There will be administrative/legal costs to complete the easement documents and costs to conduct the flow metering. If desired by both parties, a new flow meter could be installed permanently to monitor flows on a continuous basis. This cost is not included in the cost estimate provided. *Cost Estimate - $55,000. There will be on-going monthly fees paid by SCSD to MCWD for O&M and potential future upgrades.*

It should be noted that either of these options are more cost effective, but require cooperation between the two agencies. An alternative to this option is to construct a new, dedicated sewer main to serve only Regions E and F. This option is described below:

Option 3: Construct New Trunk Main

Another option is for SCSD to construct a dedicated sewer main from the border of the two Cities to the Monterey One Water Regional Lift Station (approximately 4,800 LF). The sewer main must convey all the flow from Region E, F and a potential Project east of Region F for a total future flow of 3.27 mgd under PHDWF. The sewer main is proposed to be 30-inch, but should be re-evaluated during the potential future development project implementation. There are two proposed routes for the dedicated sewer trunk main. The first would be parallel to the existing sewer trunk main along 1st Avenue. This route has numerous conflicts with existing utilities and sewer and water laterals, but is not unfeasible to construct. The second route would be to go under Highway 1 and construct a new sewer trunk main paralleling Highway 1 along the west side frontage road (Beach Range Road – See Figure 8). This route would have less existing conflicting utilities, but would require an engineering analysis to confirm that the sewer trunk main can flow by gravity to the Regional Lift Station and would have potential environmental impacts that will need to be identified.

This option may require a utility easement the County of Monterey. SCSD would pay for 100% of any operation and maintenance costs since no flow would be contributed to the sewer main from MCWD customers.

Cost: Preliminary Cost Estimate for the construction of the dedicated sewer trunk main is $5,000,000.

Recommendation

It is recommended that SCSD and MCWD pursue Option 2. If an agreement cannot be obtained, it is recommended SCSD pursue an engineering analysis that would determine which route for a dedicated sewer main is more viable. For budgeting purposes, this Engineer's Report and the Financial Analysis will include the cost of $5,000,000 for the construction of a new dedicated sewer main.

Wastewater System Master Plan Proposed Improvements

MCWD's 2005 Wastewater System Master Plan, prepared by RBF in July 2005, proposed numerous sewer upgrades for both the Seaside jurisdiction and the Marina jurisdiction. Table E-3, below, identifies the capital improvements projects proposed in the Seaside jurisdiction only that have not been constructed to date. The table also provides their current status as provided by MCWD staff. Details on the limits of each project can be found in Appendix F of the MCWD 2005 Master Plan and are provided as an attachment to this report.

All projects identified in the MCWD Master Plan for the Seaside jurisdiction are required for future development and therefore, sewer impact fees collected from these developments would be used to offset the costs identified in Table E-3. Existing customer sewer rates should not be used to fund these projects.

Table E-3 – Summary of MCWD Master Plan CIPs for Seaside Jurisdiction Only

CIP #	CIP Name	Master Plan 2005 Cost	2017 Escalated Costs[1]	% of Costs Attributed to Future Dev.	Status
1	Aleutian and Monterey Road Pipeline Replacement Project	$83,900	$117,500	100	Project Not Completed. Project required to accommodate future flows from Seaside Resort Development.
2	Okinawa Road Pipeline Replacement Project	$144,800	$202,700	100	Project Not Completed. Project required to accommodate future flows from Seaside Resort Development.
3	California Street Pipeline Replacement Project	$3,800	--	100	Project Completed.
10	Ord Village Pipeline Replacement Project	$45,000	$63,000	100	Project Not Completed. Project required to accommodate future flows from Seaside Resort Development.
13	Mulheim Road Pipeline Replacement Project	$27,800	$38,900	100	Project Not Completed. Per MCWD Staff, project may not be required and should be re-evaluated.
16	Ardennes Circle Pipeline Replacement Project	$22,200	$31,100	100	Project Not Completed. Per MCWD Staff, project may not be required and should be re-evaluated. If required, it will be part of the Fitch Park Phase 2 housing replacement.
17	Metz Road Pipeline Replacement Project	$38,400	$53,800	100	Project Not Completed. Per MCWD Staff, project may not be required and should be re-evaluated.
23	Giggling Lift Station and Force Main Improvements	$162,000	$226,800	100	Project Not Completed. MCWD budgeted for 2015-2017 fiscal years
26	Hatten Lift Station	$30,000	$42,000	100	Project Not Completed. MCWD budgeted for 2015-2016 fiscal year
27, 29, 30, & 31	General Jim Moore Blvd Projects				These projects were proposed to serve Region C via force mains in General Jim Moore Blvd. However, these projects are unnecessary as Region C will now be served by gravity flows into the current SCSD service area.
	Total	**$554,100**	**$775,800**		

1. Escalation factor based on an ENR Index of 40% from 2005 to 2017, rounded to the nearest $100.

Seaside County Sanitation District LAFCO Application

Seaside County Sanitation District (SCSD) is in Monterey County to the north of the Monterey Peninsula adjacent to Monterey Bay. SCSD is a special district formed on March 1, 1950 and is currently responsible for the maintenance and operation of the sewer collection system serving the Cities of Del Rey Oaks, Sand City, and Seaside (excluding the Former Fort Ord Military Installation). SCSD is governed by a Board of Directors made up of one representative (Mayor or Council Member) of the three-member cities.

This report was prepared as a technical supporting document for the proposed annexation of service area application to the Local Agency Formation Commission (LAFCO) of Monterey County application, which is being submitted by SCSD. The application is for the annexation of the area shown in Figure 1, into the SCSD Wastewater Collection Service Area.

This technical report will provide the following information:

- Proposed annexation boundary;
- Land use and population information;
- A description of the existing wastewater collection system;
- A description of the existing and future wastewater flows;
- A description of the proposed capital improvement projects required for SCSD to expand the service area; and

Proposed Annexation Boundary

SCSD currently provides wastewater collection service to Region A as shown on Figure 1. Region B, which currently is 100% vacant, is part of the City of Del Rey Oaks and is already included in SCSD's wastewater collection service area. SCSD is preparing this LAFCO application to expand the sphere of influence and annex Regions C, E, and F into the SCSD wastewater collection service area. It is proposed that the entire California State University Monterey Bay (CSUMB) campus become part of the Marina Coast Water District (MCWD) service area even though a portion of the campus resides within the City of Seaside.

Land Use and Population

This section presents the land use and future population forecasts for the regions proposed to be annexed into the SCSD wastewater collection service area. The purpose of identifying the existing conditions and researching the anticipated land uses is to better understand the existing wastewater infrastructure and master plan for the future undeveloped or under-utilized land.

Land Use

Region C

Figure 2 illustrates the land uses for the study area described herein as Region C. Region C, part of the Former Ford Ord Area, is in the City of Seaside and is comprised of primarily low density residential with open space and some recreational uses. Region C is currently mostly undeveloped. There are approximately 325 acres of proposed low density residential, which equates to approximately 2,600 residential units.

Regions E and F

Regions E and F are currently serviced by Marina Coast Water District although both are located within the limits of the City of Seaside. Information regarding land use and the future development is taken from the Final Wastewater System Master Plan – Ord Community Service Area prepared by RBF Consulting for Marina Coast Water District on July 19, 2005.

Region E

Region E includes residential developments, schools, two golf courses, a proposed resort and open space. A large portion of the region is occupied by the golf courses which requires minimal sanitary sewer infrastructure. Figure 3 illustrates the locations of the various developments within this region.

Region F

Region F has a mix of residential developments, retail areas, schools, and parks. CSUMB is located immediately north of this region. The sanitary sewer collection facilities in this area flow north toward the City of Marina. Since the majority of CSUMB would be better served by MCWD, it is proposed that the entire CSUMB campus become part of the MCWD service area. Figure 3 illustrates the locations of the various developments within this region.

Existing Wastewater Collection System

This section presents an overview of the existing wastewater collection system. Since Region C is mostly vacant at this time with almost no existing collection system, this section will focus on the sewer collection requirements of Regions E and F.

Region E

Figure 4 illustrates the collection system within Region E. Region E is comprised of the area known as Seaside Highlands, Hayes Park, and Bayonet and Black Horse Golf Courses located at the proposed Seaside Resort. The wastewater collection system has approximately 38,700 feet (7.3 miles) of sewer main that range in size from 6- to 15-inch[2]. Region E has a total of 183 manholes and one lift station known as Ord Village Lift Station. All wastewater within Region E flows west to the Ord Village Lift Station, which then is pumped north to Region F and then ultimately flows to the Monterey One Water Regional Lift Station located in the City of Marina.

[2] Information provided by MCWD to SCSD in December 2013 as a GIS database.

Based on MCWD's 2005 Sewer Master Plan, approximately 1,940 LF within Region E was flowing 70 to 100% full and is therefore undersized for meeting existing needs (See MCWD Capital Improvement Project (CIP) #1 and #10).

Region F

Figure 5 illustrates the collection system within Region F. Region F is significantly larger than Region E and encompasses lands of the former Ford Ord and the Presidio of Monterey Annex. There are three wastewater drainage basins within Region F. Figure 5 illustrates the three drainage basins as F1 through F3. Region F1 has approximate 22,090 LF of sewer mains that range in size from 6- to 15-inch, with 60% of the system 6-inch. Region F1 has a total of 65 manholes and one lift station known as Giggling Lift Station. In addition, Region F1 receives all flow from Region E.

Region F2 has approximately 31,860 LF of sewer mains that range in size from 6- to 16-inch and has a total of 112 manholes. All wastewater flow from Region F2 flows by gravity to the north through a 12-inch sewer main.

Region F3 has approximately 71,225 LF of sewer mains that range in size from 6- to 21-inch and has a total of 275 manholes. Region F3 also has one pocket lift station known as Hatten Lift Station, which only receives a small amount of wastewater flow. The wastewater from Region F3 flows by gravity to the north, ultimately collecting all flow from Regions E and F1 via the Giggling Lift Station Force Main. Regions F2 and F3 sewer mains join in the City of Marina, just north of the City of Marina/City of Seaside border. All the wastewater then flows to the north to the Monterey One Water Regional Lift Station.

Based on MCWD's 2005 Sewer Master Plan, several CIPs were identified for Region F. They are as follows:

F1

- 1,700 LF of sewer main is flowing 75 to 100% full and is therefore undersized for meeting existing needs (See MCWD CIP #2).
- Giggling Lift Station and force main are undersized for meeting existing needs (see CIP #23).

F2

- 65 LF of sewer main is flowing 71% full and is therefore undersized for meeting existing needs (See MCWD CIP #3). *This project is completed.*

F3

- 1,675 LF of sewer main is flowing more than 67% full and is therefore undersized for meeting existing needs (See MCWD CIP #13, #16, and #17).
- Long Term projects were also recommended on General Jim Moore Boulevard to meet future needs (Development in Region C). However, Region C is proposed to flow through Region A instead of Region F, the proposed future upgrades to region F due to Region C flows are no longer required.

Existing and Future Wastewater Flows

This section presents the existing and future wastewater flows for the current SCSD wastewater service area boundary as well as the proposed future annexed wastewater service area. When discussing wastewater flows, it is important to define some of the terminology commonly used to describe and analyze wastewater flows.

Average Daily Flow (ADF) is the average daily wastewater flow over the course of a year and is generally obtained by averaging the total monthly flows conveyed to a WWTP through the course of a year.

Maximum Day Dry Weather Flow (MDDWF) reflects the maximum flow rate during a 24-hour day in the peak summer months. This condition reflects the seasonal variation in dry weather flow.

Peak Hour Dry Weather Flow (PHDWF) is the maximum flow rate that occurs in a single hour during dry weather. To appropriately design wastewater collection system facilities, peak flow conditions must be quantified.

Peak Hour Wet Weather Flow (PHWWF) is the maximum flow rate that occurs in a single hour during wet weather (a significant rain storm event). This factor is derived from standard engineering methodology and judgment combined with actual flow monitoring data. This flow condition may govern the design of the sewage collection system as it may represent the maximum flow rate that the system must convey. PHWWF is derived by multiplying ADF times the diurnal peaking factor, then adding the wet weather flow component.

Existing Wastewater Flows

Region A's wastewater flows were obtained from SCSD's 2011 Sewer Master Plan. Region E and F's wastewater flows were obtained for MCWD's 2005 Sewer Master Plan. Tables 1 and 2 provide a breakdown of the estimated existing wastewater flow by area within Regions E and F, respectively. Table 3 provides a summary of the estimated existing wastewater flows for each region within the SCSD's Sphere of Influence. The flow estimates for each Region do not consider any water conservation or plumbing retrofits that have likely occurred in the past 6 years due to the State-mandated conservation measures and recent drought. It is likely that the present-day flows in all Regions have reduced by up to 15 to 25%.

Table 1. Region E Existing Wastewater Flows

	Existing Flows		
Region E	**ADWF (gpd)**	**MDDWF (gpd)**	**PHDWF (gpd)**
Seaside Resort	125,000	187,500	375,000
Seaside Highlands	123,000	184,500	369,000
Brostrom Park	23,000	34,500	69,000
Fitch Middle School	2,000	3,000	6,000
Sunbay Apartments	60,000	90,000	180,000
Hayes Elementary School	2,000	3,000	6,000
Army - Hayes Park	58,000	87,000	174,000
Totals	**393,000**	**589,500**	**1,179,000**

*All values from Table 7-2 in the Marina Coast Water District 2005 Sewer Master Plan (year 2015 projection)

Table 2. Region F Existing Wastewater Flows

	Existing Flows		
Region F	**ADWF (gpd)**	**MDDWF (gpd)**	**PHDWF (gpd)**
Affordable Housing–SII	87,000	130,500	261,000
Chartwell School	2,000	3,000	6,000
Monterey College of Law	1,000	1,500	3,000
Navy Housing	65,000	97,500	195,000
Marshal Elementary School	2,000	3,000	6,000
Stillwell Elementary School	1,000	1,500	3,000
Army – Fitch Park	189,000	283,500	567,000
Army – Marshal Park	115,000	172,500	345,000
Army – Upper Stillwell Park	38,000	57,000	114,000
Army - Stillwell Park	112,000	168,000	336,000
Totals	**612,000**	**918,000**	**1,836,000**

* All values from Table 7-2 in the Marina Coast Water District 2005 Sewer Master Plan (year 2015 projection)

Table 3 – Existing Wastewater Flows by Wastewater Service Area Region

Wastewater Service Area Region	Average Daily Flow	Maximum Day Dry Weather Flow		Peak Hour Dry Weather Flow	
	mgd	mgd	Peaking Factor[2]	mgd	Peaking Factor
Region A	1.80	2.72	1.5	3.78	2.1
Region E[1]	0.39	0.59	1.5	1.18	3.0
Region F1[1]	0.11	0.17	1.5	0.34	3.1
Region F2[1]	0.13	0.19	1.5	0.38	2.9
Region F3[1]	0.37	0.56	1.5	1.12	3.0
Total	**2.8**	**4.23**	**--**	**6.8**	**--**

[1] Flows obtained from Table 7-2 of the Marina Coast Water District 2005 Sewer Master Plan.
[2] Peaking factor is the ratio of the MDDWF or PHDWF to the ADF.

Future Wastewater Flows

The future wastewater flows for each region within the SCSD's Sphere of Influence is based on the future development potential. Information for Regions A, B, and C was obtained from SCSD Sewer Master Plan. Information for Regions E and F was obtained from the MCWD Master Plan. The following flow conditions were used to evaluate the future sewer infrastructure based on peaking factors identified in Table 3:

- **ADWF** Average Daily Dry Weather Flow
- **MDDWF** Maximum Day Dry Weather Flow
  - 1.5 peaking factor
- **PHDWF** Peak Hour Dry Weather Flow
  - 2.1 peaking factor for Regions A, B, and C and potential development east of Seaside. 3.0 peaking factor for Regions E and F

Tables 4 and 5 provide a summary of the anticipated future wastewater flows from Regions E and F, respectively. Table 6 provides a summary of the future anticipated wastewater flows for each region within the SCSD's Sphere of Influence.

Table 4. Region E Future Wastewater Flows

	Projected Flows		
Region E	**ADWF (gpd)**	**MDDWF (gpd)**	**PHDWF (gpd)**
Seaside Resort	125,000	187,500	375,000
Seaside Highlands	123,000	184,500	369,000
Brostrom Park	23,000	34,500	69,000
Fitch Middle School	2,000	3,000	6,000
Sunbay Apartments	60,000	90,000	180,000
Hayes Elementary School	2,000	3,000	6,000
Army - Hayes Park	58,000	87,000	174,000
Totals	**393,000**	**589,500**	**1,179,000**

* All values from Table 7-2 in the Marina Coast Water District 2005 Sewer Master Plan (year 2020 projection)

Table 5. Region F Wastewater Flows

	Projected Flows		
Region F	**ADWF (gpd)**	**MDDWF (gpd)**	**PHDWF (gpd)**
Affordable Housing–SII	87,000	130,500	261,000
Chartwell School	2,000	3,000	6,000
Monterey College of Law	1,000	1,500	3,000
Navy Housing	65,000	97,500	195,000
The 26 Acre Site	62,000	93,000	186,000
Regional Shopping Center	10,000	15,000	30,000
Surplus II Area	13,000	19,500	39,000
Marshal Elementary School	2,000	3,000	6,000
Stillwell Elementary School	1,000	1,500	3,000
Army – Fitch Park	189,000	283,500	567,000
Army – Marshal Park	115,000	172,500	345,000
Army – Upper Stillwell Park	38,000	57,000	114,000
Army - Stillwell Park	112,000	168,000	336,000
Totals	**697,000**	**1,045,500**	**2,091,000**

* All values from Table 7-2 in the Marina Coast Water District 2005 Sewer Master Plan (year 2020 projection)

Table 6 – Summary of Future Wastewater Flows by Region

Wastewater Service Area Region	Average Daily Flow	Maximum Day Dry Weather Flow		Peak Hour Dry Weather Flow	
	mgd	**mgd**	**Peaking Factor[2]**	**mgd**	**Peaking Factor[2]**
Region A	2.36	3.54	1.5	4.96	2.1
Region B	0.91	1.37	1.5	1.91	2.1
Region C	0.56	0.84	1.5	1.18	2.1
Region E[1]	0.39	0.59	1.5	1.17	3.0
Region F1[1]	0.11	0.17	1.5	0.33	3.0
Region F2[1]	0.13	0.20	1.5	0.39	3.0
Region F3[1]	0.46	0.69	1.5	1.38	3.0
Total	**4.92**	**7.40**	**--**	**11.32**	**--**

[1] Flows obtained from Table 7-2 of the Marina Coast Water District 2005 Sewer Master Plan.
[2] Peaking factor is the ratio of the MDDWF or PHDWF to the ADF.

Proposed Improvements

This section presents the physical constraints and the recommended projects required for SCSD to expand their service area to include Regions C, E, and F. The proposed SCSD service boundary includes all of Regions C, E and most of Region F. As mentioned previously, a portion on the north side of Region F includes CSUMB. Most of the sewer service for CSUMB is located within the City of Marina and the portion that is located in the City of Seaside flows north into the City of Marina. *To maintain one service provider for the campus and to simplify the service boundaries, it is recommended that all of CSUMB be incorporated under MCWD jurisdiction.* The proposed SCSD boundary will follow along the south side of the CSUMB campus on Colonel Durham Street and Lightfighter Drive as shown in Figure 1 and Figure 6.

In addition, this section identifies the projects that are listed in Appendix F of the MCWD Ord Community Wastewater System Master Plan, prepared by RBF in July 2005 that have not been completed at this time.

Region C

Region C is mostly undeveloped area that currently does not have sanitary sewer service. The 2011 SCSD Sewer Master Plan evaluated the impacts of Region C on SCSD's existing infrastructure along with Region B, which also consists of mostly vacant land, but is already within the SCSD's wastewater service area boundary. Based on land topography and existing facility locations, the SCSD Master Plan provides details on specific projects required to provide wastewater collection service to Regions B and C. These two Regions are capable of being served through a gravity collection system without the need for any new lift stations. Table 9-7 in the 2011 SCSD Sewer Collection System Master Plan provides a summary of the recommended projects to meet the demands within Regions B and C and their proportional share for the upgrades. *In addition,* prior to development, *additional modeling and planning should be completed to verify points of connection and Region A's ability to receive the increased estimated flows.*

Regions E and F

Regions E and F contain existing sewer collection facilities that are currently being served by MCWD. Defining the limits of the annexation and managing the interface between the two service areas will require planning, engineering, and negotiating based on engineering and economic factors.

Figures 7 and 8 identify the proposed capital improvements to facilitate the proposed service area annexation. The following is a discussion of the areas that are impacted by the annexation and the alternatives for improving the collection system to meet the needs of the community and facilitating the proposed annexation.

Sewer Master Plan Update

MCWD completed a sewer master plan in 2005. Since 2005, development and flow patterns have changed. It is recommended that a Sewer Master Plan Update be prepared to confirm the proposed Capital Improvement Projects. The cost to complete the Sewer Master Plan Update is estimated at $200,000.

6th Street and Colonel Durham Street

It is recommended that the sewer main serving a small section of the community on 6th Street, south of Colonel Durham Street, be re-directed to flow west with the installation of a new sewer main along Colonel Durham Street. This would require the construction of approximately 1,200 LF of new 8" pipe. It is estimated that this project will cost $429,000.

1st Avenue and Divarty Street

All wastewater from Regions E and F flows to the northwest of the service area either by gravity flow, force main, or a combination of the two. Two parallel sewer mains carry the wastewater flow from the City of Seaside north into the City of Marina and towards the Monterey One Water Regional Lift Station (see Figure 8), which is located approximately 4,800 feet northwest of the city limit line between the City of Seaside and the City of Marina. This sewer main is not a dedicated sewer main from Regions E and F to Monterey One Water's Regional Lift Station as it also receives wastewater from MCWD customers and CSUMB.

There are two options for future operations. The first option is, prior to annexing regions E and F to SCSD, an agreement between SCSD and MCWD be prepared. This agreement would determine future operational and maintenance responsibilities and costs. Currently, the sewer trunk main on 1st Avenue is flowing approximately one-third full under peak dry weather conditions. There is significant development that is proposed in Region F. In addition, CSUMB and the City of Marina are also proposing development. It is estimated that the future development on CSUMB will add a peak demand of 1.3 mgd per Schaaf & Wheelers 2004 report for the CEQA document prepared for CSUMB. The proposed development will impact the trunk line on 1st Avenue. However, it is estimated that this sewer trunk main is capable of handling up to 15 mgd under peak conditions, which is greater than the anticipated flow from CSUMB and development that will occur within the City of Marina and future development within Regions E and F.

The following options are recommended:

Option 1: SCSD Operate and Maintain Sewer Trunk Mains with Access Easement

SCSD would operate and maintain the trunk line all the way to the Monterey One Water Regional Lift Station.

Cost: There are no physical construction costs to implement Option 1. There will be administrative/legal costs to complete the easement documents and costs to conduct the flow metering. If desired by both parties, a new flow meter could be installed permanently to monitor flows on a continuous basis. This cost is not included in the cost estimate provided. *Cost Estimate - $55,000*. *There will be on-going monthly fees paid by MCWD to SCSD for O&M and potential future upgrades.*

Option 2: MCWD Operate and Maintain Sewer Trunk Mains

Option 2 is similar to Option 1 except that MCWD would operate and maintain the sewer trunk main from the City border to the Monterey One Water Regional Lift Station. Again, costs to operate and maintain the trunk main would be based on a percentage of flow.

Cost: There are no physical construction costs to implement Option 2. There will be administrative/legal costs to complete the easement documents and costs to conduct the flow metering. If desired by both parties, a new flow meter could be installed permanently to monitor flows on a continuous basis. This cost is not included in the cost estimate provided. *Cost Estimate - $55,000. There will be on-going monthly fees paid by SCSD to MCWD for O&M and potential future upgrades.*

It should be noted that either of these options are more cost effective, but require cooperation between the two agencies. An alternative to this option is to construct a new, dedicated sewer main to serve only Regions E and F. This option is described below:

Option 3: Construct New Trunk Main

Another option is for SCSD to construct a dedicated sewer main from the border of the two Cities to the Monterey One Water Regional Lift Station (approximately 4,800 LF). The sewer main must convey all the flow from Region E, F and a potential Project east of Region F for a total future flow of 3.27 mgd under PHDWF. The sewer main is proposed to be 30-inch, but should be re-evaluated during the potential future development project implementation. There are two proposed routes for the dedicated sewer trunk main. The first would be parallel to the existing sewer trunk main along 1st Avenue. This route has numerous conflicts with existing utilities and sewer and water laterals, but is not unfeasible to construct. The second route would be to go under Highway 1 and construct a new sewer trunk main paralleling Highway 1 along the west side frontage road (Beach Range Road – See Figure 8). This route would have less existing conflicting utilities, but would require an engineering analysis to confirm that the sewer trunk main can flow by gravity to the Regional Lift Station and would have potential environmental impacts that will need to be identified.

This option may require a utility easement the County of Monterey. SCSD would pay for 100% of any operation and maintenance costs since no flow would be contributed to the sewer main from MCWD customers.

Cost: Preliminary Cost Estimate for the construction of the dedicated sewer trunk main is $5,000,000.

Wastewater System Master Plan Proposed Improvements

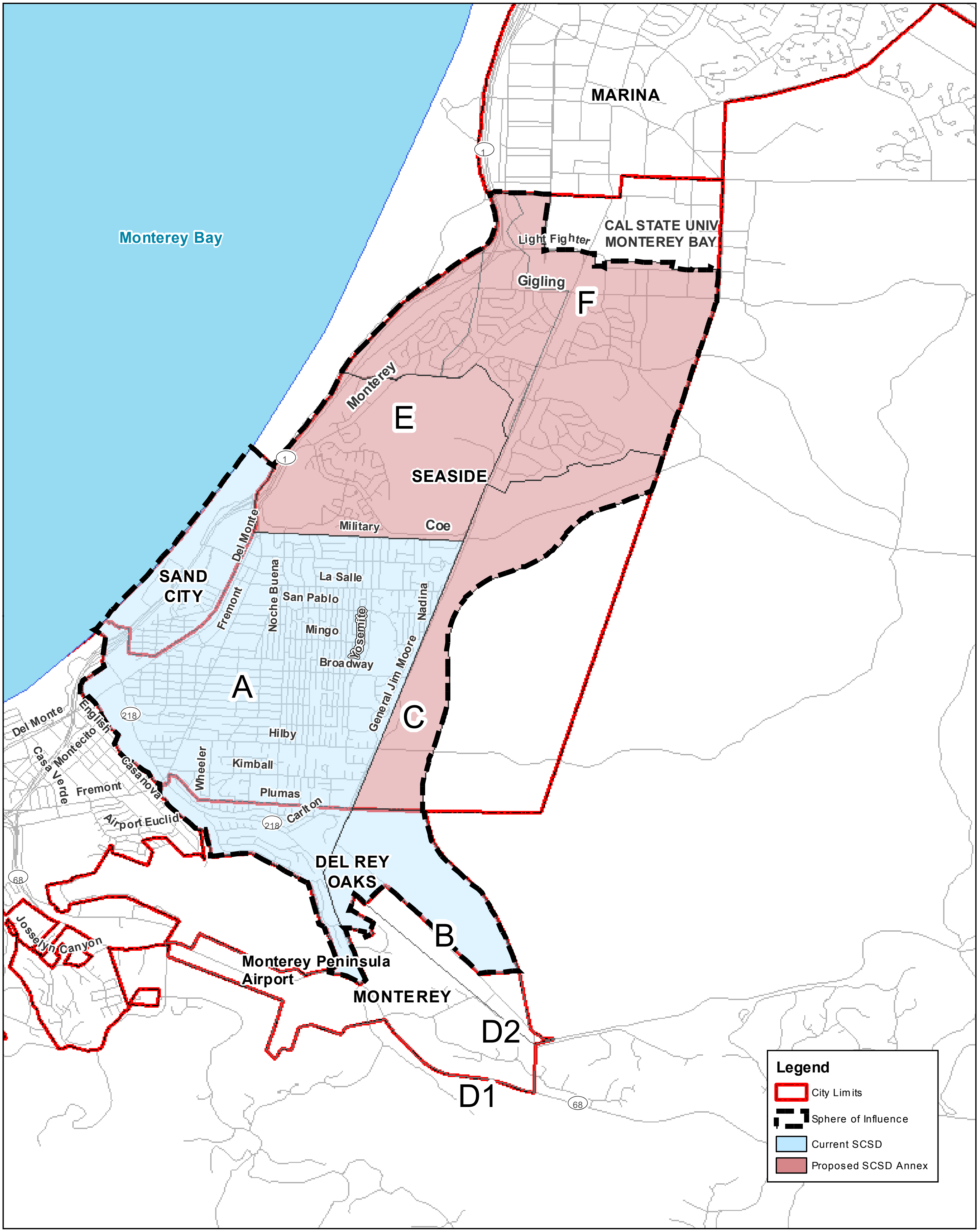
MCWD's 2005 Wastewater System Master Plan, prepared by RBF in July 2005, proposed numerous sewer upgrades for both the Seaside jurisdiction and the Marina jurisdiction. Table E-3, below, identifies the capital improvements projects proposed in the Seaside jurisdiction only that have not been constructed to date. The table also provides their current status as provided by MCWD staff. Details on the limits of each project can be found in Appendix F of the MCWD 2005 Master Plan and are provided as an attachment to this report.

All projects identified in the MCWD Master Plan for the Seaside jurisdiction are required for future development and therefore, sewer impact fees collected from these developments would be used to offset the costs identified in Table E-3. Existing customer sewer rates should not be used to fund these projects.

Table 7 – Summary of MCWD Master Plan CIPs for Seaside Jurisdiction Only

CIP #	CIP Name	Master Plan 2005 Cost	2017 Escalated Costs[1]	% of Costs Attributed to Future Dev.	Status
1	Aleutian and Monterey Road Pipeline Replacement Project	$83,900	$117,500	100	Project Not Completed. Project required to accommodate future flows from Seaside Resort Development.
2	Okinawa Road Pipeline Replacement Project	$144,800	$202,700	100	Project Not Completed. Project required to accommodate future flows from Seaside Resort Development.
3	California Street Pipeline Replacement Project	$3,800	--	100	Project Completed.
10	Ord Village Pipeline Replacement Project	$45,000	$63,000	100	Project Not Completed. Project required to accommodate future flows from Seaside Resort Development.
13	Mulheim Road Pipeline Replacement Project	$27,800	$38,900	100	Project Not Completed. Per MCWD Staff, project may not be required and should be re-evaluated.
16	Ardennes Circle Pipeline Replacement Project	$22,200	$31,100	100	Project Not Completed. Per MCWD Staff, project may not be required and should be re-evaluated. If required, it will be part of the Fitch Park Phase 2 housing replacement.
17	Metz Road Pipeline Replacement Project	$38,400	$53,800	100	Project Not Completed. Per MCWD Staff, project may not be required and should be re-evaluated.
23	Giggling Lift Station and Force Main Improvements	$162,000	$226,800	100	Project Not Completed. MCWD budgeted for 2015-2017 fiscal years
26	Hatten Lift Station	$30,000	$42,000	100	Project Not Completed. MCWD budgeted for 2015-2016 fiscal year
27, 29, 30, & 31	General Jim Moore Blvd Projects				These projects were proposed to serve Region C via force mains in General Jim Moore Blvd. However, these projects are unnecessary as Region C will now be served by gravity flows into the current SCSD service area.
	Total	**$554,100**	**$775,800**		

1. Escalation factor based on an ENR Index of 40% from 2005 to 2017, rounded to the nearest $100.



WALLACE GROUP

CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL

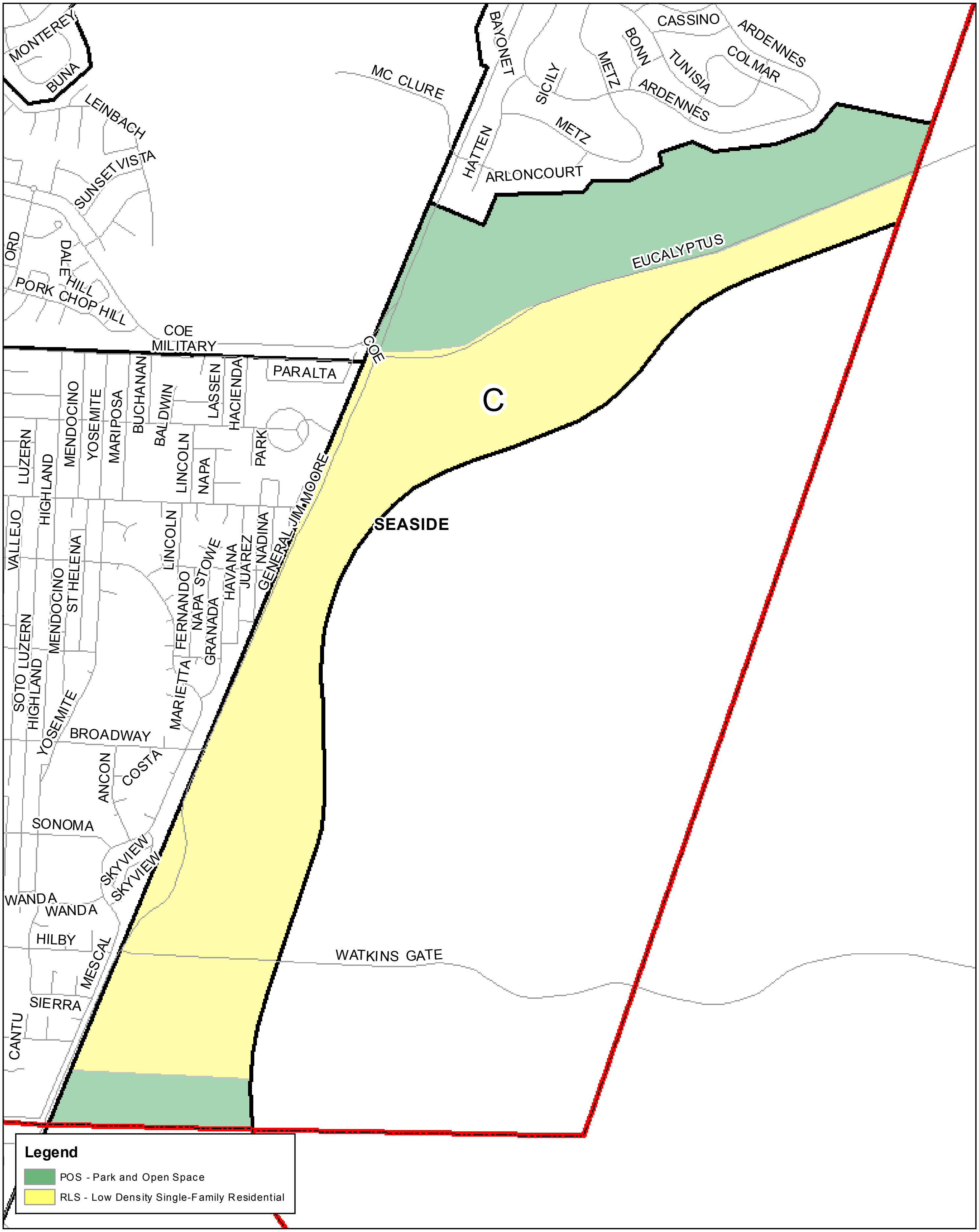
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

SEASIDE COUNTY SANITATION DISTRICT
LAFCO APPLICATION

FIGURE 1: PROPOSED ANNEXATION BOUNDARY

NOTES:
BASEMAP PROVIDED BY SCSD. WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED DECEMBER 2017.



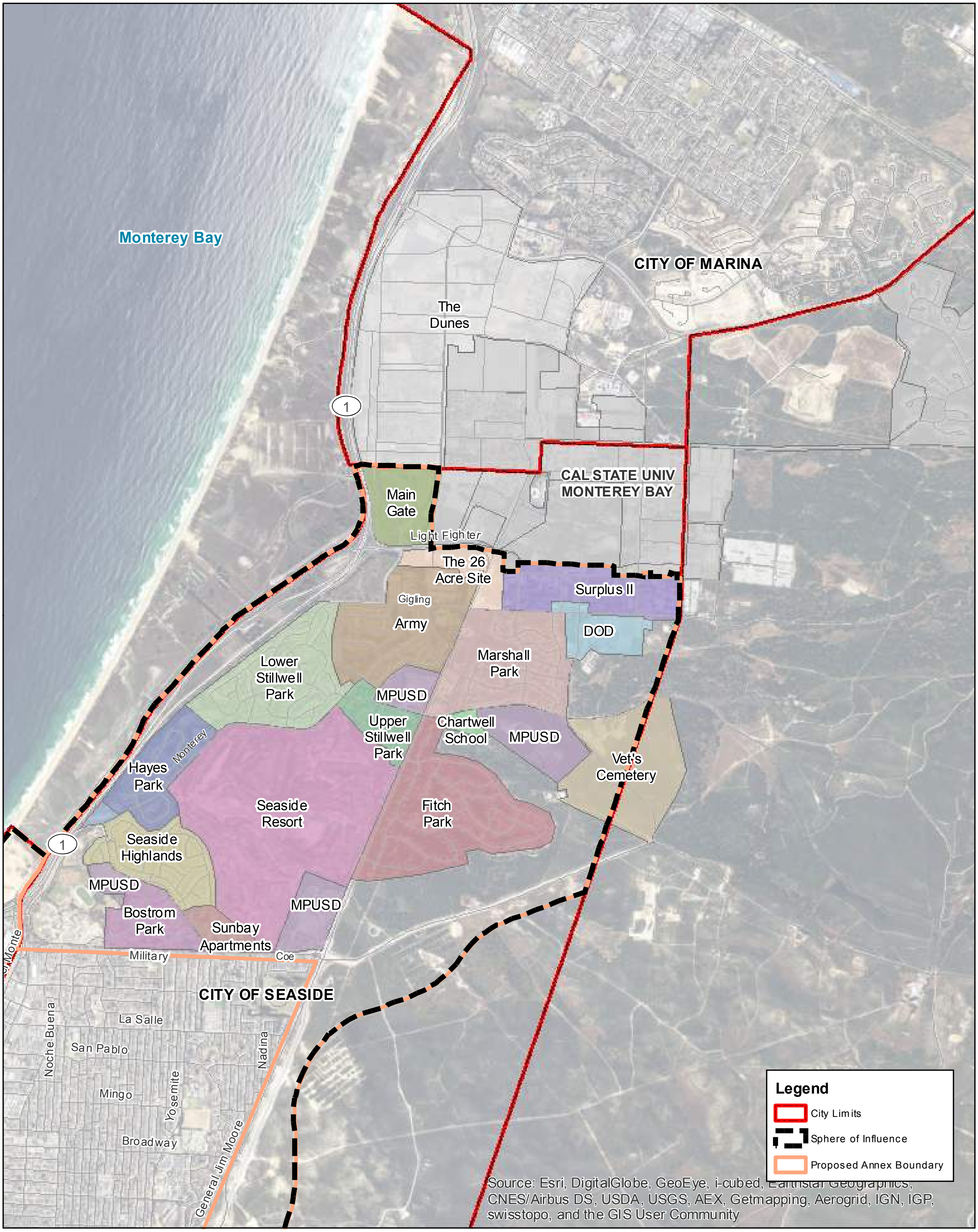
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL

612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

SEASIDE COUNTY SANITATION DISTRICT
LAFCO APPLICATION

FIGURE 2: REGION C LAND USE MAP

NOTES:
BASEMAP PROVIDED BY SCSD. WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED DECEMBER 2017.



CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL

612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

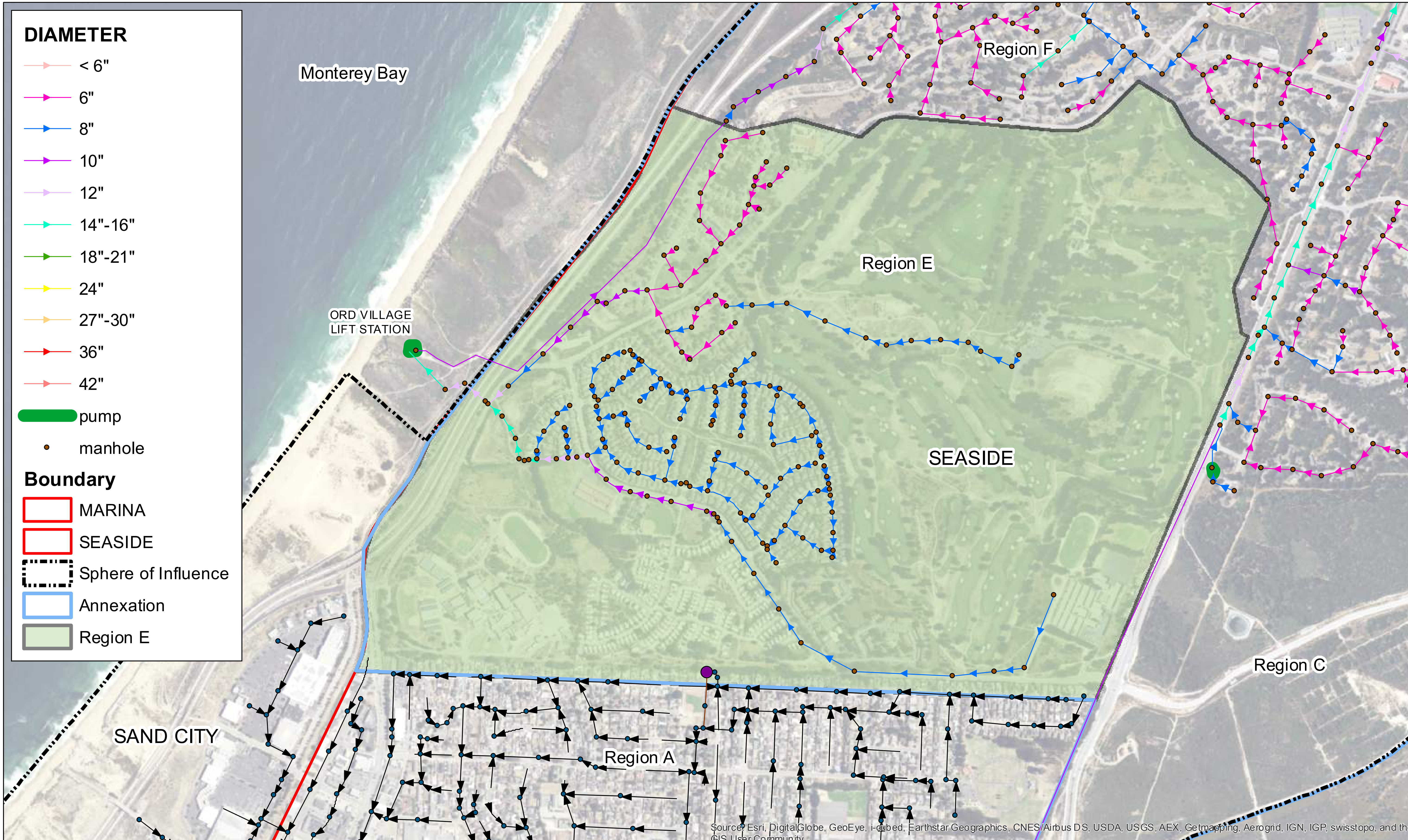
WALLACE GROUP

NTS

SEASIDE COUNTY SANITATION DISTRICT
LAFCO APPLICATION

FIGURE 3: MCWD DEVELOPMENT AREAS

NOTES:
BASEMAP PROVIDED BY SCSD.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED DECEMBER 2017.

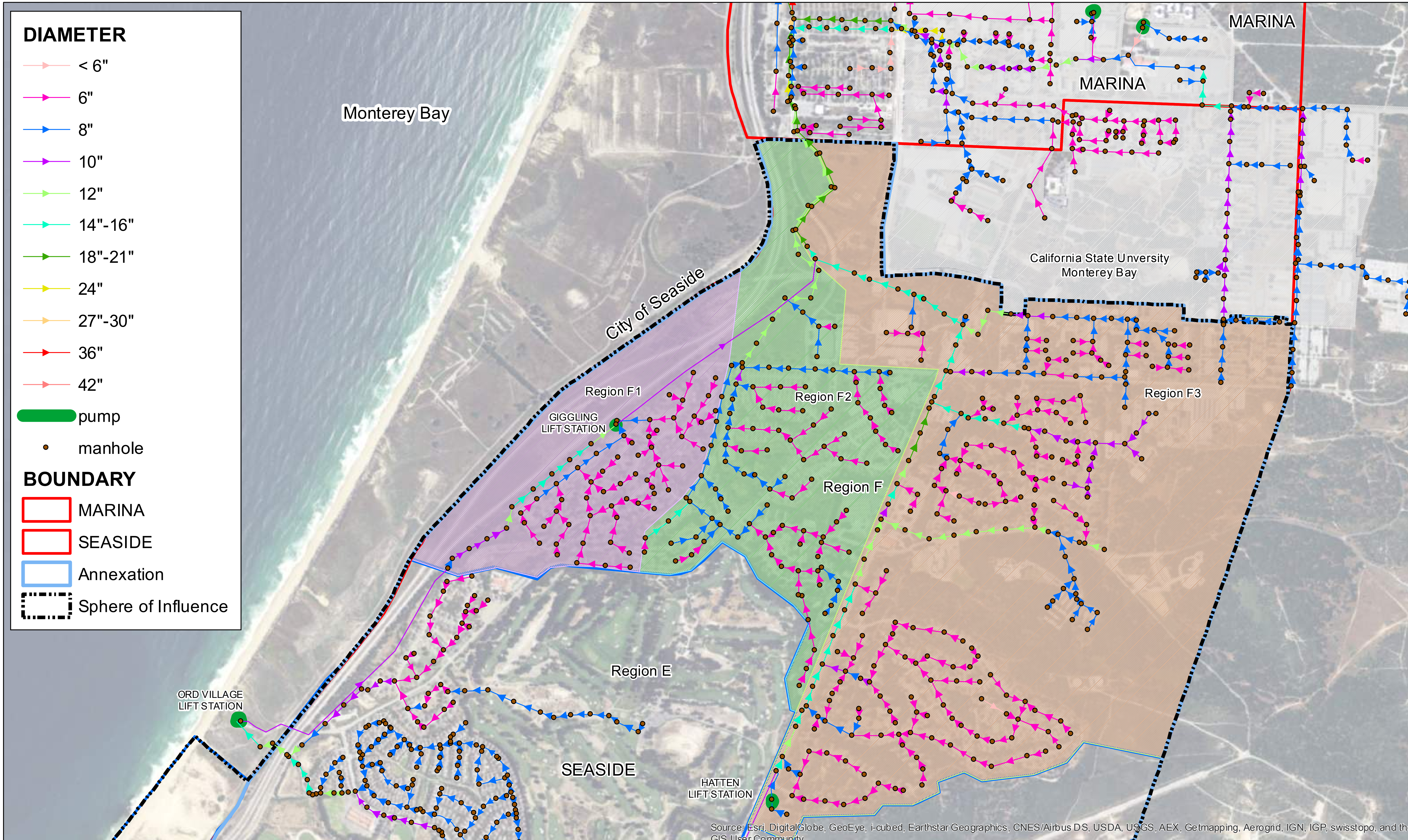


NTS

SEASIDE COUNTY SANITATION DISTRICT
LAFCO APPLICATION

FIGURE 4: REGION 'E' EXISTING COLLECTION SYSTEM

NOTES:
BASEMAP PROVIDED BY SCSD. WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED DECEMBER 2017.



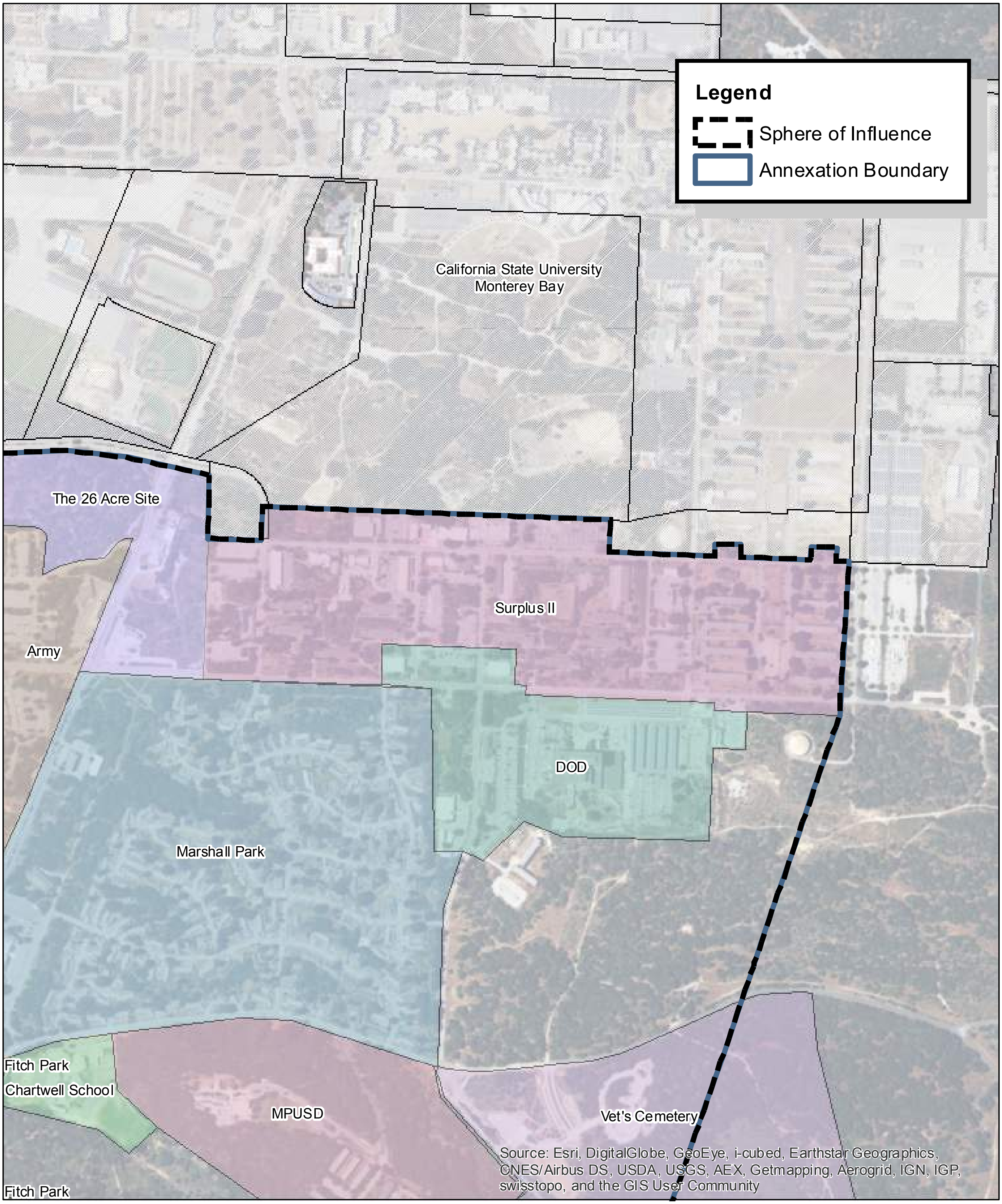
WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

SEASIDE COUNTY SANITATION DISTRICT
LAFCO APPLICATION

FIGURE 5: REGION 'F' EXISTING COLLECTION SYSTEM

NOTES:
BASEMAP PROVIDED BY SCSD. WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED DECEMBER 2017.



WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL

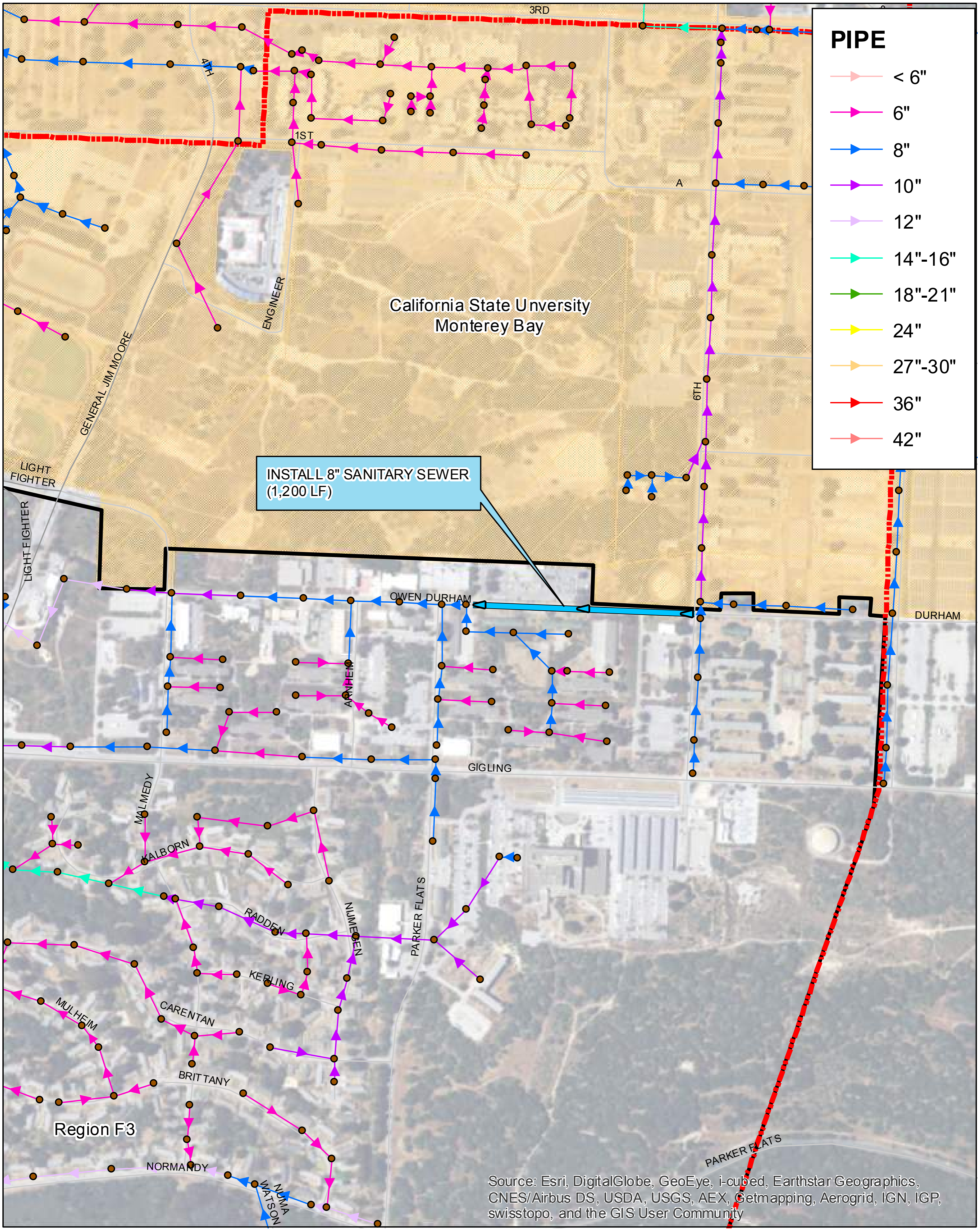
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

SEASIDE COUNTY SANITATION DISTRICT
LAFCO APPLICATION

FIGURE 6: ANNEXATION BOUNDARY DETAIL

NOTES:
BASEMAP PROVIDED BY SCSD. WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED DECEMBER 2017.



WALLACE GROUP

CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL

612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

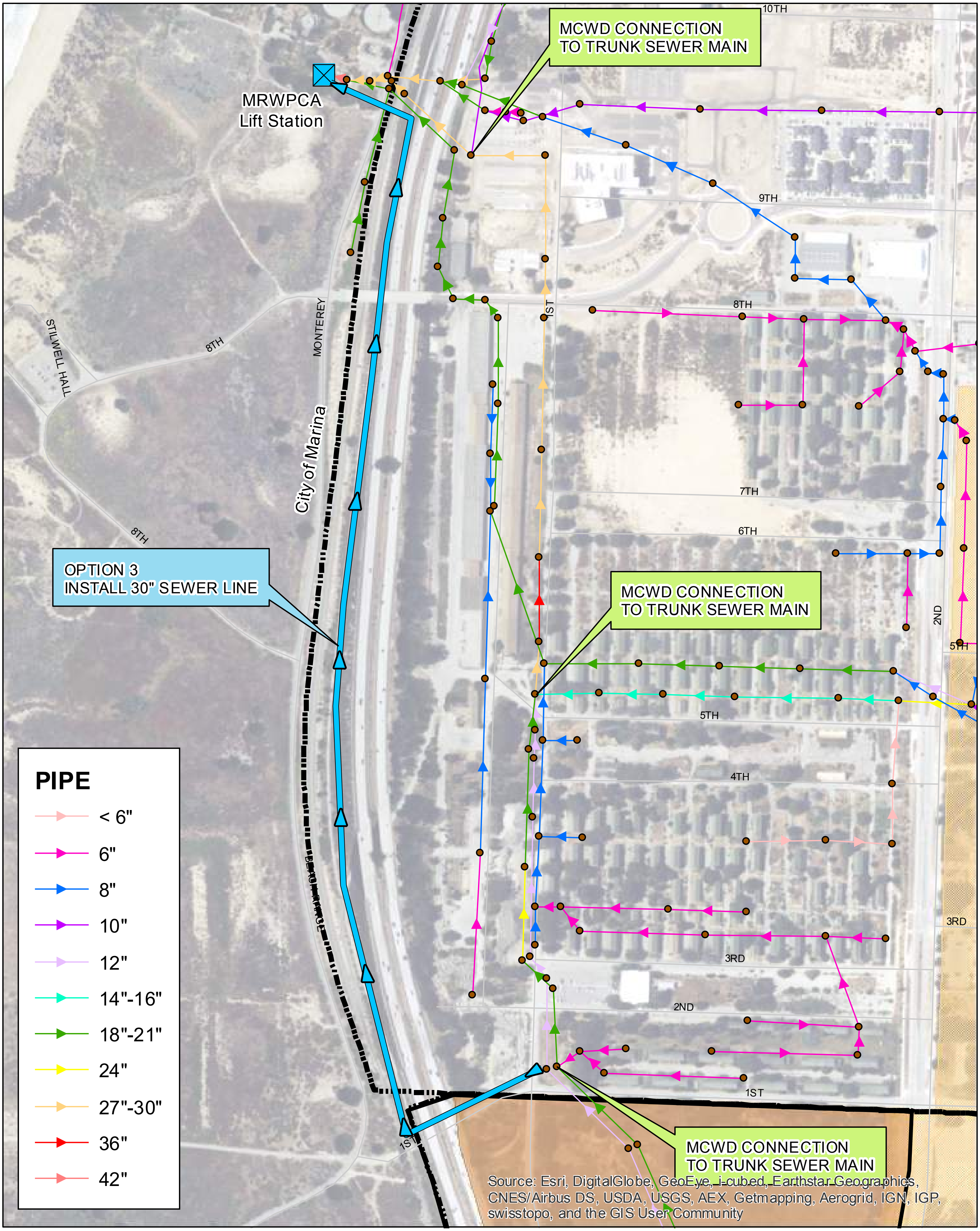
N

NTS

SEASIDE COUNTY SANITATION DISTRICT
LAFCO APPLICATION

FIGURE 7: PROPOSED CAPITAL IMPROVEMENTS

NOTES:
BASEMAP PROVIDED BY SCSD.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED DECEMBER 2017.



WALLACE GROUP

CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL

612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

SEASIDE COUNTY SANITATION DISTRICT
LAFCO APPLICATION

FIGURE 8: PROPOSED IMPROVEMENTS

NOTES:
BASEMAP PROVIDED BY SCSD.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY FOR THIS MAP. NOT A LEGAL DOCUMENT. MAP PRODUCED DECEMBER 2017.

Attachment: Excerpt from Appendix F of the 2005 MCWD Wastewater System Master Plan, prepared by RBF

CIP #: 1 -- Aleutian and Monterey Road Pipeline Replacement

Year Planned for Construction: 2005
Capacity Scenario: 2005 PWWF

Reason for Project: Existing gravity sewer pipelines have insufficient capacity to accommodate new wastewater flows from Hayes Park and Seaside Resort developments. Wastewater flow from Hayes Park and Seaside Resort require the gravity sewer pipelines to flow at 70-100% of full capacity, beyond the allowable flow capacities outlined for this Master Plan.

Project Priority: 2 (Maximum Facility Capacity Exceeded)

Project Type: Pipeline Replacement Project

Engineering Opinion of Probable Cost:

Pipe ID	Location	Upstream Manhole	Downstream Manhole	Length Existing (ft)	Existing d/D	Pipeline Diameter Existing (in)	Pipeline Diameter Replacement (in)	Unit Cost ($/LF)	Facility Cost ($)
AA-16	Aleutian Road	AA-16	AA-8	240	1.00	6	8	$ 36	$ 8,600
AA-7	Parallel Monterey Road	AA-7	AA-6	200	0.69	8	10	$ 41	$ 8,200
AA-6	Parallel Monterey Road	AA-6	AA-5	210	0.81	8	10	$ 41	$ 8,600
AA-5	Parallel Monterey Road	AA-5	AA-4	80	0.70	8	10	$ 41	$ 3,300
AA-4	Parallel Monterey Road	AA-4	AA-3	340	1.00	8	10	$ 41	$ 13,900
AA-3	Parallel Monterey Road	AA-3	AA-2	370	1.00	8	10	$ 41	$ 15,200
TOTAL LENGTH				1440					
								CONSTRUCTION COST	$ 57,800
								20% CONTINGENCY	$ 11,600
								25% MCWD Soft Costs [1]	$ 14,500
								TOTAL PROJECT	$ 83,900

CIP #: 1 -- Aleutian and Monterey Road Pipeline Replacement

Year Planned for Construction: 2005
Capacity Scenario: 2005 PWWF

[1] Soft Costs = 10% of construction cost for Engineering Design, 10% of construction cost for construction management and inspection, 5% of construction cost for legal and administrative fees.

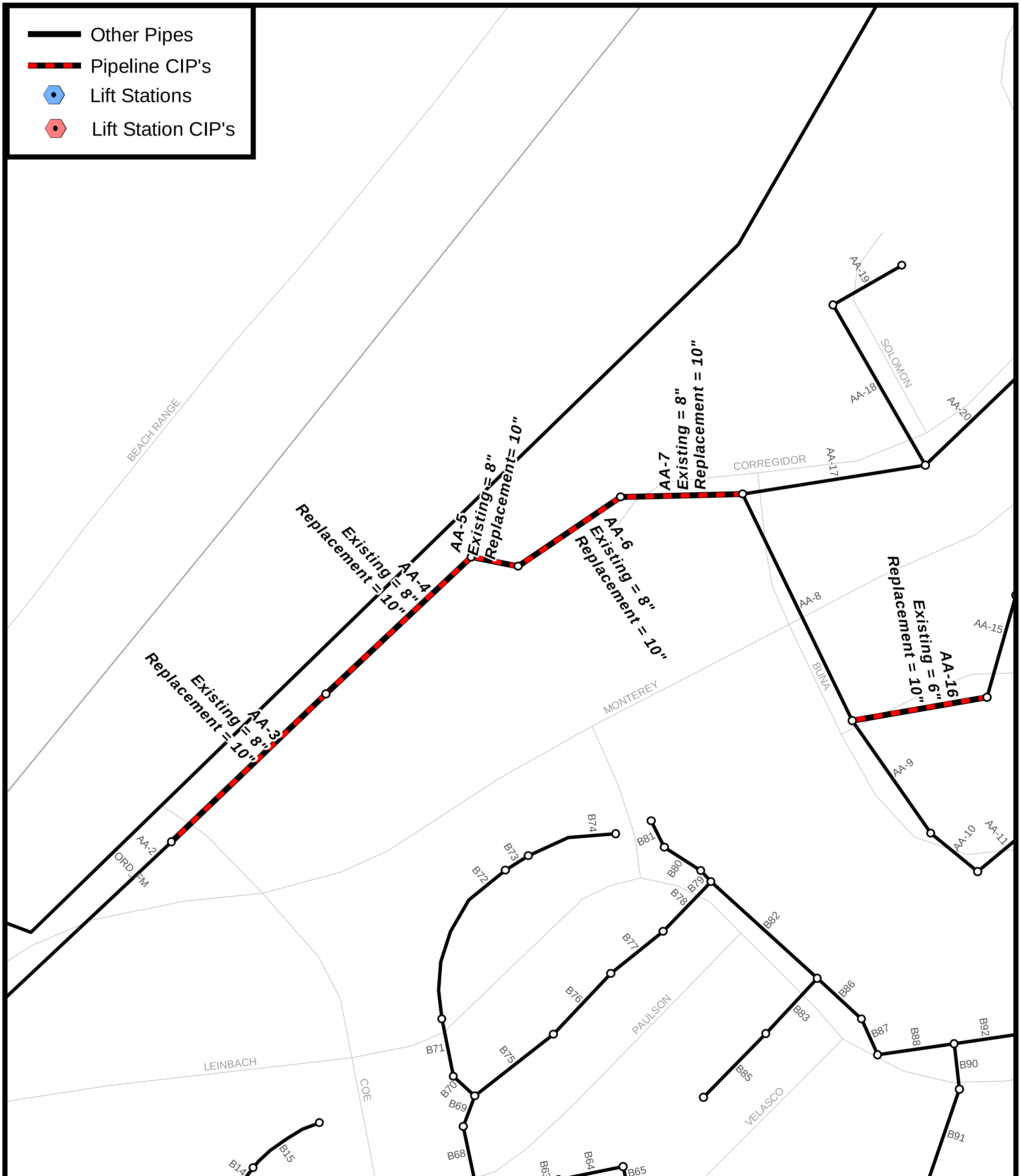
Project Solution: Replace approximately 1,440 LF of existing 6 and 8-inch diameter gravity sewer pipeline with appropriate 8 and 10-inch diameter gravity sewer pipeline to provide required capacities for wastewater flow. Pipeline segments AA-7 through AA-3 are continuous pipeline segments that should be constructed as one project. Pipeline segment AA-16 is within the general vicinity and therefore is included in this project. Pipeline segment AA-8 has sufficient hydraulic capacity, however, the pipeline is 6-inches in diameter and does not conform to existing District Standards.

This CIP could be revised if the replacement of pipeline segment AA-8 with an 8-inch diameter pipeline was considered to be included in the project for pipeline diameter consistency within a continuous pipeline run. Pipeline AA-8 has not been included in this opinion of probable cost.

Upstream Flow Sources at Build-out: Hayes Park, Seaside Resort

Upstream Lift Stations: None

Project Location Map: Attached on next page. Proposed CIP facilities are colored in red.



RBF CONSULTING
PLANNING ■ DESIGN ■ CONSTRUCTION
500 YGNACIO VALLEY ROAD, SUITE 270
WALNUT CREEK, CALIFORNIA 94596-3847
925.906.1460 ▪ FAX 925.906.1465 ▪ www.RBF.com

MARINA COAST WATER DISTRICT

MARINA COAST WATER DISTRICT
ORD COMMUNITY
WASTEWATER MASTER PLAN

CIP 1: Aleutian & Monterey Road Pipeline Replacement Project

H:Pdata/35100326/GIS/Exhibits/CIPGrid BWH 4/5/05

CIP #: 2 ***Okinawa Road Pipeline Replacement Project***

Year Planned for Construction: 2005
Capacity Scenario: 2005 PWWF

Reason for Project: Existing gravity sewer pipelines have insufficient capacity to accommodate new wastewater flows from Hayes Park and Seaside Resort. Wastewater flow from those developments require the gravity sewer pipelines to flow at 75-100% of full capacity, beyond the allowable flow capacities outlined for this Master Plan. Existing areas also contributing wastewater flow to these pipelines include Bostrom Park, Fitch Middle School, Sunbay apartment, and Seaside Highlands.

Project Priority: 2 (Maximum Facility Capacity Exceeded)

Project Type: Pipeline Replacement Project

Engineering Opinion of Probable Cost:

Pipe ID	Location	Upstream Manhole	Downstream Manhole	Length Existing (ft)	Existing d/D	Pipeline Diameter Existing (in)	Pipeline Diameter Replacement (in)	Unit Cost ($/LF)	Facility Cost ($)
C2	Parallel Hwy One and Okinawa Road	C2	C3	274	.75	8	10	$ 41	$ 11,300
C6	Parallel Hwy One and Okinawa Road	C6	C7	386	1.00	12	15	$ 62	$ 23,900
C7	Parallel Hwy One and Okinawa Road	C7	C8	342	1.00	12	15	$ 62	$ 21,200
C8	Parallel Hwy One and Okinawa Road	C8	C9	323	1.00	12	15	$ 62	$ 20,000
C9	Parallel Hwy One and Okinawa Road	C9	C10	377	1.00	12	15	$ 62	$ 23,400
TOTAL LENGTH				1703					
								CONSTRUCTION COST	$ 99,800
								20% CONTINGENCY	$ 20,000
								25% MCWD Soft Costs [1]	$ 25,000
								TOTAL PROJECT	$ 144,800

[1] Soft Costs = 10% of construction cost for Engineering Design, 10% of construction cost for construction management and inspection, 5% of construction cost for legal and administrative fees.

CIP #: 2 ***Okinawa Road Pipeline Replacement Project***

Year Planned for Construction: 2005
Capacity Scenario: 2005 PWWF

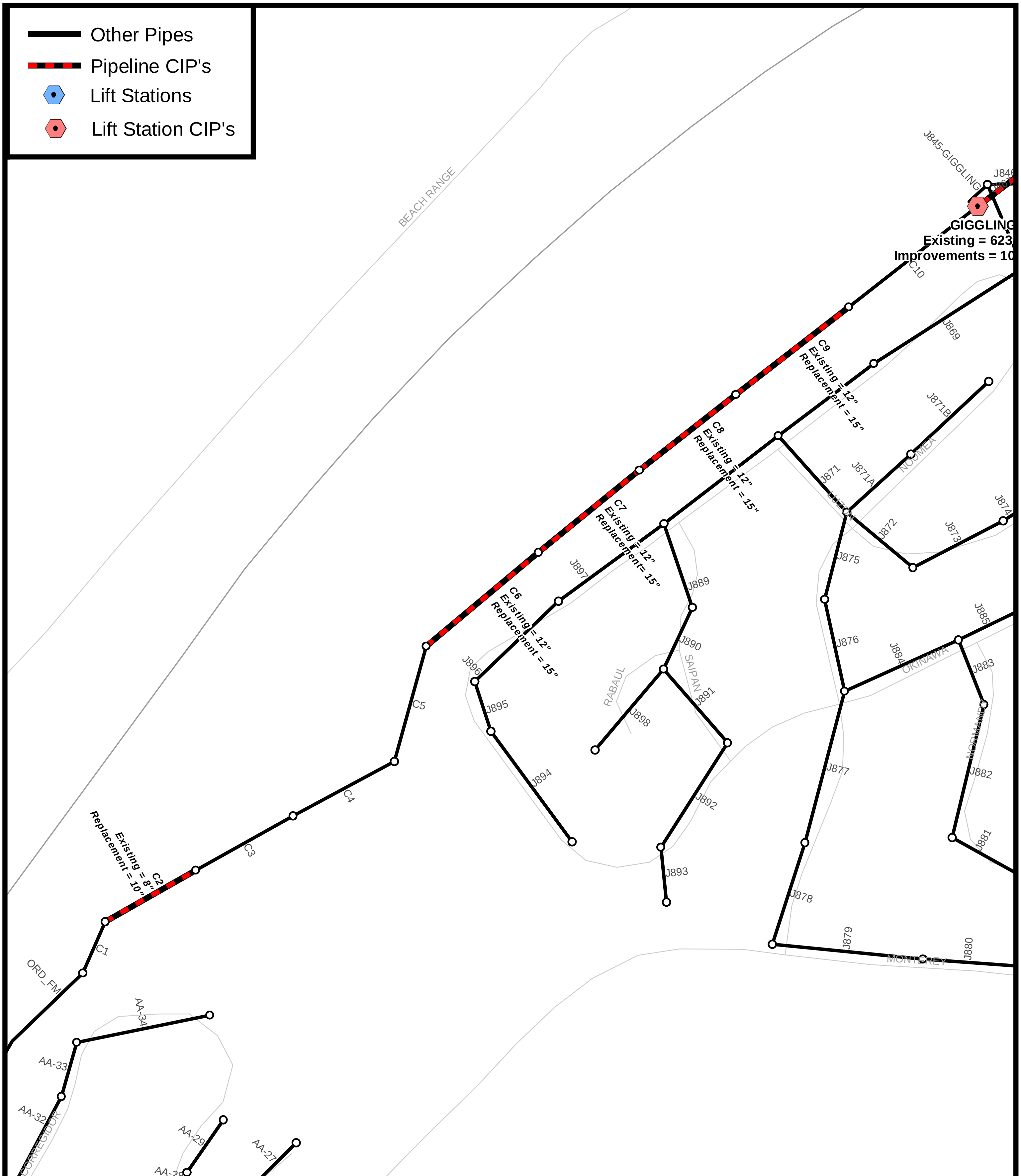
Project Description:
Replace existing 8 and 12 -inch diameter gravity sewer pipelines with appropriate 10 and 15-inch diameter gravity sewer pipeline to provide required capacities for wastewater flow. Pipeline segments C6 through C9 are connecting pipeline segments that should be constructed as one project. Pipeline segment C2 is within the geographic vicinity and should be included in the project.

Pipeline segments C3 through C5, and pipeline segment C10 have sufficient hydraulic capacity to accommodate build-out flows, however, those pipeline segments may be considered for replacement for continuity of pipeline diameter within the pipeline run. Pipeline segments C3 through C5 and pipeline segment C10 are not included in this opinion of probable cost.

Upstream Flow Sources at Build-out: Hayes Park, Bostrom Park, Seaside Resort, Fitch Middle School, Sunbay Apartments, Seaside Highlands

Upstream Lift Stations: Ord Village

Project Location Map: Attached on next page. Proposed CIP facilities are colored in red.



0 135 270 540 810 Feet

N W E S

RBF CONSULTING

PLANNING ■ DESIGN ■ CONSTRUCTION

500 YGNACIO VALLEY ROAD, SUITE 270
WALNUT CREEK, CALIFORNIA 94596-3847
925.906.1460 ▪ FAX 925.906.1465 ▪ www.RBF.com

MARINA COAST WATER DISTRICT

MARINA COAST WATER DISTRICT
ORD COMMUNITY
WASTEWATER MASTER PLAN

CIP 2: Okinawa Rd. Pipeline Replacement Project

H:Pdata/35100326/GIS/Exhibits/CIPGrid BWH 4/5/05

CIP # 3: California Street Pipeline Replacement Project

Year Planned for Construction: 2005
Capacity Scenario: 2005 PWWF

Reason for Project: Existing gravity sewer pipeline has insufficient capacity to accommodate new wastewater flows from Seaside Affordable Surplus Housing II and Navy Housing developments. Wastewater flow from those developments require the gravity sewer pipelines to flow at 71% of full capacity, beyond the allowable flow capacities outlined for this Master Plan.

Project Priority: 3 (District guidelines regarding maximum allowable design parameters exceeded)

Project Type: Pipeline Replacement Project

Engineering Opinion of Probable Cost:

Pipe ID	Location	Upstream Manhole	Downstream Manhole	Length Existing (ft)	Existing d/D	Pipeline Diameter Existing (in)	Pipeline Diameter Replacement (in)	Unit Cost ($/LF)	Facility Cost ($)
D701	California St. and Giggling Road	D701	D700	63	.71	8	10	$ 41	$ 2,600
TOTAL LENGTH				63					
								CONSTRUCTION COST	$ 2,600
								20% CONTINGENCY	$ 500
								25% MCWD Soft Costs [1]	$ 700
								TOTAL PROJECT	$ 3,800

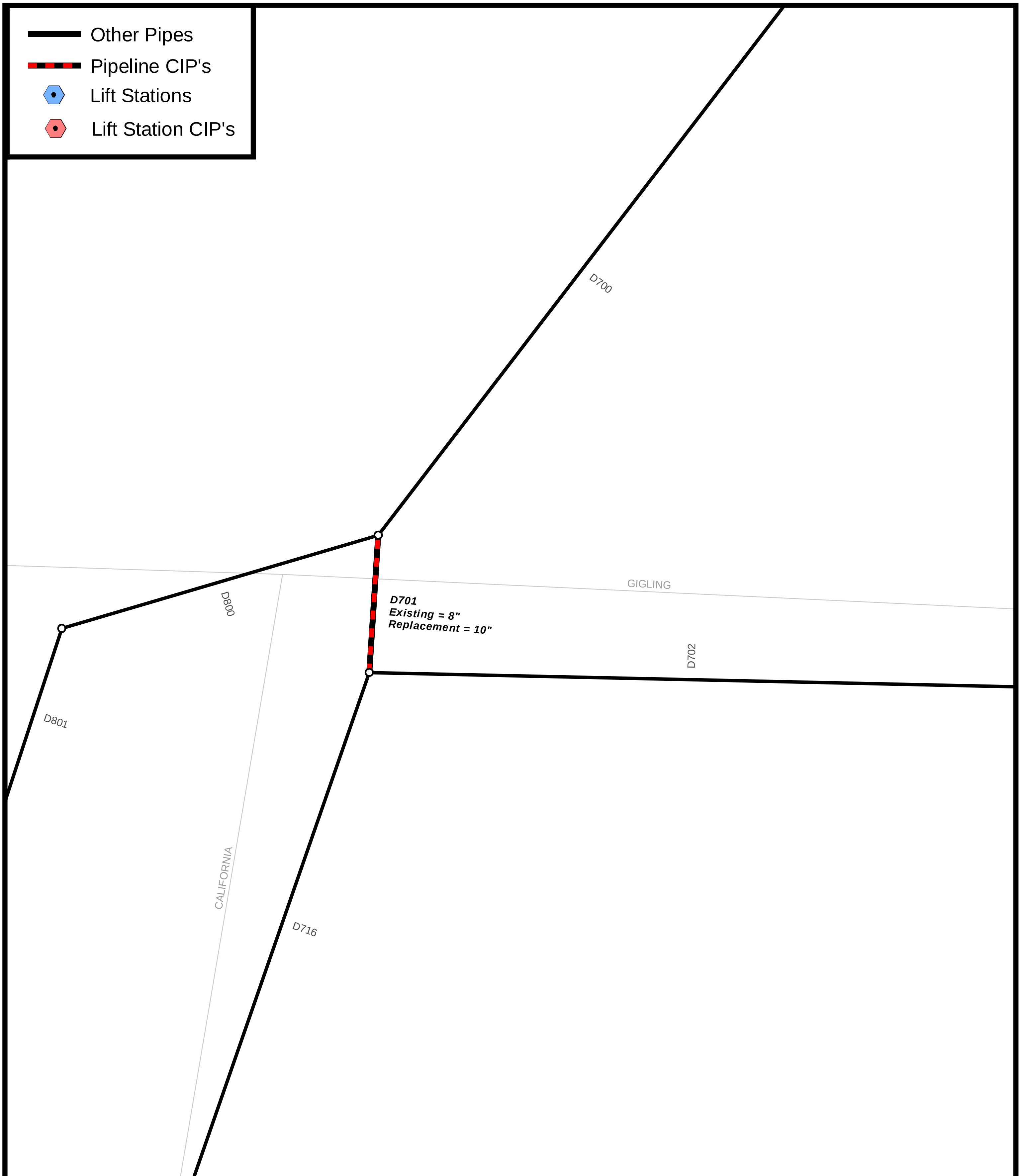
[1] Soft Costs = 10% of construction cost for Engineering Design, 10% of construction cost for construction management and inspection, 5% of construction cost for legal and administrative fees.

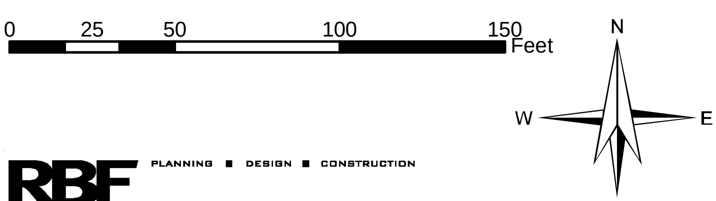
Project Description:
Replace existing 8 -inch diameter gravity sewer pipeline with appropriate 10-inch diameter gravity sewer pipeline to provide required capacities for wastewater flow.

Upstream Flow Sources at Build-out: Seaside Affordable Surplus Housing II, Navy Housing

Upstream Lift Stations: None

Project Location Map: Attached on next page. Proposed CIP facilities are colored in red.





RBF CONSULTING

PLANNING ■ DESIGN ■ CONSTRUCTION

500 YGNACIO VALLEY ROAD, SUITE 270
WALNUT CREEK, CALIFORNIA 94596-3847
925.906.1460 ▪ FAX 925.906.1465 ▪ www.RBF.com

MARINA COAST WATER DISTRICT

MARINA COAST WATER DISTRICT
ORD COMMUNITY
WASTEWATER MASTER PLAN

CIP 3: California Street
Pipeline Replacement Project

H:Pdata/35100326/GIS/Exhibits/CIPGrid BWH 4/5/05

CIP #: 10 – Ord Village Pipeline Replacement Project

Year Planned for Construction: 2005
Capacity Scenario: 2005 PWWF

Reason for Project: Existing gravity sewer pipelines have insufficient capacity to accommodate new wastewater flows Hayes Park, Seaside Resort and Hayes Elementary School developments. Wastewater flow from those developments require the gravity sewer pipelines to flow at 67 - 100% of full capacity, beyond the allowable flow capacities outlined for this Master Plan. Existing areas also contributing wastewater flow to these pipelines include Bostrom Park, Fitch Middle School, Sunbay apartment, and Seaside Highlands.

Project Priority: 2 (Maximum facility capacity exceeded)

Project Type: Pipeline Replacement Project

Engineering Opinion of Probable Cost:

Pipe ID	Location	Upstream Manhole	Downstream Manhole	Length Existing (ft)	Existing d/D	Pipeline Diameter Existing (in)	Pipeline Diameter Replacement (in)	Unit Cost ($/LF)	Facility Cost ($)
B901	Parallel Highway One	B901	ORD_WW	501	.80	12	15	$ 62	$ 31,000
TOTAL LENGTH				501					
								CONSTRUCTION COST	$ 31,000
								20% CONTINGENCY	$ 6,200
								25% MCWD Soft Costs [1]	$ 7,800
								TOTAL PROJECT	$ 45,000

[1] Soft Costs = 10% of construction cost for Engineering Design, 10% of construction cost for construction management and inspection, 5% of construction cost for legal and administrative fees.

Project Description:
Replace existing 12 -inch diameter gravity sewer pipeline with appropriate 15 -inch diameter gravity sewer pipeline to provide required capacities for wastewater flow.

CIP #: 10 – Ord Village Pipeline Replacement Project

Year Planned for Construction: 2005
Capacity Scenario: 2005 PWWF

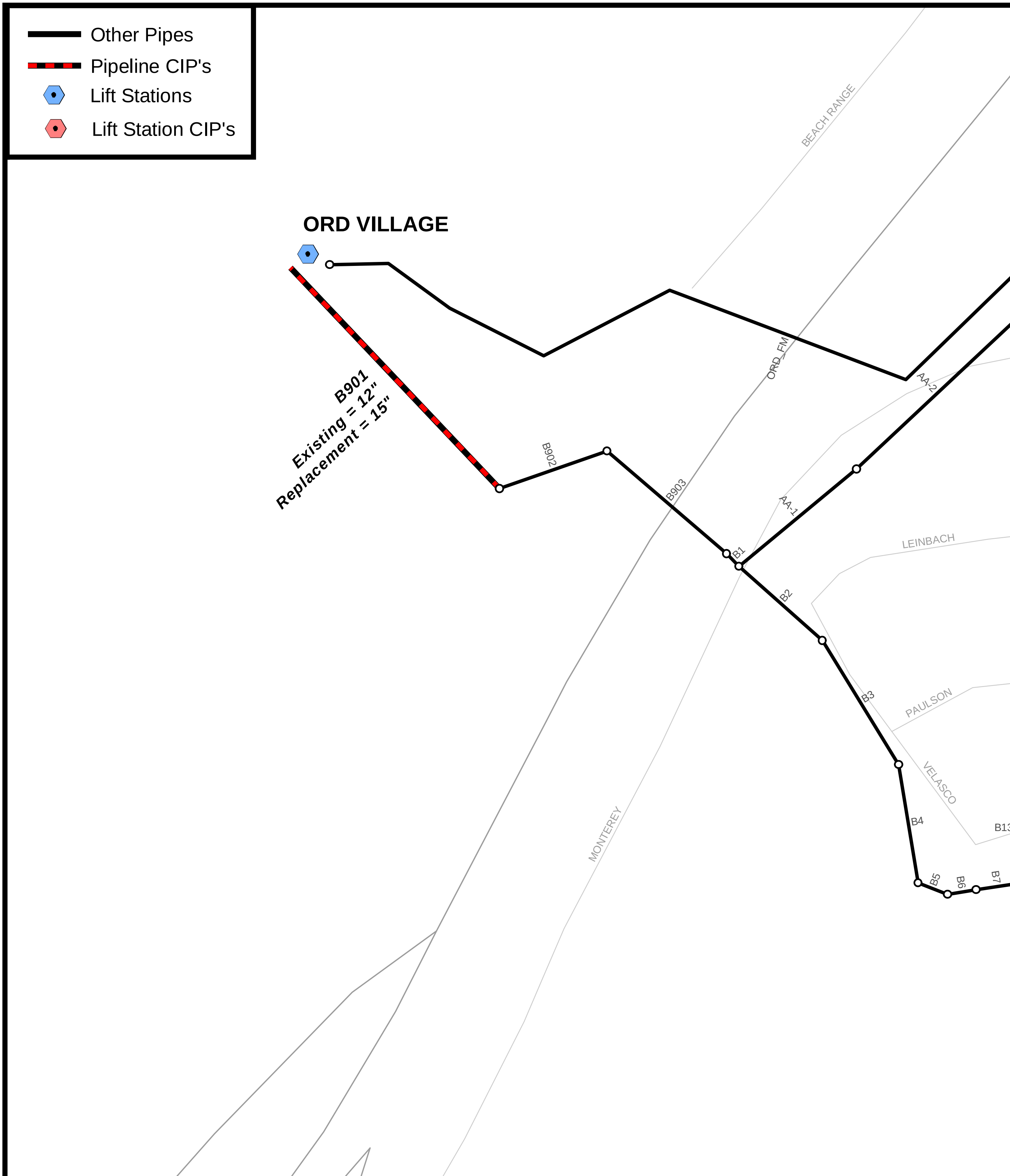
The District should also consider the following additional mitigation options to achieve sufficient capacity to the Ord Village Lift Station:

- Connect the Ord Village Lift Station directly to the MRWPCA interceptor and convert the existing force main that crosses the highway into a second gravity feed line, enabling increased flows from the east side of the highway to the west side.
- Build a second lift station on the east side of the highway that would take the flows that are above the capacity to the Ord Village Lift Station and pump those excess flows to a new force main toward the Giggling Lift Station.
- Build a second lift station on the east side of the Highway that would entirely replace the Ord Village Lift Station and pump the flow to Giggling Lift Station.
- Bore a second gravity pipeline to the Ord Village Lift Station to parallel the existing gravity pipeline.

Upstream Flow Sources at Build-out: Seaside Highlands, Hayes Park, Seaside Resort, Fitch Middle School, Hayes Elementary School, Bostrom Park, Sunbay Apartments

Upstream Lift Stations: None

Project Location Map: Attached on next page. Proposed CIP facilities are colored in red.



0 85 170 340 510 Feet

N
W E
S

RBF CONSULTING
PLANNING ■ DESIGN ■ CONSTRUCTION
500 YGNACIO VALLEY ROAD, SUITE 270
WALNUT CREEK, CALIFORNIA 94596-3847
925.906.1460 ▪ FAX 925.906.1465 ▪ www.RBF.com

MARINA COAST WATER DISTRICT

MARINA COAST WATER DISTRICT
ORD COMMUNITY
WASTEWATER MASTER PLAN

CIP 10: Ord Village
Pipeline Replacement Project

H:Pdata/35100326/GIS/Exhibits/CIPGrid BWH 4/5/05

CIP #: 13 – Mulheim Road Pipeline Replacement Project

Year Planned for Construction: 2005
Capacity Scenario: 2005,ADWF;2005 PWWF

Reason for Project: Existing gravity sewer pipelines have insufficient capacity to accommodate new wastewater flows from Marshall Park developments. Wastewater flow from those developments require the gravity sewer pipelines to flow at 67 - 100% of full capacity, beyond the allowable flow capacities outlined for this Master Plan.

Project Priority: 2 (Maximum facility capacity exceeded)

Project Type: Pipeline Replacement Project

Engineering Opinion of Probable Cost:

Pipe ID	Location	Upstream Manhole	Downstream Manhole	Length Existing (ft)	Existing d/D	Pipeline Diameter Existing (in)	Pipeline Diameter Replacement (in)	Unit Cost ($/LF)	Facility Cost ($)
F548	Mulheim Road	F548	F547	250	1.00	6	8	$ 36	$9,000
F547	Mulheim Road	F547	F545	283	0.25	6	8	$ 36	$ 10,200
TOTAL LENGTH				533					
								CONSTRUCTION COST	$ 19,200
								20% CONTINGENCY	$3,800
								25% MCWD Soft Costs [1]	$4,800
								TOTAL PROJECT	$ 27,800

[1] Soft Costs = 10% of construction cost for Engineering Design, 10% of construction cost for construction management and inspection, 5% of construction cost for legal and administrative fees.

Project Description:
Replace existing 6-inch diameter gravity sewer pipeline with 8-inch diameter pipeline to achieve the required flow capacity at minimum District slope criteria. As described in Section 8.5, existing pipeline slopes should be field verified before beginning detailed design and construction.

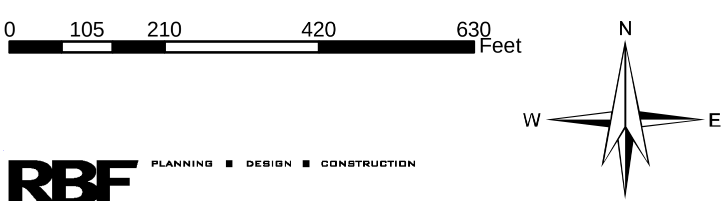
Upstream Flow Sources at Build-out: Marshall Park

CIP #: 13 – Mulheim Road Pipeline Replacement Project

Year Planned for Construction: 2005
Capacity Scenario: 2005,ADWF;2005 PWWF

Upstream Lift Stations: None

Project Location Map: Attached on next page. Proposed CIP facilities are colored in red.



RBF CONSULTING

PLANNING ▪ DESIGN ▪ CONSTRUCTION

500 YGNACIO VALLEY ROAD, SUITE 270
WALNUT CREEK, CALIFORNIA 94596-3847
925.906.1460 ▪ FAX 925.906.1465 ▪ www.RBF.com

MARINA COAST WATER DISTRICT

MARINA COAST WATER DISTRICT
ORD COMMUNITY
WASTEWATER MASTER PLAN

CIP 13: Mulheim Road Pipeline Replacement Project

H:Pdata/35100326/GIS/Exhibits/CIPGrid BWH 4/5/05

CIP #: 16– Ardennes Circle Pipeline Replacement Project

Year Planned for Construction: 2005
Capacity Scenario: 2005 ADWF; 2005 PWWF

Reason for Project: Existing gravity sewer pipelines have insufficient capacity to accommodate new wastewater flows from Fitch Park developments. Wastewater flow from Fitch Park require the gravity sewer pipelines to flow at 70-100% of full capacity, beyond the allowable flow capacities outlined for this Master Plan.

Project Priority: 3 (District guidelines regarding maximum allowable design parameter exceeded)

Project Type: Pipeline Replacement Project

Engineering Opinion of Probable Cost:

Pipe ID	Location	Upstream Manhole	Downstream Manhole	Length Existing (ft)	d/D	Pipeline Diameter		Unit Cost ($/LF)	Facility Cost ($)
						Existing (in)	Replacement (in)		
E613	Ardennes Circle	E613	E612	426	0.67	6	8	$ 36	$ 15,300
TOTAL LENGTH				426					
								CONSTRUCTION COST	$ 15,300
								20% CONTINGENCY	$ 3,100
								25% MCWD Soft Costs [1]	$ 3,800
								TOTAL PROJECT	**$ 22,200**

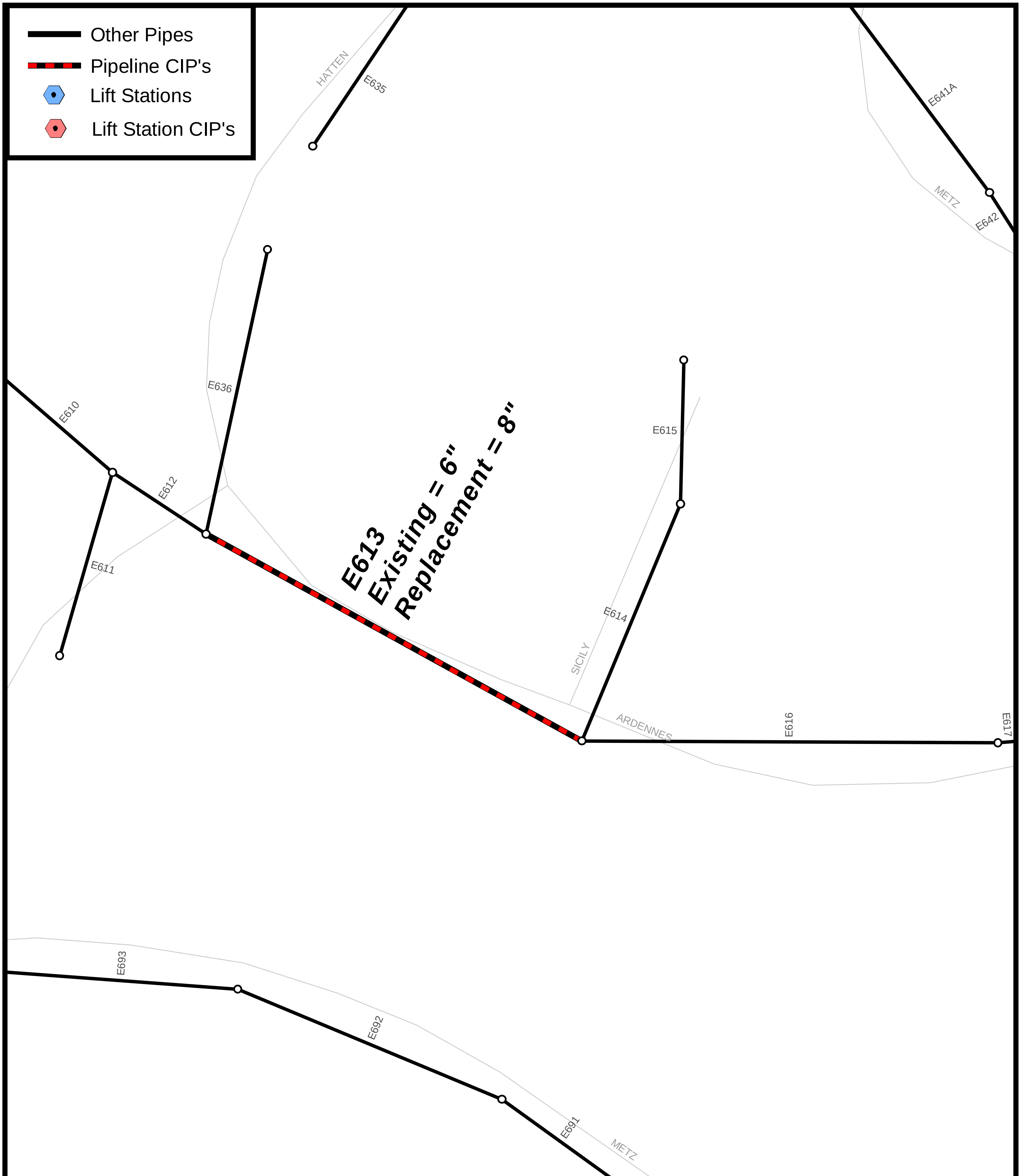
[1] Soft Costs = 10% of construction cost for Engineering Design, 10% of construction cost for construction management and inspection, 5% of construction cost for legal and administrative fees.

Project Description:
Replace existing 6 -inch diameter gravity sewer pipeline with appropriate 8-inch diameter gravity sewer pipeline to provide required capacities for wastewater flow.

Upstream Flow Sources at Build-out: Fitch Park

Upstream Lift Stations: None

Project Location Map: Attached on next page. Proposed CIP facilities are colored in red.



RBF CONSULTING
PLANNING ■ DESIGN ■ CONSTRUCTION
500 YGNACIO VALLEY ROAD, SUITE 270
WALNUT CREEK, CALIFORNIA 94596-3847
925.906.1460 ▪ FAX 925.906.1465 ▪ www.RBF.com

MARINA COAST WATER DISTRICT

MARINA COAST WATER DISTRICT
ORD COMMUNITY
WASTEWATER MASTER PLAN

CIP 16: Ardennes Ci. Pipeline Replacement Project

H:Pdata/35100326/GIS/Exhibits/CIPGrid BWH 4/5/05

CIP #: 17 –Metz Road Pipeline Replacement Project

Year Planned for Construction: 2005
Capacity Scenario: 2005 ADWF; 2005 PWWF

Reason for Project: Existing gravity sewer pipelines have insufficient capacity to accommodate new wastewater flows from Fitch Park developments. Wastewater flow from Fitch Park require the gravity sewer pipelines to flow at 100% of full capacity, beyond the allowable flow capacities outlined for this Master Plan.

Project Priority: 2 (Maximum facility capacity exceeded)

Project Type: Pipeline Replacement Project

Engineering Opinion of Probable Cost:

Pipe ID	Location	Upstream Manhole	Downstream Manhole	Length Existing (ft)	d/D	Pipeline Diameter Existing (in)	Pipeline Diameter Replacement (in)	Unit Cost ($/LF)	Facility Cost ($)
E633	Ardennes Circle and General Moore Road	E633	E607	348	1.00	6	8	$ 36	$ 12,500
E641	Metz Road	E641	E640	143	1.00	6	10	$ 41	$ 5,900
E640	Metz Road	E640	E633	224	1.00	6	8	$ 36	$ 8,100
TOTAL LENGTH				715					
								CONSTRUCTION COST	$ 26,500
								20% CONTINGENCY	$ 5,300
								25% MCWD Soft Costs [1]	$ 6,600
								TOTAL PROJECT	**$ 38,400**

[1] Soft Costs = 10% of construction cost for Engineering Design, 10% of construction cost for construction management and inspection, 5% of construction cost for legal and administrative fees.

Project Description:
Replace approximately 715 LF of existing 6-inch diameter gravity sewer pipeline with appropriate 8 and 10-inch diameter gravity sewer pipeline to provide required capacities for wastewater flow. Pipeline segments are connecting pipeline segments that should be constructed as one project.

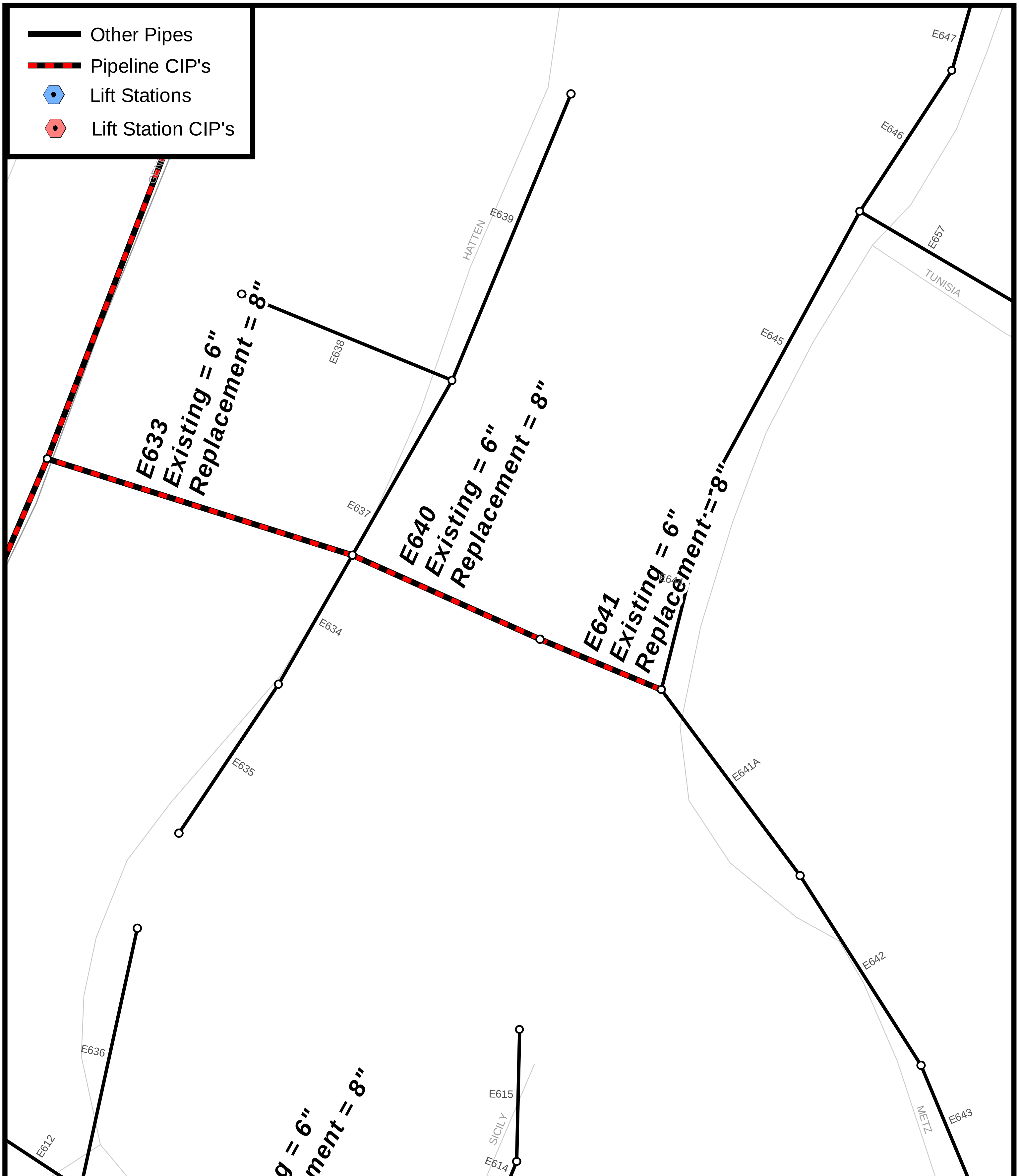
Upstream Flow Sources at Build-out: Fitch Park

Upstream Lift Stations: None

CIP #: 17 –Metz Road Pipeline Replacement Project

Year Planned for Construction: 2005
Capacity Scenario: 2005 ADWF; 2005 PWWF

Project Location Map: Attached on next page. Proposed CIP facilities are colored in red.



0 55 110 220 330 Feet

N S W E

RBF CONSULTING

PLANNING ■ DESIGN ■ CONSTRUCTION

500 YGNACIO VALLEY ROAD, SUITE 270
WALNUT CREEK, CALIFORNIA 94596-3847
925.906.1460 • FAX 925.906.1465 • www.RBF.com

MARINA COAST WATER DISTRICT

MARINA COAST WATER DISTRICT
ORD COMMUNITY
WASTEWATER MASTER PLAN

CIP 17: Metz Rd. Pipeline Replacement Project

H:Pdata/35100326/GIS/Exhibits/CIPGrid BWH 4/5/05

CIP #23 – Giggling Lift Station and Force Main Improvements

Year Planned for Construction: 2005
Capacity Scenario: 2005 PWWF

Reason for Project: Existing lift station and force main have insufficient capacity to accommodate new wastewater flows from Hayes Housing, Seaside Resort, Hayes Elementary, and Lower Stillwell Park. Wastewater flow from those developments require the lift station to pump 1040 gpm, beyond the allowable flow capacity of the existing lift station. Force main flows at velocities exceeding allowable limits. Existing areas also contributing wastewater flow to this lift station include Seaside Highlands, Fitch Middle School, Sunbay Apartment, and Bostrom Park.

Project Priority: Lift Station -- 2 (Maximum facility capacity exceeded); Force Main – 3 (District guidelines regarding maximum allowable design parameter exceeded)

Project Type: Lift Station and Force Main Upgrade Project

Engineering Opinion of Probable Cost:

Lift Station ID	Capacity Existing (gpm)	Capacity Year 2020 (gpm)	Facility Cost
GIGGLING_LS	623.0	1042.5	$ 902,000
CONSTRUCTION COST			$ 902,000
20 % CONTINGENCY			$ 180,400
25% MCWD Soft Costs [1]			$ 226,000
TOTAL LIFT STATION PROJECT COST			$ 1,308,400
[1] Soft Costs = 10% of construction cost for Engineering Design, 10% of construction cost for construction management and inspection, 5% of construction cost for legal and administrative fees.			

CIP #23 – Giggling Lift Station and Force Main Improvements

Year Planned for Construction: 2005
Capacity Scenario: 2005 PWWF

Force Main ID	Length (ft)	Capacity Scenario	Pipe Diameter Existing (in)	Pipe Diameter Replacement (in)	Unit Cost ($/LF)	Facility Cost ($)
GIGGLING_FM	3,728	2005 PWWF	8	10	$ 30.00	$ 112,000
CONSTRUCTION COST						$ 112,000
20 % CONTINGENCY						$ 22,000
25% MCWD Soft Costs [1]						$ 28,000
TOTAL FORCE MAIN PROJECT COST						$ 162,000

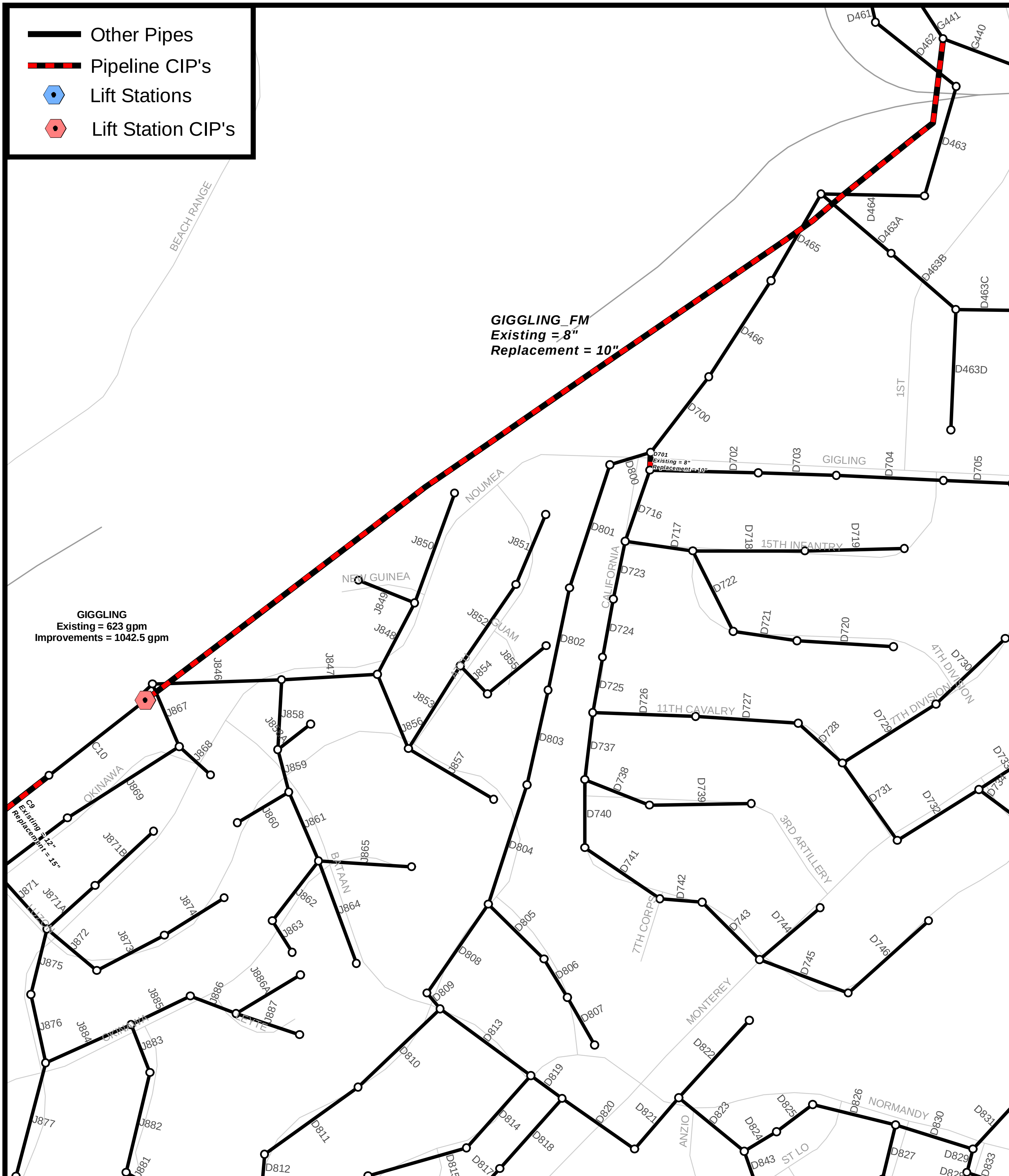
[1] Soft Costs = 10% of construction cost for Engineering Design, 10% of construction cost for construction management and inspection, 5% of construction cost for legal and administrative fees.

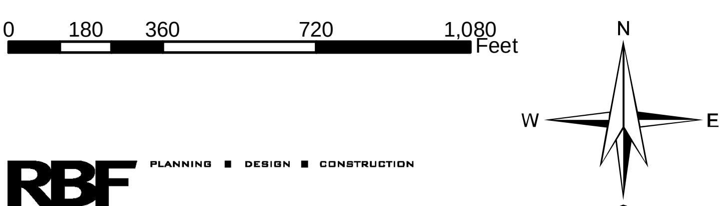
Project Description:
Lift station requires additional pumping capacity. Project includes 2 pumps, appurtenances, and wet well. The force main required additional flow capacity. Replace the existing 8-inch diameter force main with approximately 3,728 LF of new 10-inch force main.

Upstream Flow Sources at Build-out*:* Seaside Highlands, Hayes Housing, Seaside Resort, Fitch Middle School, Sunbay Apartments; Bostrom Park, Hayes Elementary, Lower Stillwell Park

Upstream Lift Stations: Ord Village Lift Station

Project Location Map: Attached on next page. Proposed CIP facilities are colored in red.





RBF CONSULTING

PLANNING ▪ DESIGN ▪ CONSTRUCTION

500 YGNACIO VALLEY ROAD, SUITE 270
WALNUT CREEK, CALIFORNIA 94596-3847
925.906.1460 ▪ FAX 925.906.1465 ▪ www.RBF.com

MARINA COAST WATER DISTRICT

MARINA COAST WATER DISTRICT
ORD COMMUNITY
WASTEWATER MASTER PLAN

CIP 23: Giggling Lift Station & Force Main Improvements

H:Pdata/35100326/GIS/Exhibits/CIPGrid BWH 4/5/05

CIP #:26 – Miscellaneous Lift Station Improvements Year Planned for Construction: 2005

25% MCWD Soft Costs [1]	$	250,750
TOTAL LIFT STATION IMPROVEMENT COST	$	1,454,350

[1] Soft Costs = 10% of construction cost for Engineering Design, 10% of construction cost for construction management and inspection, 5% of construction cost for legal and administrative fees.

Project Description:
Improvements to each lift station are further described in Section 9 of this report.

The following lift stations are also considered for capital improvements due to capacity issues:

- Hodges
- Imijin
- Jefferson
- Neeson
- Giggling
- East Garrison
- Schoonover

Projects described in CIP #20-25, should be completed in concert with those improvements described within Section 9.

Project Location Map: Attached on next page. Proposed CIP facilities are colored in red.

This Page Intentionally Left Blank

cc Diana, Tim, R[illegible] R, JD

MARINA COAST WATER DISTRICT

11 RESERVATION ROAD, MARINA, CA 93933-2099
Home Page: www.mcwd.org
TEL: (831) 384-6131 FAX: (831) 883-5995

RECEIVED
JAN 30 2015
CITY MANAGER'S OFFICE

January 23, 2015

Mr. Ralph Rubio, Chair
Seaside County Sanitation District
440 Harcourt Avenue
Seaside, CA 93955

Re: Sewer Service to the Ord Community

Dear Chairman Rubio:

This is in response to your letter of May 14, 2014 concerning Sewer Service to the Ord Community. Your letter included an engineer's report which found that it would be feasible for Seaside County Sanitation District (SCSD) to serve a large portion of the Ord Community, including portions within the Cities of Monterey, Del Rey Oaks and Seaside.

Staff has reviewed the Engineers Report and offers the following comments:

1. Staff concurs that the undelveoped areas east of the current SCSD service area may be served by gravity connections to the existing SCSD collection system. This would be preferable to using sewer pump stations to move the wastewater north into the existing Ord Community collection system.

2. The analysis for Area E in the report, which is tributary to the Ord Village Lift Station, assumed that all required capital improvements for the system have been completed. This assumption is incorrect. There are remaining capital projects to be performed for this lift station, when infill development triggers the need for larger gravity mains. These costs should be considered in your analysis.

3. The analysis for Area F in the report, which included the rest of the City of Seaside portion of the Ord Community, assumed that all required capital improvements for the Gigling Lift Station have been completed. This assumption is incorrect. The Gigling Lift Station is in need of one pump and a new force main to maintain the current service, and will need larger pumps in the future if full build-out under the Base Reuse Plan occurs. These costs should be considered in your analysis.

4. The analysis assumed that wastewater flows would generally follow the existing pipeline routes to the Ord Community connection point to the MRWPCA Interceptor System. This would require flow metering at the proposed jurisdictional boundary (near 1st Avenue and 1st Street) and a wheeling agreement between MCWD and SCSD for conveyance of flows. The report does not address the value of the existing system, or what benefit the existing wastewater customers would see if the system changed ownership.

We would like to discuss this with you and your staff. Please contact our Interim General Manager, Bill Kocher, at 831.883.5938, or at bkocher@mcwd.org to set up a meeting.

Very truly yours,

Howard Gustafson
Board President

Copy to:

Kate McKenna, Executive Officer, LAFCO of Monterey County
Peter Le, MCWD Board
Bill Lee, MCWD Board
Thomas Moore, MCWD Board
Jan Shriner, MCWD Board

To: Rich R, Diana

CITY OF MARINA
211 Hillcrest Avenue
Marina, CA 93933
831-884-1278; FAX 831-384-9148
www.ci.marina.ca.us

June 5, 2015

RECEIVED
CITY OF SEASIDE
JUN 10 2015
RESOURCE MANAGEMENT
SERVICES

Kate McKenna
Executive Officer
LAFCO of Monterey County
P.O. Box 1369
Salinas, Ca. 93902

William Kocher
Marina Coast Water District
11 Reservation Road
Marina, Ca 93933

Re: Annexation of Ord Community by MCWD

Dear Ms. McKenna and Mr. Kocher:

As you may realize the number of people living in the former Fort Ord Community is rapidly increasing. With this increase comes the responsibility of governmental agencies to ensure that not only are the interests of the residents protected, but also that all rights of Marina residents are extended to each and every one of them. This includes public safety, access to governmental benefits, and the right to vote.

Unfortunately, the right to vote has been denied to the residents of Marina who live within the Ord Community. This has been the situation since the closing of the former Fort Ord and it needs to be remedied immediately. None of the registered voters who reside in the Ord Community have a right to vote for or seek elected office on the Marina Coast Water District (MCWD). This is incomprehensible given the fact that the MCWD Board makes all of the decisions regarding the water (including cost) provided to the residents of the former Fort Ord.

The Marina City Council urges MCWD to address annexation and requests that LAFCO address the annexation of the Ord Community by MCWD as soon as it is appropriate to do so.

Finally, the City Council is aware that Seaside Mayor Ralph Rubio is a member of SCSD and the LAFCO Boards. We have full confidence that, if legally required to do so, Mayor Rubio will recuse himself when the annexation matter comes before the LAFCO Board.

Sincerely,

Bruce C. Delgado, Mayor
City of Marina

Cc: Mty. Cty. Board of Supervisors
SCSD
FORA
Congressman Farr
St. Senator Monning
St. Assemblyman Stone

This Page Intentionally Left Blank

Attachment A-2

Attachments to Comment Letter F

This Page Intentionally Left Blank

m|r|wolfe
& associates, p.c.
attorneys-at-law

October 12, 2016

Via Hand Delivery and E-mail

City of Seaside City Council
c/o City Clerk
440 Harcourt Avenue
Seaside, CA 93955
e-mail: CityClerk@ci.seaside.ca.us

Re: Final EIR for Monterey Downs and Monterey Horse Park and Central Coast Cemetery Specific Plan (SCH201291056)

Dear Members of the City Council:

On behalf of LandWatch Monterey County ("LandWatch") we write regarding the Final Supplemental Environmental Impact Report ("FSEIR") and the Draft Supplemental Environmental Impact Report ("DSEIR") (together, the "SEIR") for the Monterey Downs and Monterey Horse Park and Central Coast Cemetery Specific Plan ("Project") and regarding the proposed approval of Project entitlements.

The FSEIR fails adequately to address the issues raised by public comments on the DSEIR made by LandWatch and others. In addition, approval of the project entitlements is inconsistent with the Fort Ord Reuse Plan (also known as the Base Reuse plan or "BRP").

LandWatch reiterates its request that the City revise and recirculate the SEIR to address the defects set out in its comments.

A. Summary of comments

WATER ANALYSIS INADEQUATE: The SEIR fails to meet CEQA's requirements for an adequate analysis of water supply impacts because it assumes uncritically that there would be no significant impacts to the Salinas Valley Groundwater Basin as long as pumping to support Fort Ord demand does not exceed the 6,600 afy that MCWRA "allocated" to the Army in 1993. Thus, it concludes that there would be no significant impact for Phases 1-3 of the project because water for those phases could be supplied from uncommitted portions of the 6,600 afy allocation. The SEIR does not support this conclusion with any actual analysis of impacts to the basin from increased pumping; it simply assumes that 6,600 afy can be pumped without impact. As the comments below and the attached letter from hydrologist Timothy Parker explains that assumption is completely unfounded:

- 6,600 afy does not represent a baseline or "no new impact" pumping level for Fort Ord. In fact, the SEIR identifies baseline pumping as the currently existing level of pumping – variously reported by the SEIR as from 1,650 afy to 2,311 afy.

- 6,600 afy does not represent a safe yield for Fort Ord pumping. Safe yield cannot be determined for the Fort Ord area by itself because it must be determined for the hydrologically interconnected Salinas Valley Groundwater Basin as a whole. MCWRA's 2016 State of the Salinas Valley Groundwater Basin report explains that the existing level of groundwater pumping is well beyond the Basin's safe yield. The California Department of Water Resource's identification of the Salinas Valley Groundwater Basin as critically overdrafted confirms this. So does Mr. Parker's attached technical memorandum.

- Contrary to the out-of-date 2010 MCWD Urban Water Management Report relied upon by the SEIR, the Salinas Valley Water Project will <u>not</u> halt seawater intrusion and balance the Basin hydrologically. MCWRA now acknowledges that the existing groundwater management projects, including the Salinas Valley Water project, are insufficient to accomplish this, and that additional groundwater management projects would be needed. These projects are not approved, environmentally reviewed, or funded. The SEIR simply ignores this information, despite Seaside's obligation under the BRP to cooperate with MCWRA in addressing seawater intrusion and determining the safe yield.

- The SEIR fails to provide a discussion and analysis of <u>actual physical impacts</u> from increased pumping as CEQA requires. The SEIR improperly assumes that as long as a water supply has been allocated on paper, there is no need to discuss the physical impacts from <u>using</u> that supply. The SEIR gets this entirely wrong: as the California Supreme Court has explained, the "ultimate question under CEQA . . . is not whether an EIR establishes a likely source of water, but whether it adequately addresses the reasonably foreseeable *impacts* of supplying water to the project." *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 434 (emphasis in original).

- The SEIR fails to provide an adequate discussion of cumulative water supply impacts. The DSEIR purports to "tier" from the program EIR for the Base Reuse Plan, but then does not even summarize that document's conclusion. The Base Reuse plan PEIR concludes that cumulative impacts, viewed at the <u>relevant</u> geographic scale of the Salinas Valley Groundwater Basin, are significant and unavoidable. The Monterey Downs SEIR looks only at Fort Ord demand, improperly conflating its project-specific and cumulative analyses, and then claims that there would be no significant cumulative impact as long as total Fort Ord demand remains within the 6,600 afy allocation. This ostrich-like approach ignores

> the fact that there is <u>already</u> a significant cumulative impact and that additional pumping will aggravate overdraft and seawater intrusion.

PARTIAL PROJECT NOT ANALYZED: The SEIR admits that a water supply for Phases 4-6 is uncertain and so proposes simply not building Phases 4-6 as a mitigation measure for water supply impacts. Despite LandWatch's request and CEQA's mandate, the SEIR fails to assess the impact of not building these phases. Not building Phases 4-6 would render the project primarily residential and eliminate most of the commercial and jobs-creating uses. This would render the project inconsistent with Seaside and BRP policies mandating a strong jobs to housing ratio. It would also force residents to travel farther for jobs and shopping, increasing vehicle trips per capita and aggravating GHG impacts, which are based on per capita CO2 emissions. And not building the hotels, commercial space, and racetrack would render the fiscal effects of the project negative.

GHG ANALYSIS INADEQUATE: The FSEIR violates CEQA because if fails to disclose the actual basis of the numerous mitigation credits taken for GHG reduction measures. The DSEIR takes 25 distinct credits for project features to reduce the projected GHG emissions. When LandWatch asked for the specific assumptions that would justify these credits, the FSEIR simply referred LandWatch to documentation that confirms that project-specific assumptions are required, but does not provide those assumptions for <u>this</u> project. Thus, there is no evidence in the record that the claimed GHG reductions are warranted, and the FSEIR violates CEQA because it fails to provide good-faith reasoned responses to comments.

GHG MITIGATION INADEQUATE: The SEIR admits that GHG impacts will remain significant and unavoidable even after implementation of proposed mitigation. CEQA requires that the City adopt all feasible mitigation as long as impacts remain significant. CEQA also requires that the City respond to each mitigation measure proposed by the public and either adopt it or explain why it would not be effective or feasible. The FSEIR fails to respond at all to numerous feasible GHG mitigation proposed by the Monterey Bay Unified Air Pollution Control Agency and by LandWatch. The FSEIR rejects other mitigation, such as mandated solar electrical and water heating systems, without any showing that it is infeasible or ineffective. This violates CEQA.

FSEIR TAKES UNJUSTIFIED VEHICLE TRIP REDUCTION CREDIT AND REFUSES TO EXPLAIN IT: The traffic analysis assumes that 28% of vehicle trips will remain within the project site. Caltrans, TAMC, and LandWatch objected that this so-called "internal capture" rate is unjustified and unjustifiable. The FSEIR claimed that it provided documentation to Caltrans in response to its objection and that Caltrans had made no further objection. Not true. Caltrans has continued to object. Regardless, giving documentation to Caltrans does not answer the objections and questions raised by TAMC and LandWatch. The FSEIR also claims that the trip capture data is in the

DSEIR. This is not true. Indeed, if it were, it would not have been necessary to furnish the information privately to Caltrans.

TRAFFIC ANALYSIS AND MITIGATION IS INADEQUATE: The traffic analysis contains a number of additional flaws.

- The proposed mitigation for special event traffic, events which could occur as frequently as 125 times per year, is a to-be-determined-later "Events Management Plan." This mitigation is entirely ad hoc with no standards for what level of congestion will be permitted. This violates CEQA's requirement for specific performance standards when formulation of mitigation is deferred until after project approval.

- As Caltrans objected, the FSEIR fails to apply Caltrans' level of service standard in its analysis of the significance of impacts, even though it applies the adopted service standards for other jurisdictions (e.g., Marina, the County). Caltrans' goal is to maintain service at the cusp of LOS C and D. The FSEIR ignores impacts unless service degrades to LOS D, and thus fails to disclose additional significant impacts to Caltrans' facilities.

- The SEIR admits dozens of significant impacts to roads and intersections that will not be mitigated. LandWatch proposes that impacts to freeway ramps could be addressed with ramp metering and that the project should make fair share payments for this. The FSEIR responds that ramp metering is not planned by Caltrans so is infeasible. This is not true. Caltrans' current plan for the SR 1 corridor in the project vicinity expressly plans ramp metering. Again, the FSEIR's comment responses fail to evince good-faith.

NOISE ANALYSIS IS DEEPLY FLAWED: Noise from recreational areas of the project, including the Sports Arena, horse track, swimming center, and other equestrian facilities, noise from project construction, and noise from project traffic will exceed noise standards adopted by the Fort Ord Reuse Plan and the City of Seaside. Despite LandWatch's objections, the SEIR fails to acknowledge this and to provide a legally adequate noise analysis:

- The SEIR ignores one whole category of noise standards from the Base Reuse Plan, which are specifically intended to protect sensitive uses from loud short-term noise from activities like construction, sports events, and musical concerts. Unlike the 24-hour average noise standards, these so-called "statistical" noise standards regulate peak noise events and cumulative noise for intervals of 1, 5, 15, and 30 minutes in an hour. Without these standards, highly annoying short-term noise would be permitted, such as crowd cheering, PA systems, musical events, and swimming pool timing horns. Seaside has failed to adopt the BRP's statistical noise standards even though the BRP mandates that it do so and in fact bars it from approving any projects in Fort Ord until it does so.

- The SEIR's analysis and mitigation of construction noise contains no quantitative analysis to determine if the project would exceed applicable standards, despite express requirements in the Seaside noise ordinance and BRP policies for quantitative assessment. Mitigation does not require the construction noise to meet any noise standard. Noise engineer Derek Watry demonstrates that construction noise would exceed applicable standards and that mitigation to meet applicable standards is infeasible.

- The SEIR's analysis of stationary noise impacts, e.g., noise from recreational facilities, fails to identify a consistent threshold of significance so it is unclear how the SEIR determines significance. Furthermore, the only noise standard mentioned in the proposed mitigation differs from the noise standards discussed in the qualitative assessment of the significance of impacts. And again, the SEIR fails to provide the required quantitative assessment of noise levels with and without mitigation.

- The SEIR fails to assess and mitigate noise impacts to open space users. BRP policies mandate strict standards to protect passively used open space, and information in the FSEIR indicates that this standard is not met. Passive open space use will be directly adjacent to the noisiest portions of the project. Numerous comments have objected to the imposition of the project's noise on this use.

- The traffic noise analysis is flawed because the analysis fails to protect outdoor uses by failing to measure impacts at the property line as required by both the City's noise ordinance and the BRP. Furthermore, the FSEIR refused to provide essential information to understand the traffic noise analysis requested by LandWatch: the identification of the land use and applicable noise standards on the road segments affected by the project. As Mr. Watry explains, for at least one segment, this omission obscures the fact that the project will contribute considerably to a significant cumulative noise impact.

THE PROJECT IS INCONSISTENT WITH THE BASE REUSE PLAN: The project conflicts with numerous noise policies in the BRP. Seaside has failed to adopt required BRP noise standards and has failed to undertake noise analysis required by BRP policies. Project noise will exceed standards in several BRP noise policies. The SEIR admits that the project is inconsistent with BRP water policies requiring additional water supplies and prohibiting approval of a development project without an assured long-term water supply. If water supply limitations result in a predominately residential project and a failure to build out the commercial and recreational uses, the project will conflict with BRP (and Seaside) policies mandating a balanced jobs/housing ratio.

BELATED ELIMINATION OF RACING RENDERS ANALYSIS INVALID: The last-minute elimination of horse-racing from the list of allowed uses does not actually ensure that racing will not be permitted by a subsequent interpretation or revision of the specific plan, particularly if regulation of racing is found to be preempted by state law. If Seaside were serious about the racing ban, it could and should make the ban enforceable by identifying it as CEQA mitigation and by banning horseracing by ordinance.

Horseracing is an integral part of the economic justification for the project, representing 40% of the jobs and the primary attraction that would generate hotel taxes, without which the Wildan Report indicates that the project would be a fiscal loss for Seaside. There is no analysis that would suggest that other uses will replace these equestrian jobs and revenues.

And even if Seaside is not concerned about fiscal consequences of the bait-and-switch strategy saddling it with unbalanced residential construction, Seaside is still accountable for the inadequate environmental analysis. Without the commercial and jobs uses assumed in the SEIR, the assumed jobs/housing balance will not materialize. This would result in inconsistencies with Seaside and BRP policies, including policies intended to minimize transportation and air pollution impacts and conserve water supplies to support balanced growth.

For all of these reasons, LandWach urges the Seaside City Council to decline to certify the inadequate SEIR and to decline to approve project entitlements.

Detailed comments are set out below and in the attached letters from hydrologist Timothy Parker and noise engineer Derek Watry.

B. The SEIR fails as an informational document because its discussion of groundwater impacts is incomplete and inadequate.

Because the FSEIR fails to provide adequate responses to the issues LandWatch raised in its DSEIR comments, LandWwatch asked hydrogeologist Timothy Parker to review the SEIR and relevant documentation. Mr. Parker's comments are attached and incorporated by reference in the discussion below.

1. The FSEIR fails to respond adequately to comments objecting to reliance on the 6,600 afy allocation as the basis to find impacts less than significant.

LandWatch objected that the DSEIR improperly concludes that project-specific and cumulative impacts would be less than significant in Phases 1-3 based on the fact that a portion of the 6,600 afy allocation to Fort Ord from the 1993 annexation agreement remains unallocated and thus available to the Project. Comment PO 208-22.

The SEIR consistently implies or states that impacts would be less than significant as long as the 6,600 afy "allocation" to Fort Ord, or the "sub-allocation" to the City of Seaside and/or the County of Monterey that remains available to the project, is not exceeded. See DSEIR at 4.8-34 to 35 (project-specific groundwater supply impact less than significant through Phase 3 because "Project would only use groundwater that is within MCWD's existing 6,600 AFY allocation"), 4.8-46 (same for cumulative water quality impact), 4.19-22 to 25 (project specific water supply impact less than significant through phase 3 and "potentially significant" for Phases 4-6), 4.19-32 ("project-related cumulatively considerable water supply impacts" are "significant and unavoidably cumulatively-considerable" for Phases 4-6).[1]

Thus, the DSEIR's clear implication is that as long as total pumping for Fort Ord does not exceed the 6,600 afy allocation, there would be no significant impact.

LandWatch objected that this conclusion is unwarranted because the 6,600 afy does not represent either a baseline usage or a safe yield determination. The FSEIR admits that the 6,600 afy is neither a baseline nor a safe yield. FSEIR, p. 11.4-1027. However, the FSEIR response fails to provide the required good-faith reasoned analysis

---

[1] DSEIR section 4.19 outlines the allocation of the 6,600 afy to the various jurisdiction within the Ord Community in Table 4.19-2, Groundwater Allocation by Jurisdiction. DSEIR, p. 4.19-4. Section 4.19 then identifies the sub-allocations to projects within the City of Seaside and the County of Monterey in Table 4.19-4, Groundwater Sub-Allocations, concluding that there is 412.9 afy of "City/County Unallocated" water supply. DSEIR, p. 4.19-5. DSEIR section 4.19 explains that the project's potable demand for Phases 1-4 would be 410.8 afy, which is within the "existing unallocated water supply of 412.9 AFY" and therefore "a less than significant impact concerning potable water demand is concluded for Project Phases I through IV." DSEIR, p. 4.19-23. Section 4.19 then explains that there is only sufficient "unallocated non-potable water supply" for Phases 1-3 and that therefore a "potentially significant impact is identified for Project Phases IV through VI." DSEIR, p. 4.19-24. Section 4.19 proposes Mitigation Measure W-1, which would require "proof of an adequate water supply" that ensures "current unused water supply is allocated" before future development is permitted. Section 4.19 then concludes that "given the uncertainties involving the water supply options, sufficient water supplies would not be endured to Phases IV through VI. Therefore impacts concerning water supply availability would remain significant and unavoidable." DSEIR, p. 4.19-26.

Section 4.19 uses the same arithmetic to conclude that the "project-related cumulatively considerable water supply impacts" are less than significant for phases 1-3 but significant and unavoidable for phases 4-6 due to "the uncertainties involving the water supply options." DSEIR, p. 4.19-32.

DSEIR section 4.8 references the discussion in section 4.19 and states that impacts from Phases 4-6 would be "potentially significant" because "additional groundwater would be need to be acquired to meet the remainder of the Project's groundwater demand for Phases IV through VI." DSEIR, p. 4.8-34. Section 4.8 goes on to explain that because of "uncertainties involving the water supply options, sufficient water supplies would not be ensured to Phases IV through VI. Therefore impacts in this regard would be significant and unavoidable." DSEIR, pp. 4.8-34 to 4.8-35.

Section 4.8 draws the same conclusions regarding cumulative impacts as section 4.19.

because 1) it mischaracterizes LandWatch's comments and 2) it implies that there is no connection between the 6,600 afy allocation and the remaining unclaimed portions of the sub-allocations to the City and County:

> The commenter's following assertions are incorrect: (1) SEIR does not conclude that water supply impacts would be less than significant if total water demand for Project buildout is below 6,600 AFY; and (2) SEIR does not conclude that water supply impacts would be less than significant if total water demand for Phases I-III is below 6,600 AFY. Rather, DSEIR page 4.19-30 states that under the 1993Agreement, 6,600 AFY of the Salinas Basin groundwater is available for use on Ord Community Service Area lands, not limited only to the Project. As stated in MR 11.3.9 (Water) and Response PO 208-5, DSEIR page 4.19-23 concludes that Phases I-IV would have a less than significant impact concerning potable water demand because the existing unallocated potable water supply of 412.9 AFY (from the 1,722 AFY of groundwater FORA allocated to the City and County) would be sufficient to meet the total potable water demand of approximately 410.8 AFY for these phases combined. Furthermore, as stated in MR 11.3.9 (Water) and Response PO 208-5, DSEIR page 4.19-26 concludes that <u>sufficient water supplies cannot be assured to Phases IV-VI at this time, despite implementation of feasible mitigation (Mitigation Measure W-1); therefore, impacts concerning water supply availability would remain significant and unavoidable.</u> As can be seen from these statements, <u>the above conclusions are not premised on the assumption that the 6,600 AFY allocation from the Agreement either represents the baseline condition or the safe yield from the affected aquifers</u>, on which to base the Project's water supply analysis, as falsely asserted by commenter."

FSEIR p. 11.4-1027, emphasis added.

First, LandWatch did <u>not</u> suggest, as the FSEIR states, that the DSEIR finds impacts less than significant as long as the <u>Project itself</u> does not use 6,600 afy. LandWatch objected that "the DEIR assumes that as long as the Project does not exceed <u>its allocation of a portion of</u> the 6,600 'entitlement' there will be no significant water supply impacts." PO 208-22.

Second, the response simply ignores the fact that the sub-allocations to the City and the County that will not be exceeded until Phase 4 represent portions of the 6,600 afy allocation and that the DSEIR clearly identifies exceeding the 6,600 afy allocation as the basis for a significant impact. For example, in discussing the rationale for its conclusion that project-specific impacts are less than significant through Phase 3 but not after that, the DSEIR explains that "the Ord Community is allocated 6,600 AFY of groundwater" and that "[t]he project would only use groundwater that is within the MCWD's existing allocation." DSEIR, p. 4.8-34; *see* DSEIR, p. 4.9-9 (identifying the 1993 Annexation Agreement as the source of this allocation); 4.19-4 to 5 (explaining that the groundwater allocation by jurisdiction is based on FORA's sub-allocation of the 6,600 afy allocation to the Ord Community); *see also* FSEIR, p. 11.4-1027 ("sufficient water supplies cannot be assured to Phases IV-VI at this time, despite implementation of feasible mitigation (Mitigation Measure W-1); therefore, impacts concerning water supply availability would remain significant and unavoidable")

Indeed, if exceeding the 6,600 afy allocation is not the basis on which the SEIR identifies a significant cumulative impact, then the SEIR fails to provide any clear threshold for that conclusion. The FSEIR itself confirms that "groundwater supply is determined by the allocations and sub-allocations shown in DSEIR Tables 4.19-3 and 4.19-4." FSEIR p. 11.4-1027. These tables clearly indicate that the groundwater supply to the Ord Community is 6,600 afy. DSEIR, p. 4.19-4.

2. **The SEIR's assumption that the project's Phase 1-3 impact is less than significant because it is within the 6,600 afy allocation is not supported by analysis in the SEIR and is not accurate.**

It is clear that the SEIR assumes that 1) there will be no significant cumulative impact from all BRP projects taken together as long as their combined water use is less than 6,600 afy, and 2) the Project itself will not make a considerable contribution to a significant cumulative impact as long as its water use does not exceed the portion of that 6,600 afy that has not been allocated to other projects.

Because the SEIR assumes that there would be no significant cumulative impact (and no considerable contribution to a significant cumulative impact) as long as Fort Ord projects stay within the 6,600 afy entitlement, it fails to consider the possibilities that, even if the 6,600 afy threshold is not crossed, 1) there is already a significant cumulative impact from existing pumping, 2) that increased pumping from all projects including Monterey Downs in the future may result in a significant cumulative impact, and 3) increased pumping for the Monterey Downs project may be a considerable contribution to a significant cumulative impact.

In fact, the SEIR's conclusions that there is no significant cumulative impact as long as total Fort Ord pumping stays within 6,600 afy and that there is no considerable contribution to such an impact if the project does not exceed its sub-allocation of that 6,600 afy are legally flawed and factually unsupported.

As the California Supreme Court has explained, the "ultimate question under CEQA . . . is not whether an EIR establishes a likely source of water, but whether it adequately addresses the reasonably foreseeable *impacts* of supplying water to the project." *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* ("*Vineyard*") (2007) 40 Cal.4th 412, 434 (emphasis in original). The SEIR gets this exactly wrong, focusing on whether there is a water source (i.e., a portion of the 6,600 afy allocation) for the project instead of discussing the impact of using that water source.

As Mr. Parker explains, the existence of the 6,600 afy allocation to Fort Ord does not establish that additional pumping within that 6,600 afy would have not significant impact. Mr. Parker demonstrates the following:

- The BRP Program Environmental Impact Report ("PEIR") did not assume that 6,600 afy could be pumped without impact. That document expressly provided that pumping within this allocation might in fact cause additional seawater intrusion, and it required specific mitigation that was intended to avoid this outcome. This includes the duty to determine safe yield and to accelerate the provision of additional water supply if groundwater pumping were unable to supply 6,600 afy without causing further seawater intrusion. BRP PEIR, pp. 4-49, 4-53 to 4-54.

- In fact, even though the allocated 6,600 afy has not yet been pumped, seawater intrusion has been exacerbated by cumulative pumping since the BRP PEIR was certified (e.g., another 2 miles advance of the seawater intrusion front) and will be exacerbated in the future by any additional pumping, including pumping to support the Project, whether from the 180-foot, 400-foot, or 900-foot aquifers.

Nor does the purported "reliability" of the water supply demonstrate that its use is without significant impacts. Mr. Parker demonstrates the following:

- The fact that the capacity of the Salinas Valley Groundwater Basin ("SVGB") is large enough to smooth out year-to-year climatic variations does not mean that this pumping does not deplete the aquifer over time. In fact, an ongoing annual average rate of depletion of the Salinas Valley Groundwater Basin since the 1930's has caused more than 5 miles of seawater intrusion. Thus, the groundwater supply may be "reliable" only in the sense that there would be <u>available</u> water in normal, single, and multiple dry years, the analytic periods required by the Water Code for an urban water management plan. But <u>using</u> that water exacerbates an overdraft condition and exacerbates seawater intrusion.

- The claim in MCWD's WSA and 2010 UWMP that the Salinas Valley Water Project ("SVWP") ensures a "reliable supply" in the sense of a "no impact" supply is not accurate. The Salinas Valley Water Project's 2002 modeling assumptions for cumulative demand have not proved accurate. Demand substantially exceeds the levels at which the Salinas Valley Water Project modeling assumed seawater intrusion would be controlled. The Monterey County Water Resources Agency ("MCWRA") now admits that the Salinas Valley Water Project will <u>not</u> halt seawater intrusion and that additional projects are needed. The most recent comprehensive report on the state of the Salinas Valley Groundwater Basin indicates that existing pumping from the basin as a whole is not sustainable. The report documents that the safe or sustainable yield of the Pressure Subarea, the subarea from which the project would draw its water, is only 110,000 to 117,000 afy, but groundwater pumping exceeds this yield by about 12,000 to 19,000 afy.

- The fact that seawater intrusion has not been detected yet in the 900-foot aquifer does not mean that pumping the 900-foot aquifer is without impact. Existing stratigraphy and modeling show that pumping the 900-foot aquifer will induce seawater intrusion in the upper aquifers, i.e, the 180-foot and 400-foot aquifers. And pumping the 900-foot aquifer and may lead to seawater intrusion in the 900-foot aquifer through either of two routes: a direct hydraulic connection with the bay or through inter-aquifer transfer. The SEIR fails to address this, despite LandWatch comments asking for just this information.

3. 6,600 afy does not constitute baseline use.

It is clear that the 6,600 afy allocation does not represent baseline pumping. Thus, the City may not simply assume that pumping within the 6,600 allocation is not a new impact.

First, in response to landWatch's comments, the FSEIR denies that 6,600 afy is intended to represent either a baseline or safe yield. FSEIR, p. p. 11.4-1027.

Second, in response to LandWatch's request that the SEIR actually identify baseline use (PO 208-10, 208-14), the FSEIR references Master Response 11.3.9 and the discussions in the DSEIR sections 4.8 and 4.19. FSEIR, pp. 11.4-1022-1023. The FSEIR's Master Response 11.3.9 identifies baseline conditions for MCWD's Fort Ord area as the 2015 consumption of 1,650 afy (of which total the City was using 505 afy and the County 55 afy). FSEIR, p. 11.3-9. Section 4.19 of the DSEIR reports baseline pumping in the Ord Community Service Area from 2001 to 2010 as 2,311 afy, based on the MCWD Water Supply Assessment. DSEIR, p. 4.19-1 to 4.19-2. (Section 4.8 of the DSEIR reports pumping <u>capacity</u> and planned <u>future</u> pumping, but not baseline pumping. DSEIR, pp. 4.8-8 to 4.8-10, 4.8-33 to 4.8-35.) Regardless whether baseline pumping is assumed to be the 1,650 pumped in 2015 or the 2,311 afy average from 2001 to 2010, it is clear that the baseline is <u>not</u> 6,600 afy.

Third, the average pumping at the time that Fort Ord was in use by the Army was never 6,600 afy. That amount represents a single peak year pumping in 1984. The 1993 Army/MCWRA agreement reports that average pumping from 1988-1992, the period that brackets the 1991 closure decision, was about 5,200 afy. Agreement No. A-06404 between U.S.A. and MCWRA, Sept 21, 1993, ¶ 4c.

Fourth, the BRP PEIR does not identify 6,600 afy as the baseline use. The discussion of water supply in the section captioned "environmental setting" references the Army/MCWRA agreement that "6,600 acre feet per year (afy) of water is available from the Salinas Valley groundwater basin for Former Fort Ord land uses, provided that such provisions do not aggravate or accelerate the existing seawater intrusion." BRP PEIR, p. 4-49. However, the discussion in this section does not identify any prior pumping amounts, and a reference to an agreement regarding future pumping does not even purport to identify historic baseline pumping. As Mr. Parker explains, the BRP PEIR provides that mitigation would be required for any pumping that would lead to an increase in seawater intrusion, even if this occurs before the 6,600 afy allocation is pumped. The BRP PEIR's discussion of the environmental setting with respect to water supplies identifies the 6,600 afy figure as the allocation in the MCWRA/Army agreement, not as baseline use. The discussion expressly provides that this allocation is available only "provided that such provisions do not aggravate or accelerate the existing seawater intrusion." BRP PEIR, p. 4-49.

Fifth, if the BRP PEIR adopts any baseline figure for Salinas Valley Groundwater Basin pumping on the Former Fort Ord, that figure is not 6,600 afy. The figure may be the 5,100 afy average pumping for the 4 to 5 years immediately prior to 1991, based on the Army's NEPA documents. In Section 1.2.2, Baseline Determination, the BRP PEIR expressly adopts the Amy's NEPA document baseline: "As with the Army's FEIS and DSEIS, this EIR determines whether the proposed project may have a significant effect on the environment based on physical conditions that were present at the time the decision became final to close Fort Ord as a military base (September, 1991)." BRP PEIR, p. 1-3. The BRP PEIR states that this approach "complies with Section 21083.8.1 of the Public Resources Code and utilizes the extensive research already conducted for the Army's NEPA documents, which use the same baseline year." *Id.* Section 21083.8.1 permits a reuse plan EIR or EIS to rely on conditions at the time of the closure decision as a baseline provided that certain procedures are followed.[2]

The BRP PEIR then identifies the specific NEPA documents that were used to determine the Environmental Setting for water supply analysis. BRP PEIR, pp. 1-3, 1-10 (Table 1.9-1). These include the Army's December 1995 Draft SEIS, the Army's June 1993 Final EIS Volume 1, and the Army's April 1992 "*Other Physical Attributes Baseline Study of Fort Ord, California.*" These documents identify the baseline water use from the Salinas Valley Groundwater Basin as 5,100 afy, not as 6,600 afy, as follows:

[2] These procedures include circulation of proposed baseline conditions to affected agencies "prior to circulating a draft EIR" followed by a public hearing at which "the lead agency shall specify whether it will adopt any of the baseline physical conditions for the reuse plan EIR and identify those conditions." Guidelines, § 15229(a)(1), (2). Although the BRP PEIR states that it availed itself of the Public Resources Code § 21083.8.1 baseline provisions and that baseline conditions are as of the September 1991 closure decision (BRP PEIR p. 1-3), there is no evidence that FORA actually followed the process required by Public Resources Code § 21083.8.1(c) and CEQA Guidelines § 15229 to identify baseline water use conditions in a document circulated before the PEIR and to state an intent to adopt that as the baseline. See FORA, Resolution 97-6, June 13, 1997 (Certifying BRP PEIR and discussing proceedings and hearings). CEQA does not authorize FORA to rely on the Army's prior compliance with these procedures, if in fact the Army did comply.

- The 1996 Final SEIS states that "[a]s reported in the final EIS (Volume 1, page 4-56), average water demand on Fort Ord was 5,100 acre-feet (af) during 1986-1989. Water use has declined in recent years with the decrease in the number of personnel living on and occupying the base. Annual water use was 5,634 af in water year 1992, 3,971 af in 1993, and 3,235 af in 1994."[3]

- The June 1993 Final EIS states that "[a]nnual water consumption decreased from a high of 6,600 acre-feet in 1984 to an average of 5,100 acre-feet during 1986-1989."[4] Table 4.5-2 identifies 5,100 afy as the average pumpage for Fort Ord.[5]

- The April 1992 *Other Physical Attributes Baseline Study of Fort Ord, California,* provides a table of annual pumping, from which it is apparent that average annual pumping from 1986-1989 is 5,083 afy and the average from 1986-1990 is 5,126 afy.[6] That 1992 report identified declining water use from 1980 to 1990, except for the single year 1984.[7]

In sum, <u>if</u> the Army actually followed the procedures of Public Resources Code § 21083.8.1(c) and CEQA Guidelines § 15229 to adopt a baseline figure and <u>if</u> FORA also complied with those procedures, then the baseline water use was not 6,600 afy but only 5,100 afy. The outlier 6,600 afy figure from 1984 could not have been used as a baseline because it does not represent the "physical conditions that were present at the time the decision became final to close Fort Ord as a military base (September, 1991)." BRP PEIR, p. 1-3; *see* Public Resources Code § 21083.8.1(c).

Sixth, even if FORA or the Army had followed the process required by Public Resources Code § 21083.8.1(c) and CEQA Guidelines § 15229 to identify a baseline condition for water, they were required to "state in writing how the lead agency intends to integrate the baseline for analysis with the reuse planning and environmental review process." Public Resources Code, § 21083.8.1(c)(C). The BRP PEIR does explain how the 6,600 afy figure is to be integrated into its analysis and mitigation of water supply impacts. BRP PEIR, pp. 4-49, 4-53 to 4-54. And that discussion does <u>not</u> indicate an intent to treat 6,600 afy as a baseline condition within which there is no significant impact, because it requires mitigation <u>even if the 6,600 afy allocation is not pumped in</u>

---

3 Dept. Of the Army, Final Supplemental EIS Fort Ord Disposal and Reuse, June 1996, p. 4-11, available at http://docs.fortordcleanup.com/ar_pdfs/AR-BW-1538//Section_4.pdf. The quote from the Final SEIS is of the unchanged text of the 1995 Draft SEIS.

4 Dept. of the Army, Final EIS, Fort Ord Disposal and Reuse, June 1993, p. 4-57, available at http://docs.fortordcleanup.com/ar_pdfs/AR-BW-1348//Section_4/section_4.5.pdf.

5 *Id.* at 4-59.

6 US Army Corps of Engineers, *Other Physical Attributes Baseline Study of Fort Ord, California,* April 1992, p. 1-6, available at http://docs.fortordcleanup.com/ar_pdfs/AR-BW-2202//Section_1.pdf.

7 *Id.* at 1-6, 1-14.

full. CEQA does not permit the imposition of mitigation unless there are significant impacts. Guidelines, § 15126.4(a)(3). Thus, treating 6,600 afy as a baseline "no impact" level is inconsistent with the fact that BRP PEIR repeatedly states that use of the 6,600 afy allocation is only to be permitted if it does not contribute to seawater intrusion and that mitigation may be required even if water use does not rise to 6,600 afy. *See* BRP PEIR, pp. 4-49, 4-53 to 4-54.

And the Army's EIS also makes clear that 1) there is no categorical right to pump 6,600 afy, and 2) even the right to pump up to 5,200 afy is subject to a no-harm condition:

> MCWRA will not object to Fort Ord/POM Annex withdrawal from the basin of up to 6,600 af/yr, provided that no more than 5,200 af/yr are withdrawn from the 180-foot aquifer and 400-foot aquifer and that such withdrawals do not threaten to aggravate or accelerate the existing seawater intrusion problem.[8]

Seventh, Public Resources Code, § 21083.8.1(c)(A) provides that "[p]rior to the close of the hearing, the lead agency may specify the baseline conditions for the reuse plan environmental impact report prepared, or in the process of being prepared, for the closure of the base. The lead agency may specify particular physical conditions that it will examine in greater detail than were examined in the environmental impact statement." The BRP FEIR does in fact require further analysis of physical conditions than the analysis provided in the EIR. For example, Program C-3.1 requires determination of the safe yield of the portion of Fort Ord overlying the Salinas Valley Groundwater Basin "to determine available water supplies." BRP PEIR, p. 4-55. Program C-3.2 require further investigation of seawater intrusion in the context of the Salinas Valley Basin Management Plan and measures to prevent further intrusion. Again, these provisions are simply inconsistent with treating 6,600 afy as a permissible baseline use that would not constitute a significant impact.

4. 6,600 afy is not a safe yield.

Safe yield or sustainable yield is defined as "the amount of groundwater that can be pumped annually on a long-term basis without causing undesirable results."[9] The FSEIR admits that 6,600 afy does not represent a safe yield figure for pumping to support Fort Ord reuse. FSEIR, p. 11.4-1027.

---

[8] Dept. of the Army, Final Supplemental Environmental Impact Statement Fort Ord Disposal and Reuse, June 1996, p. 4-11, emphasis added, available at http://docs.fortordcleanup.com/ar_pdfs/AR-BW-1538//Section_4.pdf.

[9] Dept. of the Army, Fort Ord Disposal and Reuse Final EIS, June 1993, p. 4-57, available at http://docs.fortordcleanup.com/ar_pdfs/AR-BW-1348//Section_4/section_4.5.pdf.

The Final EIS for the Fort Ord base closure and reuse also acknowledges that 1) safe yield must be determined for the entire groundwater basin and 2) pumping for Fort Ord already exceeded safe yield as of 1993:

> The concept of safe yield is meaningful only when applied to an entire groundwater basin. The amount of yield available to individual users within the basin depends of the amounts and locations of pumping by other users. In the Salinas Valley groundwater basin, present pumping in and near Fort Ord exceeds safe yield in the 180-foot and 400-foot aquifers, as indicated by continuing seawater intrusion and water levels below sea level in those aquifers. This indicates that the yield from the 180-foot and 400-foot aquifers for Fort Ord is less than its present pumpage, assuming that pumping by other users remains unchanged.[10]

Base Reuse Plan Hydrology and Water Quality Program C 3-1 requires that Seaside work with MCWRA to determine safe yield to determine available water supplies:

> The City shall continue to work with the MCWRA and the MPWMD to estimate the safe yield in the context of the Salinas Valley Basin Management Plan for those portions of the former Fort Ord overlying the Salinas Valley and the Seaside groundwater basins to determine available water supplies.

BRP PEIR, p. 4-55. There is no evidence in the record that Seaside has in fact worked with MCWRA to determine safe yield for the Fort Ord area. LandWatch's DSEIR comments specifically requested a water balance analysis showing sustainable yields for the 180, 400, and 900 foot aquifers, i.e., the amounts that could be pumped without mining or depleting the aquifers. PO 208-10, 208-14. The FSEIR did not provide this information. FSEIR, pp. 11.4-1023, 11.3-7 to 11.3-11.3-17.

Furthermore, as the Final EIS for the Fort Ord base closure and reuse indicates, the concept of safe yield only makes sense for a basin as whole, not just the Fort Ord area. MCWRA's most recent determination of the sustainable or safe yield for the Salinas Valley Groundwater Basin and the Pressure Subarea indicates that pumping has been and remains in excess of safe yield. In particular, the 2016 State of the Salinas Valley Groundwater Basin report indicates that the safe yield of the Pressure Subarea is about 110,000 to 117, 000 afy and that existing pumping already exceeds this yield by about 12,000 to 19,000 afy.[11] The safe yield for the Salinas Valley Groundwater Basin as a whole (the four subareas constituting Zone 2C, the assessment area for the Salinas

---

10 Dept. of the Army, Fort Ord Disposal and Reuse Final EIS, June 1993, p. 4-57.

11 MCWRA, State of the Salinas Valley Groundwater Basin, 2016, p. 4-25, available at http://www.mcwra.co.monterey.ca.us/hydrogeologic_reports/documents/State_of_the_SRGBasin_Jan16_2015.pdf.

Valley Water Project) is from 499,000 to 506,000 afy, and existing pumping already exceeds this yield by 17,000 to 24,000 afy.[12]

Instead of providing current information about safe yield for the basin, the FSEIR recites the out-of-date claim in the MCWD 2010 UWMP that the Salinas Valley Water Project is expected to balance the basin by resulting in a "net increase in storage of about 6,000 ac-ft annually." FSEIR, p. 11.4-1025. As Mr. Parker demonstrates, this claim is simply unsupportable in light of current information:

- The Salinas Valley Water Project EIR's modeling analysis claimed only that the Salinas Valley Water Project would balance the basin on the basis of 1995 demand levels, of about 473,000 afy.

- The Salinas Valley Water Project modeling projected that basin-wide demand would decline from 1995 to 2030 from 473,000 afy to 443,000 afy; however demand has averaged over 500,000 afy since 1995.

- MCWRA has acknowledged that the demand assumptions used for the Salinas Valley Water Project modeling did in fact understate basin-wide demand.

- MCWRA now acknowledges that additional future groundwater management projects, in addition to the existing projects such as the Salinas Valley Water Project, are required to mitigate and avoid future seawater intrusion.

- MCWRA's current analysis, based on 2013 modeling by Geoscience, calls for using 130,000 afy of surface water from the Salinas River to deliver additional water for coastal use, above and beyond the amount that can be provided by the Salinas Valley Water Project, in order to reduce coastal pumping and to establish the necessary groundwater elevations to prevent seawater intrusion.

- There is no certainty that seawater intrusion will be mitigated or avoided because the projects that are required to deliver this additional water are not committed, funded, or environmentally reviewed.

The FSEIR's continued reliance on the out-of-date claims for the Salinas Valley Water Project made in the MCWD 2010 UWMP are unaccountable in light of the MCWRA's open and public work on the continuing problem of seawater intrusion since 2010. The City of Seaside is required by BRP Hydrology and Water Quality Policy C-3 to "work with" MCWRA "to estimate the current safe yield" and to "participate in implementing measures to prevent future intrusion." DSEIR, p. 4.8-20. It is difficult to believe that the City has honored this policy obligation if it remains ignorant of MCWRA's current analysis of the seawater intrusion problem.

---

[12] *Id.* at 4-26.

Regardless, the City cannot claim that additional pumping in the Fort Ord area up to 6,600 afy would be without impact on the grounds that 6,600 afy represents a safe yield level for Fort Ord pumping.

5. **The SEIR must provide an adequate and independent cumulative analysis of water supply impacts because it may not rely on tiering from the BRP PEIR**.

Changed circumstances, new information, and changes in the BRP itself that have occurred since the BRP PEIR require reexamination of the cumulative analysis and preclude tiering. Accordingly, the City is obliged to prepare a new water supply analysis and not to tier from the water supply analysis in the BRP PEIR.

As LandWatch has objected, the SEIR may not tier from the BRP PEIR, at least with respect to the water supply discussion. Public Resources Code § 21094(b) bars tiering if the Project is not consistent with the plan for which the first tier EIR was prepared. The SEIR admits that it is inconsistent with the BRP Hydrology and Water Quality Policies B-1 and B-2, which policies require additional water supplies and prohibit approval of a development project without an assured long-term water supply. DSEIR, p. 4.9-10; FSEIR 14.4-1020.

Public Resources Code § 21094(b) also bars tiering if the project is not consistent with the applicable General Plan. The project is inconsistent with Seaside's General Plan, as is evident from the need for substantial amendments to that General Plan. The FSEIR's argument that the Project would be consistent with the General Plan after amendment would simply read this section of Public Resources Code § 21094(b) out of the statute because the State Planning and Zoning law bars approval of projects that are inconsistent with the General Plan. Furthermore, if the Project is inconsistent with the General Plan, there can be no assurance that its impacts were adequately assessed by the General Plan EIR.

Most problematically, Public Resources Code § 21094(b)(3) bars tiering if a project is subject to Public Resources Code § 21166 and/or CEQA Guidelines § 15162 due to changed circumstances and/or new information. Here, there are changed circumstances and new information that bar reliance on the out-of-date cumulative analysis.

First, seawater intrusion has advanced significantly since the 1997 BRP PEIR, constituting a substantially more severe significant effect than shown in the BRP PEIR. See Guidelines § 15162(a)(3)(B) ("Significant effects previously examined will be substantially more severe than shown in the previous EIR"). Within the meaning of Public Resources Code § 21166(b) and (c) this is a "substantial change[] . . . with respect to the circumstances under which the project is being undertaken" as well as "new information, which was not known and could not have been known" at the time of the BRP PEIR.

Second, the expected basin management plan, the cooperation in mitigation of seawater intrusion and development of new water supply, and the determination of safe yield required by BRP policies, including Hydrology and Water Quality Policies B-1, B-2, and C-3 have not materialized, and this is a substantial change in the BRP project itself. Public Resources Code § 21166(a). Indeed, the FSEIR admits that there have been substantial changes within the meaning of Public Resources Code § 21166. FSEIR at 14.4-1017 (acknowledging that the "various changes in the environmental and/or regulatory setting over the years" requires an SEIR). One of the admitted change in circumstances or changes in the BRP project is the "uncertainty" regarding "previously identified long-term water supply options," i.e., the options identified by the BRP PEIR as the purported basis for finding impacts less than significant. DSEIR p. 4.8-47. The DSEIR acknowledges that, in light of this uncertainty, it is no longer possible to find, as the BRP PEIR found, that the project's "adherence to the BRP policies and programs (as outlined below) and additional mitigation measures" would adequately mitigate impacts for all phases of the project.

The FSEIR admits that "MCWD has not implemented their long-term water supplies options to date" but apparently offers the excuse that this is "because the reuse of the former Army base slowed down considerably during the economic downturn beginning in 2008." FSEIR p. 11.4-1026. This misinterprets the BRP PEIR's water supply policies and mitigation requirements by implying that there is no obligation to provide any additional supply until 6,600 afy has been allocated to approved development projects. As discussed above and in Mr. Parker's comments, the BRP PEIR analysis of water supply impacts makes it clear that FORA did not necessarily expect that 6,600 afy could be pumped from the Salinas Valley Groundwater Basin to support uses on Fort Ord without causing further seawater intrusion, and its policies and mitigation do not permit the agencies to delay a solution if seawater intrusion persists. BRP PEIR, pp. 4-49, 4-53 to 4-54. As Mr. Parker demonstrates, seawater intrusion has advanced another two miles since the BRP PEIR was certified.

Case law is clear that additional analysis of water supply impacts is required under section 21166 when new information shows more severe impacts or the planned water sources are not implemented timely:

> To the extent that a subsequent subdivision proposal relies on different water sources than were proposed in the specific plan it implements, or the likely availability of the intended water sources has changed between the time of the specific plan and the subdivision application (or more has been learned about the effects of exploiting those sources), changes in the project, the surrounding circumstances or the available information would exist within the meaning of section 21166, requiring additional CEQA analysis under that section . . .

Vineyard, supra, 40 Cal.4th at 438; see also *id.* at 431, n. 7. Here, the new information about the severity of cumulative impacts, changes to circumstances, and to the project itself with regard to water supply are subject to Public Resources Code § 21166 and/or CEQA Guidelines § 15162 and therefore tiering, at least for the water supply analysis, is not permitted. The SEIR erred by not providing a new analysis of water supply impacts, in particular, a new cumulative analysis.

6. Even if tiering were proper, the City must assess whether the project makes a considerable contribution to a significant cumulative effect.

Finally, even if tiering were permitted, the City must still assess whether the incremental effects of the Project would be considerable when viewed in the context of past, present, and probable future projects." Guidelines, § 15152(f)(2). We note that the California Supreme Court has clarified that additional review of a subsequent project may be required in a tiering context even where 21166 does not apply:

> The standard for determining whether to engage in additional CEQA review for subsequent projects under a tiered EIR is more relaxed than the prohibition against additional review imposed by Public Resources Code section 21166 for project EIR's." (*Friends of Mammoth v. Town of Mammoth Lakes Redevelopment Agency* (2000) 82 Cal.App.4th 511, 528, 98 Cal.Rptr.2d 334.) For project EIRs, of course, a subsequent or supplemental impact report is required in the event there are substantial changes to the project or its circumstances, or in the event of material new and previously unavailable information. (*Ibid.*, citing § 21166.) In contrast, when a tiered EIR has been prepared, review of a subsequent project proposal is more searching. If the subsequent project is consistent with the program or plan for which the EIR was certified, then "CEQA requires a lead agency to prepare an initial study to determine if the later project may cause significant environmental effects not examined in the first tier EIR." (*Ibid*. citing Pub. Resources Code, § 21094, subds. (a), (c).)

Friends of the Coll. of San Mateo Gardens v. San Mateo Cty. Cmty. Coll. Dist. (2016) 207 Cal. Rptr. 3d 314, slip op. at p. 11 (emphasis added).

The determination whether a project's effects are a considerable contribution to a significant cumulative impact requires an acknowledgement of the existence of that cumulative impact and assessment of its severity because "the greater the existing environmental problems are, the lower the threshold should be for treating a project's contribution to cumulative impacts as significant." *Communities for a Better Environment v. California Resources Agency* ("*CBE v. CRA*") (2002) 103 Cal.App.4th 98, 120. Here, as discussed below, the SEIR simply fails to provide this assessment because it fails to provide an adequate cumulative analysis.

7. The SEIR fails to provide an adequate cumulative analysis of water supply impacts because it fails to acknowledge the existence of a significant regional cumulative impact and improperly limits the scope of cumulative analysis to the BRP area.

The DSEIR's cumulative analysis of water supply impacts is inadequate because 1) it is limited to the area subject to the BRP PEIR, i.e., former Fort Ord, and 2) it fails to consider in the first instance whether there is a significant cumulative impact from cumulative regional groundwater pumping. DSEIR 4.8-47, 4.19-30 to 4.19-32. Furthermore, to the extent that the FSEIR implies that cumulative impacts may be ignored because the project's contribution is a relatively small part of basin-wide pumping, the FSEIR is legally and factually in error.

By way of background, cumulative impact analysis requires an agency to make two determinations: (1) whether the impacts of the project in combination with those from other past, present, and future projects are cumulatively significant, and (2) if so, whether the project's own effect is a considerable contribution. Guidelines, § 15130(a); *see* Kostka and Zischke, Practice Under the California Environmental Quality Act (2nd Ed., 2014 Update), § 13.39. In step one, the agency must determine whether the combined effect of the project and other projects is significant, because those impacts may be "individually minor but collectively significant." *Communities for a Better Environment v. California Resources Agency* ("*CBE v. CRA*") (2002) 103 Cal.App.4th 98, 119-120. To provide an adequate step one analysis, the agency must

- "define the scope of the area affected by the cumulative effect,"
- explain "the geographic limitation used,"
- identify the past, present, and future projects "producing related or cumulative impacts" or provide projections of the conditions "contributing to the cumulative effect,"
- provide a "summary of the expected environmental effects to be produced by those projects." Guidelines, § 15130(b)(3), (4).

In step two, if there a significant cumulative effect, the agency must determine whether the project's contribution is "considerable," i.e., "whether 'any additional amount' of effect should be considered significant in the context of the existing cumulative effect." *CBE v. CRA*, *supra*, 103 CalApp.4th at 119.

a. <u>The DSEIR errs by purporting to tier from the BRP PEIR but failing to summarize its cumulative groundwater analysis and conclusions.</u>

Notably, the geographic scope of the BRP PEIR's cumulative analysis was regional, including the Salinas Valley Groundwater Basin as a whole, and it found significant unavoidable cumulative impacts. BRP PEIR, p. 5-5. The DSEIR does not acknowledge this; indeed, despite its claim that it tiers from the BRP PEIR, the DSEIR fails even to summarize the regional cumulative analysis from the BRP PEIR. As discussed above, tiering is not appropriate here. However, if it were proper, then the DSEIR would be inadequate because it fails to summarize the discussion.

b. <u>The cumulative analysis is inadequate because it fails to justify limiting the geographic scope of analysis to the BRP area.</u>

There is no justification for limiting the geographic scope of the cumulative analysis to the BRP area (former Fort Ord) because the seawater intrusion and aquifer depletion impacts are due to pumping throughout the Salinas Valley Groundwater Basin.

The FSEIR claims that "[t]he geographic scope of the area affected by the Project's cumulative effect is the former Fort Ord (BRP boundaries)." FEIR 11.4-1024. This is not true. Nor is the FSEIR's claim true that the area affected by the Project's impact limited to the MCWD service area. *Id.* As Mr. Parker explains, the area that would be affected by project pumping includes the Pressure Subbasin and the Salinas Valley Groundwater Basin as a whole since these areas are hydraulically interconnected.

More importantly, CEQA does not define the geographic scope of cumulative analysis based on the area <u>affected</u> but based on the location of the cumulative projects that <u>cause effects</u> in the same area that the project causes effects. The Guidelines require identification of projects "producing related or cumulative impacts" or projections of conditions "contributing to the cumulative effect." Guidelines §15130(b)(1). Case law is clear that it is improper to omit relevant past, present, and future projects that create related impacts. *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1213-1214 (failure to consider all relevant projects in its cumulative impact analysis is an "overarching legal flaw"); *Citizens to Preserve the Ojai v. County of Ventura* (1985) 126 Cal.App.3d 421, 430-432 (failure to justify omission of offshore emissions is failure to comply with CEQA's legal mandates); *San Joaquin Raptor Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 739-741 (omission of other known development projects).

In *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 720, 724 the court invalidated an EIR's cumulative air quality impact analysis not because its conclusions were unsupported by substantial evidence, but because the agency there – as here – had failed to conduct the analysis in the legally required manner by omitting consideration of all "past, present, and reasonably foreseeable probable future projects." *Id.* at 720, 724. The court rejected the agency's argument that it must defer to any substantial evidence within an EIR to support to support of the scope of cumulative analysis. *Id.* at 721-724. The court held that when an EIR's analysis fails to consider required factual information, the error is one of law, not fact, because the exclusion of relevant information improperly burdens the public to provide the relevant analysis. *Id.* at 724.

Again, as Mr. Parker explains, it is indisputable that projects and pumping outside the BRP area affect aquifer depletion and seawater intrusion within the BRP area. For example, this is acknowledged by the BRP PEIR (at p. 5-5, acknowledging that regional growth could cumulatively affect aquifers and cause further overdraft and seawater intrusion), the MCWD 2010 UWMP (at p. 29, acknowledging that basin-wide pumping causes declining water levels in Pressure Subarea), and the Army's 1993 FEIS (at p. 4-57, acknowledging that the available yield without seawater intrusion depends on the amount of pumping throughout the basin).

Responding to Comment PO 208-16 objecting to the truncated scope of cumulative analysis, the FSEIR asserts that it has simply made the choice to rely on a summary of projections and has chosen the BRP as the source of that summary. FSEIR p. 11.4-1024. However, reliance on a summary of projections in an adopted plan is impermissible if there is evidence that the geographic scope is drawn too narrowly. *Bakersfield Citizens, supra*, 124 Cal.App.4th at 1216-1217.

The FSEIR claims that its response PO 208-5 explains why the geographic scope was limited to the BRP. FSEIR pp. 11.4-1020, response PO 208-4, and p. 11.4-1023, response PO 208-15. However, response 208-5 does <u>not</u> justify the limitation of the geographic scope. That response purports to address objections that the DSEIR inadequately identifies and characterizes the pumping source aquifer(s), fails to identify other wells and cumulative pumping in the 900-foot aquifer, and fails to discuss recharge, saline contamination and sustained yield of the 900-foot aquifer. Response 208-5 makes the following points, which do not even purport to justify the geographic limitation:

- It claims it is speculative to state whether the 180-foot, 400-foot, or the 900-foot aquifer would supply Project water since they are connected hydraulically and the 180-foot and 400-foot aquifers are recharging the 900-foot aquifer. FSEIR 11.4-1020. This claim does not explain why the scope of cumulative analysis is limited to the BRP area.

- It states that the 900-foot aquifer is "in reality a series of aquifers, not all of which are hydraulically connected." FSEIR p. 11.4-1020. This claim, which on its face contradicts the claim that all of the aquifers are hydraulically connected, does not explain why the scope of cumulative analysis is limited to the BRP area.

- It claims that the deep aquifer (the 900-foot aquifer) is not experiencing seawater intrusion. FSEIR p. 11.4-1021. This claim does not explain why the scope of cumulative analysis is limited to the BRP area.

- It reiterates that the threshold of significance is substantial depletion of groundwater supplies or interference with recharge such that there would be a net deficit in aquifer volume or lowering of groundwater table level. FSEIR p. 11.4-1020. This claim does not explain why the scope of cumulative analysis is limited to the BRP area.

- It states that mitigation will be required, that the impact will be significant and unavoidable for phases 4-6, and that a statement of overriding considerations will be required. FSEIR p. 11.4-1020 to 1021. This claim does not explain why the scope of cumulative analysis is limited to the BRP area.

- It states that the DSEIR relied on the MCWD UWMP, which discussed the Salinas Valley Groundwater Basin. This claim admits that the relevant geographic scope of cumulative analysis should be the Salinas Valley Groundwater Basin.

- It claims that there is adequate pumping capacity, that the project would be required to submit proof of adequate water supply before development is allowed, that the project does not overlay areas subject to seawater intrusion, and that all of this means that it will not cause any increase in seawater intrusion. FSEIR p. 11.4-1021. This claim, which on its face is inconsistent with the well-established fact that all Salinas Valley Groundwater Basin pumping, and especially coastal pumping, is causing an increase in seawater intrusion, does not in any event explain why the scope of cumulative analysis is limited to the BRP area.

- It states that the Project will not interfere with recharge. FSEIR p. 11.4-1021 to 1022. This claim does not explain why the scope of cumulative analysis is limited to the BRP area.

- It states that the Ord area is limited to 6,600 afy from the Salinas Valley Groundwater Basin and that not all of this has been allocated. FSEIR p. 11.4-1022. This claim admits that the relevant geographic scope of cumulative analysis should be the Salinas Valley Groundwater Basin.

- It claims that the DSEIR's analysis is based on the 2010 UWMP and that therefore "the details concerning aquifer operations do not affect the DSEIR's analysis," which is "considered sufficient to allow decision-makers to make an informed decision concerning the project's impacts." FSEIR p. 11.4-22. Again, this claim does not address the relevant geographic scope of cumulative analysis.

In sum, the SEIR is inadequate because it fails to justify the geographic limitation of its cumulative analysis to the BRP area. And the SEIR's cumulative analysis is inadequate because it fails to list projects "producing related or cumulative impacts" or to provide a summary of projections of conditions "contributing to the cumulative effect." Guidelines §15130(b)(1).

c. Failure to consider whether there is a significant cumulative impact from cumulative regional groundwater pumping is legally erroneous; failure to identify such an impact is a critical factual omission.

As noted, cumulative analysis may require two distinct determinations: whether there is a significant cumulative impact from all relevant projects and, if so, whether the project under review makes a considerable contribution to that impact.

Nowhere in a step-one analysis does the DSEIR consider whether, much less acknowledge that, there is a significant cumulative impact caused by groundwater pumping from regional projects or, alternatively, conclude that there is no significant cumulative impact from regional projects. Indeed, the DSEIR erroneously fails to distinguish between the single-step analysis required for a project-specific significance determination and the two-step analysis required for cumulative significance determinations. Instead, the DSEIR offers essentially the same analysis and conclusions for both its project-specific and cumulative analyses of groundwater supply impacts. It finds both the project specific impacts and the cumulative impacts to be less than significant for Phases 1-3, because an unallocated portion of the 6,600 afy allocation is available, and unavoidably significant for Phases 4-6, because additional sources of water are not certain. DSEIR, pp. 4.8-34 to 4.8-35 (project-specific groundwater impact), 4.8-47 to 4.8-48 (cumulative groundwater impact), 4.19-31 to 4.19-32 (project-specific water supply impact), 4.19-24 to 4.19-26 (cumulative water supply impact). The cumulative analysis does not even purport to provide the required two-step analysis that would include a step-one determination whether there is a significant cumulative impact and a step-two determination whether the project makes a considerable contribution to it.

Again, this error reflects the fundamental confusion of the question as to whether there is an available water supply with the question of whether there will be impacts from using that supply.

Here, there is overwhelming evidence that a step-one determination must conclude that there is a significant regional cumulative impact from groundwater pumping by past, present, and reasonably foreseeable future projects, including the Monterey Downs project. The evidence, including Mr. Parker's comments, shows that

- there has been and still is an ongoing significant cumulative impact to groundwater resources in the form of declining groundwater levels and seawater intrusion due to over-pumping of groundwater;
- this impact is due to basin-wide pumping, not just pumping within the BRP area;
- this impact has not been avoided by existing groundwater management projects;

- there are no committed, funded groundwater management projects that will avoid this impact in the foreseeable future; and
- the impact will be aggravated by increases in pumping to support future development, including projected increases in agricultural pumping and new urban development such as the Monterey Downs project.

Given this evidence, and the complete lack of analysis of relevant cumulative conditions in the Monterey Downs SEIR, the omission of an adequate cumulative analysis is prejudicial to informed decision making and public participation.

Furthermore, the SEIR presents no contrary evidence to support a step-one finding that there is no significant cumulative impact from cumulative groundwater pumping – an issue that the DSEIR simply fails to address. The lack of analysis precludes any step-one conclusion or finding that there is not a significant cumulative impact.

The lack of analysis also precludes any step-two conclusion that project's water demand does not constitute a considerable contribution to a significant cumulative impact. And, as discussed below, any implied approach to a step-two conclusion based on the relatively small percentage of basin pumping undertaken by MCWD or the fact that the pumping may be from the 900-foot aquifer would be based on a legally and factually erroneous approach to cumulative analysis.

d. <u>Any implication that pumping by MCWD is less than significant, or less than cumulatively considerable would be legally and factually flawed</u>.

Responding to LandWatch's objections to the DSEIR's cumulative analysis, the FSEIR argues that agricultural water use consumes 95% of Salinas Valley Groundwater Basin water and that urban use consumes only 5%, and that the MCWD pumping is only 1% of total Salinas Valley Groundwater Basin pumping, apparently implying some kind of support for the DSEIR's conclusion that cumulative impacts for Phases 1-3 would be less than significant. FSEIR p. 11.4-1024 ("these details provide further clarification of the cumulative impacts associated with groundwater demand and supply . . ."). If the implication of this discussion is that the project does not make a considerable contribution to a significant cumulative impact, it is wrong as a matter of law and fact.

An EIR may not conclude a cumulative impact is insignificant merely because the project's individual contribution to an unacceptable existing condition is, by itself, relatively small. *Los Angeles Unified School Dist. v. City of Los Angeles* ("*LAUSD*") (1997) 58 Cal.App.4th 1019, 1025-1026; *CBE v. CRA*, *supra*, 103 Cal.App.4th at 117-118, 121. In *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692,718, the Court rejected the agency's "ratio" theory that found impacts not to be a considerable contribution merely because they were a relatively small percent of the total impact. *Id.* at 720. Because the relevant question was "whether any additional amount" of incremental impact "should be considered significant in light of the serious nature" of the problem (*id.* at 718), a valid determination whether a project's contribution is considerable must reflect the severity of the cumulative problem. "[T]he greater the existing environmental problems are, the lower the threshold should be for treating a project's contribution to cumulative impacts as significant." *CBE v. CRA, supra*, 103 Cal.App.4th at 120. Thus, even an "individually minor" impact may be "cumulatively considerable." *Id.*; *see also* Guidelines, §§ 15355(b), 15065(a)(3); *LAUSD, supra*, 58 Cal.App.4th at 1024-25.

As Mr. Parker explains, it is irrelevant whether groundwater is used for agriculture or urban uses – it depletes the same basin. And the magnitude of existing pumping by MCWD or others is also irrelevant. What is relevant is whether marginal increases in pumping will be a considerable contribution in light of the severity of the overdraft and seawater intrusion problem. Because seawater intrusion is caused by the problem of overdraft, not by total pumping, the severity of the cumulative problem should be measured in terms of the size of the overdraft or the amount of induced seawater intrusion. Here, the basin as a whole and the Pressure Subarea are in overdraft and, as Mr. Parker explains, any additional pumping will induce seawater intrusion equal to about 75% of the volume pumped. Furthermore, coastal pumping is more problematic than inland pumping. Thus, as Mr. Parker explains, the project's 250 afy increase in pumping demand should be evaluated in light of the annual Pressure Subarea overdraft of 12,000 to 19,000 afy, not in relation to the 500,000 afy of total pumping in the Salinas Valley Groundwater Basin. Viewed in this light, and viewed in the light of the current recommendations by MCWRA that existing pumping be reduced in the Pressure Subarea, the project's marginal pumping demand is a considerable contribution.

And, in any event, the Monterey Downs SEIR does not address the legally relevant questions because it fails in the first instance to identify the severity of the cumulative problem and fails in the second instance to consider the project's impact in light of that severity.

Any implication that the project's pumping is not a considerable contribution because it is small in comparison to total basin-wide pumping would make the same error as made in *Kings County* by focusing on the ratio of the project's pumping to the overall aquifer pumping or capacity and using these comparisons to "trivialize the project's impact" without putting Project demand in the context of the serious nature of the cumulative problem. *Kings County, supra*, 221 Cal.App.3d at 718. An EIR is legally inadequate if it is "focused upon the individual project's relative effects and omit[s] facts relevant to an analysis of the collective effect." *Id.* at 721.

Furthermore, it is clear that the FSEIR bases its significance conclusions solely on the availability of water supply, not the effects of using that supply or the relative magnitude of pumping. For example, despite the fact that the demand for Phases 1-3 is approximately equal to the demand for Phases 4-6, the SEIR finds Phase 1-3 demand to have a less than significant impact and phase 4-6 demand to have an unavoidably significant impact.

Finally, the SEIR cannot be used to argue that project pumping would be less than a considerable contribution to significant groundwater impacts because some portion of that pumping would come from the 900-foot Aquifer, also known as the Deep Aquifer. Mr. Parker demonstrates, based on available stratigraphic analysis and modeling, that increased pumping from the Deep Aquifer will also cause depletion of the 180-Foot and 400-Foot Aquifers because those aquifers are the source of recharge to the Deep Aquifer. Mr. Parker also demonstrates that increased pumping from the Deep Aquifer will aggravate seawater intrusion to the 180-Foot and 400-Foot Aquifers. Increased pumping from the Deep Aquifer may deplete that aquifer and it may also induce seawater intrusion into the Deep Aquifer itself. Because the SEIR declined to discuss the relation of the 180-Foot, 400-Foot, and Deep Aquifers or to provide any assessment of impacts to the three aquifers in response to LandWatch's comments and questions, the SEIR provides no evidence to the contrary.

8. **The SEIR's conclusion regarding phases 4-6 are not based on adequate analysis and the SEIR fails to discuss impacts from alterative water supplies**.

As discussed, the SEIR errs by concluding without adequate analysis that water supply impacts for Phases 1-3 of the project would be less than significant and would not make a considerable contribution to a significant cumulative impact. The SEIR does acknowledge that supplying water for Phases 4-6 would be a significant unavoidable impact. However, the SEIR bases this conclusion solely on the fact that the Phase 4-6 water supply cannot be made available from the unallocated portion of the 6,600 afy allocation and that additional water supplies are uncertain, not based on any analysis of physical impacts on the environment from the water that is likely to be used by Phases 4-6.

Where a water supply is uncertain, an agency must identify alternative supplies and discuss the environmental impacts of tapping those sources. *Vineyard, supra,* 40 Cal.4th at 430, 431, 434. As LandWatch objected, the SEIR fails to provide any discussion of the environmental impacts of developing and providing alternative water supplies, such as the proposed desalinated or recycled water supplies. For example, the SEIR identifies the Regional Urban Water Augmentation Project ("RUWAP") and desalination as possible future water supply. DSEIR, pp. 4.19-7 to 4.19-9, 4.19-25 to 4.19-26; FSEIR pp. 11.3-13 to 11.3-15. However, despite LandWatch's request for a discussion of the environmental impacts of alternative supplies (PO 208-25), neither the DSEIR nor the FSEIR provide any information about these environmental impacts.

The FSEIR admits that "[s]ome of these water supply options were evaluated in past agency documents, as discussed in the DSEIR Section 4.9 [sic, 4.19], Water." However, nothing in in the discussion of future water supplies in Section 4.19 even mentions the potential environmental impacts of those water supply projects. DSEIR, pp. 4.19-7 to 4.19-9, 4.19-25 to 4.19-26.

Instead of making good-faith efforts to investigate and provide the available information about the environmental effects of alternative water supplies, the FSEIR states that "[b]ecause it is unknown at this time what those environmental impacts would be, the DSEIR concluded that the impact with the provision of water for phases IV through VI could be significant and unavoidable." FSEIR, p. 11.4-1028. The contention that the environmental impacts of the RUWAP project "are unknown at this time" is not true. MCWD has certified four separate environmental reviews of the RUWAP project from 2004 to 2016, including the September 2004 Final EIR, the October 2006 Addendum No. 1, the February 2007, Addendum No. 2, and the April 2016 Addendum No. 3.[13] The SEIR could and should have discussed this available information, which it could have done by tiering and incorporation by reference. Furthermore, an agency may not simply label an impact unavoidably significant in order to dispense with analysis. *Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1371.

9. Significant new information since the DSEIR was released requires recirculation.

An agency must recirculate a draft EIR for public comments and responses when there is significant new information after the draft EIR is released but prior to certification. Guidelines, § 15088.5(a). Recirculation of a draft EIR for public comment and response is required where the record shows that a potentially significant impact, or the efficacy of mitigation, was not evaluated in the draft EIR. *Vineyard, supra*, 40 Cal.4th at 447-448 (potential impact to salmon); *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1120 (water supply mitigation). The new information triggering the obligation to recirculate may appear in the FEIR or in post-FEIR material. *Cadiz Land Co. v. Rail Cycle* (2000) 83 Cal.App.4th 74, 95; *Save our Peninsula Committee v. Monterey County Board of Supervisors* ("*Save Our Peninsula*") (2001) 87 Cal.App.4th 99, 131. The purpose of recirculation is to provide the public the same opportunity to evaluate the new information and the validity of the EIR's conclusions as it had for information in the draft EIR. *Save Our Peninsula, supra*, 87 Cal.App.4th at 131; *Sutter Sensible Planning v. Board of Supervisors* (1981) 122 Cal.App.3d 813, 822; *Laurel Heights Improvement Ass'n v. Regents of the Univ. of Cal.* ("*Laurel Heights II*")(1993) 6 Cal.4th 1112, 1132.

---

[13] Marina Coast Water District ("MCWD"), Notice of Determination, Regional Urban Water Augmentation Project, June 2, 2005; MCWD, Notice of Determination, Regional Urban Water Augmentation Project, Addendum No. 1, December 18, 2006; MCWD, Notice of Determination, Regional Urban Water Augmentation Project, Addendum No. 2, Feb. 24, 2009; MCWD, Notice of Determination, Regional Urban Water Augmentation Project, Addendum No. 3, April 19, 2016.

Here, significant new information includes (1) new information showing a new or more severe significant impact resulting from the project (Guidelines, § 15088.5(a)(1), (2); *Laurel Heights II*, *supra*, 6 Cal.4th at 1130) and (2) new information showing that the draft EIR was "so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded" (CEQA Guidelines, § 15088.5(a)(4); *Mountain Lion Coalition v. Fish & Game Com.* (1989) 214 Cal.App.3d 1043, 1052).

As discussed by Mr. Parker, the DSEIR relies on the MCWD Water Supply Assessment contention that the groundwater supply is "reliable," which in turn relies on the contention in the MCWD 2010 UWMP that the Salinas Valley Water Project will result in an average annual basin-wide water surplus of 6,000 acre feet instead of an average annual water deficit.[14] However, the contention that the Salinas Valley Water Project will balance the basin and prevent seawater intrusion is no longer tenable in light of significant new information that does not appear in the draft EIR. In addition to Mr. Parker's comments this information also includes DWR findings, MCWRA groundwater studies, and MCWRA testimony cited by Mr. Parker, including for example:

- DWR, Critically Overdrafted Basins, January 2016 – identifying the Salinas Valley Groundwater Basin as critically overdrafted and therefore requiring an accelerated Groundwater Sustainability Plan under the Sustainable Groundwater Management Act.

- MCWRA, State of the Salinas River Groundwater Basin, January, 2015 – identifying existing pumping from the Basin as unsustainable and recommending pumping <u>reductions</u> in the Pressure Subarea from which this project proposes to <u>increase</u> pumping.

- MCWRA, Protective Elevations to Control Seawater Intrusion in the Salinas Valley, 2013 – acknowledging the need for additional groundwater management projects to deliver water to replace coastal area pumping.

- Testimony of Robert Johnson, MCWRA, to Monterey County Planning Commission, Oct. 29, 2014 – acknowledging that the demand projections used for the Salinas Valley Water Project understated actual demand, that the Salinas Valley Water project would not be sufficient to halt seawater intrusion, and that additional groundwater management projects are needed.

This information demonstrates, contrary to the out-of-date 2010 UWMP relied upon by the DSEIR, that the Salinas Valley Water Project will <u>not</u> balance the basin hydrologically and will <u>not</u> halt seawater intrusion. Thus, the information demonstrates a new or more severe impact than disclosed by the DSEIR and demonstrates that the

---

[14] See DSEIR, p. 4.8-34; MCWD, Water Supply Assessment and Written Verification of Supply for Monterey Downs Specific Plan, 2012, pp. 22-23; MCWD, 2010 UWMP, p. 53.

DSEIR was so fundamentally inadequate as to deny the public a meaningful opportunity for comment and response.

10. The SEIR fails to respond adequately to comments regarding water supply issues.

Responses in a final EIR to substantive comments on a DEIR must contain fact-based analysis. *People v. County of Kern* (1974) 39 Cal.App.3d 830, 841-842 (duty to provide "good faith, reasoned analysis in response"); Guidelines, § 15088(c) ("Conclusory statements unsupported by factual information will not suffice"). For example, in *Cleary v. County of Stanislaus* (1981) 118 Cal.App.3d 348, an agency violated CEQA by providing only conclusory responses to comments. The court held the agency had a duty to address comments "in detail," providing "specific factual information" as had been requested by the commenter. *Id.* at 359. Where comments seek omitted facts or analysis essential to a draft EIR's conclusions, the failure to correct those omissions "renders the EIR defective as an informational document." *California Oak Foundation v. City of Santa Clarita* (2005) 133 Cal.App.4th 1219, 1244 (failure to provide reasoned analysis in response to comments pointing out uncertainty of water supply).

An agency must provide specific information to support its conclusions as to the adequacy of water supplies. *People v. County of Kern* (1976) 62 Cal.App.3d 761, 772 (insufficient to claim that "all available data" showed there was sufficient water supply without providing the data). In *Santa Clarita Organization for Planning the Environment v. County of Los Angeles* ("SCOPE") (2003) 106 Cal.App.4th 715, 722, responses to comments questioning a water supply analysis were inadequate because they failed to provide any facts, data, or estimates from the Department of Water Resources, the agency that would supply the water. Citing *Cleary, supra*, 118 Cal.App.3d at 357, the court explained:

> Problems raised by the public and responsible experts require a good faith reasoned analysis in response. [Citation.] The requirement of a detailed analysis in response ensures that stubborn problems or serious criticism are not "swept under the rug."

Id. at 723.

As Mr. Parker explains, the FSEIR fails to provide good-faith reasoned analysis in response to LandWatch's comments and questions regarding pumping from the180-foot, 400-foot, and 900-foot aquifers under baseline and future conditions. See comment PO 208-5. The FSEIR fails to identify the studies cited by the DSEIR including the "recent stratigraphic analyses" that "have indicated" a hydraulic connection between the 180-foot, 400-foot, and 900-foot aquifers. See comment PO 208-5. The FSEIR fails to respond adequately to LandWatch's comments asking for an explanation of the DSEIR's claims regarding the hydraulic connections between the 180-foot, 400-foot, and 900-foot aquifers. See comment PO 208-6. The FSEIR fails to provide adequate responses to LandWatch's comments asking whether recharge to the 900-foot aquifer from the seawater-intruded 180-foot and 400-foot aquifers could contaminate the 900-foot aquifer, whether increased pumping in the 900-foot aquifer would increase this risk, and how much pumping from the 900-foot aquifer is sustainable. See PO 208-7 through 208-11.

As discussed above, the FSEIR fails to respond adequately to comments objecting to reliance on the 6,600 afy allocation as the basis to find impacts less than significant. See, e.g., comment PO 208-22. The FSEIR also fails to respond adequately to LandWatch's request for a discussion of the environmental impacts of alternative water supplies. See comment PO 208-25.

11. The SEIR fails to provide an adequate discussion of the effect of not building Phases 4-6.

Where mitigation includes the possibility of not building later phases of a project due to lack of water, an agency must discuss "the environmental impacts of curtailing the project before completion." *Vineyard Citizens, supra,* 40 Cal.4th at 444. Here, buildout of only part of the project has the potential to aggravate certain environmental impacts, but the SEIR fails to disclose this.

The FSEIR confirms that phases 1-3 are in fact disproportionately residential compared to full buildout of the project: building only phases 1-3 would yield 47% of the residential plan but only 26% of the jobs-generating commercial uses. FSEIR, p. 11.3-2.

An unbalanced jobs/housing ratio for the project would result in greater per capita impacts from transportation and transportation-related air pollutants and GHG emissions as residents would be required to travel to more distant jobs. It would also frustrate BRP and City policies related to jobs/housing balance and economic development. Evidence for this is as follows:

First, the BRP relies on maintenance of a strong jobs/housing balance to manage travel demand and to minimize transportation-related impacts:

> **3.5.5 Demand Management**
> The proposed roadway network addresses many of the key issues raised and much of the increased transportation demand that will result from the reuse of the former Fort Ord. To supplement the roadway improvements, there are a number of strategies that can be pursued to reduce the demand for vehicle trips. Taking steps to reduce the number of vehicle trips can also lead to reduced infrastructure costs. Land use and transportation strategies are incorporated into the Reuse Plan to reduce vehicle demand and encourage walking and bicycle use.

> **Jobs/Housing Balance**
> Providing a jobs/housing balance is intended to encourage employers to locate in areas where there are significantly more residents than jobs and to add housing development near employment centers. Efforts to create a jobs/housing balance should ensure that the jobs provided are compatible with the skill-levels and income expectations of nearby residents. Developing jobs and housing in proximity to each other provides an opportunity to reduce the travel demands on key regional facilities by reducing the length of the trip and/or shifting a vehicle trip to an alternative mode. The Reuse Plan seeks to achieve a better job/housing balance within the former Fort Ord. The desired result of this balance is the reduced demand on those regional roadways connecting employees living off-base with employment centers on-base.

BRP, p. 120. The BRP seeks to generate 45,000 to 46,000 jobs and 17,000 dwelling units to ensure that there are 2.67 jobs per household (2.06 counting the student population). BRP, p. 92. The BRP also counts on mixed use development to reduce transportation demand. BRP, p. 121.

Second, the DSEIR relies on jobs generated by the project and a mix of office, retail, commercial and residential uses from full buildout of the project to project a reduction of trips by 28% compared to development of just residential or just commercial uses. DSEIR, p. 4.16-63. The FSEIR also argues that this 28% "internal capture" is justified based on the fact that the project would include a mix of jobs and housing. FSEIR, p. 11.4-17. This internal capture would significantly reduce per capita transportation and GHG impacts through reduced vehicle trips compared to a primarily residential development project in which residents had to commute longer distances and to travel longer distances to shop. However, the internal capture rate would be reduced if the project did not provide a robust mix of land use types, including commercial, retail, residential, and recreation and/or if it did not provide as many jobs per unit of housing.

Third, the SEIR assesses the significance of the GHG impact based on a per capita basis. DSEIR, p. 4.6-13 to 4.6-14. Mobile source emissions amount to 29,062 tons of the project's total 49,174 tons of CO_2 – about 59% of the total. If internal capture were reduced because the mix of land uses were not as diverse and the jobs/housing ratio were not as high as assumed, then the per capita vehicle trips would increase (even if total trips did not increase), resulting in higher per capita GHG impacts. The DSEIR already finds GHG impacts to be unavoidably significant because GHJG emissions exceed the per capita threshold of significance. An unbalanced jobs/housing ratio resulting from failure to build out Phases 4-6 would further aggravate an already significant GHG impact.

Fourth, the SEIR also identifies an unbalanced jobs/housing ratio as a potential inconsistency with the Seaside General Plan and a source of potential impacts in its analysis of population and housing impacts, impacts that are avoided only because the full project is projected to provide many jobs in proportion to its housing units. DSEIR, pp. 4.9-20, 4.11-15. Seaside identifies a jobs/housing ratio target of 1.5:1. DSEIR, p. 4.9-20.

Fifth, the BRP also contains goals and policies intended to ensure a strong jobs/housing balance. As noted, the BRP jobs/housing goal is a ratio of 2.67. BRP, p. 92. The BRP's Development and Resource Management Plan ("DRMP") is intended to ensure that development goals are met within resource constraints. The DRMC sets an objective of replacing the 18,000 jobs lost by the base closure by 2015. BRP, p. 199. Critical to meeting that goal are the coordinated Residential Development Program (DRMP § 3.11.5.4(b)) and Industrial and Job Creation Program (DRMC, § 3.11.5.4(c)), which limit residential development until the 18,000 jobs goal is met in order to prevent using up the limited water supply to support unbalanced residential development. BRP, pp. 197-199. A large development project that consumes water supply without doing its fair share to create jobs is inconsistent with the BRP jobs/housing policies.

Because the FSEIR declined to address the issue in response to LandWatch's questions (FSEIR, p. 11.4-1028), we examined the effect of not building the relatively jobs-rich Phases 4-6, which contain the lion's share of the commercial and recreational facilities.

We note that the DSEIR is equivocal as to the actual volumes of jobs and the effect on the jobs/housing ratio. The DSEIR provides two widely varying claims regarding the numbers of jobs, although both claims are advanced to support the contention that buildout of the project would improve Seaside's existing jobs/housing ratio, which is currently housing-rich and jobs-poor. In particular, the DSEIR states the project would create 1,743 new jobs in its analysis of the project's consistency with Seaside General Plan Policy LU 1.2, a policy that requiring the City to encourage development that is job intensive:

> As concluded in Section 4.11, *Population and Housing*, the Project would generate approximately 1,743 new jobs, which would beneficially impact the City's jobs-to-housing ratio, increasing it from 0.67 to 0.75. The Project would be in furtherance of the City meeting its jobs/housing ratio of 1.5:1.

DSEIR, p. 4.9-20, emphasis added. However, Section 4.11actually states that the project would generate 2,758 new jobs:

> "Finally, the Project would generate approximately 2,758 new jobs, which would beneficially impact the City's jobs-to-housing ratio, increasing it from 0.67 to 0.83."

DSEIR, p. 4.11-15, emphasis added.

The difference in the DSEIR's two jobs estimate is equal to the 1,015 projected "equestrian" jobs identified in the fiscal analysis of the project.[15] Of the equestrian jobs, 976 are tied to Phases 4-6 and would not be generated if these Phases were not constructed, especially the Phase 6 Sports Arena and race track which, by itself, is projected to create 950 of the equestrian jobs.[16] Most of the non-equestrian jobs are also tied to Phases 4-6.

In fact, only 620 total jobs, equestrian and non-equestrian, would be generated by phases 1-3; the remaining 1,771 jobs depend on phases 4-6 and would not occur if these phases were not constructed due to a lack of water supply.[17]

Phases 1-3 would include 473 dwelling units from RES-1 and 124 dwelling units from RES-2, for a total of 597 dwelling units.[18] Phases 4-6 would include 426 units from RM and 256 units from RES-3, for a total of 683 units.[19] Thus, the jobs/housing ratio for Phases 1-3 would be 620 jobs/597 housing units, a ratio of 1.04. The jobs/housing ratio for Phases 4-6 would be 1771 jobs/ 683 housing units, a ratio of 2.59. At full buildout, the jobs/housing ratio would be 2,391 on-site jobs/1280 housing units, a ratio of 1.87.

	Phases 1-3	**Phases 4-6**	**Full Buildout**
On site jobs	620	1,771	2,391
Housing units	597	683	1,280
Jobs/housing ratio	1.04	2.59	1.87

Including the 297 jobs generated by the project's economic effects in Seaside rather than on the project site itself (*see* Wildan, Table 28) the jobs/housing ratio at buildout would be 2,658 jobs/1280 housing units, a ratio of 2.08. (Modeling for these off-site jobs assumes that they would be driven by overall economic activity attributed to the project, not to specific activities; and therefore these off-site jobs would presumably be spread among the six phases.)

---

15 Willdan, Monterey Downs Fiscal and Economic Analysis, Aug. 2015, p. iv.

16 *Id.* at 17.

17 *Id.*, Table 8. Table 8 reports only on-site employees. Thus, its 2,391 total jobs do not include the 290 jobs from ongoing operations generated in Seaside that are identified in Table 28. These 290 Table 28 jobs in Seaside plus the 2,391 Table 8 jobs within the project account for 2,681 of the 2,758 total jobs reported by the DSEIR at page 4.11-15. It is unclear wat accounts for additional 77 jobs reported by the DSEIR.

18 MDSP, Figure 8-1 (phasing plan); DSEIR, Table 2-2 (land use summary).

19 *Id.*

Notably, the BRP sets a goal for the jobs/housing ratio of 2.67, based on 45,000 to 46,000 jobs and 17,000 housing units. BRP, p. 92. Omitting the CSUMB students, the BRP goal is 2.06. Thus, full buildout of the project, including the 950 equestrian jobs created in phase 6 and the off-site jobs created in Seaside, would be required to meet the BRP goal of 2.06 jobs per housing unit.

In sum, if Phases 4-6 were not build due to a lack of water:

- The project would not meet the BRP jobs/housing goal intended to minimize transportation and other impacts because the 1.04:1 jobs/housing ratio for Phases 1-3 is well below the BRP's target jobs/housing ratio of at least 2.06:1.

- The project would not contribute as projected in the DSEIR in meeting Seaside's jobs/housing policies. A project with a jobs/housing ratio below the City's 1.5:1 target, e.g., the 1.04:1 ratio in Phases 1-3, cannot contribute to attainment of the 1.5:1 ratio called for by Seaside General Plan Policy ED-8.1. Approving a project with a jobs/housing ratio below the 1.5:1 target, especially a project that will account for the lion's share of future growth in Seaside, effectively frustrates attainment of that target ratio. The draft general plan consistency findings for the City Council meeting state that the full project would add 1,280 housing units to Seaside's existing 11,335 units and add 2,758 jobs to Seaside's existing 7,790 jobs, thereby improving the jobs/housing ratio from 0.69:1 to 0.84:1. However, if only phases 1-3 are build, the resulting 8,410 jobs and 11,937 housing units would provide a jobs housing ratio of only 0.70. The post-project jobs/housing ratio would be essentially unchanged if only Phases 1-3 were built.

- Permitting top-heavy residential development would also be inconsistent with Seaside General Plan Policy LU-1 to encourage regional commercial and visitor serving use and its Policies ED-1.1 and ED 5.1 to establish a diverse mix of businesses and tax sources, because the city would have consumed a major portion of its water-constrained development capacity without advancing those policies.

- Failure to meet the BRP jobs/housing goal would be inconsistent with the BRP's DRMP § 3.11.5.4(b), (c) provisions to balance residential and job-creating development to ensure that water remains available for job-creating development.

- And failure to fulfill the DSEIR's own assumptions regarding the mix of development types and the jobs/housing ratio would increase the per capita GHG emissions over the level projected by the DSEIR, aggravating an already significant GHG impact.

The SEIR should have provided an analysis of these entirely foreseeable outcomes.

Furthermore, because there are significant unmitigated impacts, CEQA requires that the City adopt a statement of overriding considerations to approve the project. An analysis of the fiscal effect of building only the first three phases is clearly relevant to any findings regarding fiscal and job impacts since fiscal and job benefits are cited as overriding considerations. However, as discussed, the jobs benefits would be greatly reduced if only phases 1-3 were built. And the economic benefits of the project are critically dependent on building Phases 4-6. For example, without the hotel uses in Phase 4 there would be at most half of the projected transient occupancy taxes and the net impact of the project on Seaside's general fund may be negative instead of positive.[20]

In response to LandWatch's request for an analysis of the effect of building only Phases 1-3, the FSEIR claims that any such analysis would be "speculative" since 1) the project phasing plan is subject to change and 2) the DSEIR conservatively assumes full buildout of all phases. FSEIR, pp. 11.3-1, 11.4-1028. The claim that the phasing plan is subject to change is a red herring. The Specific Plan calls for developing certain specific residential and commercial areas in Phases 1-3. Specific Plan, p. 8-1 and Figure 8.1. This is how the project is described and it is how it should be evaluated in the EIR; otherwise the EIR simply fails to provide an adequate and stable project description as CEQA requires. Guidelines, §15124. Indeed, the EIR's water supply analysis is in fact predicated on the specific phasing plan set out in section 8.2 of the Specific Plan, with demand calculated separately for these phases. Because the DDSEIR treats the phasing plan as adequately settled for <u>some</u> of its analyses, it is unreasonable to characterize the phasing plan as "speculative" when the public asks for additional analysis predicated on that same phasing plan.

The FSEIR's argument that the phasing does not matter because the overall analysis conservatively assumes buildout of all phases simply ignores the question LandWatch posed, which is whether there would be <u>different or more intense impacts in some environmental areas</u> if less than the full project were built. As discussed, a predominately residential project would aggravate the jobs/housing balance and increase the per capita transportation, air pollution, and GHG impacts. These are different and potentially more intense impacts.

The FSEIR states that the city could require changes to the phasing plan if it later concludes that "a different land use mix is required to address environmental issues/constraints including available water supply limits." FSEIR, p. 11.4-1029. If this contention is that the City might <u>later</u> decide to adopt mitigation intended to address impacts from unbalanced development and a poor jobs/housing mix, then it is entirely unsupported by analysis of these impacts in this EIR and constitutes improper deferral of both analysis and mitigation. The FSEIR simply fails to provide any answer to the

[20] *Id.*, Table 25.

questions raised by LandWatch as to the effects of not building part of the project due to lack of water.

12. The SEIR relies on inadequate fair share payments to mitigate water supply impacts.

Impact fees are permissible mitigation for cumulative impacts as long as a project pays a fair share of a committed project that has been environmentally reviewed and found adequate. However, a mitigation measure calling for payment of unspecified mitigation fees for project that may not be built is not adequate mitigation. LandWatch requested that the SEIR identify the mitigation projects and fair shares that would be required of the project under mitigation Measure W-3. Comment PO 208-30. The DSEIR and FSEIR refer only to the "appropriate FORA fees, a portion of which is allocated for water supply augmentation improvements." DSEIR, p. 4.19-28; FSEIR, p. 11.4-1030. Despite LandWatch's request, the SEIR fails to identify the amount of the fee or the projects for which it will pay.

C. The FSEIR fails to provide good-faith reasoned responses to comments seeking the basis of the DSEIR's GHG mitigation claims.

As LandWatch objected (comments 208-71 to 208-80), the DSEIR's analysis of GHG emissions fails to clarify the specific measures for which mitigation credit is taken and fails to specify the assumptions behind that mitigation credit. LandWatch objected that the reductions were taken through the CalEEMod emissions modeling software, but that the DSEIR fails adequately to describe, specify, quantify, or justify each GHG emission reduction feature for which credit was taken. In response, the FSEIR directs the public to pages 38-39 of CaEEMod 2013 User's Guide and unspecified pages of CAPCOA's 2010 546-page report, Quantifying Greenhouse Gas Mitigation Measures. Here is the FSEIR's response:

> The GHG emission reduction features used in CalEEMod for the Project are specifically listed in DSEIR Appendix 10.2 for each of the Project operations modeling scenario (pages 234-265 of the PDF), and are based on CAPCOA's Quantifying Greenhouse Gas Mitigation Measures document (refer to pages 38 and 39 of the CalEEMod User's Guide Version 2013.2, http://www.aqmd.gov/docs/default-source/caleemod/usersguide.pdf?sfvrsn=2). Definitions of the mitigation measures and terms used in CalEEMod (and in quantifying the mitigated Project GHG emissions) can be found at http://www.capcoa.org/wpcontent/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.
>
> CalEEMod conservatively programs the reductions from the CAPCOA research and guidance, and prevents double counting. The CalEEMod outputs for mitigated GHG emissions do not provide a breakdown by specific mitigation measures. Rather, the mitigated emissions outputs are displayed by emission

> source (i.e., area, mobile, energy). For example, in the "mobile" category of the modeling outputs, all programmed vehicle trips, VMT and mobile-source GHG emissions reductions from the CAPCOA mitigation measures which are applicable to the Project are clearly listed, and a review of those pages shows that the specific model inputs are the same as those listed in the comment. This methodology discloses the particular GHG emissions reductions claimed for each applicable CAPCOA mitigation measure by emission source, which represents the justification for the modeled reductions which commenter falsely asserts is missing in the DSEIR.
>
> In response to the full paragraph below the bulleted list in this comment, the calculated GHG reduction credits are already built into CalEEMod for each applicable CAPCOA mitigation measure selected. The empirical basis behind the underlying assumptions, parameters or values for these measures and reductions are detailed in the above-referenced CAPCOA document. Therefore, it is inappropriate for this DSEIR to cite such empirical evidence or to "justify" the conclusions already documented in the CAPCOA document that such features "will in fact reduce VMT", vehicle trips or mobile-source GHG emissions, as incorrectly asserted by commenter. This same logic applies to commenter's incorrect assertions in the next paragraph regarding non-mobile-source GHG emissions reductions (i.e., area, energy) for each applicable CAPCOA mitigation measure selected.
>
> In conclusion, commenter fails to provide evidence that any applicable CAPCOA mitigation measure to reduce GHG emissions for the Project is missing from the CalEEMod runs in DSEIR Appendix 10.2. Therefore, since the DSEIR clearly discloses this information, recirculation of the document as suggested by commenter is not warranted.

FSEIR, pp. 11.4-1048 to 11.4-1049.

Preliminarily, we note that neither the DSEIR's discussion of GHG impacts (Section 4.6) nor its Appendix 10.2 analyzing GHG impacts makes any reference whatsoever to the CAPCOA guidance document, Quantifying Greenhouse Gas Mitigation Measures, that the FSEIR identifies for the first time as the source of information justifying the GHG mitigation credits.

The CalEEMod User's Guide does provide at pages 38-39 that the mitigation is based on mitigation measures specified in the CAPCOA report and that the CalEEMod user is supposed to follow the instructions in the CalEEMod "mitigation module" to enter the various data required by the mitigation measures specified in CAPCOA's report. However, neither CalEEMod nor the CAPCOA report provide the information LandWatch requested, which is necessarily specific to this project.

Fact Sheets in Chapter 7 of the CAPCOA report identify a number of specific mitigation measures. The CAPCOA Fact Sheets provide formulae for calculating GHG reductions that are dependent on provision of project-specific assumptions and that result in greatly varying ranges of emission reductions depending on those assumptions. For example, CAPCOA indicates that the GHG reduction credit for the measure identified as "increased density" (CAPCOA mitigation measure "LUT-1") can range from 0.8% to 30% because it depends on three project-specific variables: housing units per acre, jobs per acre, and the selection of one of two different assumptions about the elasticity of VMT with respect to density.

The FSEIR claims that "the emission reduction features used in CalEEMod for the Project are specifically listed in DSEIR Appendix 10.2 for each of the Project operations modeling scenario (pages 234-265 of the PDF)." FSEIR, pp. 11.4-1048. However, the cited pages simply identify the category of emission reduction but fail to set out the critical project-specific assumptions that were used in the analysis. These are the data that LandWatch specifically requested (comment PO 208-79), explaining that the range of effectiveness of the GHG mitigation measures is dependent on accurate assumptions. The CalEEMod user was required to enter these project-specific assumptions, but the CalEEMod output in the DSEIR Appendix 10.2 does not report these assumptions.

MOBILE SOURCE GHG MITIGTION: The table below lists the data required by CAPCOA for the seven mobile source (transportation) mitigation measures that were presumably provided by the air quality analyst pursuant to the data requirements of CalEEMod. See CalEEMod user's Guide, p. 41. The missing information is the data that LandWatch requested and that the FSEIR simply refused to provide:

Mobile source mitigation feature identified in Appendix 10.2	**CAPCOA measure**	**Project-specific data required by CAPCOA and/or CalEEMod, <u>but not provided in DSEIR or FSEIR despite LandWatch's request</u>**	**Project-specific range of effectiveness in reducing GHG emissions**
Increase density	LUT-1	-housing units per acre; -jobs per acre; -elasticity of VMT with respect to density Note: two possible elasticity values from the literature are identified.	0.8% to 30%
Increase diversity	LUT-3	-percentage of each land use type in the project (land use types include residential, retail, park, open space, or office)	9% to 30%
Improve walkability design	LUT-8	-intersections per square mile; -elasticity of VMT with respect to percentage of intersections (Note: two possible elasticity approaches from the literature are identified.)	3% to 21.3%
Increase transit accessibility	LUT-5	-distance to transit station in project; -transit mode share for typical ITE development (Note: this project contains numerous ITE categories so it is unclear which "typical mode share" was assumed, or whether a blended mode share was determined)	0.5% to 24.6%
Integrate below market rate housing	LUT-6	-percentage of units in project that are deed-restricted BMR housing	0.04% to 1.2%
Improve pedestrian network	SDT-1	-information regarding extent of pedestrian accommodation	0% to 2%
Expand transit network	TST-3	-percent increase in transit network coverage; -existing transit mode share; -project location: urban center, urban, or suburban	0.1 to 8.2%

As is evident, the range of effectiveness of the above mobile source measures is critically dependent on the specific assumptions describing the project. The public has no way to evaluate the accuracy of the analysis or to challenge the applicability of the assumptions. Contrary to the FSEIR, the citations to the CalEEMod User's Guide and CAPCOA do not provide the information that LandWatch requested, and it is not provided in Section 4.6 or Appendix 10.2 of the DSEIR..

AREA SOURCE GHG MITIGATION: The picture for the five mitigation credits taken for area sources is even more opaque. The DSEIR identifies four categories of credit for use of low VOC paints and another credit for requiring natural gas hearths as measures for which operational emission reduction credits were taken. The FSEIR states that the CalEEMod credits are based on CAPCOA mitigation measures. However, CAPCOA does not mention low VOC paints, and the CalEEMod User's Guide does not identify a CAPCOA mitigation measure related to low VOC paints. Instead CalEEMod identifies a credit based on unspecified SCAQMD (South Coast Air Quality Management District) assumptions and apparently requiring assumptions regarding paint reapplication rates and VOC contents. CalEEMod User's Guide, p. 32. This information is not provided in the DSEIR or FSEIR, despite LandWatch's request.

CalEEMod's discussion of its credit for all natural gas hearths states only that the use of natural gas hearths is "consistent with the mitigation number A-1 in the CAPCOA Quantifying GHG mitigation document."[21] CalEEMode User's Guide, p. 42. However, Mitigation number A-1 is for prohibition of gas powered landscaping equipment and CAPCOA does not mention a credit for requiring natural gas hearths. CAPCOA, p. 69. There is no apparent connection between CAPCOA's credit for prohibiting gas powered landscaping equipment and CalEEMod's credit for requiring gas-powered hearths. If there is, neither CAPCOA, the CalEEMod User's Guide, nor the SEIR explain that connection.

Furthermore, neither the SEIR nor CalEEMod nor CAPCOA identify the GHG reduction percentage claimed for these low VOC paints and natural gas hearths.

WATER SUPPLY GHG MITIGATION: The DSEIR claims four credits for low flow bathroom faucets, kitchen faucets, toilets, and showers, which CalEEMod indicates are based on CAPCOA measure WUW-1. This measure has a range of effectiveness of 17-31% and requires specification of the percent flow reduction. CalEEMod User's Guide, p. 43; CAPCOA, p. 348. This information is not provided in the DSEIR or FSEIR, despite LandWatch's request.

The DSEIR claims another GHG mitigation credit for reclaimed water use. CalEEMod requires specification of the percent of indoor water use and the percent of

[21] The CalEEMod User's Guide provides data entry screens to specify hearths and woodstoves and to override regulatory limits on these, but these screens do not appear to relate to emission credits for requiring all natural gas hearths. CalEEMode User's Guide, pp. 31-32.

outdoor water use. CalEEMod User's Guide, p. 43. This information is not provided in the DSEIR or FSEIR. CAPCOA requires specification of reclaimed water use and total non-potable water use and identifies a range of effectiveness of up to 40%. CAPCOA, p. 332. This information is not provided in the DSEIR or FSEIR, despite LandWatch's request.

Furthermore, the actual commitment to use recycled water for the project is unclear because the SEIR acknowledges that provision of recycled water is uncertain. DSEIR, pp. 4.19-26, 4.19-32, 4.19-33. If a credit is taken for recycled water use in the GHG mitigation analysis, the public has no way to understand how much recycled water is assumed to be used, where it is assumed to be used, and the consistency of those assumptions with the discussions of recycled water elsewhere in the SEIR.

SOLID WASTE GHG MITIGATION: The DSEIR claims a credit for solid waste recycling and composting services. CalEEMod does not indicate what data must be supplied, but states that this credit corresponds to CAPCOA's measure SW-1. CalEEMod User's Guide, p. 43. CAPCOA indicates that this measure requires an estimate of the number of residents, building square footage for office and retail uses, visitors to public venues, employees for other commercial buildings, waste disposal methods, and amount of waste diverted to recycling or composting. CAPCOA, p. 393. This information is not provided in the DSEIR or FSEIR, despite LandWatch's request. It is unclear how CalEEmod determines the credit because the CalEEMod User's Guide referenced by the FSEIR as the source of the information LandWatch requested does not in fact explain the basis of the credit.

CONSTRUCTION GHG MITIGATION: The DSEIR Appendix 10.2 claims a mitigation credit for seven construction measures including:

- Use Cleaner Engines for Construction Equipment
- Use DPF for Construction Equipment
- Replace Ground Cover
- Water Exposed Area
- Water Unpaved Roads
- Reduce Vehicle Speed on Unpaved Roads
- Clean Paved Roads

The CalEEMod User's Guide discussion of construction assumptions does not identify the source of these measures and does not illustrate input screens with mitigation options. See CalEEMod User's Guide, pp. 24-27. None of the <u>seven</u> measures listed in Appendix 10.2 appear to correspond to items in CAPCOA's list of <u>five</u> construction mitigation measures, C-1 to C-5. See CAPCOA, pp. 409-432. In short, the FSEIR's contention that all of the GHG mitigation credits "are based on CAPCOA's Quantifying Greenhouse Gas Mitigation Measures document" is apparently not true. FSEIR, p. 11.4-1048. If there is some relation between the CAPCOA construction mitigation measures and the

CalEEMod construction measures for which credit is taken in Appendix 10.2, it remains unclear.

As with the other CAPCOA mitigation measures, the CAPCOA construction mitigation measures have a wide range of effectiveness depending on the specific assumptions provide, e.g., assumptions about specific carbon-based fuels used, about use of electric or hybrid equipment, idling limitations beyond regulatory requirements, the use of a heavy duty off road vehicle plan, and the use of a construction vehicle inventory tracking system. CAPCOA, pp. 409-432. It is clear that the effectiveness of construction GHG mitigation depends on these specific assumptions. However, the SEIR does not provide this information, despite LandWatch's request.

In sum, the SEIR relies on a study of unmitigated and mitigated GHG impacts to assess the extent of the GHG impact. That study uses a software tool, CalEEMod, that requires specific assumptions about what mitigation will actually be undertaken by the Project in 25 specific contexts related to mobile sources, area sources, water, solid waste, and construction. The effectiveness of the GHG mitigation varies widely based on these specific assumptions. Because the assumptions are not in the DSEIR Appendix 10.2, LandWatch requested them. However, the FSEIR simply failed to provide the requested information.

D. The FSEIR fails to respond adequately to comments proposing additional mitigation for GHG impacts.

The DSEIR concludes that, despite the mitigation measures proposed in the DSEIR, GHG impacts will be significant and unavoidable. DSEIR, p. 4.6-22. Accordingly, LandWatch and the Monterey Bay Unified Air Pollution Control District ("MBUAPCD") proposed a number of additional mitigation measures. While the FSEIR does indicate that some of the measures proposed by LandWatch will be implemented as project features or as a result of Title 24 compliance, the FSEIR fails to respond adequately to other proposed mitigation measures. The FSEIR states that the lead agency need only "focus on mitigation measures that are feasible, practical, and effective." FSEIR, p. 11.4-1051. However, the FSEIR does not demonstrate that the proposed measures that it did not discuss are <u>no</u>t feasible, practical, and effective.

For each of the following proposed mitigation measures the FSEIR fails to provide <u>any</u> discussion, much less to demonstrate that the proposed measure is not feasible, practical, and effective:

- Use passive solar design and provide shade on at least 30% of onsite impervious surfaces, including parking areas, driveways, walkways, plazas, patios, etc. (excluding roofs).
- Use light colored "cool" roofs with high-albedo materials (reflectance of at least 0.3) for 30% of the Project's non-roof impervious surfaces.

- Use thermal pool covers and efficient pumps and motors for apartments, commercial pools and spa uses.
- Educate residents, customers and tenants on energy efficiency.
- Design outdoor water features for low flow pumps and places where shading can be provided.
- Use low-impact development practices.
- Provide educational information about water conservation.
- Provide educational information about reducing waste and available recycling services.
- Incorporate public transit into the Project design.
- Provide free or low-cost monthly transit passes for students, employees, residents, and customers.[22]
- Provide secured bicycle parking for all apartments, flats, and commercial uses.
- Provide a low- or zero-emission trolley at the County Walk.
- Provide convenient locations accessible by public transportation for car sharing and car pools for all events.
- Provide housing units for all track workers within walking distance of work.

- Use alternative-fueled (e.g., bio-diesel, electric) construction vehicles/equipment for at least 15% of the fleet.
- Use local building materials where reasonably available (i.e., within the general Monterey Bay area defined as Monterey County, Santa Cruz County, and San Benito County)
- Recycle at least 50% of construction waste or demolition materials.

- <u>Exceed</u> Title 24 building envelope energy efficiency standards (applicable at the time of the building permit issuance) <u>by 20%</u>.
- Install programmable thermostat timers and smart meters.
- Obtain third-party heating, ventilation, and air conditioning commissioning and verification of energy savings.
- Install green roofs.
- Install tankless water heaters.
- HVAC duct sealing.
- Increase roof/ceiling insulation.
- Install high-efficiency area lighting.
- Maximize interior day light.
- Install rainwater collection systems.
- Restrict the use of water for cleaning outdoor surfaces and prohibit systems that apply water to non-vegetated surfaces.

---

[22] The FSEIR admits that its voluntary approach to transit subsidy is less effective, but does not claim that, or explain why, the more effective mitigation proposed by LandWatch is infeasible.

- Use only electric-powered landscaping equipment (not gas powered).
- Require off-site mitigation including:
    - Paying for energy-efficiency upgrades of existing homes and business.
    - Installing off-site renewable energy.
    - Paying for off-site waste reduction.
    - Off-site mitigation must be maintained in perpetuity to match the length of Project operations to provide ongoing annual emission reductions.
- Carbon Offsets - Purchase offsets from a validated source to offset annual GHG emissions

In addition to ignoring the above proposals, the FSEIR makes no response to MBUAPCD's proposal to require a hotel shuttle to local destinations.

The FSEIR sole response to MBUAPCD's proposal for a three-year funding commitment for a new transit route to serve the Gigling Road transit stop is that the proposal "has been noted." FSEIR, p. 11.4-379. This is not an adequate response. It certainly does not demonstrate that the proposal is not feasible, practical, and effective.

LandWatch and MBUAPCD proposed requiring onsite solar power generation and solar water heating. Responding to MBUAPCD, the FSEIR stated that this mitigation would be "speculative" because the "exact location, size, height, building orientation, etc. of the new buildings on the Project site are unknown at the time." FSEIR, p. 11.4-379. Calling the mitigation "speculative" for this reason is incoherent. In fact, the Specific Plan locates and orients major buildings and lays out illustrative residential lots and building sites in section 2. More fundamentally, the architectural guidelines in section 5 and development guidelines in section 6 of the Specific Plan specify numerous building and site layout features, and could be modified to <u>require accommodation and inclusion</u> of solar electrical and solar water heating panels unless specific, enumerated considerations (e.g., the presence of a heritage tree shading all available roof) made such an accommodation infeasible.

The FSEIR's response improperly assumes that mitigation through solar energy capture must take a back seat to all other considerations and that no mitigation vial solar energy can be required for any building unless that mitigation is feasible for all buildings. This misreads CEQA's mitigation requirements because CEQA requires modification of a proposed project in order to address significant environmental impacts unless the mitigation is in fact infeasible or the mitigation is not required to render impacts less than significant:

> A public agency should not approve a project as proposed if there are feasible alternatives or mitigation measures available that would substantially lessen any significant effects that the project would have on the environment.

Guidelines, § 15021(a)(2). In determining that mitigation is infeasible, an agency must identify "specific economic, environmental, legal, social, and technological factors." Guidelines, § 15021(a)(3) (emphasis added). The FSEIR has not done so.

E. The analysis and mitigation of transportation impacts is inadequate.

1. The SEIR fails to provide the analysis of claimed internal trips despite LandWatch's request for this information.

An EIR "must contain facts and analysis, not just the agency's bare conclusions or opinions." *Laurel Heights Improvement Assn. v. Regents of University of California* ("*Laurel Heights I*") (1988) 47 Cal.3d 376, 404. Even if an agency's conclusions or opinions are ultimately proven correct, statements unsupported by facts and meaningful analysis are not sufficient: "*the critical point [is] that the public must be equally informed*." *Id*. (emphasis in original). The requisite facts and analysis supporting an agency's conclusions must be in an EIR, not scattered elsewhere throughout an administrative record. *Environmental Defense Fund, Inc. v. Coastside County Water Dist.* (1972) 27 Cal.App.3d 695, 706 ("whatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report"); *Vineyard, supra,* 40 Cal.4^{th} at 442 ("To the extent the County, in certifying the FEIR as complete, relied on information not actually incorporated or described and referenced in the FEIR, it failed to proceed in the manner provided in CEQA").

As LandWatch objected in its DSEIR comments (PO 208-34), the DSEIR fails to provide the basis for its claim that 28% of vehicle trips would be internal to the project site. Since the 28% reduction in external trips would substantially reduce transportation impacts to facilities outside the project area and would substantially reduce both criteria pollutants (NOx, PM-10, etc) and GHG emissions, the 28% assumption is a critical parameter. LandWatch asked whether this internal trip rate was based on the standard traffic analysis methodology (ITE's Trip Generation Handbook) or some other methodology. And LandWatch asked that the City show its work by providing the facts and analysis behind this 28% internal trip rate assumption.

In response, the FSEIR refers LandWatch to its response to PA 3-1, a comment in which Caltrans also objected that the 28% internal trip rate was unsupported by analysis and appears to be inconsistent with the standard ITE methodology. In response to Caltrans, the FSEIR states that "[t]he requested documentation was provided to the commenter shortly after the request was received by the City, and no further comments were received from Caltrans." But provision of the documentation to Caltrans does not address LandWatch's concerns. Thus, the response to LandWatch that simply references response PA-3 is entirely inadequate, violating CEQA's requirement for good-faith reasoned analysis in response to comments. Guidelines, §15088.

And the FSEIR's claim that Caltrans has accepted the internal capture analysis is not true. Caltrans wrote on August 30, 2016 to reiterate its objection to the "exaggerated internal capture rate" and the use of an unjustified method to determine internal capture.

And even if Caltrans had been persuaded that 28% was justified, based on privately shared data or analysis, it is not sufficient to tell the public only that there is some expert opinion that supports or acquiesces in an EIR's conclusion. Substantial evidence requires an EIR to present the facts and analysis, not just raw opinion.

The FSEIR claims that "the data supporting this traffic impact analysis, including trip capture rates, is included in DSEIR Appendix 10.8, *Traffic Impact Analysis Data*." FSEIR, p. 11.4-1031. This is not true. Appendix 10.8 contains 723 pages of computer output sheets for the Level of Service Computation Reports for the affected intersections under the no-project, with-project, and with-mitigation scenarios under existing, 2018, and 2035 conditions. Nothing in that output for intersection LOS would enable the public to reconstruct the basis of the 28% internal capture analysis. Indeed, if the 28% internal trip claim could have been validated with reference to the materials in the DSEIR, then Caltrans would not have needed to ask for the analysis and the City would not have needed to supply the "requested documentation" to Caltrans in response to its comment.

The FSEIR's response to Caltrans indicates that the trip distribution patterns were developed through customization of the AMBAG travel demand model. This information is clearly not supplied in Appendix 10.8, which provides no information about the AMBAG model.

The FSEIR claims that the ITE methodology would understate internal capture because it omits "site interaction" for the equestrian facilities, the hotels, the tennis club, warehousing, and cemetery land uses. Site interactions must be determined through empirical analyses of similar mixed-use development projects. Thus, ITE's handbook provides internal capture data for various mixed use combinations based on empirical studies that compare stand-alone development trip rates to mixed use trip rates.[23] Additional empirical studies are available that supplement the ITE data sets and that include site interactions for additional uses such as hotels. For example, a 2014 analysis by the Center for Urban Transportation Research ("CUTR") reports data sets that do include hotel uses.[24] But the analysis of capture is based on a number of factors, none of which were revealed to the public here. For example, the CUTR report indicates that site interactions decrease as proximity decreases, so a sprawling 711-acre suburban-style project would have a lower capture rate than a smaller, denser urban mixed-use project,

[23] Institute of Transportation Engineers, Trip Generation Handbook, 2nd Ed.

[24] Center for Urban Transportation Research, Trip Internalization in Multi-use Developments, April 2014, available at http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_PL/FDOT-BDK84-977-10-rpt.pdf.

all other factors being equal.[25] CUTR indicates that proximity factors should be used in the analysis for any development bigger than 55 acres.[26] However, here the public has no way to evaluate whether or how this was done. What is missing in the Monterey Downs SEIR is any evidence that the internal capture rate is based on empirical data, or, any disclosure of that empirical data.

The FSEIR states that after assigning trips to the roadway network using the AMBAG model "it was determined that approximately 28 percent of the total trips generated by the proposed Specific Plan land uses would travel to another zone within the Specific plan." FSEIR, p. 11.4-17. However, the SEIR does not explain how "it was determined." The FSEIR provides no empirical analysis to the public that would support the validity of the internal capture.

2. The SEIR fails to provide adequate performance standards for Mitigation measure TRA-8.

Mitigation Measure TRA-8 provides for an entirely ad hoc response to special event traffic, including events that may attract thousands of vehicles to the Sports Arena. The requirement to prepare an Events Management Plan does not include any performance standard for acceptable levels of congestion. The FSEIR fails to respond adequately to LandWatch's concern that the measure improperly delegates mitigation to an unelected official without providing a meaningful performance standard. The FSEIR also fails to respond adequately to LandWatch's concern that the traffic control measures all remain optional under the phrasing of Mitigation Measure TRA-8. DSEIR, p. 4.17-85 (the "measures may include. . ."). There is no assurance that any effective or reasonable traffic control measures will be implemented since there is neither a congestion relief performance standard nor a requirement to use any particular traffic control measure.

The FSEIR claims that an Events Management Plan cannot be prepared in advance, but the DSEIR states that the applicant will in fact be required to prepare an "annual special events traffic and emergency services management plan." DSEIR, p. 4.17-83. If such a plan can be prepared a year in advance for the 125 or more days of special events, then it is unreasonable to claim that the SEIR could not provide even the sample plan requested by LandWatch.

3. Recirculation is required because the FSEIR identifies a new significant impact at intersection 49, SR-1 NB Ramps at Reservation Road.

The FSEIR acknowledges that impacts to intersection 49, SR-1 NB Ramps at Reservation Road, will remain significant and unmitigated. FSEIR, p. 11.4-1040 to 11.4-1043. This was not disclosed in the DSEIR. The FSEIR's acknowledgement constitutes

---

[25] *Id.* at 82.

[26] *Id*. at 84-85.

significant new information that requires recirculation because it discloses a new significant impact. Guidelines §15088.5(a)(1).

4. The SEIR fails to identify a significant impact at intersection 38, SR 1 SB Ramps at Imjin Parkway.

Recirculation is required because the DSEIR fails to disclose a significant unmitigated impact at intersection 38, SR 1 SB Ramps at Imjin Parkway, under 2018 conditions. The LOS calculations in DSEIR Appendix 10.2 for mitigated conditions under both the existing and 2018 scenarios assume that a signal has been installed at this location pursuant to Mitigation Measure TRA-5. App. 10.2, pdf pages 689, 706. Under existing AM conditions with mitigation, the average delay is 52.6 seconds yielding a LOS D, which the DSEIR treates as a less than significant impact. App. 10.2, pdf page 689; DSEIR, p. 4.17-75 (Table 4.17-14). Under 2018 AM conditions, the average delay is degraded to 62.4 seconds, yielding LOS E. App. 10.2, pdf page 706. Thus, despite the traffic signal mitigation, there would be a significant impact because the LOS E is below the acceptable LOS for Caltrans facilities. Additional mitigation improvements should be proposed for this facility; or, if that is infeasible, the impact should be identified as unavoidable.[27]

The DSEIR unaccountably and erroneously indicates in Table 4.17-20 that the mitigated AM LOS at intersection 38 would be LOS B, based on an average delay of 14.1 seconds. DSEIR, p. 4.17-93. This is an error because it is unsupported by the technical appendix.

5. The SEIR fails to apply the Caltrans LOS standard for determining significance.

As Caltrans objected, the SEIR fails to acknowledge that Caltrans requires maintenance of a Level of Service at the cusp of LOS C and LOS D on SR1 facilities. Comment PA 3-2. The FSEIR claims that a 2006 planning document would justify this approach, but Caltrans has pointed out that this document does not apply to traffic management or operations.[28]

The DSEIR states in the section identifying thresholds of significance for each jurisdiction that an impact to a Caltrans facility would be significant if the project would "result in a LOS lower than the <u>transition between LOC C and LOS D</u>" or if the project

[27] While the DSEIR identifies the impact under existing conditions as unavoidably significant, it fails to do so under 2018 conditions. DSEIR, pp. 4.17-130 to 4.17-131. Furthermore, the only basis for characterizing the impact as unavoidably significant under existing conditions is the fact that the required mitigation improvements, widening the intersection and installing a traffic signal, are not under the lead agency's jurisdiction. DSEIR, p. 4.17-84.

[28] John Olejnic, Caltrans, to Rick Medina, Seaside, Aug. 30, 2016.

would add a trip to "an existing state highway facility [that] is operating at less than the appropriate target LOS." DSEIR, pp. 4.17-47 to 4.17-48. The DSEIR identifies the "LOS Std." for every intersection or ramp, roadway segment, or freeway segment that is under Caltrans jurisdiction as "C/D," not as "D." DSEIR, Tables 4.17-13, 4.17-14, 4.17-19, 4.17-21, 4.17-25. Despite stating that the threshold of significance is the C/D transition and designating it in the tables, the DSEIR unaccountably fails to acknowledge impacts are significant where the project causes degradation of service to below the C/D transition or where it adds trips to a facility that operates below the C/D transition. Instead, the DSEIR only treats impacts to Caltrans' facilities as sisgnficant if they operate below LOS D. For example, for existing plus project conditions the DSEIR fails to identify a significant impact despite LOS below the C/D transition at intersection 42 in Table 4.17-13, at intersection 38 in Table 4.17-15, at six SR 1 segments in Table 4.17-16, and at ten ramps in Table 4.17-17. The SDEIR similarly fails to identify significant impacts with reference to the stated LOS C/D threshold of significance under interim 2018 and cumulative conditions.

In sum, the SEIR's failure to honor Caltrans' LOS standard in determining significance is unaccountable since 1) it honors and applies the adopted LOS standards of <u>other</u> agencies, including the County of Monterey and the City of Marina, in assessing impacts to their facilities, 2) it expressly identifies the LOS C/D transition as the threshold for significant impacts, and 3) Caltrans has repeatedly and specifically advised Seaside that its standards requires LOS C/D, ever since the scoping meeting for this project.[29] The contradiction in the stated significance thresholds and the threshold actually applied and the failure to approach significance determination consistently among the various jurisdictions vitiates substantial evidence for the SEIR's conclusions. It also demonstrates a results-driven approach to analysis. The SEIR should be revised and recirculated to assess and mitigate impacts with reference to the actual Caltrans standards, as identified in the DSEIR.

6. The FSEIR fails to respond adequately to proposed mitigation in the form of ramp metering.

LandWatch requested that ramp metering be proposed by the SEIR to address significant and unmitigated impacts to freeway ramps. In response, the FSEIR simply refers LandWatch to the discussion in the DSEIR at page 4.17-80, which the FSEIR claims establishes the infeasibility of this mitigation. FSEIR, p. 11.4-1043. However the DSEIR's discussion states only that ramp metering is not currently planned and is not within the jurisdiction of the lead agency to implement. DSEIR, p. 4.17-80.

In fact, contrary to the DSEIR, ramp metering <u>is</u> part of Caltrans planning for SR 1 segment 14, which includes the portions of SR 1 evaluated in the SEIR. Caltrans' Transportation Concept Report for State Route 1 in District 5 identifies ramp metering as

---

[29] *Id.*

an important part of the Intelligent Transportation Systems ("ITS") strategy to optimize traffic flow that will be managed by Caltrans Traffic Management Center.[30] Caltrans specifically identifies ramp metering as part of the measures it plans to implement to maintain acceptable LOS on SR 1 segment 14:

> a combination of widening, operational improvements, and enhanced alternatives to travel by single occupant vehicles will be required. ITS elements such as loop detection and ramp metering will be a major component of operational improvements.[31]

Caltrans states that Ramp metering is planned specifically for SR 1 "between SR 68 West and Reservation Road," which would include all of the ramps evaluated in the SEIR:

> Intelligent Transportation Systems (ITS) – ITS will play a critical role in managing operations on State Route 1 in Monterey County. ITS projects have been implemented in the County and additional projects have a high priority. When the Central Coast ITS Strategic Plan is fully implemented, the following elements will be available on Route 1 in Monterey County:
>
> - Smart call boxes from San Luis Obispo/Monterey County line to Monterey/Santa Cruz County line
> - Traffic surveillance stations (loop detectors) through Segments 14 (freeway portion) and 15
> - CCTV camera installation ***and freeway control ramp metering between SR 68 West and Reservation Road*** . . .[32]

The DSEIR and FSEIR offer no evidence that ramp metering would not be effective at reducing or avoiding impacts, and it is clear that Caltrans believes that ramp metering would be effective at the ramps under review. The DSEIR and FSEIR provide no evidence that Caltrans would not accept fair share payments toward ramp metering and consider implementing ramp metering if it were proposed in the SEIR; and the fact that Caltrans actually plans to implement metering indicates that Caltrans would be receptive.

---

30 Caltrans, Transportation Concept Report for State Route 1 in District 5, April 2006, p. 10-11, available at http://www.dot.ca.gov/dist05/planning/sys_plan_docs/tcr_factsheet_combo/mon_sr1_tcrfs.pdf. Ramp metering is a "traffic management strategy that utilizes a system of traffic signals on freeway entrance and connector ramps to regulate the volume of traffic entering a freeway corridor. This is to maximize the efficiency of the freeway and thereby minimize the total delay in the transportation corridor." *Id.*, Appendix A.

31 *Id.* at 46, emphasis added

32 *Id.* at 44, underlining in original, italics and bolding added.

CEQA does not permit an agency to dismiss mitigation suggestions from the public without good-faith reasoned analysis. The fact that the mitigation is within another agency's jurisdiction is not a sufficient basis to decline to consider it. CEQA specifically requires an agency to make findings as to whether mitigation is "within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency." Public Resources Code, §21081(a)(2). And indeed the DSEIR proposes numerous other traffic improvements that are not within the jurisdiction of the lead agency (e.g., mitigation Measures TRA-2, 4, 5, 6, and 7).

Seaside may require fair share payments toward effective mitigation measures, including ramp metering, and may even provide that if Caltrans declines to implement the measure the fair share funds can be returned. Seaside may also conclude that the impacts for which these mitigation measures are proposed will remain significant and unavoidable due to its lack of jurisdiction to require implementation. But Seaside cannot simply decline to consider mitigation proposed by the public on the grounds that it lacks legal authority to compel that mitigation be implemented or based on the false claim that this mitigation is not currently planned by Caltrans.

F. The analysis and mitigation of noise impact is inadequate.

LandWatch engaged noise consultant Derek Watry to review the discussion of noise in the DSEIR, LandWatch's comments, and the FSEIR's response. His comments are attached and incorporated by reference.

1. **The analysis of noise is inadequate under CEQA because it fails to recognize that non-compliance with statistical noise standards may be a significant impact.**

Statistical noise standards ("Ln" standards or "Exceedence Level" standards) are standards for the noise levels that may not be exceeded for various periods of time. See DSEIR, p. 4.10-3, Table 4.10-2, Noise Descriptors. For example, BRP Noise Policies B-1, B-2, B-3, and B-5 apply the statistical noise standards from BRP Table 4.5-3, which is reproduced in the DSEIR as Table 4.10-7. See DSEIR, pp. 4.10-9 (Table 4.10-7) and 4.10-10 (BRP noise policies). Under the BRP's statistical noise standards applicable from 7 am to 10 pm, noise may not ever exceed 65 dBA, may not exceed 60 dBA for more than 1 minute, may not exceed 55 dBA for more than 5 minutes, may not exceed 50 dBA for more than 15 minutes, and may not exceed 45 dBA for more than 30 minutes. e.g., for one minute, five minutes, ten minutes, 15 minutes, or 30 minutes. Permissible noise levels are dBA less from 10 pm to 7am. The BRP applies these statistical noise standards at the property line.

As Mr. Watry explains, BRP Noise Policies and programs expressly require compliance with the BRP statistical noise standards. This SEIR identifies exceeding applicable noise standards as a significant impact. DSEIR, p. 4.10-12. The BRP PEIR specifically identifies the expectation that construction noise and stationary noise, including noise from a proposed amphitheater, would be required to comply with the

BRP's statistical noise standards as a basis to conclude that these noise sources would be less than significant. BRP PEIR, pp. 4-139 to 4-140, 4-146, 4-149.

Statistical noise standards may be applied <u>in addition to and independent of</u> 24-hour average noise standards ("CNEL" or "Ldn" standards). See DSEIR, p. 4.10-3, Table 4.10-2, "Community Noise Equivalent level (CNEL)" noise descriptor. The BRP Noise Policies B-1, B-2, B-3, and B-5 do in fact also and independently apply the 24-hour average CNEL noise standards from BRP Table 4.5-3, which is reproduced in the DSEIR as Table 4.10-6. See DSEIR, pp. 4.10-9 (Table 4.10-6) and 4.10-10 (BRP noise policies).

LandWatch's DSEIR comments objected that the DSEIR fails to apply statistical noise standards from the BRP or from any source to determine the significance of noise impacts. The FSEIR responded that these standards are not relevant. FSEIR, p. 11.4-1053. As Mr. Watry explains, that claim is not true.

Statistical noise standards are in fact highly relevant to determining annoyance from noise, particularly when a noise source is not continuous over a 24-hour period but instead consists of short-term, episodic and/or irregular loud noise such as noise from the recreational events at the project. The rationale for applying statistical noise standards in addition to 24-hour noise standards is that irritation can be caused by short periods of relatively loud noise, even if the average noise level complies with standards for longer periods, e.g., a 24-hour average CNEL standards. The BRP includes <u>both</u> 24-hour standards <u>and</u> statistical noise standards for just this reason.

Mr. Watry explains that stationary noise and construction noise from the Project will exceed the BRP's statistical noise standards and that this will substantially adversely affect sensitive receptors adjacent to the project. For example, maximum noise from cheering crowns at the Sports Arena would exceed the BRP allowable maximum noise level at the Oak Oval. Cheering noise that continues for as little as one minute per hour would exceed the BRP statistical noise limits at the Oak Oval and at the nearest residential receptor. Grandstand noise and the swimming pool timing system noise would exceed the BRP's statistical limit for maximum noise levels. Construction noise would exceed the BRP statistical limits.

The SEIR errs by uncritically relying only on 24-hour noise standards to determine significance despite evidence that episodic loud noise events will in fact result in substantial irritation to noise receptors and without any analysis of the effects of shorter-duration noise events on the ambient conditions.[33] *Berkeley Keep Jets Over the*

---

[33] Although the DSEIR references the City's 65 dBA maximum noise standard in its discussion of the mitigation of stationary noise impacts (DSEIR, p. 4.10-24), that reference is insufficient because (1) the City's maximum noise standard is not the same as the BRP's statistical noise standards, which include a more restrictive 0-minute (maximum) standard and which include standards for intervals greater than 0 minutes (compare DSEIR Table 4.10-4 to Table 4.10-7) , (2) the 65 dBA maximum noise standard was not apparently used to determine the significance of impacts (DSEIR, pp. 4.10-18 to 4.10-24).

Bay Comm. v. Bd. of Port Comm'rs (2001) 91 Cal. App. 4th 1344, 1381–82; *see also Protect The Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1109 ("a threshold of significance cannot be applied in such a way that would foreclose consideration of other substantial evidence tending to show the environmental effect to which the threshold relates might be significant"). The SEIR also errs by failing to acknowledge that the project is inconsistent with the BRP policies that mandate compliance with the BRP's statistical noise standards. Guidelines, §15125(d).

2. Analysis of construction noise is inadequate.

The DSEIR announces that that construction impacts would be significant if any of the standards in the City's General Plan or noise ordinance or other applicable plans (e.g., the BRP) were exceeded. DSEIR p. 4.10-12. However, the DSEIR provides no actual quantitative assessment of whether construction activities would exceed <u>any of the</u> applicable standards (i.e., the 24-hour average, maximum, or statistical standards promulgated by either the City or the BRP), despite the express requirement in Seaside's Municipal Code §17.30.060(G)(6) for a quantitative analysis of noise levels post-mitigation. The DSEIR also ignores the effects of construction noise on open space users even though these users are sensitive receptors and will be located immediately adjacent to the project site.

Thus there is no substantial evidence to support a conclusion that construction noise would not exceed applicable standards. However, there is evidence that construction noise would exceed applicable standards.

As Mr. Watry explains, the BRP statistical noise standards are clearly relevant to the significance of construction noise impacts. As explained above, the BRP PEIR specifically referenced the expectation that projects would meet the BRP statistical noise standards as one basis for finding construction noise impact to be less than significant. However the SEIR fails to apply these standards and improperly dismisses their relevance. Mr. Watry demonstrates that construction noise would exceed the BRP statistical noise standards.

Construction noise would also exceed the 65 dBA maximum allowable noise level for residential uses in the <u>City's</u> noise ordinance.

3. Mitigation of construction noise is inadequate.

CEQA requires that mitigation address the significant impacts identified in the EIR and do so with adequate certainty. Guidelines 15126.4(a)(2) (measures must be "fully enforceable"). A threshold of significance is a criterion "non-compliance with which" means the effect is significant and "compliance with which" means it is less than significant, e.g., adequately mitigated. Guidelines, § 15064.7(a). Mitigation must address the significant impact that is "<u>identified in</u> the EIR," and "<u>as identified</u> in the EIR." Guidelines, §§ 15126.4(a)(1)(A), 15091(a)(1). *Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645, 655-658 holds that an EIR must clearly state its significance threshold; in particular, it must do so to inform discussion of proposed mitigation measures.

Here, although the DSEIR identifies the noise standards in the City's General Plan, noise ordinance, and/or the BRP as the significance thresholds, Mitigation NOI-1 for construction noise impacts lacks any performance standard that would ensure that the purported significance thresholds are met. As Mr. Watry explains, the provisions of Mitigation NOI-1 simply do not require that construction noise meet <u>any</u> adopted standards, much less the standards that the DSEIR purporst to apply to determine significance of impacts. The actual provisions in NOI-1 – notice, complaint resolution, siting stationary equipment, and limiting work to daylight hours – would not ensure that applicable standards are met.

Furthermore, Mr. Watry explains that it is unlikely that construction noise <u>could</u> meet the adopted standards, particularly the statistical noise standards. The nature of the noise sources, e.g, diesel equipment with elevated exhaust stacks, and the area extent of construction activity renders mitigation by noise barrier infeasible. The SEIR itself provides no evidence that mitigation could feasibly meet adopted standards, despite the Seaside noise ordinance that requires a quantitative demonstration of the efficacy of mitigation. Because mitigation is not demonstrably feasible, its formulation cannot be deferred. *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 92-96. The SEIR must be revised to formulate mitigation that would meet the applicable Seaside and BRP noise standards.

4. **The SEIR improperly concludes that impacts are less than significant if mitigation is not feasible**.

The FSEIR improperly injects a consideration of feasibility into the determination of significance by implying that construction noise would be less than significant because the proposed mitigation "would minimize construction noise <u>to the maximum extent feasible</u>." FSEIR, p. 11.4-1056. CEQA neither requires nor allows lead agencies to consider costs or feasibility in determining the significance of impacts. Guidelines, §§15064, 15064.4, 15064.5, 15065, 15126.2, 15130, 15355, 15382. Under CEQA, feasibility considerations arise only in the context of determining if feasible mitigation measure are available <u>after</u> significance is determined (Public Resources Code, §21081(a)(3), Guidelines, §§15091(a)(3), 15364), and the determination of "acceptable" environmental harm arises only in the final step of the CEQA analysis in the context of a statement of overriding considerations. *City of Marina v. Board of Trustees of the California State University* (2006) 39 Cal.4th 341, 368-369; Public Resources Code, §21081(b).

The FSEIR also improperly injects the issue of feasibility into its determination of the significance of stationary noise impacts. The FSEIR argues that BRP Noise Policy B-1 requires that BRP's 24-hour and statistical noise standards be met only "where feasible and practical." FSEIR, p. 11.4-1056. The FSEIR then argues that application of the

BRP's "statistical noise Ln standards are not practicable for use in the Project's context." FSEIR, p. 11.4-1056. It would be error to reject use of the BRP's statistical noise standards to determine significance based on a determination that the project cannot feasibly meet those standards.

The FSEIR also improperly injects the issue of infeasibility into the determination of the significance of noise from the City Corporation Yard and fire station. Siren and horn noise from fire trucks (at least 101 dBA Lmax at 50 feet – see DSEIR, p. 4.10-20) would exceed the City's 65 dBA maximum exterior noise standard (DSEIR, Table 4.10-7). Low speed truck maneuvering in the City Corporation Yard would generate 75 dBA Lmax at 50 feet, which would also exceed the City's 65 dBA Lmax standard. DSEIR, p. 4.10-20. The FSEIR argues that "such noise sources are exempt from the City's Noise Ordinance (pursuant to SMC Section 9.12.040) <u>and therefore by extension, CEQA significance thresholds do not apply</u>." FSEIR, p. 11.4-1057, emphasis added. While legal considerations may justify a conclusion that mitigation is legally infeasible (Guidelines, § 15364), the <u>significance</u> of the unmitigated impact cannot be denied on the basis that mitigation is infeasible.

In sum, if the project cannot meet applicable noise standards, the City should identify the impact as significant and unmitigated. CEQA does not permit the City to conclude that noise is less than significant simply because mitigation is infeasible.

5. **Analysis of stationary noise impact is inadequate because it fails to employ a consistent threshold of significance, fails to compare projected noise to any of these thresholds, and fails to consider relevant noise events**.

There are three fundamental flaws in the SEIR's evaluation of stationary noise sources.

First, the SEIR fails to set out significance thresholds for stationary noise sources coherently. Determining significance of impacts requires "careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data." Guidelines, §15064(b). An EIR must clearly identify and apply standards of significance. *Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645, 655. As Mr. Watry documents, the DSEIR identifies several completely different thresholds:

- The threshold identification at DSEIR p. 4.10-12 says stationary noise (i.e., noise discussed in Impact Statement 4.10-3) is a significant impact only if the project causes a substantial permanent <u>increase</u> in ambient noise.

- The discussion of threshold of significance at DSEIR p.4.10-13 to 4.10-14 states that stationary noise would be significant if it cause an exceedance of Seaside's Municipal Code standards at Tables 3-2 and 3-3.[34] These tables provide absolute noise standards, not noise standards expressed as an allowable increase. For example, these noise standards permit a maximum exterior noise level of 65 dBA for residential uses and a normally acceptable 24-hour average exterior residential noise level of 55 dB CNEL.

- The discussion of stationary source impacts actually purports to determines significance of noise from residential uses, non-residential mechanical equipment, equestrian event noise, swim center, and swim event center and pool activity based on whether it exceeds the BRP absolute standards of 50 to 55 dBA for residential uses, not, as stated earlier, based on whether it exceeds Seaside's absolute standards. See DSEIR pp. 4.10-19 to 4.10-24. The BRP standard referenced is apparently from DSEIR Table 4.10-6, BRP's land use compatibility matrix, which specifies normally acceptable noise for single family residential use at 50-55 CNEL or Ldn. The confusion as to whether significance is determined by using Seaside's standards or the BRP standards is consequential because those standards differ. For example, the BRP has a 50 CNEL normally acceptable standard for passively used open space but the City has no standard for that use. And the BRP has a less restrictive standard than the City for multi-family residential use.

In short, the SEIR errs because it is impossible for the public to understand what threshold the SEIR applies to determine significance of stationary sources.

Second, the SEIR fails to provide any actual analysis that would support the determination of significance using the 24-hour average thresholds of significance identified as applicable standards. The SEIR identifies various 24-hour noise standards as applicable; however, for a number of critical noise sources (e.g., crowd noise, musical events), the SEIR does not actually determine the 24-hour average noise that the project would produce. For example, there is no analysis of the projected 24-hour average noise produced by events in Planning Areas REC-2, C-1, or REC-1. Instead, the DSEIR's discussion of significance repeatedly and erroneously compares peak or short term noise generated by the project to 24-hours standards.

In fact, the project description is not sufficient to enable the determination of 24-hour average noise impacts. Planning Areas REC-2, C-1, and REC-1 would permit noise from many different sources, such as musical events, equestrian events, swim meets, dog shows, and other sporting events. As Mr. Watry explains, the SEIR lacks an adequate description of the average noise generated by, or the duration of, the events in these areas

---

[34] In the Municipal Code at §17.030.060(E) these are currently identified as Tables 3-3 and 3-4. They are reproduced in the DSEIR as Tables 4.10-4 and 4.10-5.

to support determination of 24-hour average noise levels.[35] The FSEIR admits that "the exact activities associated with these potential uses is not known at this time . . .." FSEIR, pp. 11.4-1057 to 11.4-1058. Thus, the EIR is inadequate because it fails to provide a project description that is sufficient to enable analysis of impacts (Guidelines, §15024) and fails to provide an adequate determination of the significance of impacts (Guidelines, §§ 15064, 15126.2). Furthermore, as Mr. Watry explains, the analysis also confusingly compares peak noise levels to noise standards measured by a 24-hour average noise level.

Third, the discussion fails to apply statistical noise standards from the BRP or any standard that would determine significance of annoyance from high volume, transient noise events. Mr. Watry explains that short duration noise, e.g., crowd noise, would in fact exceed the BRP's statistical noise standards and would be a substantial source of irritation to sensitive receptors, including open space users. Thus, the SEIR errs by uncritically relying only on 24-hour noise standards to determine significance despite evidence that episodic loud noise events will in fact result in substantial irritation to noise receptors and without any analysis of the effects of shorter-duration noise events on the ambient conditions. *Berkeley Keep Jets Over the Bay Comm. v. Bd. of Port Comm'rs* (2001) 91 Cal. App. 4th 1344, 1381–82; *see also Protect The Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1109 ("a threshold of significance cannot be applied in such a way that would foreclose consideration of other substantial evidence tending to show the environmental effect to which the threshold relates might be significant").

The SEIR's errors are prejudicial because the public has no clear picture of the SEIR's thresholds and no clear description of the project's actual noise generation and because it is clear that applicable noise standards would be exceeded.

6. Mitigation of stationary noise impacts is inadequate.

CEQA requires an EIR to describe "feasible measures which could minimize significant adverse impacts." Guidelines, § 15126.4(a)(1). Mitigation must be fully enforceable and certain. Guidelines, § 15126.4(a)(2). Here, the SEIR fails to discuss or propose effective, enforceable mitigation for stationary source noise.

First, the mitigation in NOI-2 calls for meeting "the 65 dBA standard in the Fort Ord Reuse Plan, and Seaside Municipal Code Sections 9.12 (Noise Regulations) and 17.30.060 (Noise Standards)." DSEIR, p. 4.10-24. As Mr. Watry explains, this reference to "the 65 dBA standard" is entirely ambiguous and therefore not enforceable with any certainty. NOI-2 fails to specify whether the standard is a 24-hour average standard (i.e., a CNEL of Ldn metric) or a standard for the maximum noise level in an instant (e.g., the BRP statistical noise standard for zero minutes in Table 4.10-7). If it is a 24-hour CNEL

---

[35] The project description also fails to provide information sufficient to determine noise using statistical noise standards, e.g., to determine if crowd noise would exceed the 1 minute, 5 minute, 15 minute or 30 minute standards.

standard, then NOI-2 fails to explain how it is related to or derived from the actual standards in the Seaside noise regulations and the BRP. These standards include Seaside's "Noise/Land Use Compatibility Matrix" (DSEIR Table 4.10-5), Seaside's "Maximum Interior and Exterior Noise Standards" (DSEIR Table 4.10-4) or BRP's "Land Use Compatibility Criteria for Exterior Community Noise" (DSEIR, Table 4.10-6). NOI-2 implies that the project must meet both Seaside and BRP standards; however, the Seaside and BRP CNEL standards are not uniform with respect to allowable noise levels or even with respect to classification of land uses. It is simply unclear what standard must be met.

Second, the "65 dBA standard" referenced in NOI-2 is not the standard that the DSEIR used to determine the significance of impacts. The entire discussion of the significance of stationary noise was based on a determination whether project noise would exceed the BRP's 24-hour standard of 50-55 CNEL, which was repeatedly referenced in that discussion. DSEIR, pp. 4.10-19 (claiming non-residential stationary noise is "below the BRP's noise standards," referencing Table 4.10-6, and "therefore impacts would be less than significant"), 4.10-21 (referencing BRP's residential noise standard of 50 to 55 dBA in discussing significance of REC-2 Planning Area noise), 4.10-22 (claiming swim center noise is less than significant because it is within "BRP's standard of 50 to 55 dBA (exterior) for residential uses.") Indeed, the BRP's normally acceptable CNEL noise standard was also used to assess the significance of traffic noise impacts. FSEIR, p. 11.4-1054 (referencing the BRP's normally acceptable noise limit for multi-family housing of 60 CNEL). Using a different standard to determine the significance of impacts than is used to determine the efficacy of mitigation violates both common sense and CEQA because mitigation must address the significant impact that is "<u>identified in</u> the EIR," and "<u>as identified</u> in the EIR." Guidelines, §§ 15126.4(a)(1)(A), 15091(a)(1).

Third, NOI-2 fails to specify that compliance is required with BRP's 50 dBA CNEL standard for <u>open space</u> uses, not just its standard for residential uses. See DSEIR, p. 4.10-9 (Table 4.10-6, BRP noise standards). As Mr. Watry explains, compliance may not be possible, especially if the FSEIR is correct that this standard is already exceeded in open space areas.

Fourth, NOI-2 fails to specify that compliance with the mitigation must be determined <u>at the property line</u>, as is required by both the BRP standards and the Seaside Municipal Code. DSEIR, p. 4.10-9; BRP, pp. 411-412; Seaside Municipal Code, § 17.30.060(H).

Fifth, NOI-2 fails to specify that, even if the project meets 24-hour average noise standards, it must also mitigate short-term loud noise events by complying with the <u>BRP's statistical noise standards</u>. See DSEIR, p. 4.10-p. Table 4.10-7.

Sixth, as Mr. Watry explains, effective mitigation is uncertain, e.g., mitigation for crowd noise. Mr. Watry explains that mitigation of via a barrier or berm is not described and that obtaining the necessary noise attenuation by barrier for the noise sources at REC-2 and C-1 is simply implausible. Indeed, the FSEIR admits that the effectiveness of mitigation is unknown:

> The DSEIR identifies Mitigation Measures NOI-2 and NOI-3 that require noise management and attenuation associated with the sports arena and swim center that is proportional to the noise generated at these facilities. As the exact activities associated with these potential uses is not known at this time, it is not possible for the DSEIR to quantify the measurable extent to which implementation of such performance standards would reduce noise events to less than significant levels. The mitigation measures include performance standards to ensure that exceedances of noise standards would not occur. The listed performance standards are comprehensive but are not intended to be exhaustive, nor does CEQA require such standards.

FSEIR, pp. 11.4-1057 to 11.4-1058, emphasis added. Where mitigation is not known to be feasible, CEQA does not permit deferral of its formulation, regardless whether performance standards are proposed. *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 92-96. Accordingly, it is improper to defer the formulation of the Noise Management Plan called for by NOI-2. The Noise Management Program must be specified now and the SEIR must demonstrate that it would be effective with reference to unambiguously identified performance standards.

Furthermore, the FSEIR's statement that post-mitigation noise levels cannot be determined is an admission that the City is failing to comply with the City noise ordinance at SMC § 17.30.060(G)(5), (6) and BRP Noise Policy B-3, both of which mandate that he City identify mitigation and assess post-mitigation noise levels.

Seventh, the mitigation proposed for the swim center under NOI-3 is inadequate because it does not address the admittedly significant impact from the Time System.

7. The analysis and mitigation of impacts to open space use is inadequate.

The BRP FEIR acknowledges that open space, park, and recreation areas are noise-sensitive areas. BRP PEIR, p. 4-132. It is clear that the open space in the project vicinity is in fact extensively used for passive recreation by numerous members of the public, many of whom have objected to the project's impacts, including the noise impacts. See comment letters by Elizabeth Murray, Fort Ord Recreation Trails Friends, Suzanne Worcester, Eric Petersen, Monterey Off-road Cycling Association, Susan Schiavone, Robert McGinley, Cameron Binkley, Tim Townsend, Cosma Bua.

The BRP requires protection of open spaces via a 50 dBA CNEL/Ldn noise standard specifically applicable to passively used open space; via statistical noise standards applicable at the property line of noise-generating uses; and via Policy B-8, barring a 3 dB Ldn/CNEL increase where noise levels are already over the 50 dBA standard. See DSEIR, pp. 4.10-8 to 4.10-11. Inconsistency with these policies should be identified as a significant environmental impact and as, discussed below, as a reason that the project should not be approved based on inconsistency with the Fort Ord Reuse Act.

First, the proposed mitigation of stationary noise in NOI-2 that identifies only a "65 dBA standard" clearly fails to mandate compliance with the BRP's 50 dBA CNEL/Ldn open space noise standard.

Second, as Mr. Watry explains, responding to LandWatch's request for baseline open space noise levels, the FSEIR states that the baseline CNEL noise level for passively used open space is within a decibel of the 52.3 dBA Leq noise level measured at the baseline measurement location #2.[36] FSEIR, p. 11.4-1052. Thus, according to the SEIR, the noise level for open space <u>already</u> exceeds the BRP's 50 Ldn/CNEL standard.[37] Thus, BRP Policy B-8 would come into play, and would bar any noise increase over 3 dBA Ldn/CNEL. The SEIR fails to provide any assessment to determine whether project noise would increase noise by 3 dBA at the property line; thus, there is no substantial evidence that the project would comply with BRP Noise Policy B-8. Non-compliance with a policy intended to protect noise-sensitive open space uses would be a significant impact.

Third, the analysis of stationary noise impacts fails to disclose that the project will cause noise in excess of the BRP's statistical noise standards in the open space areas

---

[36] Baseline information must be presented in the draft EIR, not later in the EIR process. Guidelines, § 15120(c) (draft EIR must contain information required by Guidelines, § 15125); *Save Our Peninsula v. Monterey County Board of Supervisors* (2001) 87 Cal.App.4th 99, 120-124, 128; *Communities for a Better Env't v. City of Richmond* ("*CBE v. Richmond*")(2010) 184 Cal. App. 4th 70, 89. However, here, the DSEIR fails to provide any assessment of the existing noise levels in open space areas that would be affected by the project. This information was not provided until the FSEIR, responding to LandWatch's objection, claimed that noise levels measured on a roadway at 8th and Gigling was representative of open space noise levels. FSEIR, p. 11.4-1052.

[37] There is reason to doubt the FSEIR's claim that the measurement of noise at location # 2 is in fact typical of open space noise levels. DSEIR Appendix A-7 indicates and demonstrates by photograph that the noise measurement was taken on the shoulder of 8th Avenue over a ten minute period and that the dominant noise source was passing cars. The open space adjacent to REC-2 and REC-1 would not be proximate to existing vehicle traffic.

If the baseline measurement is not accurate, then the SEIR violates CEQA because an EIR must describe the existing environmental setting so that it considers impacts "in the full environmental context." Guidelines, § 15125(a), (c). An accurate baseline is critical because impact assessment must be based on "changes in the existing physical conditions in the affected area." Guidelines, § 15126.2(a); *see Neighbors For Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, 447; *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 952.

Without accurate baseline noise levels for open space areas, it is impossible to determine whether and to what extent the project would cause noise increases, which may be significant impacts under CEQA. Nor is it possible to determine if the project would be consistent with BRP Noise Policy B-8, which bars a 3 dB increase in noise to open space areas that are already over the normally acceptable level of 50 dBA CNEL. DSEIR, pp. 4.10-9, 4.10-11.

adjacent to REC-2, as Mr. Watry demonstrates. The proposed mitigation in NOI-2 fails to mandate compliance with statistical noise standards.

Fourth, even if the mitigation were revised to require compliance with the BRP's open space noise standards, there is no evidence that mitigation is feasible and substantial evidence to the contrary. Again, the deferral of the formulation of the Noise Management Program called for by NOI-2 in the face of uncertainty violates CEQA.

8. The SEIR fails to identify a substantial increase in traffic noise as a significant impact.

The DSEIR's significance thresholds for both project-specific and cumulative impacts depend on a determination of the project-caused traffic noise increase and a determination whether the resulting combined noise from the Project and other development would exceed noise standards for the receiving property use. In particular, the DSEIR finds project-specific impacts to be significant only if total noise (existing traffic noise plus project traffic noise) exceeds "the applicable exterior standard at a noise sensitive land use" and the Project itself contributes 3 dB to that noise level. DSEIR p. 4.10-13. The DSEIR's two-step cumulative analysis first determines whether all future projects combined with the Monterey Downs project will cause a 3 dB increase and result in a noise level over the applicable standard. If so, the second step determines whether the Monterey Downs project contributes at least 1 dB to the future noise level. DSEIR p. 4.10-13.

Thus, in both analyses, it is necessary to determine whether traffic noise levels at the receiving property will exceed the applicable <u>absolute</u> noise thresholds for the receiving property's land use.

This approach to significance determination is inadequate because it fails to acknowledge that there may be a significant impact due to a substantial noise <u>increase</u> even if the resulting absolute noise does not exceed the applicable standard. An agency may not take refuge in a project's compliance with some regulatory standard when there is evidence that, notwithstanding that compliance, impacts are significant. *Protect The Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1109 ("a threshold of significance cannot be applied in such a way that would foreclose consideration of other substantial evidence tending to show the environmental effect to which the threshold relates might be significant"). The possibility that a noise increase may be significant even if the absolute regulatory standard is not exceeded is expressly recognized in the CEQA Guidelines, quoted by the DSEIR, which identify a significant impact if a project <u>either</u> causes a substantial increase in ambient noise <u>or</u> causes noise in excess of applicable standards. DSEIR, p. 4.10-12. The possibility is also recognized by

BRP Noise Policy B-6, which bars a noise increase over 5 dBA Ldn/CNEL even where noise is within the normally acceptable range.[38] DSEIR, p. 4.10-10.

As Mr. Watry explains, and as LandWatch objected in comment PO 208-91, the project will cause a significant impact and a violation of BRP Policy B-6 by increasing noise by more than 5 dBA at 7th Avenue between Gigling and Colonel Durham and at 8th Street between Inter Garrison and 6th. DSEIR, pp. 4.10-25, 4.10-26 to 4.10-27 (Table 4.10-11).

The FSEIR's response to LandWatch's objection is disingenuous. It claims that existing noise barriers would attenuate the traffic noise. FSEIR, p. 11.4-1054. As Mr. Watry explains, the presence of barriers does not affect the analysis: the increase in noise with and without the project would be the same regardless of the presence of barriers.

The FSEIR response is also disingenuous in claiming that interior noise levels would be maintained in residences on these road segments. FSEIR, p. 11.4-1054. The absolute level of interior noise levels is simply not relevant to the issue LandWatch raised, which is the increase in exterior noise levels. Impacts to exterior noise levels are an independent issue, as is evident from the fact that both Seaside and the BRP provide distinct standards for exterior and interior noise levels.

Finally, the FSEIR's observation that noise was modeled at 100 feet from the roadway centerline instead of the property line is also not relevant to this issue. As discussed below, both the Seaside noise ordinance and the BRP mandate noise analysis be at the property line. Regardless, even if it were correct to assess noise impacts at 100 feet instead of at the property line, here the noise increases modeled at 100 feet do exceed 5 dBA CNEL/Ldn in violation of BRP Policy B-6.

9. The SEIR's failures to measure noise impacts at the property line as mandated by the BRP and Seaside noise ordinance results in a failure to disclose a significant impact and a violation of BRP Policy B-6.

The traffic noise analysis assesses noise at 100 feet from the roadway centerline rather than at the property line of the receiving use. Thus, as LandWatch objected (PO 208-106) and Mr. Watry explains, the DSEIR errs by failing to honor the explicit requirements in both the Seaside noise ordinance and the BRP policies that noise be measured and controlled at the property line. SMC, § 17.30.060(E)(1)(a), (H); BRP Noise Policies B-6, B-7, B-8. The express purpose of the requirement to determine impacts at the property line is to protect outdoor uses. SMC, § 17.30.060(F) (obligation

[38] The policy bars an increase over 3 dBA Ldn/CNEL if noise is over the normally acceptable range.

to mitigate transportation noise impacts in order to "maintain outdoor and indoor noise levels" in compliance with standards).

As Mr. Watry explains, the error results in a failure to disclose a significant impact. The DSEIR's criteria for a project-specific impact is a 3 dBA CNEL increase where noise would exceed the applicable standard. On Gigling Road between 6th and 7th Avenues, noise would exceed the 60 dBA CNEL standard at the receiving residential use property line, even though it would not exceed the 60 dBA CNEL at standard at 100 feet from the roadway centerline, and the project would cause more than a 3 dBA CNEL increase. This should be identified as a significant impact. It should also be identified as an inconsistency with BRP Policy B-6, which bars a 3 dBA increase where noise exceeds the BRP's normally acceptable residential use standard "measured at the property line." DSEIR, p. 4.10-10.

10. The SEIR is informationally inadequate because it fails to identify land use noise thresholds and applicable standards for roadway segments affected by project; and because of this the SEIR fails to disclose considerable contribution to a significant cumulative impact on 2nd Avenue.

As LandWatch objected, the traffic noise analysis fails to identify the type of receiving land use (e.g., single family residential, multi-family residential, commercial) at each affected roadway segment, and this matters because the analysis purports to apply a different noise standard based on the type of land use. Comment PO 208-107. Nothing in DSEIR Tables 4.10-11, 4.10-12, or 4.10-13 listing noise levels and determining significance of impacts for various roadway segments identifies the adjacent land uses for these segments or the applicable noise standard. It is thus impossible for the public to see what noise impacts would occur at each type of land use or what noise standard the DSEIR actually applies.

The FSEIR claims that the DSEIR "considers the specific noise standards to each relevant land use" and that "the analysis reviewed the distance of the receivers to the roadway and the location of existing barriers to determine if an impact would actually occur." FSEIR p. 11.4-1058. If this level of analysis was actually undertaken, it does not appear anywhere in the DSEIR.

For example, the FSEIR claims that the DSEIR applies a 55 dBA standard for single family residential uses and a 60 dBA standard for multi-family residential use. FSEIR p. 11.4-1058 (Response PO 208-108.) However, Tables 4.10-11, 4.10-12, and 4.10-13 do not provide any indication of the actual uses for the affected segments that would allow the public to verify this claim.

The FSEIR failed to provide the requested information even though it claims that this information was developed in the noise analysis. The FSEIR claims that that the noise analysis "considers the specific noise standards to each relevant land use" and that it "reviewed the distance of the receivers to the roadway and the location of existing barriers to determine if an impact would actually occur." FSEIR p. 11.4-1058. If the specific land uses and applicable noise standards were in fact determined in the noise analysis, then there was no reason for the FSEIR to have failed to provide this available information in response to LandWatch's request. Instead of providing the information for each roadway segment, the FSEIR provides only two cursory examples, claiming that residential uses on two segments have barriers; the FSEIR then claims that other sensitive receptors are "generally" located more than 100 feet from the centerline. FSEIR p. 11.4-1054. This is not responsive to the request for specific land uses and applicable standards.[39]

Mr. Watry explains that there is at least one roadway segment where the SEIR's lack of care in analysis and its failure to respond to comments with available information is prejudicial, because the SEIR fails to disclose that the project would make a considerable contribution to a significant cumulative impact based on the SEIR's own criteria. Noise levels on 2nd Avenue between Inter Garrison Road and 8th Street would meet the DSEIR's criteria for a considerable contribution to a significant cumulative impact because 1) the cumulative noise level would exceed the applicable 60 dBA CNEL standard for multi-family residential use and educational use; 2) the cumulative increase is greater than 3 dBA; and 3) the project adds more than 1 dBA. This is just one example of a prejudicial failure to provide adequate disclosure. Because the SEIR fails to identify receiving land uses and applicable standards for each affected segment, the public cannot determine if there are more.

11. Seaside may not approve the Project because it is inconsistent with Base Reuse Plan noise policies.

Under the Fort Ord Reuse Act, Seaside may not approve a development project that is not consistent with the BRP. Gov. Code, § 67675.8(b)(1). The project is not consistent with BRP noise policies as discussed above and detailed below.

The determinations of consistency with the BRP is not the same determination as the determination of significance under CEQA. Where a plan calls for the use of a particular method of analysis and compliance with particular standards, an agency must actually use the required analysis and standards in determining consistency. *Endangered Habitats League, Inc. v. Cty. of Orange* (2005) 131 Cal. App. 4th 777, 783 (agency may not substitute VC method for determining traffic impacts where plan calls for use of the HCM method). The EIR does not provide this analysis.

---

[39] Furthermore, it appears that the FSEIR may be claiming that applicable noise standards are met because residential structures are "generally" located more than 100 feet from the centerline. As discussed, this would not demonstrate that the exterior standard is met at the property line and that outdoor uses are protected. And even if it were appropriate to evaluate impacts at 100 feet from the centerline, the FSEIR's assertion that the protected use (presumably the residence itself) is "generally" more than 100 feet from the centerline suggests that either (1) there are exceptions or (2) the analysis did not in fact verify this claim.

a. <u>The project is inconsistent with BRP noise policies requiring projects to evaluate and to meet *statistical* noise standards; and unless and until Seaside adopts the required BRP Noise Programs it may not approve this project</u>.

The project is inconsistent with the BRP because 1) it does not comply with the BRP's statistical noise standards and 2) the City has failed to adopt those standards.

Mr. Watry has explained that construction noise and stationary noise from the project will violate the statistical noise standards, and that proposed mitigation will not ensure that the project will meet the statistical noise standards. Compliance with these standards is unambiguously required by BRP Noise Policy A-1 and Noise Program A-1.2, which specifically require Seaside to enact the BRP's statistical noise standards (the standards shown in Table 4.5-4) into its noise ordinance and to apply those standards in the Former Fort Ord area.[40] BRP, pp. 412-413. Seaside has not enacted these standards; the only standards in Seaside's noise ordinance are 24-hour CNEL or Ldn standards. Seaside Municipal Code, § 17.30.060(E), Tables 3-3 and 3-4.

Furthermore, FORA bars approval of development entitlements for this project unless and until Seaside actually adopts the Noise Programs as specified in the BRP, i.e., adopts a noise ordinance that contains the statistical noise standards <u>mandated by the BRP</u>:

> No development entitlement shall be approved or conditionally approved within the jurisdiction of any land use agency until the land use agency has taken appropriate action, in the discretion of the land use agency, to adopt the programs specified in the Reuse Plan, the Habitat Management Plan, the Development and Resource Management Plan, the Reuse Plan Environmental Impact Report Mitigation and Monitoring Plan and this Master Resolution applicable to such development entitlement.

Fort Ord Reuse Authority Master Resolution, § 8.02.040.

Contrary to the FSEIR, these standards are clearly relevant to determining significant impacts under CEQA. And, regardless of CEQA's provisions, the Fort Ord Reuse Act makes adoption and application of these standards in the Fort Ord area mandatory as provided by the BRP provisions.

In addition to Noise Policy A-1 and Noise Program A-1.2, Noise Policy B-1 mandates compliance with the statistical noise standards in Table 4.5-4 for <u>existing</u> residences and other <u>existing</u> noise-sensitive uses where feasible and practical. BRP, p. 414. Noise Policy B-2 mandates that new development not adversely affect any existing <u>or proposed uses</u> by complying with the statistical noise standards in Table 4.5-4 for all

---

40 The BRP adopts identical standards and policies for Seaside and the County of Monterey, so the entire project areas is subject to the same requirements. BRP, pp. 413-417.

new development. BRP, p. 414. This means that new development may not adversely affect existing uses and that it may not generate noise levels that would adversely affect other portions of the new development. Noise Policy B-5 requires that if it is not feasible or practical to meet the statistical noise standards, the City must either provide noise barriers for new development or ensure that interior standards are met.

The SEIR has not evaluated impacts in terms of statistical noise standards and has not determined feasibility of compliance with these standards. This violates Noise Policy B-3, which requires analysis of impacts and mitigation with reference to statistical noise standards before accepting development applications as complete. The project is not in compliance with the analysis requirements in Noise Policy B-3, and the City cannot conclude that it is in compliance with Noise Policies B-1 and B-2, until the City completes the required analysis and considers feasible mitigation and alternatives.

b. Seaside has failed to adopt the *BRP*'s 24-hour noise standards in its noise ordinance as mandated by BRP Noise Policy A-1 and may not approve the project until it has done so.

BRP Noise Policy A-1 and Programs A-1.1 and A-1.2 mandate that Seaside adopt by ordinance and apply the 24-hour noise standards set out in BRP Table 4.5-3. *See* BRP, pp. 411, 413. Seaside has not done so because the 24-hour noise standards in its ordinance differ from the BRP's standards. *Compare* Seaside Municipal Code, §17.30.060(E), Table 3-4 to BRP Table 4.5-3 (or *compare* DSEIR, Table 4.10-5 to Table 4.10-6, which contain these differing noise standards). For example, Seaside's noise ordinance lacks any standard for passively used open space, whereas the BRP provides that at most a 50 dBA noise level is "normally acceptable." Seaside's ordinance provides that 65 dBA is "conditionally acceptable" for single family residential use, whereas the BRP provides that at most 60 dBA is "conditionally acceptable" for that use.

As discussed, the SEIR is unclear as to the noise standards it uses to determine the significance of project noise impacts and to require mitigation under CEQA, referencing both the Seaside General Plan and noise ordinance standards and the BRP noise standards.[41] DSEIR, pp. 4.10-13 to 4.10-14, 4.10-19 to 4.10-24. Thus, it is impossible to determine to what standards the project would be held or even whether proposed mitigation is feasible. Not only does this violate CEQA, but there can be no substantial evidence that the project would be consistent with the BRP Noise Policy A-1 and Program A-1.1, which require application of the BRP noise standards.

Again, FORA bars approval of development entitlements for this project unless and until Seaside actually adopts the Noise Programs as specified in the BRP, i.e., adopts a noise ordinance that contains the 24-hour noise standards mandated by the BRP. Fort Ord Reuse Authority Master Resolution, § 8.02.040.

---

[41] The Seaside General Plan Noise standards are substantially similar to the standards in its noise ordinance. *See* Seaside 2004 General Plan, p. N-5.

c. <u>The project is inconsistent with the BRP policies requiring protection of open space uses from noise.</u>

The BRP contains several policies that mandate evaluation of noise impacts to open space uses and compliance with noise standards for open space receptors. BRP Noise Policies A-1, B-1, B-2, and B-5 require compliance with the 24-hour average noise standards for open space specified in BRP Table 4.5-3 (reproduced in DSEIR as Table 4.10-6). See BRP, pp. 411, 413-414.

As discussed, Seaside has failed to comply with BRP Noise Policy A-1 and Programs A-1.1 and A-1.2 mandating inclusion of the BRP's 24-hour noise standards in the Seaside noise ordinance and application of that standard to projects in Fort Ord. As a result, the Seaside noise ordinance omits the BRP's 50 dBA CNEL standard for passively used open space.

Furthermore, as Mr. Watry explains, the SEIR fails to provide an adequate assessment of the project's compliance with BRP open space noise standards by 1) failing to assess compliance with BRP statistical noise standards, 2) failing to determine 24-hour average noise levels at affected open space proximate to the project and failing to assess compliance with the BRP's 50 CNEL normally acceptable noise standard for open space use, and 3) failing to specify that mitigation must meet relevant noise standards for open space, e.g., the BRP 24-hour average and statistical noise standards. The failure of assessment and mitigation is not only a violation of CEQA, but also of BRP Policy B-3, which requires that an acoustical study be submitted prior to accepting a development application as complete that evaluates a project's compliance with Table 4.5-3 and Table 4.5-4 noise standards and proposes necessary mitigation.

Mr. Watry has explained that construction noise and stationary noise from the project will in fact exceed the statistical noise standards in BRP Table 4.5-4, and that there is no assurance that proposed mitigation will ensure that the project will meet these statistical noise standards or even meet applicable 24-hour average standards. In light of the City's failure to evaluate open space noise impacts and the evidence that the project will not meet open space noise standards, there can be no substantial evidence that the project is consistent with BRP Policies A-1, B-1, B-2, and B-5.

Finally, BRP Noise Policy B-8 bars any noise increase of 3 dBA Ldn or more at the property line where ambient noise already exceeds the normally acceptable open space standard of 50 dBA. BRP, p. 415. The FSEIR indicates that open space noise already exceeds that standard, by claiming that monitored noise at Site 2 represents existing ambient open space noise levels. FSEIR, p. 11.4-1052. As Mr. Watry explains, the SEIR fails to make any determination whether noise levels would increase by 3 dBA at open space locations adjacent to the project or to impose mitigation that would ensure compliance. Thus, there can be no substantial evidence that the project complies with BRP Noise Policy B-8.

d. The project is inconsistent with BRP Policy B-6.

BRP Noise Policy B-6 bars a 5 dBA Ldn noise increase to residential uses caused by new development where ambient noise levels for those residential uses are not above the normally acceptable level in BRP Table 4.4-3. BRP, p. 414. BRP Table 4.4-3 provides that the normally acceptable noise level for single family residential uses is 50-55 dBA Ldn and for multi-family residential use it is 50 to 60 Ldn. BRP, p. 411.

Traffic noise from the project will increase noise by more than 5 dBA at a number of locations, even though the SEIR does not conclude that noise will exceed the 60 dBA Ldn standard. For example:

- noise on 7th Avenue between Gigling Road and Colonel Durham Street will increase by 6.3 dBA under existing with project conditions (DSEIR, Table 4.10-11);

- noise on 8th Street between Inter Garison Road and 6th Avenue will increase by 5.1 dBA under existing with project conditions (DSEIR, Table 4.10-11);

- noise on 7th Avenue between Gigling Road and Colonel Durham Street will increase by 6.4 dBA under 2035 with project conditions (DSEIR, Table 4.10-12).

These noise increases violate BRP Policy B-6.

As Mr. Watry explains, the FSEIR's argument that the noise determination in the DSEIR is 100 feet from the roadway and that there are intervening structures is simply irrelevant. BRP Noise Policy B-6 requires measurement at the property line, and if the noise increase exceeds 5 dBA at 100 feet, the increase will exceed 5 dBA at locations closer to the source. Furthermore, the effect of intervening structures on total noise levels would be the same for both pre-and post-project noise, so the increase in noise would still be 5 dBA regardless of intervening structures.

The FSEIR's argument that provision of interior noise mitigation as required by BRP Noise Policy B-5 would somehow ensure compliance with Policy Noise B-6 is also irrelevant. The two BRP policies are distinct and independent requirements, and are intended to attain different standards. Provision of interior noise mitigation would do nothing to ensure that exterior noise standards are met at the property line.

e. The project is inconsistent with both BRP policies and the Seaside Municipal Code provisions that require noise to be assessed and standards to be met at the property line.

Compliance with exterior noise standards must be determined based on noise levels "measured at the property line of the noise-sensitive land use receiving the noise" under SMC, § 17.30.060(H); *see also* SMC, § 17.30.060E(1)(a) (no use may generate noise in excess of standards "as the noise is measured at the property line of a noise sensitive land use identified in Tables 3-3 and 3-4"). BRP's statistical noise standards and its 24-hour average noise standards, compliance with which is mandated by BRP Noise Policies A-1, B-1, B-2, B-3, and B-5, are expressly "applicable at the property line." BRP PEIR, pp. 411-412, Tables 4.5-3 and 4.5-4. BRP Noise Policies B-6, B-7, and B-8, which bar certain noise increases depending on ambient conditions, are all enforceable as "measured at the property line." BRP, pp. 414-415.

As Mr. Watry explains, the purpose of determining compliance at the property line is in part to protect noise-sensitive outdoor land uses that cannot be protected by building insulation or HVAC systems. Despite this, the SEIR fails to determine traffic noise impacts at the property line of the receiving land uses.

12. The SEIR fails to acknowledge that it would be inconsistent with Municipal Code section 17.30.060(F) to site new noise-sensitive uses where traffic noise causes an exceedance of City standards.

LandWatch objected that the DSEIR fails to acknowledge that Seaside Municipal Code section 17.30.060(F) bars any new noise-sensitive uses in areas where the standards in Table 3-4 (reprinted as DSEIR Table 4.10-5) are or would be exceeded unless mitigation ensures meeting both indoor <u>and outdoor</u> standards, as determined at the property line. Comments PO 208-92, 208-110. Portions of the project would be sited in areas that exceed or will exceed the Table 3-4 standards at the property line. For example, the project would include residential uses on Gigling Road between 8th Avenue and 7th Avenue. DSEIR, Figure 2-16. Traffic noise at 57.9 CNEL at 100 feet from the roadway centerline would exceed the City's 55 CNEL normally acceptable residential standard on that segment. DSEIR, Table 4.10-12; SMC §17.30.060(E) (Table 3-4). Regardless whether this is deemed a significant impact under CEQA, the City must acknowledge that it is an inconsistency with its noise ordinance.

The FSEIR responds by arguing that the noise levels are determined at 100 feet and that there are intervening barriers and that sensitive uses are "generally" located more than 100 feet from the centerline. FSEIR, p. 11.4-1054. This misreads the ordinance, which clearly states that "exterior noise levels shall be measures at the property line of the noise-sensitive land use receiving the noise" in order to "maintain outdoor and indoor noise levels on the receptor site in compliance with Tables 3-3 and 3-4." SMC, § 17.30.060(H), (F).

G. The elimination of references to horse racing as an allowed use in the specific plan does not ensure that horse racing will not be permitted.

At the eleventh hour, staff now proposes to eliminate horse-racing as an allowed use from the specific plan. The specific plan would still permit construction of horse-racing facilities, including the track (now termed a "training track") and the grandstand. Nothing in the proposed conditions of approval would actually ban horse-racing or preclude identifying it as an allowed use in a future interpretation or revision of the specific plan. The applicant would remain free to condition sales of residential properties on acceptance of this potential future use.

The City has prepared an SEIR that assumes that horse-racing would be an allowed use. If horse-racing were identified as an allowed use in a future interpretation or revision of the specific plan, the applicant would likely argue that certification of the SEIR would obviate the need for additional environmental review.

Not only could the City easily identify horse-racing as an allowed use in a future interpretation or revision of the specific plan, regulation of horse-racing could be found to be preempted by statute and state regulation and not subject to a municipal veto. Indeed, a city official has acknowledged as much:

> Malin acknowledged, the racing enterprise could be re-inserted into the plan at some point.
>
> "…In both a conceptual and practical sense, horse racing is a legal business. Conceptually, cities can't generally prohibit legal businesses from operating in a community, particularly those that are as much creatures of state regulation as horse racing is. Conceptually, horse racing could come to almost any city with infrastructure that exists (or may be constructed) to support it. Practically speaking, should the project move forward, it would be very difficult to add horse racing back into the project if homes are sold without that use allowed within the first approvals.

Monterey Bay Partisan, Seaside officials want to remove horse racing from Monterey Downs venture, at least for now, Sept. 5, 2016, available at http://www.montereybaypartisan.com/2016/09/05/seaside-officials-want-to-remove-horse-racing-from-monterey-downs-venture-at-least-for-now.

If the City is serious about precluding horse-racing at the site, it should take steps that would inhibit or effectively ban the use. For example, the City could disallow the construction of a "training-track" and grandstand. The City could acknowledge that the horse-racing use would contribute to substantial adverse environmental impacts to traffic and noise and, accordingly, identify a ban on horse-racing as required mitigation. The City could simply ban horse-racing by ordinance.

If the City does not believe it has the authority to ban horse-racing under state law and does not take the other actions that could inhibit horse-racing, then its elimination of references to horse-racing in the specific plan is a hollow and cynical exercise intended to assuage horse-racing opponents without actually addressing their concerns.

H. The elimination of references to horse racing as an allowed use in the specific plan renders the SEIR's project description unstable.

An adequate project description must be stable and accurate in order to support public participation and informed decision making. Guidelines, § 15124; *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192-193, 197-198. An <u>inaccurate</u> project description vitiates the EIR's analysis; that is, a failure of description causes a failure of analysis. *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 396-397. An <u>inconsistent</u> project description also vitiates adequate analysis. *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 89; *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 654-657, 672. A curtailed and shifting project description that precludes informed public participation and decision making is a prejudicial failure to proceed as required by law. *San Joaquin Raptor v. Merced, supra,* 149 Cal.App.4th at 655, 672.

The last-minute elimination of horse-racing from the specific plan renders the project description prejudicially unstable. The analysis of impacts was expressly predicated on the assumption that horse-racing would occur, and, without that use, the SEIR's analyses are no longer justified. For example, as discussed above, 950 of the project's projected 2,391 on-site jobs are identified as equestrian jobs associated with the Phase 6 construction of the horse-racing facilities. There is no analysis that would support a finding that other uses would replace those jobs. Without those jobs, there would only be 1,441 jobs at buildout, resulting in a jobs/housing ratio of 1,441 jobs/1,280 housing units, a ratio of 1.13. SEIR's analyses that are dependent on a strong jobs/housing ratio are invalid. As discussed above, the project would not meet the BRP jobs/housing goal or contribute to meeting the Seaside goal. A reduction in the jobs/housing ratio would result in increased per capita off-site vehicle trips and aggravate the significant per-capita GHG impact.

The elimination of the horse-racing use, if it is in fact eliminated, is significant new information that requires recirculation of a draft EIR to re-assess impacts that are dependent on the DSEIR's assumptions about race track jobs and land uses. Guidelines, § 15088.5(a).

I. The project is inconsistent with the Base Reuse Plan.

Under the Fort Ord Reuse Act, Seaside may not approve a development project that is not consistent with the BRP. Gov. Code, § 67675.8(b)(1). As discussed above, the project is inconsistent with a number BRP noise policies and programs. In addition, the SEIR admits that it is inconsistent with the BRP Hydrology and Water Quality Policies B-1 and B-2, which policies require additional water supplies and prohibit approval of a development project without an assured long-term water supply. DSEIR, p. 4.9-10; FSEIR 14.4-1020. As discussed above, approval of the project with mitigation that may compel construction of only Phases 1-3 is inconsistent with BRP policies mandating a balanced jobs/housing ratio, including DRMP § 3.11.5.4(b), (c).

Yours sincerely,

M. R. WOLFE & ASSOCIATES, P.C.

John H. Farrow

JHF:hs
Cc: Michael Delapa

References – provided via digital electronic media:

1. Dept. Of the Army, Final Supplemental EIS Fort Ord Disposal and Reuse, June 1996, available at http://docs.fortordcleanup.com/ar_pdfs/AR-BW-1538//Section_4.pdf. The quote from the Final SEIS is of the unchanged text of the 1995 Draft SEIS.

2. Dept. of the Army, Final EIS, Fort Ord Disposal and Reuse, June 1993, available at http://docs.fortordcleanup.com/ar_pdfs/AR-BW-1348//Section_4/section_4.5.pdf

3. US Army Corps of Engineers, *Other Physical Attributes Baseline Study of Fort Ord, California*, April 1992, available at http://docs.fortordcleanup.com/ar_pdfs/AR-BW-2202//Section_1.pdf.

4. MCWRA, State of the Salinas Valley Groundwater Basin, 2016, p. 4-25, available at http://www.mcwra.co.monterey.ca.us/hydrogeologic_reports/documents/State_of_the_SRGBasin_Jan16_2015.pdf

5. Marina Coast Water District ("MCWD"), Notice of Determination, Regional Urban Water Augmentation Project, June 2, 2005

6. MCWD, Notice of Determination, Regional Urban Water Augmentation Project, Addendum No. 1, December 18, 2006

7. MCWD, Notice of Determination, Regional Urban Water Augmentation Project, Addendum No. 2, Feb. 24, 2009

8. MCWD, Notice of Determination, Regional Urban Water Augmentation Project, Addendum No. 3, April 19, 2016.

9. Center for Urban Transportation Research, Trip Internalization in Multi-use Developments, April 2014, available at http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_PL/FDOT-BDK84-977-10-rpt.pdf.

10. Caltrans, Transportation Concept Report for State Route 1 in District 5, April 2006, available at

http://www.dot.ca.gov/dist05/planning/sys_plan_docs/tcr_factsheet_combo/mon_sr1_tcrfs.pdf.

11. Monterey County Water Resources Agency (MCWRA), Protective Elevations to Control Seawater Intrusion in the Salinas Valley ("Protective Elevations"), 2013, p. 2, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_II/documents/ProtectiveElevationsTechnicalMemorandum.pdf.

12. MCWRA, Salinas Valley Water Project Draft EIR ("SVWP DEIR"), 2001, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_I/documents/DEIR_EIS_2001/2001%20SVWP_DEIR_2001.pdf.

13. DWR, Critically Overdrafted Basins, available at http://www.water.ca.gov/groundwater/sgm/cod.cfm.

14. DWR, Critically Overdrafted Basins (1/2016), available at http://www.water.ca.gov/groundwater/sgm/pdfs/COD_BasinsTable.pdf.

15. MCWRA, Salinas Valley Water Project Final EIR, p. 2-36, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_I/documents/Final%20EIR-EIS%20SVWP_RTC-Vol%201.pdf.

16. WRIME, Deep Aquifer Investigative Study, 2003.

17. MCWD, 2015 draft UWMP, available at http://www.mcwd.org/docs/agenda_minutes/2016-06-06_board/Item%2011-A%20-%20MCWD%20Draft%202015%20UWMP%20v20160520.pdf.

18. Hanson, et al., Comparison of groundwater flow in Southern California coastal aquifers, Geological Society of America, Special Paper 454, 2009, pp. 6-7, 11, 13, 14, 19, 26, available at https://www.researchgate.net/publication/279335540_Comparison_of_groundwater_flow_in_Southern_California_coastal_aquifers.

19. Transcript of Monterey County Planning Commission, Oct. 29, 2014, available in video file at http://monterey.granicus.com/MediaPlayer.php?view_id=14&clip_id=2745.

20. Ground Water Summary Reports published by MCWRA in 1995-2014, available at http://www.mcwra.co.monterey.ca.us/groundwater_extraction_summary/groundwater_extraction_summary.php.

21. MCWRA, Salinas Valley Water Project Engineers Report, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_I/documents/SVWP%20final_engineers_report.pdf.

22. Monterey County General Plan DEIR, available at http://co.monterey.ca.us/government/departments-i-z/resource-management-agency-rma-/planning/resources-documents/2010-general-plan/draft-environmental-impact-report-deir.

23. MCWRA, Salinas Valley Water Project Phase II, Overview, Background, Status, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_II/salinas_valley_water_project_II_overview.php.

24. MCWRA, Salinas Valley Water Project Phase II, Status, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_II/salinas_valley_water_project_II_project_status.php.

25. MCWRA, Salinas Valley Water Project Phase II website, Project Description, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_II/salinas_valley_water_project_II_overview.php.

26. MCWRA Notice of Preparation of EIR, Salinas Valley Water Project Phase II, June 2014, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_II/documents/NOP%20Salinas%20Valley%20Water%20Project%20Phase%20II.pdf.

27. Monterey Bay Partisan, Seaside officials want to remove horse racing from Monterey Downs venture, at least for now, Sept. 5, 2016, available at

http://www.montereybaypartisan.com/2016/09/05/seaside-officials-want-to-remove-horse-racing-from-monterey-downs-venture-at-least-for-now.

Attachment – Timothy Parker to John Farrow, October 8, 2016, Technical Memorandum

Technical Memorandum October 8, 2016

To: John H. Farrow, M.R. Wolfe Associates, P.C., Attorneys-at-Law

From: Timothy K. Parker, PG, CEG, CHG, Parker Groundwater

Subject: Technical Review of Draft Subsequent Environmental Impact Report for the Monterey Downs and Monterey Horse Park and Central Coast Veterans Cemetery Specific Plan (DSEIR) and the Final Subsequent Environmental Impact Report for the Monterey Downs and Monterey Horse Park and Central Coast Veterans Cemetery Specific Plan (DSEIR)

At your request, I have reviewed the Draft Subsequent Environmental Impact Report for the Monterey Downs and Monterey Horse Park and Central Coast Veterans Cemetery and the Final Subsequent Environmental Impact Report for the Monterey Downs and Monterey Horse Park and Central Coast Veterans Cemetery Specific Plan (FSEIR) together with the documents cited in the discussion below. My conclusions are set out below.

I am a California Professional Geologist (License #5584), Certified Engineering Geologist (License # EG 1926), and Certified Hydrogeologist (License #HG 12), with over 25 years of geologic and hydrologic professional experience. I serve as a member of the Technical Advisory Committee to the Monterey County Water Resources Agency in connection with its ongoing study of the Salinas Valley Groundwater Basin that is mandated by Policy PS 3.1 of the 2010 Monterey County General Plan. The purpose of that study is to evaluate historic data and trends in seawater intrusion and groundwater levels in the Salinas Valley Groundwater Basin, to evaluate the likely future groundwater demand, to determine whether groundwater level declines and seawater intrusion are likely to continue through 2030, and to make recommendations for action. This study has not been concluded, but a preliminary report was released in January 2015 by the prime consultant for the PS-3.1 study.[1] My Resume and Project Experience are attached.

A. Cumulative pumping in the Salinas Valley Groundwater Basin (SVGB) and its Pressure Subarea has resulted in aquifer depletion and associated seawater intrusion, and current groundwater management efforts are not sufficient to avoid this significant cumulative impact.

1. Overdraft and seawater intrusion in the Salinas Valley Groundwater Basin

The project will obtain its water supply from wells in the 180/400-Foot Aquifer Subbasin ("180/400-Foot Aquifer" or "Pressure Subarea") at the northwest end of the Salinas Valley

---

1 MCWRA, State of the Salinas River Groundwater Basin, January, 2015, available at http://www.mcwra.co.monterey.ca.us/hydrogeologic_reports/documents/State_of_the_SRGBasin_Jan16_2015.pdf.

Groundwater Basin. DSEIR p. 4.19-2 to 4.19-3. The Pressure Subarea is one of the eight subbasins making up the Salinas Valley Groundwater Basin (SVGB).[2] Overdraft in the Pressure Subarea has averaged about 2,000 acre-fee per year ("afy") from 1944 to 2014, and the Basin as a whole is "currently out of hydrologic balance by approximately 17,000 to 24,000 afy."[3] Pumping from the Basin has exceeded recharge since the 1930s, causing seawater intrusion as inland groundwater elevations dropped below sea level, permitting the hydraulically connected seawater to flow inland.[4] Seawater intrusion has advanced more than 5 miles inland, rendering significant groundwater unusable for irrigation or domestic uses.[5]

The rate of seawater intrusion is variable, increasing and decreasing with changes in precipitation, but the long-term trend has been a progressive advance in both the 180-foot and 400-foot aquifers.[6] The current prognosis for the Pressure Subarea is for further seawater intrusion due to continued groundwater elevations below sea-level including the latent effects of the recent drought:

> The fact that groundwater elevations are well below the documented protective elevations indicates that the P-180 Aquifer continues to be susceptible to seawater intrusion, and it is unlikely that this situation will be reversed in the coming years, particularly if the current drought conditions continue. Based on the observed time lag (latency) between the end of the historic drought (WY 1991) and the end of the resulting chloride concentration increase (around 1999), one can predict that the 2013 chloride levels reported for coastal wells could show upward concentration trends over the coming years as the SWI front advances, even if wetter climate conditions return. The study area has had three straight years of severe drought

---

[2] MCWRA, Protective Elevations to Control Seawater Intrusion in the Salinas Valley ("Protective Elevations"), 2013, p. 2, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_II/documents/ProtectiveElevationsTechnicalMemorandum.pdf; MCWRA, State of the Salinas River Groundwater Basin, 2015, Section 3.

[3] MCWRA, State of the Salinas River Groundwater Basin, pp. 6-3.

[4] MCWRA, Protective Elevations, pp. 4—5; MCWRA, State of the Basin, pp. 2-4, 5-2; MCWRA, Salinas Valley Water Project Draft EIR ("SVWP DEIR"), 2001, pp. 1-2 to 1-8, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_I/documents/DEIR_EIS_2001/2001%20SVWP_DEIR_2001.pdf.

[5] MCWRA, State of the Salinas River Groundwater Basin, pp. 5-2 to 5-6; *see also* California Department of Water Resources, Bulletin 118, Salinas Valley Groundwater Basin, 180/400 Foot Aquifer Subbasin, available at http://www.water.ca.gov/groundwater/bulletin118/basindescriptions/3-04.01.pdf.

[6] MCWRA, State of the Salinas River Groundwater Basin, pp. 5-2 to 5-9.

> conditions, and continued drought conditions are projected to cause substantial declines in both groundwater head (Section 3.4) and storage (Section 4.4).[7]

The California Department of Water Resources (DWR) is required by the Sustainable Groundwater Management Act to designate as "critically overdrafted" those groundwater basins for which "continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts."[8] DWR identified the 180/400-Foot Aquifer of the Salinas Valley Groundwater Basin as critically overdrafted in January 2016.[9]

2. Efforts to control seawater intrusion

The Monterey County Water Resources Agency ("MCWRA") and predecessor agencies have implemented several projects to address seawater intrusion by storing surface water, increasing recharge, and reducing groundwater pumping along the coast.[10] These include the Nacimiento and San Antonio Reservoirs, water recycling to support the Castroville Seawater Intrusion Project, and the Salinas Valley Water Project (SVWP). The SVWP is the most recent of these projects, completed in 2010.

The EIR for the SVWP explains that seawater intrusion is determined by the amount and location of pumping, and varies in response to annual patterns of precipitation. Because coastal pumping causes greater intrusion impacts, the most effective mitigation for seawater intrusion is a reduction of pumping in coastal areas.[11] However, total pumping in the hydraulically connected SVGB also matters:

> [P]umping in the coastal area closest to the seawater intrusion front has a greater influence on seawater intrusion than pumping in a valley area more distant from the front. Nevertheless, pumping in each area affects seawater intrusion because each subarea draws water from the same Basin.[12]

---

7 MCWRA, State of the Salinas River Groundwater Basin, pp. 5-7 to 5-8, see Tables 3-2 and 4-6 in Sections 3.4 and 4.4.

8 DWR, Critically Overdrafted Basins, available at http://www.water.ca.gov/groundwater/sgm/cod.cfm.

9 DWR, Critically Overdrafted Basins (1/2016), available at http://www.water.ca.gov/groundwater/sgm/pdfs/COD_BasinsTable.pdf.

10 Marina Coast Water District (MCWD), Urban Water Management Plan (UWMP), 2010, pp. 30-31.

11 MCWRA, SVWP Final EIR, p. 2-36, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_I/documents/Final%20EIR-EIS%20SVWP_RTC-Vol%201.pdf.

12 MCWRA, SVWP Final EIR, p. 2-35 to 2-36 (emphasis in original).

The 2002 SVWP EIR predicted that the SVWP could halt seawater based on the amount and location of 1995 demand.[13] However, it could not assure that the SVWP would halt seawater intrusion in 2030, even though total demand was estimated to decline, because of projected urban growth and associated higher demand in the northern end of the Basin, e.g., the Fort Ord area.[14]

> As noted in Section 3.2.4, overall water demand in the Basin is anticipated to decline by 2030, but total urban needs are projected to increase from 45,000 acre-feet per year (AFY) in 1995 to 85,000 AFY (a 90% increase) based on projected growth, a large part of which is expected to occur in the northern end of the valley. The modeling shows that with projected 2030 demands, seawater intrusion with implementation of the proposed project may total 2,200 acre-feet per year (AFY) (10,500 AFY of intrusion is anticipated to occur without the project). For this reason, the Draft EIR/EIS reports that the SVWP may not halt seawater intrusion in the long term.[15]

The SVWP EIR also cautioned that "any additional water needs within an intruded groundwater basin would exacerbate seawater intrusion."[16]

3. **Seawater intrusion will not be controlled by current management efforts because demand has exceeded projections.**

Attachment 1 presents a discussion of the SVWP modeling assumptions compared to subsequent conditions and a discussion of MCWRA's current acknowledgement and scientific documentation that the existing groundwater management projects are not sufficient to halt seawater intrusion in the SVGB. Attachment 1 demonstrates that:

- The SVWP EIR assumed that Basin groundwater pumping would decline substantially from 1995 to 2030, from 463,000 afy to 443,000 afy, based on large expected reductions in agricultural pumping, which dominates Basin water demand. However, groundwater pumping in the 20 years since 1995 substantially exceeded 1995 levels, averaging well over 500,000 afy.

- Modeling for the SVWP understated the level of post-1995 pumping that has actually occurred and that, in any event, the SVWP EIR only claimed the SVWP would halt seawater intrusion based on 1995 land use.

- The existing groundwater management projects have only been able to slow seawater intrusion. While reports show that the rate of seawater intrusion has

---

13 MCWRA, SVWP DEIR, pp. 3-23 to 3-24.

14 Id.

15 MCWRA, SVWP Final EIR, p. 91.

16 MCWRA, SVWP Draft EIR, p. 7-7.

declined since the last drought-induced spike in intrusion during 1997-1999, intrusion continues. Furthermore, a new drought-induced spike, which typically follows a drought after a lag period of some years, is now likely to occur due to the latent effects recent drought.[17]

- Thus, MCWRA has concluded that a new project or projects supplying an additional 48,000 afy of groundwater recharge, over and above that supplied by the SVWP, would be required in order to maintain protective groundwater elevations sufficient to control seawater intrusion.

B. The Monterey Downs SEIR's discussion of water supply impacts focuses on water supply allocation and reliability of pumping systems and assumes that the Salinas Valley Water Project will halt seawater intrusion.

The DSEIR reports that, pursuant to a 1993 agreement annexing the Fort Ord are into Zones 2 and 2A of the Monterey County Water Resources Agency, Marina Coast Water District (MCWD) may withdraw up to 6,600 afy from the SVGB for use in the Ord Community. (DSEIR p. 4.8-9.) The DSEIR reports that the Fort Ord Reuse Authority (FORA) has sub-allocated this 6,600 afy to the member agencies that have local land use jurisdiction in the Ord Community; that those member agencies have in turn allocated some of their sub-allocations to approved development projects; and that Seaside and Monterey County still retain 412.9 afy of their respective sub-allocations that have not yet been committed to approved projects. (DSEIR p. 4.19-2 to 4.19-5.) The DSEIR concludes that this unallocated water would be sufficient to support Phases 1-3 of the project, but that additional water supplies would be required for Phases 4-6. (DEIR p. 4.19-24, 4.8-34.)

The Monterey Downs DSEIR concludes that Phases 1-3 of the project will not have a significant impact on groundwater because (1) those phases "would only use groundwater that is within MCWD's existing 6,600 AFY allocation" and (2) "MCWD's groundwater supply is considered reliable on a quantity and quality basis." (DSEIR p. 4.8-34; see DSEIR p. 4.19-32.) As discussed in the next two sections, neither of these two reasons for concluding the impact is not significant are justified.

The conclusion that "MCWD's groundwater supply is considered reliable on a quantity and quality basis" (DSEIR p. 4.8-34) is taken from the Water Supply Assessment (WSA).[18] The WSA information in taken in turn from the MCWD 2010 Urban Water Management Plan (UWMP).[19] In support of the claim that the water supply is "reliable" the FSEIR also cites studies estimating project water demand and evaluating stormwater runoff and recharge; however these additional documents are concerned with project demand estimates, sewer

---

17 MCWRA, State of the Salinas River Groundwater Basin, pp. 5-7 to 5-8.

18 MCWD, Water Supply Assessment and Written Verification of Supply for Monterey Downs Specific Plan, 2012, pp. 22-23.

19 MCWD, Urban Water Management Plan (UWMP), 2010, p. 53.

usage estimates, and stormwater runoff, and do not provide any discussion of groundwater impacts to the SVGB due to increased pumping that is not contained in the WSA and UWMP.[20]

The UWMP's discussion of water supply "reliability" cited by the WSA is expressly based on the claims that the SVWP will in fact eliminate overdrafting and prevent saline contamination and that pumping will respect "long-term safe yields:"

> 5.1 Water Supply Reliability - Single and Multiple Dry Year and Demand Comparison
>
> The Urban Water Management Planning Act requires a description of a water provider's supply reliability and vulnerability to shortage for an average water year, a single dry year or multiple dry years. Such analysis is most clearly relevant to water systems that are supplied by surface water. Since the bulk of MCWD's supply is groundwater and the remainder is from desalinated supply, short- and medium-term hydrologic events over a period of less than five years usually have little bearing on water availability. Groundwater systems tend to have large recharge areas. The Salinas Basin is aided by two large storage reservoirs, Nacimiento and San Antonio, providing about 700,000 ac-ft of storage. These reservoirs regulate surface water inflow to the basin shifting winter flows into spring and summer releases for consumptive use, which also allows for increased basin recharge. <u>The Salinas Valley Water Project is expected to increase the average level of groundwater storage, moving the basin from a situation where average storage is declining to a net increase in storage of about 6,000 ac-ft annually. Provided groundwater is protected from contamination and long-term safe yields in the basin are respected, water is available annually without regard to short-term droughts</u>. This is due to the large storage volume of the basin that can be utilized to offset annual variations in surface runoff. Therefore, MCWD's groundwater supply is fully available in annual average, single dry year and multiple dry years.[21]

The 2010 UWMP discusses previous groundwater management efforts including the Nacimiento and San Antonio reservoirs and the Castroville Seawater Intrusion Project (CSIP).[22] The UWMP then states that the SVWP was developed to "fully eliminate basin

---

[20] See e.g., DSEIR pp. 4.8-48 to 4.8-49, FSEIR, pp. 11.4-1623, 11.4-1628 to 11.4-1629, 11.4-1611, 11.4-1569, 11.4-1574, 11.4-1575, 11.4-1585, citing Monterey Horse Park Project Water Demand and Sewage Generation (Horse Park Water Sewer) (Whitson Engineers, August 16, 2012); Water Supply Assessment and Written Verification of Supply for the Monterey Downs Specific Plan (Schaaf & Wheeler Consulting Engineers, November 6, 2012);Water Supply Assessment for the Monterey Downs Specific Plan Update to Table 5-2 (Marina Coast Water District, November 28, 2012); City of Seaside – Monterey Downs WSA Supplement (Diamond West Incorporated, February 21,2014); and Monterey Downs Water and Sewer Demand Study (WSDS) (Diamond West Incorporated, September 24, 2012).

[21] MCWD, 2010 UWMP, p. 53.

[22] MCWD, 2010 UWMP, pp. 30-31.

overdraft and seawater intrusion," and claims that "MCWRA modeling concludes that this component will eliminate basin overdraft and intrusion."[23] The 2010 UWMP reports that the SVWP assumes that there will be a 20,000 afy reduction in SVGB demand by 2030, consistent with the SVWP EIR's modeling assumptions.[24] The 2014 WSA Supplement prepared by Diamond West on behalf of the applicant reports these UWMP claims that the SVWP will reverse the overdraft condition (result in a "net increase in storage of about 6,000 ac-ft annually"), avoid saline contamination, and that SVGB demand is projected to decline 20,000 afy by 2030.[25]

However, the DSEIR, the WSA, and the WSA Supplement all fail to report that the UWMP acknowledges that the seawater intrusion front continues to advance in the vicinity of the Marina and Ord Community, and threatens the wells supplying the Ord Community.[26] They also fail to report that the UWMP states that the SVWP is expected to halt seawater intrusion only based on a 1995 pumping baseline, that "it is uncertain whether this outcome will be borne out at currently expected levels of pumping increases in the coastal margins of the Pressure subarea," and that MCWRA has also documented that the SVWP "may not halt intrusion in the long run and that additional surface water delivers into the coastal region" may be needed.[27] Neither the SEIR, the WSA, or the WSA Supplement discuss MCWRA's current reports and documentation, discussed in Attachment 1, that (1) SVGB demand has exceeded the demand projections used by the SVWP modeling, (2) actual pumping in the SVGB is unsustainable without adverse impacts because it exceeds the long-term safe yield, and (3) additional groundwater management projects, which are neither committed nor funded, are needed to halt seawater intrusion caused by current pumping because the SVWP will not do so.

C. The Monterey Downs SEIR analysis is based on the unfounded assumption that there would be no significant impact as long as total Fort Ord pumping is less than 6,600 afy; however, any additional pumping will further aggravate existing seawater intrusion regardless of whether portions of the 6,600 afy remain unallocated.

As noted, a major premise of the SEIR's conclusion that water supply impacts for Phases 1-3 are not significant is that the project "would only use groundwater that is within MCWD's existing 6,600 AFY allocation." (DSEIR p. 4.8-34.) However, the existence of a water supply

---

23 MCWD, 2010 UWMP, p. 31.

24 MCWD, 2010 UWMP, p. 41.

25 Diamond West, WSA Supplement, 2014, p. 13.

26 See MCWD, 2010 UWMP, p. 36.

27 MCWD, 2010 UWMP, p. 42.

entitlement does not imply that there are no impacts from using that water. The relevant question for CEQA impact analysis is whether increased pumping to support the project will cause physical impacts, regardless of any entitlement to use that water. As discussed below, additional pumping in the SVGB, especially in the coastal areas, will in fact aggravate seawater intrusion, but the DSEIR does not acknowledge this as a relevant basis for impact analysis.

The SEIR purports to tier from the Program EIR prepared for the Base Reuse Plan in 1997 (the BRP PEIR). However, the BRP PEIR did not assume that there would be no significant groundwater impacts unless and until Ord Community pumping reaches 6,600 afy. The BRP PEIR analysis of water supply impacts makes it clear that FORA did not necessarily expect that 6,600 afy could be pumped from beneath Fort Ord without causing further seawater intrusion, and its mitigation does not permit the agencies to delay a solution if intrusion persists.

The BRP PEIR impact analysis qualifies any reliance on the 6,600 afy allocation by stating that a potable water supply is "assumed to be assured from well water until a replacement is made available by the MCWRA," but only "provided that such withdrawals do not accelerate the overdraft and seawater intrusion problems in the Salinas Valley groundwater aquifer." (BRP PEIR p. 4-53 (emphasis added)). It states that the 6,600 afy "could" support the first phase of Ord community development through 2015 and then notes "given the existing condition of the groundwater aquifer, there is public concern over the ability of the water wells to 'assure' even the 6,600 afy." (BRP PEIR p. 4-53.) Thus, the BRP EIR evaluates the impacts of the BRP through 2015 in two distinct analyses, one of which assumes that 6,600 afy can be supplied without impacts and the other of which assumes that it cannot. In particular, it provides that "[a]ssuming groundwater wells on former Fort Ord were able to supply 6,600 afy," an additional 7,932 afy of supply would be required by 2015. (BRP PEIR, p. 4-53.) However, it then provides in the alternative that "[i]f groundwater wells were unable to supply the projected 2015 demand of 6,600 afy of water for former Fort Ord land uses, e.g., if pumping caused further seawater intrusion into the Salinas Valley Aquifer," additional supplies would have to be developed sooner, and even further recommends "that an alternate water supply source, such as on-site storage facilities, be considered." (BRP PEIR, p. 4-54.)

The BRP PEIR provides specific policy requirements to ensure adequate, timely mitigation of seawater intrusion, mitigation that may need to be implemented before 6,600 afy is committed or pumped for new development. Policy B-1 requires that the FORA members "shall ensure additional water supply." Policy B-2 requires conditioning project approval on verification of an "assured long-term water supply." Policy C-3 requires the member agencies cooperate with MCWRA and MPWMD "to mitigate further seawater intrusion based on the Salinas Valley Basin Management Plan." Program C-3.1 requires the member agencies to work with the water agencies "to estimate current safe yields within the context of the Salinas Valley Basin Management Plan for those portions of the former Fort Ord overlying the Salinas Valley and Seaside groundwater basins, to determine available water supplies." MCWRA has now determined that the safe yield of the Pressure Subarea is about 110,000 to 117,000 afy and that existing pumping exceeds this safe yield by about 12,000 to 19,000 afy.[28] Indeed, the BRP PEIR acknowledges that pumping in the 180-foot and 400-foot aquifers had "exceeded safe yield, as indicated by seawater intrusion and water levels below sea level." (BRP PEIR p. 4-63.) The BRP PEIR states that the "conditions of the 900-foot aquifer are uncertain", including the safe yield and whether the aquifer is in overdraft. *Id.*

The BRP PEIR explains that Policies B-1, B-2, and C-3 are intended to "affirm the local jurisdictions' commitment to preventing further harm to the local aquifers . . . by limiting development in accordance with the availability of secure supplies." (BRP PEIR, p. 4-55.) The explicit provisions for determination of safe yield and for acceleration of water supply projects if 6,600 afy cannot be supplied without further seawater intrusion clearly demonstrate the intent that the member agencies not simply defer action until 6,600 afy has been allocated to development projects if seawater intrusion continues. To the contrary, it seems clear that the BRP PEIR directed the member agencies "to mitigate further seawater intrusion" by, among other things, ensuring that groundwater pumping beyond the determined safe yield is not permitted for new development projects. The BRP PEIR's cumulative analysis makes it clear that Policy C-3 does not permit uncritical reliance on a 6,600 afy allocation: "existing water allocations of 6,600 afy . . . would allow for development to proceed to the year 2015, provided that seawater intrusion conditions are not exacerbated (Policy C-3)." (BRP PEIR p. 5-5 (emphasis added).)

In sum, unlike the Monterey Downs DSEIR, the BRP PEIR does not assume that the 6,600 afy entitlement is a sufficient basis to determine whether there will be a significant water supply impact from continued groundwater pumping.

As discussed above, the problem of seawater intrusion continues its march inland, requiring deeper replacement wells as the volume of usable groundwater declines, and has not been solved in the 19 years since the certification of the 1997 BRP PEIR. In fact, since the certification of the 1997 BRP PEIR, seawater intrusion maps and tables demonstrate an advance of over 2 miles in the seawater intrusion front in the 180-foot aquifer in the Fort Ord area and substantial advances elsewhere in both the 180-foot and 400-foot aquifers have occurred.[29] As the UWMP discloses, as wells have become contaminated, it has been necessary to drill new wells farther inland and to increase pumping from the as-yet uncontaminated 900-foot aquifer.[30] And there are no currently committed, funded projects that are expected to solve the problem. As discussed below, the SEIR presents no evidence that pumping from the 900-foot aquifer will avoid aggravation of seawater intrusion, and

---

[28] MCWRA, State of the Salinas River Groundwater Basin, p. 4-25.

[29] MCWRA, State of the Salinas Valley Groundwater Basin, 2015, pp. 5-2 to 5-5.

[30] MCWD, 2010 UWMP, pp. 33-37.

there is clear evidence to the contrary. In light of this, the SEIR should disclose that increased pumping to support Phases 1-3 of the project would have a potentially significant impact or could make a considerable contribution to a significant cumulative impact on the groundwater aquifer from which the project would be supplied.

The most recent comprehensive study to the SVGB demonstrates that there is a direct connection between <u>any</u> additional groundwater pumping in the Pressure Subarea and increased seawater intrusion. The 2015 State of the Salinas Valley Groundwater Basin Report indicates that the Pressure Subarea remains in overdraft and that groundwater elevations are well below documented protective elevations.[31] Thus, it concludes that the " P-180 Aquifer continues to be susceptible to seawater intrusion, and it is unlikely that this situation will be reversed in the coming years, particularly if the drought conditions continue."[32] The report also states that "groundwater elevations well below the protective elevations indicate that the P-400 Aquifer continues to be susceptible to SWI, particularly if the current drought conditions continue into the coming years."[33] The report recommends reducing existing pumping in the Pressure Subarea because "the current distribution of groundwater extractions is not sustainable."[34] The report explain that over the period of analysis, from 1953 to 2013, there has been an average loss of storage for the entire SVGB of from 17,000 afy to 24,000 afy.[35] "Seawater intrusion can account for 18,000 afy of the total storage loss of 24,000 afy."[36] In short, each additional acre-foot of pumping in the Pressure Subarea induces an additional 0.75 acre-foot of seawater intrusion.

D. The Monterey Downs SEIR analysis is based on the unfounded assumption that there would be no significant impact as long as supply is "reliable."

As noted above, the other major premise of the SEIR's conclusion that water supply impacts for Phases 1-3 would not be significant is that "MCWD's groundwater supply is considered reliable on a quantity and quality basis." (DSEIR p. 4.8-34.) Here, "reliability" as the term is used in the DSEIR, WSA, and UWMP, does not imply that there would be no significant groundwater impact from using the supply.

First, a UWMP and a WSA are required to address "reliability" of a water supply, by which the law simply requires analysis of whether water will be <u>available</u> during normal, single

31 MCWRA, State of the Salinas Valley Groundwater Basin, 2015, p. 5-7.

32 MCWRA, State of the Salinas Valley Groundwater Basin, 2015, p. 5-7.

33 MCWRA, State of the Salinas Valley Groundwater Basin, 2015, p. 5-8.

34 MCWRA, State of the Salinas Valley Groundwater Basin, 2015, p. 6-3.

35 MCWRA, State of the Salinas Valley Groundwater Basin, 2015, p. ES-16.

36 MCWRA, State of the Salinas Valley Groundwater Basin, 2015,, p. ES-16.

dry, and multiple dry years.[37] A groundwater water supply may be reliable, in the sense that water would remain available even during a multi-year drought, even though the use of that water causes significant impacts to the aquifer. For example, notwithstanding the ongoing seawater intrusion caused by continuing overdraft conditions, MCWD and other users have thus far been able to move pumping inland and to tap deeper aquifers to secure groundwater supplies. However, the ability to pump from an underground reservoir of stored groundwater that is large enough to smooth out climatic variation simply does not imply that this pumping is without impacts, such as groundwater depletion, mining and further aggravation of seawater intrusion.

Second, the WSA and 2010 UWMP cite the purported efficacy of the SVWP as the basis for claiming that the water supply is "reliable." However, the claims these documents make for the SVWP are overstated, since the SVWP EIR did not indicate that seawater intrusion would be halted with any certainty by 2030, and these documents are now outdated since the MCWRA now has documented that the SVWP will not in fact prevent continuing seawater intrusion. As discussed in Attachment 1, the future demand assumptions made by the SVWP EIR and used for modeling the efficacy of the SVWP projected declining water usage in the SVGB, from 463,000 afy in 1995 to 443,000 afy in 2030. Reported pumping in the 20 years since 1995 has not declined but has in fact averaged 502,161 afy (and adjusted to include an estimate for non-reporting wells in these zones, the average is 529,024 afy). Thus, MCWRA reports document that the SVWP will not halt seawater intrusion. To halt seawater intrusion, the County must reduce coastal pumping by 48,000 afy, which would require securing additional surface water supplies to be used to replace that groundwater pumping in coastal areas.[38]

Third, the WSA cites the fact that the 900-foot aquifer has not yet shown signs of seawater intrusion as evidence of a "reliable" supply.[39] The fact that MCWD has so far been able to relocate wells, deeper or farther inland, to find a water supply not yet subject to intrusion does not mean that increased pumping does not cause additional impacts. Furthermore, as discussed below neither the WSA nor the SEIR provide an adequate discussion of the potential impacts from increased pumping of the 900-foot Aquifer (the Deep Aquifer), which include impacts to the overlying 180-foot and 400-foot aquifers of the Pressure Subarea and impacts to the 900-foot aquifer itself. As discussed below, increased pumping of the 900-foot aquifer may induce increased seawater intrusion into the overlying 180-foot

[37] Water Code §§ 10631(c) (UWMP must assess reliability for average, single dry, and multiple dry years), 10910(c)(3) (WSA must discuss water availability during normal, single dry, and multiple dry water years); see MCWD, 2010 UWMP p. 53 (reliability discussion); MCWD, WSA, pp. 3, 22-23 (reliability discussion).

[38] MCWRA, Protective Elevations, pp.1, 11.

[39] MCWD, WSA, p. 23.

and 400-foot aquifers, will deplete the 900-foot aquifer itself, and it may in fact result ultimately in seawater intrusion into the 900-foot aquifer.

E. Increased pumping of the 900-foot aquifer will deplete the 900-foot aquifer, may induce additional seawater intrusion, and neither the DSEIR nor FSEIR provide an adequate discussion of this.

LandWatch's Comments PO 208-5 to 208-14 request information about the specific aquifers from which water will be pumped because (1) the DSEIR implies that water can be supplied safely from the 900-foot aquifer even if the 180-foot and 400-foot aquifers are contaminated by seawater, but (2) it also states that there is a hydraulic connection and recharge relation between the 180-foot, 400-foot, and 900-foot aquifers. LandWatch's comments reflect the concern that increased pumping from the 900-foot aquifer could further intrude the 180-foot and 400-foot aquifers and may also intrude the 900-foot aquifer itself. The FSEIR does not supply the requested information and improperly dismisses its relevance because it fails to acknowledge that increased pumping from the 900-foot (Deep) aquifer may induce increased seawater intrusion in the hydraulically connected upper aquifers and fails to discuss risks to the 900-foot aquifer.

1. <u>The FSEIR fails to address LandWatch's comments and requests for information</u>.

LandWatch asked how much is pumped from each of the 180-foot, 400-foot, and 900-foot aquifers under baseline conditions and how much will be pumped in the future. (Comment PO 208-5.) In response the FSEIR states that the DSEIR's analysis is "based on the adopted MCWD 2010 UWMP, and the details concerning aquifer operations do not affect the DSEIR's analyses." (FSEIR, p. 14-4-1022.) However, the UWMP does not provide the requested information regarding existing and projected pumping by aquifer. (Note that Table 4.8-1 in the DSEIR provides pumping <u>capacity</u> by well and by aquifer, but it does not provide baseline or projected pumping <u>volumes</u>. (DSEIR, p. 4.8-10.))

LandWatch asked that the SEIR identify studies cited by the DSEIR, in particular the "recent stratigraphic analyses" that "have indicated" a hydraulic connection between the 180-foot, 400-foot, and 900-foot aquifers. (Comment PO 208-5.) The FSEIR repeated the DSEIR's claim and cited the MCWD 2010 UWMP (FSEIR, p. 11.4-1020), but it did not identify the recent stratigraphic analyses. The MCWD UWMP does not provide stratigraphic analysis. The UWMP does cite WRIME's 2003 "Deep Aquifer Investigative Study," which may possibly be one of the stratigraphic analyses referenced by the DSEIR, although this is unclear because it is not recent.[40] However, as discussed below, WRIME 2003 indicates that increased pumping of the 900-foot aquifer will not be without impacts.

LandWatch asked that the SEIR explain the DSEIR's claims that 1) evidence now shows a hydraulic connection between the 180-foot, 400-foot, and 900-foot aquifers and 2) the 900-

---

40 MCWD 2010 UWMP, p. 36.

foot aquifer is a series of aquifers not all of which are hydraulically connected. (PO 208-5.) LandWatch asked whether this implied that only portions of the 900-foot aquifer are connected to and recharged by the 180-foot and 400-foot aquifers. (PO 208-5.) LandWatch asked if there is in fact any recharge other than from the 180-foot and 400-foot aquifers. (PO 208-5.) However, the FSEIR simply repeated the DSEIR's discussion (FSEIR p. 11.4-1020) without addressing these questions.

LandWatch asked if the wells in the 900-foot aquifer that would support the project are in an area of that aquifer that is recharged by the 180-foot and 400-foot aquifers. (PO 208-6.) The FSEIR again simply repeated the DSEIR's claims that 1) evidence now shows a hydraulic connection between the 180-foot, 400-foot, and 900-foot aquifers and 2) the 900-foot aquifer is a series of aquifers not all of which are hydraulically connected and then stated that "it would be speculative to state exactly which aquifer would supply the Project, since they are connected hydraulically." (FSEIR p. 11.4-1022.) As discussed below, a hydraulic connection between the 180-foot, 400-foot, and 900-foot aquifers means that all pumping will continue to aggravate depletion of the upper aquifers and increase seawater intrusion, and where the deeper 900-foot aquifer is isolated it will cause significant depletion of the 900-foot deeper aquifer, which the SEIR fails to disclose.

The DSEIR's statement that portions of the 900-foot aquifer are not hydraulically connected to other portions of the 900-foot aquifer would allow for the possibility that those unconnected portions are also isolated from the 180-foot and 400-foot aquifers, which would be highly relevant to whether pumping those areas would affect seawater intrusion in the 180-foot and 400-foot aquifers. The FSEIR fails to address this possibility. However, as discussed below, even though there are two distinct aquifers of the Deep Aquifer system,[41] increased pumping from the deeper of these two aquifers is not viable due to the lack of yield.[42] Furthermore, evidence from WRIME's 2003 Deep Aquifer Investigative Study indicates that increased pumping from the upper Deep Aquifer will increase the ongoing depletion of the upper aquifers and has the associated potential to increase seawater intrusion.[43]

LandWatch requested that the SEIR explain whether recharge to the 900-foot aquifer from the seawater-intruded 180-foot and 400-foot aquifers could contaminate the 900-foot aquifer, whether increased pumping in the 900-foot aquifer would increase this risk, and how much pumping from the 900-foot aquifer is sustainable. (PO 208-7 through 208-11.) The FSEIR states that "the 900-foot aquifer is not expected to be contaminated by saltwater through recharge from the 180-foot and 400-foot aquifer, as the MCWD wells are outside of the area currently affected by seawater intrusion." (FSEIR p. 11.4-1022 (emphasis added).)

---

41 WRIME, Deep Aquifer Investigative Study, 2003, p. 5-1.

42 WRIME, Deep Aquifer Investigative Study, 2003, p. 4-7.

43 WRIME, Deep Aquifer Investigative Study, 2003, pp. 5-1 to 5-2.

The response misses the point that there is a significant potential for future contamination of the 900-foot aquifer as seawater intrusion advances to the areas where there is vertical connectivity between all of the aquifers. The response simply fails to make any assessment of this potential as requested by comments. As discussed above and in the attachment, current studies confirm that the seawater intrusion front does in fact continue to advance due to groundwater pumping in excess of recharge. As discussed immediately below, studies confirm that there is vertical connectivity between the 180-, 400-, and 900-foot aquifers. That connectivity, and the induced leakage from the upper aquifers as the Deep Aquifer system is pumped, provides a preferential pathway for seawater intrusion into the Deep Aquifer system.

The FSEIR's responses also miss the point that increased pumping from the 900-foot aquifer further contributes to the existing intrusion of the 180-foot and 400-foot aquifers. The UWMP cites WRIME's 2003 "Deep Aquifer Investigative Study" as evidence that pumping from the Deep Aquifer will in fact induce increased seawater intrusion to the upper aquifers due to vertical connectivity between the three aquifers.[44] However, neither the WSA nor the SEIR, which cite other portions of the UWMP, report this conclusion from the UWMP.

2. Increased pumping from the Deep Aquifer system will deplete the 900-foot aquifer and may induce additional seawater intrusion.

Analysis in WRIME 2003 supports the conclusion that increased pumping from the 900-foot aquifer would induce additional intrusion into the 180-foot and 400-foot aquifers:

> The response curves indicate that additional increases in the deep aquifer groundwater pumping in the coastal areas may induce additional reduction in the groundwater heads, and subsequently additional landward subsurface flows from across the coastline.[45]

Modeling in WRIME 2003 indicates that increasing pumping of the deep aquifer by 1,400 afy over the 2,400 afy baseline 2003 pumping level would lower groundwater levels in the 180-foot, 400-foot, and Deep Aquifers, would induce vertical flows from the upper to the lower aquifers, and would induce substantial coastal groundwater flow, i.e., seawater intrusion.[46] In short, increased pumping from the Deep Aquifer systems appears likely to induce seawater intrusion in the upper aquifers (the 180-foot and 400-foot aquifers) even if

---

44 MCWD, 2010 UWMP, p. 36.

45 WRIME, Deep Aquifer Investigative Study, 2003, p. 5-2, attached.

46 WRIME, Deep Aquifer Investigative Study, 2003, pp. 4-11 to 4-12.

the Deep Aquifers are not yet intruded. The SEIR fails to discuss or disclose this, even in response to LandWatch's questions.

WRIME 2003 provides further evidence that there are two distinct 900-foot aquifers. In particular, it concludes that the uppermost deep aquifer is in the Paso Robles Formation and the lowermost is in the Purisima Formation and that the "Purisima Formation is relatively isolated hydraulically from the overlying Paso Robles Formation near the coast."[47] However, the lack of hydraulic connection between the two distinct aquifers of the Deep Aquifer system does not matter with respect analysis of induced seawater intrusion. This is because WRIME 2003 concludes that recharge to both the Paso Robles and Purisma portions of the deep aquifer come from the overlying aquifers: "[t]he areal distribution and stratigraphic location of the Paso Robles and Purisma Formations limit recharge to leakage from overlying aquifers," i.e., the 180-foot and 400-foot aquifers.[48] Furthermore, as noted, increased pumping from the lower Deep Aquifer is not viable due to lack of potential yield.[49]

WRIME 2003 concludes that there was an equilibrium between pumping from the 900-foot aquifer and its recharge from the overlying aquifers back in 2003.[50] It also concludes that "the volume of groundwater in storage in the lower aquifers is small" and that "[i]ncreased production would likely come from increased leakage."[51] Thus, it concludes that increases in pumping of the 900-foot aquifer may induce additional intrusion in the upper aquifers.[52] Only a small portion of coastal pumping came from the Deep Aquifer in 2003. The SVWP EIR reports that 90% of groundwater pumping north of Salinas came from the 400-foot aquifer and only 5% from deep aquifer as of 2003.[53] Thus, the shift from the 400-foot to the 900-foot aquifer to support increased pumping for the Ord Community since 2003 will likely upset that equilibrium noted by WRIME and will have a potentially substantial effect on the 900-foot and overlying aquifers, either by depleting the 900-foot aquifer, by increasing the induced seawater intrusion in the upper aquifers, or both.

---

47 WRIME 2003, pp, 5-1 to 5-2.

48 WRIME 2003, p. 5-1.

49 WRIME, Deep Aquifer Investigative Study, 2003, p. 4-7.

50 WRIME 2003, p. 5-1.

51 WRIME 2003, p. 5-1.

52 WRIME 2003, p. 5-2.

53 SVWP DEIR, pp. 5.3-1 to 5.3-3.

In sum, the implications from WRIME 2003 are, first, that pumping from the 900-foot aquifer may continue to induce seawater intrusion to the aquifers above it because those aquifers will be induced to leak downward to provide recharge.[54]

Second, if increased leakage from the upper aquifers were less than the increased pumping rate, the 2003 equilibrium between recharge and pumping would be upset and the 900-foot aquifer would be depleted because the only source of recharge is the overlying aquifers and the "volume of groundwater in storage in the lower aquifers is small."[55] Thus, increased pumping of the 900-foot aquifer must either deplete the 900-foot aquifer via mining or induce seawater intrusion in the upper aquifers by increasing their leakage, neither of which are acknowledged by the SEIR.

Third, if and when the seawater intrusion front of the 180-foot and 400-foot aquifers moves inland over the areas of vertical connectivity between the 180-foot, 400-foot, and 900-foot aquifers, increased pumping of the 900-foot aquifer may result in its recharge with saline contaminated water from the 180-foot and 400-foot aquifers. Interaquifer flow from a contaminated upper aquifer to a lower aquifer as a source of salinity contamination of the lower aquifer has <u>already</u> been documented between the 180-foot and 400-foot aquifers in the Fort Ord area due to thin or missing aquitard, direct hydraulic connection, or wells that act as conduits between aquifers.[56] The agricultural wells that also tap the Deep Aquifer system[57] typically have long screened intervals to maximize production; and this cross connection of multiple aquifers increases the potential for downward vertical migration of contamination.[58] Interaquifer flow from well bores is common. For example, in the Santa Clara Valley, USGS estimated that the majority of recharge to deeper zone aquifers was from well bores.

There is already possible evidence of potential seawater intrusion into the Deep Aquifer system provided in the State of the Salinas River Groundwater Basin Report. Two Deep Aquifer hydrographs in the Pressure Subarea show increasing Chloride indices; one of which more than doubled between 1980 and 2013; the other showed an increasing trend

---

54 WRIME 2003, p. 5-1 ("increased production would likely come from increased leakage").

55 WRIME 2003, p. 5-1.

56 MCWRA, State of the Salinas River Groundwater Basin, p. 5-8.

57 MCWD, 2015 draft UWMP, p. 38, available at http://www.mcwd.org/docs/agenda_minutes/2016-06-06_board/Item%2011-A%20-%20MCWD%20Draft%202015%20UWMP%20v20160520.pdf.

58 Hanson, et al., Comparison of groundwater flow in Southern California coastal aquifers, Geological Society of America, Special Paper 454, 2009, pp. 6-7, 11, 13, 14, 19, 26, available at https://www.researchgate.net/publication/279335540_Comparison_of_groundwater_flow_in_Southern_California_coastal_aquifers.

until sampling stopped in about 2000.[59] The Report does not address this trend in Chloride concentration in the Deep Aquifer in the narrative. However it does note that the groundwater levels "exhibit an overall steady decline since approximately 2003."[60] The Report states that of 580 measurement points used in the study, only 12 are screened with the Deep Aquifer in the Pressure Subarea,[61] underscoring the dearth of groundwater level and groundwater quality data available for the Deep Aquifer in the Pressure Subarea, and associated higher uncertainty for predicting the potential for significant impacts from the pumping deeper in the basin.

Finally, the SEIR also fails to disclose and discuss the fact that the 900-foot aquifer itself may be open to Monterey Bay, providing a direct route for seawater intrusion to that aquifer without mediation by the upper aquifers. The BRP PEIR states that "there is no evidence that the Deep Zone is not connected to the ocean." (BRP PEIR, p. 4-57.) The recent State of the Basin report also states that "[u]nlike the P-180 and P-400 Aquifers, it is not known whether the or not the Pressure Deep Aquifer is hydraulically connected to the ocean."[62] If it is connected, there is an additional path to intrusion into the 900-foot aquifer that could be induced by increased pumping.

F. The Monterey Downs SEIR fails to provide an adequate cumulative analysis because the relevant scope of cumulative analysis is the hydraulically connected SVGB, not merely the BRP area, and because there is no basis to deem an additional 250 afy of pumping to be less than a considerable contribution to a significant cumulative impact merely because it represents a small percentage of total SVGB pumping.

LandWatch objected that the DSEIR limits the geographic scope of the cumulative analysis of groundwater supply impacts to Fort Ord projects. (DEIR 4.8-47, 4.19-30 to 4.19-32.) Thus, the DSEIR does not provide baseline or projected future demand for the Pressure Subarea or the SVGB as a whole, or identify either the projects that would contribute to the cumulative impacts or a summary of projections of the water demand of those projects. As discussed, it is well understood that, while coastal pumping has the greatest effect, seawater intrusion is a result of cumulative overpumping from <u>all</u> areas of the SVGB, because these areas are hydraulically connected.[63] The fact that actual current baseline pumping for the SVGB as a whole is well in excess of the pumping assumed in the SVWP EIR, and that this pumping is projected to substantially exceed the level assumed by the SVWP EIR, is highly

59 MCWRA, State of the Salinas River Groundwater Basin, Figure 3-8.

60 MCWRA, State of the Salinas River Groundwater Basin, p. 3-16.

61 MCWRA, State of the Salinas River Groundwater Basin, p. 3-16.

62 MCWRA, State of the Salinas River Groundwater Basin, p. 6-4.

63 MCWRA, SVWP Final EIR, p. 2-35 to 2-36.

relevant to the analysis of the extent of cumulative impacts in the form of seawater intrusion.

As LandWatch pointed out, the BRP PEIR did assess cumulative impacts of Fort Ord groundwater pumping in the regional context of total demands on the SVGB and, indeed, concluded that the cumulative impact of the BRP was significant and unavoidable. (BRP PEIR p. 5-5.) The Monterey Downs SEIR does not report this analysis or conclusion.

The FSEIR acknowledges that the geographic scope of the SEIR's cumulative analysis does not coincide with the geography in the BRP PEIRs' cumulative impact analysis because it is limited to the BRP area, unlike the BRP PEIR's regional analysis. (FSEIR p. 11.4-1024.) The FSEIR argues that the DSEIR has simply made the choice to rely on a summary of projections and has chosen the summary of projections of the BRP area's future water demand, which does not include demand outside of the Ord Community. (FSEIR p. 11.4-1024.) However, the fact that CEQA may permit an agency to use a summary of projections to identify <u>relevant</u> cumulative impact sources cannot justify the arbitrary choice of a summary of projections for a geographic area that is too limited to support a meaningful cumulative analysis.

Although the DSEIR lacks any SVGB baseline data, the FSEIR provides a belated estimate of total <u>current</u> pumping in the SVGB. (FSEIR p. 11-4-1023 to 1024.) However, the FSEIR does not <u>use</u> this baseline data in any way, e.g., by relating it to an analysis of groundwater impacts or to the modeling for the Salinas Valley Water Project that was uncritically cited by the 2010 MCWD UWMP and the Diamond West WSA Supplement.[64] Nor do the FSEIR or DSEIR provide any assessment of <u>future</u> total pumping in the SVGB, despite LandWatch's objection that this data is needed for an adequate analysis.

Instead, the FSEIR argues that the DSEIR relied on the MCWD 2010 UWMP analysis of seawater intrusion, and that its "impact analysis is based on the 2010 UWMP, which encompasses the MCWD service area." (FSEIR pp. 11.4-1023, 11.4-1025.) The FSEIR then recites a section of the UWMP that relies on the future efficacy of the Salinas Valley Water Project to control seawater intrusion and maintain groundwater elevations, including the out-of-date and incorrect claim that the SVWP will result in a 6,000 afy surplus in the SVGB. (FSEIR p. 11.4-1025, quoting MCWD 2010 UWMP, p. 53.) The FEIR's response fails to provide the requested information regarding existing and future groundwater pumping in the SVGB and fails to relate that information to a sustainable level of pumping that does not cause depletion or seawater intrusion. The response also fails to explain why limiting the scope of the cumulative analysis to the BRP area is justified in light of the hydraulic connection of the SVGB as a whole to the BRP area.

Most significantly, the FSEIR's responses fail to disclose the fact that there is an existing significant cumulative impact that is not projected to be mitigated by existing groundwater

---

64 See MCWD, 2010 UWMP, pp. 31, 41; Diamond West, WSA Supplement, 2014, p. 13.

management projects and that any additional pumping, including the pumping of the unallocated portion of the 6,600 afy entitlement, will aggravate this condition.

The FSEIR claims that its response to LandWatch's comment PO 208-5 explains why the geographic scope of the cumulative analysis is limited to the BRP area. (FSEIR pp. 11.4-1020, response to PO 208-4, and p. 11.4-1023, response to PO 208-15.) The response to PO 208-5 does not justify the limitation of the geographic scope to the Fort Ord area. That response purports to address LandWatch's objections that the DSEIR inadequately identifies and characterizes the pumping source aquifer(s) within Fort Ord, fails to identify other wells and cumulative pumping in the 900-foot aquifer, and fails to discuss recharge, saline contamination and sustained yield of the 900-foot aquifer. (FSEIR, pp. 11.4-1020 to 11.4-1022.) To the extent that the response addresses the SRGB outside the Fort Ord area at all, it is only to repeat the DSEIR's claims that its analysis is based on the UWMP and that the UWMP discusses seawater intrusion in the SVGB. Like the DSEIR, the FSEIR does not actually report or evaluate the 2010 UWMP's conclusions about the SVGB or address the post-2010 information indicating that seawater intrusion is not under control.

The FSEIR argues that agricultural water use consumes the majority of SVGB water and that the MCWD pumping is only 1% of total SVGB pumping. (FSEIR p. 11.4-1024.) This argument fails to recognize that coastal pumping like MCWD's particularly aggravates seawater intrusion, that this coastal pumping must be reduced and replaced now to halt seawater intrusion.[65] It also fails to recognize that it is simply irrelevant how the pumped groundwater is used:

> . . . the ability to halt seawater intrusion, now and in the future, is not based on whether it is delivered to agricultural uses or urban uses. Both of these uses draw the same water from the same groundwater basin. Reducing withdrawal of groundwater in the northern Salinas Valley, whether through replacement of agricultural or urban pumping, has the same effect.[66]

If the implication of the FSEIR's claim that MCWD pumping amounts to only 1% of total SVGB pumping is that this pumping, or the increased pumping for the Monterey Downs project, does not constitute a considerable contribution to seawater intrusion, neither the FSEIR nor the DSEIR actually state this as the basis of the cumulative impact analysis. However, if the claim were made, it would not be accurate. CEQA does not permit an agency simply to dismiss a project's impact as less than a considerable contribution because it is relatively small. The potential significance must be evaluated in the context of the severity of the cumulative impact, which the SEIR fails to do.

---

65 MCWRA, SVWP DEIR, p. 3-23; MCWRA, Protective Elevations, pp. 1, 11.

66 MCWRA, SVWP DEIR, p. 7-8.

Here, the magnitude of the annual storage change in the Pressure Subarea that has caused seawater intrusion is from about -200 afy to about -1,600 afy over the period from 1944 to 2013.[67] From 1959 to 2013, the average change in storage was from -50 afy to -500 afy.[68] The estimated safe or sustainable yield for the Pressure Subarea, i.e., the level of pumping that could be sustained without seawater intrusion, is from 110,000 to 117,000 afy, but groundwater pumping exceeds this yield by about 12,000 to 19,000 afy.[69] The significance of the proposed increase in pumping to support Phases 1-3 of the project, which would be at least 250.6 afy, and which may come to 396.3 afy if the currently unavailable recycled water does not materialize (DSEIR, p. 4.19-23), should be assessed in relation to these figures, not in relation to the entire 500,000+ afy pumping from the SVGB, because seawater intrusion is caused by marginal effects, i.e., storage changes (aquifer depletion) and pumping in excess of sustainable yield, not by total pumping. The SEIR does not provide this comparison. In view of the recognition that coastal pumping must be reduced to address seawater intrusion,[70] there is no longer any cushion for increased pumping and any additional pumping at the margin should be deemed a considerable contribution.

---

67 MCWRA, State of the Salinas Valley Groundwater Basin, p. 4-12 (average storage change, depending on the storage coefficient value).

68 MCWRA, State of the Salinas Valley Groundwater Basin, p. 4-25.

69 MCWRA, State of the Salinas Valley Groundwater Basin, p. 4-25.

70 MCWRA, Protective Elevations, pp. 1, 11; MCWRA, State of the Salinas Valley Groundwater Basin, p. 6-3.

Attachment 1 – Modeling assumptions and outcomes for the SVWP; MCWRA's acknowledgment that the SVWP will not halt seawater intrusion

1. **The SVWP EIR did not project that the SVWP would halt long-term seawater intrusion.**

MCWRA prepared and certified an EIR for the SVWP in 2001 and 2002. (MCWRA, SVWP EIR, 2002.) Based on specific assumptions about future demand and safe yield (discussed below), the SVWP EIR projected that the proposed SVWP "would reverse the annual reduction in groundwater storage to an approximately 2,500 AFY increase in groundwater storage." (SVWP FEIR 3-30.) Thus, it projected that seawater intrusion could be halted. However, the SVWP EIR qualified this conclusion in two critical respects.

First, the SVWP EIR cautioned that "any additional water needs within an intruded groundwater basin would exacerbate seawater intrusion." (SVWP EIR, p. 7-7.) So the conclusion was tied to specific assumptions regarding water use. As discussed below, future water use is projected to exceed the levels projected in the SVWP EIR. Indeed, MCWRA's Rob Johnson acknowledged to the Monterey County Planning Commission that the SVWP EIR demand projections were not accurate and that pumping was more than projected. (Transcript of Monterey County Planning Commission, Oct. 29, 2014, p. AR005187; available in video file at http://monterey.granicus.com/MediaPlayer.php?view_id=14&clip_id=2745.)

Second, the SVWP EIR acknowledged that the proposed project would only halt seawater intrusion based on <u>1995 levels of demand</u>:

> While the SVIGSM indicates that seawater intrusion will be halted by the project (in conjunction with the CSIP deliveries) based on current (1995) demands, with a projected increase in water demands (primarily associated with urban development) in the north valley area in the future, seawater intrusion may not be fully halted based on year 2030 projections. For the year 2030, modeling indicates seawater intrusion may be 2,200 AFY with surface water deliveries only to the CSIP area. (SVWP DEIR, p. 3-23.)

The Department of the Interior pointed out that the SVWP EIR contradicts itself in stating that "the proposed action would halt seawater intrusion" and also that "hydrologic modeling shows that the project may not halt seawater intrusion in the long-term future" and asked for clarification. (SVWP FEIR, p. 2-82, comment 2-12.) In response, the SVWP FEIR again acknowledged that its modeling only showed that the SVWP would "halt seawater intrusion in the near term" based on 1995 water demand. (SVWP FEIR, p. 2-91.) However, with anticipated 2030 demand, that modeling showed that "seawater intrusion with implementation of the proposed project may total 2,200 acre-feet per year (AFY) (10,500 AFY of intrusion is anticipated to occur without the project). For this reason, the Draft EIR/EIS reports that the SVWP may not halt seawater intrusion in the long term." (SVWP FEIR, p. 2-91.) The 2010 Monterey County General Plan EIR itself acknowledges that the SVWP may only halt seawater intrusion in the short term. (2010 General Plan EIR, p. 4.3-38.)

Questioned about this at the October 29, 2014 Monterey County Planning Commission hearing, MCWRA's Rob Johnson acknowledged that the SVWP would only halt seawater intrusion based on 1995 land use. (Transcript of Monterey County Planning Commission Hearing, Oct. 29, 2014, p. AR005188.) As discussed below, Mr. Johnson also acknowledged that groundwater pumping is higher than anticipated by the SVWP EIR and that an additional 58,000 af/y of groundwater, beyond that provided by the current suite of water supply projects, is still needed to halt seawater intrusion. (*Id*., pp. AR005178-005179, 005189-005190.)

2. **As MCWRA acknowledges, groundwater pumping has exceeded the level assumed in the SVWP EIR, and this vitiates its analysis, which was expressly based on the assumption that groundwater pumping would decline over time.**

MCWRA reports show that pumping is much higher than predicted by the SVWP EIR. To determine the extent of overdrafting and seawater intrusion, the SVWP EIR relied on modeling provided by the Salinas Valley Integrated Ground and Surface Water Model ("SVGISM'), which in turn was based on assumptions regarding land use, population, and water use. (SVWP EIR, pp. 5-1 (identifying baseline and future conditions), 5.3-10 to 5.3-11 (overview of SVGISM), 7-4 to 7-5 (detailing major assumptions used in the SVGISM regarding population and irrigated acreage).)

As set out in the table below, the SVWP EIR reported its assumptions and modeling results for two scenarios: 1995 baseline conditions and 2030 future conditions:

SVWP EIR: population and land use assumptions with baseline and projected water use	1995	2030
Population	188,949 persons	355,829 persons
Urban water pumping	45,000 afy	85,000 afy
Farmland	196,357 acres	194,508 acres
Agricultural water pumping	418,000 afy	358,000 afy

Source: SVWP EIR, pp. 1-7 (Table 1-2, "Estimated Existing and Future Water Conditions"); pp. 5-1, 6-3, 7-3, 7-10 (identifying baseline and future conditions).

The SVWP EIR assumed that agricultural water use would decline by 60,000 afy from 1995 to 2030 due to a 5% increase in water conservation, changes in crop uses, and a 1,849 acre decrease in irrigated agricultural acreage. (SVWP EIR pp. 1-7, 7-5, 7-10.) The SVWP EIR assumed that urban water use would increase by 40,000 afy between 1995 and 2030 based on population growth and an assumed 5% per capita reduction in water demand due to conservation. (SVWP EIR, pp. 1-7, 7-5.)

In sum, the SVWP EIR assumed that groundwater pumping in Zone 2C would decline 20,000 afy over a 35 year period, from a total of 463,000 afy in 1995 to 443,000 afy in 2030.

In fact, in the first 20 years since 1995 pumping has greatly exceeded the SVWP EIR projection. Reported groundwater pumping in Zones 2, 2A, and 2B has averaged 502,161 afy. Adjusted to include an estimate for non-reporting wells in these zones, the average is 529,024. These data are based on the annual Ground Water Summary Reports published by MCWRA in 1995-2014, available at http://www.mcwra.co.monterey.ca.us/groundwater_extraction_summary/groundwater_extraction_summary.php. The data are summarized in the table below.

Year	Ag	Urban	Total	Percent of wells not reporting	Total divided by percent of wells reporting to adjust for non-reporting wells
1995	462,268	41,884	504,512	2%	514,808
1996	520,804	42,634	563,438	4%	586,915
1997	551,900	46,238	598,139	7%	643,160
1998	399,521	41,527	441,048	7%	474,245
1999	464,008	40,559	504,567	9%	554,469
2000	442,061	42,293	484,354	11%	544,218
2001	403,583	37,693	441,276	18%	538,141
2002	473,246	46,956	520,202	7%	559,357
2003	450,864	50,472	501,336	3%	516,841
2004	471,052	53,062	524,114	3%	540,324
2005	443,567	50,479	494,046	2%	504,129
2006	421,634	49,606	471,240	4%	490,875
2007	475,155	50,440	525,595	3%	541,851
2008	477,124	50,047	527,171	3%	543,475
2009	465,707	45,517	511,224	3%	527,035

2010	416,421	44,022	460,443	3%	474,684
2011	404,110	44,474	448,584	3%	462,458
2012	446,620	42,621	489,241	3%	504,372
2013	462,873	45,332	508,205	3%	523,923
2014	480,160	44,327	524,487	2%	535,191
20 year average			502,161 afy		529,024 afy

Source: Ground Water Summary Reports published by MCWRA, 1995-2014, available at http://www.mcwra.co.monterey.ca.us/groundwater_extraction_summary/groundwater_extraction_summary.php.

The reported pumping data does not include any pumping from the portion of Zone 2C that is located outside of Zones 2, 2A, and 2B. (See Monterey County 2010 General Plan FEIR, pp. S-13, S-127.) The County estimated that this pumping amounted to at least 4,574 afy in 2005. (Monterey County 2010 General Plan FEIR, p. S-136.) Adding this to the adjusted average pumping total for Zones 2, 2A, and 2B, average pumping has been 533,598. This is 70,598 afy higher than the SVWP EIR's 1995 baseline and 90,598 afy higher than its projected 2030 demand.

As noted, the SVWP EIR analysis was based on specific assumptions about future water demand, and it cautioned that "any additional water needs within an intruded groundwater basin would exacerbate seawater intrusion." (SVWP DEIR, p. 7-7.)

In sum, for more than half of the planning period covered by the SVWP EIR's 1995-2030 projections, groundwater pumping has greatly exceeded its assumed demand levels. The amount by which actual demand exceeds assumed demand is two to three times greater than the amount of water that the SVWP was expected to provide.[71]

MCWRA's Rob Johnson acknowledged that actual demand has exceeded the SVWP EIR's projections. (Transcript of Monterey County Planning Commission Hearing, Oct. 29, 2014,

---

[71] The SVWP was intended retain up to an additional 30,000 afy of water in dams and then provide about 9,700 afy of that water to the Castroville Seawater Intrusion Project ("CSIP") to replace groundwater pumping, about 10,000 afy to increase basin recharge, and another 10,000 afy for instream flow augmentation. Monterey County 2010 General Plan DEIR, pp. 4.3-36 to 4.3-38; Monterey County 2010 General Plan FEIR 2-68 to 2-71. The Monterey County General Plan DEIR, FEIR Supplemental materials, and FEIR are available at http://co.monterey.ca.us/government/departments-i-z/resource-management-agency-rma-/planning/resources-documents/2010-general-plan/draft-environmental-impact-report-deir, http://co.monterey.ca.us/government/departments-i-z/resource-management-agency-rma-/planning/resources-documents/2010-general-plan/supplemental-material-to-final-environmental, http://co.monterey.ca.us/government/departments-i-z/resource-management-agency-rma-/planning/resources-documents/2010-general-plan/final-environmental-impact-report-feir.

p. AR005187.) Mr. Johnson acknowledged that additional water supply projects delivering at least 58,000 afy will be required to halt seawater intrusion. (*Id.* pp. AR005178-005179, 005189-005190)

The growth in pumping is associated with increases in agricultural land use. As noted, the SVWP EIR assumed that irrigated agricultural acreage would decrease from 196,357 acres in 1995 to 194,508 acres in 2030. (SVWP EIR, p. 7-10.) However, agricultural acreage has actually increased since 1995.

- The SVWP Engineers Report reports that there were 212,003 acres of irrigated farmland in Zone 2C as of 2003. (SVWP Engineers Report, pp. 3-10, 3-15 (Tables 3-5 and 3-9 providing acreage totals for "Irrigated Agriculture"), available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_I/salinas_valley_water_project_I.php.) This is substantially more irrigated acreage than the 196,357 acres that the SVWP EIR reported for 1995. (SVWP EIR, p. 7-10.) The SVWP Engineers Report data were based on "parcel information, including land use, acreage, zone and other data" developed by MCWRA. (Engineers Report, p. 3-10.)

- The 2010 Monterey County General Plan EIR reported Department of Conservation farmland mapping data showing an increase of 8,209 acres of habitat converted to new farmland from 1996-2006 but only 2,837 acres of existing agricultural land lost to urban use. Monterey County 2010 General Plan DEIR, pp. 4.9-46 and 4.2-7 (showing farmland gains and losses 1996-2006 based on FMMP data). This represents a net gain of farmland of 5,372 acres, and does not account for additional water demands from multiple crops (2-4) per acre per season.

Furthermore, there is every reason to believe that the increase in irrigated acreage will continue and that the decrease in irrigated agricultural land between 1995 and 2030 projected in the SVWP EIR will not occur. Based on the past data related to conversion of habitat to farmland, the 2010 Monterey County General Plan DEIR projected that future agricultural acreage would increase from 2008 to 2030, and the General Plan FEIR admitted that the large future net increase in farmland would create additional water demand not anticipated by the SVWP EIR: 17,537 afy of water. (Monterey County 2010 General Plan DEIR, p. 4.9-64 (Table 4.9-8); Monterey County 2010 General Plan FEIR, pp. 2-38, 4-129 (revised table 4.9-8), S-19 to S-20, S-137 to S-138 (revised Table 4.3-9(c), note 7)).

3. MCWRA also acknowledges that the existing SVWP will not halt seawater intrusion and that additional water supply projects are required.

The MCWRA has acknowledged that the SVWP will not in fact be sufficient to halt seawater intrusion. In testimony to the Monterey County Planning Commission, MCWRA's Rob Johnson stated that the SVWP is not be the final water project needed to halt seawater intrusion and that it will in fact be necessary to find additional water supplies totaling at least 58,000 afy to achieve this. (Transcript of Monterey County Planning Commission Hearing, Oct. 29, 2014, AR005164, 005178-005179, 005189-005190) The 58,000 afy figure is based on modeling performed by MCWRA in connection with its efforts to secure surface water rights on the Salinas River in order to mitigate seawater intrusion.

The MCWRA now seeks, under a settlement agreement with the State Water Resources Control Board, to perfect surface water rights to 135,000 afy of Salinas River water in order to construct an additional Salinas Valley water project to attempt to halt seawater intrusion. (See MCWRA, Salinas Valley Water Project Phase II, Overview, Background, Status, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_II/salinas_valley_water_project_II_overview.php.) MCWRA seeks to retain the right to the surface water entitlement by asserting the need for another project to halt seawater intrusion. Modeling undertaken for the MCWRA in 2013, establishes that an additional 135,000 afy of surface water flows will be needed in order to supply the additional 60,000 afy of groundwater that is now projected to be required to maintain groundwater elevations and a protective gradient to prevent further seawater intrusion. (Geoscience, Protective Elevations to Control Seawater Intrusion, Nov. 13, 2013, p. 11, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_II/salinas_valley_water_project_II_overview.php (link to "Technical Memorandum.")) The MCWRA has not yet conducted environmental review for a new project to supply the needed water. (See MCWRA, Salinas Valley Water Project Phase II, Status, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_II/salinas_valley_water_project_II_project_status.php.)There is no assured funding source for it.

Although the MCWRA website refers to the currently proposed new project as "SVWP Phase II," it is not the same project that was identified as a potential second phase of the SVWP in the 2001/2002 SVWP EIR. The second phase of the SVWP envisioned in the 2001/2002 SVWP EIR would have consisted of only an additional 8,600 afy of Salinas river diversion, increased use of recycled water, supplemental pumping in the CSIP area, and a pipeline and delivery to an area adjacent to the CSIP area. (SVWP EIR, p. 3-23 to 3-24.) The currently proposed project is much larger in scope and would include different and more extensive infrastructure: it would divert an additional 135,000 afy at two new diversion facilities and would deliver that water through injection wells, percolation ponds, direct supply of raw water, or a treatment system. (MCWRA, SVWP Phase II website, Project Description, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_II/salinas_valley_water_project_II_overview.php)

To my knowledge, neither the SVWP Phase II project identified at the conceptual level in the 2001/2002 SVWP EIR nor the newly proposed SVWP Phase II has been planned at any level of significant detail or environmentally reviewed. The SVWP EIR and the Monterey County 2010 General Plan EIR both acknowledge that impacts related to the initially conceived second phase project have not been evaluated, and the Monterey County 2010 General Plan EIR treated these impacts as significant and unavoidable because they remain largely unknown. (SVWP FEIR, pp. 2-92, 2-243; Monterey County 2010 General Plan, p. 4.3-146.)

The phase two project now being discussed has not had any environmental review, but it would likely result in significant potential environmental impacts, based on MCWRA's determination that an EIR is required. (MCWRA Notice of Preparation of EIR, Salinas Valley Water Project Phase II, June 2014, available at http://www.mcwra.co.monterey.ca.us/salinas_valley_water_project_II/salinas_valley_water_project_II_project_status.php.)

Finally, the 2015 MCWRA State of the Salinas Valley Groundwater Basin report establishes that the SVGB as a whole and the Pressure Subarea are both being pumped unsustainably in excess of safe yield.[72] This overdraft condition has caused, is causing, and will continue to cause seawater intrusion, particularly in the 180-foot and 400-foot aquifers of the Pressure Subarea.[73]

In sum, the water supply provided by the SVWP is well documented to be insufficient to prevent cumulative groundwater pumping from further aggravating seawater intrusion. Major additional water supply projects with currently unknown potential environmental impacts will be required to address this significant cumulative impact.

72 MCWRA, State of the Salinas River Groundwater Basin, pp. 4-25 to 4-26.

73 MCWRA, State of the Salinas River Groundwater Basin, pp. 5-1 to 5-8, 6-1 to 6-4.

RESUME

Timothy K. Parker, PG, CEG, CHG
Principal

WORK EXPERIENCE

2009 – Present: **Parker Groundwater, President/Principal.** Sacramento, California. Privately owned business, specializing in strategic groundwater planning, groundwater monitoring, groundwater modeling, groundwater recharge and aquifer storage recovery projects, program implementation, stakeholder facilitation, groundwater monitoring, policy and regulatory analysis, environmental document review and litigation support. Provides strategic planning, policy consulting and groundwater technical expertise to public and private sector clients to develop effective, sustainable solutions to complex problems in the water and evolving environmental and energy industries.

2005 – 2009: **Schlumberger Water Services, Principal Hydrogeologist.** Sacramento, California. Provided hydrogeologic expertise and project management on groundwater recharge and aquifer storage recovery projects, groundwater monitoring, groundwater resources management, and groundwater contaminant projects for public and private sector clientele. Application of advanced oilfield tools and technologies to groundwater projects. Integration of groundwater quality monitoring and protection on CO2 sequestration projects; liaison to Schlumberger Carbon Services, including planning, scope development, technical implementation, facilitation, and oversight. **Business Development** activities included strategic planning, prospect assessments, sales presentations, targeted workshops, client development and exploitation. Mentored and provided direction to staff; developed, tracked and controlled projects; worked closely with clients and other public and private organizations to implement projects on schedule, on budget with high level of quality.

2001 – 2005: **California Department of Water Resources, Division of Planning and Local Assistance, Conjunctive Water Management Branch, Senior Engineering Geologist.** Provided local technical and economic assistance to Sacramento and San Joaquin Valley groundwater authorities and water districts planning, developing, and implementing conjunctive water projects, groundwater recharge and aquifer storage recovery projects, and local and regional groundwater monitoring programs. Elements include developing technical scope, implementing work, providing geologic and groundwater technical expertise, attending and speaking at public meetings. **Central District, Groundwater Planning Section**, Sacramento, California (early 2001 prior to joining CWMB). **Senior Engineering Geologist, Groundwater Planning Section**. Elements included: Integrated Storage Investigations Program conjunctive use project technical support, coordination, and project management; technical support on local groundwater monitoring and subsidence programs; technical support on Bulletin 118; Proposition 13 groundwater grant applications screening and ranking process for Central District geographic area. Supervised and provided direction to staff; developed, tracked and controlled program budgets; worked closely with other DWR groups, agencies and outside organizations to develop additional local assistance opportunities for DWR.

2000-2001: California Department of Conservation, Division of Mines and Geology, Sacramento, California. **Associate Engineering Geologist**. Responsible for: multi-year aerial photograph review, identification of landslides and potentially unstable areas, field reconnaissance and confirmation, preparation of maps and images using MapInfo, Vertical Mapper, ArcView, Spatial Analyst, Model Builder, and ArcInfo working closely with GIS specialists; assisting in development of GIS methodologies and database for Northern California watersheds assessment/restoration project; review of timber harvest plans and pre-harvest inspections; review of regional CEQA documents as related to engineering geologic issues; watershed assessment; technical presentations at multi-agency meetings and landslide/mass wasting public workshops.

1997-2000: CalEPA Department of Toxic Substances Control, Stringfellow Branch, Sacramento, California. **Hazardous Substances Engineering Geologist**. Responsible for: groundwater monitoring and analysis; developing approach and preparing a work plan for a Stringfellow site revised hydrogeologic conceptual model; researching, providing, and maintaining a comprehensive environmental data management system; assembling and contracting with an expert panel for consultation on the site; evaluating an existing MODFLOW porous media groundwater flow model; providing direction on the strategy and approach for the development of a revised groundwater flow and fate & transport model for the Stringfellow site; providing input on an as needed basis in support of the litigation and community relations elements of the project.

1993 - 1997: Law Engineering & Environmental Services, Inc., Sacramento, California. **Manager Project Management.** Responsible for supervising and providing direction to senior project managers; maintaining appropriate tracking system and controls for assurance of successful execution of scope, schedule and budget of major projects; maintaining quality assurance and controls on projects. Responsibilities included development/implementation of group budget spending plan, establishing performance standards and evaluating program progress and quality, staff recruiting, mentoring, maintaining utilization, business development, proposal preparation, commercial and government project marketing, client maintenance. **Project Manager** and **Senior Hydrogeologist** on hydrogeologic evaluations, site and regional groundwater quality monitoring programs, hazardous substance site investigations and remediation. Responsibilities included technical direction of projects, project scoping, schedule, budget, supervision of field activities, preparation of documents, developing cost-effective strategies for follow-on investigations and removal actions, and negotiating with state regulators on three Beale Air Force projects totaling more than $15 million.

1988 - 1993: Dames & Moore, Sacramento and Los Angeles, California. **Senior Geologist.** Provided hydrogeologic technical support, project management, regulatory compliance, technical/regulatory strategy, and on a variety of commercial and industrial DTSC- and RWQCB-lead hazardous substance sites. Responsibilities included project technical direction, scope implementation, budgetary control, groundwater quality monitoring and analysis, supervision of field investigations, document preparation, client interface, negotiation with regulatory agencies on projects totaling approximately $5 million.

1986 - 1988: California Department of Health Services, Toxic Substances Control Division, Southern California Region, Assessment and Mitigation Unit, Los Angeles, California. **Project Manager** in the Assessment and Mitigation Unit. Responsibilities included development and implementation of work plans and reports for, and regulatory oversight of, State Superfund preliminary site assessments, groundwater quality monitoring and analysis, remedial investigations, feasibility studies, remedial action, and interim remedial measures. **Engineering Geologist**. Provided technical support to Permitting, Enforcement, and Site Mitigation Unit staff, including evaluation of hydrogeologic assessments, groundwater quality monitoring programs, work plans, and reports on federal and state Superfund sites and active facilities; assistance in budget preparation; assistance in zone drilling contract review.

1983-86: Independent Consultant, Sacramento, California. Provided technical assistance on variety of geologic and geophysics projects to other independent consultants in local area.

1982: Gasch & Associates, Sacramento, California. Geologic assistant conducting shallow seismic reflection surveys in the Sierra Nevada for buried gold-bearing stream deposits.

1981 - 1982: Geologic Assistant, Coast Ranges, Avawatz Mountains, White Mountains, and Kinston Peak Range. Geologic Assistant on various geological field studies, including gravity surveys, magnetic surveys, landslide and geologic mapping projects.

PROFESSIONAL REGISTRATION
California Professional Geologist No. 5594
California Certified Engineering Geologist No. 1926
California Certified Hydrogeologist No. 0012

PROFESSIONAL AFFILIATIONS
California Department of Water Resources, Public Advisory Committee, Water Plan Update 2013

*2010-2013**:** Appointed to participate on PAC and to lead new Groundwater Caucus*

Department of Interior, Advisory Committee on Water Information, Subcommittee on Ground Water
2010-Present: Member – Work Group for Pilot Project Implementation, Nationwide Groundwater Monitoring Network
2007-2010: Co-Chair - Work Group on Implementation for development of the Framework for a Nationwide Ground Water Monitoring Network
2007-2010: Member - Work Group on Network Design for development of the Framework for a Nationwide Ground Water Monitoring Network

National Ground Water Association
2014-Present: Director - Scientists and Engineers Division
2007- 2010: Director - Scientists and Engineers Division
2007 - 2009: Member - Government Affairs Committee
2007 - Present: Chair - Groundwater Protection and Management Subcommittee
2005 – Present: Chair - Regional Groundwater Management Task Force, Government Affairs Committee
2004 – 2005, 2007,2009-10: Chair – Theis Conference Committee
2002 – Present: Member – Theis Conference Committee
2002 – Present: Member - Regional Groundwater Management Task Force, Government Affairs Committee
2003 – Present: Member – Groundwater Protection and Management Subcommittee
2009 – Present: Member - ASR Task Force
2009 – Present: Member - Hydraulic Fracturing Task Force
2008 – 2009: Member – CO2 Sequestration Task Force

American Ground Water Trust
2009 – 2012: Chair
2005 - 2013: Director

California Groundwater Coalition
2007-Present: Director

Groundwater Resources Association of California
2000 – Present: Director
2000 – 2001: President State Organization
2001 – Present: Legislative Committee Chair
1998-1999 Vice President
1996-1997 Secretary
1995-1996 President Sacramento Branch
1993-1994 Member-at-Large Sacramento Branch

ACADEMIC BACKGROUND
BS 1983, Geology, University of California, Davis

Graduate studies in hydrogeology, hydrology, engineering geology, waste management engineering

Selected Publications

California Groundwater Management, Second Edition, Groundwater Resources Association of California, co-author and project manager, 2005.

Water Contamination by Low Level Organic Waste Compounds in the Hydrologic System, in *Water Encyclopedia*, Wiley, 2004.

Potential Groundwater Quality Impacts Resulting from Geologic Carbon Sequestration, Water Research Foundation, co-author, 2009.

Aquifer Storage and Recovery in the US, ASR 9, American Ground Water Trust, Orlando Florida, September 2009 – a compilation of key ASR issues on DVD, contributing editor and speaker, 2010.

Sustainability From The Ground Up – Groundwater Management In California – A Framework, Association of California Water Agencies, principal author, 2011.

ISMAR9 Call to Action: Sustainable Groundwater Management Policy Directives, Principal Author, 2016.

Attachment – Derek Watry to John Farrow, October 7, 2016

7 October 2016

Mr. John Farrow
M. R. Wolfe & Associates, P. C.
555 Sutter Street, Suite 405
San Francisco, California 94102

Subject: *Monterey Downs and Monterey Horse Park and Central Coast Veteran Cemetery Specific Plan Subsequent Environmental Impact Report*
Review of EIR Noise Analysis

Dear Mr. Farrow:

As requested, we have reviewed the noise analysis information in the Draft and Final Subsequent Environmental Impact Reports for the Monterey Downs and Monterey Horse Park and Central Coast Veteran Cemetery Project proposed on the former Fort Ord Army Base near Seaside, California. This letter discusses elements of the noise analysis that we find deficient in some way.

Wilson, Ihrig & Associates, Acoustical Consultants, has practiced exclusively in the field of acoustics since 1966. During our 50 years of operation, we have prepared hundreds of noise studies for Environmental Impact Reports and Statements. We have one of the largest technical laboratories in the acoustical consulting industry. We also utilize industry-standard acoustical programs such as Environmental Noise Model (ENM), Traffic Noise Model (TNM), SoundPLAN, and CADNA. In short, we are well qualified to prepare environmental noise studies and review studies prepared by others.

Issue #1: The SEIR fails to assess noise with reference to the BRP's statistical noise standards

The Fort Ord Base Reuse Plan (BRP) established a number of policies and programs to regulate noise during the future development of the former Army base. Program A-1.2 established Noise Level Performance Standards for Non-Transportation Noise Sources, reproduced in the DSEIR on p. 4.10-9 as Table 4.10-7:

Cumulative Minutes in Any One Hour	7 AM – 10 PM	10 PM – 7 AM	Statistical Descriptor
0 minutes (maximum)	65 dBA	60 dBA	L_0 or L_{max}
1 minute	60 dBA	55 dBA	L_2
5 minutes	55 dBA	50 dBA	L_8
15 minutes	50 dBA	45 dBA	L_{25}
30 minutes	45 dBA	40 dBA	L_{50}

These limits apply at the property line.

In acoustics, the noise levels that are comparable to these limits are called *statistical noise levels* because they represent the statistical distribution of time-varying sound levels during the measurement. For example, the noise level exceeded 50% of the time, denoted L_{50}, is the median noise level during measurement – half the time it was louder than this level, half the time it was quieter. If the measurement period is one hour, the L_{50} corresponds to the noise level exceeded 30 minutes of the hour and not exceeded the other 30 minutes. Similarly, the L_{25} (25% of the time) corresponds to the level that was exceeded for 15 minutes of the hour and not exceeded the other 45 minutes.

Standards such as those in the table above recognize that noise level for most human activities vary over time and also that most people are able to tolerate some louder noise levels without excessive irritation if they are interspersed with lower noise levels. These standards are more sophisticated than a maximum level and/or a daily average level. While the former is useful and is, in fact, still included as the “0 minutes” or L_{max} standard, these cumulative minute standards recognize that there is a substantial difference in irritation to sensitive noise receptors between a noise that is 64 dBA for 59 seconds as opposed to 59 minutes. Meanwhile, the daily average metrics that are ubiquitously used in land use planning are also useful for high level planning, but often fail to adequately address noise sources that persist for only a few hours at a time such as sporting events (because the noise from the event is averaged over 24 hours).

LandWatch objected that the DSEIR to fails to apply the BRP’s cumulative-minutes noise standards for non-transportation sources in Comment PO 208-90. LandWatch in Comment PO 208-116 also pointed out that the City has failed to incorporate these BRP standards into its Municipal Code as mandated by the BRP.[1]

---

[1] We note that the City’s Municipal Code at section 17.30.060E, Table 3-3, contains maximum interior and exterior noise standards. This table does not provide the same standards as the BRP’s cumulative-minutes noise standards because 1) it only provides the L_0 maximum standard and omits standards for 1, 5, 15, and 30 minute cumulative noise, 2) it provides a different maximum standard for different receiving land uses unlike the BRP, which applies a uniform standard regardless of the land use,

The FSEIR's response to Comment PO 208-90 claims that the cumulative-minutes or "statistical L_n" standards in the BRP are not relevant to its analysis:

> The BRP statistical noise standards would not apply to occasional events at the Project site (e.g., swim meets, horse racing, etc.). The statistical L_n standards are appropriate for short-term event/impulsive noise and not longer-term event noise such as the activities associated with the proposed Project. For an impulsive noise, the level rises sharply and then falls rapidly (e.g., hammering, shooting, firecracker noise, etc.). The equivalent sound (L_{eq}) level, based on an energy average rather than statistical averages (such as L_{50}), which was found to correlate better with the majority of the population's subjective response. As a result, statistical L_n standards are not appropriate to use in the Project analysis since anticipated events at the swim center and/or Horse Park would be continuous and would not occur in one, five, 15, or 30 minute increments. [FSEIR p. 11.4-1053]

The rationale of this argument is unsupported and simply untrue. Contrary to the FSEIR response to Comment PO 208-90, cumulative-minutes noise standards are not relevant only to short-duration "impulsive" noise like hammering or firecrackers. The cumulative-minutes standards are precisely designed to assess events such as those proposed at the swim center and Horse Park. Swim and horse events persist over several hours, and the noise levels during these events will vary. Relying only on an assessment of the maximum noise level and/or daily average noise level would be inappropriate for the reasons stated above. Conversely, the cumulative-minutes standards, which apply to the sound levels in any given hour, are well suited because the "per hour" time scale matches those of the events and the various cumulative minute limits allow for a reasonable amount of noise level variation during the event. The statement that "The statistical L_n standards are appropriate for short-term event/impulsive noise and not longer-term event noise such as the activities associated with the proposed Project" is simply untrue.

The BRP makes it clear that statistical noise standards are a fundamental part of noise regulation on the former Fort Ord:

- The BRP mandates that the City incorporate statistical noise standards into its noise ordinance (BRP Program A-1.2),

---

and 3) its maximum standard is more lenient than the BRP's maximum standard for all uses other than residential and schools. Complicating matters, Table 3-3 contains a footnote indicating that the levels in the table are not, in fact, L0 or Lmax standards but, rather, CNEL standards. The CNEL metric is not a statistical metric at all; it is a 24-hour weighted-average. A fuller discussion of this is presented under Issue #2, Footnote 3.

- The BRP mandates that statistical noise standards be met for existing uses where feasible and practicable (Policy B-1),
- The BRP mandates that any new development complies with statistical noise standards in order to ensure it does not adversely affect existing or proposed uses (Policy B-2), subject to a narrow exception for infeasibility that still requires noise barriers or acoustical treatment (Policy B-5), and
- The BRP mandates that statistical noise standards be used to evaluate adverse effects and to identify mitigation in noise studies for new development in order to ensure that existing and proposed uses would not be adversely affected (Policy B-3).

Thus, application of the BRP cumulative-minutes noise standards is clearly relevant to determining whether the Project is consistent with the BRP.

We note that the FSEIR does not assert that none of the BRP standards apply under CEQA, Appendix G, which establishes that a noise impact is significant if the Project would "expose persons to, or generate noise levels in excess of, standards established in the local general plan or noise ordinance, or applicable standards of other agencies." Clearly, the BRP standards are applicable standards to the proposed project. In fact, the DSEIR repeatedly acknowledges the applicability of the BRP 24-hour average standards in its assessment of stationary noise impacts. [DSEIR at pp. 4.10-19 to 4.10-24] There is no rationale for utilizing some of the BRP standards and eschewing others.

Issue #2: Analysis of stationary, non-transportation noise sources is inadequate in terms of quantitative calculations, significance assessment, and mitigation measures.

The proposed Project would construct several major sports and entertainment facilities including a sports arena, an equestrian center, and a swim center. It would also provide the City of Seaside with a new Corporation Yard and Fire Station. These are large, complex facilities that each have many sources associated with them. Therefore, the noise analysis must likewise be detailed and complex. It is not. Rather, the calculations are all of the "back of the envelope" variety, the assessments utilize only some of the many applicable thresholds of significance, and, therefore, the mitigation measures are inadequate.

In the following section, we briefly point out various inadequacies of the DSEIR's stationary noise impact analysis, Section IMPACT 4.10-3 beginning on p. 4.10-18:

Seaside Corporation Yard and Fire Station Noise

The DSEIR states that noise impacts from yard activities, trucks, sirens, bells, and horns would be less than significant because these are all explicitly exempted from the Seaside Noise Ordinance limits. While it is true that these are exempt from normal community noise limits, this does not render the noises harmless. Rather, it is an acknowledgement by society that the benefits of sirens, horns, bells, etc. overrides the harm done by them. Interestingly, the DSEIR presents detailed noise level information about how loud sirens are, even as it disavows the need for assessing it.

Equestrian Event Noise

Sports Arena. The project includes a 6,500-seat, indoor, sports arena, and the noise analysis states that the noise levels associated with "cheering crowds" could be as high as 110 dBA indoors and 90 dBA outdoors. [DSEIR at p. 4.10-21] The document does not state where the outdoor calculation was made, however, it does state that the outdoor level would be "above the normally acceptable noise limits for residential areas". While this seems to imply that the 90 dBA level occurs at the property line, that seems unlikely. This statement is most likely an erroneous assessment.

Insufficient information is given to calculate precisely what the maximum noise level would be at either of the two closest receptors, the homes 1,850 ft to the southwest and the Oak Oval trails 550 ft to the south, because the DSEIR does not indicate at what distance the stated maximum noise levels occur. However, assuming the 90 dBA occurs at a standardized distance of 50 ft, the noise levels would be on the order of 75 dBA at Oak Oval and about 65 dBA at the residences.[2] The former is well over the maximum allowed by the BRP as reproduced in DSEIR Table 4.10-7, and the latter is equal to the maximum. Furthermore, the BRP limits are lower for sounds that persist for more than 1 second (the maximum noise level is literally the single loudest second in an hour). We note that the FSEIR states that "the DSEIR provides reference noise levels associated with certain activities but does not use maximum or peak levels." [FSEIR p. 11.4-1058] This would imply that the 90 dBA noise level does in fact persist for more than one second per hour. If loud cheering cumulatively occurred over 1 minute during an hour, the applicable BRP limit would be 60 dBA. If cheering cumulatively occurred over 5 minutes, the applicable BRP limit would be 55 dBA. The DSEIR analysis is too simplified to capture, and therefore, assess this level of complexity.

Outdoor Grandstand. The horse track will have a 1,500 seat outdoor grandstand on one side. The DSEIR states that noise levels associated with the training track would range from 80 to 110 dBA. [DSEIR at p. 4.10-21] These noise levels are presumably outdoors, so would propagate freely into the surrounding area. Despite this there is no assessment whatsoever of this project noise source.

---

[2] The DSEIR states that recreational users in the Oak Oval will be 550 feet south of the track and arena. [DSEIR at p. 4.10-21] However, DSEIR Figure 2-14 shows the sports arena and race track itself would be directly adjacent to the Oak Oval and to passively used open space to the north (CSUMB property) and to the east (BLM property). Thus, distances to some open space uses would be less than 550 feet and noise levels would be higher.

The grandstands are under the Sports Arena roof overhang which may serve to amplify cheering noise by reflecting it, but, ignoring that, simple estimates of maximum noise levels at the residences and Oak Oval as was done above are 95 and 85 dBA, respectively. These levels are considerably greater than the BRP maximum daytime noise limit of 65 dBA. As stated above, there are other, more restrictive noise limits for longer duration noise, but the DSEIR analysis did not make the calculations that would be necessary to determine compliance with them, nor does the DSEIR describe the horse racing and other activities sufficiently to enable independent estimates.

Concerts and Music Festival. The DSEIR states that concerts and a music festival will be held in Planning Area REC-2, but it does not indicate where. [DSEIR at p. 4.10-21] Furthermore, there is no estimation of concert noise and, therefore, no significance assessment.

Mitigation Measure NOI-2. The DSEIR's own noise analysis clearly indicates that crowd noise will most likely be the loudest noise associated with the project (exceeded only, potentially, by amplified music noise levels which were not analyzed). As discussed above, crowd noise could exceed the BRP maximum noise limit of 65 dBA by up to 30 dB. However, despite the assertion that "a Noise Management Program shall be prepared to provide sufficient noise attenuation measures to meet the 65 dBA standard", the only mitigation measure mentioned that could possibly reduce crowd noise is a "sound barrier or berm". [DSEIR at p. 4.10-24] No technical analysis or even conceptual drawings of such a barrier or berm are provided. It is implausible that any realizable berm or barrier could be high enough and of sufficient extent to provide 30 dB of noise attenuation for an entire sports arena and horse track with outdoor, presumably raked grandstands, not to mention reflections off the roof overhang. Noise reduction between 5 and 10 dB is much more likely.

Furthermore, the identification of the applicable noise standard for mitigation in NOI-2 is ambiguous. NOI-2 calls for meeting "the 65 dBA noise standard in the Fort Ord Reuse Plan, and Seaside Municipal Code Sections 9.12 (Noise Regulations) and 17.30.060 (Noise Standards)." It is unclear what standard would be applied because NOI-2 does not identify the applicable noise metric, e.g., a 24-hour CNEL standard or a particular statistical L_n standard for a specified cumulative number of minutes. Nor does NOI-2 specify the relevant jurisdiction (Seaside or BRP) from which it derives the "65 dBA noise standard." The DSEIR's discussion and tables of the Seaside's and BRP's standards do not make this clear by context. For example, in discussing significance, the DSEIR references only the BRP's normally acceptable noise limits for residential land uses, which is a CNEL standard, i.e., a 24-hour weighted-average standard, but this standard is 50 to 55 dBA CNEL, not 65 dBA CNEL. [DSEIR, Table 4.10-6] The BRP does include in its statistical noise standards a 65 dBA maximum noise standard for a cumulative period of 0 minutes (the L_0 standard), but that 65 dBA standard is a not a 24-hour standard but a standard for the maximum noise level permitted for a single instant. [DSEIR, Table 4.10-7] The City's normally acceptable residential standard is 55 CNEL. [DSEIR, Table 4.10-5] The City also identifies 65 CNEL as the maximum exterior noise standard for residential uses. [DSEIR, Table 4.10-4] However, this 65 dBA CNEL standard is not referenced in the discussion of significance and it is unclear why it would take precedence over the City's normally acceptable residential standard of 55 CNEL, particularly since the DSEIR consistently uses normally acceptable noise standards in its discussion of the significance of noise impacts.[3]

Thus, NOI-2 fails to clarify what noise standard would be required for mitigation because it fails to specify the metric and jurisdiction for the “65 dBA noise standard.” In any event, NOI-2 clearly fails to apply the same 50 to 55 CNEL standard that was used in the discussion of the significance of stationary noise impacts.

Furthermore, NOI-2 also omits any reference to meeting the BRP’s 50 dBA CNEL standard (24-hour standard) for open space uses. [DSEIR, Table 4.10-6] It is not clear from the information provided in the DSEIR that the 24-hour average noise level generated by uses within Planning Area REC-2 would meet this standard.[4]

Finally, NOI-2 fails to specify that, even if the project meets the CNEL 24-hour average noise standards, it must also mitigate short-term noise sources that exceed each of the BRP’s L_n statistical noise standards, not just the BRP's 65 dBA L_0 standard (i.e., it must meet the L_2, L_8, L_{25}, L_{50} standards too).

---

[3] The DSEIR Table 4.10-4 is taken from the City's noise ordinance at section 17.30.060E(1)(b), which lists "Maximum Interior and Exterior Noise Standards" with a footnote identifying these standards as CNEL standards. The CNEL label may not have been intended; and the "Maximum Interior and Exterior Noise Standards" my have been intended to represent the statistical L_0 standard for the maximum noise permitted for a given instant rather than 24-hour average standards. We suggest this for several reasons. First, there appears to be no clear relation between these exterior noise standards and the "Noise/Land Use Compatibility Matrix" table providing Normally Acceptable” and “Conditionally Acceptable” CNEL noise standards in the same section. The two tables do not use the same land use classifications, and the Maximum Interior and Exterior Noise Standards do not correspond either to the "Normally Acceptable" noise levels or to the "Conditionally Acceptable" noise levels in the Noise/Land Use Compatibility Matrix (compare DSEIR Table 4.10-4 to 4.10-5, reproducing the two tables). Second, section 17.30.060E(1)(a) bars noise in excess of the standards in either table, but, if both tables were intended to be CNEL standards, it would be difficult to determine which table's standard applies. A more intelligible regulatory structure (e.g., the BRP’s regulatory structure set out in DSEIR Tables 4.10-6 and 4.10-7) would require meeting a CNEL standard and an Ln standard.

[4] Meeting the open space noise standard would not be possible if, as discussed in Issue # 4 below, the FSEIR is correct that the 52.3 Leq noise measured at Site 2 [DSEIR, Table 4.10-3] is “representative of ambient levels at the open space and passive recreation areas” and that the short term Leq measurement is close to the CNEL value. [FSEIR, p. 11.4-1052] If ambient open space noise already exceeds the BRP standard, then the DSEIR should have considered whether the project’s incremental noise would make a considerable contribution to a significant cumulative impact. Note that BRP Noise Policy B-8 bars an increase over 3 dBA measured at the property line where ambient daily-weighted-average noise levels (L_{dn} – roughly equivalent to CNEL) already exceeds the normally acceptable noise range for open space use. [DSEIR, p. 4.10-11]

Swim Event Spectator and Pool Noise

The DSEIR discussed two primary noise sources from the outdoor swim center: crowd noise and starting system noise. Regarding crowd noise, although the DSEIR states that the "worst case would be . . . approximately 2,000 spectator adults" for 11½ hours, it makes no effort to estimate any noise level from the cheering supporters despite having done so for the sports arena and equestrian grandstands. [DSEIR at p. 4.10-22] Given that the Swim Center is closer to the nearest noise sensitive receptor than is the Equestrian Center (300 ft as opposed to 550 ft), it is very likely that crowd noise during "worst case" swim events will exceed the BRP maximum noise limits as will crowd noise from equestrian events.

The DSEIR does calculate the noise level from the starting system (a very loud "beep; also referred to by its proprietary name, the Time System) at the nearest receptor. The level, 70.4 dBA, exceeds the maximum of 65 dBA allowed for non-transportation noises by the BRP. [DSEIR, Table 4.10-7]

The DSEIR erroneously compares the 70.4 dBA maximum level from the starting system to the BRP 24-hour, weighted daily average criteria rather than the appropriate maximum noise level, but, albeit inadvertently, the preparers do correctly conclude that "the Time System would exceed the BRP's exterior noise standard for residential uses" and indicate that "Mitigation Measure NOI-3 is required for specific control measures to ensure noise impacts . . . would be less that significant". However, Mitigation Measure NOI-3 contains no actual sound-reducing measures for the Time System. Therefore, the Time System noise should be identified as a significant noise impact.

As with crowd noise from the equestrian event areas, mitigation of spectator noise so as to meet the BRP noise standards is not likely to be feasible.

Confusion Over Significance Criteria

In the discussions above, we pointed out several times that the noise levels either do or, when not calculated by the DSEIR preparers, would likely exceed the maximum noise limit of 65 dBA for non-transportation sources established by the BRP. The noises discussed – crowd cheering, amplified music, the starting "beeps" for swim meets – are appropriately assessed by the maximum level and the other cumulative minute limits, though this has not been done. In the DSEIR, every one of these noises is apparently only assessed using the 24-hour, weighted daily average criteria from the BRP, namely, 50 to 55 L_{dn} or CNEL.[5] We say "apparently" because the DSEIR does not expressly say that. Rather, it makes statements such as "The normally acceptable limits for residential land uses, according to the BRP, range from 50 dBA to 55 dBA". Considering the numerical values in DSEIR Tables 4.10-6 and 4.10-7, the 50 dBA to 55 dBA standard would appear to be the "normally acceptable" 24-hour average (L_{dn} or CNEL) criteria

[5] We note also that the DSEIR indicates that significance of noise in Impact Statement 4.10-3 will be determined by whether the project causes a substantial noise <u>increase</u> over ambient levels. [DSEIR at p. 4.10-12] However, none of the DSEIR's discussion of the significance of stationary noise source impacts considers the magnitude of noise increases. Instead, it references absolute noise standards, albeit unclearly,

for exterior community noise at residences. This is confusing because the simple noise calculations presented in the DSEIR for comparison to stated standards are clearly not 24-hour average levels. Thus, it appears that the DSEIR erroneously compares what are peak or short term noise levels to 24-hour standards. For example, after stating that "the normally acceptable noise limits for residential land uses, according to the BRP, range from 50 dBA to 55 dBA" the DSEIR reports that "noise levels from the sports arena would be as high as 90 dBA, which is above the normally acceptable noise limits for residential uses." [DSEIR at p. 4.10-21] The 90 dBA figure is clearly not a 24-hour average noise level, even though the referenced BRP standard is a 24-hour standard.

Furthermore, in order to determine the 24-hour average noise levels the analyst would need information about the location, duration, and intensity of each noise source, which the DSEIR does not provide. Finally, adding to the confusion, Mitigation Measure NOI-2 apparently refers to a different standard than did the DSEIR's discussion of the significance of event noises precipitating the need for mitigation. As discussed above, MM NOI-2 is unclear what metric or jurisdiction is intended by its reference to "the 65 dBA standard". NOI-2 might be referring to the BRP's 65 dBA L_0 standard, the statistical standard identifying the maximum noise permitted for a single instant [DSEIR, Table 4.10-7] Alternatively, it might be the City's maximum residential standard of 65 CNEL, the maximum 24-hour average standard. Regardless, the 65 dBA standard referenced in NOI-2 is clearly not the same standard as the BRP's 50 to 55 dBA CNEL normally acceptable noise limit for residential uses that was consistently identified in the discussion of the significance of noise impacts. Nor does the NOI-2 reference provide an unambiguous standard to be met through mitigation.

In summary, the DSEIR presents detailed descriptions of all applicable standards, but then fails to utilize them completely, correctly, or consistently.

Issue #3: Analysis and mitigation of construction noise is inadequate

As reproduced in the DSEIR, Program A-1.2 of the Fort Ord Base Reuse Plan (BRP) states:

> The City shall adopt a noise ordinance to control noise from non-transportation source, *including construction noise*, that incorporates the performance standards shown in [DSEIR, Table 4.10-7]. [DSEIR at p. 4.10-9; emphasis added]

Despite this explicit direction to apply this applicable standard, the DSEIR failed to calculate *any* noise level or to make *any* quantitative assessment against *any* applicable standard. However, the DSEIR does provide sufficient information to enable us to make and assess a simple example that demonstrates that the BRP Program A-1.2 limits will be exceeded.

The DSEIR states:

- Construction noise levels attenuate at 6 dB per doubling of distance (p. 4.10-14)
- Dozers generate levels of 82 dBA at 50 ft (Table 4.10-8)

- Dozers are typically utilized 40% of the time (Table 4.10-8)
- The closest residential receptor is 200 ft away (p. 4.10-15)

Using this information, one can calculate that for 24 minutes per hour (40% of the time) dozer noise at the nearest residence will be 70 dBA (attenuated 12 dB because the distance is doubled twice from 50 to 200 ft). Because the time period is between 15 and 30 minutes, the applicable standard from DSEIR Table 4.10-7 is that for 30 minutes, specifically, 45 dBA.

This simple calculation and assessment demonstrates that a single piece of heavy equipment will cause the BRP noise standards to be grossly exceeded. A standard construction noise analysis typically considers the noise from the three loudest pieces of equipment.

The BRP non-transportation noise standards are restrictive, but the DSEIR repeatedly applies other BRP standards elsewhere in the document, so there is no question about their applicability to this project, in general, and to construction noise, in particular.

The FSEIR's contention that noise mitigation will be adequate is not supported by any actual analysis, as is required by Seaside Municipal Code section 17.30.060G(6), which requires that the City "estimate noise exposure after prescribed mitigation measures are implemented."

Mitigation NOI-1 contains no actual standards for acceptable off-site noise levels. The provisions that Mitigation Measure NOI-1 does include will not ensure that the significance thresholds (i.e., the adopted noise standards) are met. For example, compliance with muffler and noise attenuation regulations will not ensure that noise levels are acceptable because the equipment will still generate noise that can cause exceedance of off-site standards, as evident from the stated construction equipment noise levels in DSEIR Table 4.10-8. Notice to neighbors and a complaint response arrangement will not attenuate noise or ensure that noise standards are met, particularly when the remedy is merely to take "reasonable measures" without any obligation to meet noise standards. Siting stationary equipment will not ensure that off-site standards are met because there is no requirement to meet standards; and it will do nothing to address mobile equipment noise which is likely to be a substantial source of the off-site noise impacts. And limiting hours will not ensure that standards are met, since those standards also limit noise during the day.

In our experience, it would likely be infeasible to meet the strict BRP and City noise standards during a construction project of this magnitude, especially the BRP statistical noise standards. For example, using noise barriers would be impractical as a method to attenuate heavy diesel equipment noise due to the elevated exhaust stack heights and the extensive areas of earth moving and tree removal planned.

Issue #4: Noise assessment of passively used open space impacts is inadequate

As with many former military bases, the former Fort Ord site presents the local community with a large, undeveloped tract of land, something that is rare along otherwise developed stretches of the California coastline. The noise policies and programs in the BRP explicitly recognize the unique opportunities for quiet, passive enjoyment of these lands by, for example, including a land use compatibility criterion for "Passively Use Open Spaces" [DEIR at p. 4.10-9, Table 4.10-6]. Like most land use compatibility criteria, these are cast in terms of the *day-night equivalent level* (L_{dn}) or the essentially equivalent *community noise equivalent level* (CNEL). Both of these are metrics that <u>average the noise level over a 24-hour period with extra emphasis (weighting) on the evening and/or nighttime hours</u>. The BRP also includes cumulative-minute or statistical standards that apply to non-transportation noises. These standards are fairly restrictive, again signaling that the intent of the BRP is to preserve the uniquely quiet environment provided by the former base lands.

The noise measurement made for the DEIR used to represent the open areas was made along a roadway, 8th Avenue, that cuts through the open area site. As a technical basis for subsequent analysis, the measurement is questionable because it was only made for 10 minutes. [DEIR at p. 4.10-2] However, in FSEIR response to Comment PO 208-86, the preparers state that "Noise sources in the project area (i.e., traffic and mechanical equipment) become less active and generate less noise in the project area during the nighttime period. As a result, the variance between L_{eq} and CNEL is typically less than one dBA in areas such as the project site. Therefore, short term noise measurements are appropriate for the project."[6] [FSEIR at p. 11.4-1052] Given that the reported L_{eq} for the 10-minute sample is 52.3 dBA, the open space CNEL – according to the DSEIR – should be between 51.3 and 53.3 CNEL.

The BRP standard for normally acceptable noise levels for passively used open space is CNEL 50. Since the baseline noise level exceeds this, BRP Noise Policy B-8 applies:

> **Noise Policy B-8**: If the ambient DNL [i.e., L_{dn} or CNEL] exceeds the normally acceptable noise range for public or institutional uses (passively and actively used open spaces; auditoriums, concert halls, and amphitheaters; schools, libraries, churches, hospitals and nursing homes; golf courses, riding stables, water recreation areas, and cemeteries), as identified in Fort Ord Reuse Plan (refer to Table 4.10-6), new development shall not increase ambient L_{dn} by more than 3 dBA measured at the property line. [DSEIR at p. 4.10-11]

Passive open space users will be the closest sensitive users to the project, frequently within 200 feet of the project or closer, since many trails are adjacent to or actually intersect the site boundaries.[7] [DSEIR

[6] The "Leq" is the average noise level over the 10 minute sample.

[7] The DSEIR claims that recreational users in the Oak Oval will be 550 feet south of the track and arena. [DSEIR at p. 4.10-21] However, DSEIR Figure 2-14 shows the sports arena and race track itself would be directly adjacent to the Oak Oval and to passively used open space to the north (CSUMB property) and to the east (BLM property). Thus, distances to open space uses would be much less than 550 feet, especially where trails intersect the Project site.

at pp. 4.16-2 and 4.16-4 (trail maps, without scale), pp 2-58 and 2-60 (tentative map with scale)]. Those users will be exposed to uses that generate substantial noise, including uses at REC-2 (the horse race track, training, and special events facility), REC-1 (the horse park, also hosting events and visitor uses), and R3 (residential use). [DSEIR at pp. 2-28 to 2-36 (summary of plan)] Despite this, the DEIR does not present any estimate of the L_{dn} or CNEL levels at these open space areas for the days in which there would be events at the equestrian center or the swim center, nor does it present any estimates of the statistical noise level distribution in the open space areas. Therefore, it fails to assess the noise impacts against the policies and programs of the BRP that were specifically enacted to regulate noise levels on the former base lands.

Although the DSEIR lacks adequate analysis, we can infer that noise impacts to open space land immediately adjacent to Planning Area REC-2 to the north, east, and south, where the Sports Arena and racing facility are to be located, would in fact exceed the 65 dBA L_0 (L_{max}) noise level permitted by the BRP statistical noise standards for non-transportation noise sources [DSEIR, Table 4.10-7] The DSEIR states that event noise outside the sports arena would be as high as 90 dBA. [DSEIR, p. 4.10-21] As discussed above, this level at the sports arena implies a level on the order of 75 dBA at the Oak Oval 550 ft way, and even higher levels at the closest trails. Depending on the duration and level of noise from REC-2, other statistical noise thresholds may be exceeded as well. As discussed above, mitigation of noise from the sports arena and race track by sound barrier or berm would be infeasible.

In summary, the DEIR's noise analysis fails to adequately assess the noise impacts of the proposed development on the open spaces that afford a unique opportunity for quiet enjoyment by hiking through unspoiled lands on the former army base. The noise levels from the proposed developments are not quantified in the same metrics as used in the BRP, making assessment with its germane policies and programs impossible.

Issue #5: Assessment of long-term mobile noise impacts fails to follow CEQA guidelines

With respect to noise impact analysis, the CEQA guidelines, as faithfully reproduced on page 4.10-12 of the DSEIR, state:

> " . . . a project impact would be considered significant if the project would:
>
> - Expose persons to, or generate, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies . . .
>
> - Substantially permanently increase ambient noise levels in the project vicinity above levels existing without the project . . ."

In the assessment of long-term mobile noise impacts, the DSEIR notes that "The Project would increase noise levels on the surrounding roadways by a maximum of 6.3 dBA along 7th Avenue (between Gigling Road and Colonel Durham Street) and 5.1 dBA along 8th Street (between Inter Garrison Road and 6th Avenue)", goes on to state that ". . . the resultant noise level along each of these roadway segments would not exceed the City's land use compatibility criteria of 60 dBA", and then concludes "as the resultant 'With Project' traffic noise levels do not exceed the applicable land use compatibility criteria, impacts would not occur in this regard". [DSEIR at p. 4.10-25] This analysis addresses the first CEQA guideline presented above, but does not address the second.

BRP Noise Policy B-6 presents unambiguously clear criteria to assess the relative increase in ambient levels:

> Noise Policy B-6: If the ambient day-night average sound level (DNL) [i.e., L_{dn} or CNEL] exceeds the normally acceptable noise range for residential uses (low density single family, duplex, and mobile homes; multi-family; and transient lodging), as identified in Fort Ord Reuse Plan (refer to Table 4.10-6), new development shall not increase ambient DNL in residential areas by more than 3 dBA measured at the property line. <u>If the ambient DNL is within the normally acceptable noise range for residential uses, new development shall not increase the ambient DNL by more than 5 dBA</u> measured at the property line. [DSEIR at p. 4.10-10; emphasis added]

Based on the CEQA guideline and this applicable policy, the noise level increases along 7th and 8th Avenues should be identified as significant impacts.

This issue was raised by the LandWatch group during the public comment period [Comment PO 208-91]. The response in the FSEIR fails to address the issue, however. The response states that the noise prediction model does not account for intervening structures, barriers, or topography, and that "The model's purpose is to directly compare the Project's effects based on the traffic that it would add to the modeled roadways." It goes on to say that there are existing barriers, implying that this would render the noise level increase less than 5 dBA. It doesn't because the barriers would have exactly the same effect on the "existing without project" and "existing with project" calculations. For example, if noise 100 feet from the centerline without the project were 50 L_{dn} and with the project were 55 L_{dn}, there would be a 5 dBA increase. If there were a barrier providing 3 dB of attenuation, then the noise without the project would be 47 L_{dn} and the noise with the project would be 52 L_{dn}, and there would still be a 5 dB increase. So, in fact, the model does exactly what's needed to assess the noise following the "permanently increase" CEQA guideline – it calculates the relative increase. Now, this does imply that the absolute levels predicted by the model as presented in Tables 4.10-11 and 4.10-12 may not be correct, but this makes no difference to the relative increase analysis.

Finally, the FSEIR response also states that the analysis was done at a standardized distance of 100 ft rather than at the property line distance where the criteria apply. Again, while this means that the absolute noise level values presented in the tables are incorrect for the property line, the relative differences between the "without project" and "with project" levels are correct.

In summary, the DSEIR failed to follow the CEQA guideline to assess relative increases in noise levels cause by a project in addition to the resultant absolute levels. Had it done so, it's clear that the noise level increases along 7th and 8th Avenues would have been identified as significant impacts.

Issue #6: The DSEIR fails to determine traffic noise impacts at the property line as is required by the municipal code and base reuse plan to protect outdoor uses

The DSEIR finds project-specific impacts to be significant "when a permanent increase in ambient noise levels of 3.0 dB occur upon Project implementation and the resulting noise level exceeds the applicable exterior standard at a noise sensitive use". [DSEIR at p. 4.10-13]

The DSEIR's two-step cumulative analysis first determines whether all future projects combined with the Monterey Downs Project will cause a 3 dB increase and result in a noise level over the applicable standard. If so, the second step determines whether the Monterey Downs Project contributes at least 1 dB to the future noise level. [DSEIR at p. 4.10-13]

In both analyses, it is necessary to determine whether traffic noise levels will exceed applicable thresholds for the receiving property's land use. It is clear that the City standards are intended to protect outdoor uses by requiring measurement at the property line of the receiving use. Seaside Municipal Code section 17.30.060H provides that "exterior noise levels shall be measured at the property line of the noise-sensitive land use receiving the noise". Seaside Municipal Code section 17.30.060F states that its standards are intended to "maintain outdoor and indoor noise levels on the receptor sites in compliance with Tables 3-3 and 3-4". Seaside Municipal Code section 17.30.060F(2) provides that noise mitigation must attain noise standards "at the property line". Similarly, BRP Policies require protection of exterior uses by determining noise impacts at the property line. BRP's statistical noise standards specify that they are applicable "at the property line". [DSEIR at p. 4.10-9] BRP Noise Policies B-6, B-7, and B-8 all bar specified noise increases "at the property line". [DSEIR at pp. 4.10-10 to 4.10-11]

Because the DSEIR fails to determine the actual noise at the property line, there is no evidence that the Project will comply with Seaside Municipal Code or BRP Policy noise standards. Nor is there evidence that the Project will meet the DSEIR's own significance thresholds, because those thresholds are expressed in terms of compliance with Seaside Municipal Code or BRP Policy noise standards.

The error is consequential. For example, the FSEIR indicates that the multi-family residential housing along Gigling Road must meet a 60 CNEL noise standard. [FSEIR p. 11.4-1054] The DSEIR indicates that the 60 CNEL noise contour (the distance from the roadway centerline at which noise level will be 60 CNEL) is from 70 feet along Gigling Road from 7th to 6th Avenue. [DSEIR at p. 4.10-30, Table 4.10-12, entry for Gigling Road] Since the distances from the roadway centerline to the adjacent property lines is less than 70 feet, noise would exceed the

60 CNEL threshold at the property line and Table 4.10-12 indicates that the noise with the project will be 3.0 dB higher than without it. The DSEIR failed to identify this impact because it used the arbitrary analysis distance of 100 ft rather than the distance to the property line as required by the SMC and the BRP. Adding more than 3 dBA to a location where noise exceeds the normally acceptable residential standard also violates BRP Policy B-6. [DSEIR, p. 4.10-10][8]

As a side note, the FSEIR argues that the City would ensure interior noise attenuation, but that would not mitigate exterior noise or protect outdoor uses, thereby forsaking the intent and purpose of the exterior noise limits in both the SMC and the BRP. [FSEIR p. 11.4-1054]

Issue #7: DSEIR failed to identify significant noise impact along 2nd Avenue

The cumulative noise analysis in the DSEIR, which is essentially a future traffic noise level analysis, is presented in Table 4.10-13. The structure of this table is a listing of sections of roadway and, for each one, the existing and future noise levels, the total increase in noise level, and the increase in noise level attributable to the project. The significance threshold for assessing cumulative noise is multi-tiered and presented on p. 4.10-13 of the DSEIR. In summary, the project would contribute significantly to a cumulative noise impact is the following three conditions are met:

1. The cumulative “future with project” noise level is 3 dB or higher than the existing conditions,
2. The resulting noise level exceed the applicable exterior standard for the sensitive land use, and
3. The “future with project” noise level is 1 dB or higher than the “future without project” noise level. In other words, the project contributes at least 1 dB to the future noise level.

In Comment PO 208-107 on the DSIER, LandWatch requested that Table 4.10-13 include the relevant land use category for each road segment and the corresponding applicable exterior noise standard to facilitate understanding of the analysis. This was not done in the FSEIR. Had it been, at least one significant impact would have been identified that the FSEIR fails to identify.

The land use along 2nd Avenue between Inter Garrison Road and 8th Street includes multi-family housing. Based on usage for multi-family housing, the City of Seaside standard for normally

[8] Contrary to the FSEIR at p. 11.4-1054, there is no soundwall or berm that would reduce traffic noise levels on Gigling Road between 6th and 7th Avenues. This is evident from Google street-view and/or satellite imagery.

acceptable compatibility is 55 CNEL and the BRP standard for normally acceptable compatibility is 60 CNEL. It is clear from statements in the DSEIR that it considers the higher of these, 60 CNEL, to be the standard, for multi-family residential use. For example, when discussing project-specific (i.e., non-cumulative) future noise levels, the DSEIR states, "Future With Project noise levels along these segments would be less than 60 dBA, which is within the normally acceptable land use compatibility criteria for residences."[9] [DSEIR at p. 4.10-28]. Similarly, the FSEIR identifies the 60 dBA limit from the BRP as the relevant standard for determining whether traffic noise is over the applicable standard for multi-family residential use. [FSEIR at p. 11.4-1054]

In Table 4.10-13, the difference between the existing and the cumulative future-with-project noise levels is 9.0 dBA, the future-with-project noise level is 63.5 dBA, and the incremental difference between future-with-project and future-without-project noise levels is 2.4 dBA. One slight complication is that the Table 4.10-13 assessment is made 100 ft from the roadway centerline rather than at the property line which is actually farther away at about 140 ft. Correcting for the difference in distance using the standard line-source attenuation factor of 3 dB per doubling of distance, the absolute future-with-project noise level at the property line is 62.0 dBA. So, the absolute noise level exceeds the applicable standard, the total increase exceeds 3 dB, and the project's contribution exceeds 1 dB. Therefore, according to the DSEIR's adopted threshold of significance and analysis, the noise impact along 2nd Avenue between Inter Garrison Road and 8th Street should have been identified as significant.

*   *   *   *   *

Please call us if you have any questions regarding this review.

Very truly yours,

WILSON IHRIG

Derek L. Watry

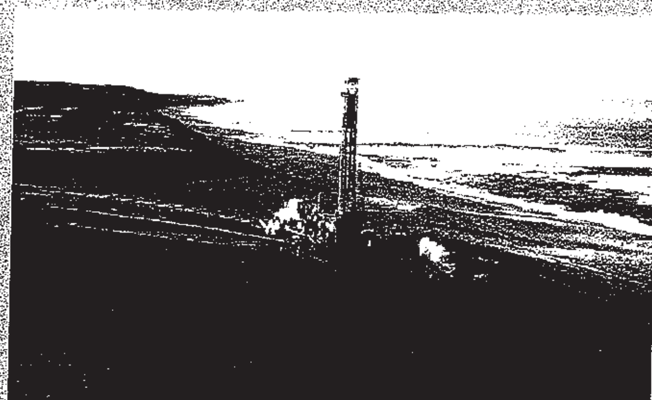
Derek L. Watry
Principal

---

9 Land use on the east side of 2nd Avenue includes educational uses (CSUMB). The City and BRP standards for educational uses are also 55 and 60 CNEL respectively.

Marina Coast Water District

Deep Aquifer Investigative Study



RIME Water Resources & Information Management Engineering, Inc.

May 2003

WRIME Water Resources & Information Management Engineering, Inc.

tel. 916.564.2236 1451 River Park Drive, Suite 142, Sacramento, CA 95815
fax 916.564.1639 http://www.wrime.com

May 15, 2003

Marina Coast Water District
11 Reservation Road
Marina, CA 93933

Attn: Mr. Dave Meza

Subject: Deep Aquifer Investigative Study

Dear Mr. Meza:

WRIME, Inc. is pleased to submit the final report on "Deep Aquifer Investigative Study" to the Marina Coast Water District (MCWD).

WRIME, Inc. appreciates having this opportunity to work with the MCWD staff, the Technical Advisory Committee members and the DWR, to evaluate the feasibility of the Deep Aquifer as a short-term and long-term source of water supply to the MCWD.

Should you have any questions, please do not hesitate to contact us about this report.

Sincerely,

Water Resources &
Information Management Engineering, Inc.

Alash

Ali Taghavi, Ph.D., P.E.
Vice President

DISCLAIMER

This report was prepared for the Marina Coast Water District under a grant from the California Department of Water Resources. The in-progress findings were shared on two occasions with a Technical Advisory Committee (TAC) consisting of agency personnel (MPWMD, USGS, PVWMA, MCWRA, Santa Cruz County Public Works, DWR) and selected consultants. At the TAC meetings, input was solicited and the subsequent suggestions were incorporated, as appropriate, into the project. Scheduling of TAC meetings was difficult and consequently some TAC members had less-than-adequate time to fully review and evaluate the work performed. As such, the findings of this report are not necessarily endorsed by all members of the TAC. The findings provide new insights into the water resources of the area, insights that are in some ways contradictory with previous beliefs. The findings are considered preliminary and subject to further refinement, and are in no sense final.

Deep Aquifer Investigative Study

May 2003

Prepared For:

Marina Coast Water District

List of Preparers:

Ali Taghavi, Ph.D., P.E.

Martin Feeney, C.H.G.

Lew Rosenberg, R.G., C.E.G.

Christopher Smith, P.E.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

The Marina Coast Water District (MCWD) in cooperation with the California Department of Water Resources (DWR) initiated an investigative study of the Salinas groundwater basin deep aquifer system.

The potable groundwater supplies in the coastal areas of Salinas Valley Groundwater Basin have been contaminated by intrusion of seawater from the Monterey Bay. The seawater has extended to approximately 8 miles inland in the upper (180-foot) aquifer, and to approximately 2 miles inland in the middle (400-foot) aquifer. Although there are no direct indications of seawater intrusion in the deep aquifer, there are concerns that continued and increased groundwater pumping may cause intrusion of seawater there as well.

Because MCWD relies on the deep aquifer for approximately 85 percent of its water supply, a long-term water management plan is of paramount importance to the District. As such, the District and DWR initiated investigating the reliability of the deep aquifer as a long-term water supply source.

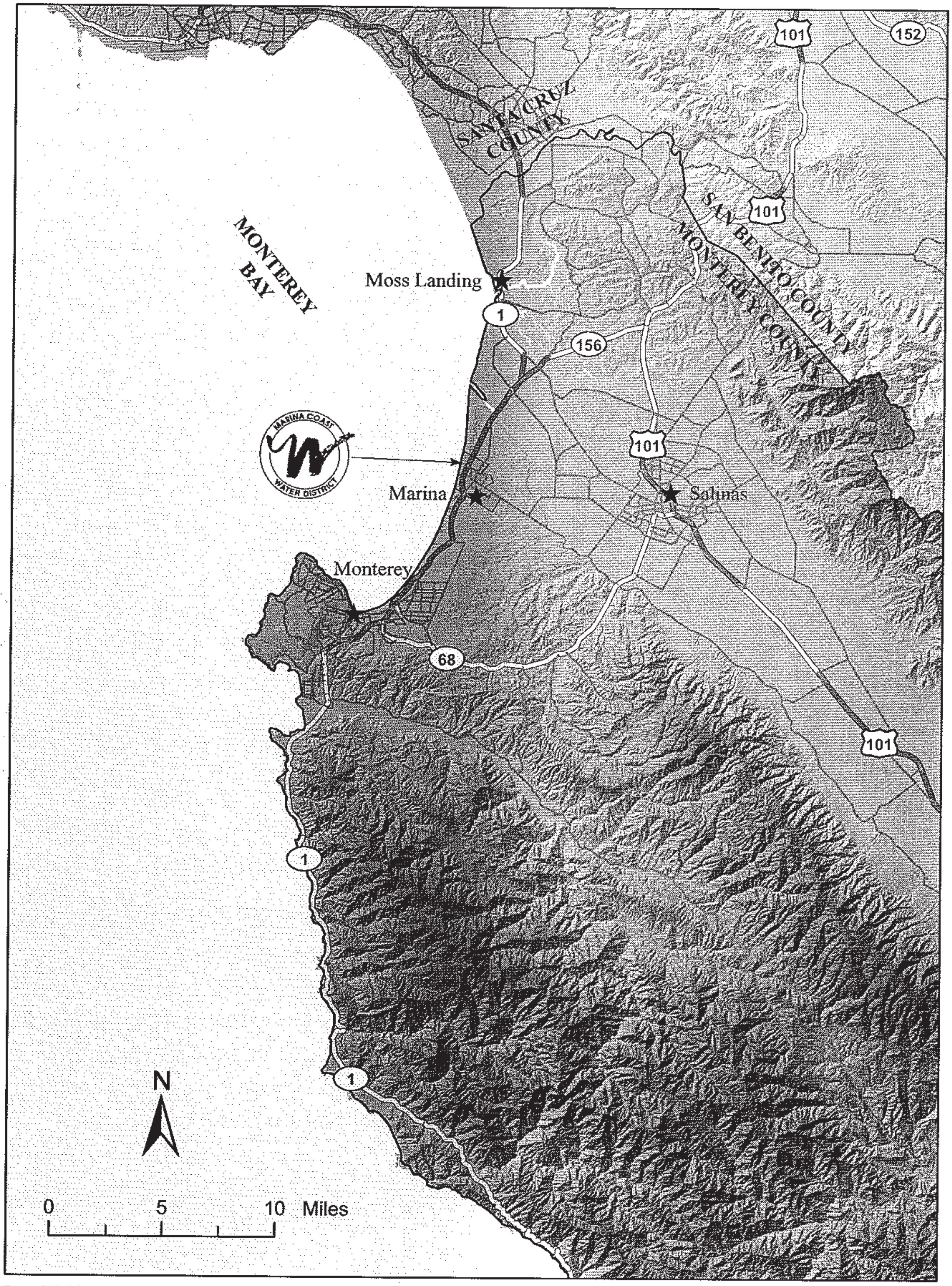
STUDY AREA

The study area is centered on the MCWD service area (Figure 1.1). Because of MCWD's geographical location relative to the advancing seawater in the 180- and 400-foot aquifers, the District was one of the first groundwater users forced to use the deep aquifers. Some agricultural users in the Castroville area also were forced to drill into the deeper sediments to provide water for agricultural purposes. The construction and operation of the Castroville Seawater Intrusion Project (CSIP) in 1998 allowed these agricultural users to abandon the use of their deep wells. As such, MCWD remains today the only significant user of the deep aquifer.

The study area is also defined by the availability of data. Relevant water well data are only available in those areas where deeper wells have been constructed and operated. Understandably, deeper wells have only been drilled in the intruded areas. Therefore, the available data are limited to this area. For this reason, the primary study area becomes those areas with, or threatened by, seawater intrusion in both the 180- and 400-foot aquifers.

DEEP AQUIFER DEFINITION

The term "deep aquifer" or "deep zone" has been part of the groundwater lexicon of the Salinas Valley for more than 25 years. Other alternative terms have included the "900-foot" and "1500-



Base: USGS 30-meter National Elevation Dataset (2001)

Figure 1.1 Vicinity map showing Marina Coast Water District foot" aquifers. However, these terms are defined vaguely and the "deep aquifer" is not necessarily located at these arbitrary depths. The use of the deep aquifer has been driven by the need to drill deeper to avoid seawater intrusion. Initially, wells were drilled to the next deeper elevation that had fresh-water-bearing materials. Subsequently, wells were drilled to greater depths further extending the bottom of the deep aquifer. As such, the term "deep aquifer" became defined primarily by depth of well. Little effort was expended to understand the geologic nature and origin of the sediments that make up the deep aquifer.

Accordingly, the current use of the term "deep aquifer" essentially aggregates all sediments below the 400-foot aquifer without respect to geology. This report attempts to provide geologic assignments for the sediments encountered in these deeper wells such that a hydrogeologic framework can be developed to assist the understanding of these aquifer systems.

Throughout this document, the term "deep aquifers" will be utilized in place of "deep aquifer" because available data strongly suggest a multiple-aquifer system.

STUDY OBJECTIVES

There have been many geologic and hydrogeologic data in the Coastal areas of Monterey Bay that have not been evaluated in the past. In addition, the basin-wide hydrologic model, the Salinas Valley Integrated Ground and Surface water Model (SVIGSM), has been used for analysis of impacts in many studies, including the Salinas Valley Water Project. However, SVIGSM does not include all the latest geologic and hydrogeologic data representing the deep aquifer system.

The objectives of this study, as laid out in the MCWD's request for proposals, are as follows:

- Identify all users and their use rates of the Salinas Basin deep aquifer.
- More fully characterize the deep aquifer.
- Identify the safe yield of the deep aquifer including more accurate characterization of recharge rates, transmissivity, and connectivity to the middle and upper aquifers.
- Update the Salinas Valley Integrated Ground and Surface Water Model (SVIGSM) to be able to address yield and seawater intrusion questions related to aquifer use.
- Develop a deep aquifer groundwater management component to the Salinas Valley Water Plan through a consensus building, stakeholder process.

To achieve such goals, the following scope of work was developed:

Task 1 - Establish project management methods;

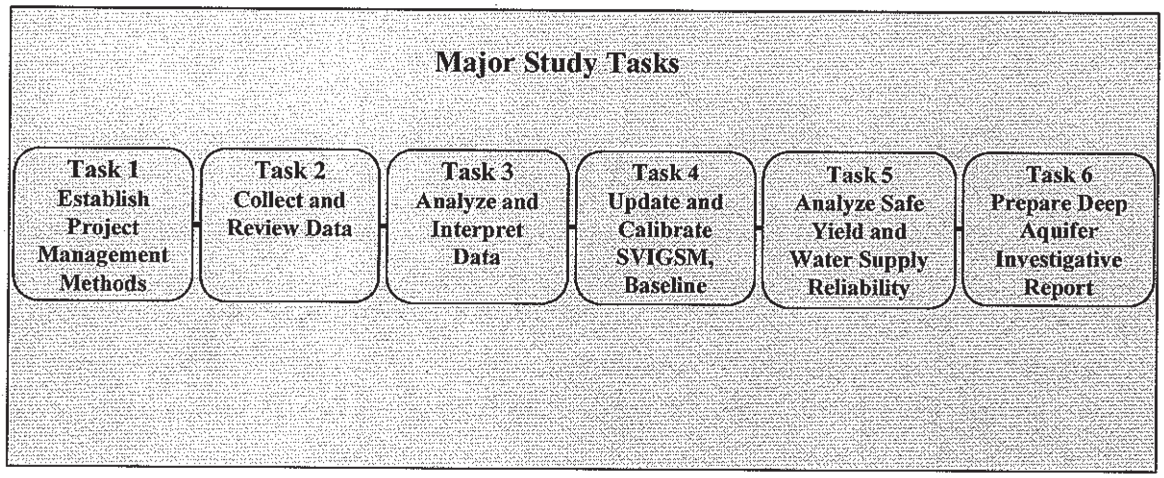
Task 2 - Collect and review data about the Deep Aquifer;

Task 3 - Analyze and interpret data about the Deep Aquifer;

Task 4 - Update the SVIGSM;

Task 5 - Estimate safe yield and analyze water supply reliability; and

Task 6 - Prepare Report and Presentation of Findings.



REPORT ORGANIZATION

This report provides documentation of the work performed and the findings of the study. The report is organized into the following sections:

Section 1: Introduction - Describes the purpose, project background, study area, scope of project, and organization of this report.

Section 2: Data Analysis and Synthesis - Describes the data collected, analysis of the time series data and its incorporation in the model, and estimation of missing data.

Section 3: SVIGSM Update - Describes the background of the model, impacts of updating the code and of updating the model database, and the efforts to mitigate those impacts.

Section 4: Water Supply Reliability and Safe Yield Analysis - Describes the definition of safe yield, the criteria developed and used to analyze safe yield, and impacts of several potential groundwater supply alternatives.

Section 5: Summary of Findings - Presents summary of study findings.

This section tabulates and analyzes the available hydrogeologic data from the coastal portion of the deep aquifers system of Monterey County. The deep aquifer designation derives from the history of water resource development in Monterey County. Advancing seawater intrusion, first in the 180-foot aquifer, then in the 400-foot aquifer, forced groundwater users to progressively drill deeper to find fresh water. The first deep aquifer water well was drilled in 1976; approximately nine more water wells have since been drilled into this aquifer system in the coastal area.

This section attempts to integrate all available data on the aquifer systems underlying the 180- and 400-foot aquifers of the Salinas Valley to develop an improved understanding of the groundwater resource. This refined understanding is then used to update the representation of the deep aquifer the SVIGSM. Several local-scale investigations into the hydrogeology of the deep aquifers have been performed over the last 20 years and provided useful insight into the understanding of the deep aquifers. However, this evaluation represents the first attempt to bring together all the data that have been developed since the preparation of the Deep Aquifer Report prepared in 1976 by Richard Thorup (unpublished draft report).

The available data set for the deep aquifers is scanty. These data are presented in this report with preliminary conclusions. Conclusions should be considered provisional and are subject to revision when more data become available. Much of the available data raises questions that cannot be adequately answered, or even speculated upon, within the existing framework of understanding. The data, corresponding interpretation, and conceptual understanding have been incorporated into the SVIGSM so that additional insight can be gained by evaluating the results of modeling analyses.

PREVIOUS REPORTS

The hydrogeology of the northern Salinas Valley has been the subject of many studies, such as the landmark 1946 Salinas Basin Investigation (DWR, 1946), and, more recently, the 1994 Salinas River Basin Water Resources Management Plan (Montgomery Watson, 1994). However, these studies focused on the shallow aquifers, commonly referred to as the 180-foot and the 400-foot aquifers, and not on the deep aquifers. Only several studies specifically focus on the deep aquifers and provide significant insight into its hydrogeology. The most significant are summarized below:

Thorup (1976, 1983)—In 1976, Richard Thorup issued a draft report discussing the results of a 1,718-foot-deep test well (Fontes well) for the proposed Castroville Irrigation Project (CIP). This well is significant because it was the first water well to test the deep aquifers. Based on his analysis of the test well and other oil and water wells, Thorup estimated that the "900-foot aquifer" extended from the mouth of the Salinas River southward to Greenfield and contained nearly 11 million acre-feet of fresh water. Thorup concluded that the Fontes well would not produce enough water for the CIP and recommended an alternate location at the Marihart Ranch, south of Spreckels. Thorup updated this report in 1983 to include the information from three additional wells subsequently perforated into what he considered the deep aquifer—the Monterey County Mulligan Hill well (14S/02E-06L01), Leonardini #3 (13S/02E-19Q03), and Monterey Dunes #1 (13S/01E-36J01). Accompanying the 1983 report were a series of geologic maps and cross sections that depicted the extent and geometry of the deep aquifers. Based on more refined data, Thorup calculated that the deep aquifers contained approximately 4.6 million acre-feet of usable groundwater and estimated a recharge rate of 65,500 acre-feet per year.

Grasty (1988)—As part of his M.S. thesis research, James Grasty performed and interpreted gravity and magnetic surveys across the Armstrong Ranch in the city of Marina. Grasty observed a northwest-trending gravity low and magnetic anomaly, which he interpreted as a shear zone related to the "King City fault" (Reliz fault). More germane to the present study of the deep aquifers is his hypothesis of "the presence of an anomalous area (bedrock depression) where a thick sequence of Quaternary sediment accumulated" between the Marina No. 10 and 11 wells (Grasty, 1988, p. 24–25). This is the first depiction of the "Marina trough."

Geoconsultants (1999)—At the American Association of Petroleum Geologists, Pacific Section, meeting in the city of Monterey, Jeremy Wire and his associates presented a paper showing a feature called the Marina trough, which is located between the Mulligan Hill well and the Reliz fault. Geoconsultants postulated the existence of the Marina trough based on the presence of an extremely thick section of sediments, which were identified as Pleistocene age, based on microfossil analysis by Dr. James Ingle of Stanford University.

Hanson and others (2002)—As part of a U.S. Geological Survey (USGS) research project, a 2,000-foot-deep monitoring well cluster was drilled in Marina. This report provides valuable information on stratigraphy, water levels, and water chemistry of the deep aquifers, in addition to the well construction. Of particular interest is the documentation of Pliocene-aged sediments from the depths of 950 to 2000 feet.

Montgomery Watson (1993) – This report presented, in draft form, the first version of the SVIGSM. The model was developed as a hydrologic model that integrates the groundwater and surface water flow systems, along with a water quality model. The model also simulates the operation of the Nacimineto and San Antonio reservoirs, regulating the flows to the Salinas River system. This report focuses on the development and calibration of the groundwater flow and quality models.

Montgomery Watson (1997) – This report presents the update of SVIGSM calibration. The model underwent substantial review and analysis as part of this effort.

Montgomery Watson (1998) – This report presents the update and applications of the SVIGSM. The SVIGSM was used to evaluate the historical hydrologic benefits of operation of Nacimiento and San Antonio reservoirs on the groundwater basin, as well as the Salinas River flows. The report also presents the analysis of flood control and economic benefits of historical operation of the reservoirs.

GROUNDWATER LEVEL DATA

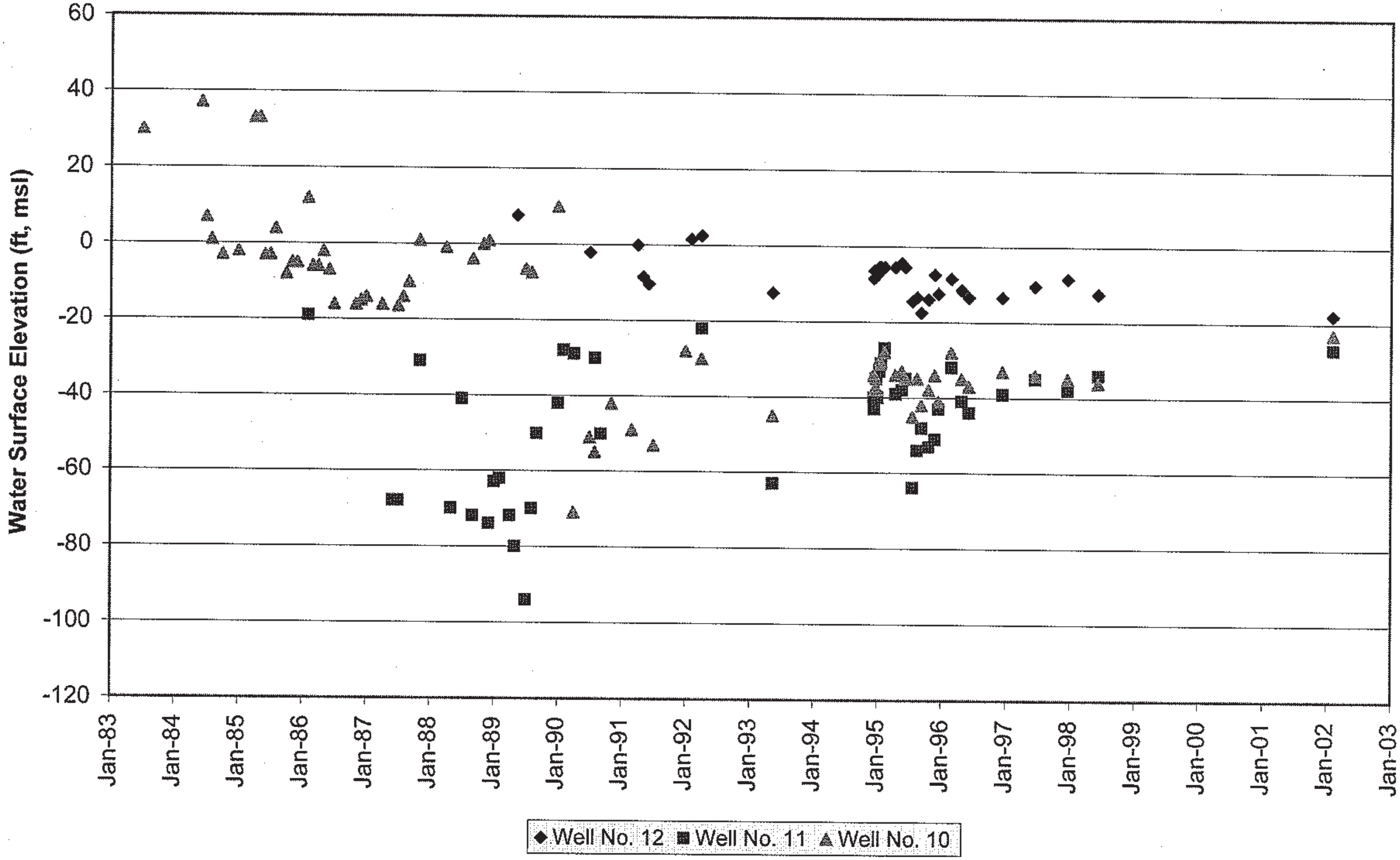
Water level data are available for wells in the deep aquifers in the Castroville area from the Monterey County Water Resources Agency (MCWRA). Intermittent water level data are also available from MCWD for their three production wells. Continuous water level data since June 2001 are available for the USGS Monitoring well cluster.

MARINA COAST WATER DISTRICT WELLS

A static water level history of MCWD wells can be assembled from various sources. MCWD has collected static water level data from these wells on an irregular schedule, creating several long data gaps. Other sources include data collected at the time of well construction and spot measurements collected by contractors as part of pump servicing. The most apparent data gap is the period from early 1998 until early 2002 for which no static water level data are available. Since beginning this investigation, static water level data have been collected on an almost continuous basis. The available water level data are presented on Figures 2.1 to 2.4b.

Although the record in Figure 2.1 is incomplete, the static water level history of all the wells shows a general pattern. Water levels at the time of well completion are close to sea level. During the first several years of operation, static water levels fall relatively rapidly. Then static water levels appear to level off and maintain a narrow range of fluctuation. All three of MCWD's wells have maintained water levels significantly below sea level since initiation of extractions. Well Nos. 10 and 11 display water levels averaging 40 feet below mean sea level. Well No. 12 displays average water surface elevation of approximately 15 feet below msl. Of interest are the strong vertical gradients maintained between these wells and the increasing head with increasing well depths.

Figure 2.1
Marina Coast Water District Deep Aquifer Wells Water Level Data



Figures Fig2.1-WL

Figure 2.2a MCWD Annual Production from Well 10

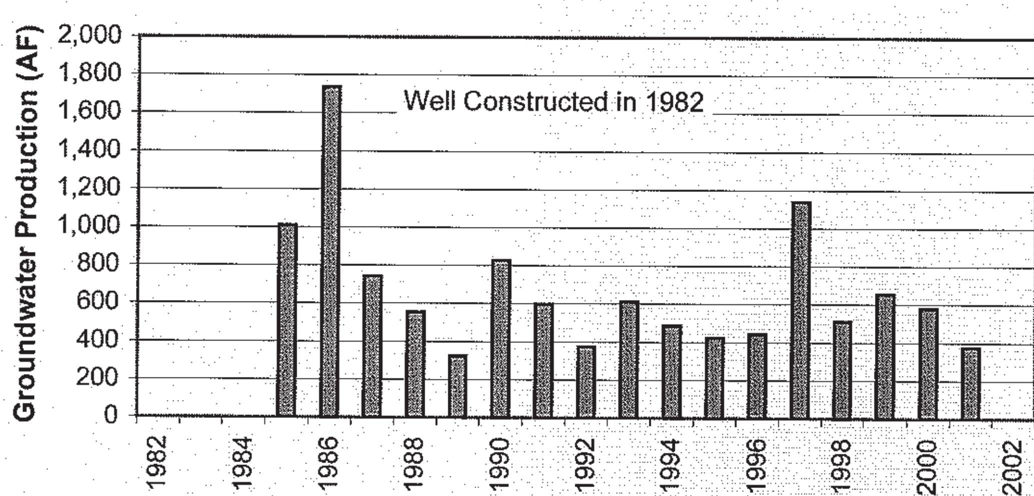


Figure 2.2b MCWD Groundwater Levels for Well 10

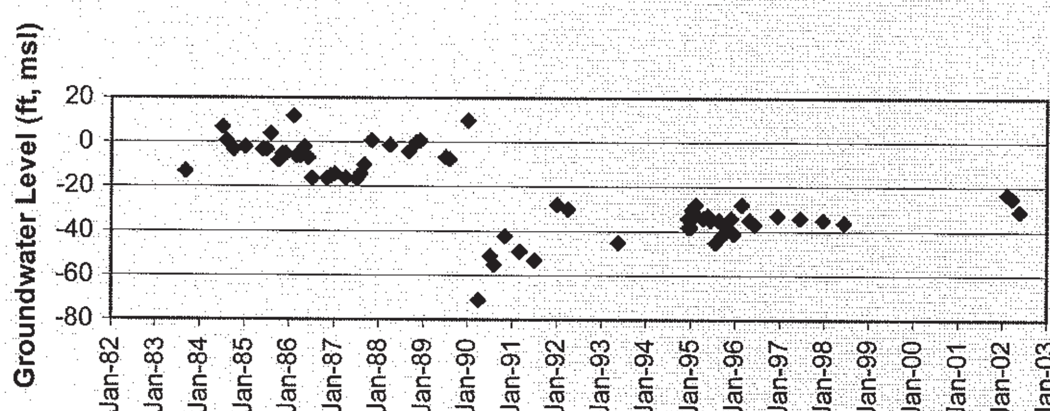


Figure 2.3a MCWD Annual Groundwater Production from Well 11

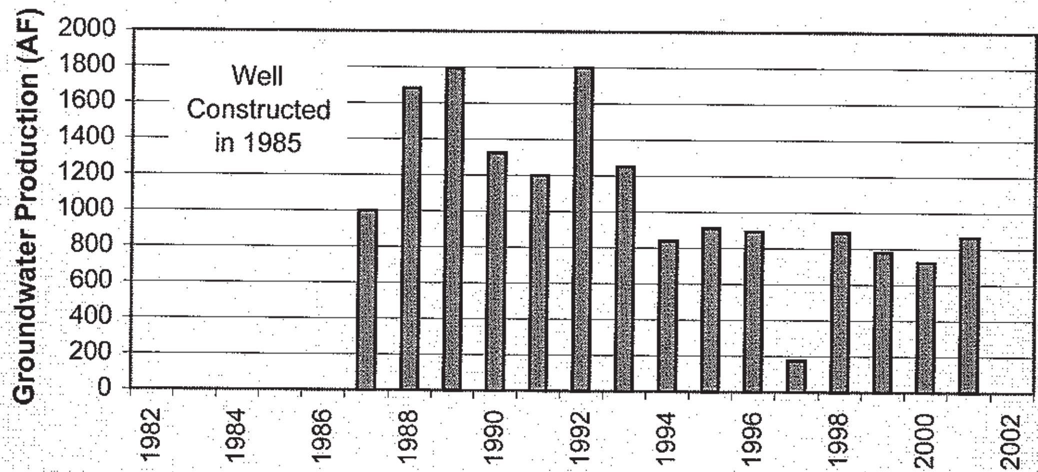
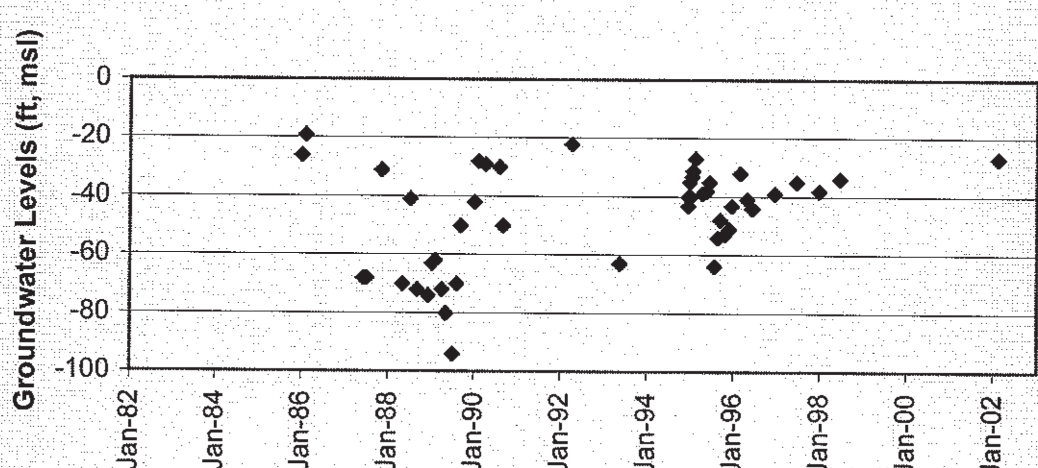


Figure 2.3b MCWD Groundwater Levels from Well 11



FiguresFig2.3a&b-WLvQyr #11

Figure 2.4a MCWD Groundwater Production from Well 12

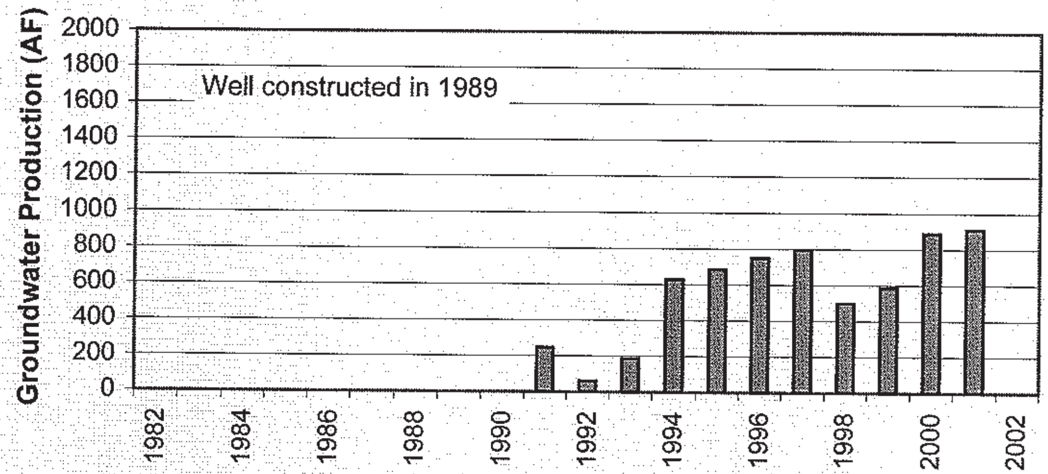
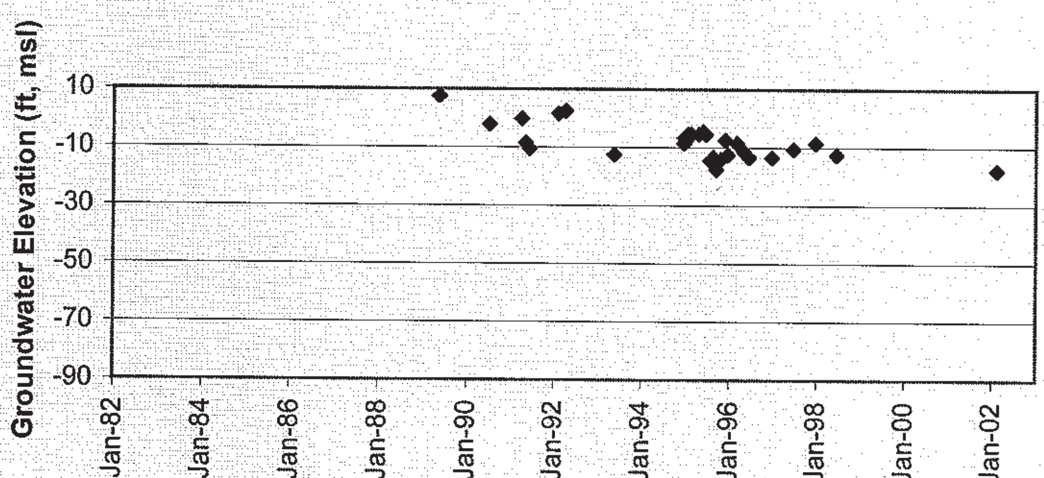


Figure 2.4b MCWD Groundwater Levels from Well 12



Figures 2.2a through 2.4b present annual production and static water level history for each of MCWD's wells. Water level data are generally too sparse to discern a strong linkage between extractions at Well Nos. 10 and 11. The record for Well No. 12 is clearer and shows a general decline in water level with increasing extractions. Taken together, the records from all the wells allow an understanding of how the overall operation of the well field impacts water levels at each well site. The water level record from Well No. 10 shows a large shift in average water level in 1989 (approximately). This is the period when production from Well No. 11 was coming on-line. As is discussed below, Well Nos. 10 and 11 display significant mutual interference effects. Beginning in 1987, water level records in Well Nos. 10 and 11 reflect the aggregate pumping from these wells. As discussed below, the hydraulic linkage between Well Nos. 10 and 11 and Well No. 12 is poor.

Figures 2.5a and b present monthly production and water levels from MCWD wells during the period from January 1995 to December 1997—the period with the most water level data. Figure 2.6 shows the seasonal fluctuations in water levels in response to demand variations. While the magnitude of the response differs, generally the observed fluctuation in water level is proportional to the variation in monthly production from a given well.

Castroville Area Wells

The MCWRA collects monthly data from five of the wells completed in the Castroville area deep aquifers. Monthly water level data extends back to approximately October 1986. These data are presented in Figure 2.7. The water level records display a strikingly similar response. The annual irrigation cycle is apparent in the records of all the wells, with all the wells displaying approximately 40 feet of annual water level fluctuation. Of interest is that the record from Well No. 13N/2E-32E05, an observation well, is essentially identical to the records of the surrounding production wells, suggesting a highly connected, confined system. The regional response of the aquifer system to the cessation of pumpage in 1998, with the onset of CSIP water deliveries, is also striking. Water levels in all wells recovered to above sea level elevations by 2000, again indicative of a connected, confined aquifer system.

Figure 2.8 presents the water level records from selected Castroville wells with the MCWD wells record. The cessation of pumpage due to CSIP water deliveries has provided for a significant relaxation of the aquifer in the Castroville area; however, the water level record from the MCWD's wells, although sparse, shows no apparent response to this regional relaxation.

Figure 2.5a MCWD Total Groundwater Production

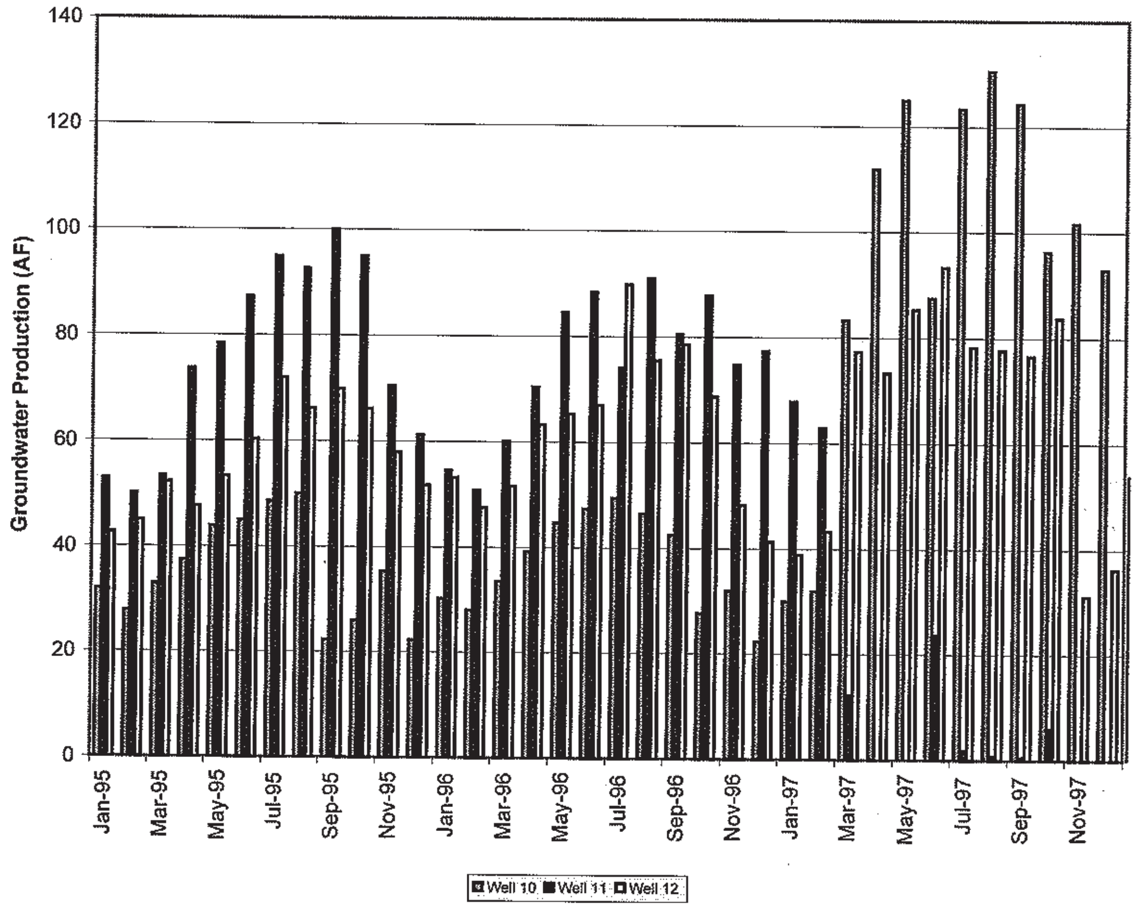


Figure 2.5b MCWD Groundwater Levels

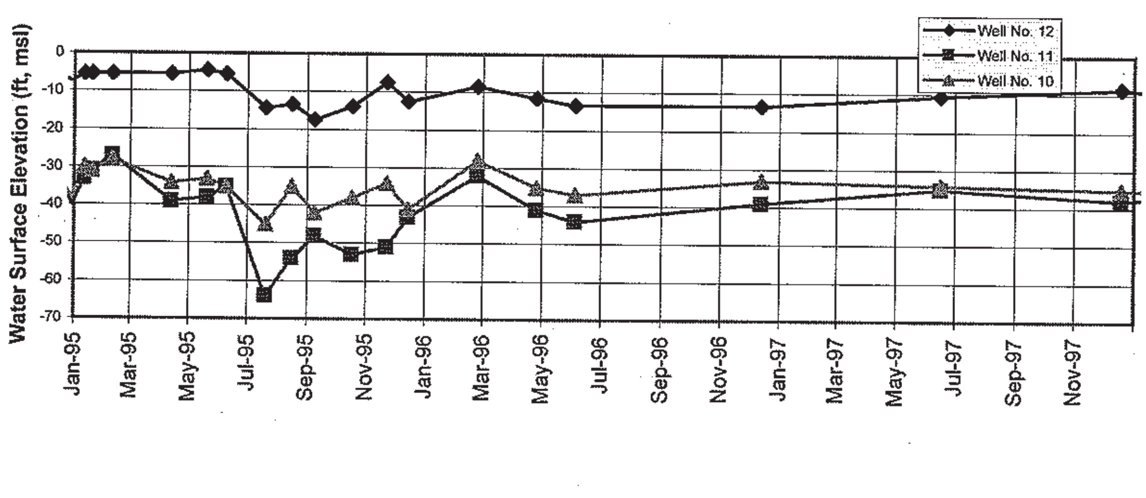


Figure 2.6
Water Level History Castroville and Marina Area Deep Zone Wells

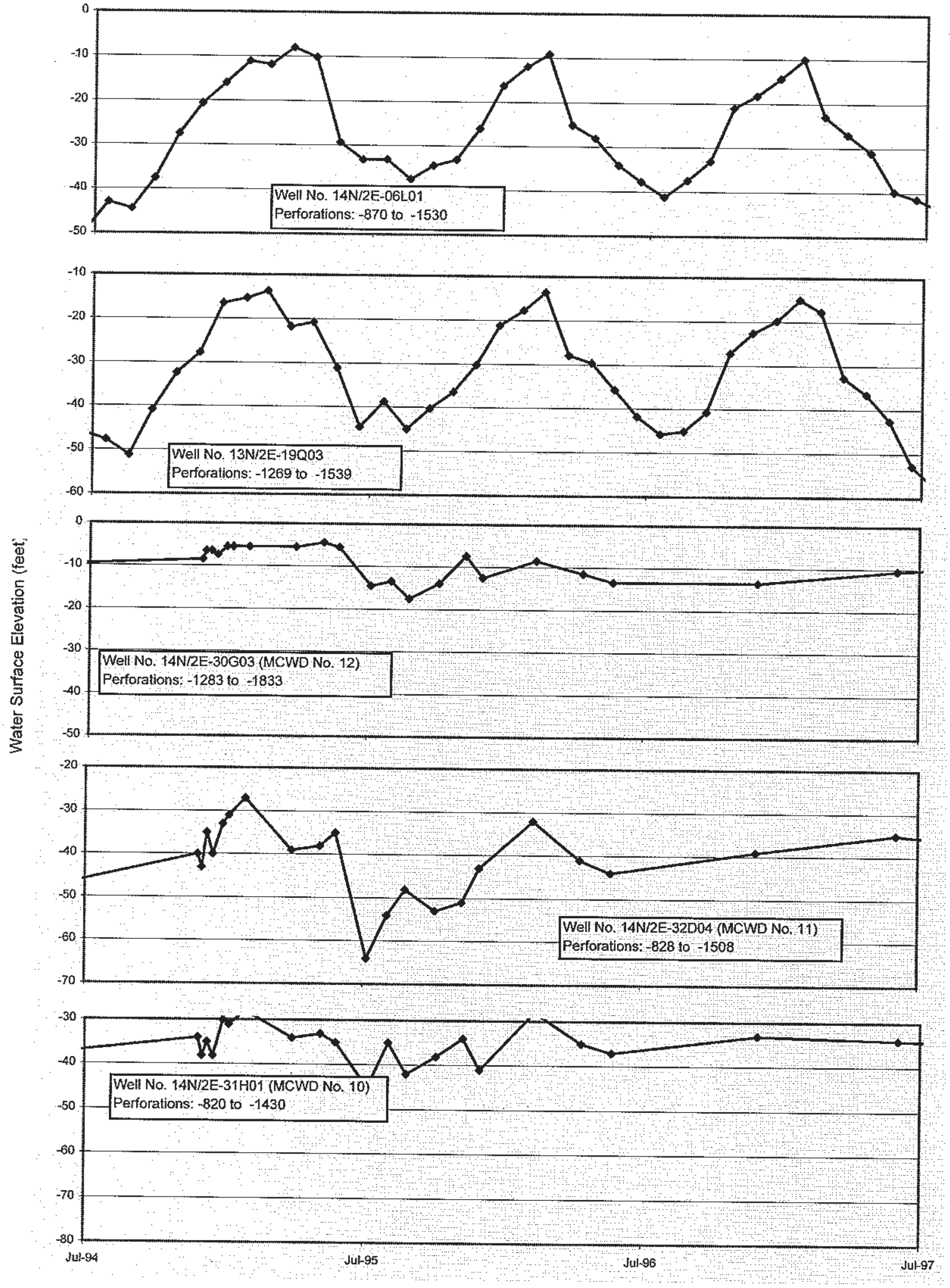


Figure 2.7
Water Level History
Castroville Area Deep Zone Wells

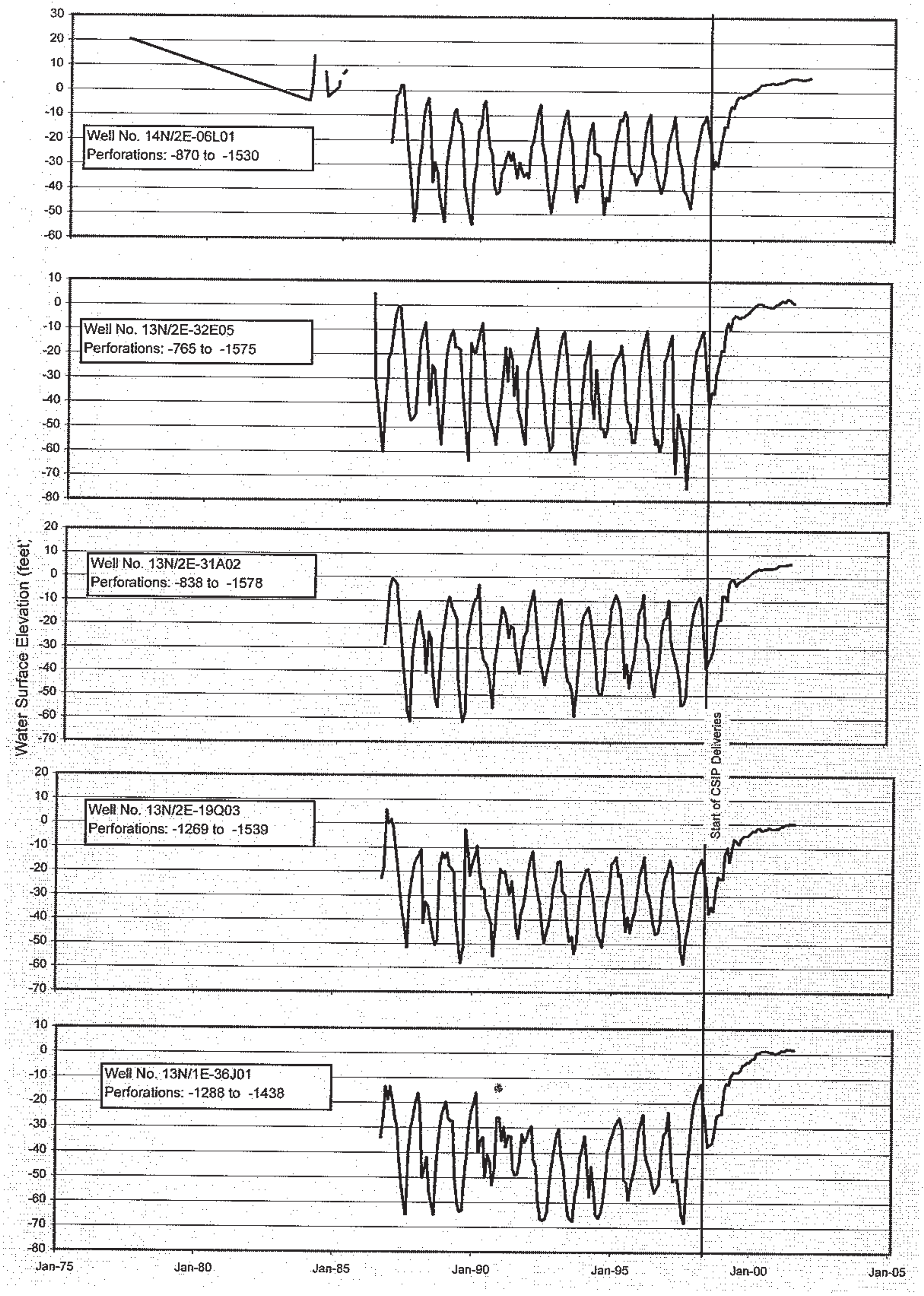
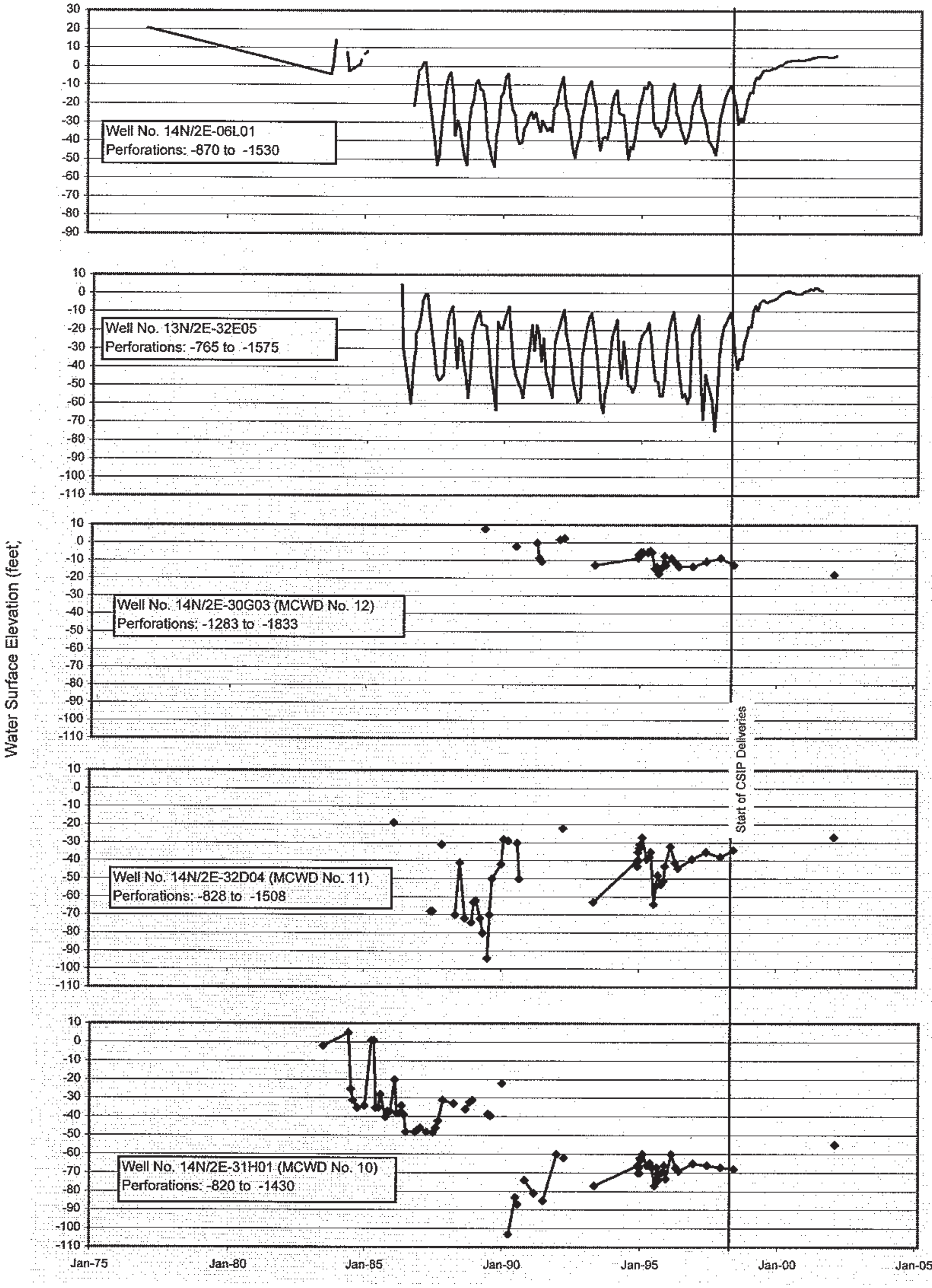


Figure 2.8
Water Level History
Castroville and Marina Area Deep Zone Wells - CSIP Deliveries



USGS Monitoring Well

Working for MCWD and MCWRA, the USGS completed a well designed to monitor groundwater conditions in the deep aquifers. The well is located at MCWD's headquarters and consists of four separate wells completed in the same borehole. The wells were designed to monitor groundwater conditions at specific depths selected based on review of the borehole data and the consideration of construction of proximal wells. The well monitors four discrete zones ranging in thickness from 20 to 40 feet. After completing the monitoring well cluster, MCWRA equipped the monitoring wells with continuous water level recording devices. Water level data has been collected since June 2001. The average water level for each monitoring well, as well as for MCWD's production wells, is summarized in Table 2.1 below.

Table 2.1 Average Groundwater Levels for USGS Monitoring and MCWD Production Wells

Well	Elevation of Perforations (feet)	Average Water Surface Elevation (feet)
DMW-1-1	-1754 to –1804	-2.7
DMW-1-2	-1334 to –1354	2.3
DMW-1-3	-984 to –1004	-17
DMW-1-4	-874 to –894	-16.2
MCWD No. 10	-788 to –1398	-38
MCWD No. 11	-828 to –1508	-40
MCWD No. 12	-1283 to –1833	-12

Drawing conclusions from comparison of the groundwater elevation data in the USGS well with that of the production wells is difficult. The USGS wells are completed in thin, discrete zones while the production wells are completed across multiple zones. For example, the intervals within which DMW-1 and DMW-1-2 are completed are included in a single perforated interval of Well No. 12. The water surface in DMW-1-2 is substantially above that of Well No. 12 while DMW-1-1 is below it. The water level in Well No.12 is likely a composite head of several smaller zones of differing heads from which it produces.

GROUNDWATER PRODUCTION

Ten water wells have been installed in Monterey County to produce from the deep aquifers. MCWD operates three wells: MCWD Well Nos. 10, 11, and 12. Monthly production data from these wells are available from MCWD. The remaining seven wells are agricultural supply wells. Production data from these wells are reported to MCWRA, so are confidential and not available. However, because these wells are now idle due to construction and operation of

CSIP, the data from these wells are less important. Data from MCWD are summarized in Figure 2.8.

Figure 2.9a reveals annual production from the deep aquifers to have been relatively constant since the completion of Well No. 12 in 1990. Total production has averaged approximately 2000 acre-feet/year over this period. Figure 2.9b also shows monthly production for the period. The seasonal distribution of demand is apparent, with winter extractions as low as approximately 100 acre-feet/month (AF/M) and summer extractions exceeding 250 AF/M.

GEOLOGIC AND HYDROGEOLOGIC DATA

Geology: This section describes the geologic characteristics of the deep aquifers based on stratigraphic and structural information.

STRATIGRAPHY

Granitic basement — The oldest unit in the study area consists primarily of granitic rocks, secondarily of metamorphic rocks. These rocks form the Sierra de Salinas and Gabilan Range that border the Salinas Valley. In the subsurface, the granitic rocks underlie the Tertiary and Quaternary sedimentary rocks. Several of the wildcat oil wells drilled along the coast reached the granitic basement.

Lower to Middle Miocene sedimentary rocks — Overlying the granitic basement are a series of marine sedimentary rocks which include an unnamed arkosic sandstone formation and the Monterey Formation. These rocks crop out in the hills near Monterey, Corral de Tierra, and Carmel Valley. Because these formations have been uplifted, folded, and eroded, their total thickness is unknown. However, within the area of Cross Sections A and B, these sedimentary rocks are approximately 1,000 to 2,000 feet thick. One possible exception is the area beneath the Elba Capurro and Bayside Development Vierra wells where a thick section of sandstone indicates a possible buried canyon (Starke and Howard, 1968).

Upper Miocene to Pliocene marine sequence — As described by Clark (1981, p. 24), this sequence consists of a shallow-water transgressive sandstone unit (the Santa Margarita Sandstone), a deeper water, siliceous, organic mudstone unit (the Santa Cruz Mudstone) and a shallow-water unit (the Purisima Formation). In Monterey County, only the Santa Margarita Sandstone is exposed on land, whereas the Santa Cruz Mudstone and the Purisima Formation crop out offshore in Monterey Bay. Interpretation of drill hole data suggests that the thickness of the Purisima Formation ranges from 500 to 1,000 feet in the area of Cross Sections A, B, and

Figure 2.9a MCWD Annual Groundwater Production

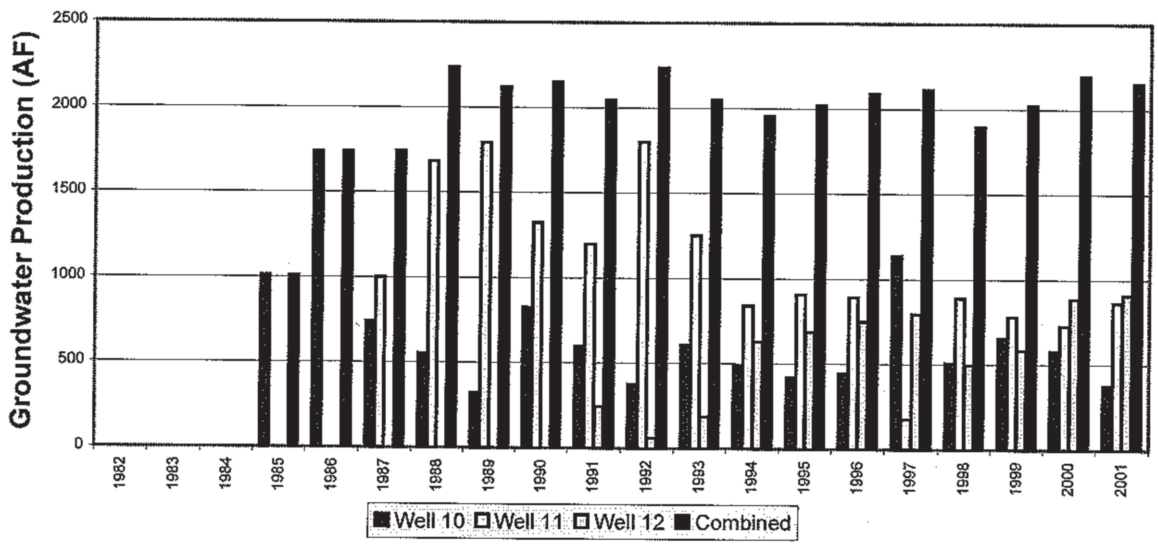
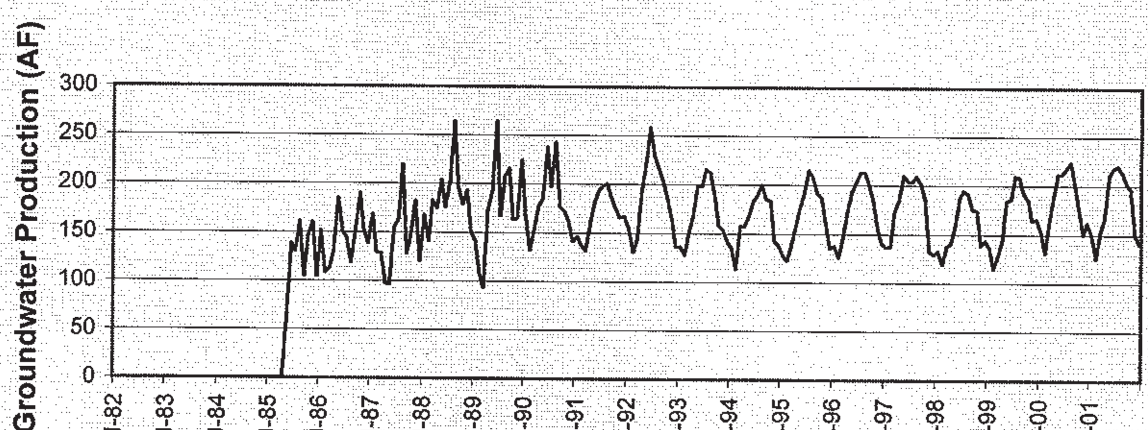


Figure 2.9b MCWD Monthly Groundwater Production



C. In the Gabilan Range and in the subsurface Salinas Valley, the Pliocene age Pancho Rico Formation is present. Although it was deposited in a different basin than the Purisima Formation, the Pancho Rico Formation contains fauna similar to and is litho logically identical to the Purisima Formation (Gribi, 1963). The thickness of the Pancho Rico Formation in the Marihart-Luckey well is about 1, 000 feet.

Pliocene and Quaternary nonmarine — This group includes three units — the Pliocene-Pleistocene Paso Robles Formation, the Pleistocene Aromas Sand, and undivided Quaternary surficial deposits. These sediments form most of the outcrops in the lower Salinas Valley and are widespread in the subsurface. Although aquifer recharge occurs through the Quaternary sediments, they do not constitute a major water supply sources. The surficial Quaternary sediments include floodplain deposits, alluvial fans, eolian deposits, fluvial and marine terraces, and basin deposits. The Paso Robles Formation and the Aromas Sand are important water sources for the Salinas Valley and include the 180-foot and the 400-foot aquifers.

STRUCTURE

Faults — The Salinas Valley is a tectonic depression between two structural highs, the Gabilan Range to the northeast and the Santa Lucia Range to the southwest (Dupré, 1991). Uplift of the Gabilan Range is largely due to transpressional forces from the San Andreas fault (Dohrenwend, 1975). One of the principal faults associated with uplift of the Santa Lucia Range is the San Gregorio fault; it is the primary fault west of the San Andreas Fault in central California, and extends northward from Big Sur across Monterey Bay to join the San Andreas Fault north of San Francisco. Some right-slip from the San Gregorio fault has been distributed eastward to intra-Salinian faults, including the Monterey Bay/Navy/Tularcitos fault zone. The Monterey Bay fault zone is a 6-to 9-mile-wide zone of short en echelon northwest-striking faults that are the offshore extension of the northwest-striking faults in the Salinas Valley and Sierra de Salinas (Greene and others, 1973). As shown on Cross Section B–B′, the Monterey Bay fault zone offsets Purisima Formation against Monterey Formation, with the southwest side upthrown. Another important strike-slip fault is the Rinconada fault that trends northwestward along the western side of the Salinas Valley. The Rinconada fault extends from Santa Margarita to Arroyo Seco. Near Arroyo Seco, the Rinconada fault dies out, steps east, and continues the Reliz fault. The Reliz fault extends at least as far north as Spreckels and likely joins the offshore Monterey Bay fault.

Gravity — A compilation map of isostatic gravity contours shows a prominent gravity low with a value of about -46 mGal near the western boundary of the former Fort Ord. This low extends as a northwest-southeast direction beneath the USGS DMW-1, Marina No. 11, Marina No. 12, and Fort Ord D wells (Langenheim and others, 2002). We interpret this gravity low as a concealed sedimentary basin with the deepest part near Marina and the former Fort Ord. This deep basin could partly explain the unusually thick section of Purisima Formation penetrated by the USGS DMW-1 well. The gravity low continues southeastward, forming a trough parallel to the axis of the Salinas Valley.

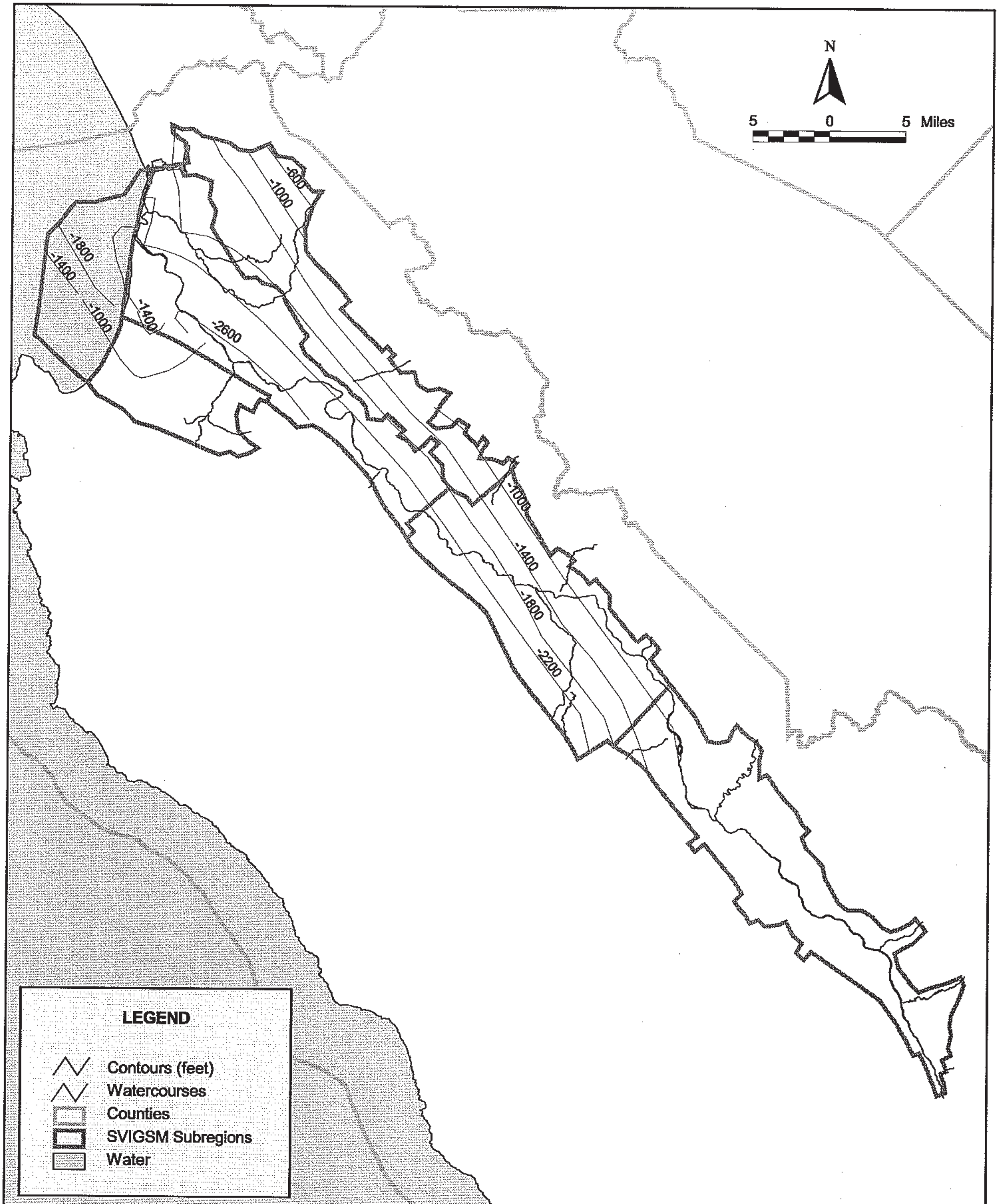
Monterey Formation subcrop — We contoured the top of the Monterey Formation and the bottom of the Upper Miocene to Pliocene marine sequence, which consists of the Purisima Formation near the coast and the Pancho Rico Formation in the central Salinas Valley. Picks were compiled from several sources. Sources included interpretation of well logs and gravity data in the coastal area (this study), previous work in the Seaside and Laguna Seco area (Rosenberg and Clark, 1994; Yates and others, 2002), and cross sections of the Salinas Valley (Thorup, 1983). The data from these sources were reconciled to develop a map encompassing the region from the coast southeastward to King City. The density of well control is greatest near the coast and decreases farther southeast. Likewise, the accuracy of the picks follows the same pattern.

The resulting structural contours were digitized and saved as ESRI shapefiles. Figure 2.10 shows the structural of the top of the Monterey Formation. To create a three-dimensional surface of the structure, the shapefiles were converted into ESRI grid format. The area between the contours was interpolated with the tension spline method using ArcView 8.2 Spatial Analyst software. The altitude of the structural contours was then joined to existing nodes of the Salinas Valley Integrated Groundwater and Surface Water Model for use in modeling flow in the Deep Zone.

Sources of Information

As part of modeling the deep aquifers, we developed three geologic cross sections. To construct the cross sections, a variety of sources were used. These include published geologic map compilations by Wagner and others (2002) and Rosenberg (2001), unpublished oil well records (on file at the California Division of Oil and Gas Resources (CDOGR), Santa Maria, California), unpublished scout reports (Gribi, E.A., and Thorup, R.R., unpublished notes), unpublished micro-paleontology reports (Chevron, undated; Ingle, 1989), and unpublished water well records (on file at the MCWRA, the MCWD, and the Monterey Peninsula Water Management District [MPWMD]). Information from these sources was integrated to form a coherent, internally consistent model of the subsurface geology extending from Moss Landing southward to Seaside, and from the offshore Monterey Bay southeastward to near Spreckels.

Figure 2.11 shows a cross section location map. Cross Section A-A' (Figure 2.12a) is parallel to the coast and extends from Seaside northward to the Elkhorn area. Cross Section B-B' (Figure 2.12b) is perpendicular to the coast and extends from approximately 9 miles offshore



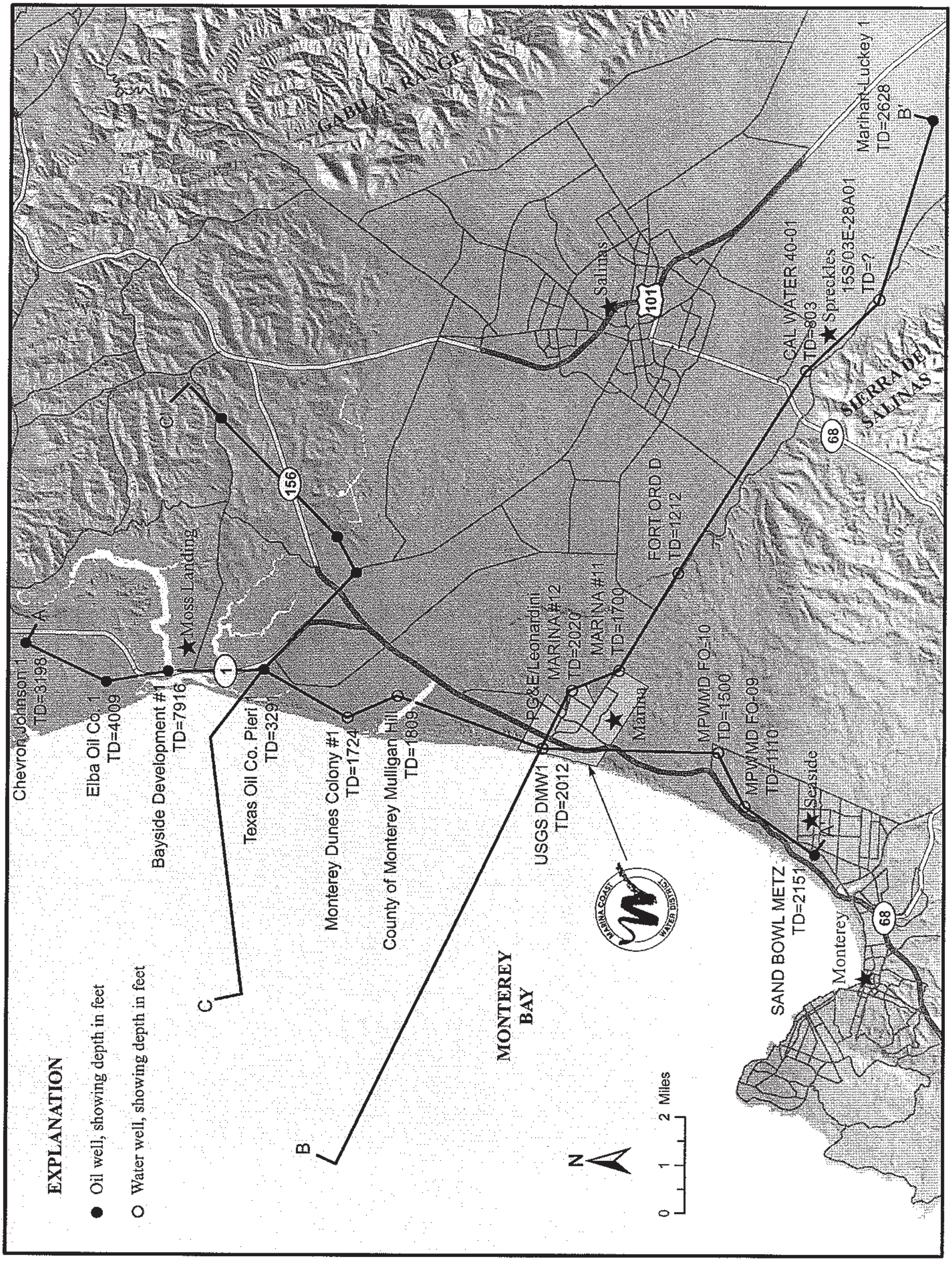
RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Structural Contours for Top of Monterey Formation

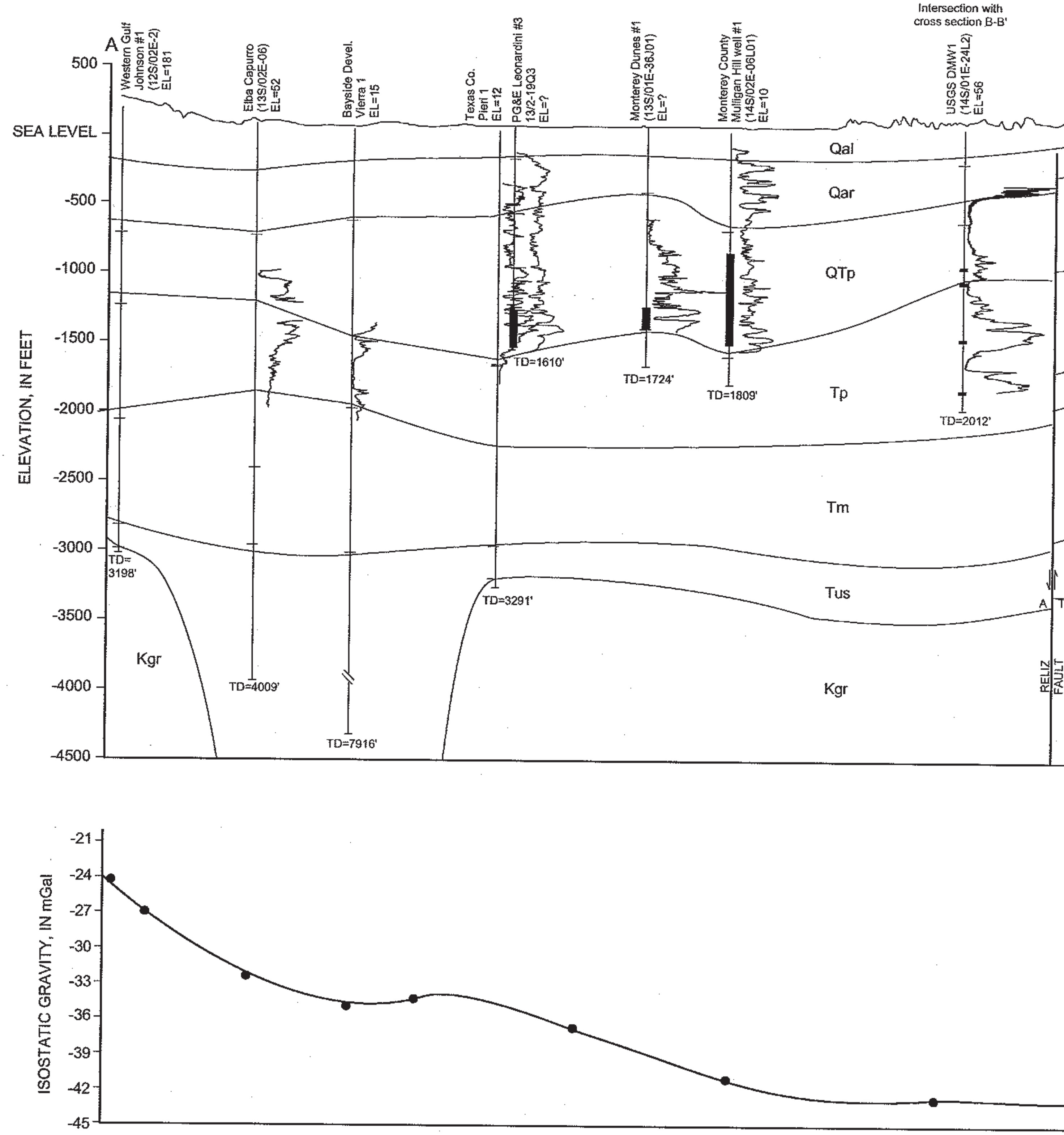
MAY 2003

FIGURE 2.10



Base: USGS 30-meter National Elevation Dataset (2001)

Figure 2.11 Cross Section Location Map



SOURCES OF DATA

Geologic data compiled from published mapping (Hanson and others, 2002; Wagner and others, 2002; Rosenberg, 2001), oil well logs (CDOG files), unpublished scout reports (Gribi, E.A., Thorup, R.R.), unpublished micro-paleontology reports (Chevron, undated; Ingle, J.C., 1989; McDougall, K., 2001), water well logs (MCWRA, MCWD, and MPWMD files).

Gravity data from USGS pubished mapping (Langenheim and others, 2002).

Topography from USGS National Elevation Dataset (30-m resolution). Bathymetry from Degnan and others, 2001 (30-m resolution) southeastward to near Spreckels. Cross Section C-C' (Figure 2.12c) is a modified version of a cross section by Geoconsultants (1996), with the area extended approximately 7 miles offshore and 4 miles northeastward to include the Fred Ash No. 2 wildcat oil well. The following descriptions discuss data for key wells used to constrain the cross sections.

Bayside Development Vierra 1 — According to CDOGR records, General Petroleum spudded this well in November 1944, drilling it to a depth of 5,739 feet. At that point Bayside Development took over the drilling, deepening the well to 7,818 feet, then abandoned it in February 1945. Lithologic picks are from e-logs, scout notes, Starke and Howard (1968), an unpublished correlation sheet by G.L. Harrington (1945), and unpublished data from the California Division of Mines and Geology (written communication to J.C. Clark, dated December 1967). The well never reached basement to its drilled depth.

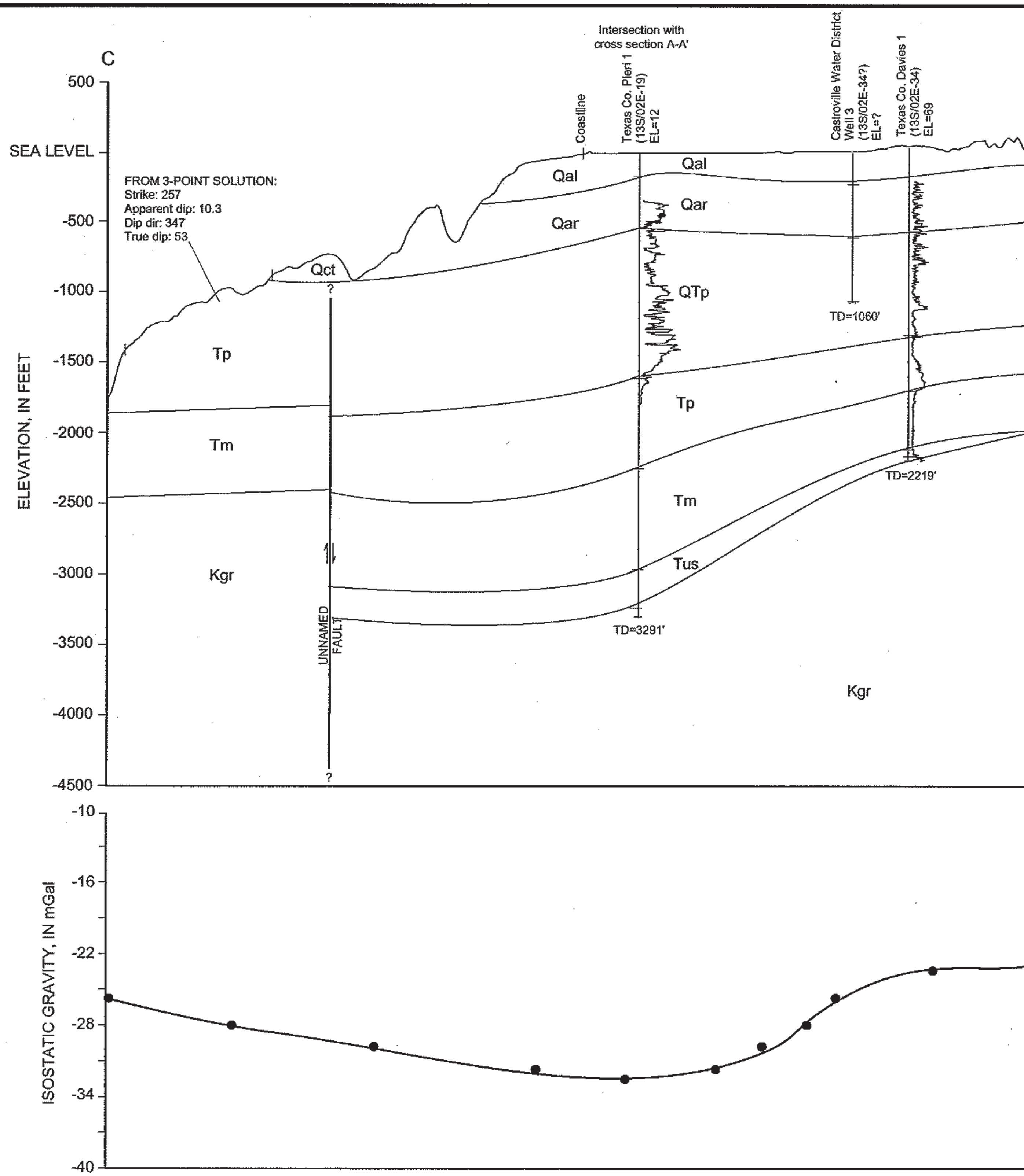
California Water Service 40-01 — This well was drilled in November 1983 to a depth of 912 feet. Picks are based on the DWR drillers log and an e-log. This well bottomed in the Paso Robles Formation.

Castroville Water District 3 — No drillers log was available for Castroville Water District Well 3. Picks were from an e-log contained in a report by Geoconsultants (1996). The well is 1,060 feet deep and bottoms in the Paso Robles Formation.

Elba Capurro — The Elba No. 1 well was drilled to a depth of 3,970 feet in April 1937 and abandoned in February 1939. There are no driller or geophysical logs of this well in CDOGR files. Picks were from a scout report (Gribi, E.A., and unpublished notes), a micropaleontology report (Goudkoff, P.P., 1937), an unpublished e-log (which shows a total depth of 4,009 feet, and unpublished paleontology records (Brabb, E.E., written communication, 2002). Of interest is a letter in the CDOGR files from the Deputy Supervisor of the Division of Oil and Gas, dated November 22, 1938, which reports fresh water to a depth of 1,280 feet, below which is brackish to salt water. The well never reached basement to its drilled depth.

Fort Ord D — The Fort Ord D well was drilled by Geotechnical Consultants to a depth of 1,162 feet in January–February 1995. Lithologic picks are from the geologic log and e-log. The well bottomed in the Paso Robles Formation.

Fred Ash & Sons 2 — Local water well driller Fred Ash drilled this well as a wildcat oil play in September 1966. The well was drilled to 1,959 feet and bottomed in "sticky blue green shale" which we interpret as the Monterey Formation. CDOGR records state that no oil shows were observed and the well was capped with the intent of converting it into a water well. Stratigraphic picks are based on driller's log and an e-log annotated by R.R. Thorup.



SOURCES OF DATA

Geologic data compiled from published mapping (Hanson and others, 2002; Wagner and others, 2002; Rosenberg, 2001), oil well logs (CDOG files), unpublished scout reports (Gribi, E.A., Thorup, R.R.), unpublished micro-paleontology reports (Chevron, undated; Ingle, J.C., 1989; McDougall, K., 2001), water well logs (MCWRA, MCWD, and MPWMD files).

Gravity data from USGS pubished mapping (Langenheim and others, 2002).

Topography from USGS National Elevation Dataset (30-m resolution). Bathymetry from Degnan and others, 2001 (30-m resolution)

Marihart-Luckey 1 — The Marihart-Luckey well was drilled by R.R. Thorup as a wildcat oil well to a depth of 2,628 feet in November 1958. No oil shows were noted according to CDOGR records so the well was abandoned. The CDOGR Report on Proposed Operations notes that non-marine strata were encountered from surface to total depth, and that the age of the bottom was Pliocene. Based on regional geologic mapping, we interpret these rocks as belonging to the Pancho Rico Formation.

Marina Well Nos. 11 and 12 — Well No. 11 was drilled in November–December 1985 to a depth of 1,700 feet. Well 12 was drilled in November 1988 to a depth of 2,020 feet. Geologic reports by Geoconsultants (1986, 1989) and a paleontology report by Ingle (1989) were used for the picks. However, one important difference in interpretations is that Ingle interprets Well Nos. 11 and 12 as bottoming in Pleistocene sediments, whereas we interpret them as bottoming in the Purisima Formation. Our interpretation is based on correlating e-log markers from the USGS DMW-1 well and the statement by Ingle (1989, p. 5) that "many of the species have a broad Pliocene-to-Recent age range" which allowed us to relax the interpretation that these wells were strictly in Pleistocene sediments.

Monterey County Mulligan Hill #1 — This well was drilled as a test well to a depth of 1,809 feet in September–December 1976. Based on paleontologic analysis of ditch and bit samples, Thorup reported that the well bottomed in Monterey Formation (1983, plate 10).

Monterey Dunes #1 — This well was originally drilled March–May 1972 to a depth of 687 feet. Subsequently, in late January 1977, it was deepened to 1,724 feet. Picks are from drillers logs and e-logs. The well bottomed in what we interpret as Purisima Formation.

MPWMD FO-09 and FO-10 — Well FO-09 was drilled in August 1994 to a depth of 1,100 feet and Well FO-10 was drilled in September 1996 to a depth of 1,500 feet. Picks were from MPWMD Technical Memorandums 94–07 and 97–04 (Oliver, 1994, 1997). Although these reports show the wells bottoming in the Santa Margarita Sandstone, we interpret them as reaching the Purisima Formation based on review of preliminary cross sections by the logging geologist J.W. Oliver (MPWMD).

PG&E Leonardini #3 — This well is near the Pieri well and was used to refine the upper stratigraphy. The well was drilled February–May 1980 to a depth of 1,610 feet. Picks are from the DWR driller's report and an e-log.

Sand Bowl Metz — The driller log in the CDOGR records is scanty (0–565': surface sand, 565-1,160': shale, 1,160–1,430': sand, 1,430–1,890': sandy shale, and 1,890–2,151': basement rock). The CDOGR files also contain an e-log for this well. To supplement these data, we used the driller's log and e-log from the nearby Monterey Sand Company water well (15S/01E-15P02) shown on Cross Section B–B′ of Staal, Gardner & Dunne (1990).

Texas Co. Davies — Scout records reveal that the Davies well was drilled as a play based on geophysical methods (E.E. Gribi, unpublished data). The Davies well was drilled and abandoned in August 1949. The well reached a depth of 2,219 feet and bottomed in granitic basement. Picks were from an e-log annotated by R.R. Thorup; ditch, sidewall, and core sample logs; and scout records by Gribi. Only the sidewall and core sample data are in the CDOGR files. Thorup's e-log notes show "Purisima" extending from 1,320 to 1,680 feet. Also of interest is a note on the CDOGR Well Summary Report, which lists the fresh water/salt water contact at 1,690 feet depth.

Texas Co. Pieri — The Pieri well was drilled and abandoned in August 1949 to a depth of 3,291 feet. Picks are from CDOGR records and an e-log. The well reached basement.

Western Gulf Johnson 1 — The Johnson 1 well was drilled in November–December 1932 to a depth of 3,198 feet. No records for this well were available from CDOGR. The picks were made from the Western Gulf Oil Company oil well log (dated February 17, 1933) and a Standard Oil Company of California paleolog (dated January 27, 1953). The well bottomed in granitic rock.

USGS DMW-1 — The USGS well is the most recent (2000) and most detailed well in the deep aquifer. Core samples, geophysical logs, and paleontologic analysis show that this well encountered a thick section of Purisima Formation. Picks are from Hansen and others (2002).

AQUIFER PARAMETER AND HYDRAULIC RELATIONSHIPS

Aquifer parameter data are limited. Transmissivity values are available from a few wells where formal aquifer tests were performed at the time of well completion. Additional transmissivity data can be estimated from specific capacity data utilizing the Logan approximation (Logan, 1964). Hydraulic conductivity data from slug testing are available for the four separate completions of the USGS monitoring well. Hydraulic conductivity tests are also available for a few sidewall cores from MCWD Well 10. No formal estimates of storativity have been advanced. The available aquifer parameter data are presented in Table 2.2.

Table 2.2 Aquifer Parameter Data

State Well No.	Name	Method	Screen Length (feet)	Transmissivity (gpd/ft)		Hydraulic Conductivity (ft/day)
				tested	estimated	
T13N/R2E-19Q03	PG&E/Leonardini	SC	270		12,755	6.3
T13N/R2E-32M02	Sea Mist	SC	810		23,789	3.9
T14N/R2E-06L01	Co. of Monterey	SC	660		32,606	6.6
T14N/R2E-24L05	DMW-1-4	slug	20		359	2.4
T14N/R2E-24L04	DMW-1-3	slug	20		2086	13.8
T14N/R2E-24L03	DMW-1-2	slug	20		1137	7.6
T14N/R2E-24L02	DMW-1-1	slug	40		4338	14.5
T14N/R2E-30G03	MCWD No. 12	Pumping	240	29,700		16.5
T14N/R2E-32D04	MCWD No. 11	Pumping	200	24,300		16.4
T14N/R2E-31H01	MCWD No. 10	Pumping	210	40,000		25.4
T14N/R2E-31H01	MCWD No. 10 @ 842	lab	--	--	--	4.6
T14N/R2E-31H01	MCWD No. 10 @ 1460	lab	--	--	--	0.6
T13N/R1E-25R01	Mty Dunes Colony #3	SC	60		9,091	20.2

Methods: SC – Logan Approximation; Slug – Slug test; Pumping – Pumping test; Lab – sidewall sample in laboratory

Well Interference Tests

MCWD Well Nos. 10, 11, and 12. In order to supplement the available aquifer parameter data and to better understand the interactions between MCWD wells for modeling purposes, a well interference test was performed. Each MCWD well was equipped with a water level data logger. Each of the wells was shut down for a week while the other two wells met system demand. The results of the test are presented in Figure 2.13.

Well No. 12 was shut down for the first week followed by Well 10 for the second week and Well No. 11 for the third week. During Week One, the Well No. 12 water level record displayed a conventional recovery response. The recovery curve was undisturbed by interference with other wells although the operational cycles of Well Nos. 10 and 11 during this period are obvious in their records. Well No. 10 was off for Week Two. Well No. 10 also showed a recovery curve; however, this curve was disturbed with a classic interference signature, corresponding to the operations of Well No. 11. During the third week and part of the fourth, Well No. 11 was off. Again, the recovery curve of this well was disturbed with the interference signature from Well No. 10, demonstrating the mutual interference between Well Nos. 10 and 11.

The interference between Well Nos. 10 and 11 is relatively consistent with the expected theoretical response utilizing the available aquifer parameters. The lack of measurable response in Well No. 12 suggests that this well is not in hydraulic communication with Well Nos. 10 and 11. The observed and predicted responses are presented in Table 2.3.

Figure 2.13 Well Interference Testing for MCWD Wells Nos. 10, 11, and 12

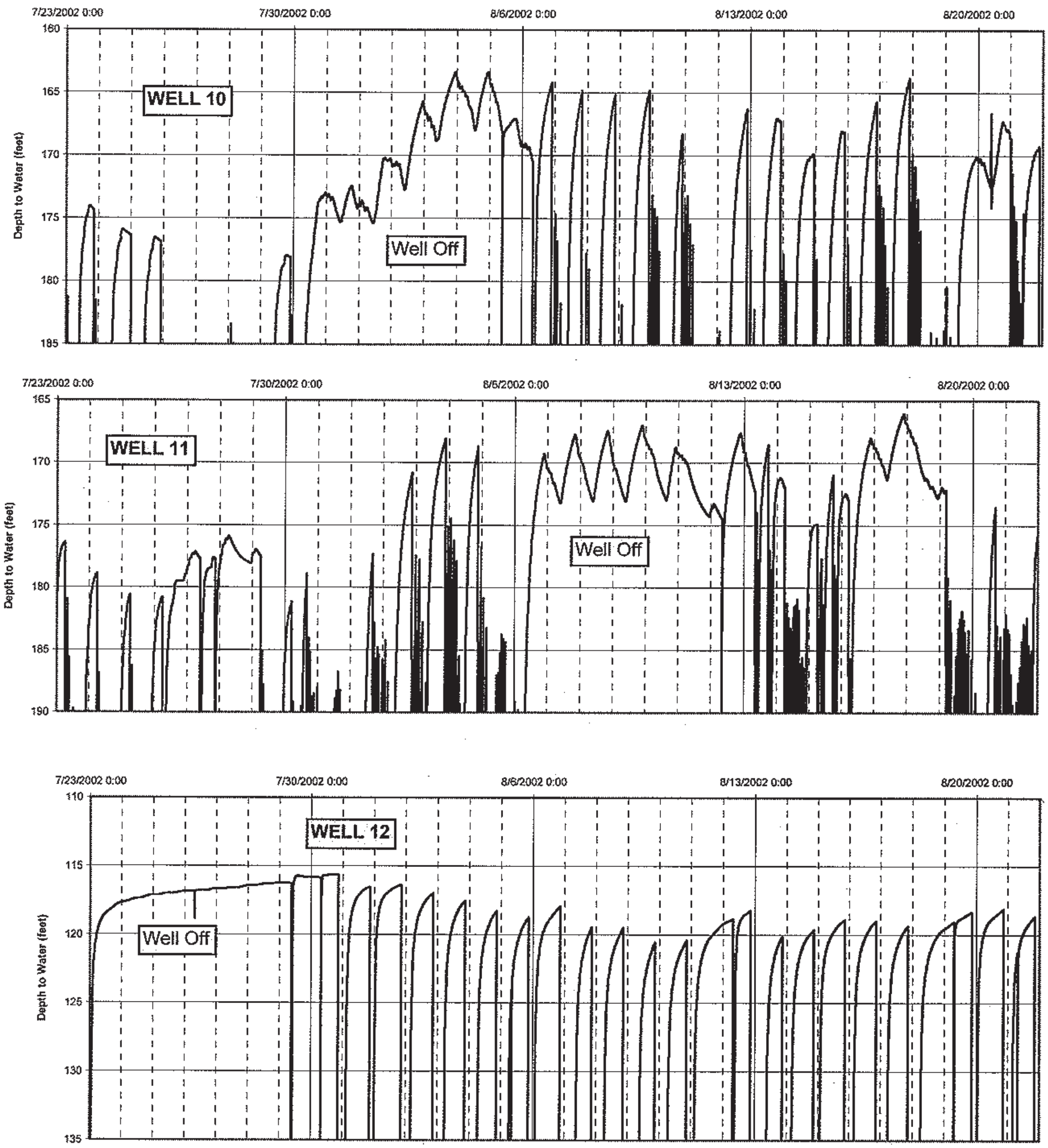


Table 2.3 The Observed and Theoretical Response from MCWD Wells

Wells	Distance (feet)	Discharge Rate (gpm)	Observed Drawdown Response (feet)	Theoretical Drawdown Response (feet)
Well 10 on 11	2,850	1,500	3	8.1
Well 11 on 10	2,850	1,800	5	9.7
Well 10 on 12	5,650	1,500	0	2.7
Well 11 on 12	3,950	1,800	0	6.1

Assumptions: Convention Theis Analysis, Transmissivity 31,000 gpd/ft, Storativity 0.0001, 0.25 days
Note: Storativity is assumed and regional leakage could not be determined due to insufficient data

The difference between observed and theoretical responses likely derives from the fact that each aquifer from which these wells produce is more accurately an aggregation of smaller aquifers, making invalid some of the assumptions required for theoretical prediction. Still, the magnitude of the observed interference in Well Nos. 10 and 11 is consistent with predicted responses. The lack of any interference response to the combined pumping of Well Nos. 10 and 11 on Well 12 is significant, suggesting hydraulic isolation of this well relative to the other two. This finding is consistent with the geologic interpretation that places Well No. 12 in the Purisima Formation, whereas Well Nos. 10 and 11 are largely in the Paso Robles Formation.

Close inspection of the recovery record of Well No. 12 shows minor variations in water levels superimposed on the recovery curve. Closer inspection of these data (Figure 2.14 the variations are a tidal signature that correlate directly with the tides in Monterey Bay.

USGS Monitoring Well verses MCWD Well No. 12. Three of the four wells at the USGS Monitoring Well are completed in the Purisima Formation (USGS, 2002). Geologic interpretation and the well interference data indicate that MCWD Well No. 12 is also completed in the Purisima Formation. Figure 2.15 compares water level data collected at the four USGS monitoring wells with data collected from Well No. 12 during the Well Interference exercise described above. Most evident in Figure 2.14 are the strong tidal signature in all of the USGS wells, and the strong correlation and lack of lag time with tides in Monterey Bay. Comparison of the pumping schedule of Well No. 12 and the water level records of the four monitors suggests a response in the deepest monitor (DMW-1-1), corresponding to the shut down and start-up of Well No. 12. There is a similar, although more subdued, response in the next deepest well (DMW-1-2). No evidence of response is apparent in the other two monitors (DMW-1-3 and -4). These results appear consistent with the perforated elevations of the monitoring wells and Well No.12. The latter is perforated between elevations -1283 to –1833

Figure 2.14 MCWD Well No. 12 -- Idle Period Record

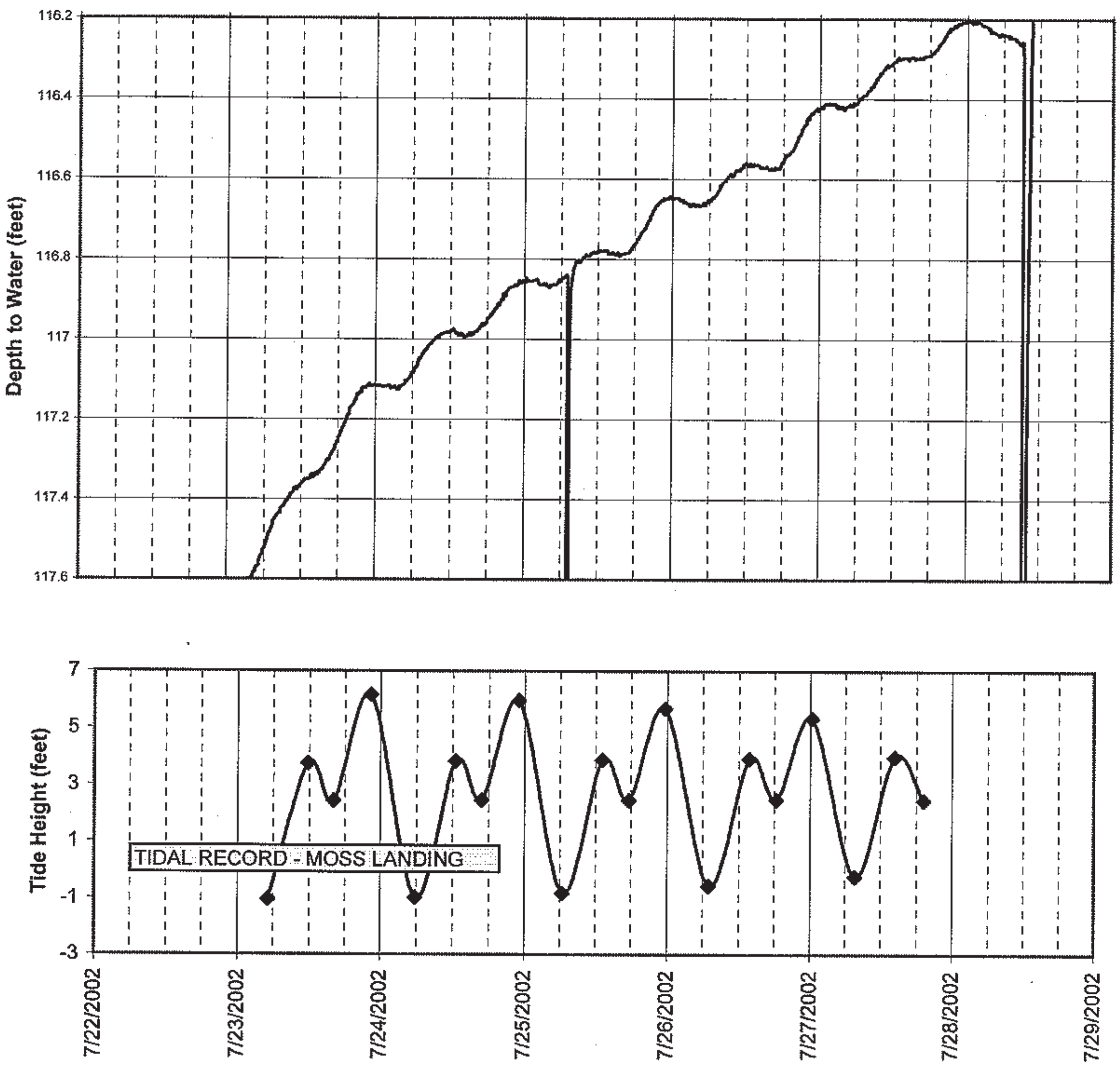
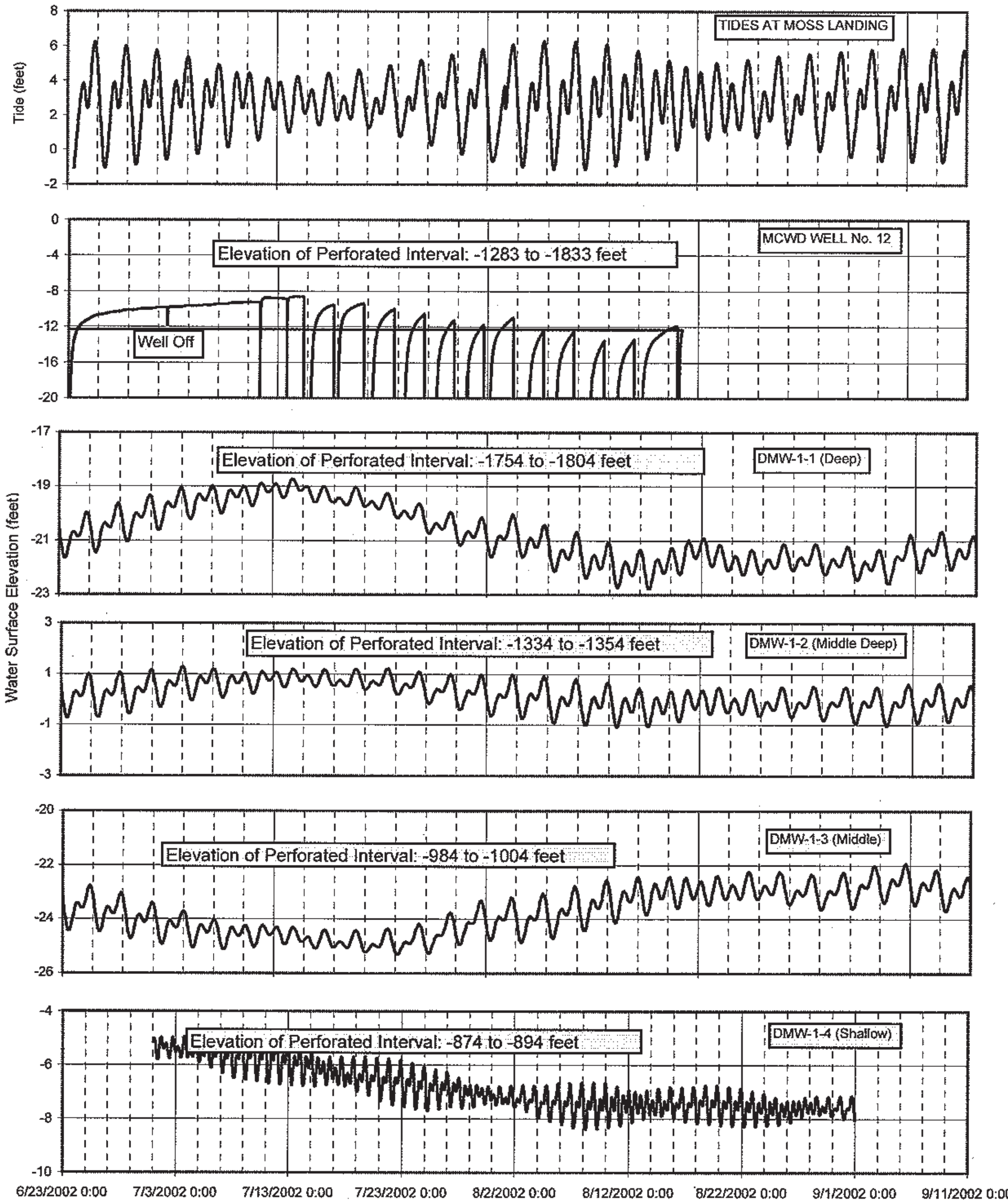


Figure 2.15. USGS Monitoring Well vs. MCWD Well No. 12



feet, whereas DMW-1-1 and DMW-1-2 are perforated at elevations -1754 to –1804 feet and -1334 to -1354 feet, respectively.

TIDAL FLUCTUATIONS

As noted above, the USGS monitoring wells, as well as other wells, all show a strong tidal signature. The water level data reveals no evidence of a significant time lag between the ocean and aquifer response. Because of the lack of lag time, it is speculated that the response is the result of cyclic loading of the aquifer, rather than hydraulic fluctuations at a possible outcrop.

Assuming cyclic loading, the tidal response data can be utilized to calculate a storage coefficient for these aquifer units. The ratio of aquifer water level change to tidal change is the tidal efficiency of the aquifer. In all four wells, the aquifer response is approximately 2 feet of change in response to 6 feet of tidal fluctuation, or a ratio of 0.33. Tidal efficiency can be related to storage coefficient utilizing the following equation (Lohman, 1972):

$$S = \theta \rho b \beta \, (1/1\text{-TE})$$

Where:	θ = porosity	= 0.3
	ρ = specific weight of water	= 0.434 lbs/in^{2}ft
	b = aquifer thickness	= 20 feet
	β = Inverse of water elasticity	= 3.3×10^{-6} in^2/lb
	TE = tidal efficiency	= 0.33

Utilizing these values, a specific storage coefficient of 1.3×10^{-5} (dimensionless) can be calculated, a value considered very appropriate for confined conditions. This value is lower than that estimated from the well interference analysis. However, this value is not influenced by leakage effects that may be moderating drawdown at the production wells. For this reason the value derived from the tidal data may be more appropriate for the aquifer system as a whole.

IMPLICATIONS OF HYDROGEOLOGIC FINDINGS

Taken together, the overall conclusion that can be derived from the collected data and the preliminary analysis is that the deep aquifers from which MCWD extracts its water supply is actually two separate aquifer systems. Existing geologic and water chemistry data suggest that MCWD Well Nos. 10 and 11 produce primarily from the Paso Robles Formation, whereas MCWD Well No. 12 produces from the Purisima Formation. In contrast, the deep aquifers wells in the Castroville area are interpreted to produce from the Paso Robles Formation. Aquifer response data suggests these two aquifer systems are hydraulically isolated from each other.

Recharge Considerations

The hydrogeologic interpretation of the deep aquifers raises questions regarding the nature and magnitude of recharge to these aquifers. Well No. 12 is completed in and produces primarily from the Purisima Formation. The Purisima Formation is not exposed on land in Monterey County. The closest land exposure is in Soquel where the Formation is the primary source of water for the Soquel Creek Water District. Therefore, recharge for the Purisima Formation (Well 12) is primarily leakage from overlying aquifers. Some portions of extractions may be supported by depletion of groundwater storage. However, the low estimates for storage coefficients for this aquifer system suggest that the volume of groundwater that can be removed from storage is not large.

The Paso Robles Formation crops out extensively throughout the Salinas Valley region. However, in most locations, the Formation underlies the Salinas Valley alluvium and Aromas Sands that comprise the 180-foot aquifer and upper portion of the 400-foot aquifer. The alluvium receives recharge primarily from the river and irrigation return flows. In areas where Paso Robles is overlain by alluvium, recharge is from leakage from overlying aquifers.

There are 37,500 acres of Paso Robles Formation exposed in Monterey County. Of this area, 33 percent (or 12,400 acres) is exposed in the El Toro–Laguna Seca Area where the Formation constitutes as recharge area for these areas. The remaining acreage of Paso Robles Formation is exposed on the west side of the Salinas Valley. However, much of this area is in the rain shadow of the Santa Lucia Range. Annual rainfall on the outcrop areas is less than 12 inches. With this limited rainfall, direct recharge to the outcrops of Paso Robles Formation from precipitation is minimal, if any. Given the hydrogeologic setting, extractions from the Paso Robles Formation also appear to be primarily supported by leakage from the overlying shallow aquifer system.

The implications regarding recharge mechanisms are generally supported by the water level history of MCWD wells. All three of MCWD wells show a similar water level history: a rapid decline as local storage is depleted, then a stabilization as extractions equilibrate with leakage. This interpretation is best evaluated by modeling.

SECTION 3 SALINAS VALLEY INTEGRATED GROUND AND SURFACE WATER MODEL (SVIGSM) UPDATE

The purpose of this section is to describe the development of the SVIGSM, its applications in various studies, the modifications made to the deep aquifer layer of the model and any related changes to the hydrogeologic parameters, and the summary results of recalibrating the model.

The section is divided as follows:

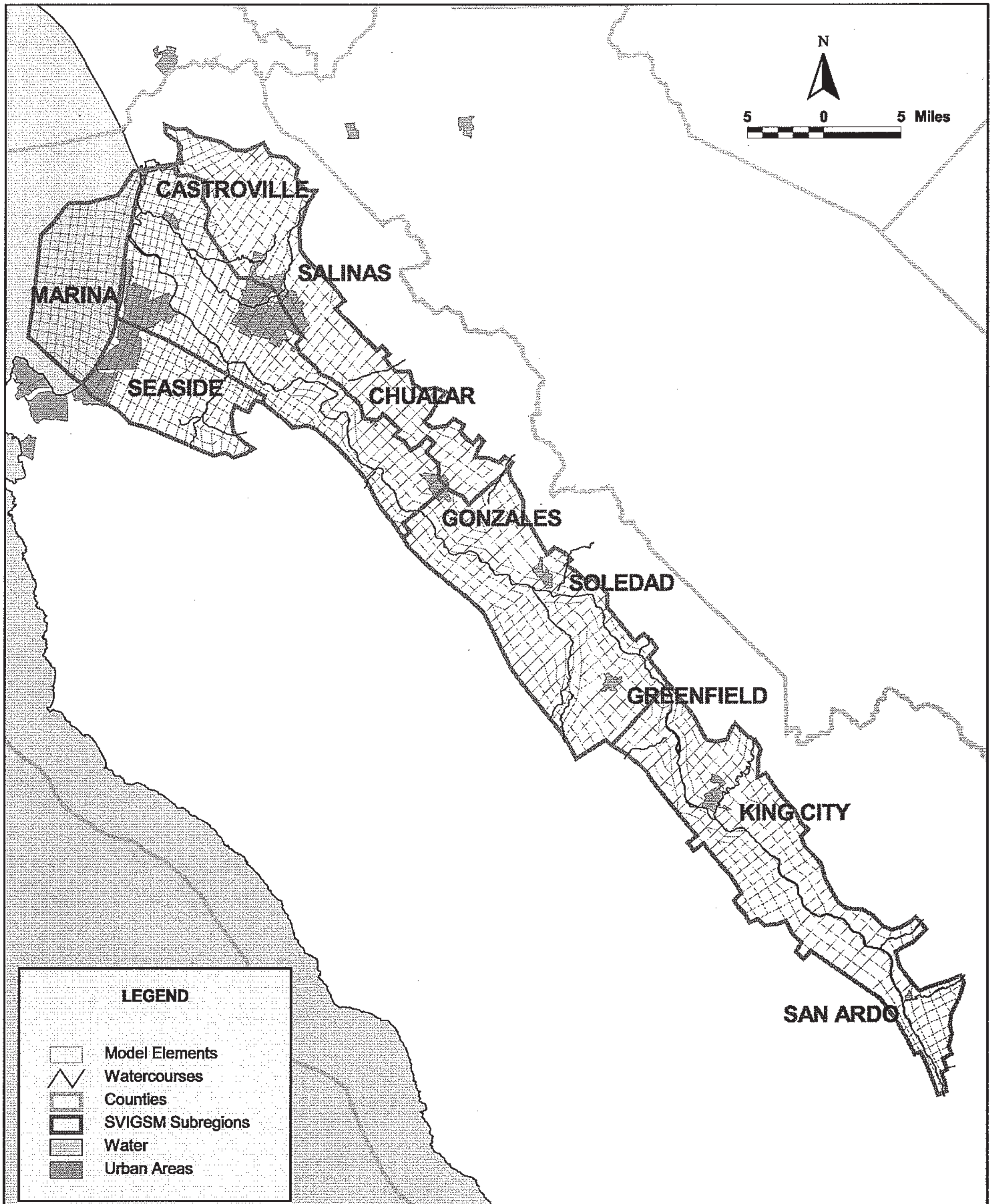
- SVIGSM Background provides information about the development of the model, updates and modifications to the model in the last 5 years, capabilities of the model, and applications of the model;
- Code Update provides information about older and recently released IGSM codes and the impacts of the code update on model results;
- Data Update provides information about the impacts on the model simulation due changes in model stratigraphy and the efforts to mitigate those impacts.

Model results presented in Section 3 are associated with historical water years 1959 through 1994, representing the historical record of when the Salinas River was regulated.

SVIGSM BACKGROUND

The SVIGSM is the most recent analytical tool that analyzes the hydrologic conditions in the Salinas Valley groundwater basin. Prior to the development of SVIGSM, there were two significant modeling efforts at a basin-wide level. The first model was developed in 1978 by the USGS and the second model was developed in 1986, based on the predecessor to IGSM, the FEGW14. Both models focused on the groundwater flow in the basin, and had limited interaction with the surface processes. The previous modeling efforts did not consider the special importance of the hydrologic processes of the Salinas Valley groundwater system with respect to land and water use processes and daily rainfall and runoff in the main watershed and tributary watersheds, and to the regulation of Salinas River flows by Nacimiento and San Antonio Reservoirs.

The SVIGSM, developed in 1993, utilized the databases from the previous modeling efforts with significantly additional data developed as part of the Salinas River Basin Management Plan (BMP). The model development is documented in the report on BMP Task 1.09 (Montgomery Watson, 1995). The SVIGSM model network is shown in Figure 3.1.



RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

SVIGSM Model Grid

MAY 2003

FIGURE 3.1

The SVIGSM has gone through substantial updates and revisions since its initial development. These updates are reported in the *Salinas Valley Integrated Ground Water and Surface [water] Model Update* (Montgomery Watson, 1997), *Salinas Valley Historical Benefits Analysis (HBA)* (Montgomery Watson, April 1998), and *Update of the Historical Benefits Analysis (HBA) Hydrologic Investigation in the Arroyo Seco Cone Area: Monterey County Water Resources Agency* (Ali Taghavi and Associates, February 2000). The following summarizes the data and model revisions performed as a result of these studies. The reader is referred to the individual reports for additional discussion.

The following was specifically revised as a result of the 1997 work:

1. 1989/1991 land use and irrigated crop acreages were included;
2. assumptions associated with the Truck crop acreages that remain idle during crop rotation were finalized and included in the model;
3. the vegetation corridor along the Salinas River was coded as riparian as opposed to native vegetation;
4. distribution of hydraulic conductivity was modified; and
5. aquifer parameters were revised to ensure the proper calibration of model results to the historical groundwater conditions for the period from October 1969 to September 1994.

The following was specifically revised as a result of the April 1998 work:

1. the October 1969 to September 1994 simulation period was extended to October 1949 to September 1994;
2. land use and irrigated crop acreages were updated to reflect the lengthened simulation period;
3. crop evapotranspiration and irrigation efficiencies were changed from a static data set to a transient data set to allow for changes in agricultural technology and techniques over the 50-year simulation period;
4. urban water demand and surface water diversions were updated to reflect the lengthened simulation period;
5. groundwater pumping distribution was updated to reflect the lengthened simulation period and to reflect changes in land development over that time;
6. specific capacities and hydraulic conductivities in the Arroyo Seco Cone area were updated based on studies conducted by others;

7. soil parameters were adjusted to provide better consistency and to improve the overall water balance of the valley; and

8. model simulation results were verified with observed data.

Figure 3.2 shows the location of calibration wells used in the 1998 work. Figures 3.3a through 3.3e show a statistical evaluation of the SVIGSM (v. 4.18, 1998) calibration performance associated with the 1998 work.

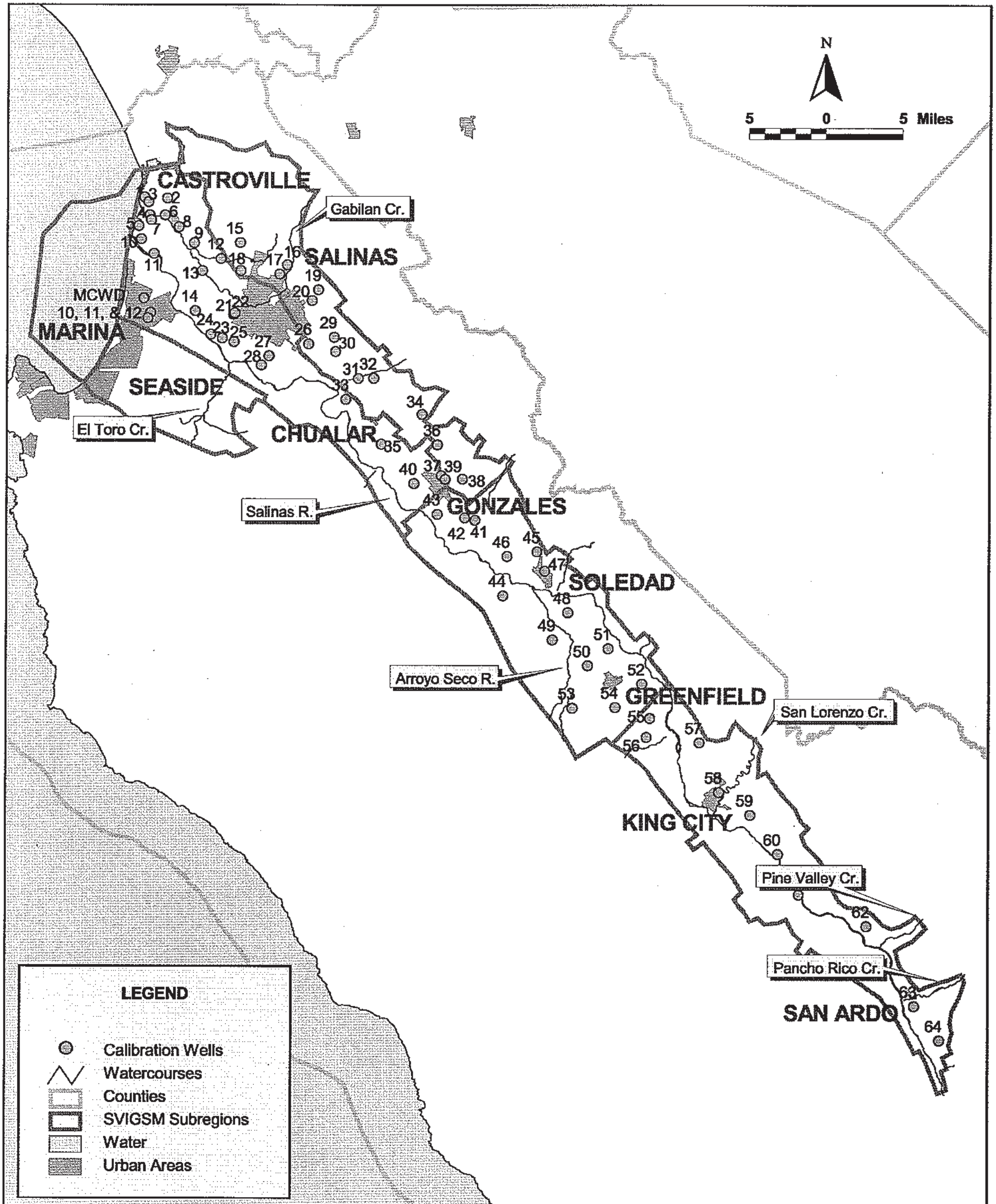
The following was specifically revised as a result of the February 2000 work:

1. the SVIGSM calibration in the Arroyo Seco Cone area was refined to include the latest streamflow and hydrogeologic data available, and

2. reservoir operation routine was revised to more appropriately simulate the potential diversions of the water from the Nacimiento reservoir by San Luis Obispo County, under the baseline and alternative scenario analyses.

The SVIGSM contained the following features as a result of these updates:

- Simulation of the vertical and horizontal groundwater flow in the Salinas Valley through water-bearing formations in the valley:
    - The 180-foot, 400-foot, and the Deep Aquifer in the Pressure subregion;
    - The East Side Shallow, East Side Deep, and the Deep Aquifer in the East Side subregion;
    - The Shallow and Deep Aquifers in the Forebay subregion; and
    - The unconfined aquifer in the Upper Valley
- Simulation of the Salinas River and its major tributaries from Nacimiento and San Antonio Reservoirs to the Monterey Bay;
- Simulation of the interaction of the Salinas River, and its tributaries, with the groundwater system;
- Simulation of Nacimiento and San Antonio Reservoirs based on specific operational rules for water supply and flood control;
- Simulation of reservoir operations that can satisfy those diversion requirements that derive from water rights and environmental flow requirements;
- Simulation of the rate and extent of seawater intrusion;



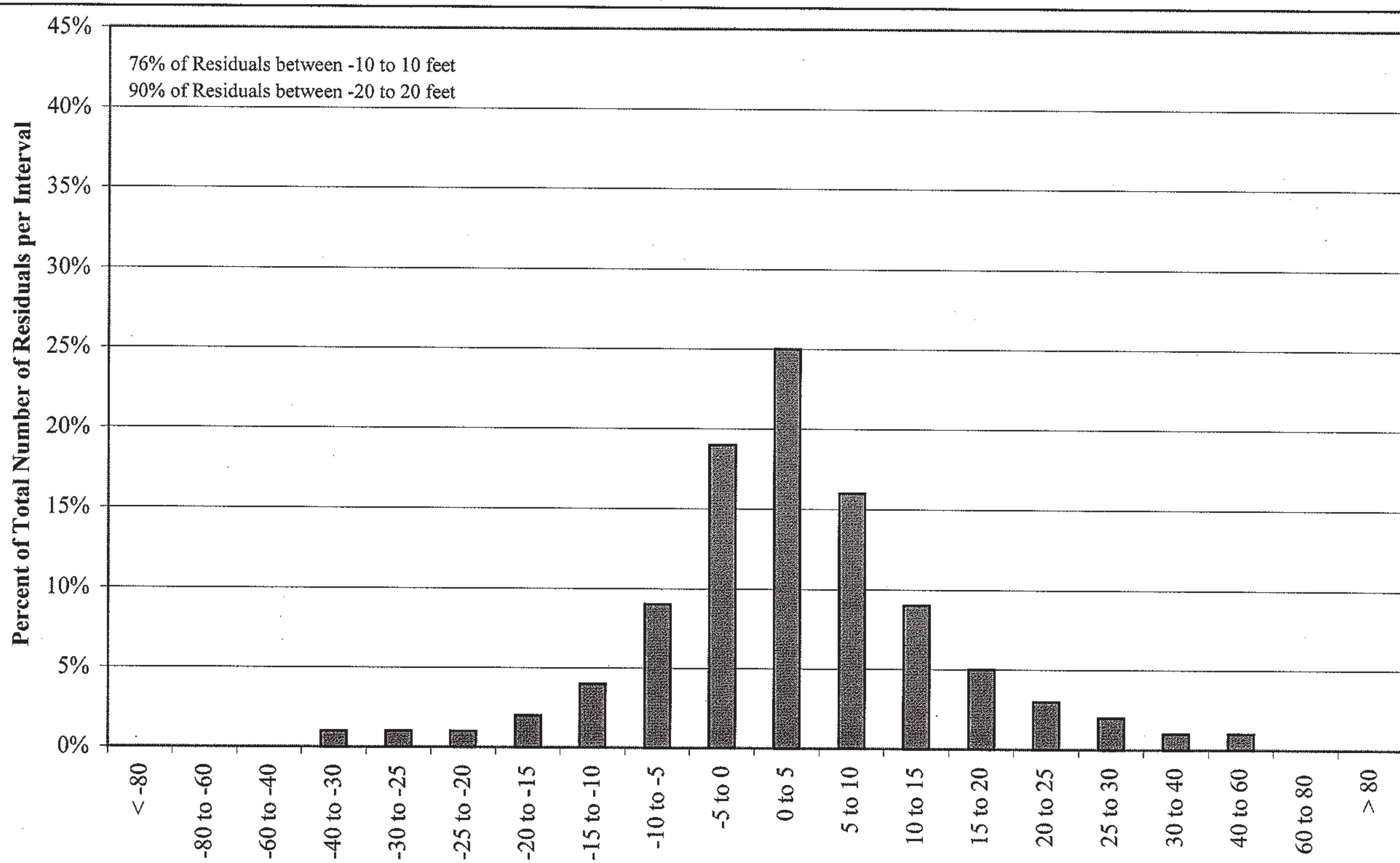
WRIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Location of Calibration Wells

MAY 2003

FIGURE 3.2



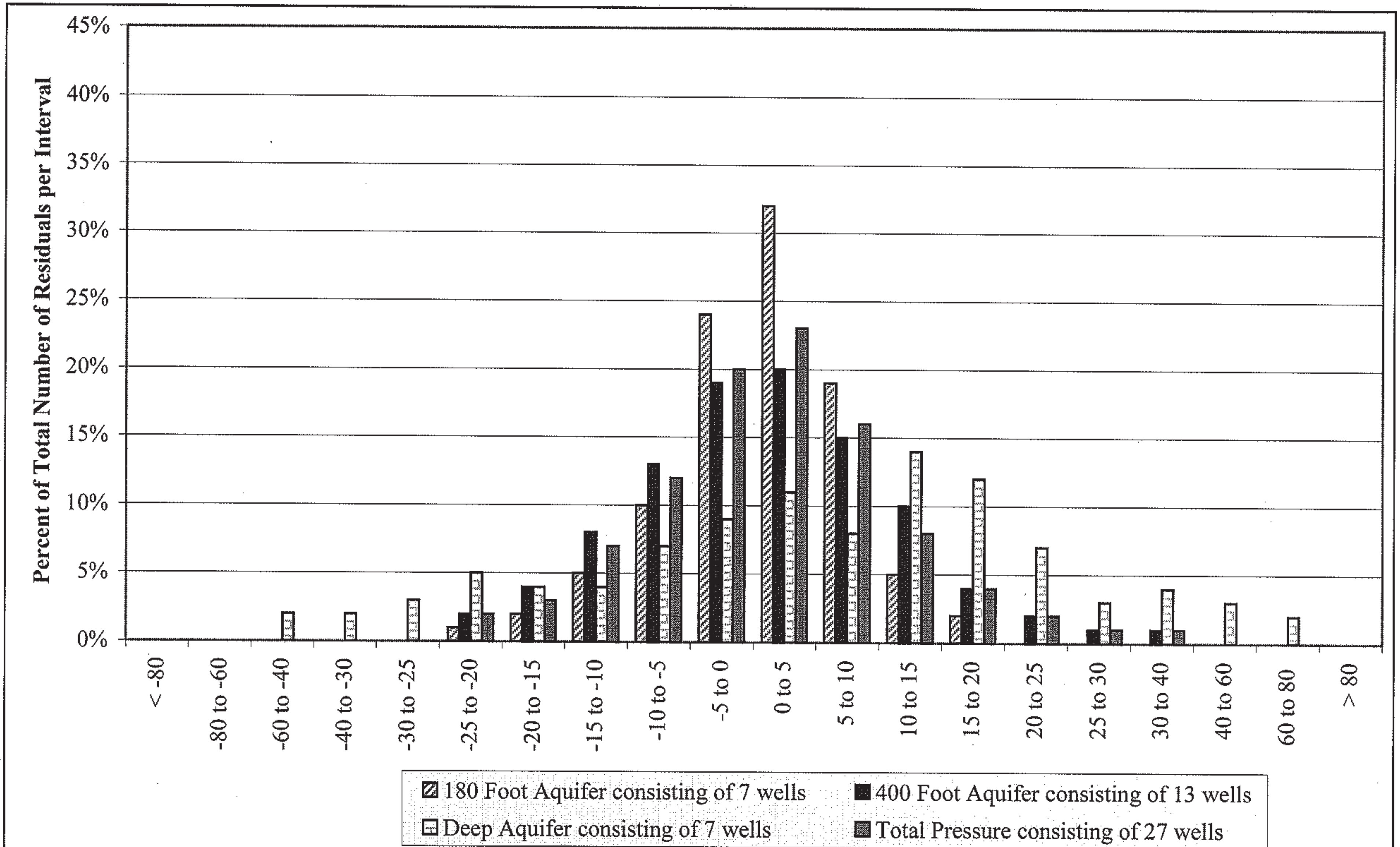
RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Histogram of Residual Groundwater Levels between SVIGSM Version 4.18 and Historic Data for Water Years 1959 through 1994

MAY 2003

FIGURE 3.3a



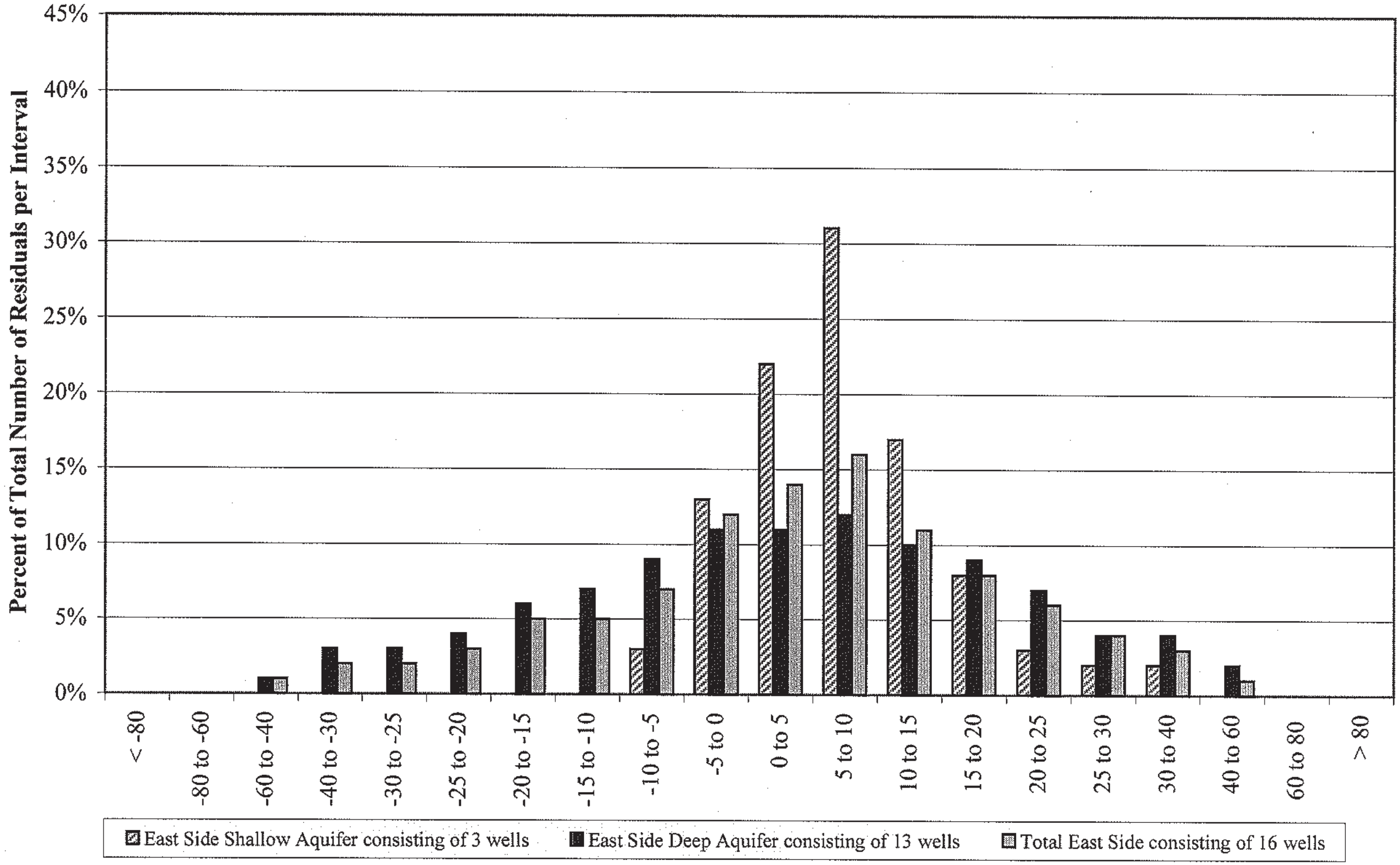
RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Histogram of Residual Groundwater Levels between SVIGSM Version 4.18 and Historic Data in Pressure Subarea for Water Years 1959 through 1994

MAY 2003

FIGURE 3.3b



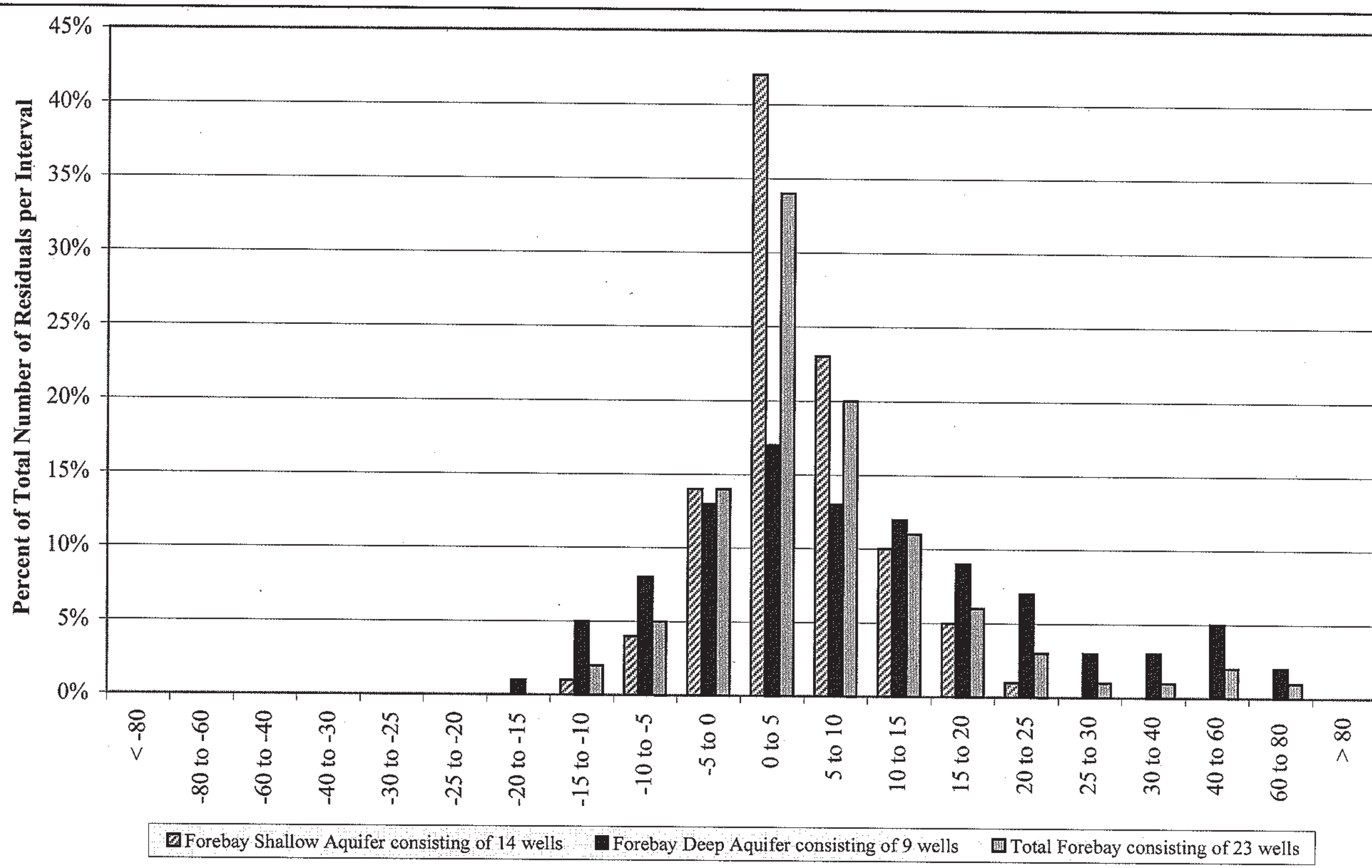
RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Histogram of Residual Groundwater Levels between SVIGSM Version 4.18 and Historic Data in East Side Subarea for Water Years 1959 through 1994

MAY 2003

FIGURE 3.3c



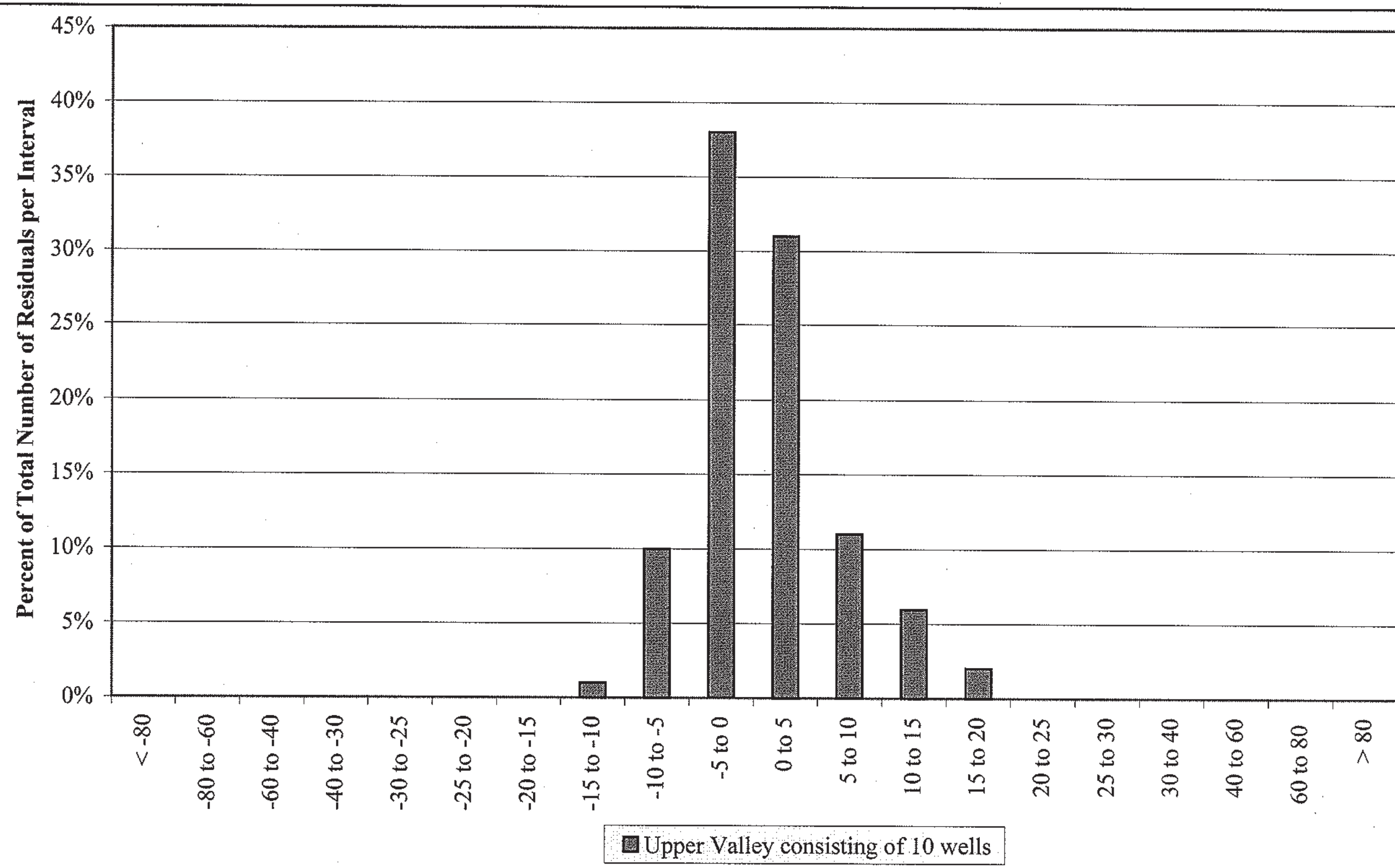
RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Histogram of Residual Groundwater Levels between SVIGSM Version 4.18 and Historic Data in Forebay Subarea for Water Years 1959 through 1994

MAY 2003

FIGURE 3.3d



RIME

MARINA COAST WATER DISTRICT

DEEP AQUIFER INVESTIGATIVE STUDY

Histogram of Residual Groundwater Levels between SVIGSM Version 4.18 and Historic Data in Upper Valley Subarea for Water Years 1959 through 1994

MAY 2003

FIGURE 3.3e

- Simulation of the agricultural water use requirements based on crop irrigated acreage, crop potential evapotranspiration, minimum soil moisture requirements, and crop efficiency; and
- Simulation of direct runoff and deep percolation from rainfall and irrigation applied water.

The SVIGSM model was developed to address basin-wide hydrologic and water supply operational issues. As such, the SVIGSM has been applied to many studies since its initial development:

- Evaluating the impacts of the Castroville Seawater Intrusion Projects;
- Providing a better understanding of the nature of the physical and hydrologic processes in the Salinas River Basin. This includes natural and operational factors that influence seawater intrusion and coastal groundwater flow from Monterey Bay;
- Analyzing the hydrologic impacts of the Salinas River Basin Management Plan so that sufficient information was provided for alternatives screening and preferred alternative selection;
- Conducting a Historical Benefits Analysis to identify and quantify the hydrologic, flood control, and economic benefits of Nacimiento and San Antonio Reservoirs;
- Analyzing the effects reservoir re-operation scenarios and
- Analyzing impacts of the Salinas Valley Water Project, a proposed project currently undergoing the final stages of environmental permitting process.

CODE UPDATES

IGSM was initially released in 1990 as part of the Central Valley Groundwater and Surface water Model (CVGSM). It has been modified over the years for different project applications; this resulted in different versions of IGSM as related to specific projects. In 2000, DWR initiated a study to combine into a single IGSM version all features from various versions used in local and statewide applications. This effort resulted in IGSM version 5.0, which is currently used in several modeling efforts throughout California. DWR initiated a review process of the IGSM 5.0 code and its application to California's Central Valley. This process resulted in refinement of several major modules of IGSM, including the groundwater simulation daily time-step, simulation of the stream-aquifer interaction based on non-linear methodology, and refined non-linear soil moisture accounting routine. These code refinements were released as a new version of the code: IGSM2 version 1.0 (December 2002). Currently IGSM2 does not provide simulation capabilities for reservoir operations and multiple models. Also, it is not backwards compatible for datasets of earlier versions of IGSM. Due to the release schedule of IGSM2, as well as its limitations on simulation of reservoir operations and multi-model integration, the results of the DWR review were incorporated into a revised version of the original IGSM. This new version is released as beta version of IGSM version 6.0, which is being developed to meet specific project requirements for the conjunctive use projects under study by DWR, Alameda County Water District (ACWD), and East Bay Municipal Utility District (EBMUD) (WRIME, Inc. 2003). IGSM 6.0 simulates the groundwater and surface water flows and their interaction on a daily and/or monthly time-step; and has the option to simulate stream-aquifer hydraulic interaction using both linear and non-linear methods; and simulate general head boundary condition using both linear and non-linear methods. The program is also backward compatible with IGSM 3.2 and later versions. This version of IGSM is currently under final review and will be official released in June, 2003 then the project application for Stony Creek Fan Conjunctive Use project is complete. Therefore, IGSM 5.0 was selected for use in the Marina Coast study since it is the most recent, officially released version of IGSM possessing all the features needed to properly simulate hydrologic conditions in the Salinas Valley groundwater basin. It is anticipated that with the official release of IGSM 6.0, the conversion to IGSM 6.0 would be straightforward, requiring limited time to evaluate the calibration and make necessary refinements. Formal documentation of IGSM 6.0 and its application in Northern Sacramento Valley, California will be available in June 2003. Documentation regarding the application of IGSM 6.0 in Alameda County, California will be available by September 2003.

IGSM 5.0 is backwards compatible with IGSM 4.18, meaning that the data files developed for SVIGSM 4.18 are compatible with SVIGSM 5.0. As such, no modifications of the data file structure were necessary to use SVIGSM 5.0.

Several comparisons were made to measure the impacts of changing the IGSM code, without changing the geologic database of the model. These comparisons are:

1. change in groundwater levels between SVIGSM versions 4.18 and 5.0;
2. change in groundwater levels between observed groundwater levels and SVIGSM 5.0;
3. change in average annual coastal flow rate between the SVIGSM versions; and
4. change in average annual stream depletion rate between the SVIGSM.

In general changing the code did not result in any significant changes to the performance of the calibrated model.

SVIGSM DATABASE UPDATES

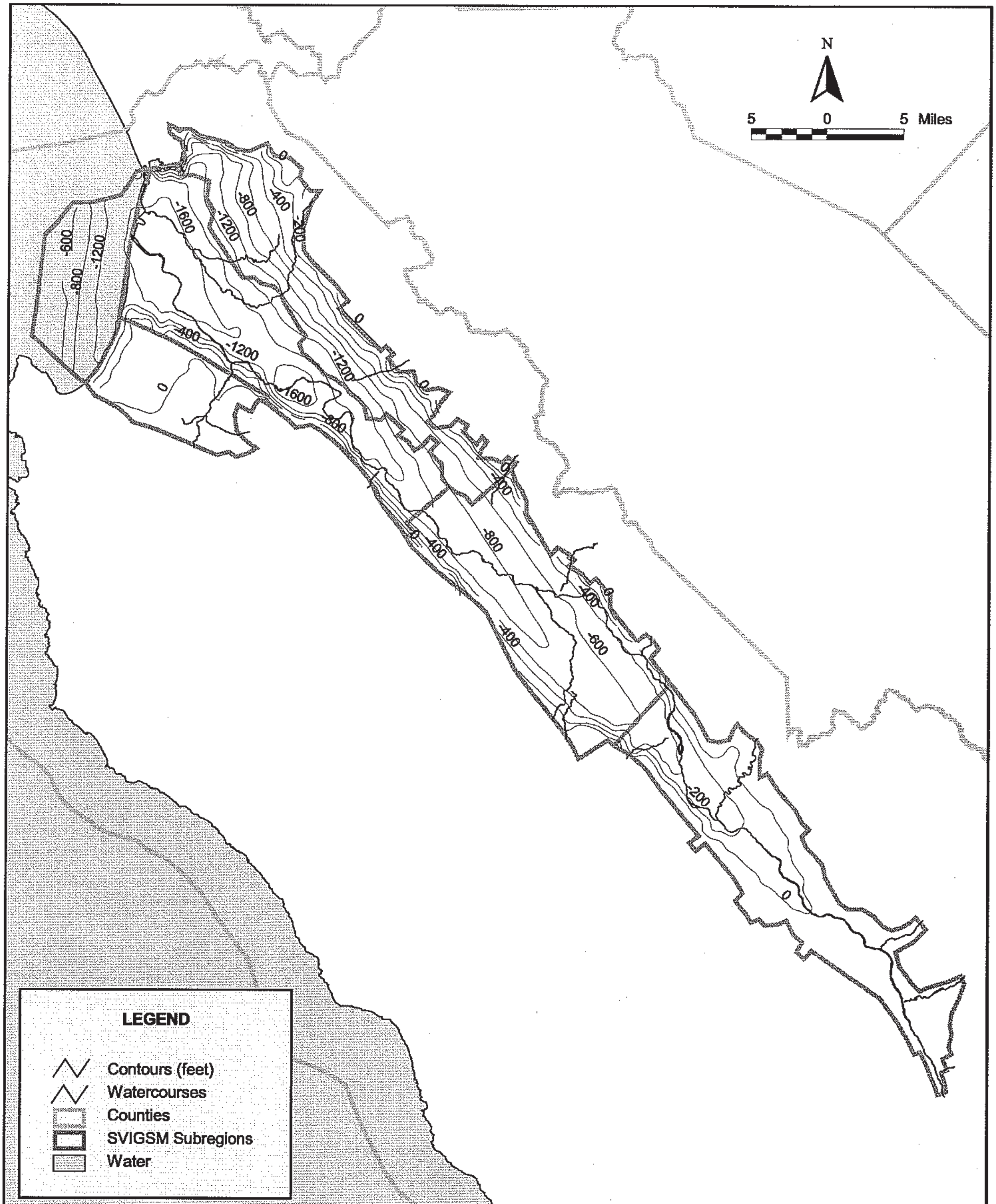
There were two major changes made to the SVIGSM database due to recently conducted studies. These changes, discussed in detail below, are in regard to the new interpretation of the deep aquifers and the capability of the Reliz Fault to inhibit groundwater flow.

DEEP AQUIFER MODIFICATIONS

As discussed previously, the Salinas River groundwater system was conceptually viewed as a three-layer aquifer system in the Pressure Subarea, a two-aquifer system in the East Side and Forebay Subareas, and a single aquifer in the Upper Valley. The deep aquifers or its hydrogeologic extensions were present in all subareas except for the Upper Valley. All data regarding the deep aquifers has been reviewed, analyzed, and incorporated into a new interpretation of the deep aquifers. Based on this new interpretation, the deep aquifers are better represented as two distinct aquifers. The new interpretation was included in the SVIGSM stratigraphy database. The SVIGSM revised stratigraphy data was developed using a Geographic Information Systems (GIS) process of contouring thickness and bottom elevation data, then attributing those contoured values to specific SVIGSM nodes; this process was discussed in Section 2 of this report.

Figures 3.4 through 3.8 illustrate the changes that have been made to the deep aquifers' geology and hydrogeology. Figure 3.4 shows the bottom elevation contours of deep aquifers prior to the recent study. Figure 3.5 shows the bottom elevation contours of upper deep aquifer (the Paso Robles Formation) as a result of this study's findings. Figure 3.6 shows the bottom elevation contours of the lower deep aquifer (the Purisima Formation). In order to properly simulate the hydraulic connection and leakance between the upper and lower deep aquifers, a 10-Ft aquitard is assumed between these layers. The thickness of this aquitard is not based on geologic data and information; rather it is for modeling purposes to provide better control in model calibration and simulation. Figures 3.7 and 3.8 show the total aquifer system for old stratigraphy interpretation and the new stratigraphy interpretation, respectively. Note that the total thickness of the revised deep aquifers is approximately 500 to 1,000 feet greater than the original thickness in the model. Without proper changes to the hydraulic conductivity distribution in the model, this additional thickness would impact the transmissivity of the aquifer system; this impact will be discussed in the next section.

Several stratigraphic cross-sections were developed for the revised model aquifer system. Figure 3.9 shows the location of geologic cross-sections developed as part of this effort; Figures 3.10a through 3.10h are the geologic cross-sections themselves..



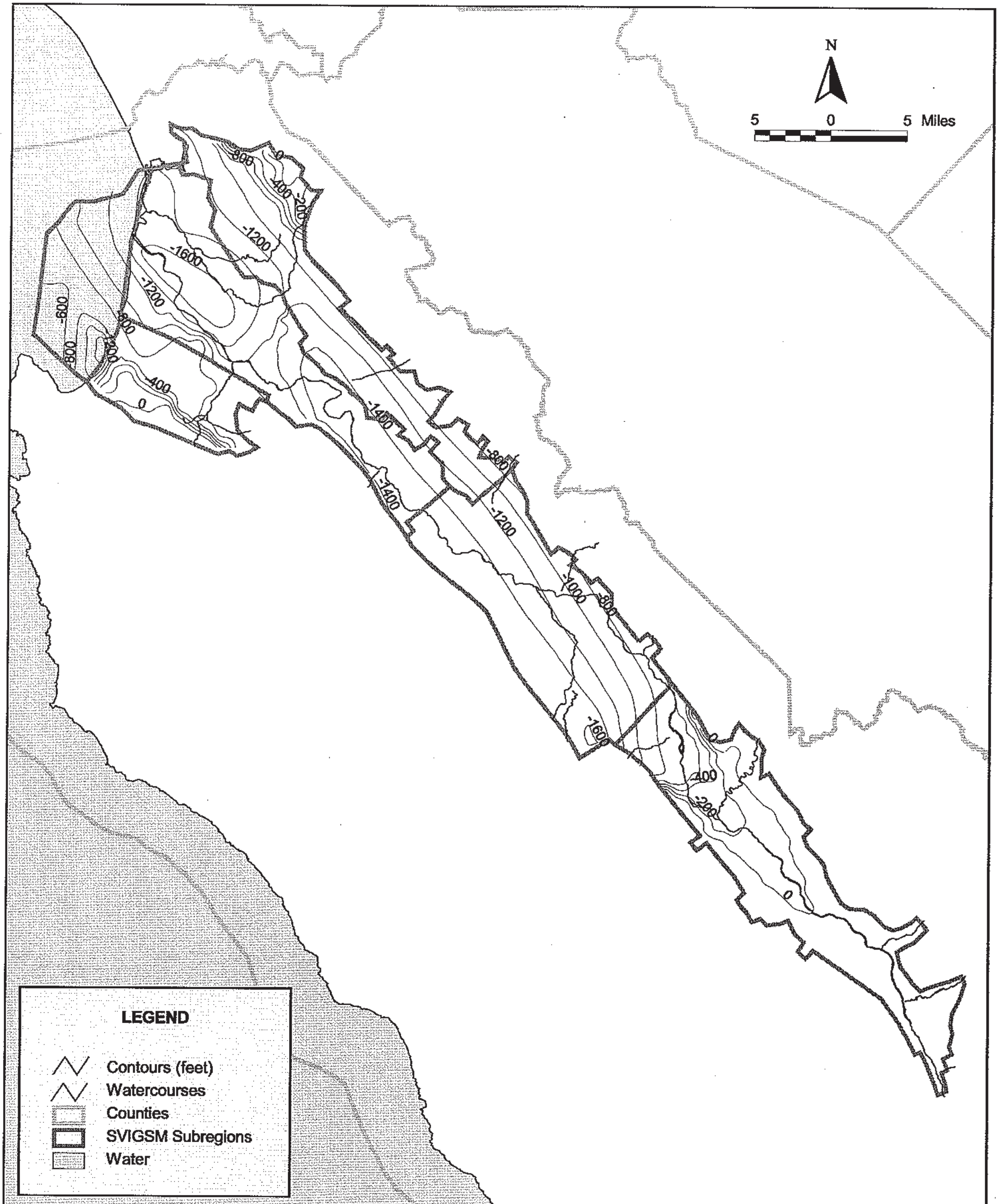
RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Bottom Elevation of Original Model Layer 3

MAY 2003

FIGURE 3.4



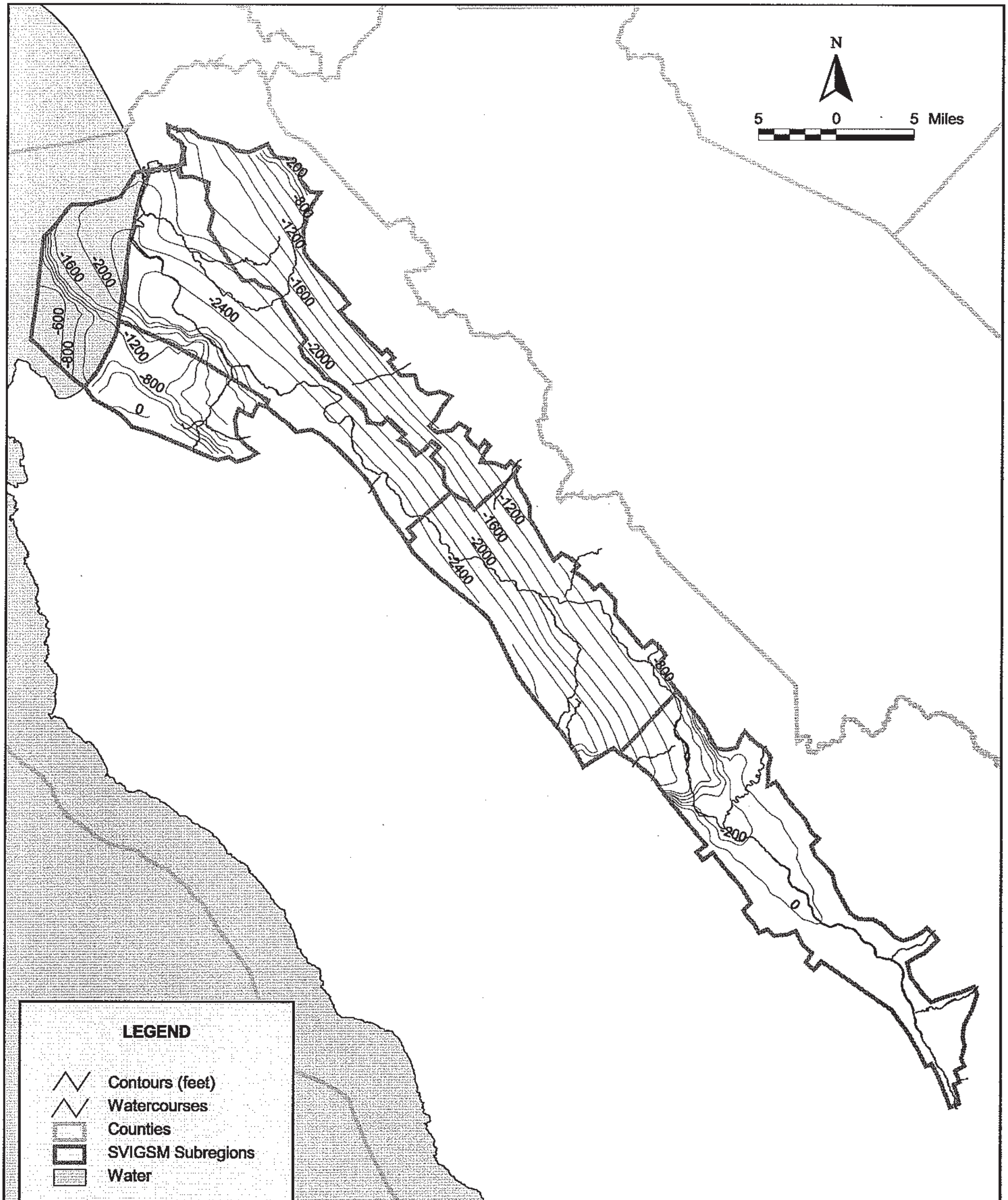
RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Bottom Elevation of Revised Model Layer 3

MAY 2003

FIGURE 3.5



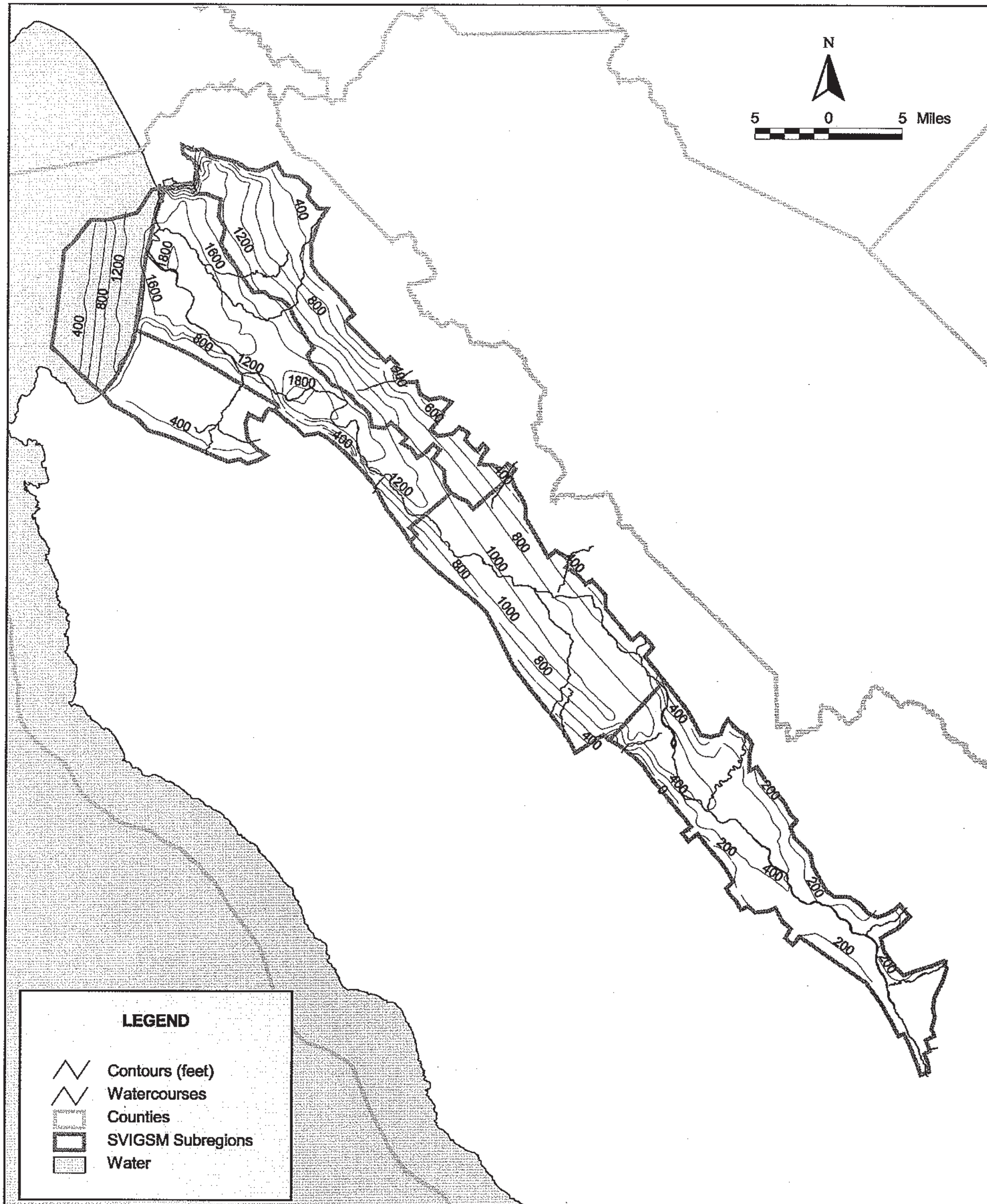
RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Bottom Elevation of Model Layer 4

MAY 2003

FIGURE 3.6



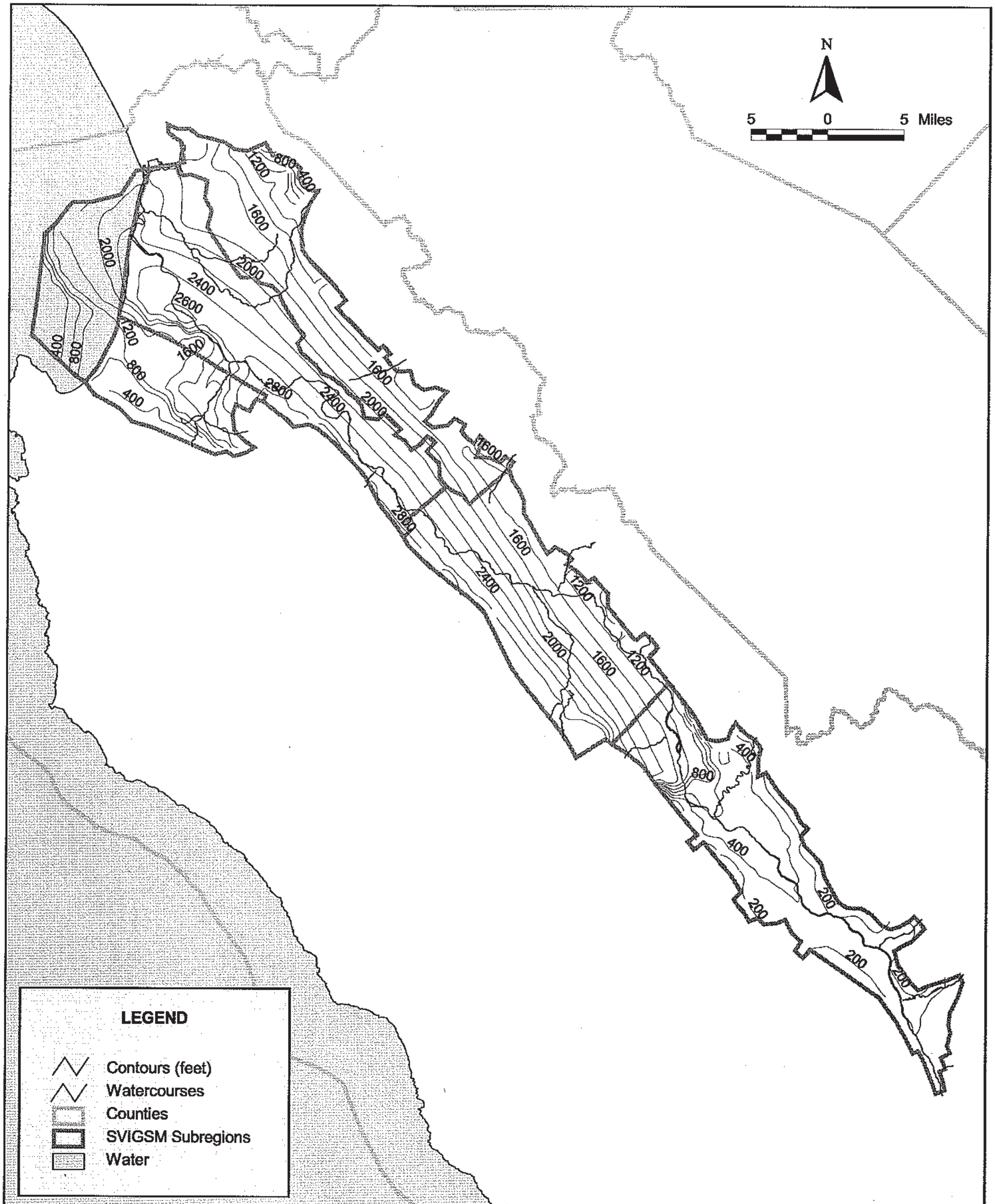
RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Aquifer System Thicknesses for Original Model

MAY 2003

FIGURE 3.7



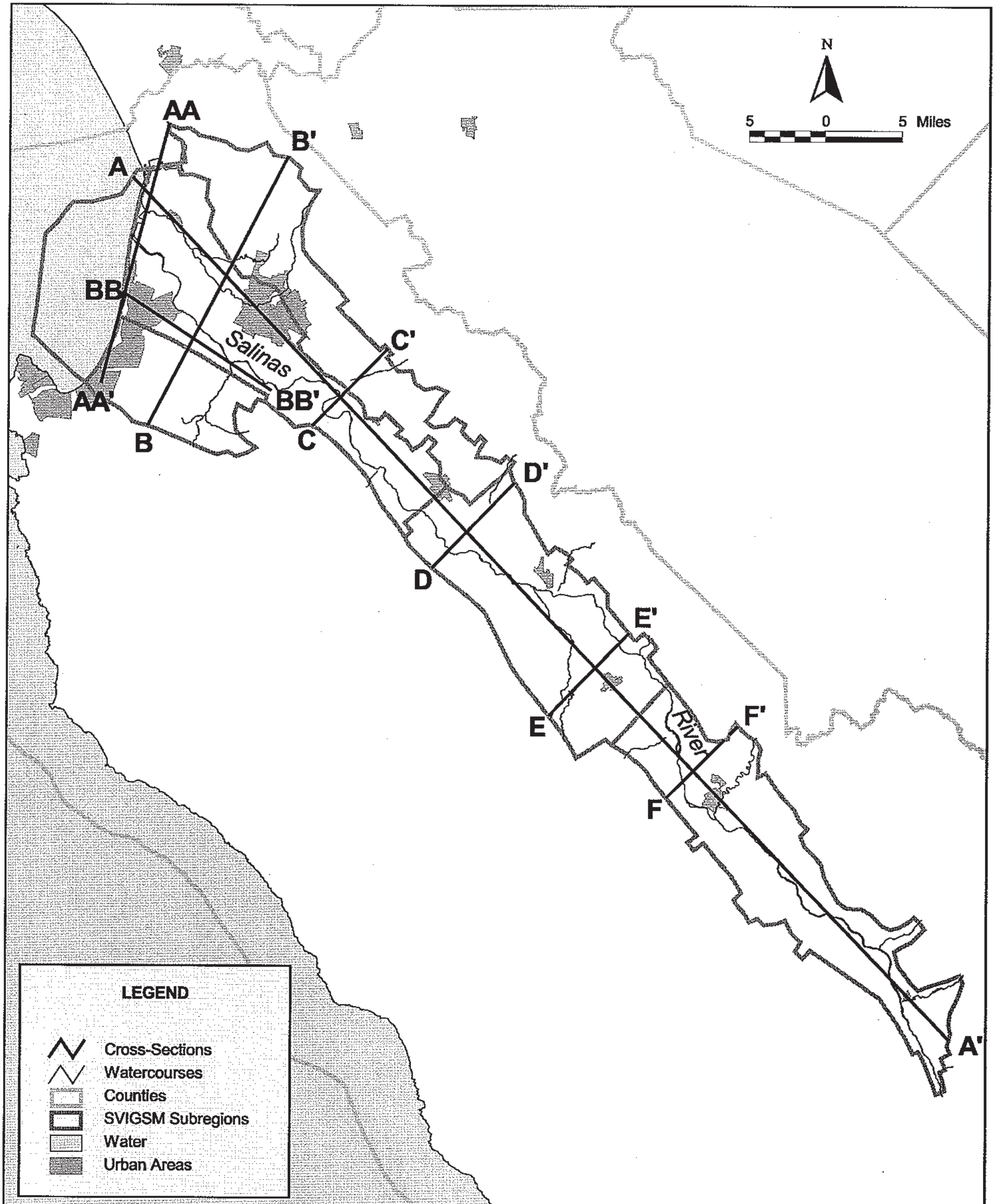
RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Aquifer System Thicknesses for Revised Model

MAY 2003

FIGURE 3.8



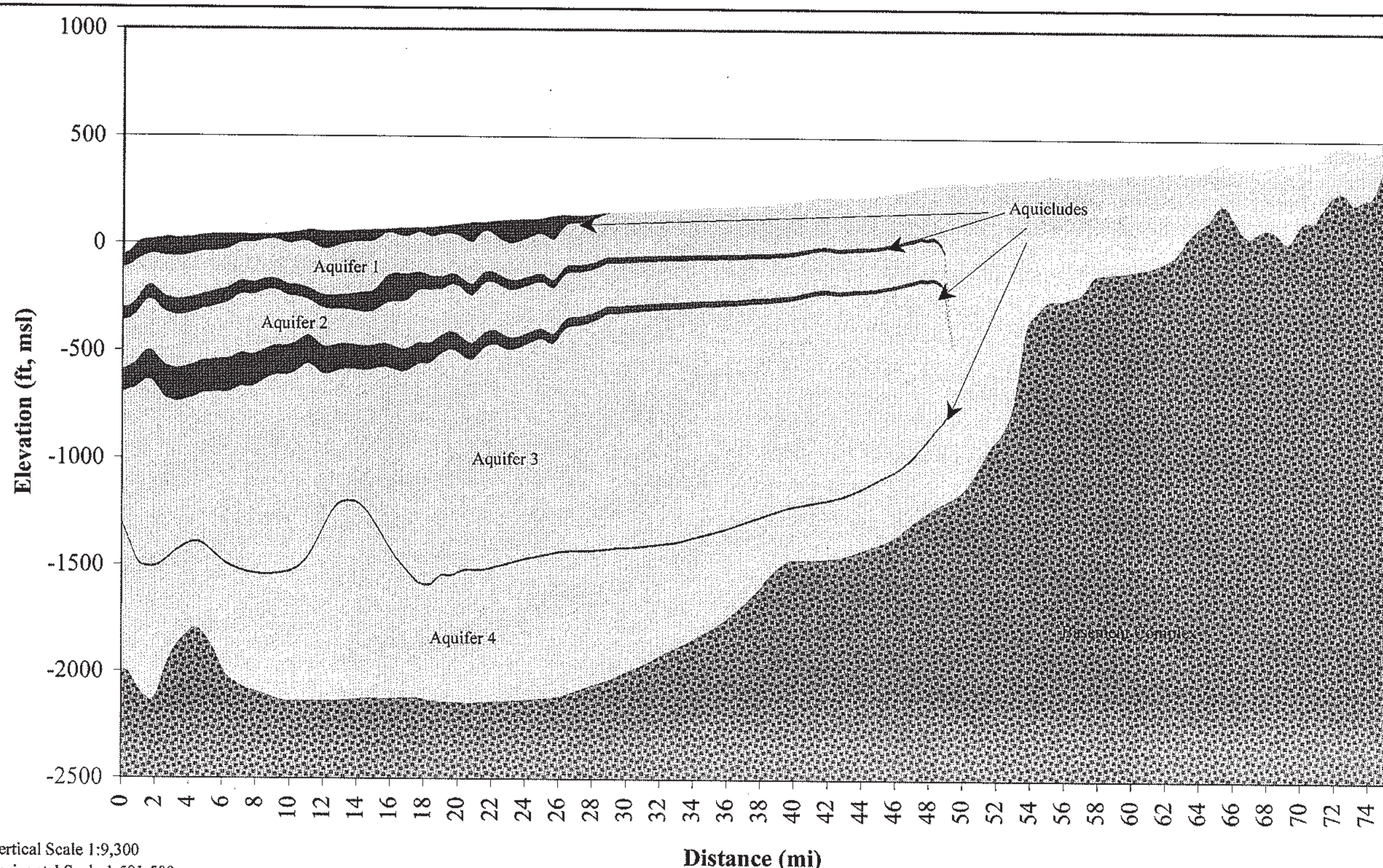
RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

SVIGSM Geologic Cross-Section Location Map

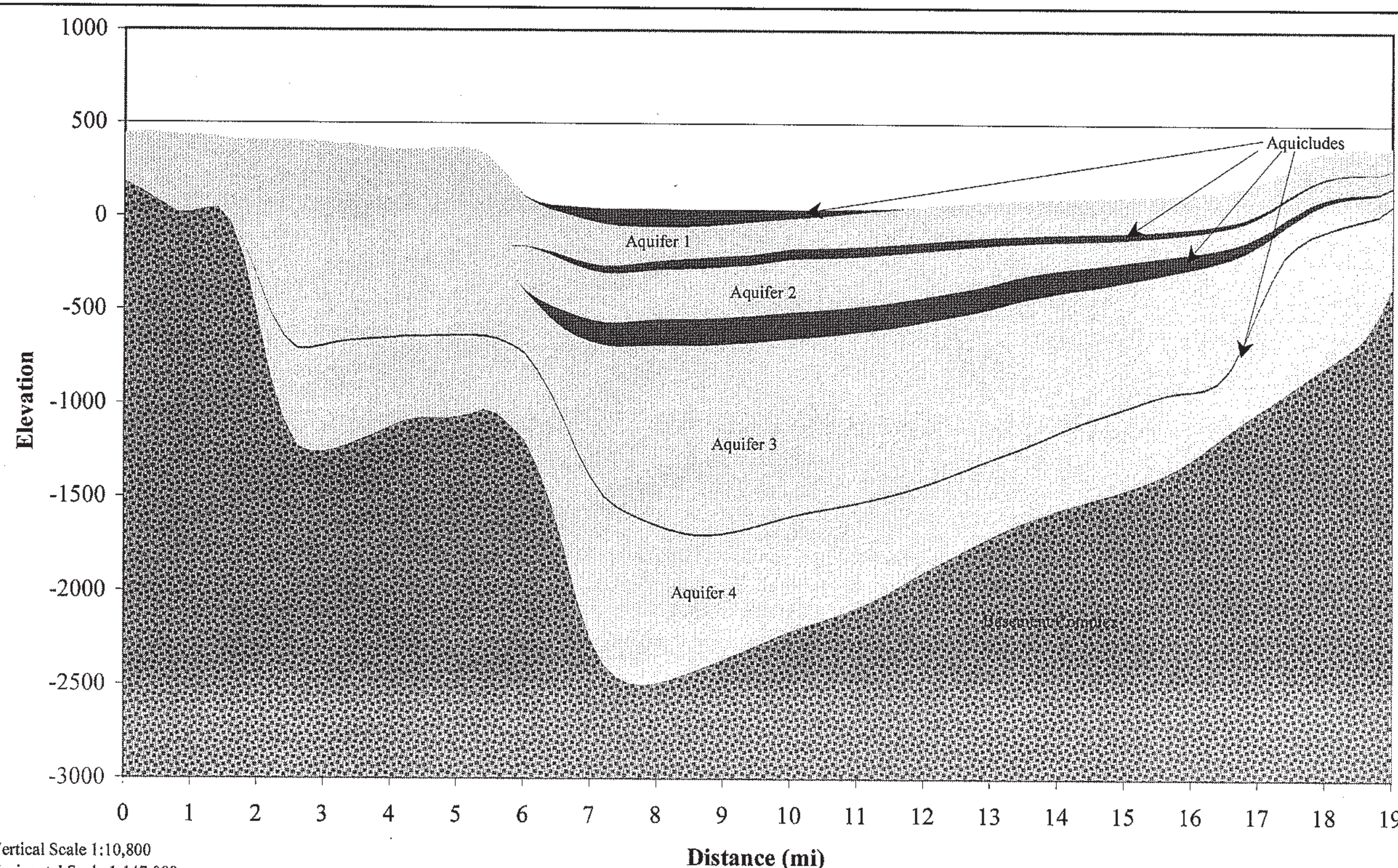
MAY 2003

FIGURE 3.9



Vertical Scale 1:9,300
Horizontal Scale 1:581,500

RIME	MARINA COAST WATER DISTRICT DEEP AQUIFER INVESTIGATIVE STUDY **Geologic Cross-Section A-A'**	MAY 2003 FIGURE 3.10a



Vertical Scale 1:10,800
Horizontal Scale 1:147,000

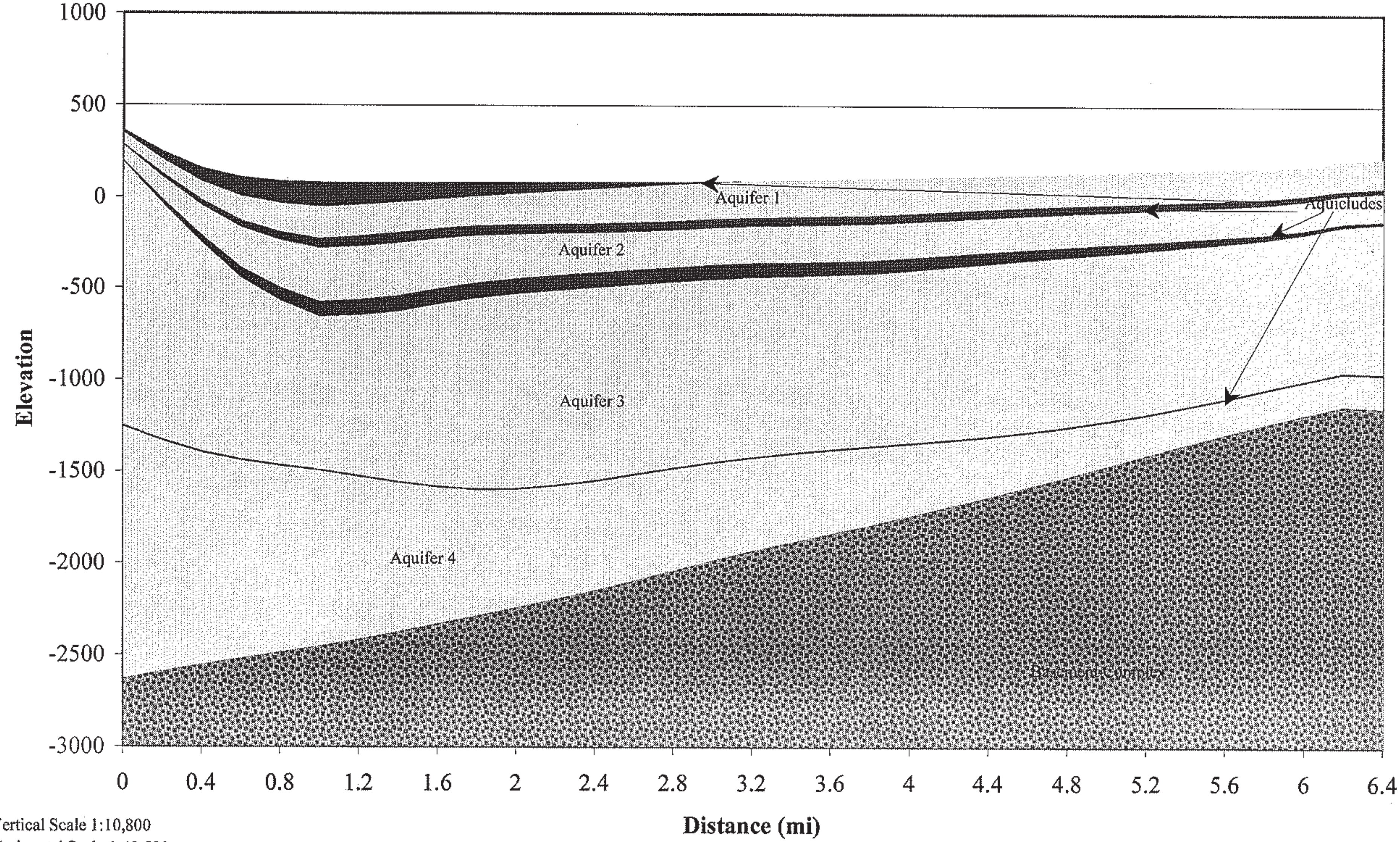
RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Geologic Cross-Section B-B'

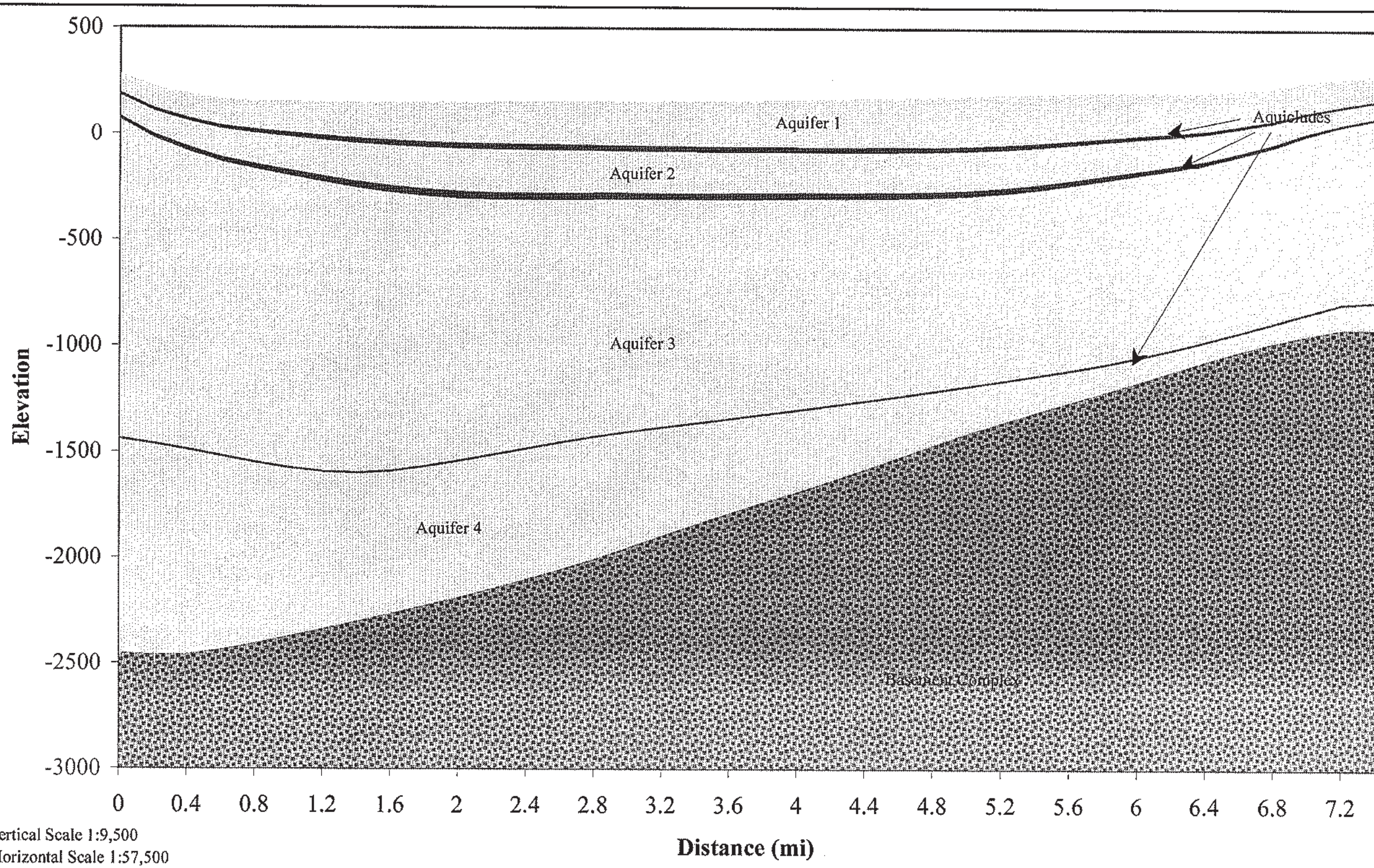
MAY 2003

FIGURE 3.10b



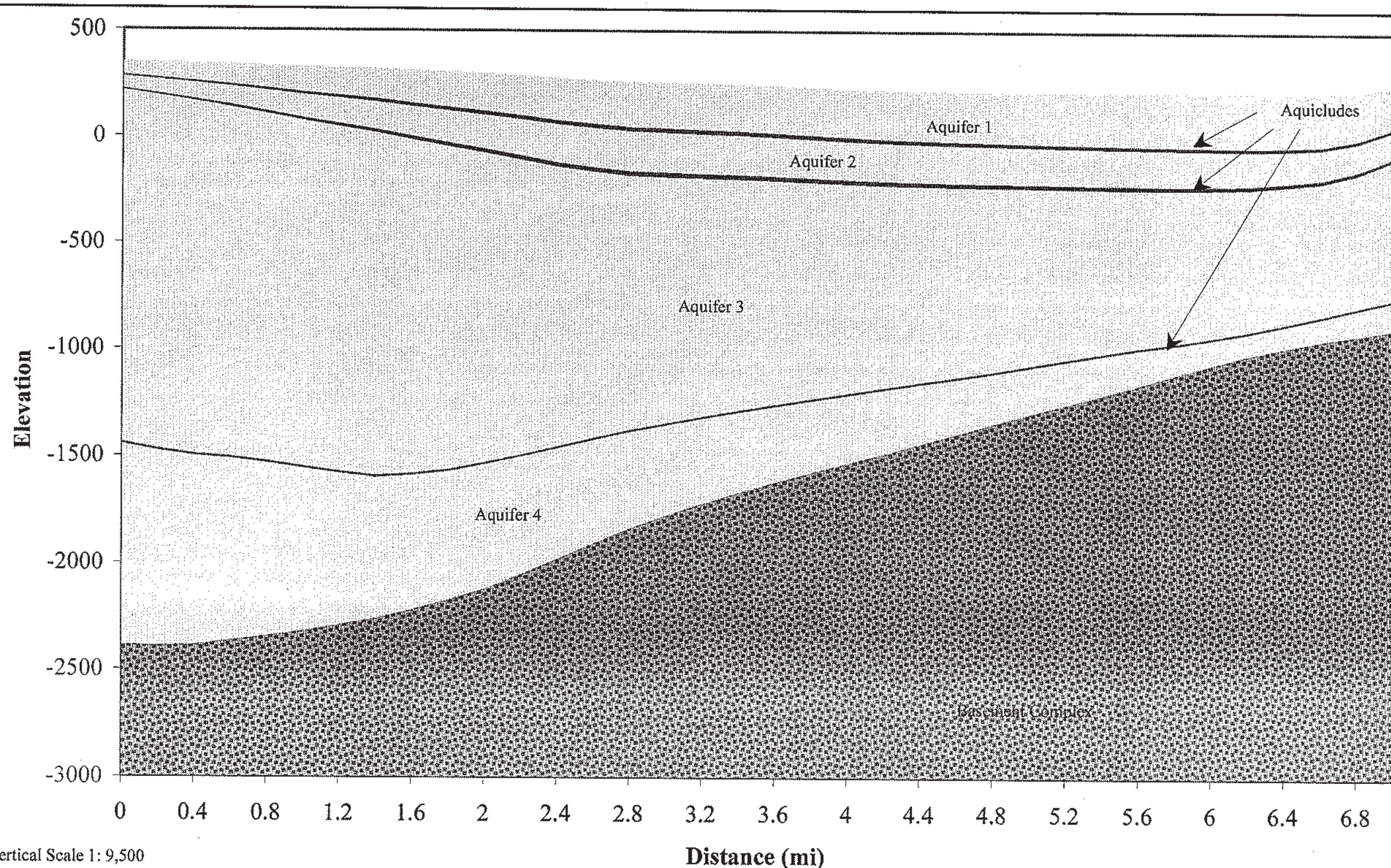
Vertical Scale 1:10,800
Horizontal Scale 1:49,500

PRIME	MARINA COAST WATER DISTRICT DEEP AQUIFER INVESTIGATIVE STUDY **Geologic Cross-Section C-C'**	MAY 2003 FIGURE 3.10c



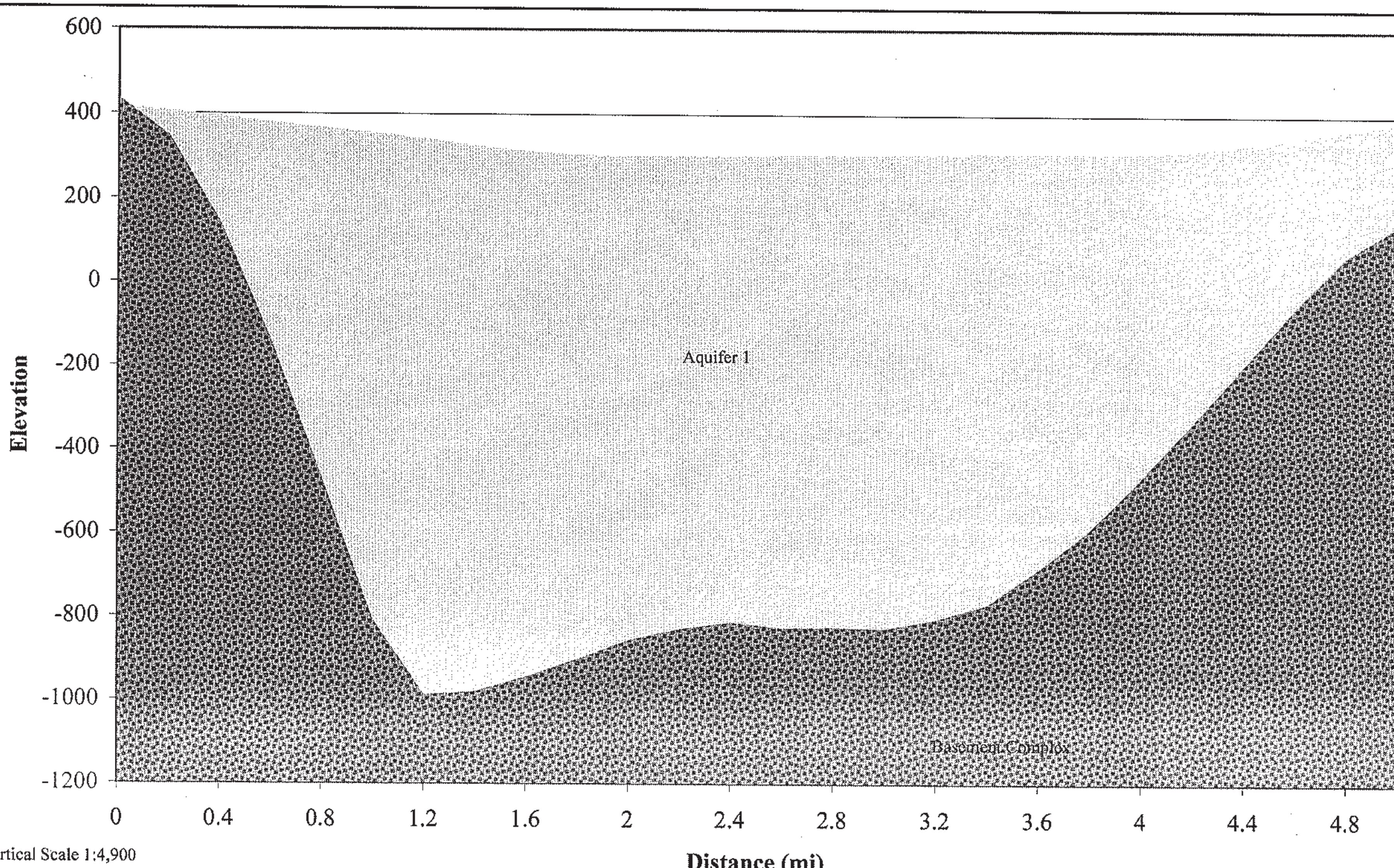
Vertical Scale 1:9,500
Horizontal Scale 1:57,500

PRIME	MARINA COAST WATER DISTRICT DEEP AQUIFER INVESTIGATIVE STUDY **Geologic Cross-Section D-D'**	MAY 2003 FIGURE 3.10d



Vertical Scale 1: 9,500
Horizontal Scale 1:54,300

PRIME	MARINA COAST WATER DISTRICT DEEP AQUIFER INVESTIGATIVE STUDY **Geologic Cross-Section E-E'**	MAY 2003 FIGURE 3.10e



Vertical Scale 1:4,900
Horizontal Scale 1:38,600

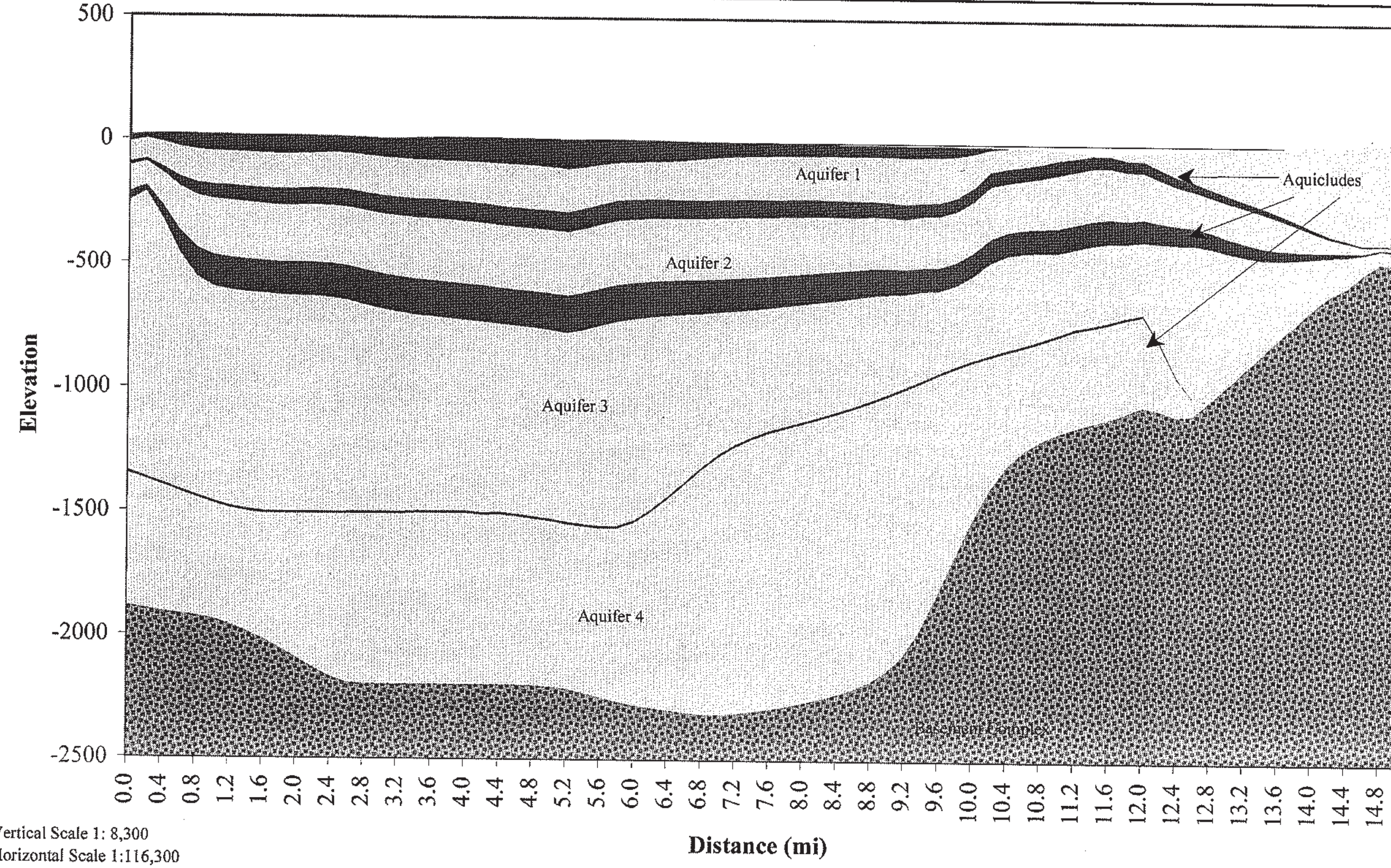
PRIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Geologic Cross-Section F-F'

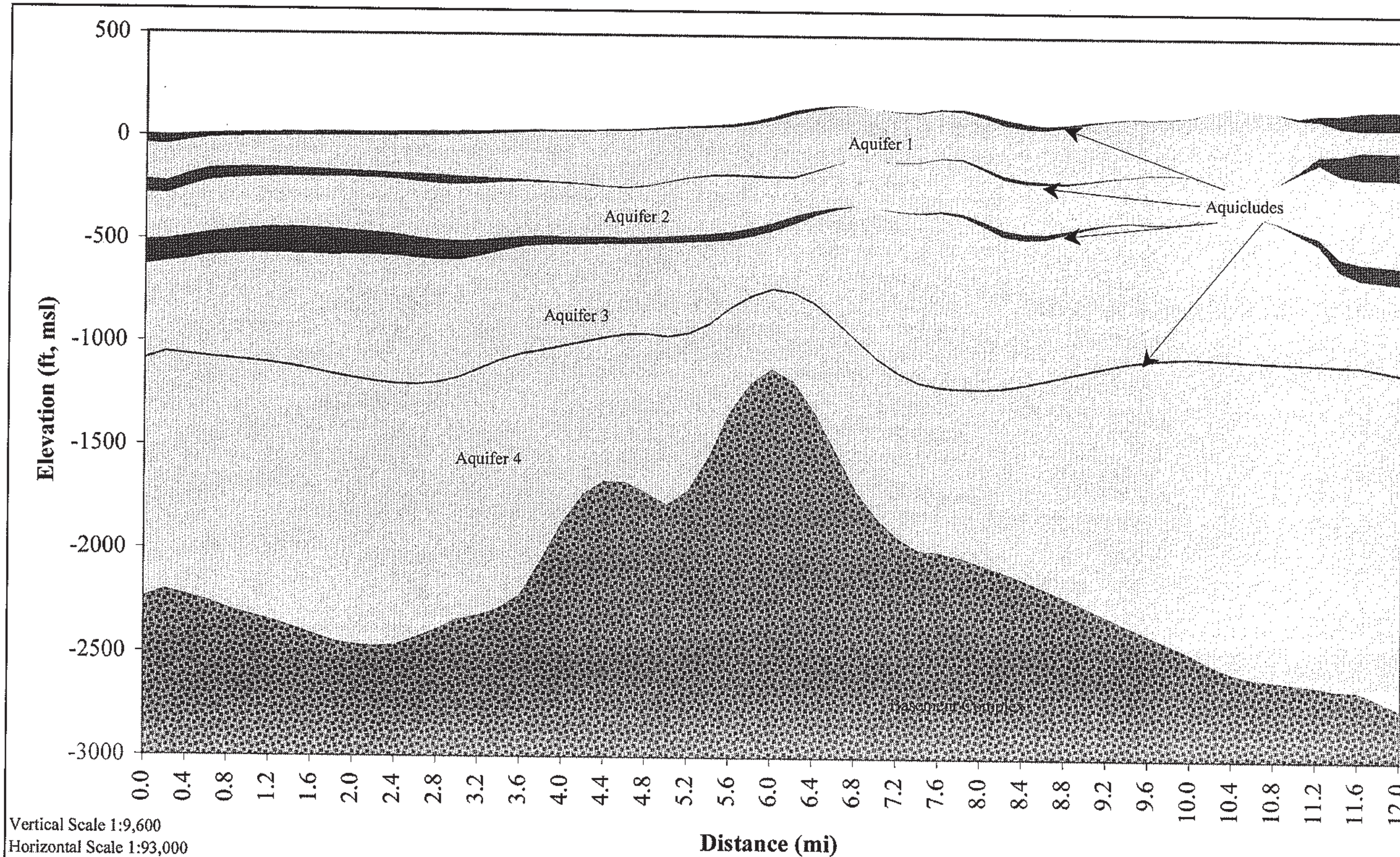
MAY 2003

FIGURE 3.10f



Vertical Scale 1: 8,300
Horizontal Scale 1:116,300

PRIME	MARINA COAST WATER DISTRICT DEEP AQUIFER INVESTIGATIVE STUDY **Geologic Cross-Section AA-AA'**	MAY 2003 FIGURE 3.10g



PRIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Geologic Cross-Section BB-BB'

MAY 2003

FIGURE 3.10h

Based on Figures 3.4 and 3.5, the lowest elevation of the deep aquifers and upper deep aquifer is approximately 1,600 feet below mean sea level (msl). It can be concluded that the two aquifers have a similar lowest elevation. The shape of the aquifers has changed substantially, though. The deep aquifers originally pinched out at the sides of the valley. In comparison, the upper deep aquifer does not pinch out and has a bottom elevation of over 1,500 feet msl along the western boundary of the SVIGSM. In addition, the location and degree of outcrops of the upper and lower deep aquifer in the Monterey Bay is now different enough that the rate of simulated subsurface flow across the coastline in the deep aquifers is also now different. This change in the outcrop condition and its associated hydraulic effects in the deep aquifers also affects the hydraulic conditions in the 400-foot and 180-foot aquifers along the coastline, such that the simulated subsurface flow rates are expected to be different in these aquifers, because the aquifer system geometry, corresponding volume, and aquifer parameters have substantially changed. From Figure 3.7, the lower deep aquifer has a similar shape to the upper deep aquifer and their lowest bottom elevation is in excess of 2,400 feet below msl. Figures 3.8 and 3.9 show that the aquifer system thickness has increased by over 2,400 feet in some areas. However, due to low storage coefficients in the lower deep aquifer, the added thickness in the lower deep aquifer does not necessarily equate to larger storage volume and higher yield from this formation.

Reliz Fault Modifications

At the time of developing the original SVIGSM, the King City (Reliz) fault was understood to impede groundwater flow between the Pressure subarea and Fort Ord. As such, a row of finite elements between the Pressure subarea and Fort Ord were assigned a low hydraulic conductivity. Review of hydrogeologic data and groundwater levels across the fault, conducted as part of this study, suggests that although the Reliz fault has deformed units as young as the Paso Robles Formation, the fault itself does not appear to affect groundwater flow. Based on this work, the fault conditions (low hydraulic conductivities, approximately 1.1×10^{-2} ft/day) were removed from the SVIGSM database, and hydraulic conductivities comparable to ones in the neighboring elements were assigned to the fault elements (ranging from 5 to 30 ft/day).

Coastal Boundary Conditions

The SVIGSM finite element network includes the portion of the Monterey that overlies the Salinas basin aquifer systems. The grid nodes in this part of the model network are assigned as general head boundary condition such that proper hydraulic gradient at the coastline is simulated. This hydraulic gradient was adjusted during model calibration so that the simulated groundwater heads at the coastal wells in the 180-foot, 400-foot, and the deep aquifer wells (in the Castroville area) are reasonably close to the observed groundwater heads in these wells.

This general head boundary condition accounts for changes in hydraulic head due to seawater density relative to fresh water. As a result of changes in the stratigraphy of deep aquifers in this study, the sensitivity of simulated groundwater levels to this boundary condition was evaluated, and as a result no changes to this boundary condition was necessary.

SVIGSM Recalibration

Due to changes in the stratigraphic conditions of the deep aquifers, the following is a list of parameters that were changed as part of the recalibration effort.

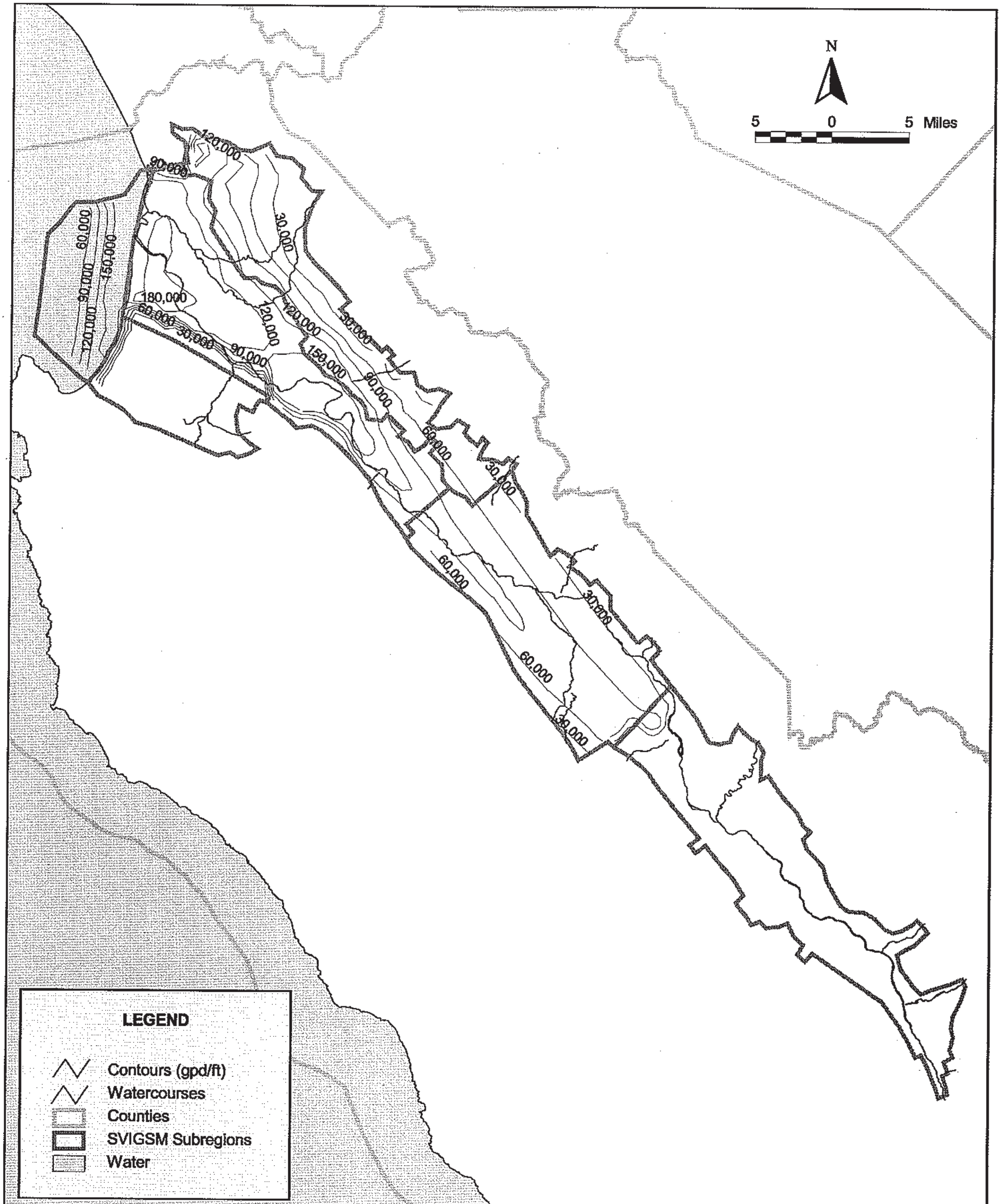
1. Horizontal hydraulic conductivity,
2. Storativity of the deep aquifers,
3. Vertical hydraulic conductivity of the aquitard above upper deep aquifer, and between the upper and lower deep aquifers; and
4. Streambed Parameters

Following is a brief discussion of the modifications:

Horizontal Hydraulic Conductivity

The model hydraulic conductivity parameters are adjusted to bring the model into calibration. Because the transmissivity values for the deep aquifers in the original model was based on model calibration with observed groundwater heads, the goal of this recalibration effort was to preserve the range of original transmissivity values. In addition, Table 2.2 provides additional set of data for model recalibration. Therefore, the changes to the model hydraulic conductivity values were first achieved by replacing the original parameters with equivalent ones, so that the total transmissivity of each model layer remained about the same as in the three-layer model. It was assumed that the transmissivity of model layer 3 (upper deep aquifer) and layer 4 (lower deep aquifer) are similar. Figure 3.11 shows the transmissivity for Layer 3 in the original model. Figures 3.12 and 3.13 show the hydraulic conductivity for Layer 3 in the original and revised models, respectively. Figure 3.14 shows the hydraulic conductivity for Layer 4 in the revised model. Subsequently, additional localized refinements were made to incorporate information from Table 2.2 into the model.

Based on the contour maps of saturated thickness from Thorup, and as discussed in Section 2 of this report, the total saturated thickness of the aquifer system in the Upper Valley area is more in the revised model than in the original model. As such, an equivalent hydraulic conductivity for the one-layer aquifer system in the Upper Valley was also developed based on the same



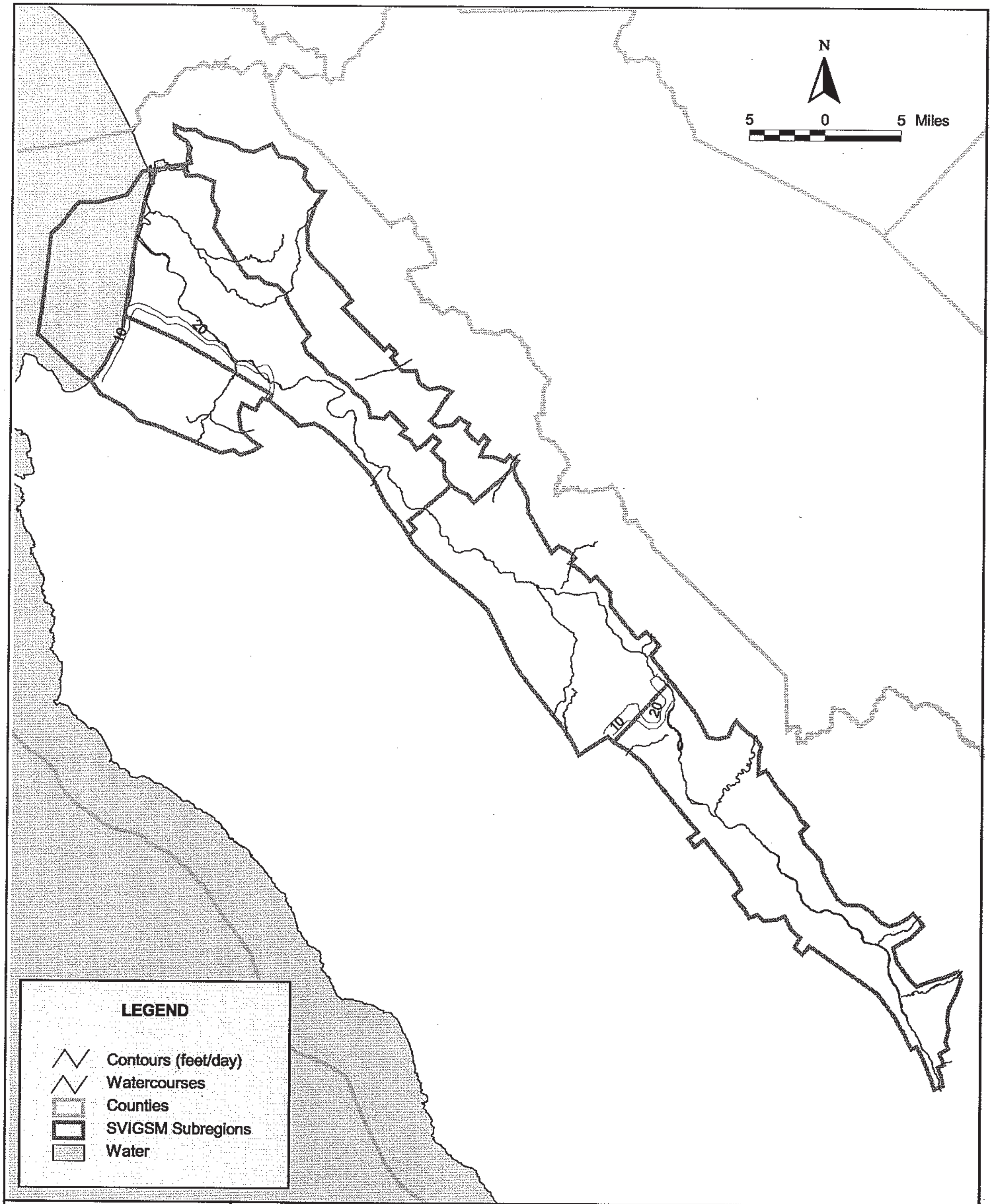
RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Transmissivities in gpd/ft for Original Model Layer 3

MAY 2003

FIGURE 3.11



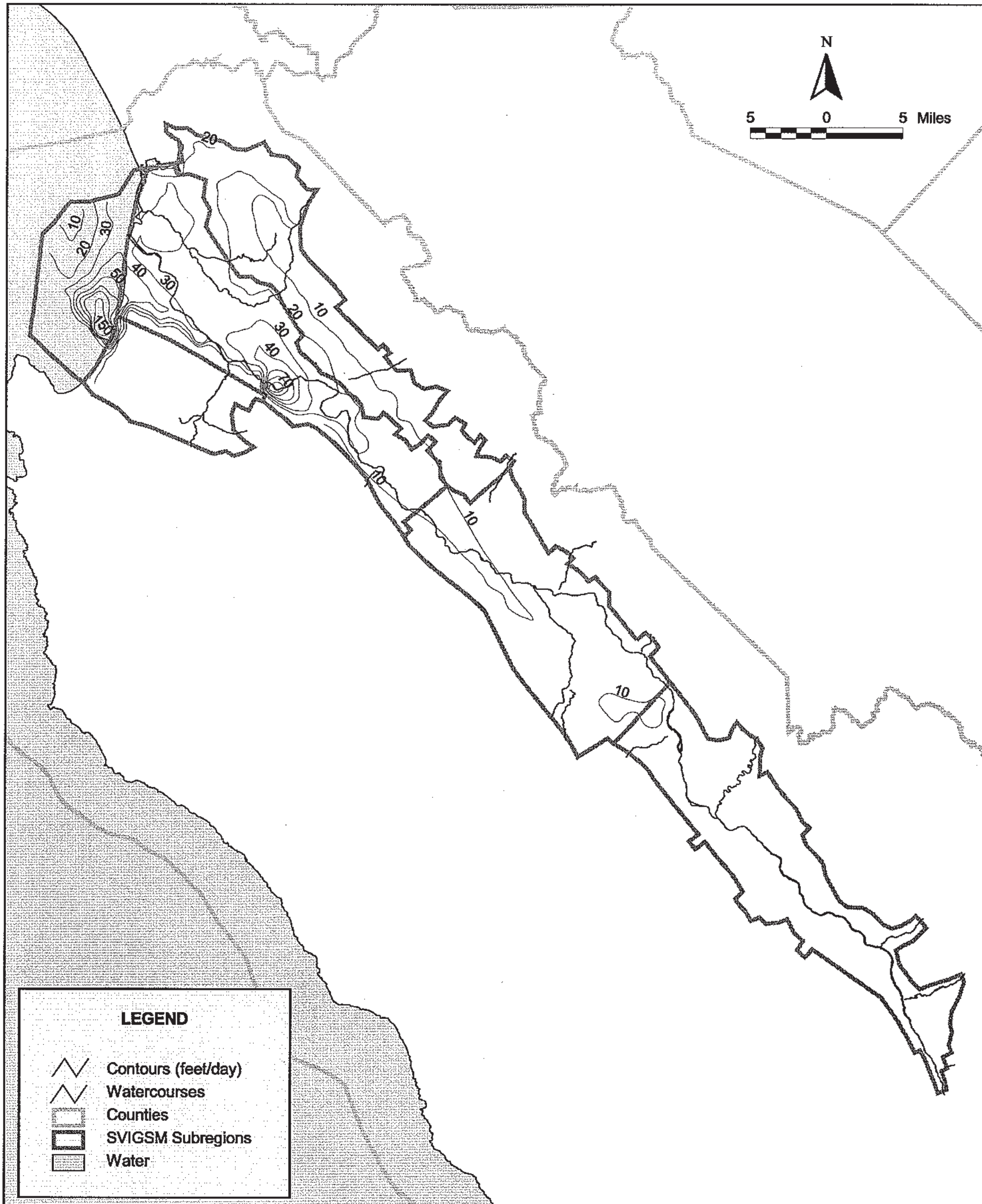
RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Hydraulic Conductivities for Original Model Layer 3

MAY 2003

FIGURE 3.12



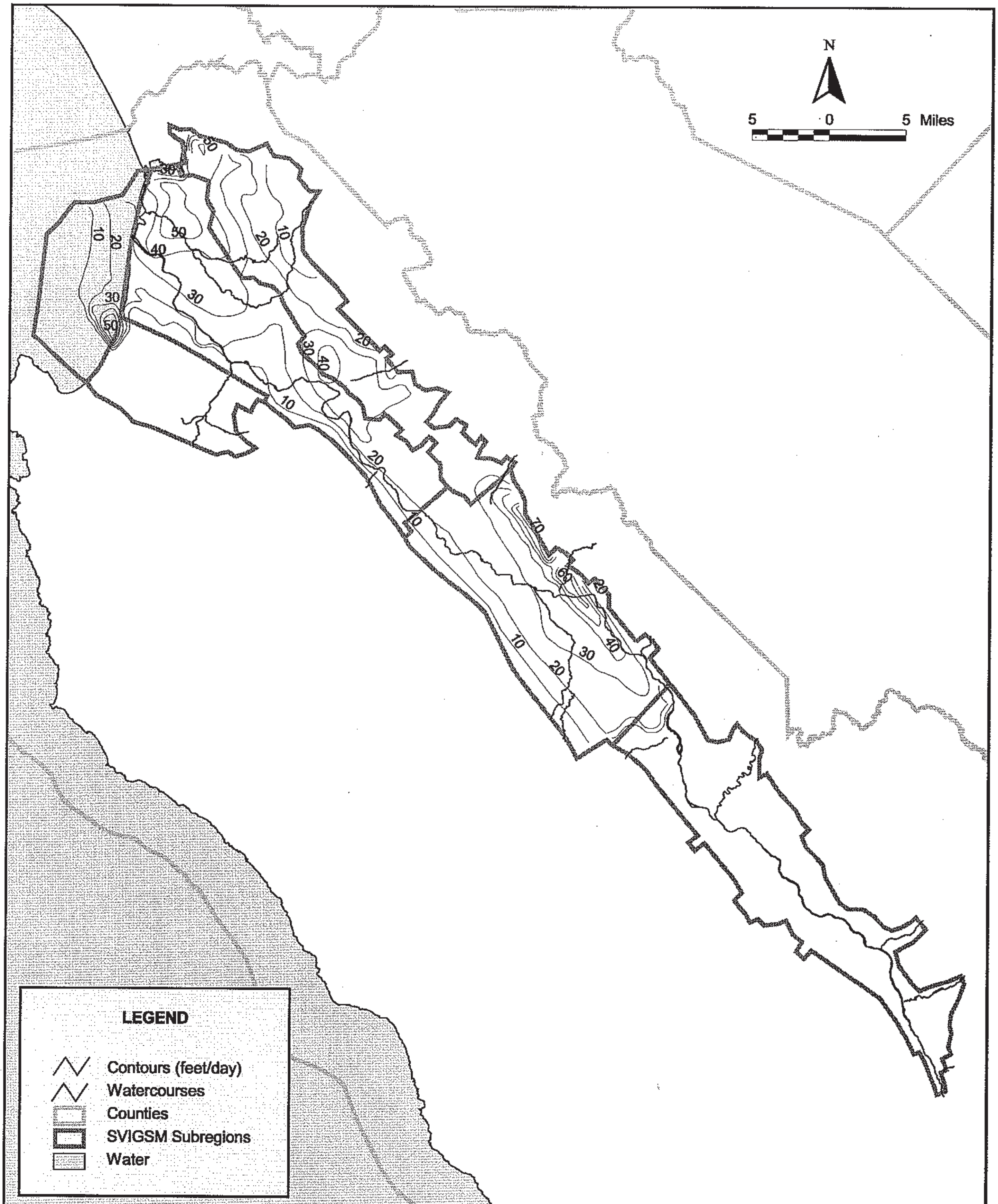
RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Hydraulic Conductivities for Revised Model Layer 3

MAY 2003

FIGURE 3.13



RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Hydraulic Conductivities for Revised Model Layer 4

MAY 2003

FIGURE 3.14

method as used in the deep aquifers system. Figures 3.15 and 3.16 show the hydraulic conductivities of the original model and the revised model layer 1.

Storativity of Deep Aquifers

The changes in the thickness of the deep aquifers from the original model require modifications to the storativity parameters so that seasonal responses of the simulated groundwater levels are similar to those in the observed groundwater level data. The storage coefficient in the 3-Layer SVIGSM was $5x10^{-5}$. The storage coefficient of the deep aquifers was reduced by approximately one order of magnitude, such that the resulting Storage coefficient ranges from $1x10^{-6}$ to $5x10^{-6}$. These changes were focused on the northwestern area of the model.

Vertical Hydraulic Conductivity of Aquitards

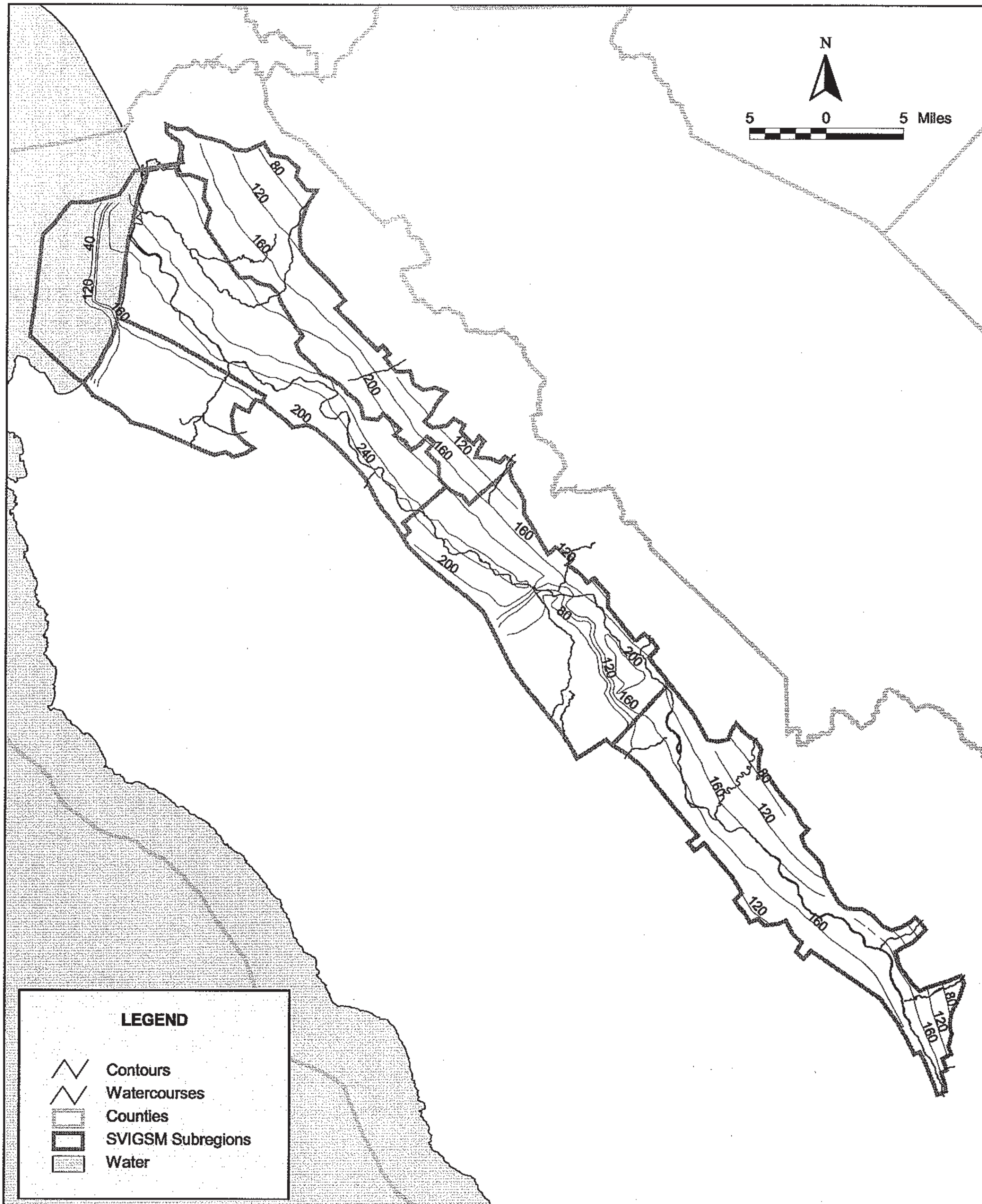
As a result of changes to the thickness of the upper deep aquifer, the hydraulic connection between the upper deep and the 400-foot aquifers need to be revised. The vertical hydraulic conductivity for the aquitard above the upper deep aquifer is modified to ensure that the model leakage between the 400-foot and the upper deep aquifer remains approximately the same as the original model. The vertical hydraulic conductivity in the MCWD area is $3.6 \ x10^{-3}$ ft/day and the aquitard thickness ranges from about 50 to 150 feet in and around MCWD.

As discussed in Section 2 of this report, the observed groundwater heads in wells 10, 11, and 12 indicate that there may be a separation in hydraulic connection between the upper and lower deep aquifers. In order to simulate this condition, as well as calibrate the model to the observed groundwater heads at these wells, a 10-Ft aquitard is assumed between the upper and lower deep aquifers. This aquitard thickness is merely to add calibration control for modeling purposes, and is not based on any hydrogeologic information. The vertical hydraulic conductivity between the upper and lower deep aquifers, in the MCWD area, is $3.6x10^{-4}$ ft/day

Streambed Parameters

Average annual streamflow depletions in the previous version of the SVIGSM were compared with the updated version of SVIGSM. Due to changes in hydraulic conductivity of model layer 1, the streamflow depletions of the two model versions did not match. Hydraulic conductivity values of the streambed were modified so that a better match of simulation streamflow depletion values was achieved. The following represents the changes made to the streambed hydraulic conductivities from the original model:

1. Salinas River conductivities were increased in the Upper Valley subarea;



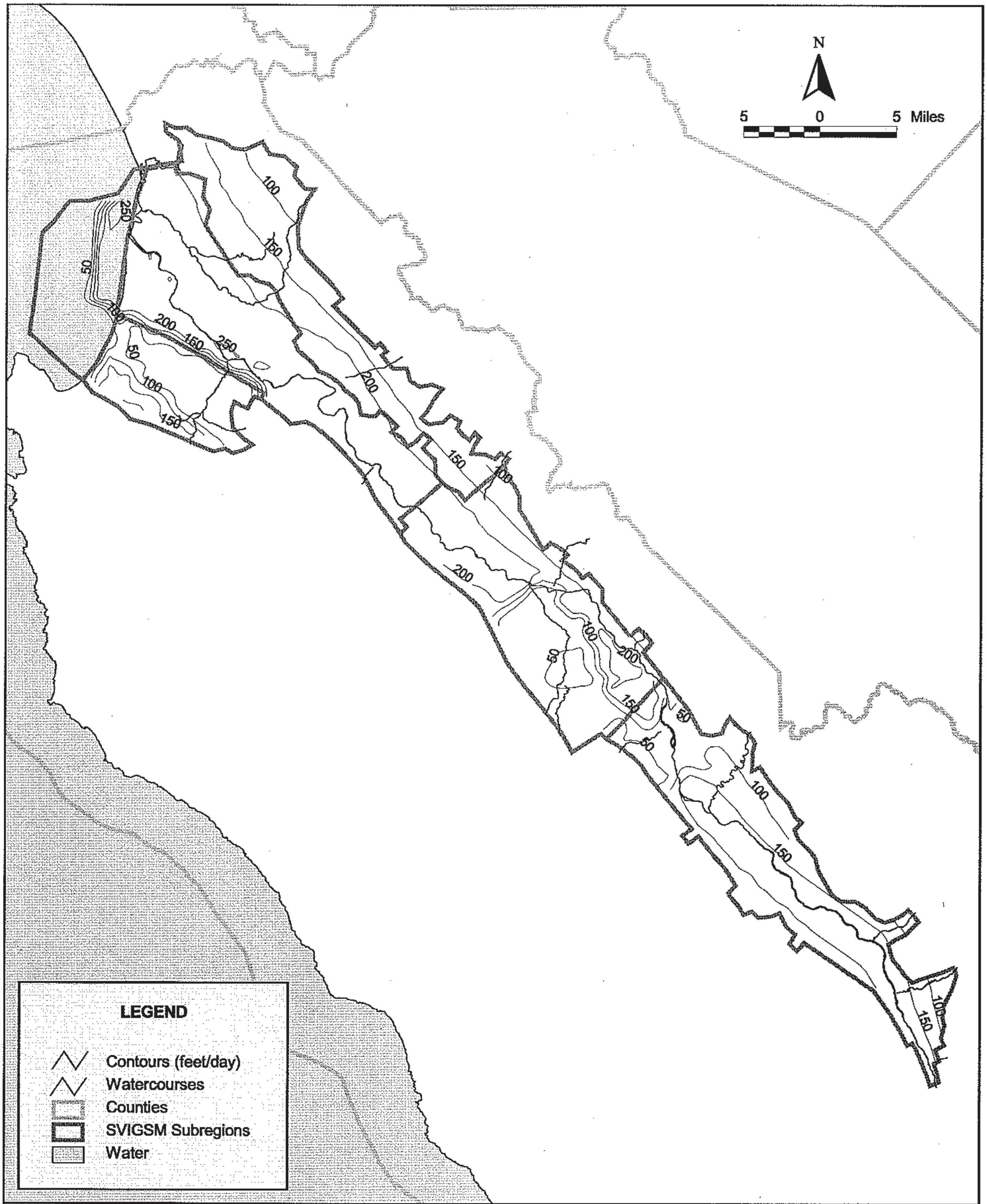
WRIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Hydraulic Conductivities for Original Model Layer 1

MAY 2003

FIGURE 3.15



RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Hydraulic Conductivities for Revised Model Layer 1

MAY 2003

FIGURE 3.16

2. Arroyo Seco River conductivities were slightly reduced in the Forebay Subarea; and

3. Salinas River conductivities in the Pressure Subarea above El Toro Creek were increased.

As a result of the recalibration efforts, there was a better match of simulated groundwater levels with the previously simulated groundwater levels and with observed groundwater levels. Figures 3.17a through 3.17d show the distribution of residuals for each subarea over the simulation period. Figures 3.18a through 3.18e show the distribution of errors in the simulated and historic groundwater levels in the entire model area as well as in each subarea. The distributions of residual groundwater levels show the percentage or residuals within the specified ranges. Again, a higher percentage of residuals near zero and one that is more centered on zero indicate a better simulation of historical conditions. Model performances for the entire model area and each subarea are summarized below based on these statistical evaluations. A comparison of Figures 3.2a–3.2d and 3.18a–3.18e indicates that quality of model calibration in the revised version of SVIGSM is as good as or better than the original version.

<u>Model Area.</u> Nearly all simulated groundwater levels (approximately 91%) for the entire model area are within 20 feet of observed groundwater levels. Approximately 80% of simulated groundwater levels are within 10 feet of observed groundwater levels. These are better statistical results than what was determined in the previous version of SVIGSM.

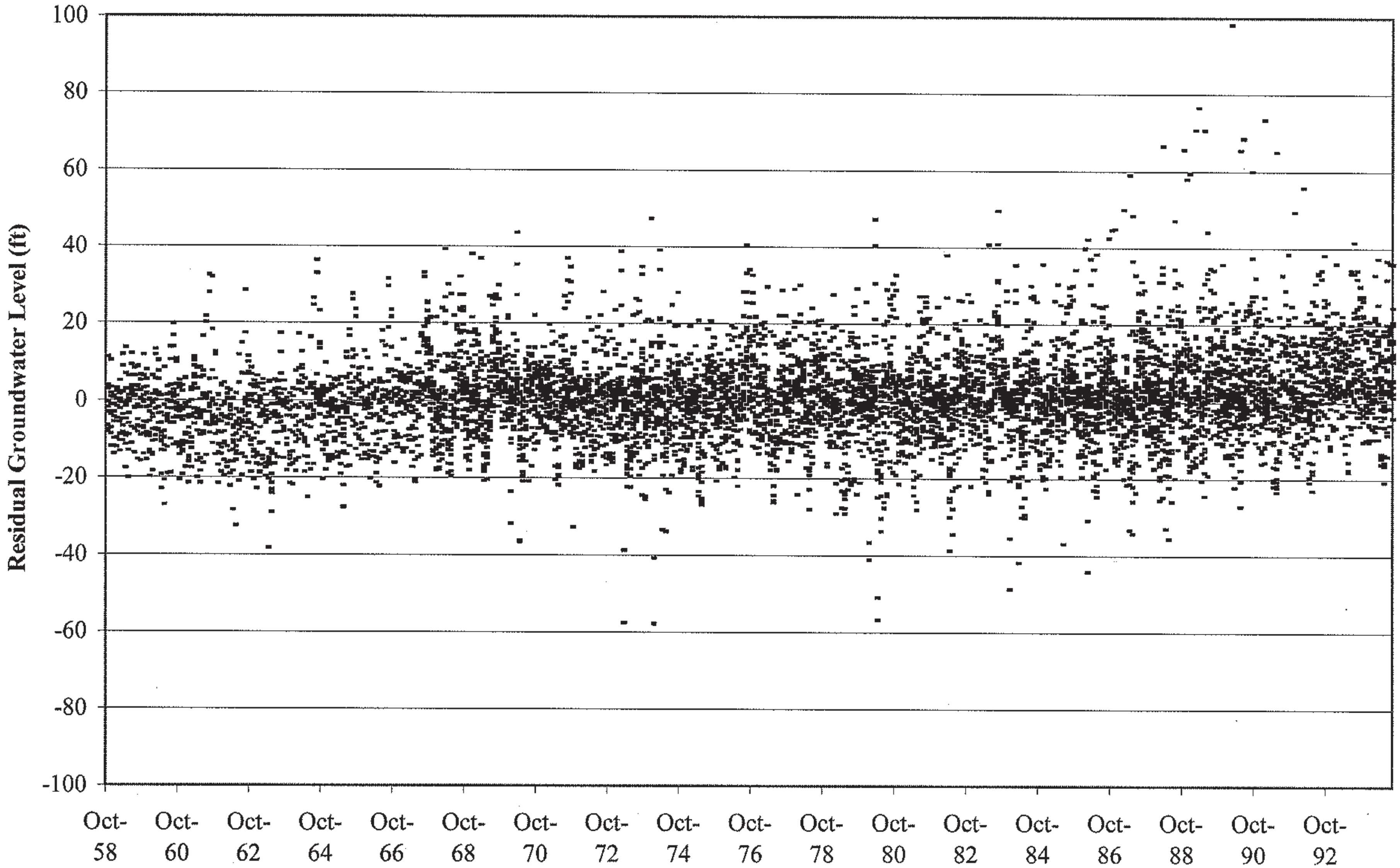
<u>Pressure Subarea</u>. The majority of the simulated groundwater levels (approximately 80%) lie within 10 feet of observed groundwater levels.

<u>East Side Subarea</u>. Distributions of the residuals show that approximately 55% of simulated groundwater levels are within 10 feet of observed groundwater levels. This is consistent with the previous SVIGSM version.

<u>Forebay Subarea</u>. The distribution of residuals shows good calibration between simulated and observed groundwater levels. Overall, 75% percent are within 10 feet of each other. The distributions appear to be normally shaped except for the Forebay deep aquifers that show a bias of the model in underestimating groundwater levels. These results are not as good as the statistical results from the previous SVIGSM version.

<u>Upper Valley Subarea</u>. Simulated groundwater levels tend to match observed groundwater levels. All simulated values are within 20 feet of observed groundwater levels.

Figure 3.2 shows the location of the calibration wells, including the MCWD production wells. Figures 3.19 through 3.21 show the hydrographs for each of the wells. These Figures indicate



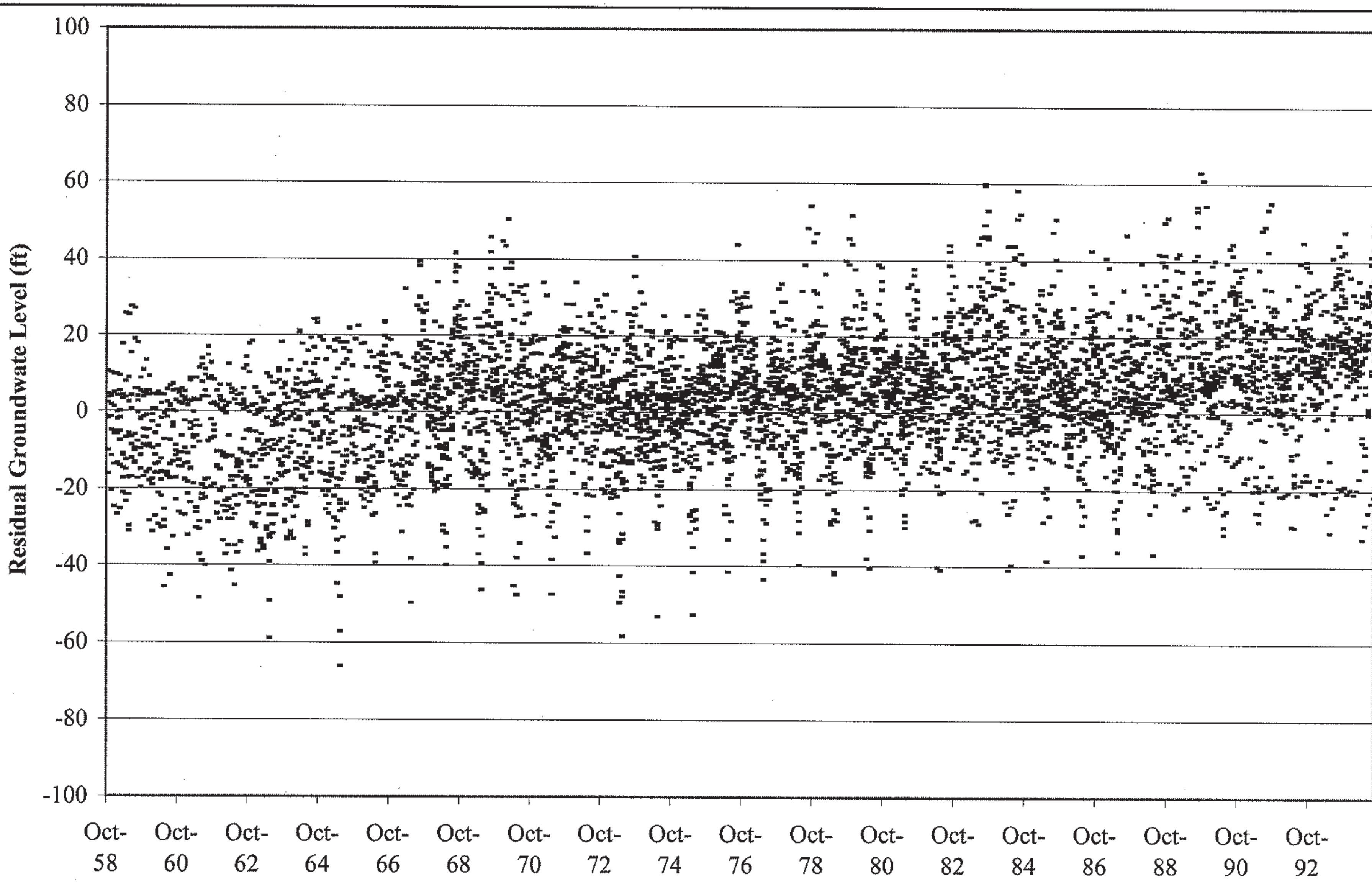
RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Residual Groundwater Level between SVIGSM Version 5.0 and Historic Data in the Pressure Subarea - 4 Layer Model for Water Years 1959 through 1994

MAY 2003

FIGURE 3.17a



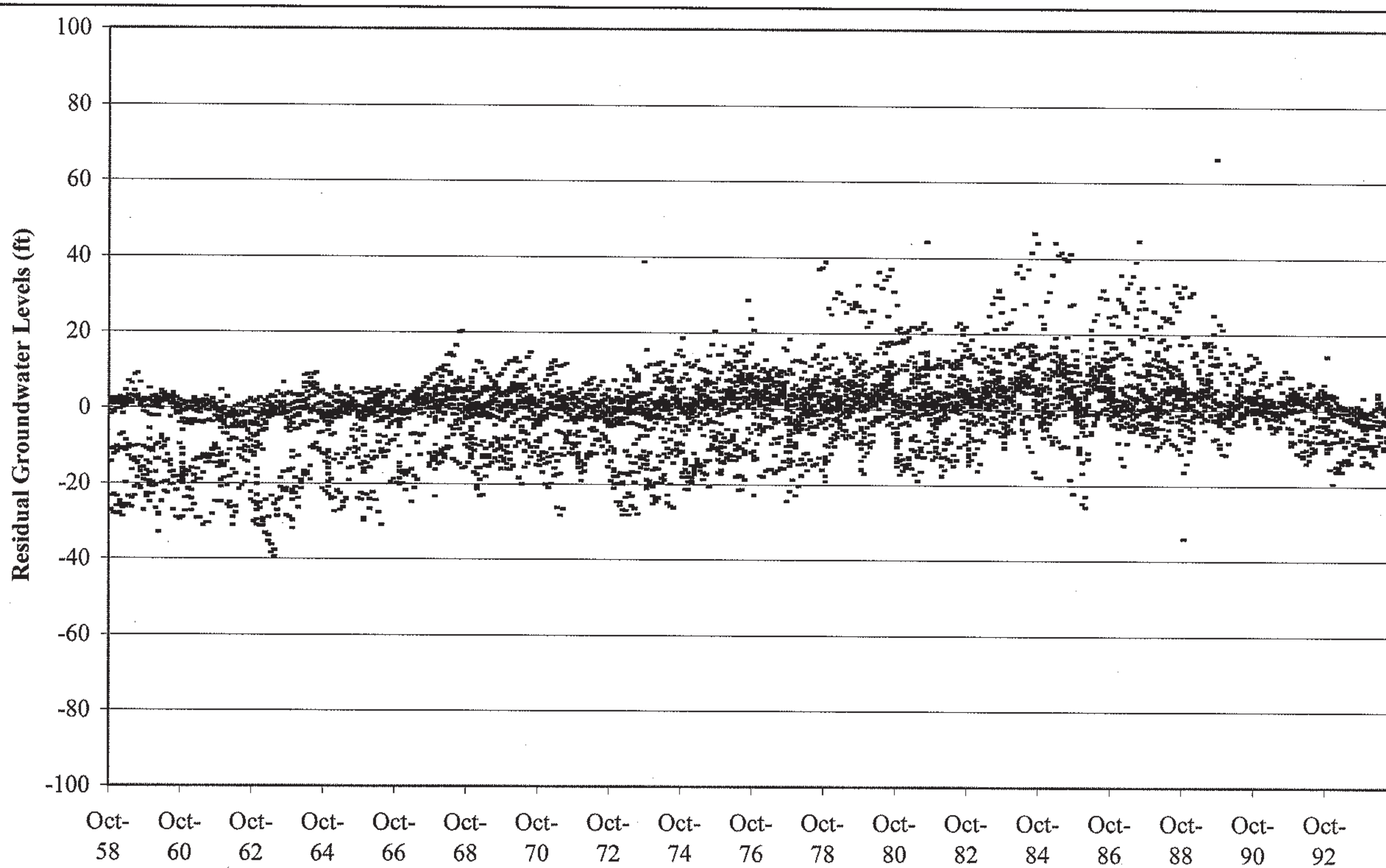
PRIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

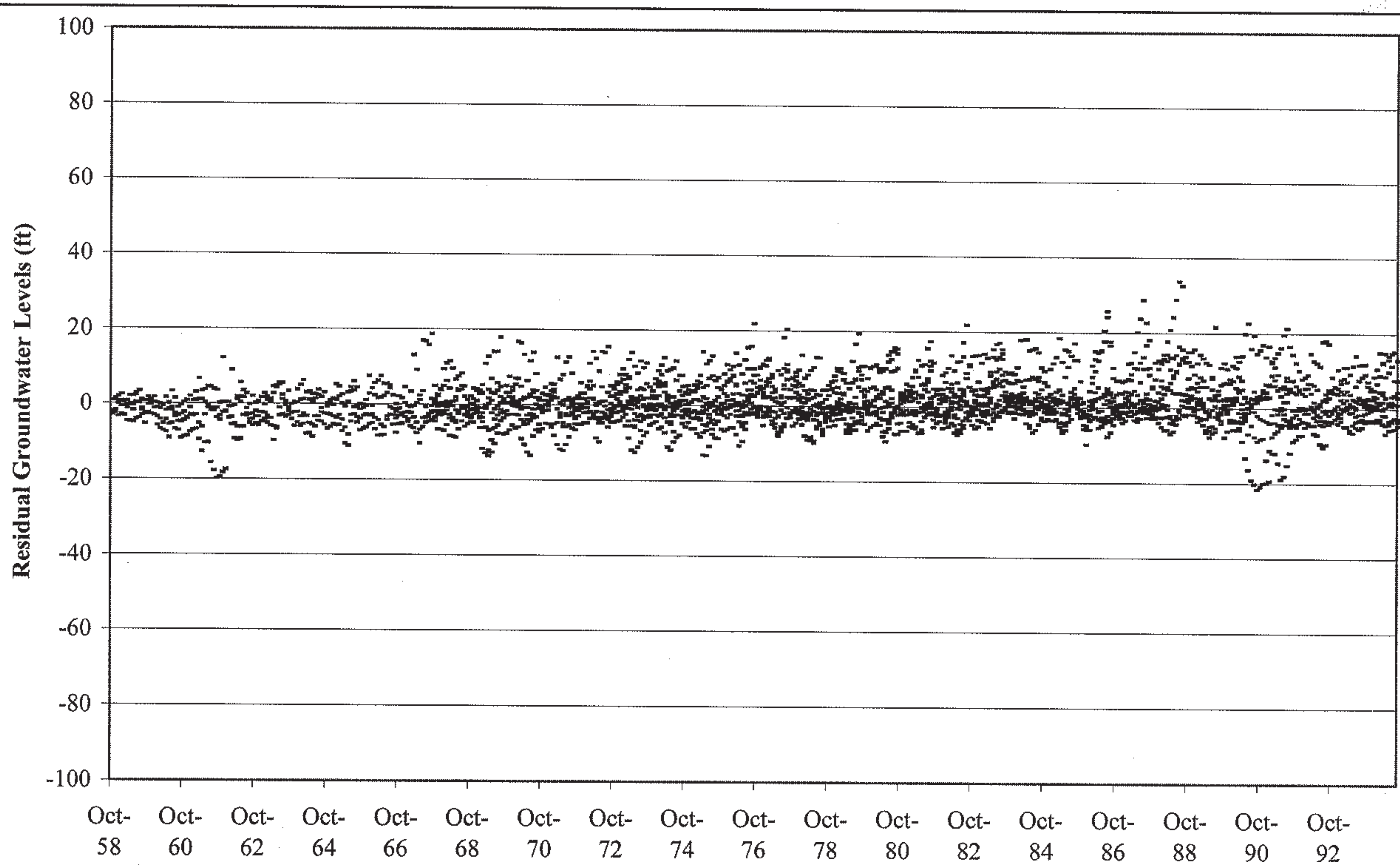
Residual Groundwater Level between SVIGSM Version 5.0 and Historic Data in the East Side Subarea - 4 Layer Model for Water Years 1959 through 1994

MAY 2003

FIGURE 3.17b



RIME	MARINA COAST WATER DISTRICT DEEP AQUIFER INVESTIGATIVE STUDY **Residual Groundwater Level between SVIGSM Version 5.0 and Historic Data in the Forebay Subarea - 4 Layer Model for Water Years 1959 through 1994**	MAY 2003 FIGURE 3.17c



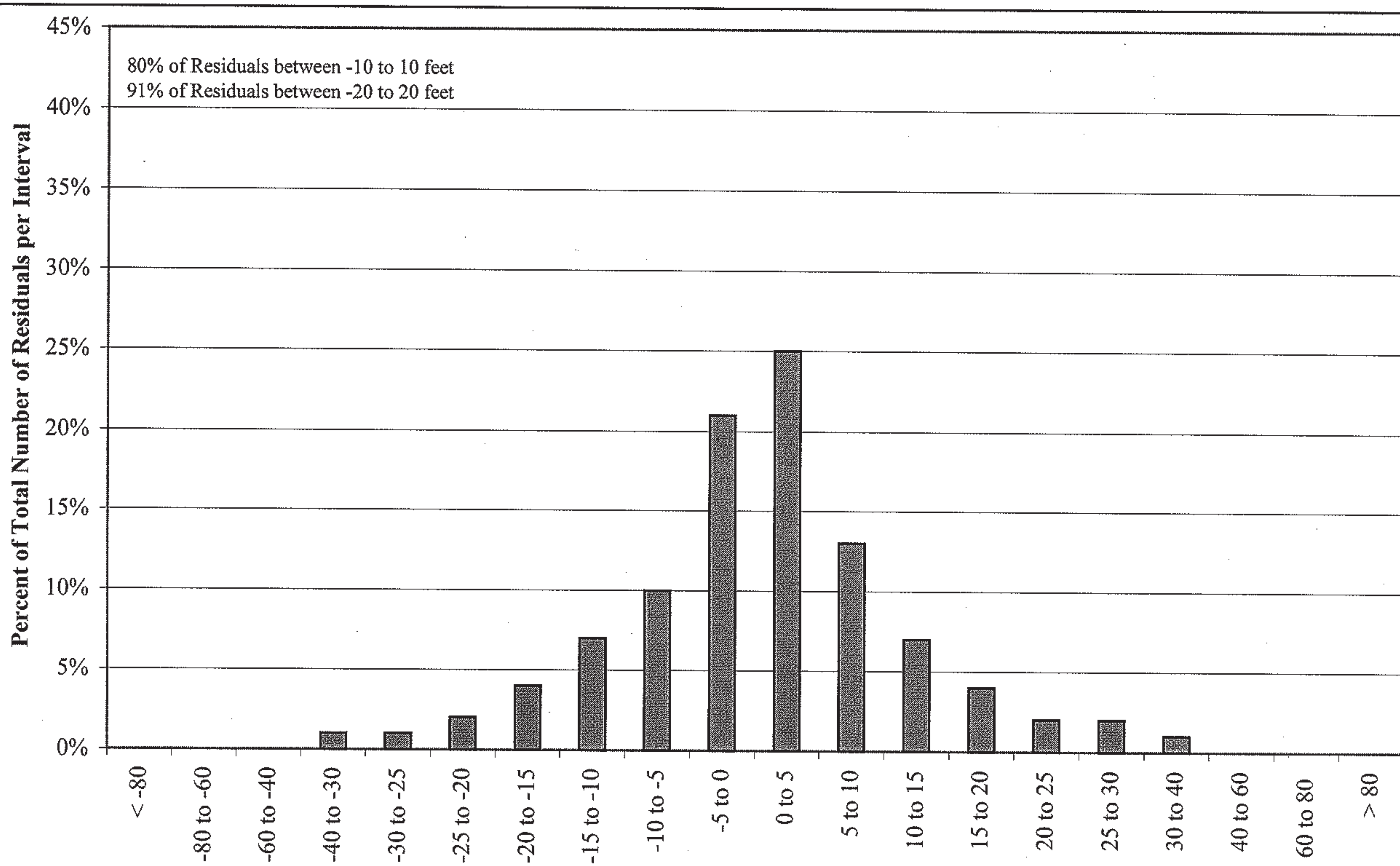
RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Residual Groundwater Level between SVIGSM Version 5.0 and Historic Data in the Upper Valley Subarea - 4 Layer Model for Water Years 1959 through 1994

MAY 2003

FIGURE 3.17d



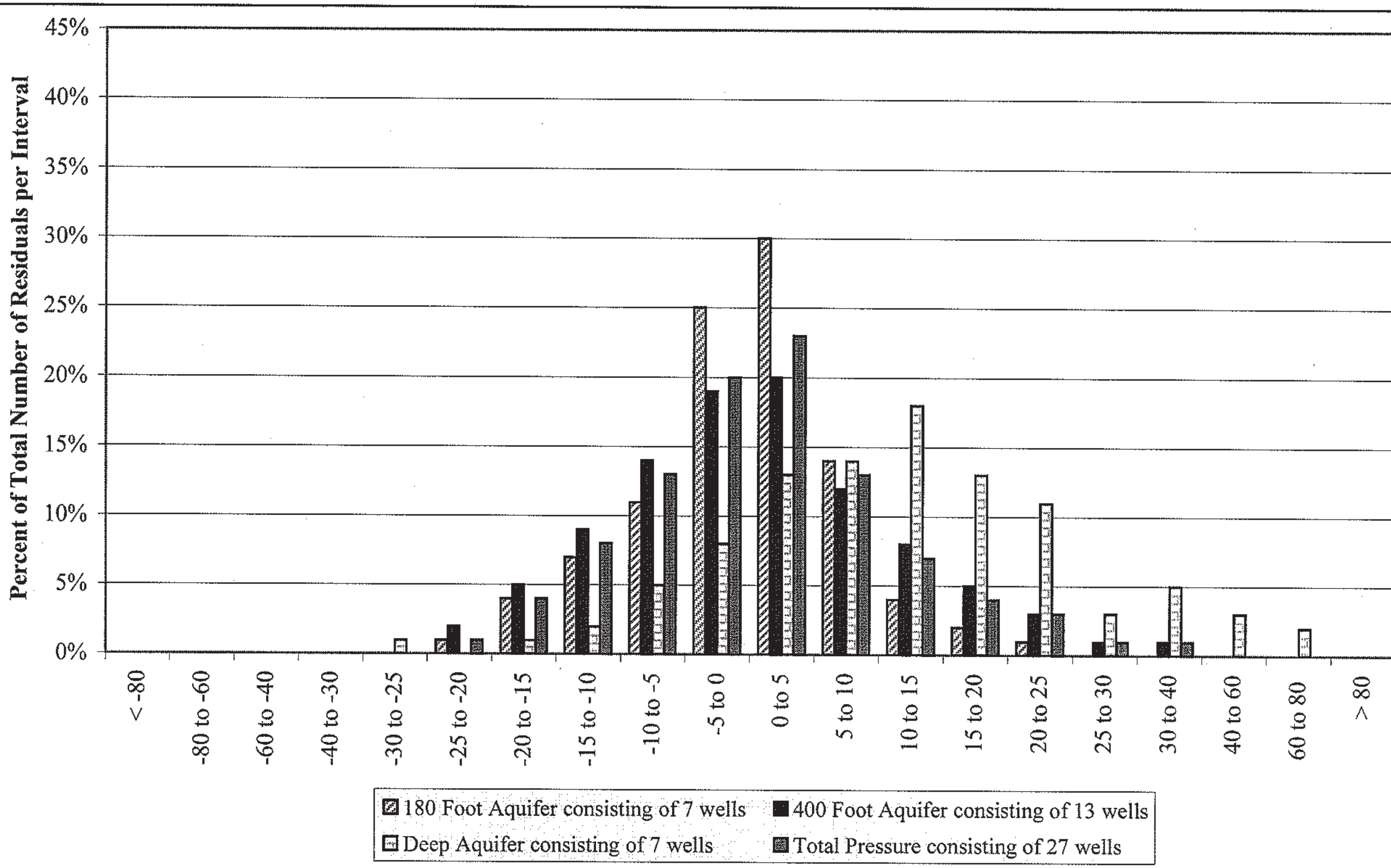
RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

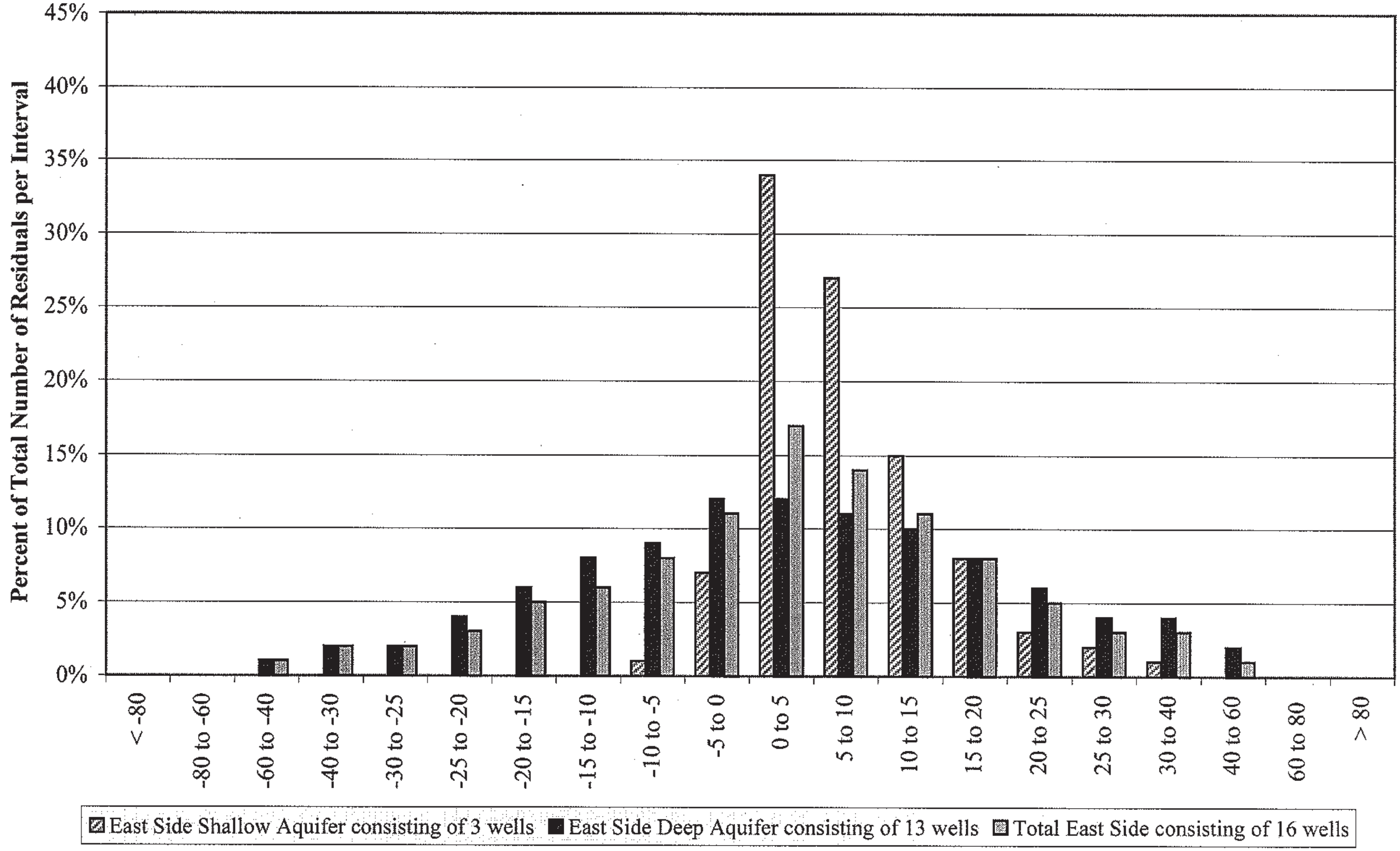
Histogram of Residual Groundwater Levels between SVIGSM Version 5.0 and Historic Data - 4 Layer Model for Water Years 1959 through 1994

MAY 2003

FIGURE 3.18a



RIME	MARINA COAST WATER DISTRICT DEEP AQUIFER INVESTIGATIVE STUDY **Histogram of Residual Groundwater Levels between SVIGSM Version 5.0 and Historic Data in Pressure Subarea - 4 Layer Model for Water Years 1959 through 1994**	MAY 2003 FIGURE 3.18b



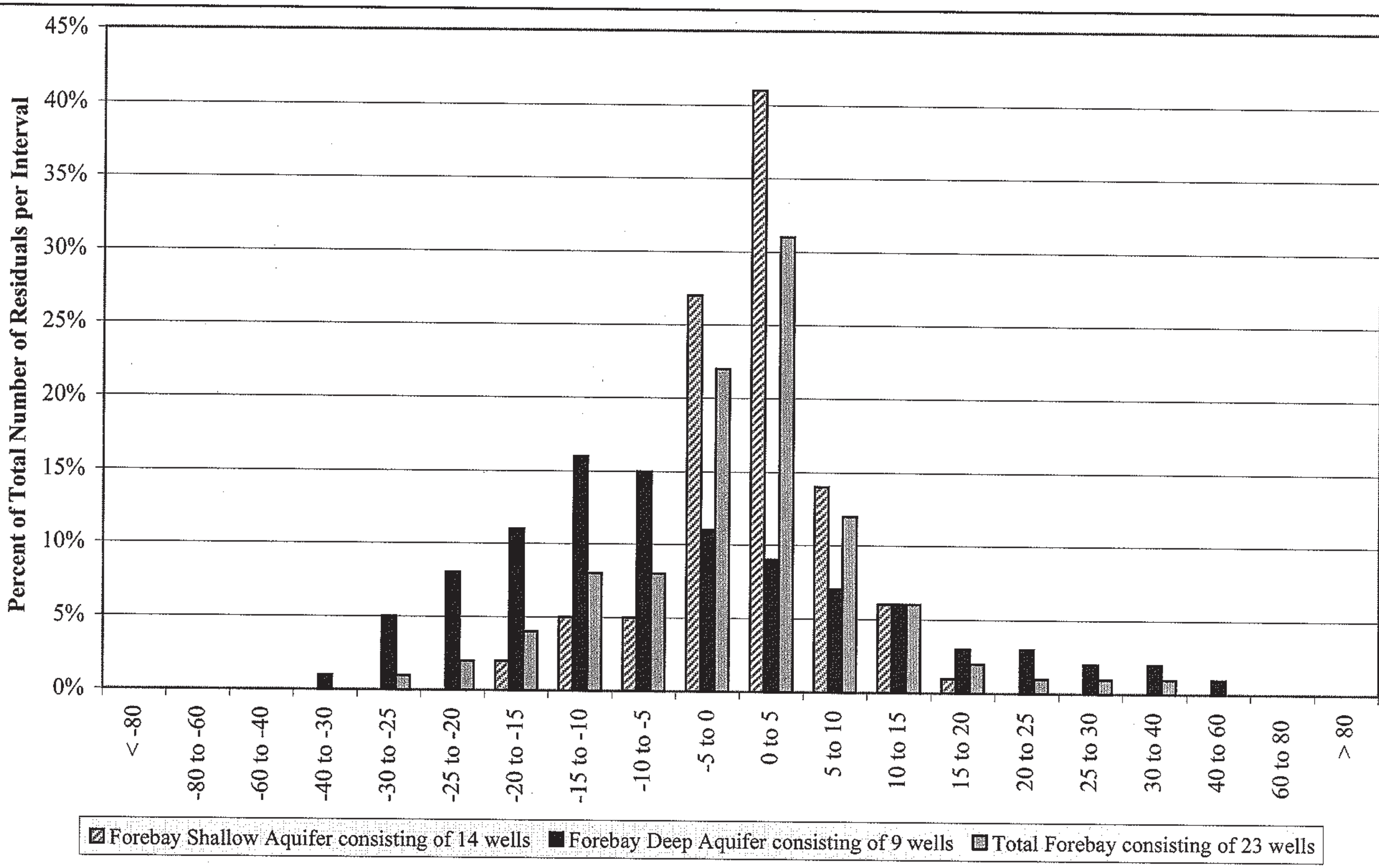
RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Histogram of Residual Groundwater Levels between SVIGSM Version 5.0 and Historic Data in East Side Subarea - 4 Layer Model for Water Years 1959 through 1994

MAY 2003

FIGURE 3.18c



MARINA COAST WATER DISTRICT

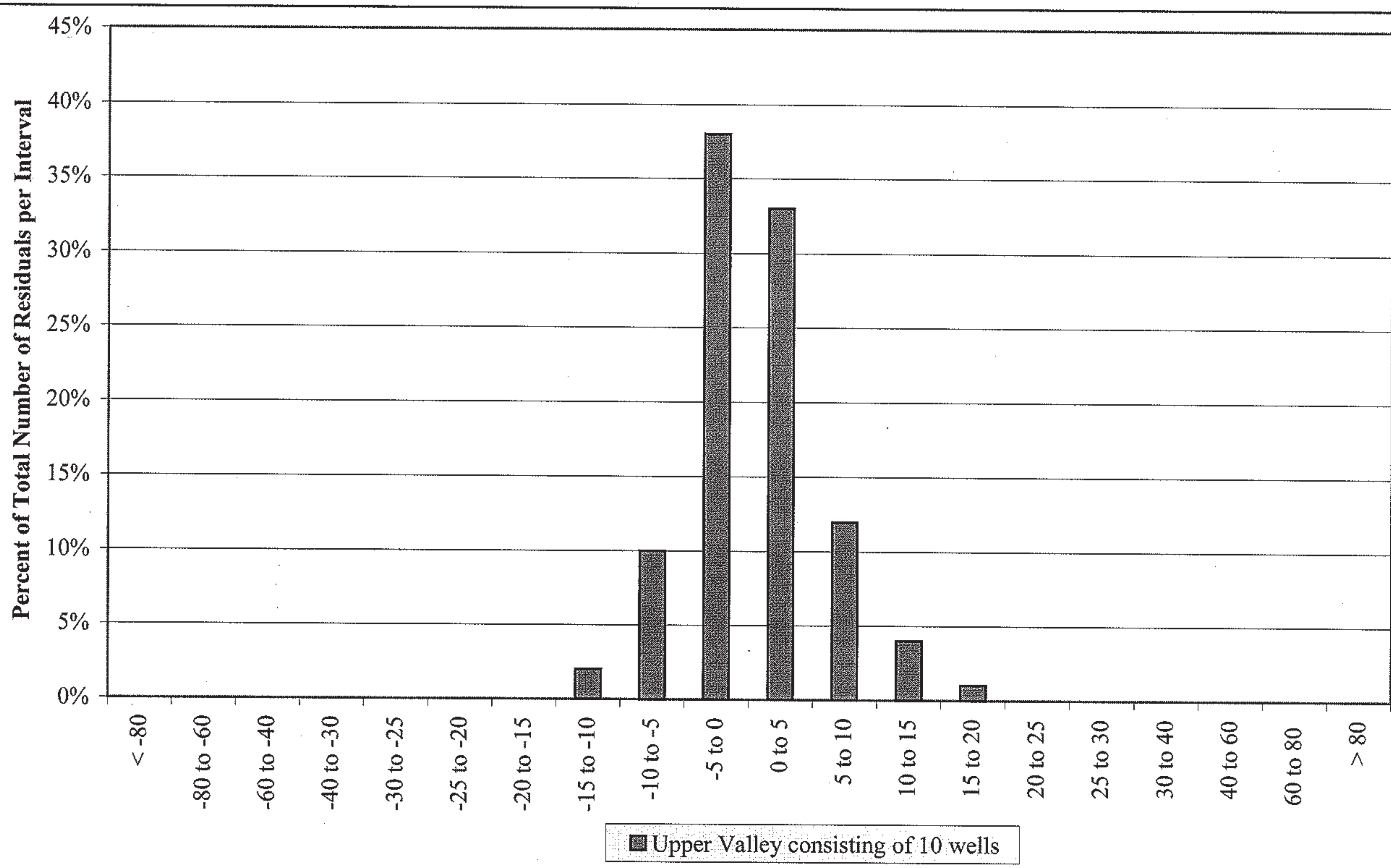
DEEP AQUIFER INVESTIGATIVE STUDY

Histogram of Residual Groundwater Levels between SVIGSM Version 5.0 and Historic Data in Forebay Subarea - 4 Layer Model for Water Years 1959 through 1994

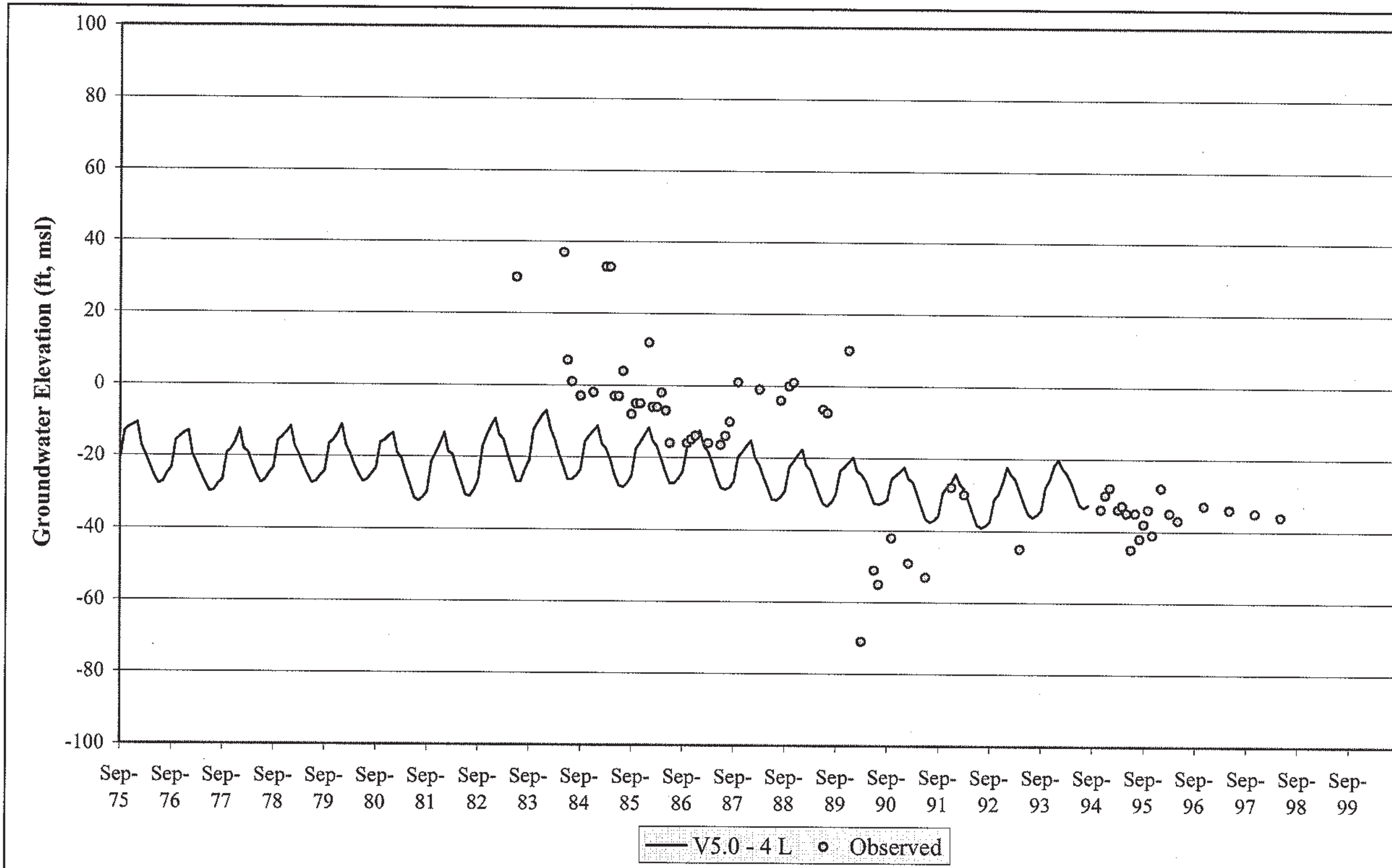
RIME

MAY 2003

Figure 3.18d



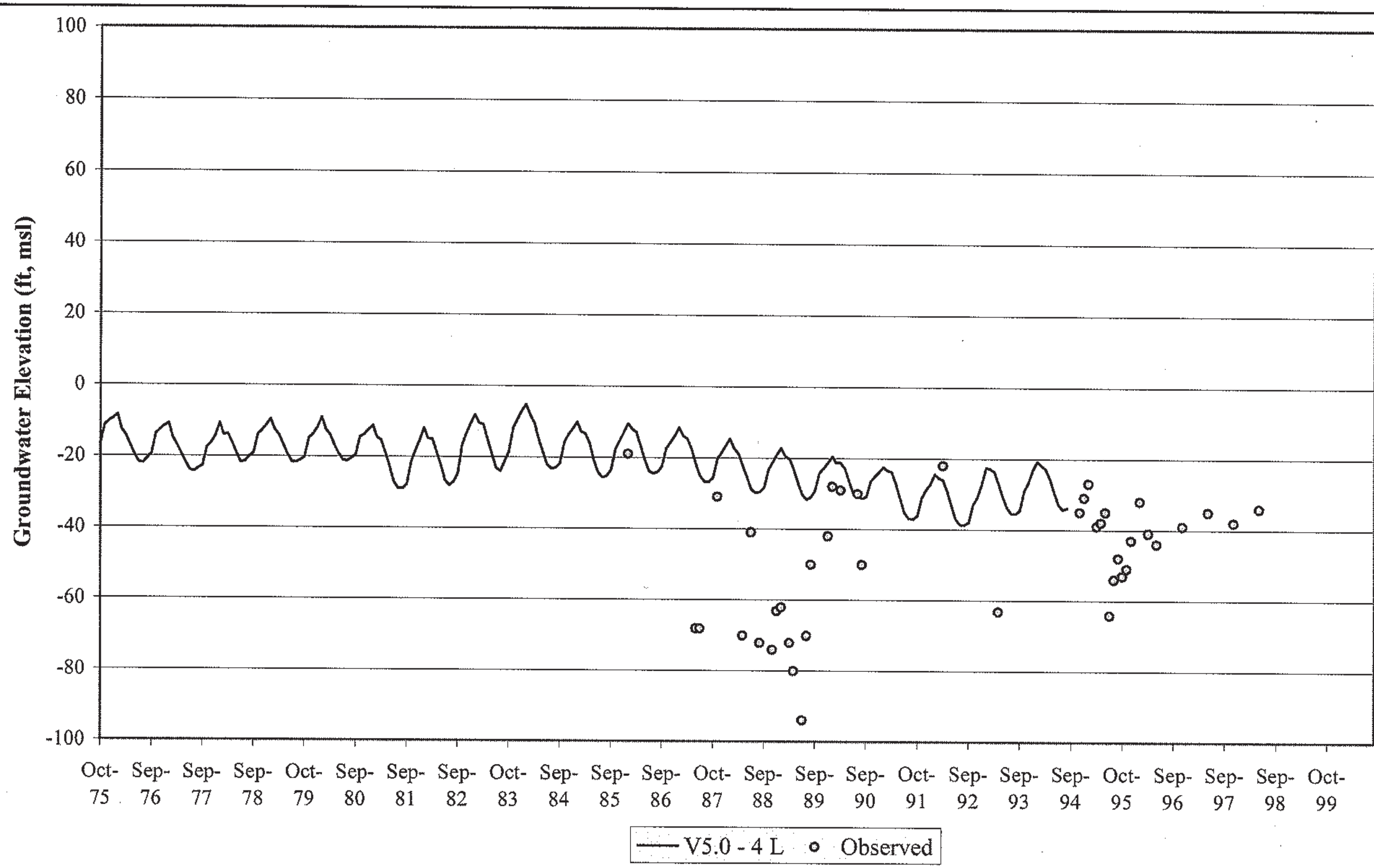
RIME	MARINA COAST WATER DISTRICT DEEP AQUIFER INVESTIGATIVE STUDY **Histogram of Residual Groundwater Levels between SVIGSM Version 5.0 and Historic Data in Upper Valley Subarea - 4 Layer Model for Water Years 1959 through 1994**	MAY 2003 Figure 3.18e



MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY
Calibration Well 74 - Pressure Subarea MCWD #10 - Upper Deep Aquifer

MAY 2003

FIGURE 3.19

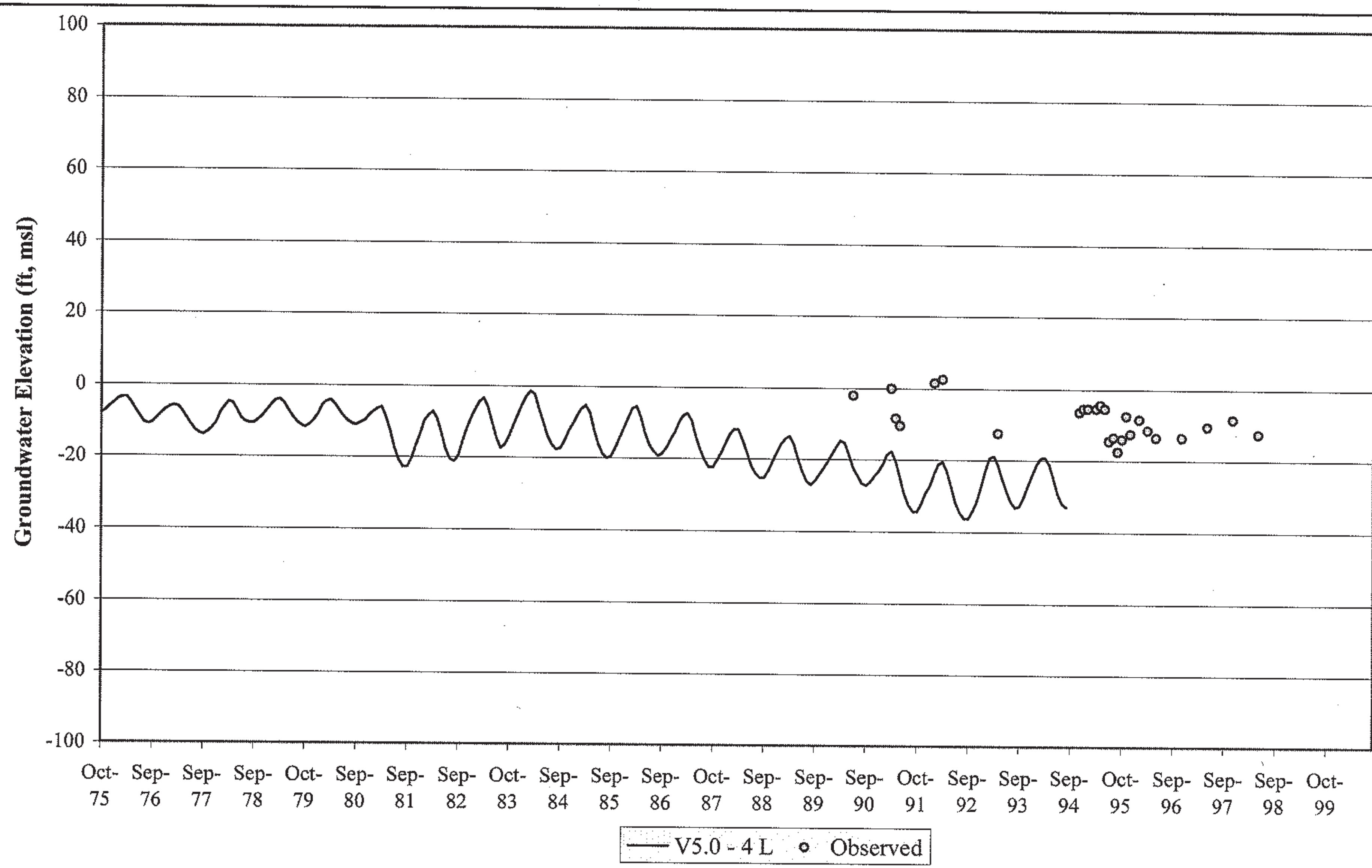


RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY
Calibration Well 75 - Pressure Subarea MCWD #11 - Upper Deep Aquifer

MAY 2003

FIGURE 3.20



RIME	MARINA COAST WATER DISTRICT DEEP AQUIFER INVESTIGATIVE STUDY	MAY 2003
	Calibration Well 76 - Pressure Subarea MCWD #12 - Upper Deep Aquifer	FIGURE 3.21

that the model is reasonably simulating the annual trends as well as the seasonal fluctuations in the MCWD wells although the levels may not match. It is noteworthy that these wells are currently assigned as pumping wells in the model. As such, the simulated groundwater heads potentially represent dynamic heads.

BASELINE CONDITION

The baseline conditions developed for the Salinas Valley Water Project were adopted for this effort. The following are changes made to the baseline conditions scenario:

1. Updated stratigraphy data were included;
2. Updated groundwater pumping for MCWD was simulated using MCWD wells at a rate of approximately 2,400 AFY;
3. MCWD wells 10 and 11 pump from Layer 3 and accounts for 73% of groundwater production and Well 12 pumps from Layer 4 and accounts for 27% of groundwater production; and
4. Updated aquifer and streambed parameters were included.

The baseline conditions were simulated and used in the Water Supply Reliability and Safe Yield analysis.

SECTION 4 WATER SUPPLY RELIABILITY AND SAFE YIELD ANALYSIS

DEFINITION

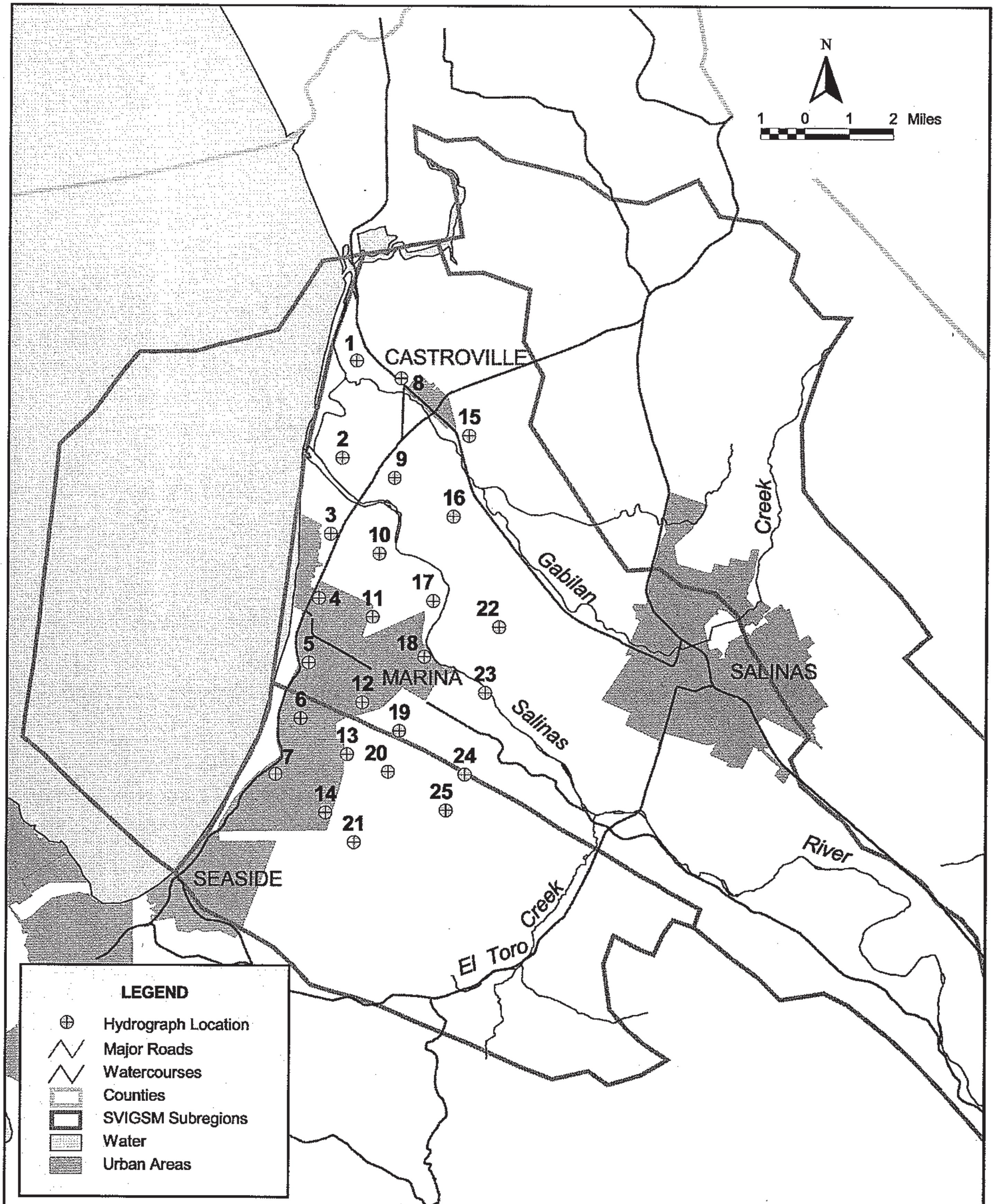
The textbook definition of "safe or sustainable yield" of an aquifer system is the average annual withdrawal that can be taken from the groundwater system without causing a long-term degrading effect in the quantity or quality of the groundwater. This limited definition assumes that the groundwater system is an isolated system without interaction with the surface water processes, such as a stream system. Moreover, the definition is not applicable to an integrated and multi-layered groundwater system in which the operation of one layer affects the groundwater levels in the adjacent layers. In general, safe or sustainable yield may depend on the following factors:

1. The hydrologic period considered to estimate the safe yield;
2. The importance of the groundwater system as a source of supply, compared to other potential sources; and
3. The degree of tolerance in the degradation of quality or decline in quantity of groundwater.

Therefore, a more practical definition for the safe or sustainable yield of a multi-layered and integrated aquifer system is the average annual withdrawal from the aquifer layer or the aquifer system, such that the long-term quantity and quality of the aquifer system as a whole is not degraded.

SAFE YIELD ANALYSIS

To evaluate the safe or sustainable yield of the deep aquifers, a set of response curves are developed to represent the impacts of changing groundwater pumping in MCWD wells. The baseline groundwater pumping at the three MCWD wells is 2,400 AFY; 1,750 AFY from layer 3, and 650 AFY from layer 4. These curves relate changes in MCWD baseline groundwater pumping in the following: 1) average groundwater levels in each layer; 2) groundwater flow across the coast; and 3) vertical groundwater flow between the aquifer layers. In order to monitor the changing groundwater levels in the coastal areas, a set of monitoring locations were assigned in the model. Figure 4.1 shows the locations of 25 points used to monitor changing groundwater levels over time. Figures 4.2 through 4.5 show the response of average groundwater levels to changes in MCWD baseline groundwater pumping.



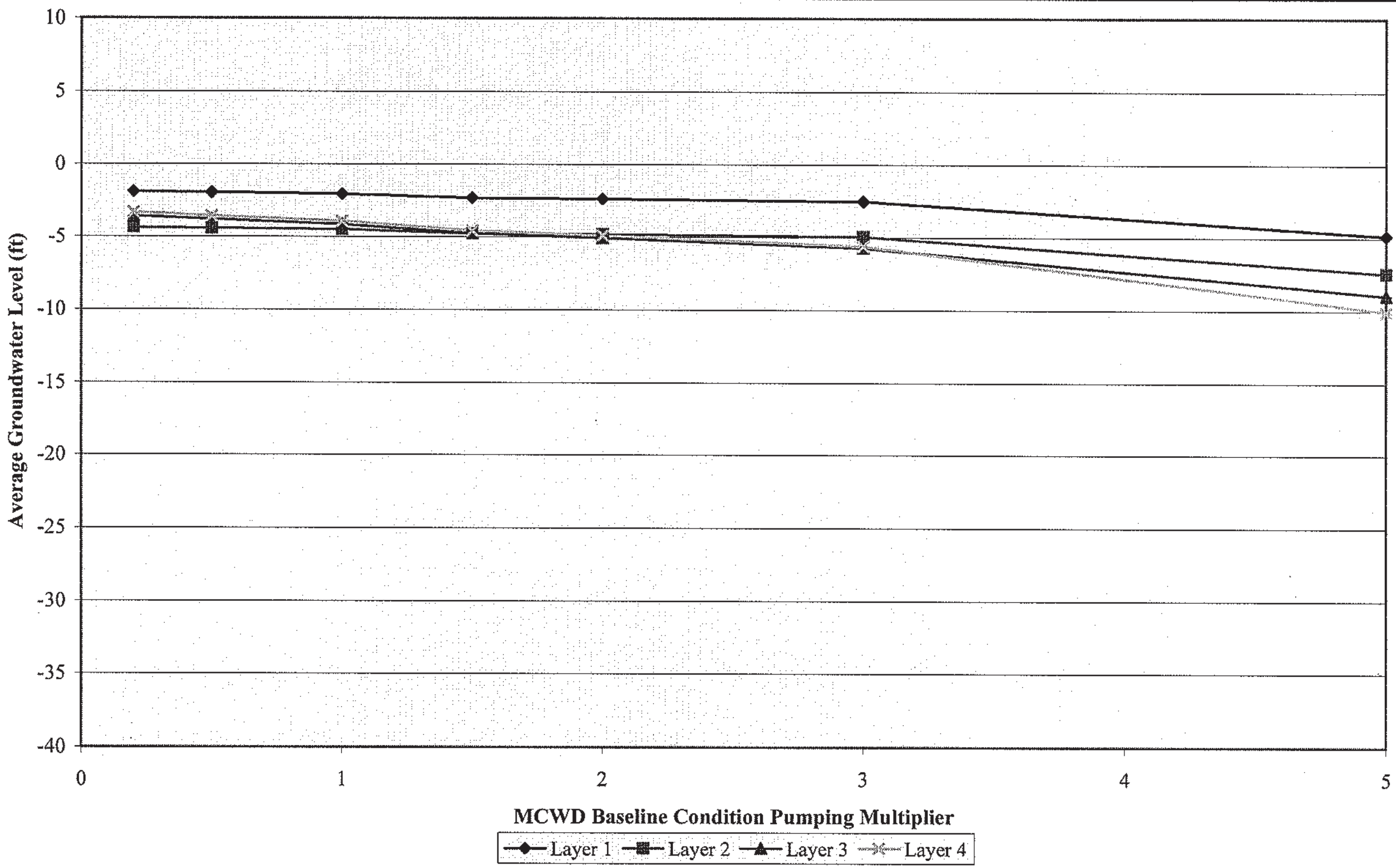
RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Pumping Sensitivity Analysis
Hydrograph Location Map

MAY 2003

FIGURE 4.1



Baseline conditions occur when x-axis is equal to 1

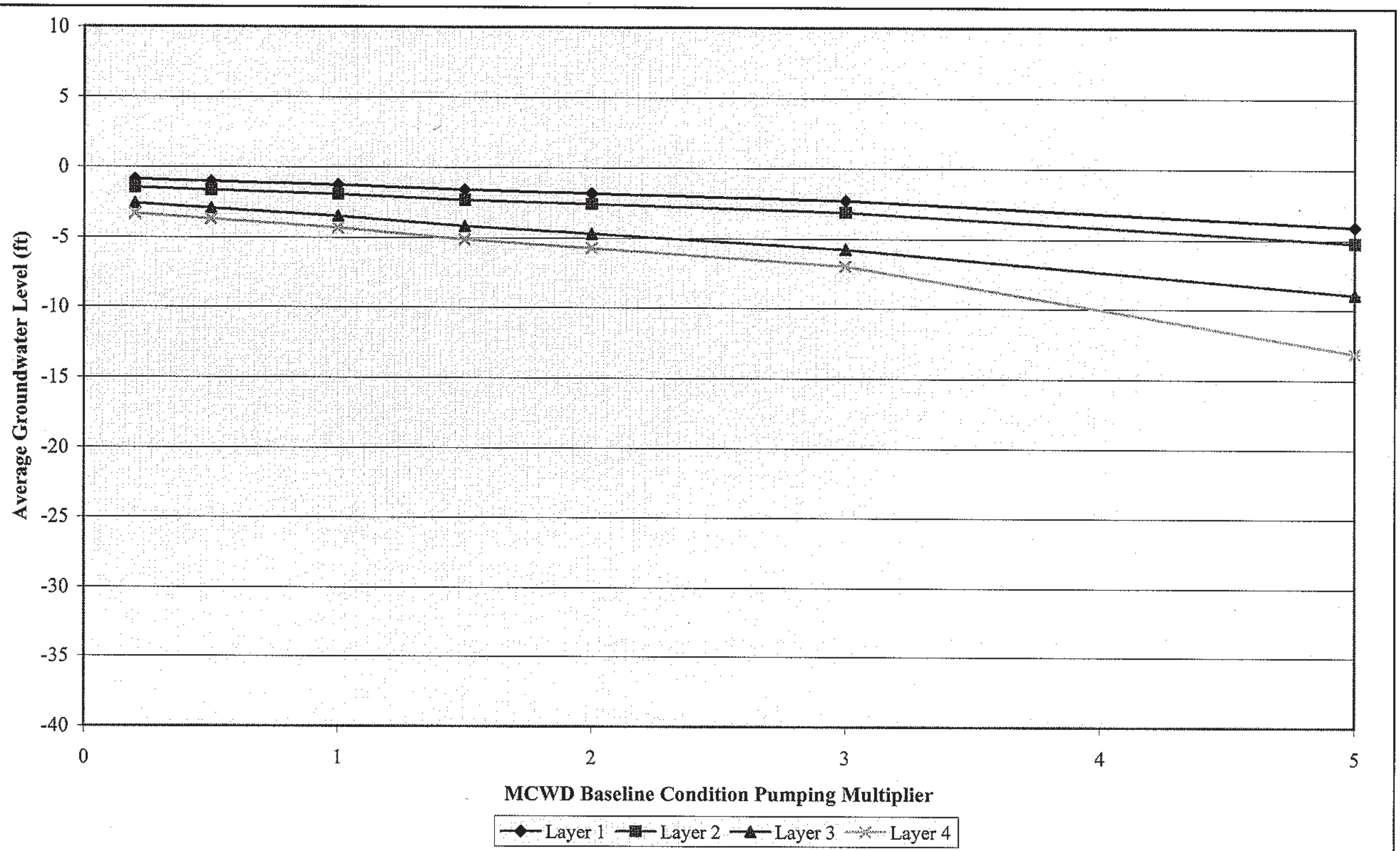
RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Response Curve of Pumping and Average Groundwater Levels for Coastal Hydrograph Locations per Aquifer

MAY 2003

FIGURE 4.2



Baseline conditions occur when x-axis is equal to 1

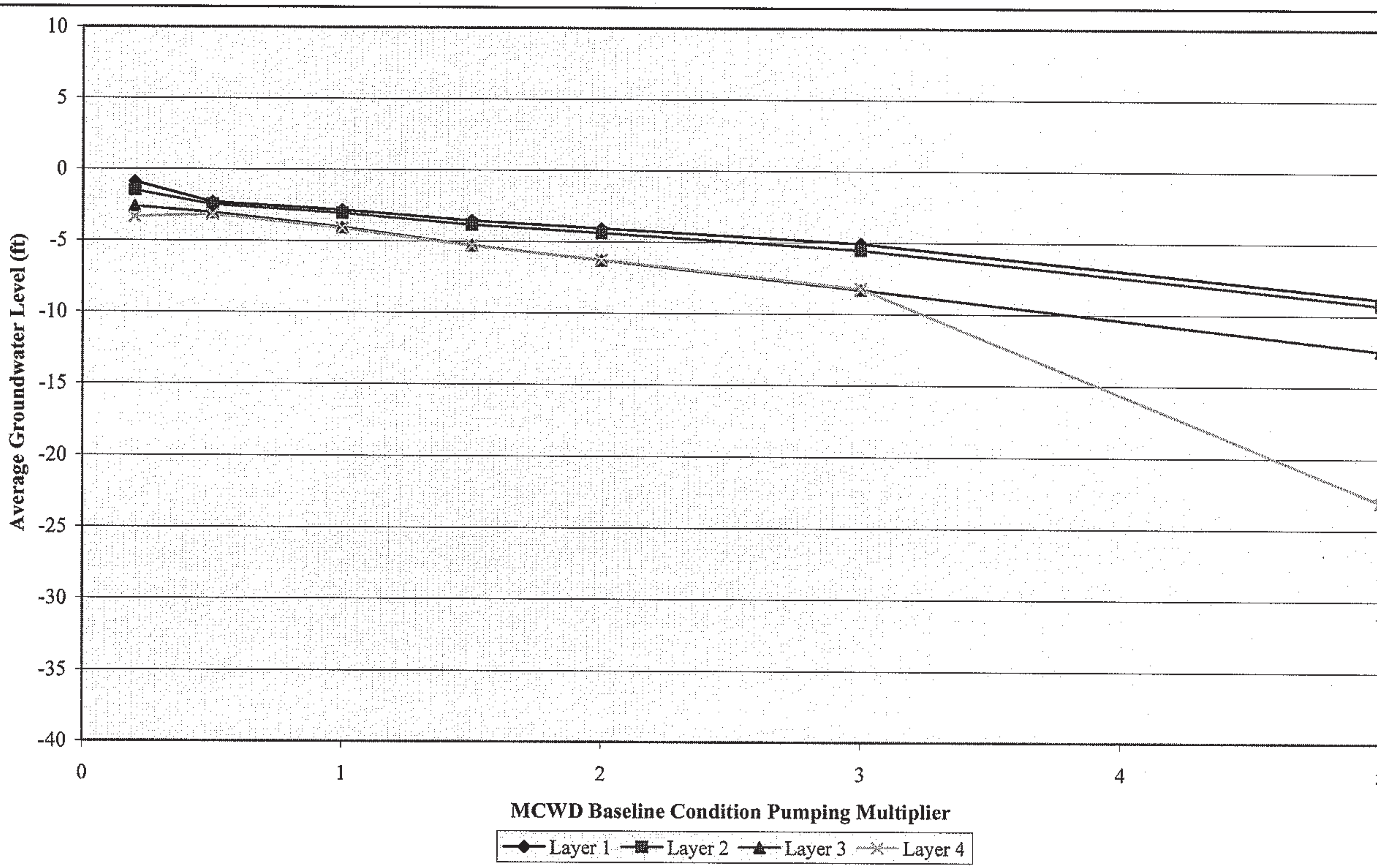
RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Response Curve of Pumping and Average Annual (1959-94) Groundwater Levels for Coastal Hydrograph of Well 5

MAY 2003

FIGURE 4.3



Baseline conditions occur when x-axis is equal to 1

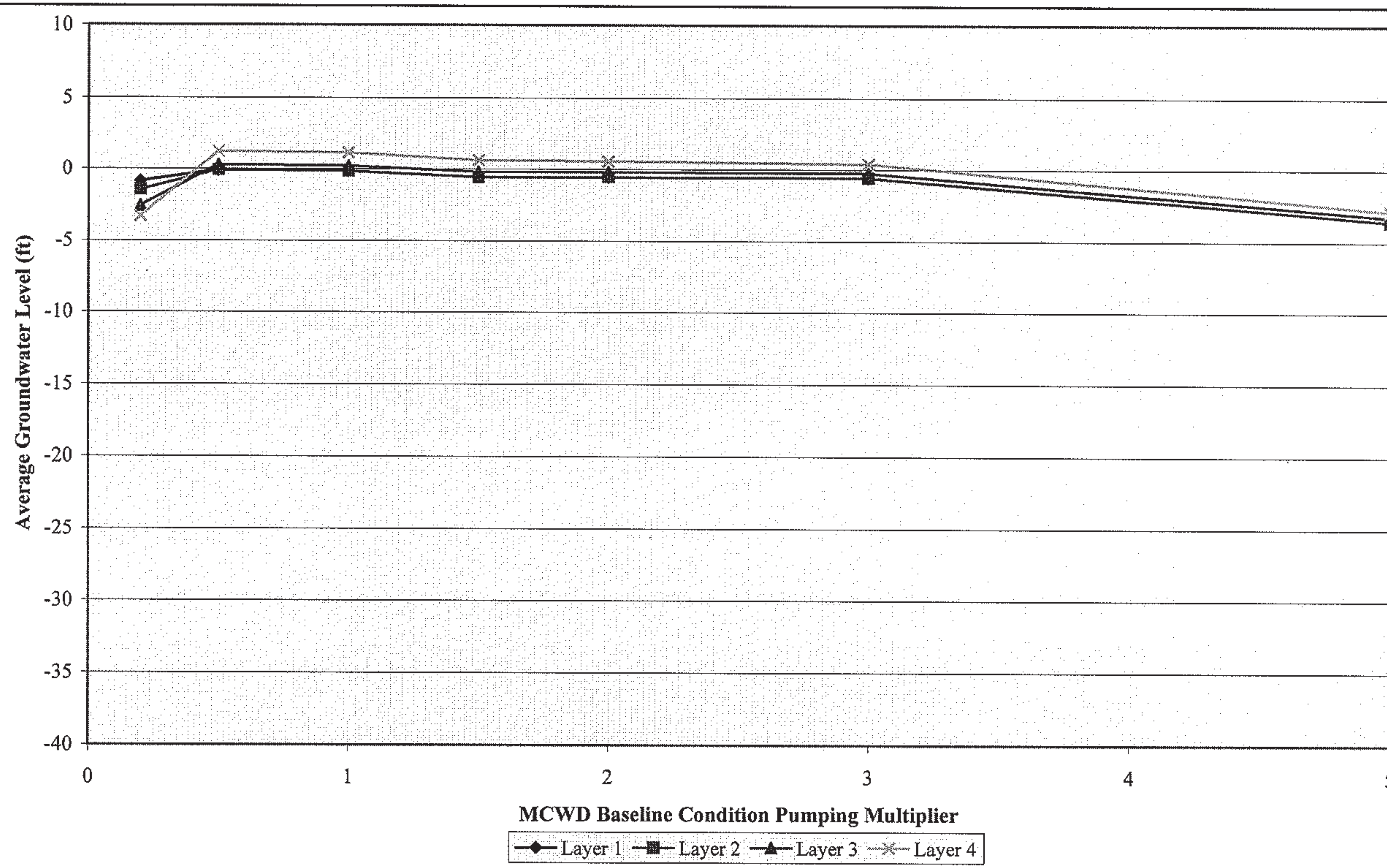
RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Response Curve of Pumping and Average Annual (1959-94) Groundwater Levels for Coastal Hydrograph of Well 12

MAY 2003

FIGURE 4.4



Baseline conditions occur when x-axis is equal to 1

RIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Response Curve of Pumping and Average Annual (1959-94) Groundwater Levels for Coastal Hydrograph Well 24

MAY 2003

FIGURE 4.5

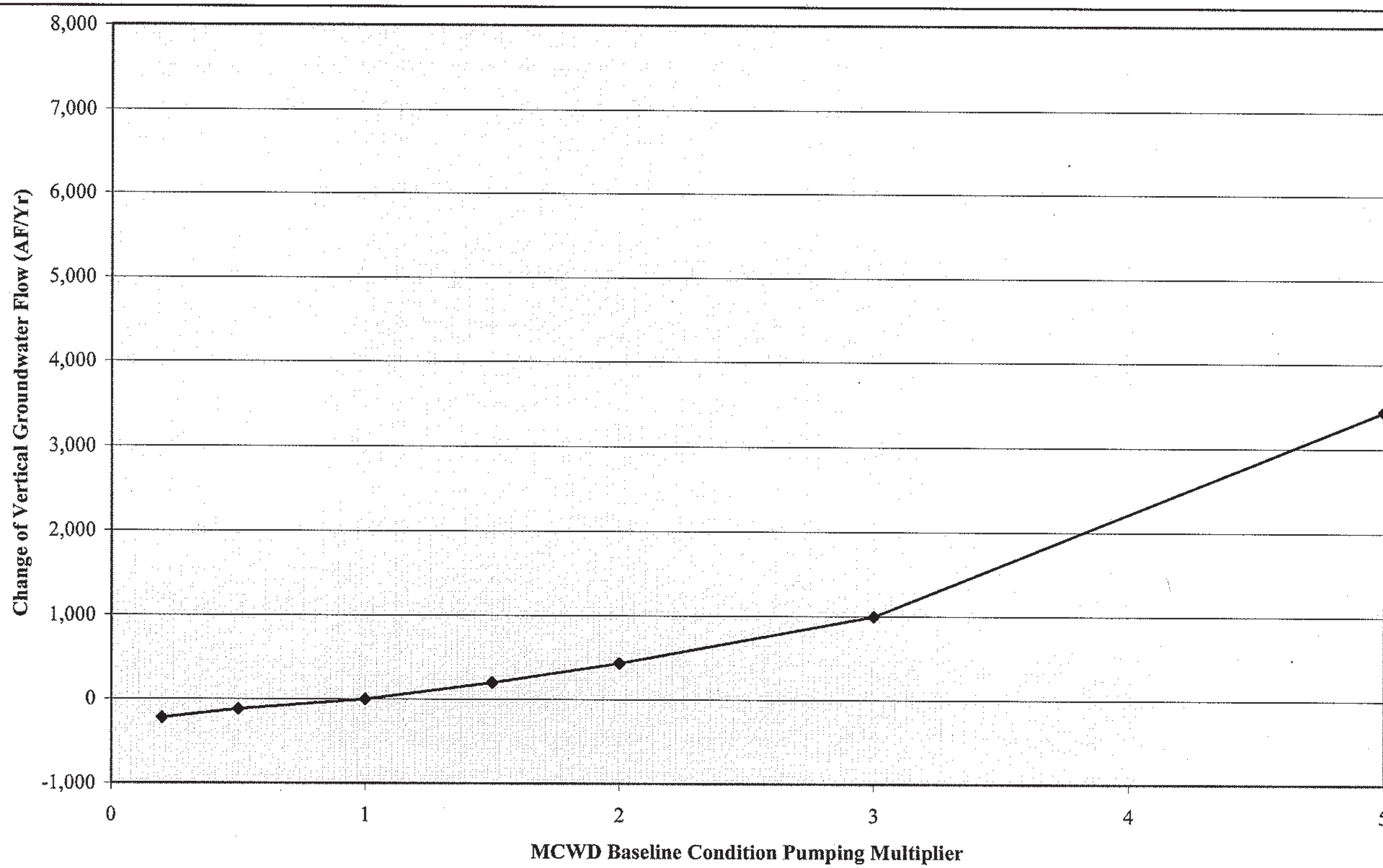
Figure 4.2 shows the response of the groundwater system as an average of all 25 hydrograph locations for each layer. Figures 4.3 through 4.5 show average groundwater levels, per layer, for three selected locations. All the figures indicate that groundwater heads will continue to decline in almost all aquifer layers if groundwater production from the deep aquifers is increased significantly from baseline levels.

Figure 4.6 shows the response of vertical groundwater flow to changes in baseline pumping. In general, as pumping increases there is an increase in vertical flow from Aquifer 1 to Aquifer 2.

Figure 4.7 shows the change in coastal groundwater flow from the baseline conditions because of changes in baseline groundwater pumping. In this case, the coastal subsurface flows are used as a surrogate for rate of seawater intrusion. In general, the inland groundwater flow towards the coast increases with groundwater pumping increases. It should be noted that increases in the coastal flows in the 180-foot aquifer and the deep aquifers are larger than those in the 400-foot aquifer. This may be due to the fact that increases in deep aquifers groundwater pumping induce more inland subsurface flux in the deep aquifers, as well as more downward flow of groundwater from the 400-foot aquifer. However, the 400-foot aquifer is also rapidly replenished by leakage from the 180-foot aquifer. Therefore, the net change in the 400-foot aquifer may not be as significant, even though the 180-foot aquifer appears to take a greater toll in seawater intrusion because of its substantially higher transmissivities.

POTENTIAL WATER SUPPLY ALTERNATIVES

In light of the varying range of safe or sustainable yield from the deep aquifers, and in order to analyze a set of realistic water supply options for the interim and/or long-term needs of MCWD, three alternative scenarios have been developed and analyzed. The focus of this analysis is to evaluate the impacts of these alternatives on the groundwater levels and inland subsurface flow across the coastline. Table 4.1 defines the three potential water supply scenarios that are analyzed. These scenarios are defined in coordination with the water supply master plan project, currently ongoing. These alternative groundwater supply options focus on maintaining the current groundwater production from MCWD Well Nos. 10, 11, and 12. Further, the additional supplies to meet the future needs of Marina and/or Fort Ord may come from a combination of the upper deep aquifer or 400-foot aquifer from a possible well further south along Reservation Road (in the vicinity of Well 32). Figure 4.8 shows the existing and proposed MCWD groundwater production wells. Increased pumping from Layer 4 is not considered a viable alternative given the lack of potential yield. These alternatives are presented to show the range of alternatives that can be evaluated using the updated SVIGSM. They do not necessarily represent the actual water supply scenarios that the MCWD may be considering in their water supply master plan.



Baseline conditions occur when x-axis is equal to 1

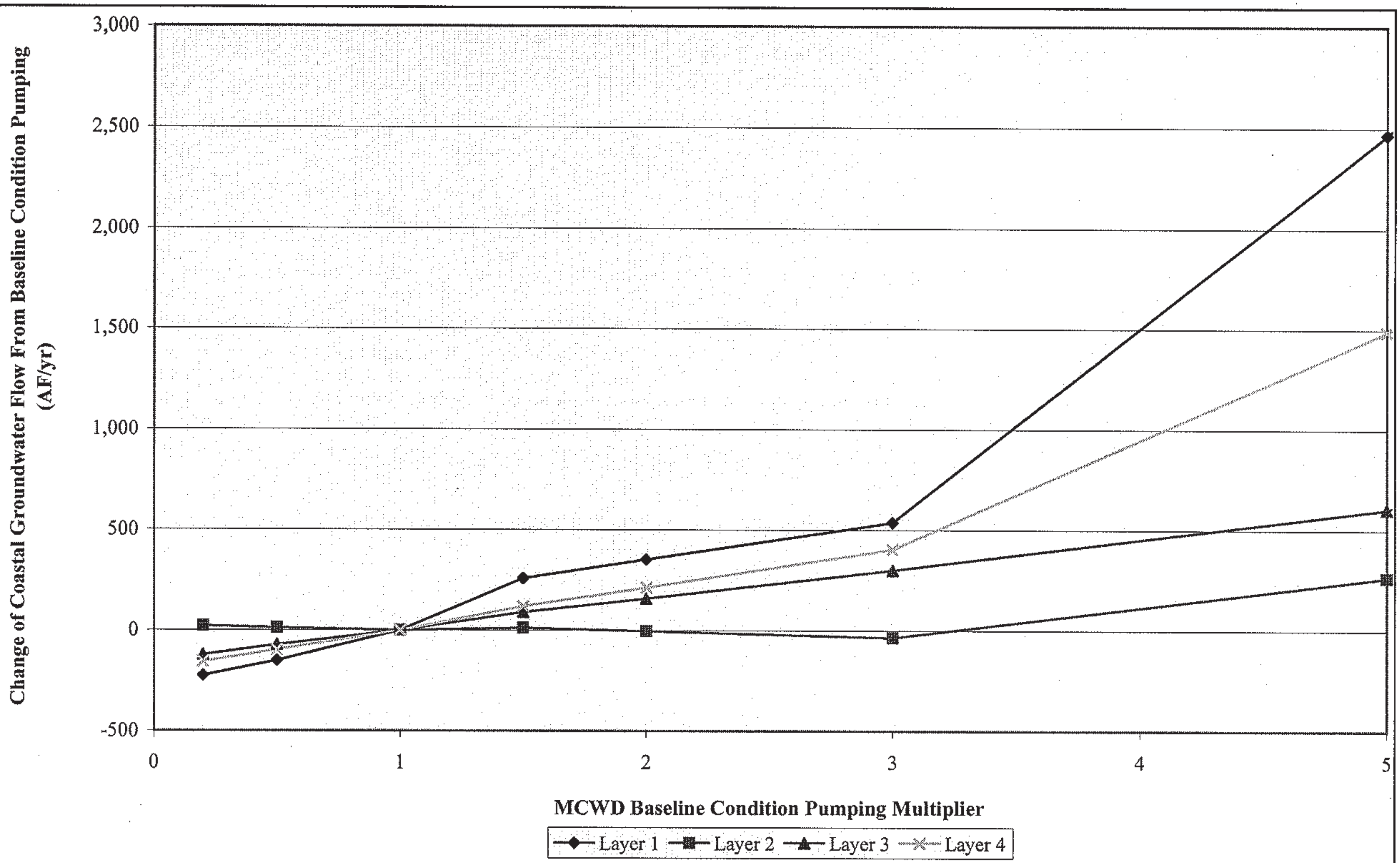
PRIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Response Curve of Pumping for Change of Average Annual (1959-94) Vertical Groundwater Flow from Aquifer 1 to 2 in Pressure and Fort Ord Subregions

MAY 2003

FIGURE 4.6



Baseline conditions occur when x-axis is equal to 1

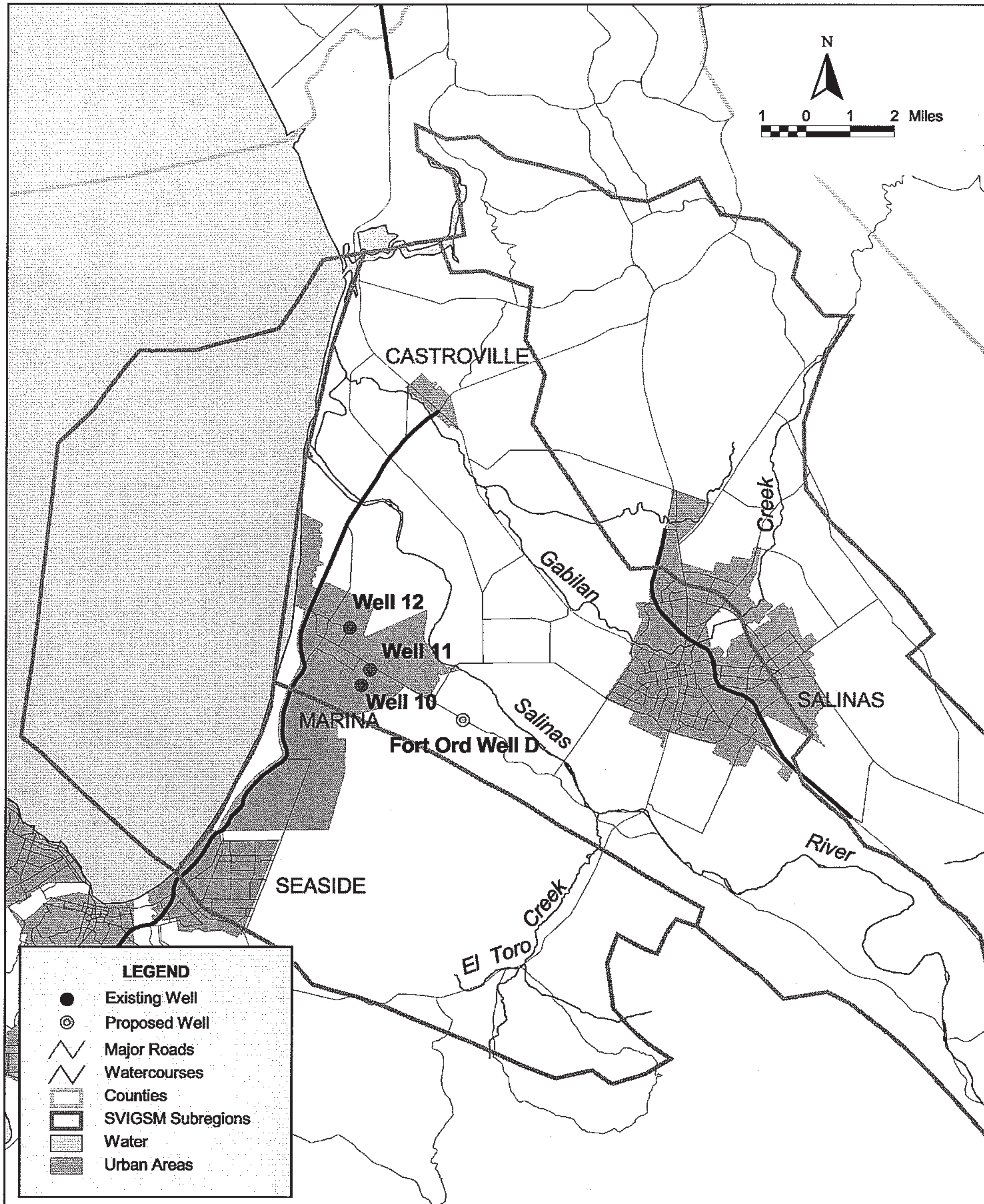
PRIME

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Response Curve of Pumping to Change in Average Annual (1959-94) Coastal Groundwater Flow

MAY 2003

FIGURE 4.7



WRIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

MCWD Existing and Proposed Groundwater Production Well Location Map

MAY 2003

FIGURE 4.8

Table 4.1 Baseline Condition and Potential Water Supply Alternatives

Alternative	Description
Baseline	SVWP Baseline assumptions consisting of: 1995 land and water use; Castroville Seawater Intrusion Project is operational; 17,500 AFY of future deliveries to San Luis Obispo County from Nacimiento Reservoir; and MCWD present level of groundwater pumping (2,400 AFY) from existing wells
Alternative 1	MCWD Baseline condition pumping 2,400 AFY from deep aquifers + 1,400 AFY from MCWD upper deep aquifer wells (no change in lower deep well)
Alternative 2	2,400 AFY from deep aquifers + 1,400 AFY from MCWD upper deep aquifer wells (no change in lower deep well) 4,200 AFY from upper deep aquifer at Well 32
Alternative 3	2,400 AFY from deep aquifers + 1,400 AFY from MCWD upper deep aquifer wells (no change in lower deep well) 4,200 AFY from 400-foot aquifer at Well 32

Table 4.2 compares the average groundwater levels, per aquifer, for the 25 coastal monitoring locations.

Table 4.2 Comparison of Average Groundwater Levels (ft, MSL) per Aquifer for Coastal Monitoring Locations

	Aquifer 1	Aquifer 2	Aquifer 3	Aquifer 4
Baseline	-2.1	-4.5	-4.1	-3.9
Alternative 1	-2.5	-4.9	-4.9	-4.7
Alternative 2	-4.1	-6.7	-7.5	-7.1
Alternative 3	-4.2	-6.9	-6.8	-6.5

Table 4.3 compares the relative impact of the alternatives to the baseline conditions in terms of average annual coastal flux.

Table 4.3 Difference in Average Annual Coastal Groundwater Flow (AFY) Between Supply Alternative and Baseline Conditions for Each Aquifer

	Layer 1	Layer 2	Layer 3	Layer 4
Alternative 1	455	61	137	103
Alternative 2	1,663	273	367	390
Alternative 3	1,620	305	349	323

Table 4.4 shows a comparison of average annual vertical groundwater flow between Aquifers 1 and 2 in the Pressure and Fort Ord subareas.

Table 4.4 Comparison of Average Annual Vertical Groundwater Flow (AFY) between Aquifers 1 and 2 in the Pressure and Fort Ord Subareas

Scenario	Aquifers 1 and 2 (AF)	Aquifers 2 and 3 (AF)	Aquifers 3 and 4 (AF)	Difference in Vertical Flow Change from Baseline Condition		
				Aquifers 1 and 2 (AF)	Aquifers 2 and 3 (AF)	Aquifers 3 and 4 (AF)
Baseline	-60,114	167	2,601	0	0	0
Alternative 1	-61,044	-885	2,733	-929	-1,052	132
Alternative 2	-63,760	-3,984	3,216	-3,646	-4,152	614
Alternative 3	-64,558	-163	3,009	-4,443	-331	407

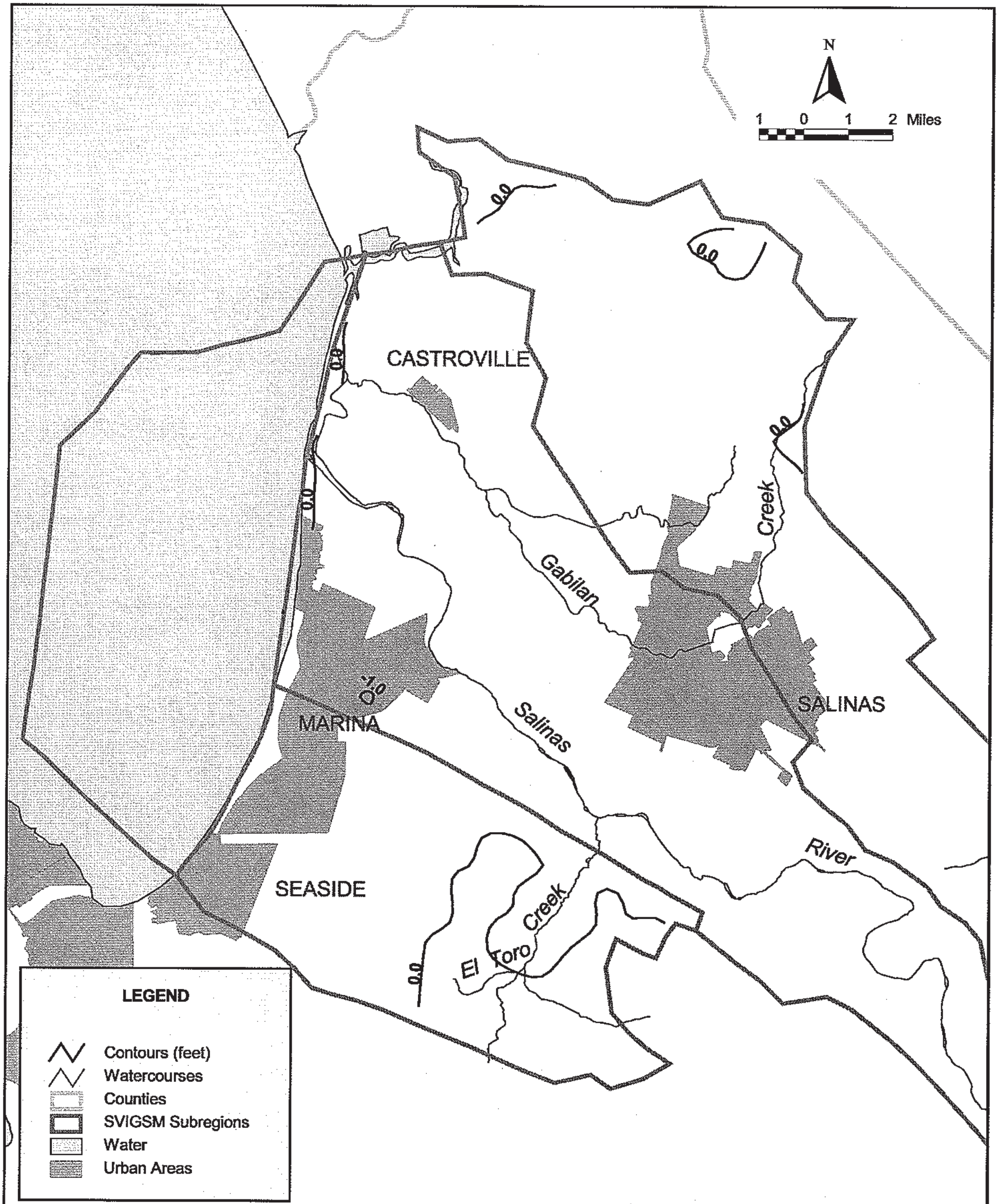
*Positive Values Indicate Upward Flow

Figures 4.9 through 4.20 show September 1994 drawdowns in groundwater heads in various aquifer layers as a result of each alternative groundwater pumping scenario.

Figures 4.9 through 4.12 show the results of long-term pumping under Alternative 1. These figures indicate that the increased long-term MCWD pumping rate in the deep aquifers would cause approximately a 2-feet drawdown in the upper deep aquifer, with much lesser impacts on the other aquifers

Figures 4.13 through 4.16 show the results of long-term pumping under Alternative 2. This alternative is designed to evaluate the effects of additional groundwater production in the upper deep aquifer from the existing MCWD wells, as well as a potential new well further inland, drilled in the upper deep aquifer along Reservation Road. The figures indicate that the additional MCWD pumping from existing wells plus the new well cause approximately 9 feet of decline in the upper deep aquifer groundwater head levels with up to 4 feet and 2 feet of additional decline in groundwater heads in the 400-foot and 180-foot aquifers, respectively.

Figures 4.17 through 4.20 show the results of long-term pumping under Alternative 3. This alternative is designed to evaluate the effects of additional groundwater production in the upper deep aquifer from the existing MCWD wells, as well as a potential new well further inland, drilled in the 400-foot aquifer along Reservation Road. The figures indicate that the additional MCWD pumping from existing wells plus the new well cause approximately 4 feet of decline in the upper deep aquifer groundwater head levels with up to 6 feet and 5 feet of additional decline in groundwater heads in the 400-foot and 180-foot aquifers, respectively.



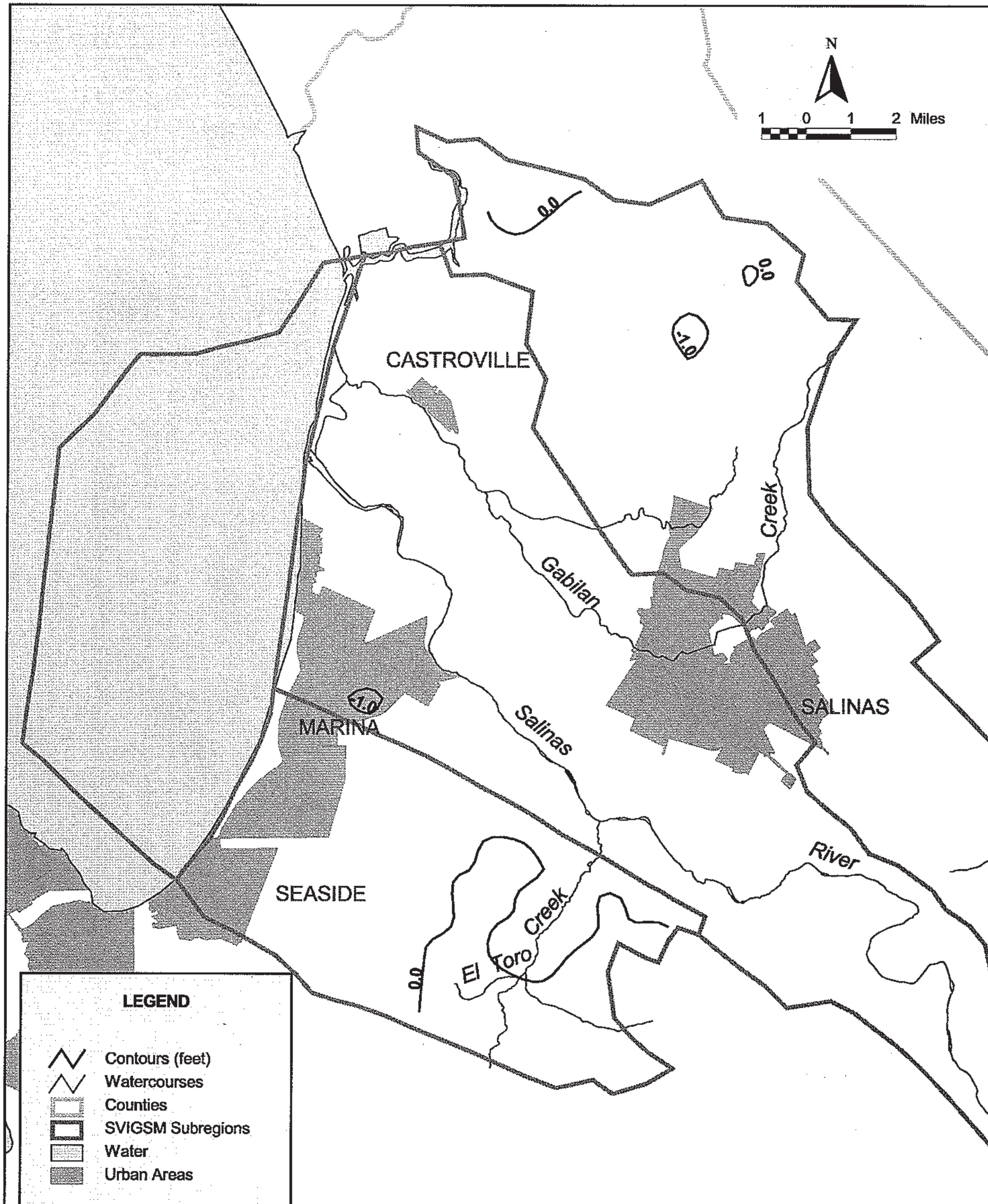
WRIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Alternative 1 Groundwater Level Difference for Layer 1, September 1994

MAY 2003

FIGURE 4.9



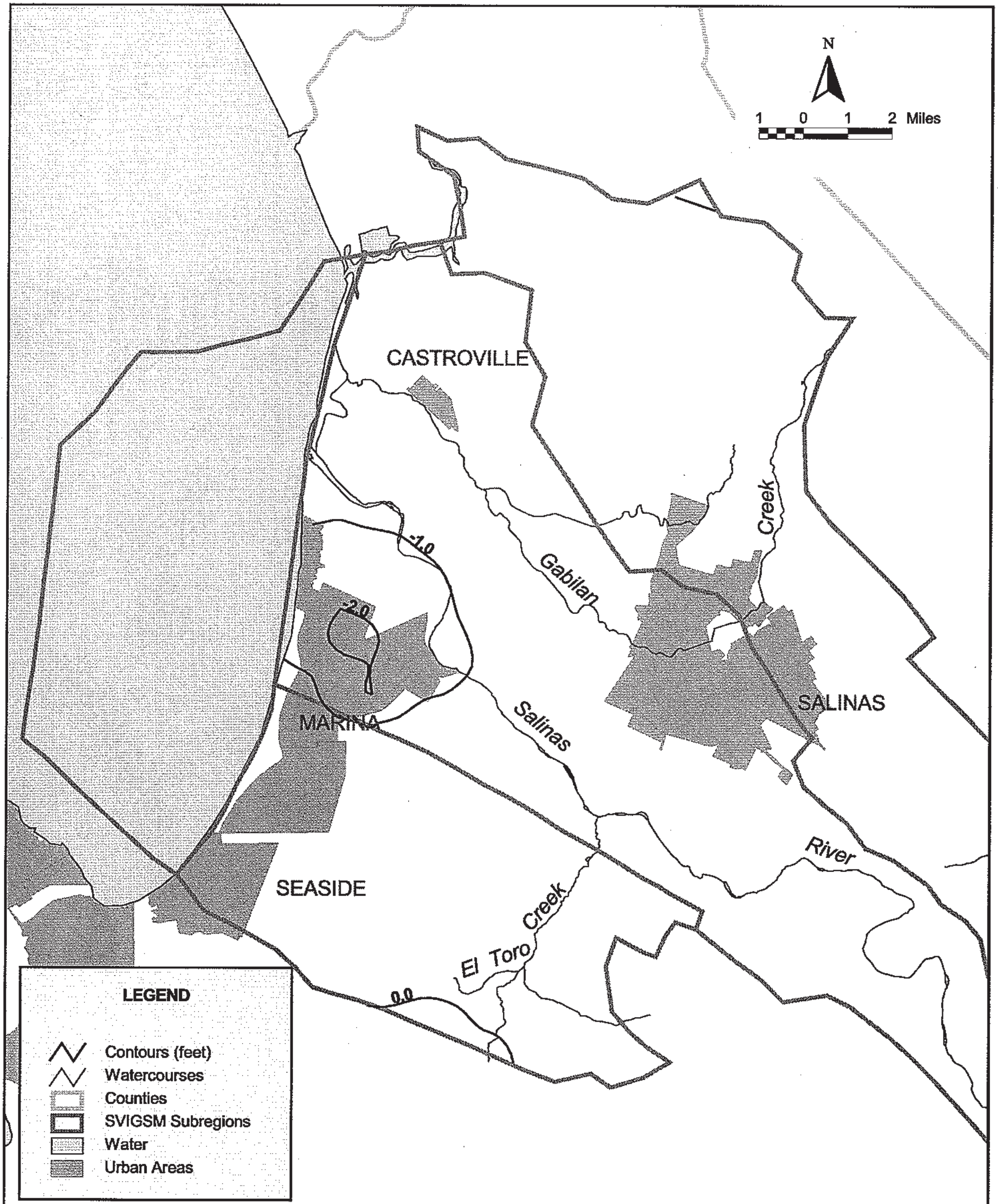
RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Alternative 1 Groundwater Level Difference for Layer 2, September 1994

MAY 2003

FIGURE 4.10



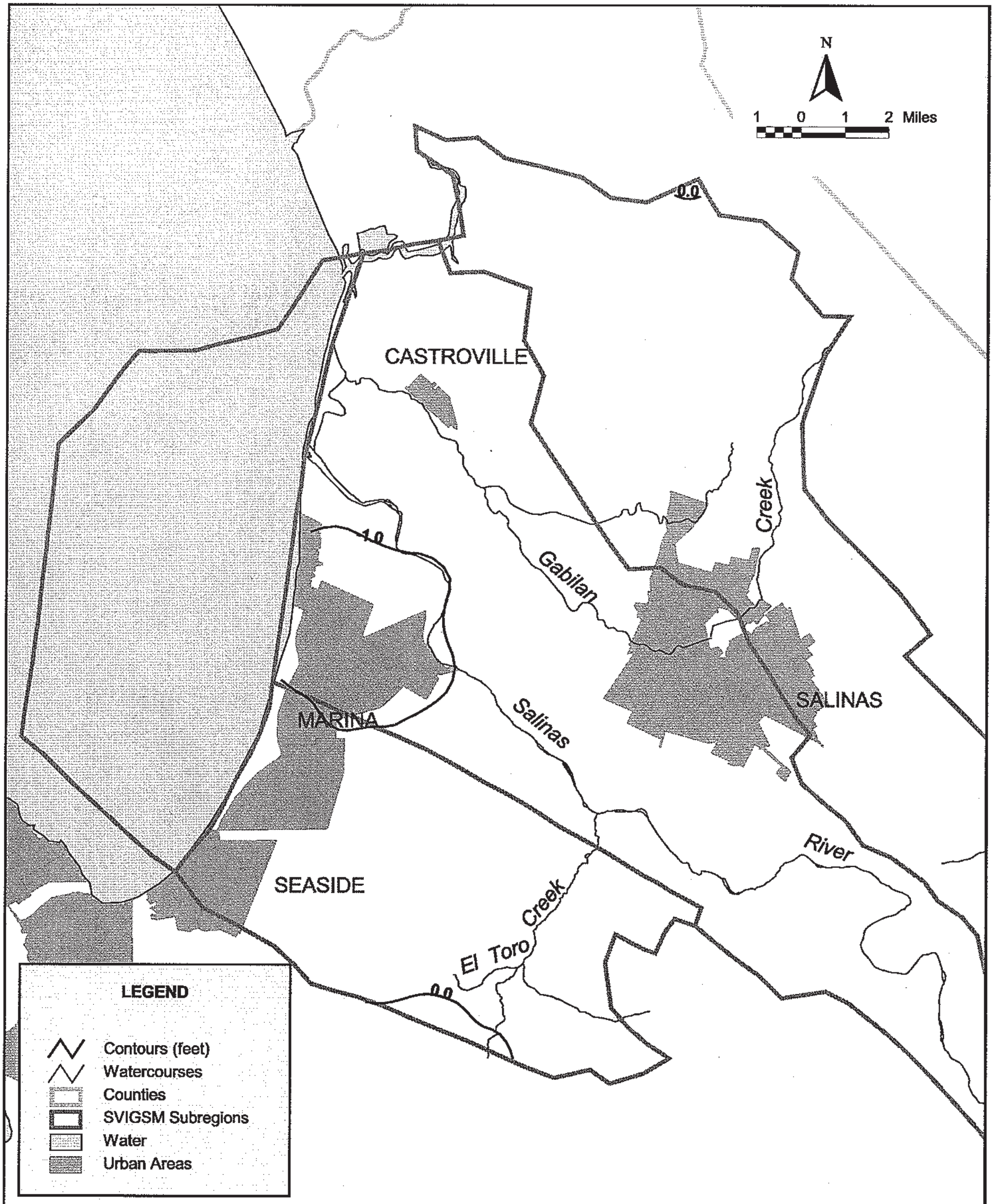
RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Alternative 1 Groundwater Level Difference for Layer 3, September 1994

MAY 2003

FIGURE 4.11



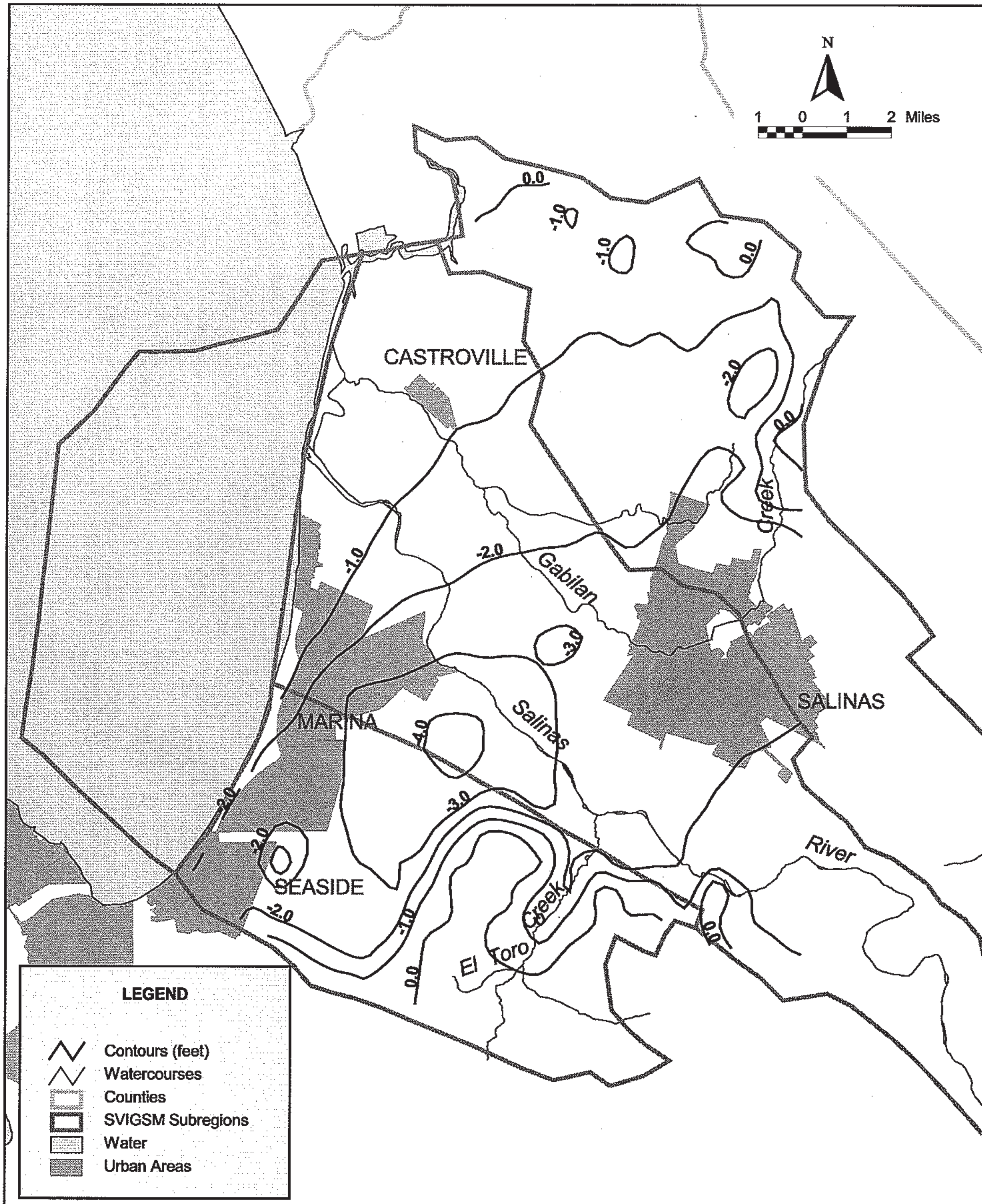
WRIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Alternative 1 Groundwater Level Difference for Layer 4, September 1994

MAY 2003

FIGURE 4.12



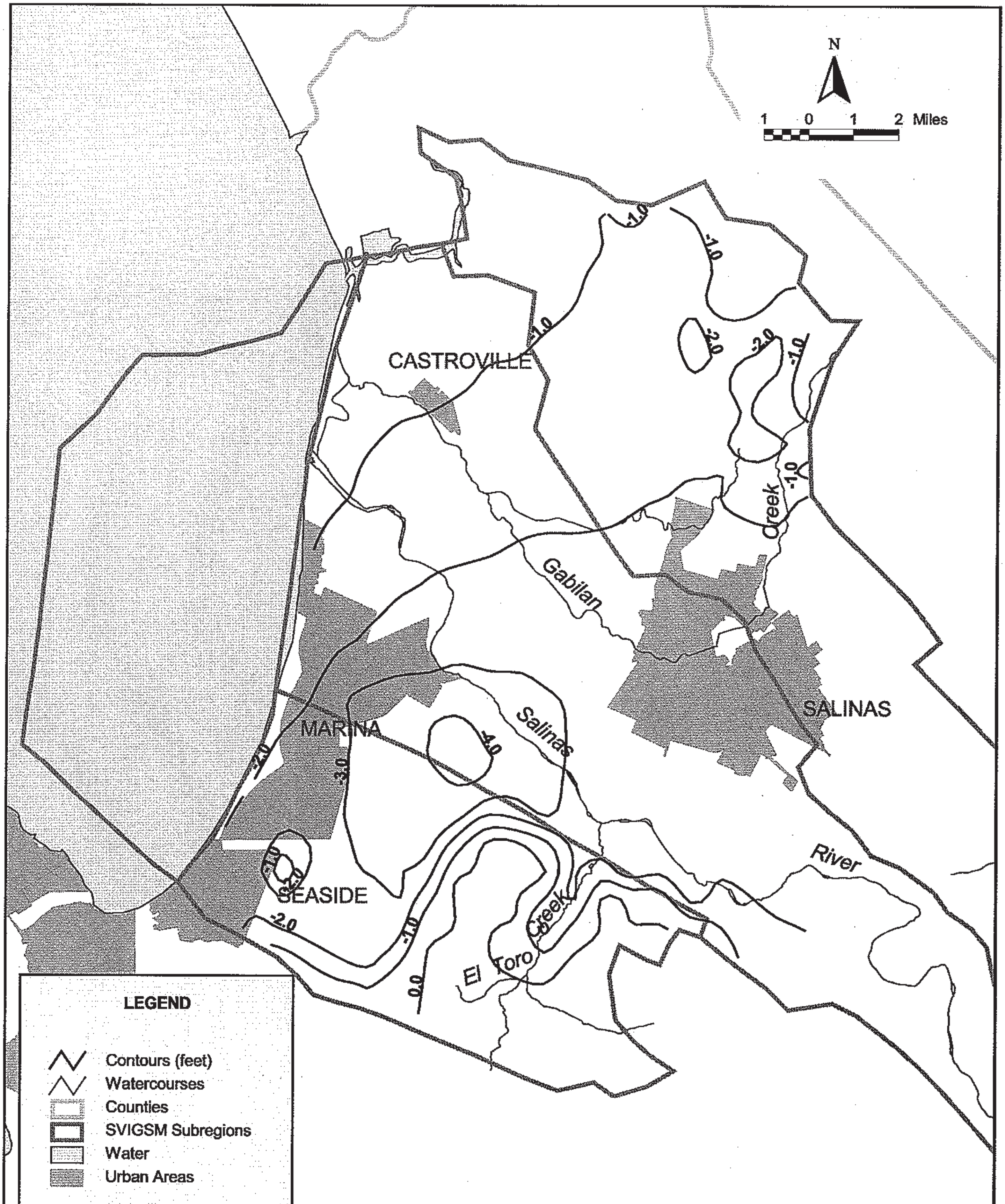
WRIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Alternative 2 Groundwater Level Difference for Layer 1, September 1994

MAY 2003

FIGURE 4.13



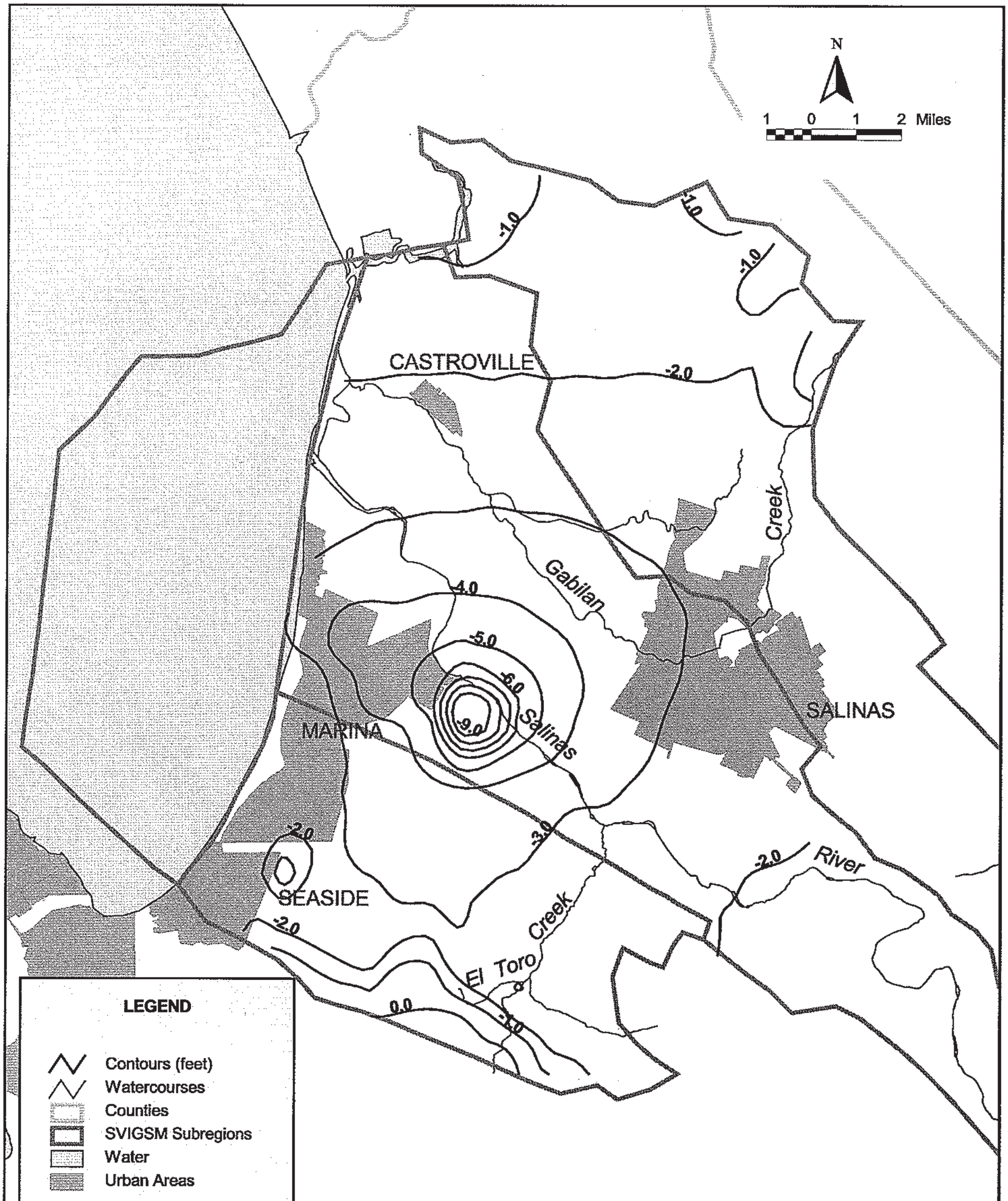
RIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Alternative 2 Groundwater Level Difference for Layer 2, September 1994

MAY 2003

FIGURE 4.14



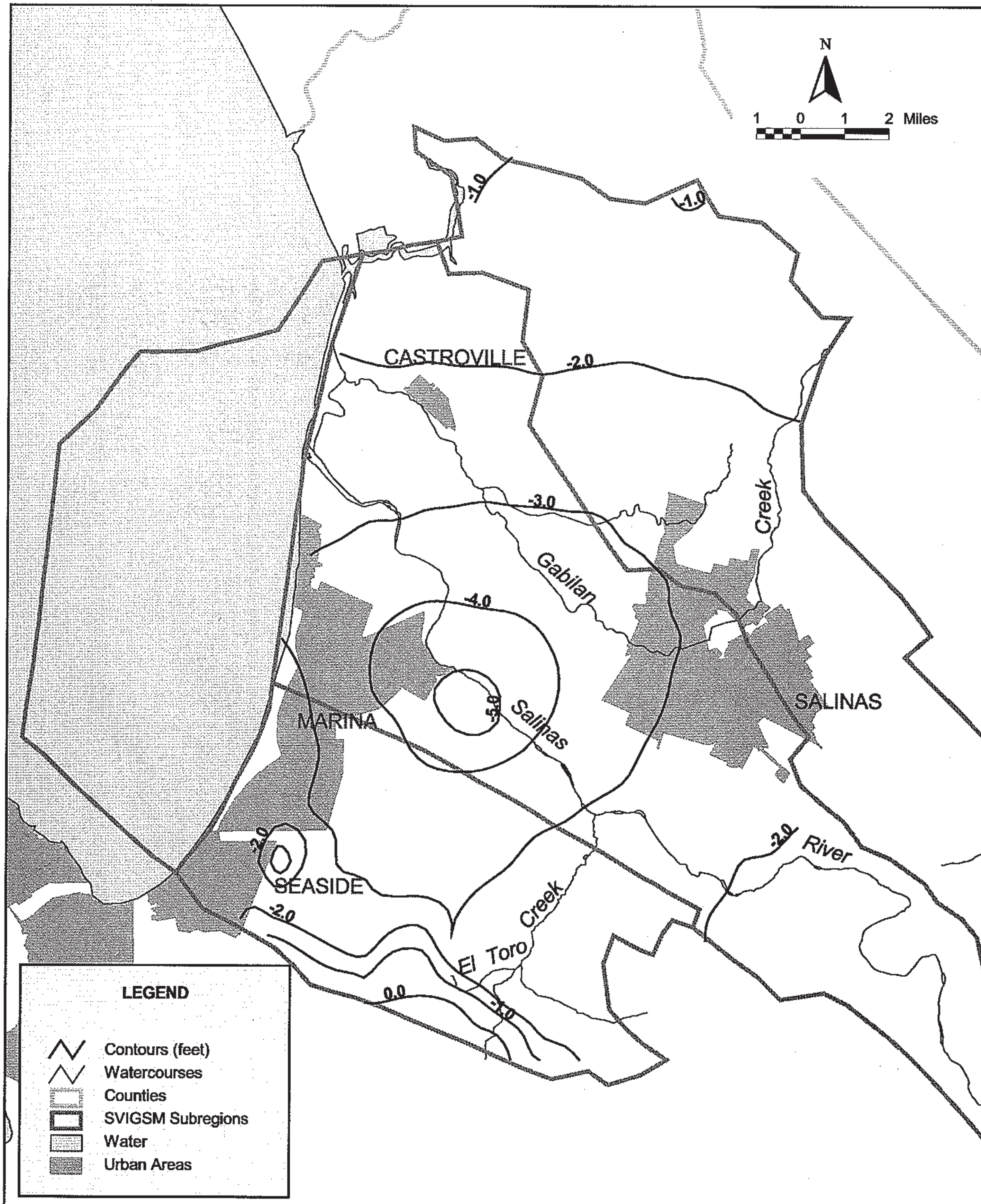
WRIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Alternative 2 Groundwater Level Difference for Layer 3, September 1994

MAY 2003

FIGURE 4.15



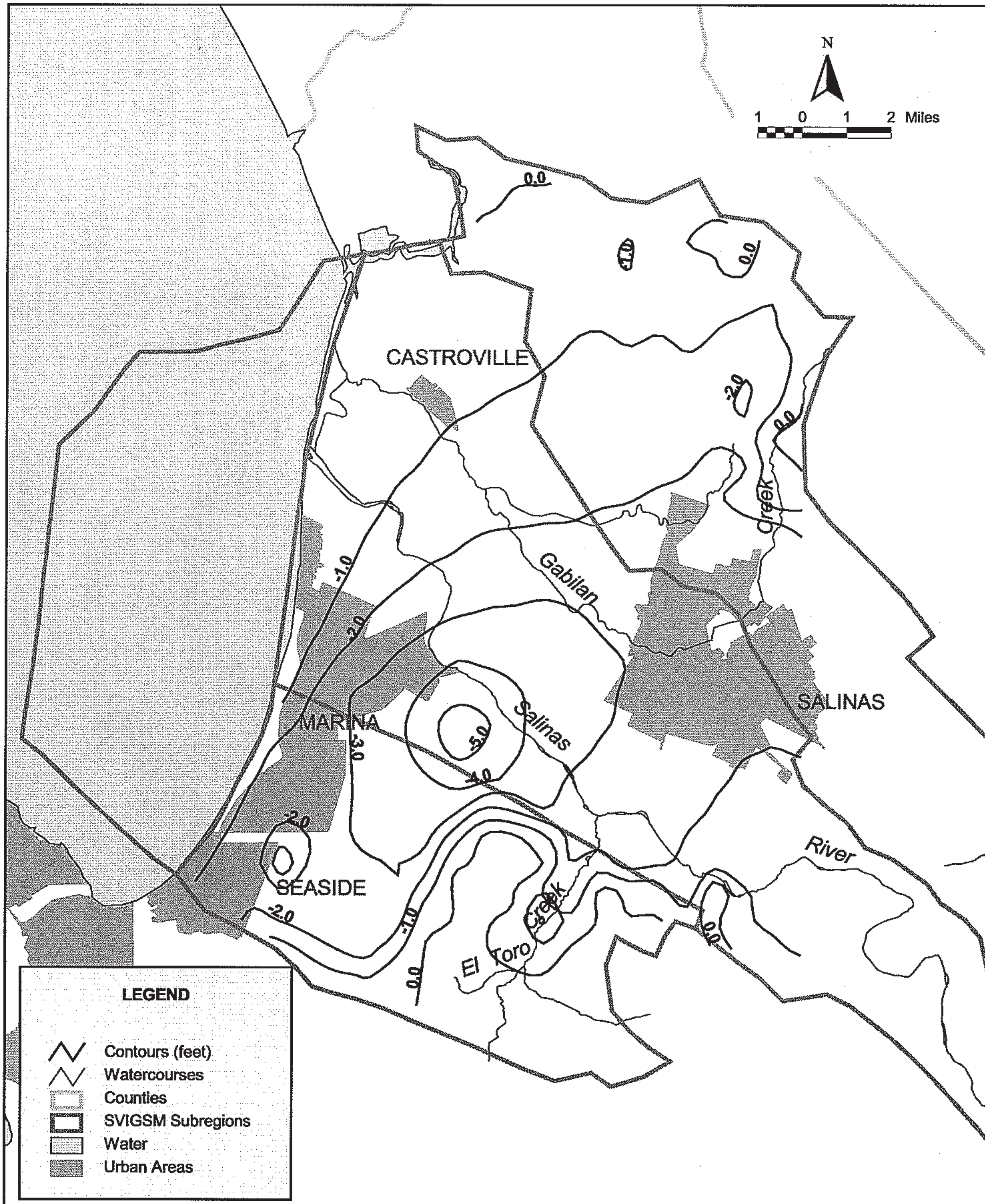
WRIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Alternative 2 Groundwater Level Difference for Layer 4, September 1994

MAY 2003

FIGURE 4.16



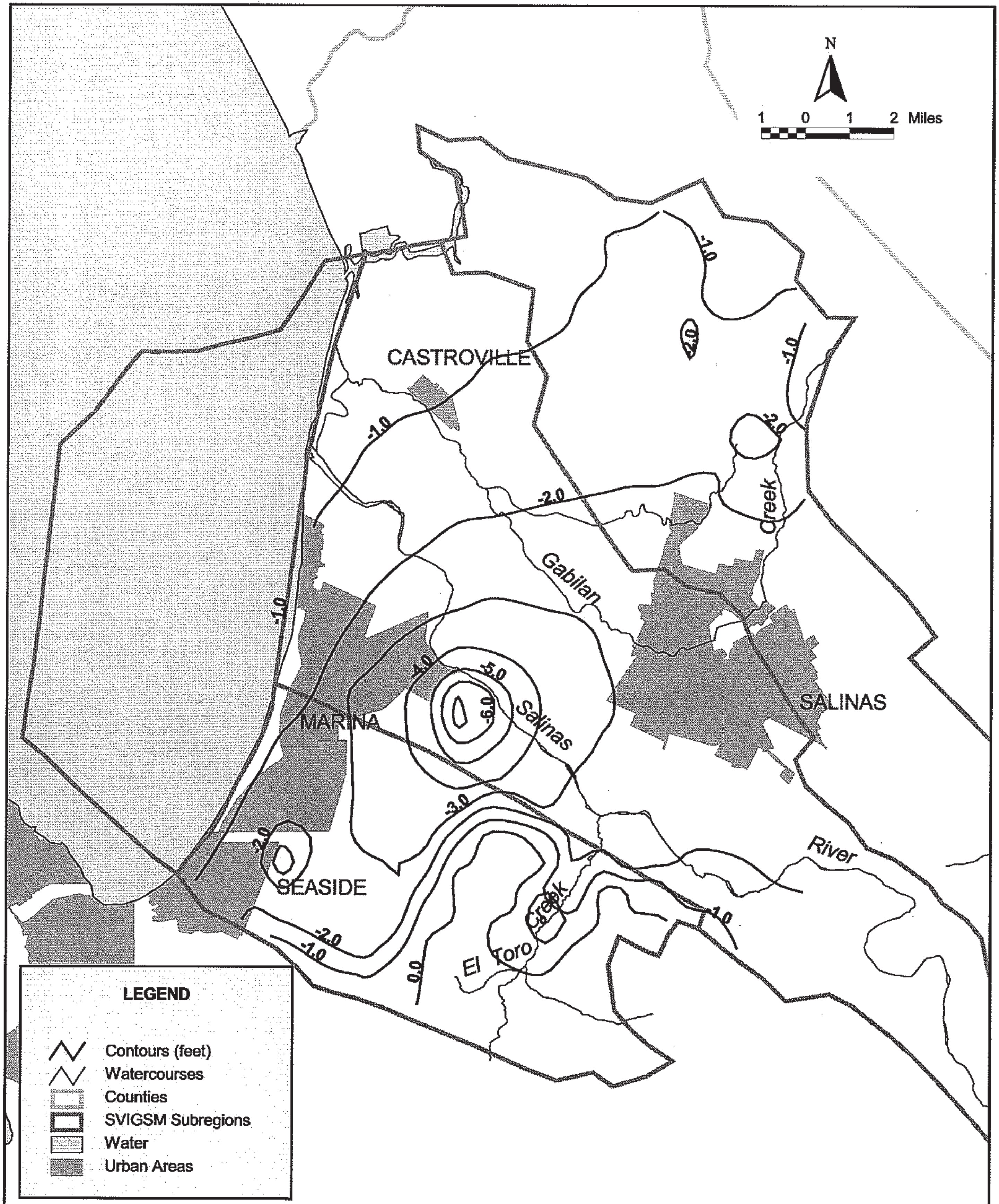
WRIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Alternative 3 Groundwater Level Difference for Layer 1, September 1994

MAY 2003

FIGURE 4.17



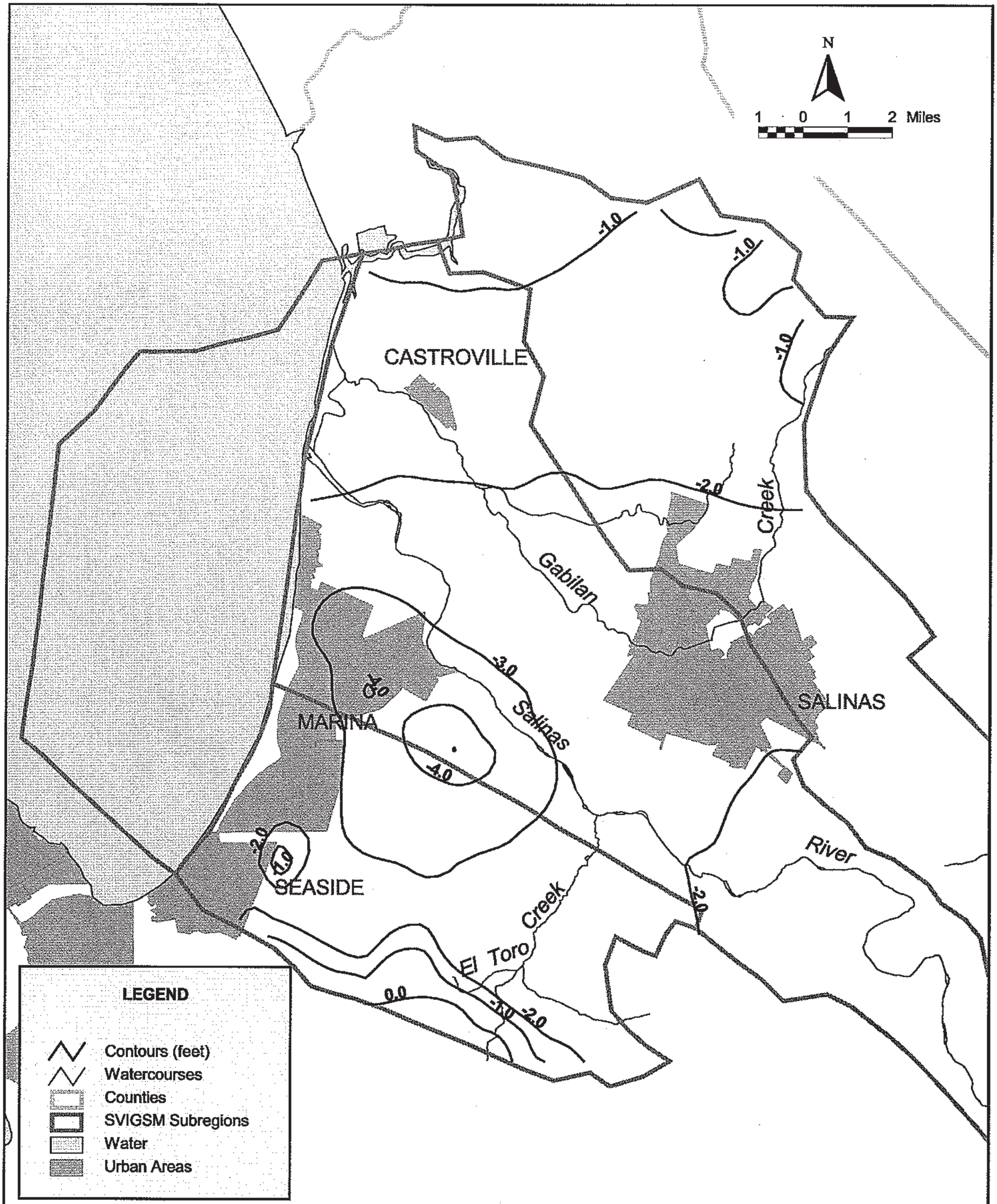
WRIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Alternative 3 Groundwater Level Difference for Layer 2, September 1994

MAY 2003

FIGURE 4.18



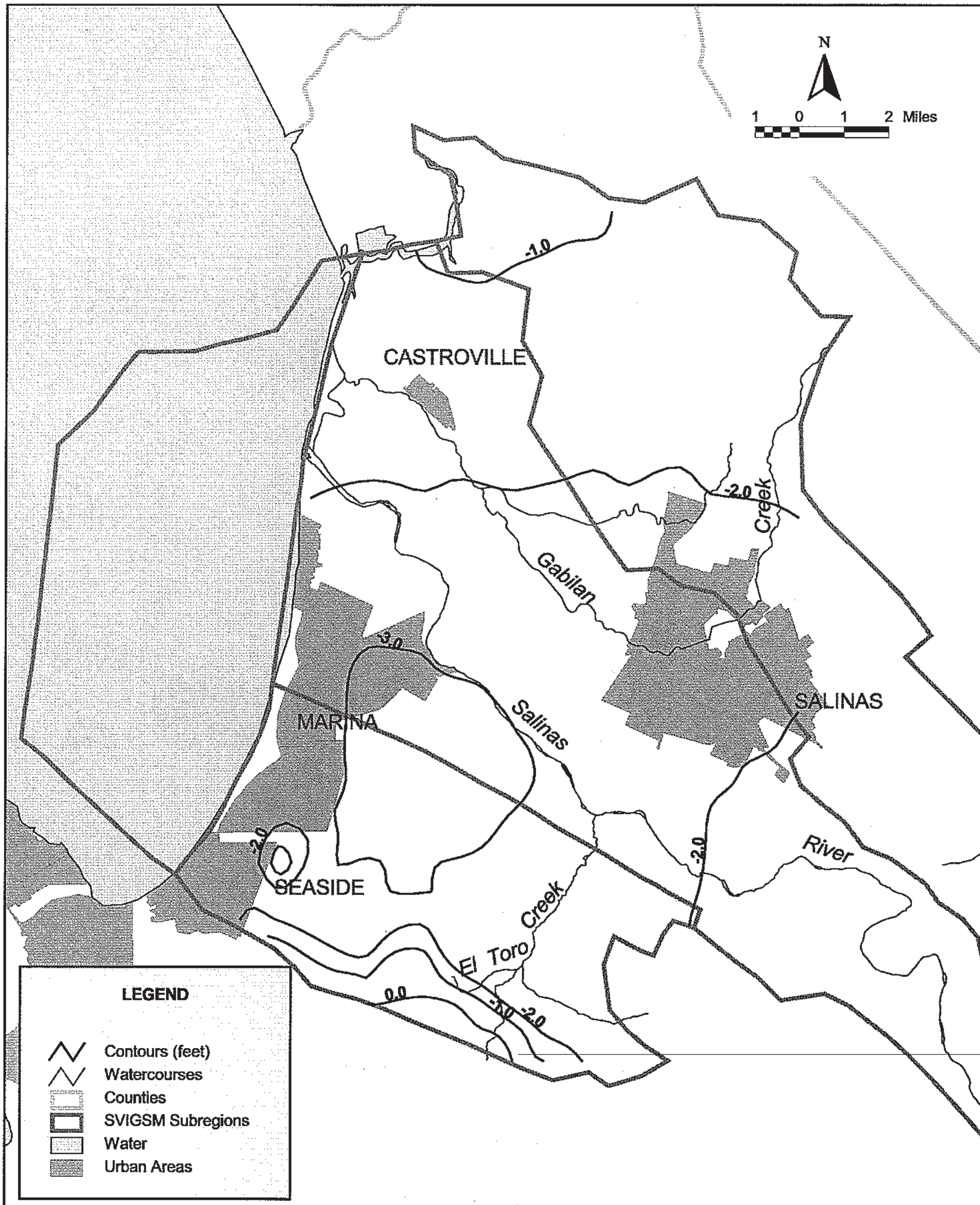
WRIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Alternative 3 Groundwater Level Difference for Layer 3, September 1994

MAY 2003

FIGURE 4.19



WRIME Water Resources & Information Management Engineering, Inc.

MARINA COAST WATER DISTRICT
DEEP AQUIFER INVESTIGATIVE STUDY

Alternative 3 Groundwater Level Difference for Layer 4, September 1994

MAY 2003

FIGURE 4.20

The findings of this study can be divided in to three categories:

- Data assessment and analysis,
- Hydrologic modeling and analysis, and
- Water supply reliability.

DATA ASSESSMENT AND ANALYSIS

- Geologic, hydraulic, and geochemical data all suggest the "deep aquifer" to be two distinct aquifers.
- The uppermost aquifer of the "deep aquifer" is comprised of continental deposits assigned to the Paso Robles Formation. The lowermost aquifer is assigned to the marine Purisima Formation.
- MCWD's Well Nos. 10 and 11 produce from the Paso Robles Formation while Well No. 12 produces from the Purisima Formation. The "deep aquifer" wells in the Castroville area are completed in the Paso Robles Formation.
- Water levels in the Marina area deep aquifers have been substantially below mean sea level since the initiation of extractions.
- The areal distribution and stratigraphic location of the Paso Robles and Purisima Formations limit recharge to leakage from overlying aquifers. Water level records from MCWD's wells support this conclusion. Static water level curves from all of the MCWD wells appear to be stabilized, suggestive of equilibrium with recharge.
- Piezometric head in the Purisima Formation is higher than in the overlying Paso Robles Formation. Extractions from Paso Robles may be supported by leakage from both overlying and underlying sediments.
- Although water levels are chronically below mean sea level, there is no evidence of water quality degradation.
- The geologic setting may provide a buffer against seawater intrusion, allowing for the maintenance of water levels below mean sea level. However, storage coefficients suggest that the volume of groundwater in storage in the lower aquifers is small. Increased production would likely come from increased leakage.

- The Purisima Formation is relatively isolated hydraulically from the overlying Paso Robles Formation near the coast.
- As currently configured, the hydrogeologic model incorporated into SVIGSM is not consistent with a two-layer deep aquifer system. Adding a fourth layer and incorporating the current understanding could possibly improve the model.

HYDROLOGIC MODELING AND ANALYSIS

- The SVIGSM was updated to IGSM version 5.0.
- The SVIGSM deep aquifers system is divided into two distinct aquifers, an upper deep aquifer representing the Paso Robles formation, and the lower deep aquifer representing the Purisima formation. The revised SVIGSM, therefore, has four hydrostratigraphic units, among them the 180-foot and the 400-foot aquifer systems.
- The SVIGSM groundwater pumping data in the Marina Coast area is revised to represent the historical groundwater production records of the MCWD at their well sites.
- The SVIGSM is recalibrated so that the aquifer hydraulic conductivities in the deep aquifers, as well as the single aquifer layer in the Upper Valley area, represent an equivalent hydraulic conductivity with similar transmissivity values as in the original SVIGSM 4.18.
- The revised model depicts the observed groundwater levels equal to or better than the original model, and produces water budget estimates similar to the original model.

WATER SUPPLY RELIABILITY

- The updated SVIGSM was used to develop response curves on the sensitivity of groundwater heads and subsurface flows across the coastline to changes in MCWD groundwater pumping.
- The response curves indicate that additional increases in the deep aquifers groundwater pumping in the coastal areas may induce additional reduction in the groundwater heads, and subsequently additional landward subsurface flows across the coastline. The results also indicate that the increase in coastal subsurface flows occurs at a much more rapid pace in the 180-foot aquifer than in the 400-foot aquifer, due to substantially higher transmissivities.
- The results of alternative potential groundwater supply alternatives indicate that the increase in inland groundwater pumping (in the vicinity of Reservation

Road) has a much lesser impact on the groundwater level declines, as well as a lesser effect on the coastal subsurface flows.

Ali Taghavi and Associates. 2000. *Update of the Historical Benefits Analysis (HBA) Hydrologic Investigation in the Arroyo Seco Cone Area*: Monterey County Water Resources Agency. February.

California Department of Public Works, Division of Water Resources. 1946. *Salinas Basin Investigation*. California Division of Water Resources Bulletin 52, 170 pp., 3 appendices.

Clark, J.C. 1981. *Stratigraphy, Paleontology, and Geology of the Central Santa Cruz Mountains, California Coast Ranges*. U.S. Geological Survey Professional Paper 1168, 51 p., one sheet, scale 1:24,000.

Degnan, C.H., Wong, F.L., and Lee, W.C.. 2001. *Bathymetry and Topography Data (BATTOPOG, BATTOPSD.TIF) for the Monterey Bay Region from Point Año Nuevo to Point Sur, California.* In: Wong, F.L., and Eittreim, S.E. 2001. Continental Shelf GIS for the Monterey Bay National Marine Sanctuary. U.S. Geological Survey Open-File Report 01-179, one CD-ROM.

Dohrenwend, J.C. 1975. *Plio-Pleistocene Geology of the Central Salinas Valley and Adjacent Uplands, Monterey County, California.* Stanford, Calif., Stanford University, Ph.D. dissertation, 274 p., one sheet, scale 1:62,500.

Dupré, W.R. 1991. *Quaternary Geology of the Southern California Coast Ranges In: Morrison, R.B., ed. Quaternary Nonglacial Geology: Conterminous U.S.: Boulder, Colo.*, Geological Society of America, The Geology of North America, v. K-2, pp. 176–184.

Geoconsultants, Inc. 1983. *Summary Report, Test Drilling and Well Completion, Well No. 10,* Marina County Water District, Monterey County, California. Unpublished Report, 6 pp.

______. 1986. *Summary Report, Drilling and Well completion, Well No. 11,* Marina County Water District, Monterey County, California. Unpublished Report, 6 pp., 4 appendices.

______. 1989. *Summary Report, Test Drilling and Well Completion, Well No. 12,* Marina County Water District, Monterey County, California. Unpublished Report, 7 pp., 2 appendices.

______. 1990. *Hydrogeologic Feasibility Study Development of Deep Aquifer,* Monterey Dunes Colony, Monterey County, California. Unpublished Report.

______. 1996. *Survey for Water Well Development from Deep Aquifer,* Castroville Water District, Monterey County, California. Unpublished Report, 7 pp.

Grasty, J.W. 1988. *A Gravity and Magnetic Study of the Armstrong Ranch Area,* Monterey County, California: San Jose, Calif. San Jose State University, M.S. thesis, 87 pp., 6 sheets.

Greene, H.G., Lee, W.H.K., McCulloch, D.S., and Brabb, E.E. 1973. *Faults and Earthquakes in the Monterey Bay Region, California.* U.S. Geological Survey Miscellaneous Field Studies Map MF–518, 14 pp., 4 sheets, scale 1:200,000.

Gribi, E.A., Jr. 1963. *The Salinas Basin Oil Province.* In Payne, M.B., chairman. Guidebook to the Geology of Salinas Valley and the San Andreas Fault: Pacific Section American Association of Petroleum Geologists and Pacific Section Society of Economic Paleontologists and Mineralogists, 1963 Annual Spring Field Trip, pp. 16–27.

Hansen, R.T., Everett, R.R., Newhouse, M.W., Crawford, S.M., Pimintel, M.I., and Smith, G.A. 2002. *Geohydrology of a Deep-Aquifer System Monitoring Well Site in Marina, Monterey County, California.* U.S. Geological Survey Water-Resources Investigations Report 02-4003, 73 pp.

Ingle, J.C., Jr. 1989. *Analysis of Foraminifera from the Marina County Water District Well No. 12,* Monterey County, California. Unpublished Report to Geoconsultants, Inc., 8 pp.

Langenheim, V.E., Stiles, S.R., and Jachens, R.C. 2002. *Isostatic Gravity Map of the Monterey 30 x 60 Minute Quadrangle and Adjacent Areas, California.* U.S. Geological Survey Open-File Report OF 02-373, scale 1:100,000.

Logan, John. 1964. *Estimating Transmissivity from Routine Production Test of Water Wells.* Ground Water Vol. 2, No. 1.

Lohman, S.W.. 1972. *Ground-water Hydraulics.* U.S. Geological Survey Professional Paper 708, 70 pp.

Monterey County Water Resources Agency. 2000. *Modifying the San Antonio Reservoir Rule Curve—Effects on San Antonio and Nacimiento Reservoirs and Salinas River Flows.* May.

Montgomery Watson. 1993. *Salinas Valley Groundwater Flow and Quality Model*, Monterey County Water Resources Agency. Draft Report.

______. 1994. *Salinas River Basin Water Resources Management Plan, Task 1.09, Salinas Valley Groundwater Flow and Quality Model Report.* Unpublished Report.

______. 1997. *Salinas Valley Integrated Ground Water and Surface [water] Model Update*, Monterey County Water Resources Agency. Final Report.

______. 1998. *Salinas Valley Historical Benefits Analysis*, Monterey County Water Resources Agency. Final Report and Appendices.

Oliver, J.W. 1994. *Summary of Fort Ord monitor well installations.* Monterey Peninsula Water Management District Technical Memorandum 94–07, 10 pp., 3 appendices.

______. 1997. *Summary of 1996 Seaside Basin Monitor Well Installations.* Monterey Peninsula Water Management District Technical Memorandum 97–04, 17 pp, 2 appendices.

Rosenberg, L.I., and Clark, J.C. 1994. *Quaternary Faulting of the Greater Monterey Area, California.* U.S. Geological Survey, National Earthquake Hazards Reduction Program, Final Technical Report 1434-94-G-2443, 45 pp., 3 appendices, 4 sheets, scale 1:24,000.

Rosenberg, L.I. 2001. *Geologic Resources and Constraints, Monterey County, California: A Technical Report for the Monterey County 21st Century General Plan Update Program.* Unpublished Report to Monterey County Environmental Resource Policy Department, 167 pp., 10 sheets, scale 1:250,000, one CD-ROM.

Staal, Gardner & Dunne, Inc. 1990. *Hydrogeologic Update, Seaside Coastal Ground Water Basins, Monterey County, California.* Unpublished Report to Monterey Peninsula Water Management District, 55 pp., 2 appendices, 6 map sheets, scale 1:12,000.

Starke, G.W., and Howard, A.D. 1968. *Polygenetic Origin of Monterey Submarine Canyon.* Geological Society of America Bulletin, v. 79, no. 7, pp. 813–826.

Thorup, R.R. 1976. *Report on Castroville Irrigation Project, Deep Test Hole and Freshwater Bearing Strata below the 400-foot Aquifer, Salinas Valley, California.* Unpublished Report to Monterey County Flood Control and Water Conservation District, 59 pp.

______. 1983. *Hydrogeologic Report on the Deep Aquifer, Salinas Valley, Monterey County, California.* Unpublished Report to Monterey County Board of Supervisors, 40 pp.

Wagner, D.L., Greene, H.G., Saucedo, G.J., and Pridmore, C.L. 2002. *Geologic Map of the Monterey 30′ x 60′ Quadrangle and Adjacent Areas, California.* A Digital Database: California Geological Survey CD 2002–04.

Wire, J.C., Hofer, J.K., and Albert, K.A. 1999. *Pleistocene Deposition and Deep Aquifer Development in the Marina-Castroville Area, Monterey County, California [abs.].* American Association of Petroleum Geologists Bulletin v. 83, no. 4, p. 706.

WRIME, Inc. 2003. *IGSM 6.0 Users Manual.*

Yates, E.B., Feeney, M.B., and Rosenberg, L.I. 2002. *Laguna Seca Subarea Phase III Hydrogeologic Update*. Monterey Peninsula Water Management District Open-File report, 143 pp.

This Page Intentionally Left Blank

Attachment B

MCWD Response to Timothy Parker Technical Memorandum

Dated October 8, 2016

This Page Intentionally Left Blank

MARINA COAST WATER DISTRICT

11 RESERVATION ROAD, MARINA, CA 93933-2099
Home Page: www.mcwd.org
TEL: (831) 384-6131 FAX: (831) 883-5995

November 8, 2016

To: Craig Malin
City Manager
City of Seaside
440 Harcourt Avenue
Seaside, CA 93955

Re: Response to Timothy Parker Technical Memorandum Dated October 8, 2016

The City of Seaside has requested that MCWD provide comments on LandWatch's Water Analysis portion of its SEIR comments. Since the Water Analysis comments by LandWatch's M. R. Wolfe & Associates are based upon the Technical Memorandum (TM) dated October 8, 2016, prepared by LandWatch's hydrologist Timothy Parker, MCWD will comment on Mr. Parker's TM. By providing these comments, MCWD is not taking a position either for or against the proposed Monterey Downs Specific Plan.

1. **Groundwater Management in California must now be viewed within the framework of the Sustainable Groundwater Management Act (SGMA).**

1.1. The Sustainable Groundwater Management Act (SGMA) was enacted in 2014 and became effective on January 1, 2015. Except for adjudicated groundwater basins and subbasins, such as the Adjudicated Seaside Groundwater Basin, SGMA applies to all groundwater basins[1] and subbasins within California. SGMA created a framework for sustainable, local groundwater management for the first time in California history. SGMA's core principles[2] are:

- Groundwater should be locally and collaboratively managed to address unique basin conditions and challenges.
- Groundwater should be managed sustainably.
- The state's role should complement and support the goal of local sustainable groundwater management.
- Water rights should be protected.

1.2. The official DWR-designated groundwater subbasins are the mandated groundwater management unit – "Subbasins are the windows through which DWR views SGMA" and the boundaries of DWR subbasins are the boundaries of any area subject to a new comprehensive groundwater adjudication.

[1] The SGMA Water Code Section 10721(b) defines "basin" as subbasin or basin, so everywhere SGMA talks about "basin," so first think "subbasin" and not the larger multi-subbasin Salinas Valley Groundwater Basin.
[2] CalEPA, DWR, SWRCB, et al., Groundwater Legislation Implementation Fact Sheet, December 4, 2014.

In Bulletin 118 (1980), the California Department of Water Resources (DWR) officially designated the following subbasins of the Salinas Valley Groundwater Basin (SVGB):

Number	Name	Area (acres)	DWR Ranking	GS Plan must be adopted by January 31
3-4	Salinas Valley Groundwater Basin			
3-4-01	180/400 Foot Aquifer	84,400	High	**2020**
3-4-02	East Side Aquifer	57,500	High	2022
3-4-04	Forebay Aquifer	94,100	Medium	2022
3-4-05	Upper Valley Aquifer	98,200	Medium	2022
3-4-06	Paso Robles	597,000	High	**2020**
3-4-08	Seaside	25,900	Medium	2022
3-4-09	Langley	15,400	Medium	2022
3-4-10	Corral De Tierra	15,400	Medium	2022

1.3. In addition, the new groundwater adjudication statute requires "the boundaries of the area subject to a comprehensive adjudication shall be consistent with boundaries of a basin," which is defined as having the same meaning as under SGMA, i.e., basin or subbasin.

1.4. On October 18, 2016, DWR announced groundwater basin/subbasin boundary modifications, which will be incorporated into a yet to be adopted interim DWR Bulletin 118. For the SVGB, DWR accepted MPWMD's request (supported by MCWD) to make the Adjudicated Seaside Groundwater Basin a separate subbasin, which encompasses portions of the former Seaside Subbasin and Corral De Tierra Subbasin. In addition, DWR took the remainder of the Seaside Subbasin north of the Adjudicated Seaside Groundwater Basin, which MCWD calls the "Marina Area" since it consists entirely of MCWD's service area, and the remainder of the Corral De Tierra, and merged them into a new "Monterey Subbasin." Because this is a very recent development, these comments will use the existing Bulletin 118 subbasin designations shown above.

1.5. All of MCWD's production wells are located within the Seaside Subbasin. They are located just south of the northern boundary of the Seaside Subbasin and, consequently, draw groundwater from aquifers within both the Seaside Subbasin and the 180/400 Foot Aquifer Subbasin.

1.6. SGMA requires the creation of one or more groundwater sustainability agencies (GSA) within each subbasin to develop and implement a local groundwater sustainability plan or coordinated plans allowing 20 years to achieve groundwater sustainability. The GSA is the primary local agency responsible for achieving SGMA's groundwater sustainability goal within that timeframe. Water Code §10724 does not grant Monterey County exclusive authority to be the GSA in a subbasin if another local agency or agencies have also declared their intent to manage groundwater within all or a portion of a subbasin. SGMA grants the GSA new and additional powers and authorities to those powers and authorities already granted the local agency under its enabling law. For example, a GSA may conduct investigations, measure and limit extraction, require the registration and metering of wells, impose fees for groundwater management, enforce the terms of the groundwater sustainability plan, and construct in-lieu or direct groundwater recharge projects.

The "sustainability goal" is defined as "the existence and implementation of one or more groundwater sustainability plans that achieve sustainable groundwater management by identifying and causing implementation of measures targeted to ensure that the applicable basin [or subbasin] is operated within its sustainable yield." (Water Code, § 10721, subd. (t).) The sustainability goal is to be achieved in the subbasin or basin within 20 years of the implementation of the groundwater sustainability plan. (Water Code, § 10727.2, subd. (b).) "Sustainable yield" is defined as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result." (Water Code, § 10721, subd. (v).)

The required "base period" for purposes of developing groundwater sustainability plans is the period before January 1, 2015. Water Code Section 10727.2(b)(4) states, "[t]he [groundwater sustainability] plan may, but is not required to address undesirable results that occurred before, and have not been corrected by, January 1, 2015."

"Undesirable result" is defined in Water Code Section 10721(w) as follows:

> (w) "Undesirable result" means one or more of the following effects caused by groundwater conditions occurring throughout the [Sub]basin:
> (1) Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.
> (2) Significant and unreasonable reduction of groundwater storage.
> (3) Significant and unreasonable seawater intrusion.
> (4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.
> (5) Significant and unreasonable land subsidence that substantially interferes with surface land uses.
> (6) Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

1.7. The groundwater sustainability plan for the Marina Area of the Seaside Subbasin must be adopted by January 31, 2022. The sustainability goal for the Marina Area of the Seaside Subbasin must be achieved by 2042, which includes rolling back seawater intrusion within the subbasin to at least the condition and extent which existed on January 1, 2015.

1.8. The GSA or GSAs for the entire 180/400 Foot Aquifer Subbasin must be formed by June 30, 2017. The groundwater sustainability plan for 180/400 Foot Aquifer Subbasin, which is classified as a Critically Overdrafted Basin, must be adopted by January 31, 2020 – two years earlier than the Marina Area. The sustainability goal for the 180/400 Foot Aquifer Subbasin must be achieved by 2040, which includes rolling back seawater intrusion within the subbasin to at least the condition and extent which existed on January 1, 2015.

2. **<u>Mr. Parker (a) confuses MCWRA-designated subareas with the official DWR-designated subbasins, (b) incorrectly assumes that MCWRA's Pressure Subarea has the same boundaries as DWR's 180/400 Foot Aquifer Subbasin, and (c) fails to recognize that all of MCWD's production wells and the Monterey Downs Specific Plan area are located within the Seaside Subbasin.</u>**

2.1. Mr. Parker states at the top of TM page 2, "The Pressure Subarea is one of the eight subbasins making up the Salinas Valley Groundwater Basin (SVGB)." The statement confuses several facts. The Pressure Subarea is not one of the eight official California Department of Water Resources (DWR) subbasins making up the SVGB. The "Pressure Subarea" is one of MCWRA's Proposition 218 designated subareas to levy assessments to fund the Nacimiento and San Antonio Reservoirs and later the Salinas Valley Water Project.

2.2. The Pressure Subarea in fact encompasses three of the above eight DWR-designated subbasins of the SVGB: 180/400 Foot Aquifer, Seaside, and Corral De Tierra. Consequently, Mr. Parker's statement at the bottom of TM page 1, "The project will obtain its water supply from *<u>wells</u>* in the 180/400-Foot Aquifer Subbasin ('180/400-Foot Aquifer' or 'Pressure Subarea')," is not true since (a) MCWD's production wells are not located within the 180/400 Foot Aquifer Subbasin and (b) the Pressure Subarea encompasses three DWR subbasins, not just the 180/400 Foot Aquifer Subbasin. [Emphasis added.] Mr. Parker incorrectly assumed that MCWRA's Pressure Subarea was the same as DWR's 180/400 Foot Aquifer Subbasin.

2.3. The proposed Monterey Downs Specific Plan area is located within the Seaside Subbasin and within what MCWD designates as the Marina Area of the Seaside Subbasin. A very small portion of the specific plan area is located within the Adjudicated Seaside Groundwater Basin.

3. **<u>MCWD's 2010 UWMP was superseded on June 6, 2016, by MCWD's 2015 UWMP.</u>**

3.1. MCWD's 2010 Urban Water Management Plan relied upon the then available seawater intrusion and groundwater information and maps prepared by MCWRA. MCWD defines the "North Marina Area" is that portion of the 180/400 Foot Aquifer Subbasin situated south of the Salinas River. Investigations being conducted in and around the North Marina Area as part of CalAm's Monterey Peninsula Water Supply Project (MPWSP) show protective good groundwater levels that are sufficiently above sea level to prevent seawater intrusion into the Dune Sand Aquifer and the 180-Foot Aquifer located south of the Salinas River, which significantly differs from seawater intrusion maps produced by MCWRA and relied upon by Brown & Caldwell in its 2015 State of the Salinas River Groundwater Basin report.

3.2. Mr. Parker was aware of the 2015 UWMP because in footnote 57, TM page 16, he cites to the "MCWD, 2015 draft UWMP" and provides a link to the June 6, 2016 MCWD Board minutes, which was the Board meeting at which the 2015 UWMP was approved.

3.3. Curtis J. Hopkins, Principal Hydrogeologist, Hopkins Groundwater Consultants, Inc., is MCWD's hydrogeological consultant. Mr. Hopkins prepared the Technical Memorandum dated May 26, 2016, subject: North Marina Area Groundwater Data and Conditions. His report is included in MCWD's 2015 UWMP, which may be found at http://www.mcwd.org/engineering_docs.php.

Mr. Hopkins analyzed the water quality data developed as part of Cal-Am's test slant well project. The following are some of the important findings from pages 7 and 12 of his analysis:

> The significance of these data is that they indicate beneficial conditions have developed (or have always existed) in the North Marina Area of the 180-400 Foot Aquifer Subbasin and may be contrary to information published by the Monterey County Water Resources Agency (MCWRA). The recent investigation that is being conducted in and around the North Marina Area as part of the MPWSP has discovered an occurrence of freshwater within the shallow Dune Sand Aquifer and the underlying 180-Foot Aquifer within the area delineated as seawater intruded by the MCWRA. As previously shown, water level data from wells in the shallow dune sand aquifer appear to show protective water levels that are sufficiently above sea level to prevent seawater intrusion in the shallower sediments. This condition, combined with the lack of pumping in the 180-Foot Aquifer in the North Marina Area, appears to have slowed seawater intrusion in this portion of the coastline.
>
> * * *
>
> These data suggest a change of groundwater conditions in this coastal section of the aquifer or alternatively, they may reveal the groundwater conditions that existed in an area largely lacking historical data. While the freshwater in this area contains salts and nutrients that are derived from overlying land uses that include agriculture, landfill, and wastewater treatment plant and composting facilities, the chemical character is not sodium chloride, which is indicative of seawater intrusion.
>
> * * *
>
> These data indicate a unique condition exists in the North Marina Subarea south of the Salinas River that provides a significant degree of protection against seawater intrusion in the shallower aquifers under the present and recent past hydrologic conditions.

3.4. While not discussed by LandWatch, Mr. Hopkins explained that Cal-Am's proposed MPWSP source water pumping on the CEMEX property would adversely impact the existing groundwater conditions near the CEMEX property and would destroy that existing groundwater protective condition against seawater intrusion.

3.5. As set forth in Section 1.6 above, the GSA or GSAs formed to manage the groundwater within the 180/400 Foot Aquifer Subbasin is now required by SGMA to maintain the protective water levels, which existing on January 1, 2015, because elimination of those protective water levels by, for example CalAm pumping, would result in significant and unreasonable seawater intrusion.

3.6. Mr. Hopkins' work showed that MCWRA's groundwater data for south of the Salinas River was largely lacking and did not portray the current favorable groundwater conditions within the North Marina Area. Consequently, MCWD's 2015 UWMP adopted on June 6, 2016, has a much different understanding of groundwater conditions than in the 2010 UWMP.

4. **<u>Mr. Parker relies on the January 2015 MCWRA Report on the State of the Salinas River Groundwater Basin prepared by Brown & Caldwell, which uses the MCWRA Subarea designations and not the official DWR-designated Subbasins and which also assumes that all MCWRA groundwater data and maps of the area south of the Salinas River were accurate.</u>**

4.1. On TM page 1, Mr. Parker states that he serves on the Technical Advisory Committee to MCWRA in connection with MCWRA's ongoing study of the SVGB that is mandated by Policy PS 3.1 of the 2010 Monterey County General Plan, including the development of a county-wide groundwater model. Mr. Parker notes that "a preliminary report was released on January 2015 by the prime consultant for the PS-3.1 study" and cites to the Brown & Caldwell Report on the State of the Salinas River Groundwater Basin. Brown & Caldwell was required by MCWRA to use the MCWRA subarea designations and not the official DWR subbasins. For example, since the report combines for the Pressure Subarea all the information pertaining to the 180/400 Foot Aquifer, Seaside, and Corral De Tierra Subbasins, the report does not provide specific groundwater information for the Seaside Subbasin or for the Marina Area of the Seaside Subbasin.

4.2. Mr. Hopkins' findings contradict statements in the State of the Salinas River Groundwater Basin report quoted on pages 2-3 of the TM. The TM incorrectly states, "The fact that groundwater elevations are well below the documented protective elections indicates that the P-180 Aquifer continues to be susceptible to seawater intrusion, and it is unlikely that this situation will be reversed in the coming years" at least as applied to the North Marina Area.

5. **<u>MCWD's groundwater management responsibilities and stewardship.</u>**

5.1. MCWD was founded in 1960 and has been effectively managing its groundwater resources for many years. In October 2001, 4,871 AFY of the 6,600 AFY of groundwater allocated by MCWRA to the Army in the 1993 Fort Ord Annexation Agreement was transferred via quitclaim deeds from the Army to FORA and the next day from FORA to MCWD. The Army reserved the right to 1,729 AFY of the allocation.

5.2 As discussed in Section 1.6 above, SGMA requires the creation of one or more groundwater sustainability agencies (GSA) within each subbasin to develop and implement a local groundwater sustainability plan or coordinated plans allowing 20 years to achieve groundwater sustainability. The State Water Resources Control Board (SWRCB) is the State's SGMA enforcement backstop if the locals are unable or unwilling to manage their subbasin. Any portion of a subbasin not within a DWR-recognized GSA by June 30, 2017, will be declared an "Unmanaged Area" and be subject to providing groundwater extraction reports and payment of fees to the SWRCB. The SWRCB could place such Unmanaged Areas on probationary status, develop interim groundwater sustainability plans, and directly manage the Unmanaged Area's groundwater resources.

5.3. Because of MCWD's long-time management of its groundwater resources and its stewardship responsibilities to its customers within its Central Marina and Ord Community service areas, MCWD filed two separate GSA formation notifications with DWR – one for the Marina Area of the Seaside Subbasin, which encompasses the Central Marina service area and a portion of the Ord Community service area and one for that portion of the Ord Community service area within the Corral de Tierra Subbasin (See attached Maps). The boundaries of both

GSAs exclude the Adjudicated Seaside Groundwater Basin, which is managed by the Seaside Basin Watermaster.

5.4. MCWD staff is now also on the Technical Advisory Committee to MCWRA in connection with MCWRA's ongoing study of the SVGB that is mandated by Policy PS 3.1 of the 2010 Monterey County General Plan and MCWD staff looks forward to working with Mr. Parker and in providing input on the development of a county-wide groundwater model by the U.S. Geological Survey.

6. MCWD's Water Supply Planning and Projects for the Ord Community Service Area.

6.1. Water supply planning includes potable water demand reduction through water conservation, use of recycled water in lieu of potable water, and increased potable water supply.

6.2. MCWD's customers have exhibited a superior water conservation ethic and practices than even the rest of California. See http://www.mcwd.org/about_news.html.

6.3. With the commercial operation of Phase 1 of the Pure Water Monterey Project by 2019, MCWD will have 600 AFY of advance treated recycled water for use within the Ord Community. The City of Seaside has a FORA allocation of 453 AFY of recycled water. Using recycled water will result in potable water savings and could free up potable water for other uses.

In 2002, MCWD, in cooperation with FORA, initiated the Regional Urban Water Augmentation Project ("RUWAP") to explore water supply alternatives to provide the additional 2,400 AFY of water supply identified as being needed in the Base Reuse Plan. As the result of an extensive environmental review, FORA and MCWD agreed to adopt a modified hybrid alternative (the "RUWAP Recycled Project"), which would provide 1,427 AFY of recycled water to the Ord Community without the need for seasonal storage. This in turn resulted in the FORA Board adopting in May 2007 Resolution 07-10, which allocated that 1,427 AFY of recycled water to FORA's member agencies having land use jurisdiction, including 453 AFY to the City of Seaside.

On April 8, 2016, MCWD and MRWPCA entered into the Pure Water Delivery and Supply Project Facilities Agreement pursuant to which the Pure Water Monterey's Product Water Conveyance Pipeline will be designed, constructed, owned, and operated by MCWD in accordance with the 1998 MCWD-FORA Water/Wastewater Facilities Agreement. Under this 2016 Agreement, MCWD will have the right to utilize for the Ord Community up to and including a net 600 AFY during Phase 1 and a net 1,427 AFY during Phase 2 to implement FORA Board Resolution 07-10. FORA has agreed to contribute $6 million towards MCWD's Phase 1 capital costs.

Coastal Monterey County now strongly recognizes the very important role recycled water plays in potable water savings and conservation and for in-lieu groundwater use and groundwater management. MCWD encourages all Resolution 07-10 agencies and Ord Community customers to sign up to use this advance treated recycled water.

6.4. MCWD-FORA-PCA water supply planning process. The Base Reuse Plan identified the need for an additional 2,400 AFY of water. As described in Section 6.3, 1,427 AFY of the 2,400 AFY will be supplied from advance treated recycled water, leaving a net 973

AFY of augmentation water needed for the Ord Community. In May 2016, MCWD entered into a water supply planning memorandum of understanding with FORA and MRWPCA to identify new water source(s) to provide that 973 acre-feet of additional potable water, which could include demand reduction water conservation measures, desalination, additional recycled water, and additional groundwater resulting from in-lieu or direct groundwater recharge projects. FORA is the lead agency for this planning process and the three agencies will contribute equally to the planning costs.

6.5. MCWD's SGMA Groundwater Recharge and Management Projects. As an integral part of development of the groundwater sustainability plan for MCWD's GSAs, MCWD will need to identify and develop in-lieu and/or direct groundwater recharge projects for its service areas. The existence of substantial Salinas River flood flows during above normal and wet water years that would otherwise flow to the ocean, the Salinas River Diversion Facility (rubber dam), CSIP pipelines and rights of way, and MCWRA's unexercised SWRCB Water Rights Permit 11043 provide the possibility of 5,000 to 10,000 AF of direct and in-lieu groundwater recharge projects both north and south of the Salinas River near Castroville and Marina.

7. MCWD's Water Supply Assessment and Written Verification of Supply for the Monterey Downs Specific Plan.

MCWD's 2015 UWMP, the work of MCWD's hydrogeologist Curtis Hopkins, and MCWD's groundwater stewardship responsibilities reinforced by SGMA confirm the conclusions set forth in Section 6 of the November 6, 2012 Water Supply Assessment and Written Verification of Supply for the Monterey Downs Specific Plan.

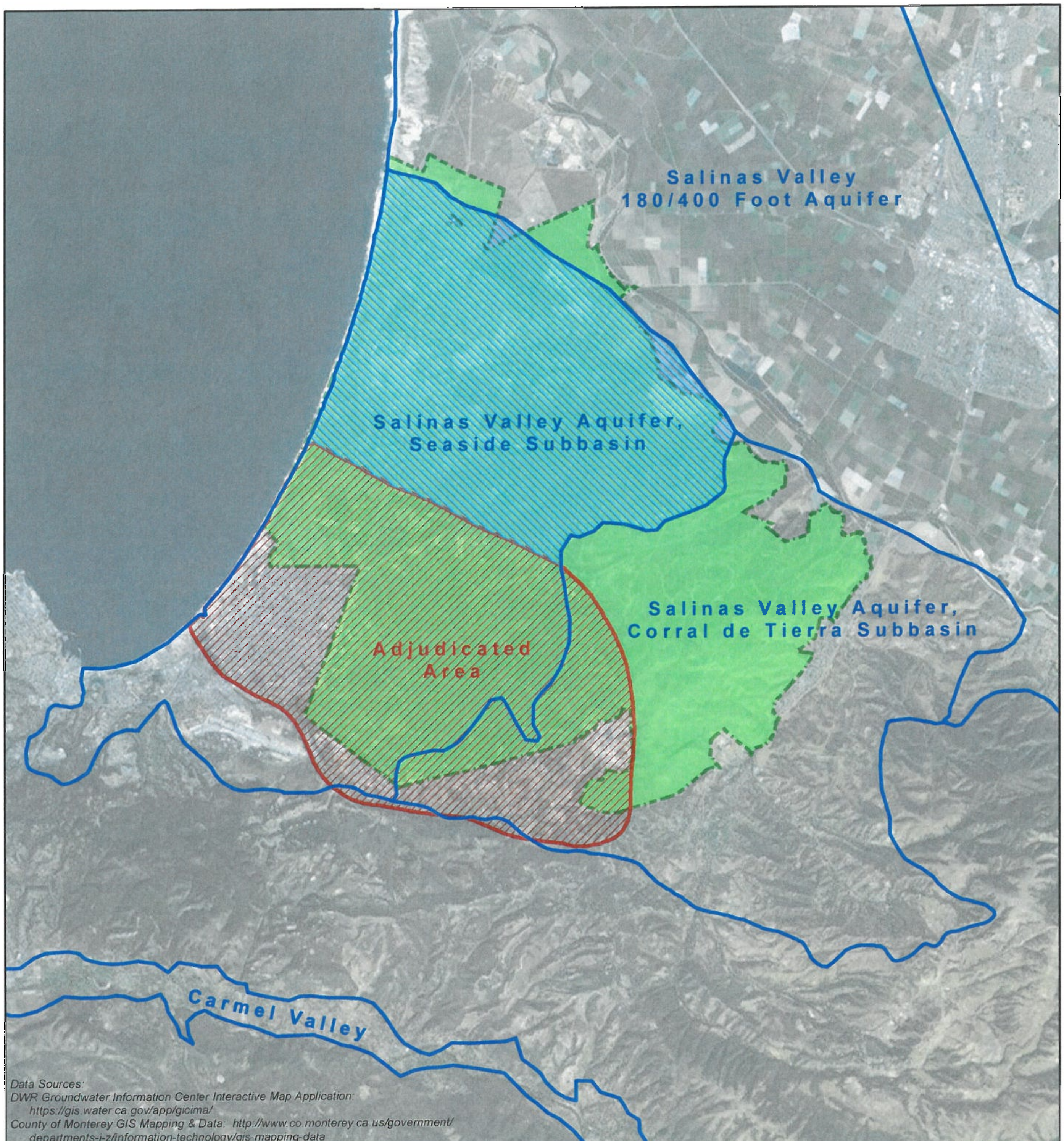


Exhibit 5: MCWD GSA Map - Seaside Area Subbasin

Marina Coast Water District service area

Proposed MCWD GSA Area - Seaside Subbasin

Adjudicated Seaside Groundwater Basin

Bulletin 118 Groundwater Basin boundary

N

0 1 2 Miles

1 inch = 2 miles

Map Date: September 2016

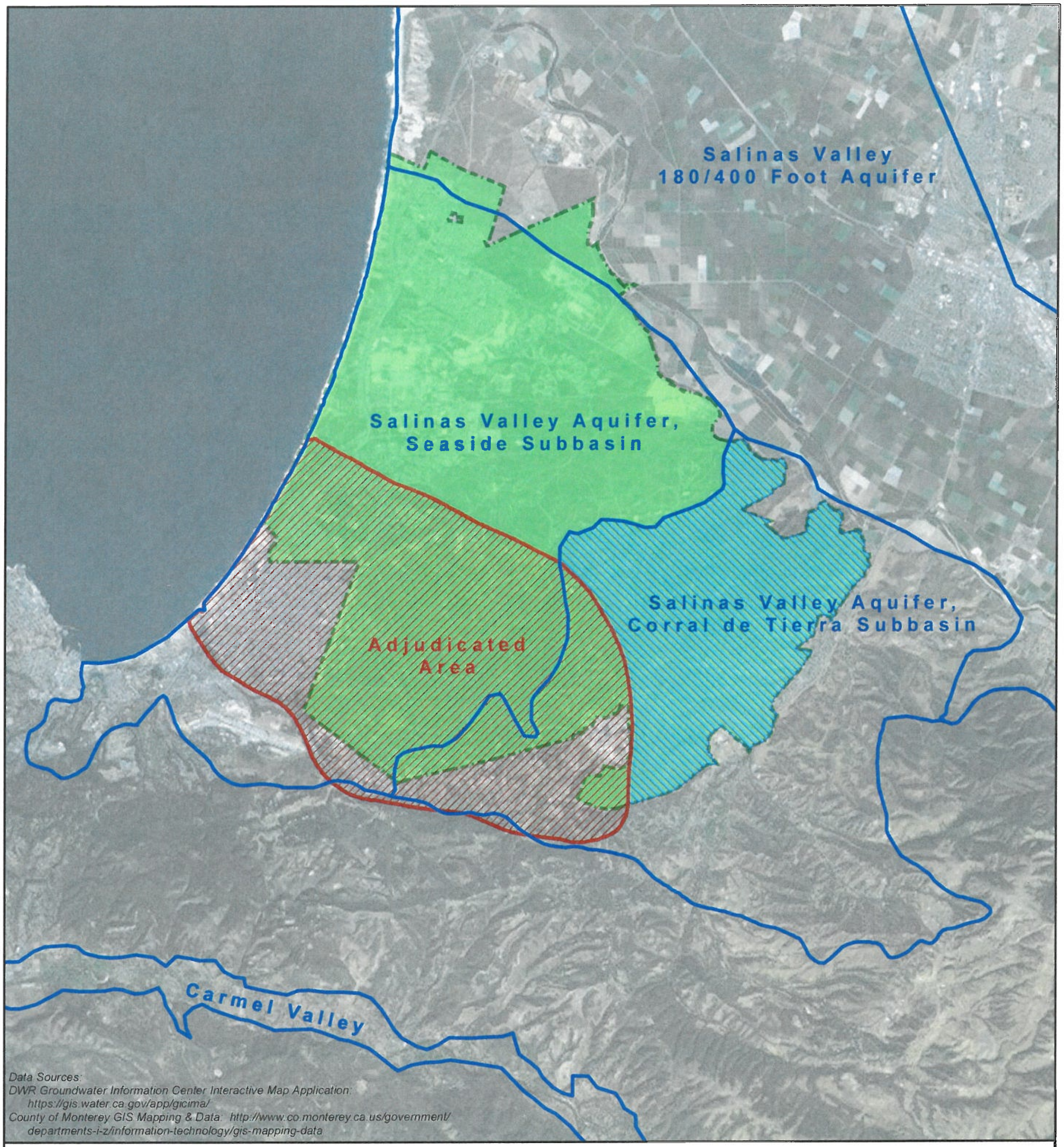


Exhibit 3: MCWD GSA Map - Corral de Tierra Subbasin

- Marina Coast Water District service area
- Proposed MCWD GSA Area - Corral de Tierra Subbasin
- Adjudicated Seaside Groundwater Basin
- Bulletin 118 Groundwater Basin boundary

N

0 1 2 Miles

1 inch = 2 miles

Map Date: September 2016

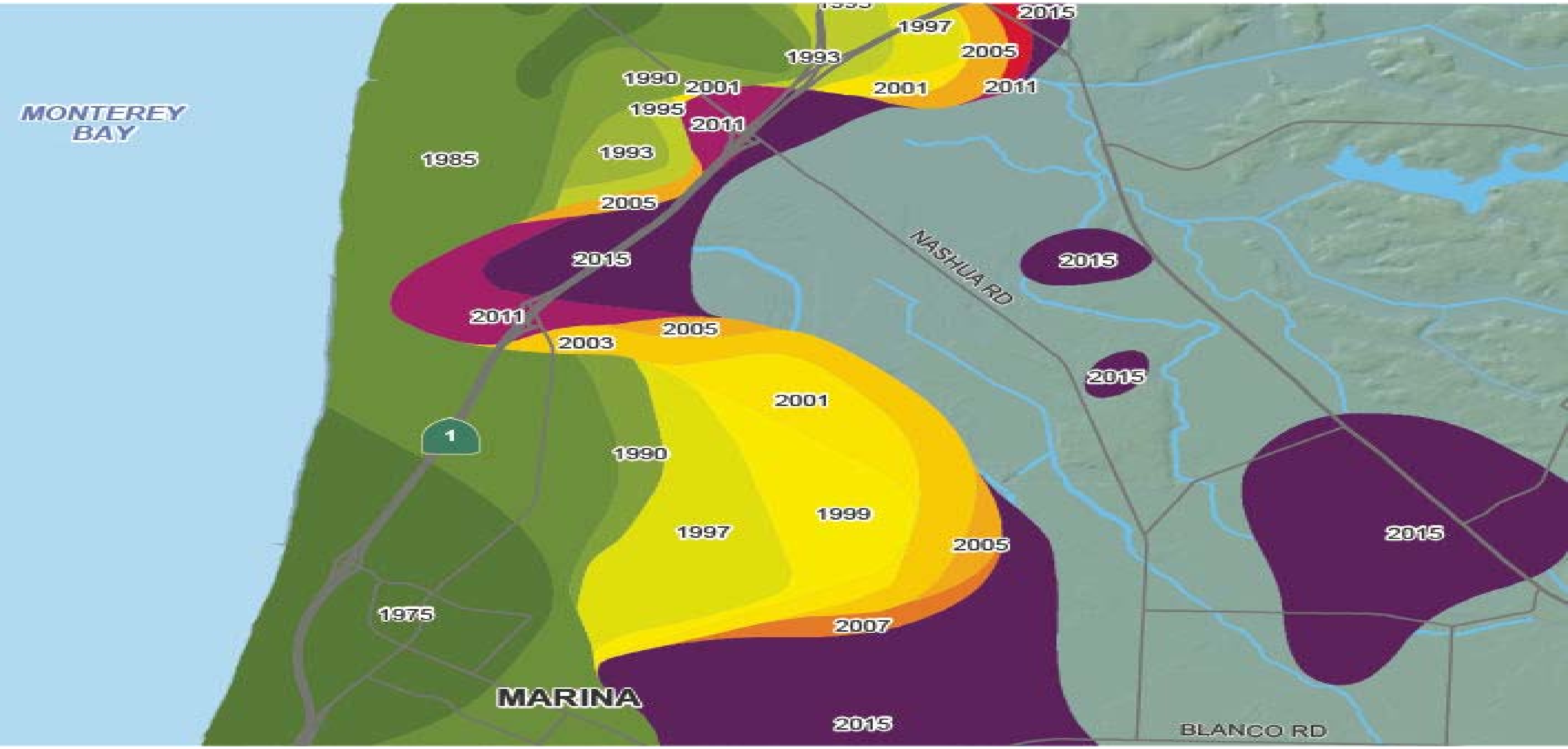
MARINA COAST WATER DISTRICT

Attachment C

MCWD Presentation

Comparison of Seawater Intrusion Maps

This Page Intentionally Left Blank



Reference: Official Monterey County Seawater Intrusion
Map for 400 foot aquifer, October 2017

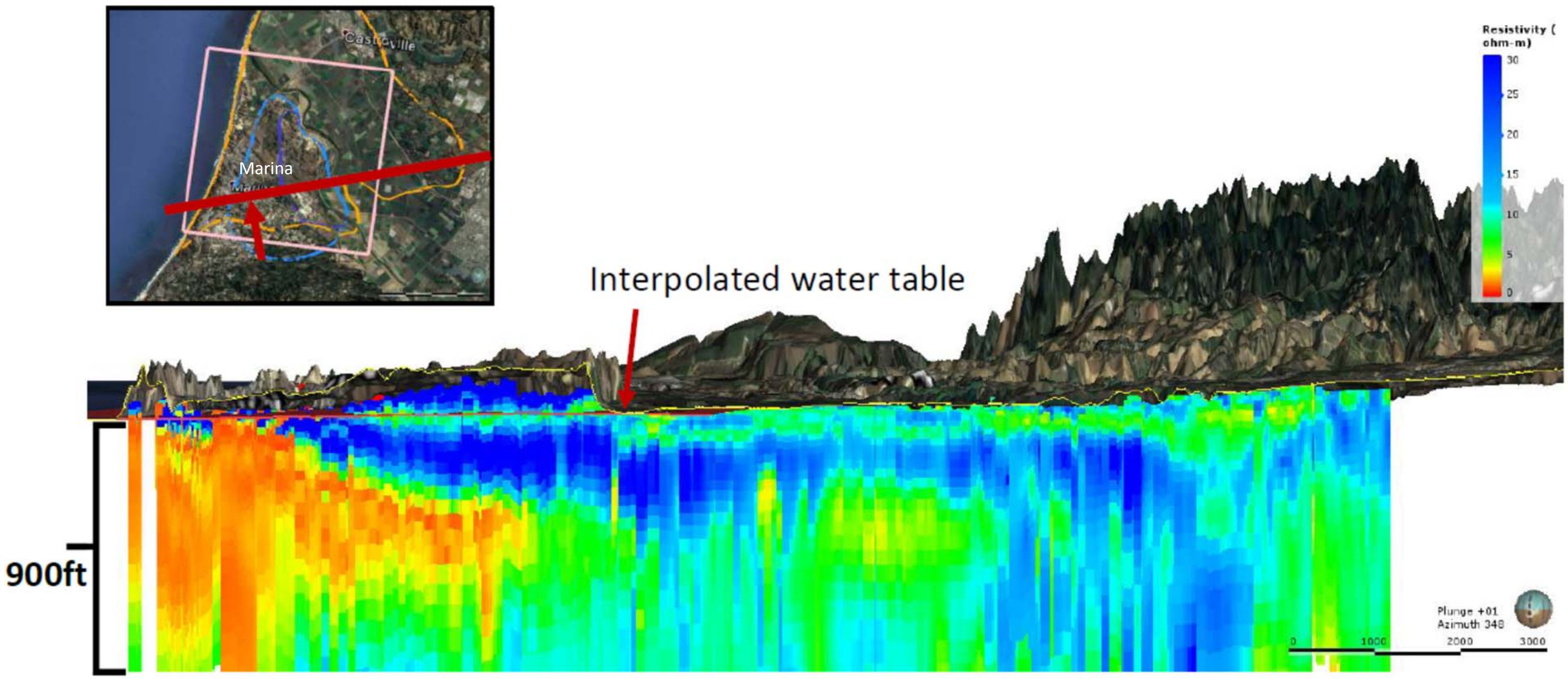
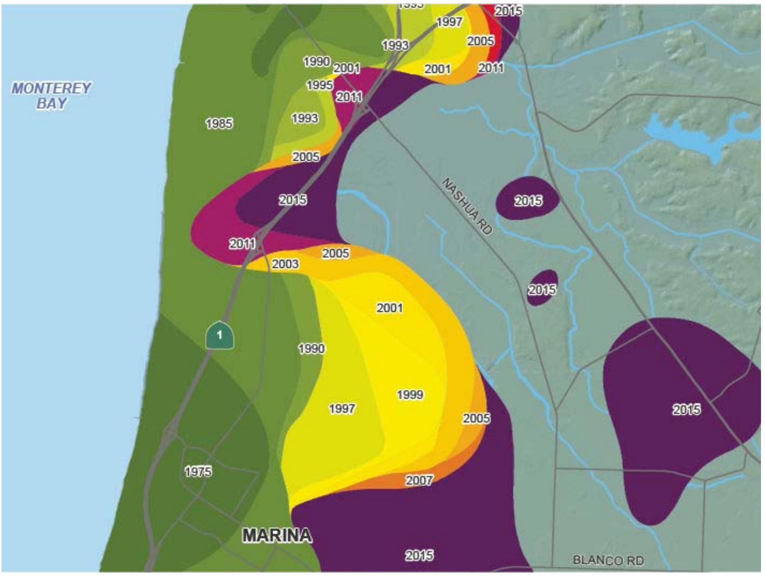


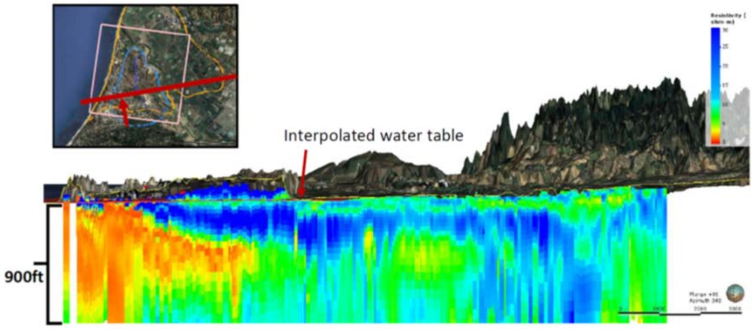
Figure 10: Cross-sectional cutaway view of AEM data, displaying larger-scale structures within the inverted AEM dataset. Interpolated water table surface is shown in red. The large conductive feature on the coast extends inland and downward, while the near-surface resistive body pinches out near the coast.

Source: Preliminary Interpretation of SkyTEM Data Acquired in the Marina Coast Water District by Ian Gottschalk and Rosemary Knight June 16, 2016 Page 15 figure 10 ; see video explaining this Airborne Electromagnetic survey at www.mcwd.org.

Monterey County seawater intrusion map



AIRBORNE Electromagnetic groundwater profile



This Page Intentionally Left Blank

Attachment D

MCWD Preliminary SkyTEM Interpretation Report

Preliminary Interpretation of SkyTEM Data Acquired in the Marina Coast Water District

Ian Gottschalk and Rosemary Knight
June 16, 2017

Objective:

Airborne electromagnetic (AEM) data were collected in the Northern Salinas Valley, CA, within and around the Marina Coast Water District (MCWD). The data were processed and inverted with lateral constraints by Aqua Geo Frameworks (AGF), and the resulting resistivity models given to Stanford. The work described in this report focuses on the region of a suspected isolated freshwater lens. Figure 1 shows the region of interest. “Isolated freshwater lens” is defined here as a water-bearing unit with anomalously low concentrations of total dissolved solids (TDS) in an area otherwise known to be saltwater intruded. Figure 2 shows a highly simplified schematic of the current understanding of the hydrostratigraphy and distribution of fresh and salt water in the region of interest. There is considerable interest in the interpreted isolated freshwater lens, which is suspected to lie in the Dune Sand and 180-Ft and 180-Ft Equivalent Aquifer. The objective of this report is to review the resistivity models obtained through inversion of the AEM data to determine whether we see evidence of the presence of freshwater in the area mapped as the freshwater lens.

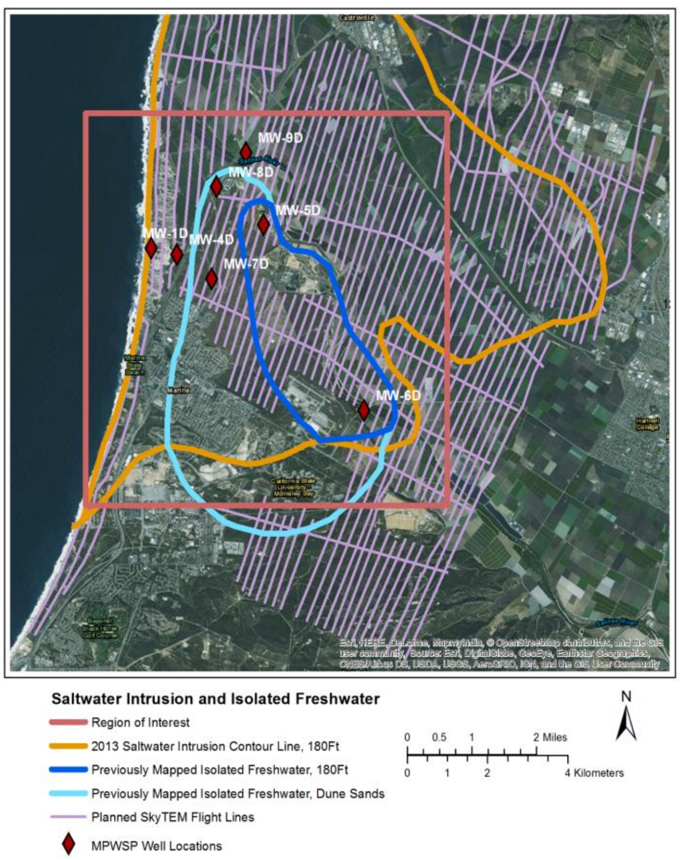


Figure 1: Region of interest (pink box) showing previously mapped saltwater intrusion (orange) extent in the 180-Ft Aquifer and the previously mapped extent of the isolated freshwater (light and dark blue) in the Dune Sand and 180-Ft Aquifers. Also shown are the 7 MPWSP well clusters with geophysical borehole logs as well as continuous data loggers in all screened intervals, and the planned SkyTEM flight lines for the AEM data acquisition

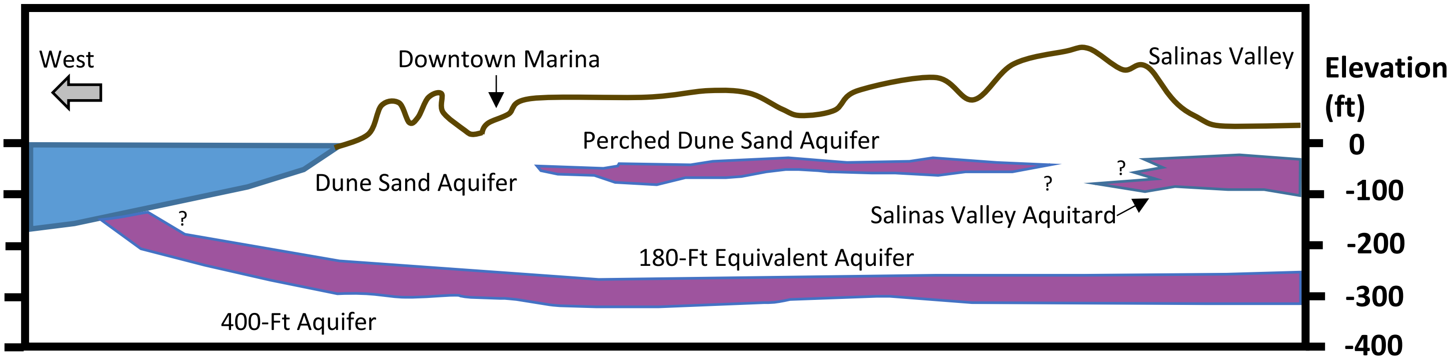


Figure 2: Conceptual cross-section of the hydrostratigraphy in the region of interest. Isolated freshwater has been documented to exist in the 180-Ft/180-Ft Equivalent Aquifers, and in the Dune Sand/Perched Dune Sand Aquifers.

Existing Hydrologic Data:

We have assembled from the study area a database of well location and lithology information. Much of the analysis in this report will use information provided from nine monitoring well clusters drilled by California American Water for its Monterey Peninsula Supply Project (MPWSP), due to the high quality data collected in the wells, and the continuous monitoring within them. These nine MPWSP monitoring well clusters were drilled using a sonic drilling method, with retrieved cores.

Geophysical borehole logs were collected in seven of the monitoring well clusters, shown in Figure 1. Each of the seven well clusters is comprised of three wells, each screened at a different elevation, corresponding roughly to the three aquifers nearest to the ground surface in the region: The Dune Sand Aquifer, the 180-Ft Equivalent Aquifer, and the 400-Ft Aquifer, ranging from highest to lowest elevation. The logs include induction-based resistivity (deep and medium length), spontaneous potential, and gamma radiation. The full geophysical borehole fence diagram for the seven MPWSP well clusters is shown in the Appendix Figure A3. Geophysical logging measurements were collected near the time of drilling which was spring 2015. A baseline geochemical analysis of water from each screened interval was reported approximately 1-2 months after borehole geophysical data collection; wells were bailed before taking a geochemical lab sample. This process has been repeated monthly since then, but the data are not publically available. A continuously logging pressure transducer and electrical conductivity meter was installed in every well in each cluster, and reports submerged pressure, water density, and electrical conductivity every 5 to 15 minutes. Well and transducer specifications are reported by Geoscience Support Services, Inc., shown in the Appendix Table A1. The trend in electrical resistivity on a monthly time scale is negligible, based on the data collected by the continuous data logger in each well; therefore, we consider the lab water quality assessment and the borehole geophysical data to be contemporaneous.

In addition to well lithology (developed from review of the core samples) and geophysical measurements from the MPWSP monitoring wells, previous hydrogeological studies in the area provide a background knowledge of the hydrostratigraphy of the area (Fugro, 1995; Harding, 2001; Kennedy/Jenks, 2004; Geoscience, 2014; Hopkins, 2016).

Overview of SkyTEM Data

635 km of AEM data were acquired in the Marina area May 16-18, 2017, using a SkyTEM 304M system. The locations of the as-flown flight lines are shown in Figure 3, taken from the AGF's QA/QC and Preliminary LCI Report. In this study, we focus on the line-km overlying the study area, shown by the bounding box in the Figure 1.

The inversion of the SkyTEM data by AGF has provided 2-D sections along the SkyTEM flight lines that display the variation in electrical resistivity of the subsurface. The cutaway section in Figure 4 displays data in the region of interest, along with a map of the same area from the 2016 Hopkins Consulting report (Hopkins Consulting, 2016). In all images, we show inverted data considered to be very well determined to determined, with a resistivity standard deviation of <1.5 (Behroozmand et al., 2013). The standard deviation cutoff of 1.5 corresponds to a depth of investigation of nearly 50 mbgs in especially saline regions of the coast, down to over 150mbgs in more resistive inland regions. Inverted resistivities span a wide range in MCWD region of interest, reaching well above 500 ohm-m above the water table in the Fort Ord area, and below 1 ohm-m in zones near the coast.

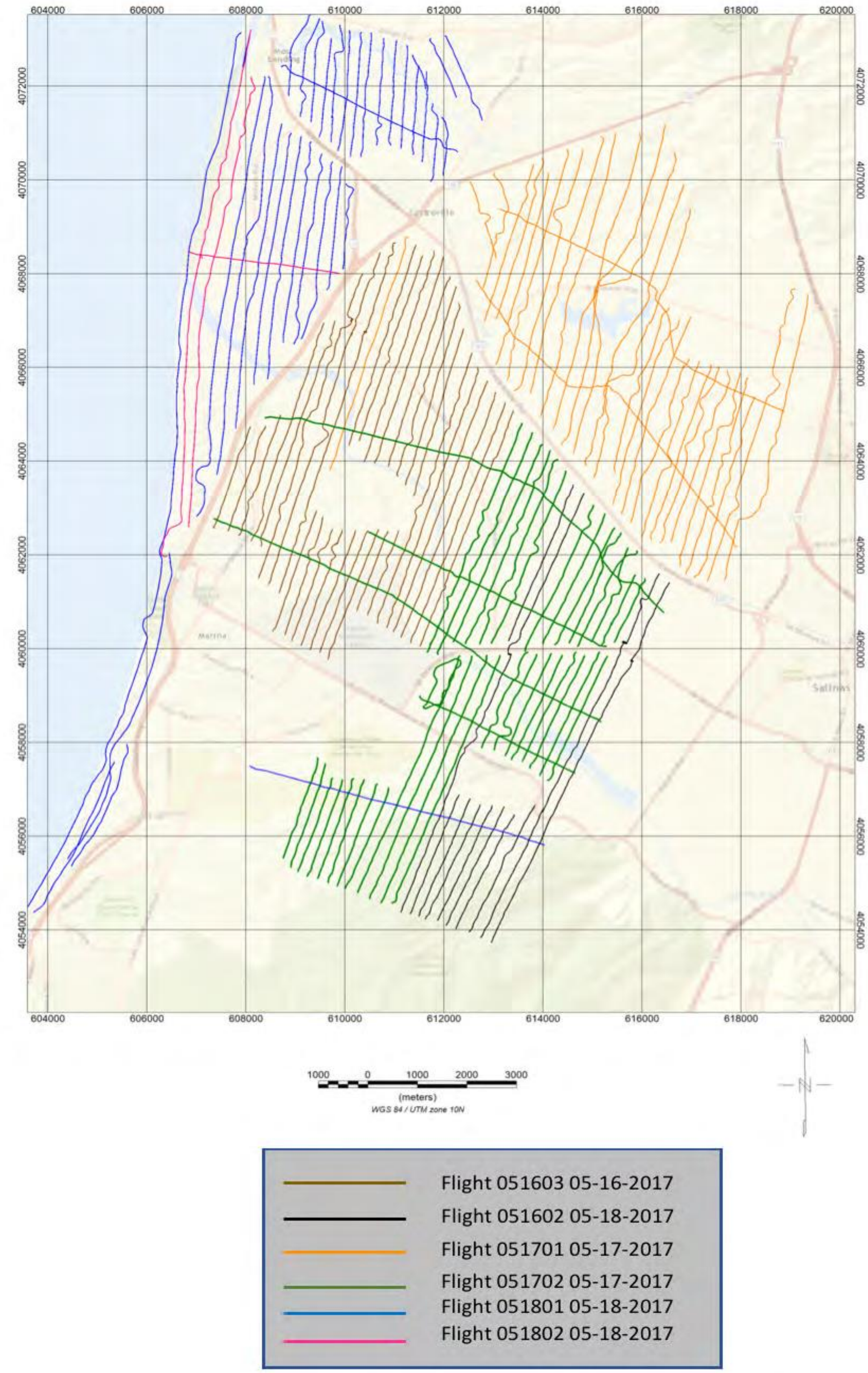


Figure 3: As-flown flight lines in the MCWD SkyTEM data acquisition. From the AGF "QA/QC and Preliminary Laterally Constrained Inversions Report from the Airborne Electromagnetic Survey of Selected Areas Within the Marina Coast Water District"

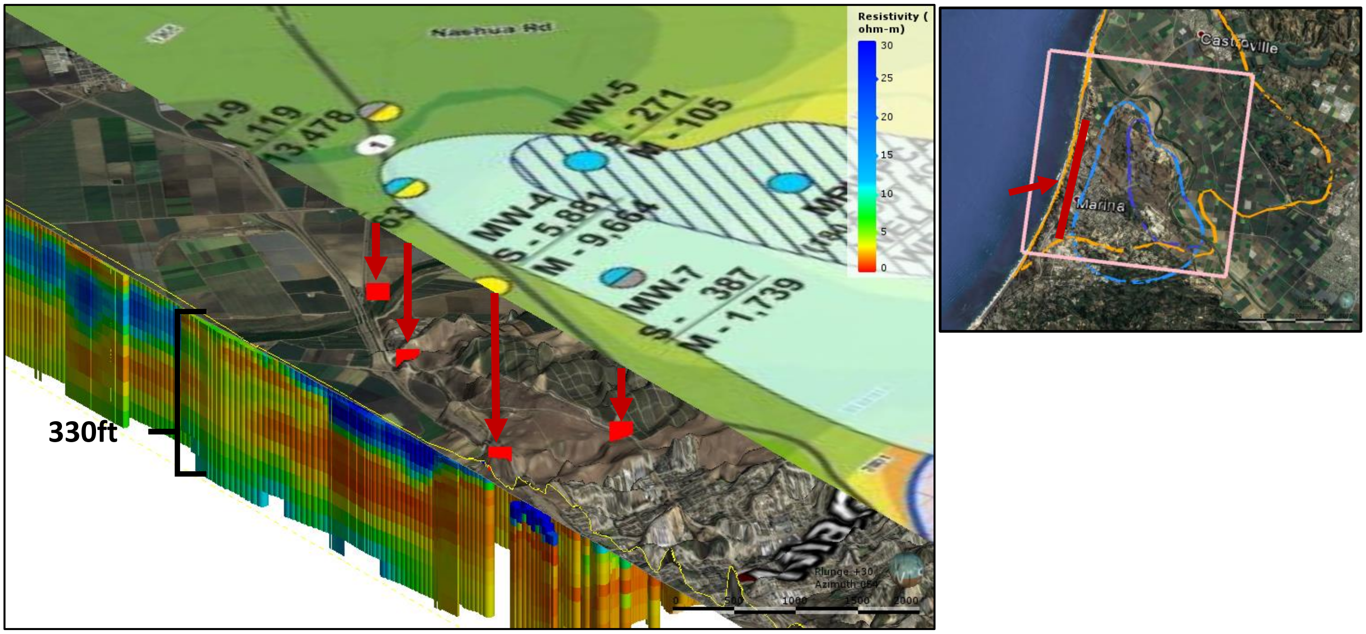


Figure 4: Oblique cutaway view of inverted AEM data in the region of interest, facing northwest from the Monterey Bay. Superimposed above the topography is an image of previously mapped freshwater in the region of interest (Hopkins, 2016). MPWSP wells are shown in red on the topography, and red arrows show the same wells from the superimposed image. The near-surface high-resistivity zone in the Marina area generally extends to the Salinas River.

Figure 5 shows a series of cutaways of the AEM data in the region of interest. Plotted alongside the AEM data are borehole resistivity measurements, for reference. In most locations, borehole resistivity measurements agree very well with the nearest AEM data. This correlation gives us confidence in the AEM data. Although the borehole resistivity measurements were made in 2015, the changes in the subsurface have not made the difference between the datasets very large. Some exceptions are in areas where the pore fluid has changed significantly in the past 2 years (e.g. MW-4 in Figure 5a), which is supported by the trends in EC recorded by the continuous data loggers in the MPWSP wells.

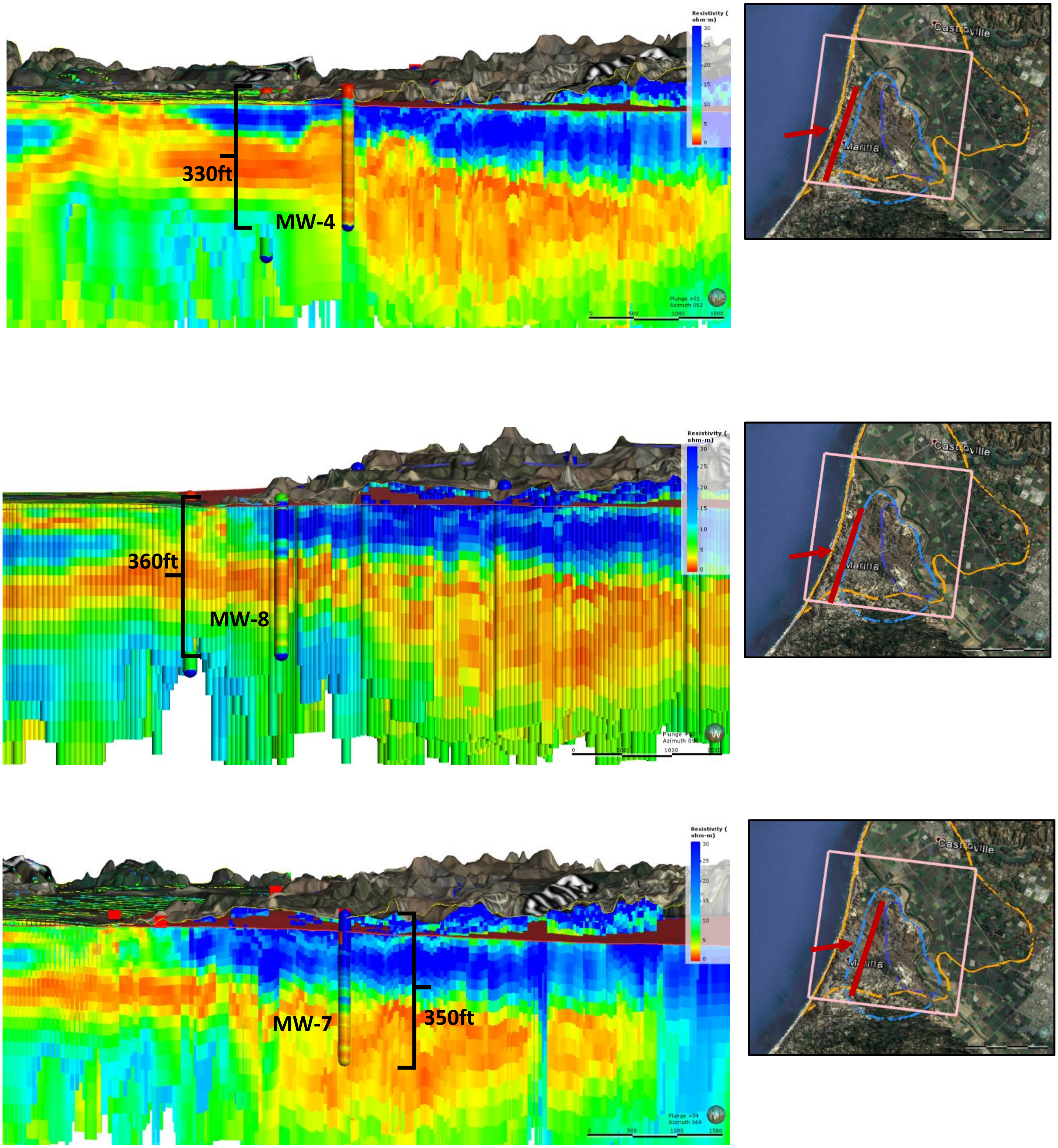


Figure 5: Cutaway slices of AEM data, along with nearby borehole geophysical data (long induction resistivity), and a plan view showing the slice and viewing direction. The top figure shows a notable discrepancy between the geophysical log at the top of MW-4 and the nearby AEM data. This difference emphasizes the changes in water quality since 2015, when MW-4 was logged. The changes observed (increasing in resistivity since 2015) are consistent with the trend of EC in MW-4 since 2015.

Interpretation of the SkyTEM Data

Our objective was review AEM data for the existence of possible freshwater within the region where isolated freshwater had been documented. Resistivity measured by the SkyTEM system is a function of not just water quality, but of sediment mineralogy as well. In order to reliably extract water quality information in the region of interest, our workflow included the following steps:

1) Map the water table in order to separate the unsaturated from saturated zone,
2) Define the resistivity of freshwater and saltwater-saturated zones in order to identify these zones in the AEM data, and
3) Apply the resistivity cut-off values defined above to the data.

1) Mapping the Water Table

1.1) Interpolating a Water Table Surface

In the region of interest, isolated freshwater is suspected to be present in the Dune Sand Aquifer and the 180-Ft/180-Ft Equivalent Aquifer. Since isolated freshwater may be in contact with the unsaturated zone, and both will appear relatively resistive in the AEM data, it is important to delineate between for an accurate assessment of the freshwater resources. Most wells in the region are not screened in the unconfined (Dune Sand) aquifer. However, water table level measurements contemporaneous with the collection of AEM data were available in nine MPWSP wells, recorded by the continuous pressure transducers. A schematic for the conversion used to calculate groundwater elevation from pressure transducer readings is shown in Figure A2 in the appendix, taken from a MPWSP long-term pumping report.

Water table elevations tend to be a muted expression of the surface topography: in high elevation areas, the water table often elevates, and sinks where the topography depresses. In order to model the water table surface to reflect the true water table, control points are needed especially in hilly regions, where the topography changes quickly. In the case of this study, few control points exist in the central and northeastern sections of Marina, where dune deposits create hilly topography (Figure 6b).

Using the available water table data from the MPWSP well measurements, an estimated map of the water table was created with a kriging interpolation. The variogram ranges were calculated automatically from the data, and the groundwater level at the ocean was set at 0m.

Near control points and in regions where topography does not change dramatically, the interpolated water table are expected to reflect the true water table elevation. However, in areas where topography varies quickly, the interpolated water table can be inaccurate. Since the majority of available control points are at lower elevations, the interpolation is biased toward lower elevations. Therefore, in hilly, high elevation regions, the interpolated water table surface is likely to underestimate the elevation of the true water table.

1.2) Applying a Resistivity Cutoff for the Unsaturated Zone

The AEM data itself also helps to define the water table elevation. The absence of water in the subsurface has a profound effect on the resistivity: above the measured water table at control points, the inverted AEM resistivities are found in the range of 100-1000 ohm-m; however, below the water table at control points, nearly all data are below 50 ohm-m. This stark contrast normally exists at the interface between the unsaturated and saturated zone. By applying a resistivity cutoff to allow only <75 ohm-m data, we can compare the interpolated water table surface with the elevation at which the AEM resistivity spikes. Figures 6c and 6d display the topmost AEM data, between the ground surface and the interpolated water table surface. (In these two figures, the interpolated water table surface is draped with the satellite image of Marina, for spatial reference.) Figure 6c shows data above the interpolated water table, but with no resistivity cutoff. Figure 6d introduces the 75 ohm-m cutoff. With an accurate interpolated water table surface and the appropriate resistivity cutoff, the top of the AEM data in Figure 6d should closely match the interpolated surface. Notice that the areas with few control points and hilly terrain in Figure 6b (e.g. NE of Marina and the coastal dunes) correspond to regions where larger volumes AEM data does not match the interpolated surface.

Because of the dramatic resistivity change between saturated and unsaturated zone in this area, using a resistivity cutoff helps to map out the unsaturated zone in regions where water table data is not available. However, in order not to underestimate the amount of freshwater in the near surface, more water table measurements are critical in hilly, high elevation areas in the region of interest.

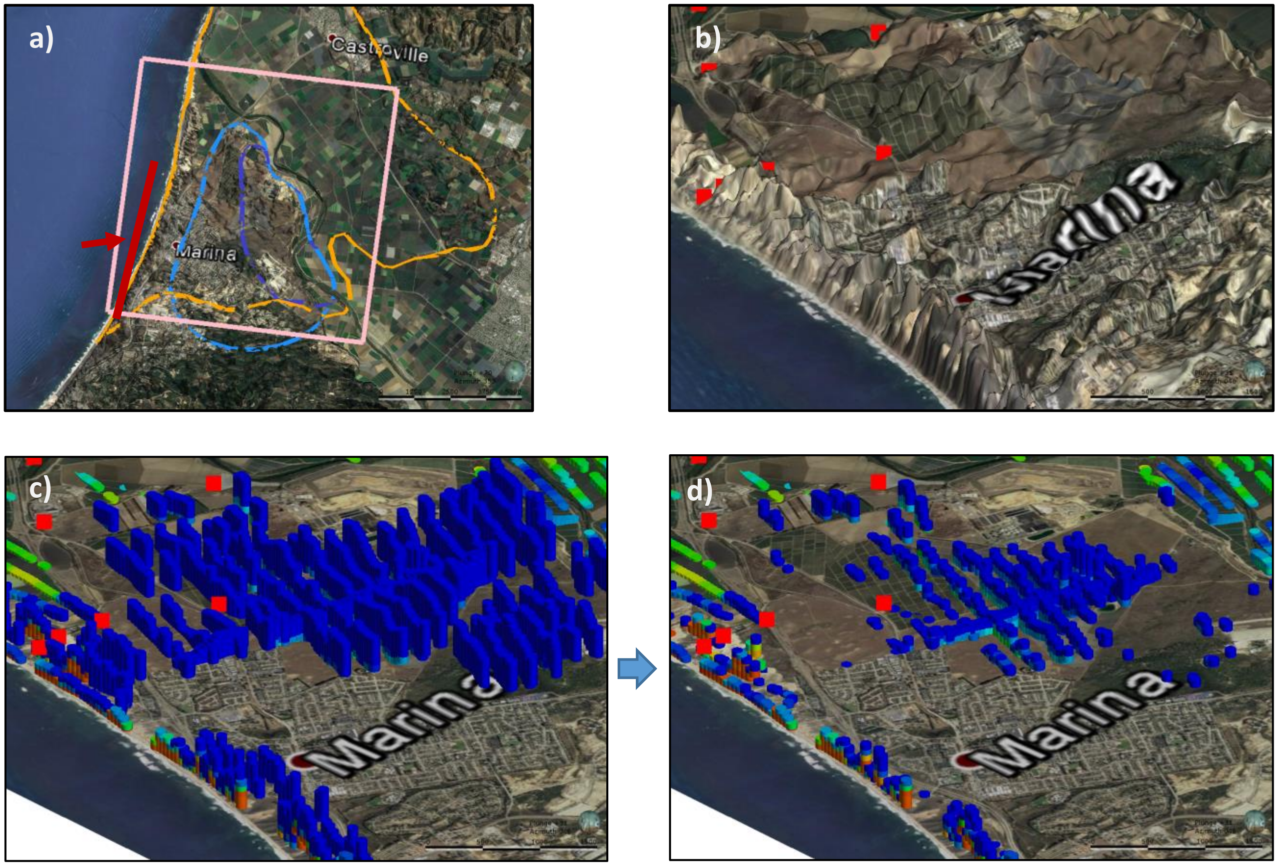


Figure 6: Oblique view of SkyTEM AEM data between the ground surface and the interpolated water table, displaying of few control points on the interpolated water table.
a*) Plan view showing region of interest, viewed line (red line) and viewing direction (red arrow)*
b*)Oblique view showing topography of Marina area and control points from which the interpolated water table surface was created (vertical exaggeration x15)*
c*) All AEM data, bounded beneath by the satellite map of the area set to the elevation of the interpolated water table surface*
d*) A conservative <75 ohm-m cutoff is applied to the data to remove data which have a high probability of being in the unsaturated zone. Between water table control points, the water table surface smoothly varies. In areas with few control points and hilly terrain (such as in the northern Marina area, the coastal dunes, or the Fort Ord area), the water table surface will deviate from reality.*

<u>Defining the resistivity of freshwater and saltwater-saturated zones</u>

Within the saturated zone, resistivity values vary significantly. In order to use the AEM data to interpolate between and extrapolate beyond water quality information from wells, we need to have information on the bulk resistivity of the various sediments containing water of variable quality; i.e., what is the resistivity of a freshwater-saturated sand unit? What is the resistivity of a saltwater-saturated sand unit? What is the resistivity of a freshwater-saturated clay unit? In a lithologically homogenous subsurface, changes in resistivity can be attributed simply to changes in the pore water resistivity, and therefore to changes in salinity. In the case of this study area, the lithology of the subsurface is documented as being very heterogeneous, where aquifer units contain silt and clay lenses from fluvial and alluvial deposits. The presence of finer-grained—especially clay-bearing —sediment affects the resistivity of the bulk material, and therefore affects the return signal in an AEM survey in the same way that pore water resistivity does.

The ranges of resistivity expected in different sediments and water quality from the coastal Seaside area are reported from a recent study in Table 1 (Goebel et al., 2017). While resistivities vary based on both lithology and salinity, we can conclude that the lowest resistivity values will always correspond to saltwater-saturated sediments and the highest resistivity values will always correspond to freshwater-saturated sediments.

Table 1: Expected resistivities of sediments in coastal Seaside area, CA (adapted from Goebel et al., 2017).

Resistivity (ohm-m)	Sand and Gravel	Silt	Clay
Freshwater Saturated	30–70	N/A	7–12
Saltwater Saturated	0.7–3	1.2–3	1.5–5

We developed the analogous table for the Marina area sediments using the geophysical borehole logs in the seven MPWSP wells and pore water TDS measurements made at the time of the logging, where fresh, brackish and saltwater are defined by total dissolved solids thresholds of <3,000, 3000-10,000, and > 10,000 mg/L, respectively. These thresholds are defined according to the EPA Guidance for the Determination of Underground Sources of Drinking Water. The results are shown in Table 2. Given the quality of the lithology cataloging, data were available for multiple lithology categories, beyond sand, silt, and clay. We see a trend similar to the one found in the Seaside area sediments: saltwater-saturated sediments, regardless of lithology, have the lowest resistivity values. Similarly, freshwater in coarser-grained sediments have a distinctively high resistivity, but freshwater in finer-grained sediments can be convoluted with sediments in brackish water. To make conservative estimate of zones that are freshwater-saturated, we apply a 30 ohm-m cutoff to the data defining all freshwater-saturated sediments. A similar estimate can be made for saltwater-saturated zones by applying a 3 ohm-m cutoff, defining all saltwater-saturated sediments.

Table 2a: Expected resistivities in the coastal Marina area, compiled from MPWSP geophysical well logs (long induction resistivity)

Resistivity (ohm-m)	Gravel/ Boulders	Sand and Gravel	Sand	Silty Sand	Clayey Sand	Silt/Loess	Silty Clay	Clay
Freshwater-saturated	N/A	65.00	31.40	15.37	N/A	N/A	11.58	16.98
Brackish-saturated	N/A	7.36	22.98	N/A	N/A	N/A	N/A	N/A
Saltwater-saturated	1.69	1.58	1.76	1.42	1.58	1.65	N/A	1.68

Table 3b: Summary of expected resistivities in the coastal Marina area

Resistivity (ohm-m)	Range	Average	SD
Freshwater-saturated	11-65	28.06	21.97
Brackish-saturated	7-23	15.17	10.38
Saltwater-saturated	1.4-1.7	1.62	0.11

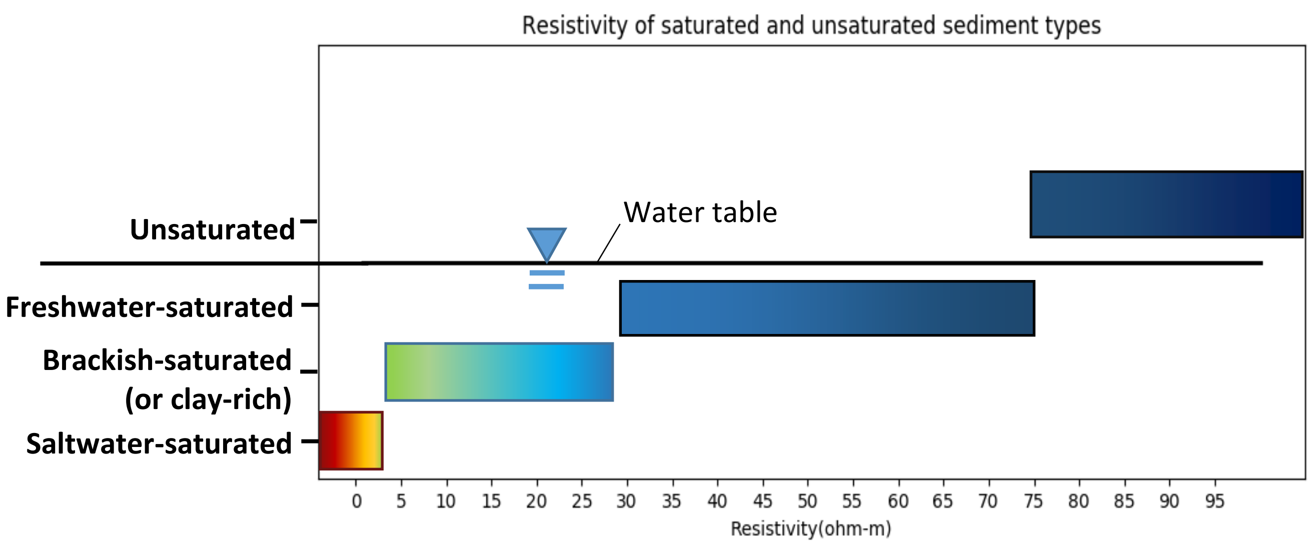


Figure 7: Range of resistivities expected in the region of interest based on Table 2, along with the cutoff values for each classification:
Saltwater-saturated: <3 ohm-m; Freshwater-saturated: 30-75 ohm-m; Unsaturated: > 75 ohm-m.
The range between saltwater-saturated and freshwater-saturated is less certain; sediments could be coarse in brackish water, or clay-rich.

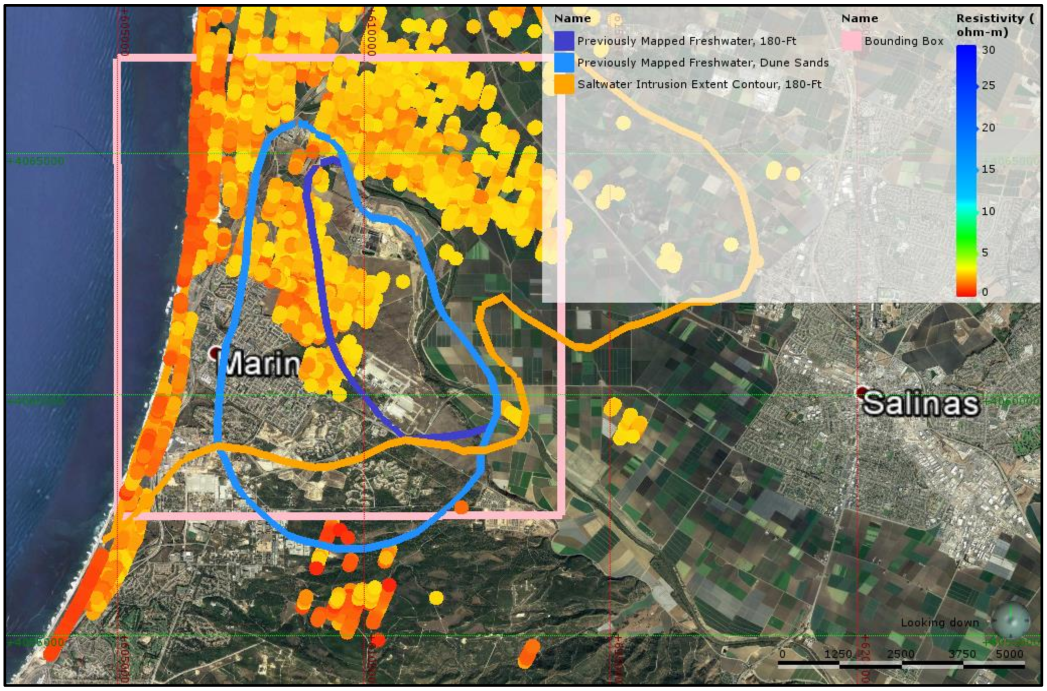


Figure 8a: Plan view showing resistivity below 3 ohm-m to a depth of -150m elevation. Map is shown at -150m elevation

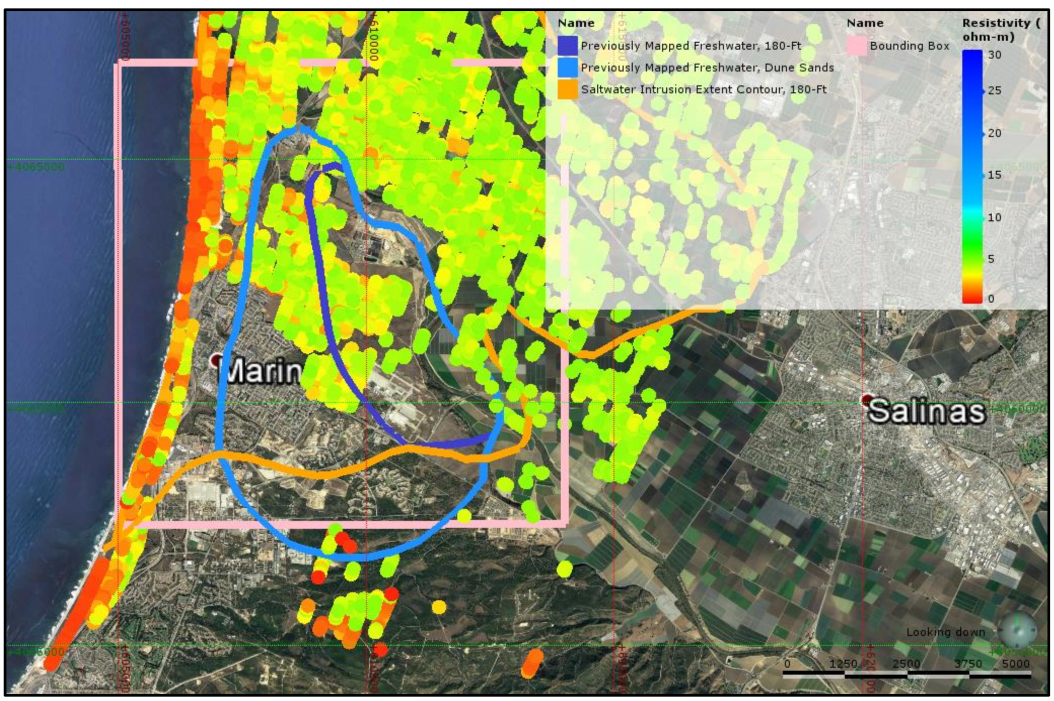


Figure 8b: Plan view showing resistivity below 5 ohm-m to a depth of -150m elevation. Map is shown at -150m elevation

3) Fresh and Saltwater in AEM data

Figure 8 shows the applied saltwater cutoff found from the geophysical well logs (3 ohm-m). Saltwater intrusion tends follow the contours from the previously mapped saltwater intrusion contour in the 180-Ft Aquifer. For comparison, a cutoff of 5 ohm-m is shown in Figure 8b. Figure 9 displays the region of interest with the applied freshwater cutoff found from geophysical well logs (>30ohm-m), and a >20ohm-m cutoff (Figure 9b), for comparison.

It is distinctly clear that areas in the region of interest have a significant volume of freshwater in the near subsurface. In the Marina area, the thickness of freshwater grows, which corresponds to previous water quality measurements in the MPWSP wells, as well as a 2016 report by Curtis Hopkins. The AEM data furthermore show the extension of the isolated freshwater beyond the area formerly thought to contain freshwater in the near surface (in the Dune Sand Aquifer), likely up until near the Salinas River.

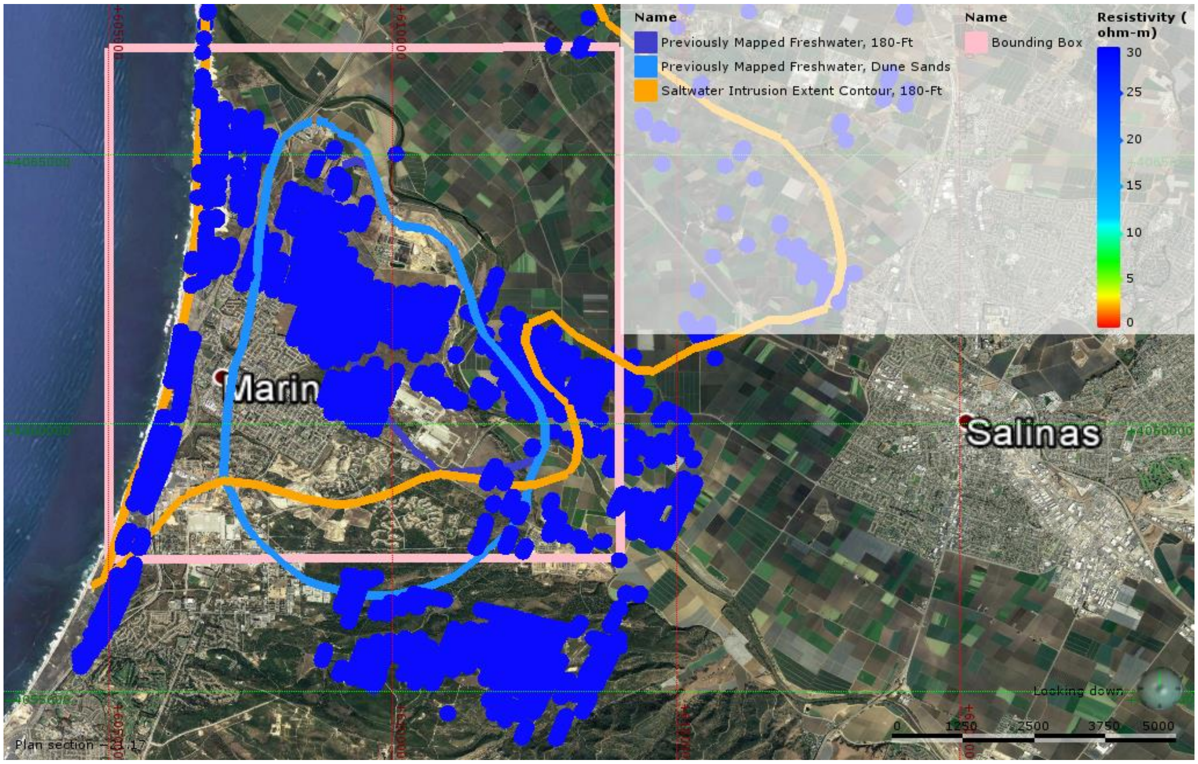


Figure 9a: Plan view showing >30ohm-m resistivities between elevations -100 to 29masl.

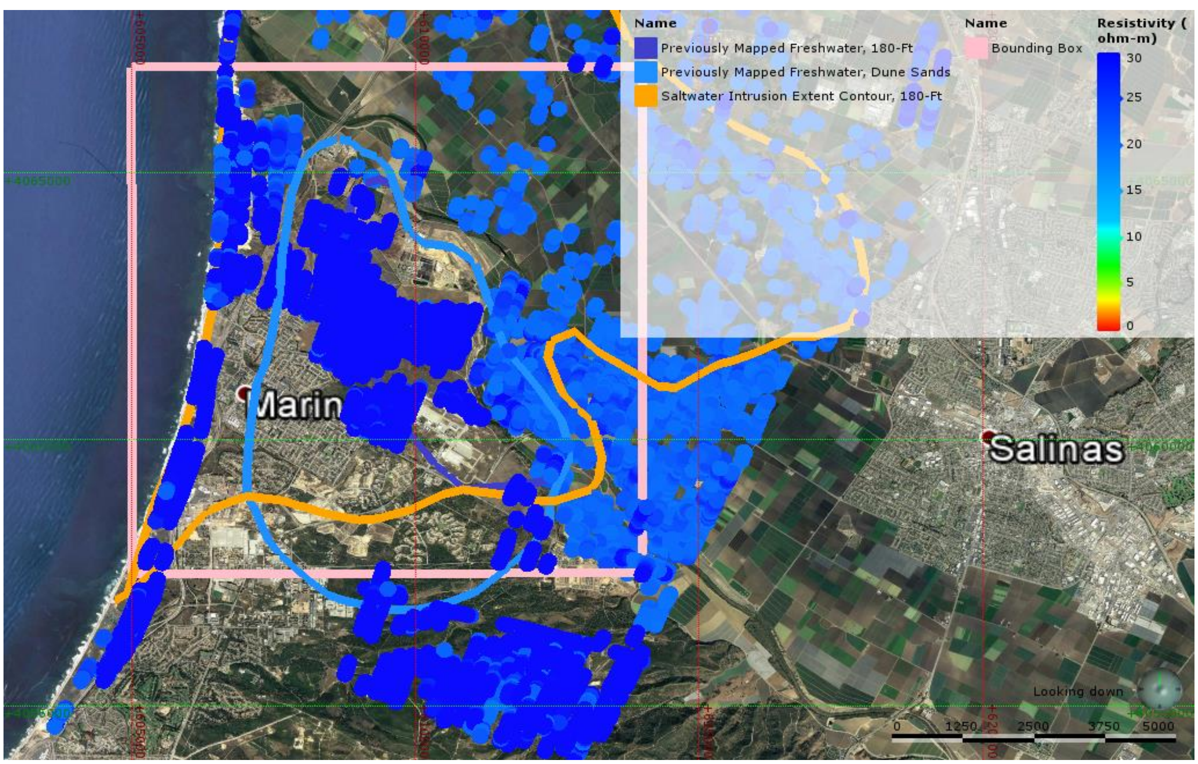


Figure 9b: Plan view showing >20ohm-m resistivities between elevations -100 to 29masl

Summary

We have made a preliminary interpretation of AEM data collected in the Marina region in May 2017. From geophysical logs and water quality measurements, we have conservatively defined an interpolated water table surface, which is likely to underestimate the volume of isolated freshwater in the region of interest. We have compared this interpolated water table, based on few control points, with a conservative resistivity cutoff of <75 ohm-m, to distinguish the saturated zone from the unsaturated zone. Based on borehole geophysical measurements, we defined a lower bound resistivity cutoff of 3 ohm-m to distinguish between freshwater-saturated sediment and saltwater-saturated sediment, considering that saltwater-saturated materials have a uniquely low resistivity range.

The AEM dataset provided by the SkyTEM system and processed by AGF offers an abundance of information into the hydrogeology of the region of interest, in and around the MCWD-operated Salinas Valley Marina Area. The 3-dimensional interactions between fresh and salt water shown by this data can deliver valuable information for groundwater management by MCWD, and offer insight into future action by the District.

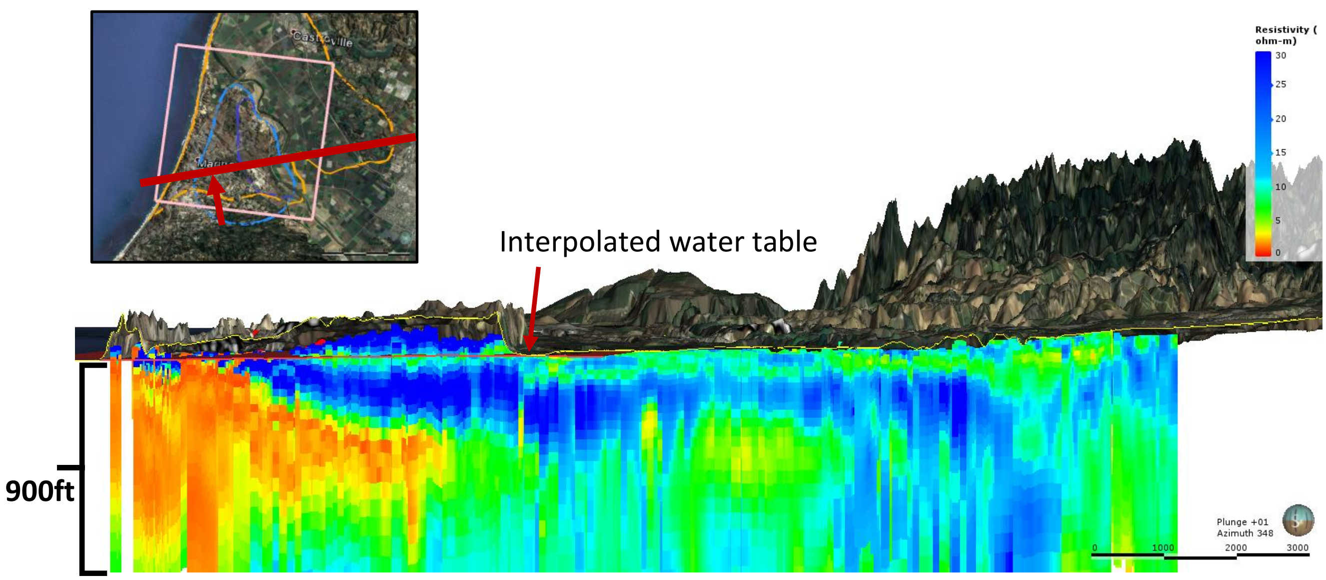


Figure 10: Cross-sectional cutaway view of AEM data, displaying larger-scale structures within the inverted AEM dataset. Interpolated water table surface is shown in red. The large conductive feature on the coast extends inland and downward, while the near-surface resistive body pinches out near the coast.

References

- Archie, G.E., 1942. The Electrical Resistivity Log as an Aid in Determining Some Reservoir Characteristics. Pet. Technol. 54–62. doi:10.2118/942054-G
- Behroozmand, A.A., Dalgaard, E., Christiansen, A.V., Auken, E., 2013. A comprehensive study of parameter determination in a joint MRS and TEM data analysis scheme. Near Surf. Geophys. 11, 557–567. doi:10.3997/1873-0604.2013040
- Fugro West, 1995. North Monterey county Hydrogeologic Study. Volume 1. Report.
- Geoscience, 2014. Monterey Peninsula Water Supply Project Hydrolgeologic Investigation. Technical Memorandum: Summary of Results – Exploratory Boreholes.
- Geoscience, 2017. Monterey Peninsula Water Supply Project: Test Slant Well Long Term Pumping Monitoring Report No. 107. Report.
- Goebel, M., Pidlisecky, A. and Knight, R., 2017. Resistivity imaging reveals complex pattern of saltwater intrusion along Monterey coast. Journal of Hydrology.
- Harding ESE, 2001. Final Report: Hydrogeologic Investigation of the Salinas Valley Basin in the Vicinity of Fort Ord and Marina; Salinas Valley, California. Report.
- Hopkins Groundwater Consultants, 2016. Technical Memorandum Regarding North Marina Area Groundwater Data and Conditions. Technical Memorandum.
- Kennedy/Jenks, 2004. Final Report: Hydrostratigraphic Analysis of the Norhtern Salinas Valley. Report.

Appendix

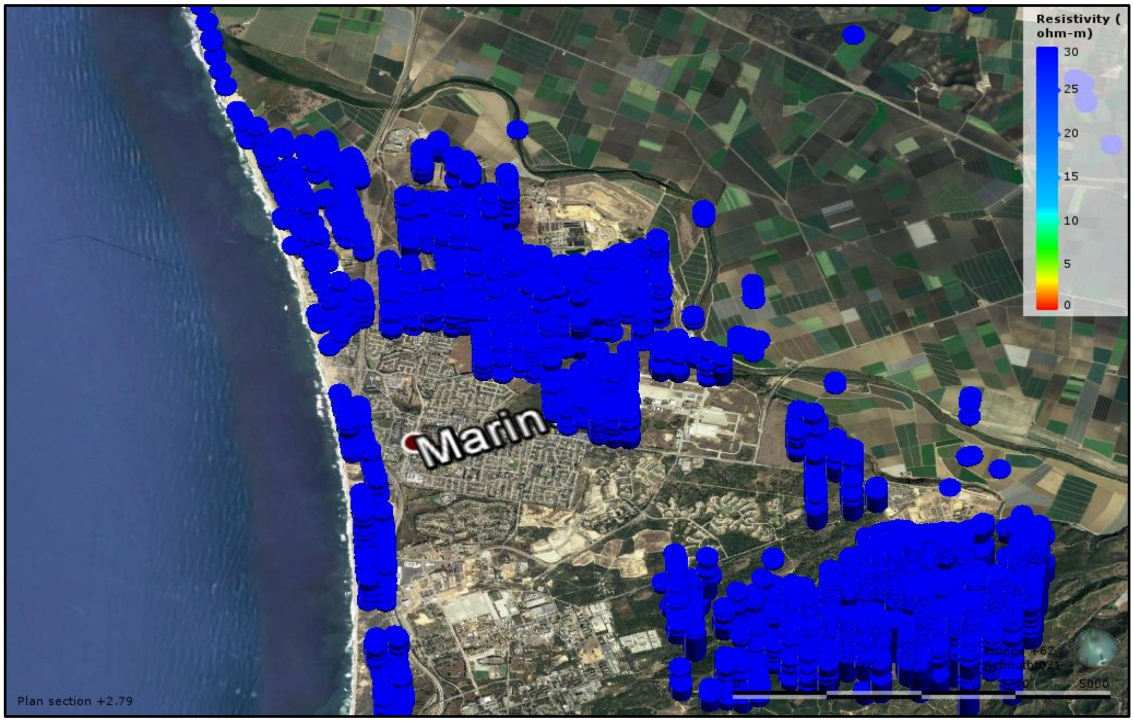


Figure A1a: Plan view showing occurrence of freshwater between elevations -20 to 29masl. Map elevation is set at -20m elevation. From this angle, it is appears that the region of the Salinas River serves as the northern extent for the shallow isolated freshwater zone.

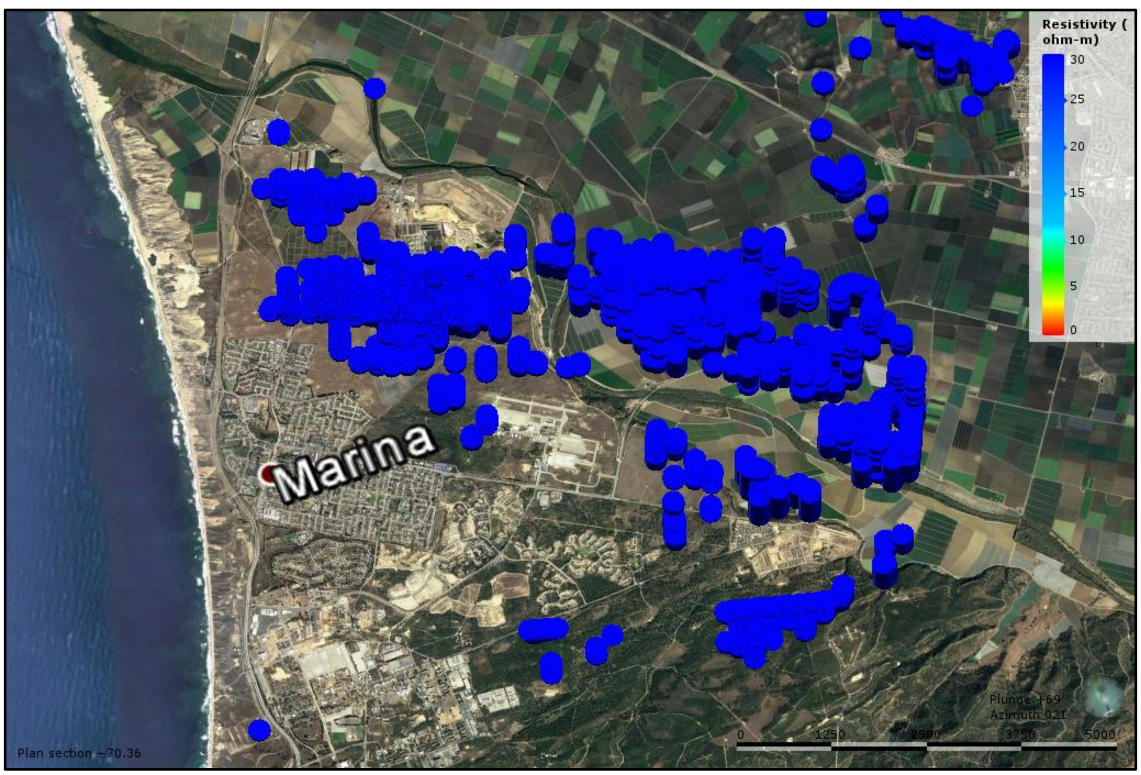


Figure A1b: Plan view between elevations of -20 to -80m. At lower elevations, the isolated freshwater region crosses the Salinas River.

Well Name	Cluster	Reference Point (RP)	State Plane Coordinates Northing	Easting	RP Elevation ft NAVD88	RP Height (ft above GS)	Distance of RP from Slant Well Head (ft)	Top of Screen Interval (ft below GS)	Bottom of Screen Interval (ft below GS)	Transducer Installed Depth (ft below RP)	Survey Date	Data Logging Start Date	Data Collected
MW-1S	MW-1	Top of ABS Transducer Mount	2,154,745.35	5,739,355.82	30.51[1]	2.65[1]	211	55	95	76	26-Mar-15	19-Feb-15	Level, Conductivity
MW-1M	MW-1	Top of ABS Transducer Mount	2,154,751.93	5,739,347.94	29.86	2.48	220	115	225	182	26-Mar-15	19-Feb-15	Level, Conductivity
MW-1D	MW-1	Top of ABS Transducer Mount	2,154,753.60	5,739,337.98	29.68[1]	2.65[1]	230	277	327	309	26-Mar-15	19-Feb-15	Level, Conductivity
MW-3S	MW-3	Top of ABS Transducer Mount	2,154,599.85	5,739,977.02	37.16	2.66	428	50	90	76	26-Mar-15	4-Mar-15	Level, Conductivity
MW-3M	MW-3	Top of ABS Transducer Mount	2,154,592.96	5,739,988.54	37.35	2.73	441	105	215	182	26-Mar-15	4-Mar-15	Level, Conductivity
MW-3D	MW-3	Top of ABS Transducer Mount	2,154,589.81	5,739,998.68	36.93	2.74	451	285	330	321	26-Mar-15	4-Mar-15	Level, Conductivity
MW-4S	MW-4	Top of ABS Transducer Mount	2,154,170.90	5,741,427.62	41.96	2.26	1,940	60	100	66	26-Mar-15	9-Mar-15	Level, Conductivity
MW-4M	MW-4	Top of ABS Transducer Mount	2,154,172.79	5,741,416.78	41.99	2.15	1,929	130	260	208	26-Mar-15	9-Mar-15	Level, Conductivity
MW-4D	MW-4	Top of ABS Transducer Mount	2,154,174.30	5,741,406.08	41.95	2.15	1,918	290	330	317	26-Mar-15	20-Feb-15	Level, Conductivity
MW-5S(P)	MW-5	Top of ABS Transducer Mount	2,156,239.19	5,748,566.86	80.25[1]	2.20[1]	9,135	43	83	71	26-Mar-15	10-Mar-15	Level, Conductivity
MW-5M	MW-5	Top of ABS Transducer Mount	2,156,230.38	5,748,564.26	80.48[1]	2.31[1]	9,131	100	310	171	26-Mar-15	10-Mar-15	Level, Conductivity
MW-5D	MW-5	Top of ABS Transducer Mount	2,156,220.77	5,748,560.95	80.06	1.97	9,126	395	435	417	26-Mar-15	19-Feb-15	Level, Conductivity
MW-6S	MW-6	Top of ABS Transducer Mount	2,141,142.87	5,756,164.01	35.89	2.45[1]	21,436	30	60	54	1-Oct-15	22-Apr-15	Level, Conductivity
MW-6M	MW-6	Top of ABS Transducer Mount	2,141,138.40	5,756,154.35	35.68	2.44[1]	21,431	150	210	184	1-Oct-15	22-Apr-15	Level, Conductivity
MW-6M(L)	MW-6	Top of ABS Transducer Mount	2,141,133.06	5,756,144.94	35.82	2.42[1]	21,427	255	325	315	1-Oct-15	22-Apr-15	Level, Conductivity
MW-7S	MW-7	Top of ABS Transducer Mount	2,152,099.25	5,744,148.10	50.64	2.06	5,274	60	80	72	1-Oct-15	13-Aug-15	Level, Conductivity
MW-7M	MW-7	Top of ABS Transducer Mount	2,152,110.46	5,744,146.08	50.29	2.09	5,266	130	220	187	1-Oct-15	13-Aug-15	Level, Conductivity
MW-7D	MW-7	Top of ABS Transducer Mount	2,152,120.50	5,744,144.38	50.24	2.24	5,260	295	345	322	1-Oct-15	13-Aug-15	Level, Conductivity
MW-8S	MW-8	Top of ABS Transducer Mount	2,159,440.33	5,744,871.52	19.96	2.14[3]	7,116	40	80	61	1-Oct-15	30-May-15	Level, Conductivity
MW-8M	MW-8	Top of ABS Transducer Mount	2,159,430.86	5,744,866.05	19.99	2.17[2]	7,106	125	215	181	1-Oct-15	30-May-15	Level, Conductivity
MW-8D	MW-8	Top of ABS Transducer Mount	2,159,421.47	5,744,861.04	20.08	2.10[3]	7,096	300	350	326	1-Oct-15	30-May-15	Level, Conductivity
MW-9S	MW-9	Top of ABS Transducer Mount	2,162,010.77	5,747,345.03	18.42	2.16[3]	10,677	30	110	71	1-Oct-15	1-Jul-15	Level, Conductivity
MW-9M	MW-9	Top of ABS Transducer Mount	2,162,016.58	5,747,353.64	18.32	2.13[2]	10,687	145	225	182	1-Oct-15	29-Jun-15	Level, Conductivity
MW-9D	MW-9	Top of ABS Transducer Mount	2,162,022.89	5,747,362.25	18.32	2.15[3]	10,697	353	393	377	1-Oct-15	26-Jun-15	Level, Conductivity
Well No. 1[4]	MRWPCA	Well Cover	2,151,622.14	5,750,015.59	114 ft amsl (GS)	1.60	10,898	260	340	299	-	19-Feb-15	Level, Conductivity
Well No. 2[4]	MRWPCA	Well Cover	2,151,550.18	5,749,987.41	115 ft amsl (GS)	1.65	10,892	260	340	319	-	19-Feb-15	Level, Conductivity
CEMEX Dredge Pond	CEMEX	Top of ABS Transducer Mount	2,155,912.41	5,739,497.26	14.14	8.92*	1,212	-	-	-	26-Mar-15	8-Mar-15	Level, Conductivity
Test Slant Well	CEMEX	Near Ground Surface	2,154,702.56	5,739,561.92	30.86	0	0	46**	231**	305MD	26-Mar-15	1-Apr-15	Level, Conductivity
CEMEX North Well	CEMEX	Well Cover	2,154,284.48	5,741,032.07	39.20	0.25	1,529	244	481	150	1-Oct-15	1-Apr-15	Level, Conductivity
CEMEX South Well[4]	CEMEX	Ground Surface	2,154,213.90	5,740,998.57	31 ft amsl (GS)	0	1,518	400	506	-	-	-	-

Horizontal Datum: NAD83 State Plane Zone 4
Vertical Datum: NAVD88
* RP height above pond water level 5.22 ft NAVD88 (8-11 am 26-Mar-15)
** Top of 18 in. screen = 140 ft x Sin(19) = 46 ft TVD, Bottom of 14 in. screen = 710 x Sin(19) = 231 ft TVD

[1] RP/elevation change on May 17, 2015 - New caps
[2] RP/elevation change on July 17, 2015 - New caps
[3] RP/elevation change on September 24, 2015 - New caps
[4] Estimated - not surveyed.

MD: Measured Depth - lineal feet along the angle of the slant well
GS: Ground Surface - approximate ground surface elevation based on Google Earth

Table A1: Technical specifications for the MPWSP well network. From California American Long Term Pumping Monitoring Report 107

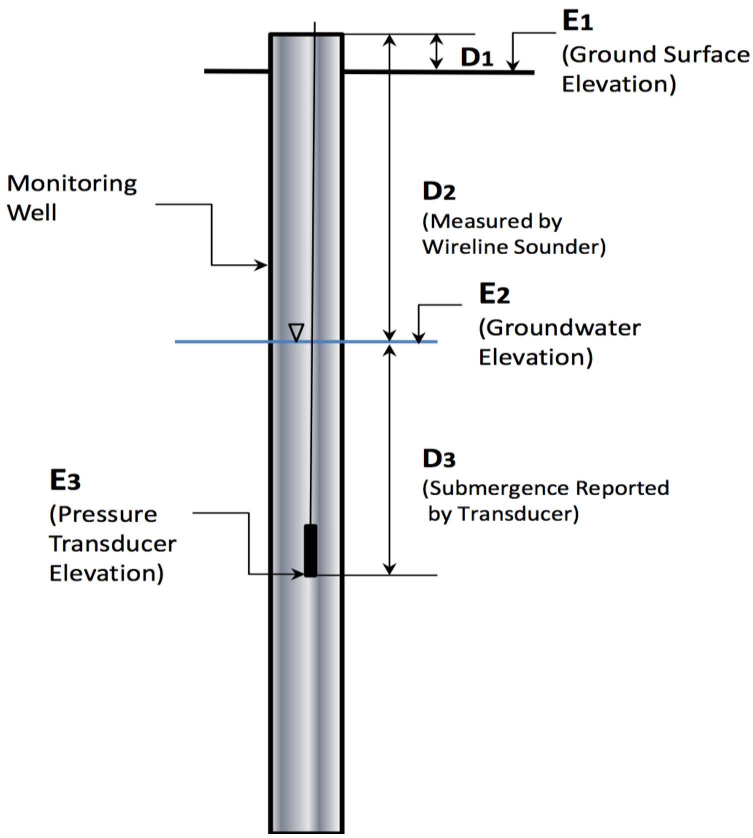


Figure A2: Schematic explaining the measurements taken to convert transducer-reported pressure to groundwater elevation. From California American Long Term Pumping Monitoring Report 107

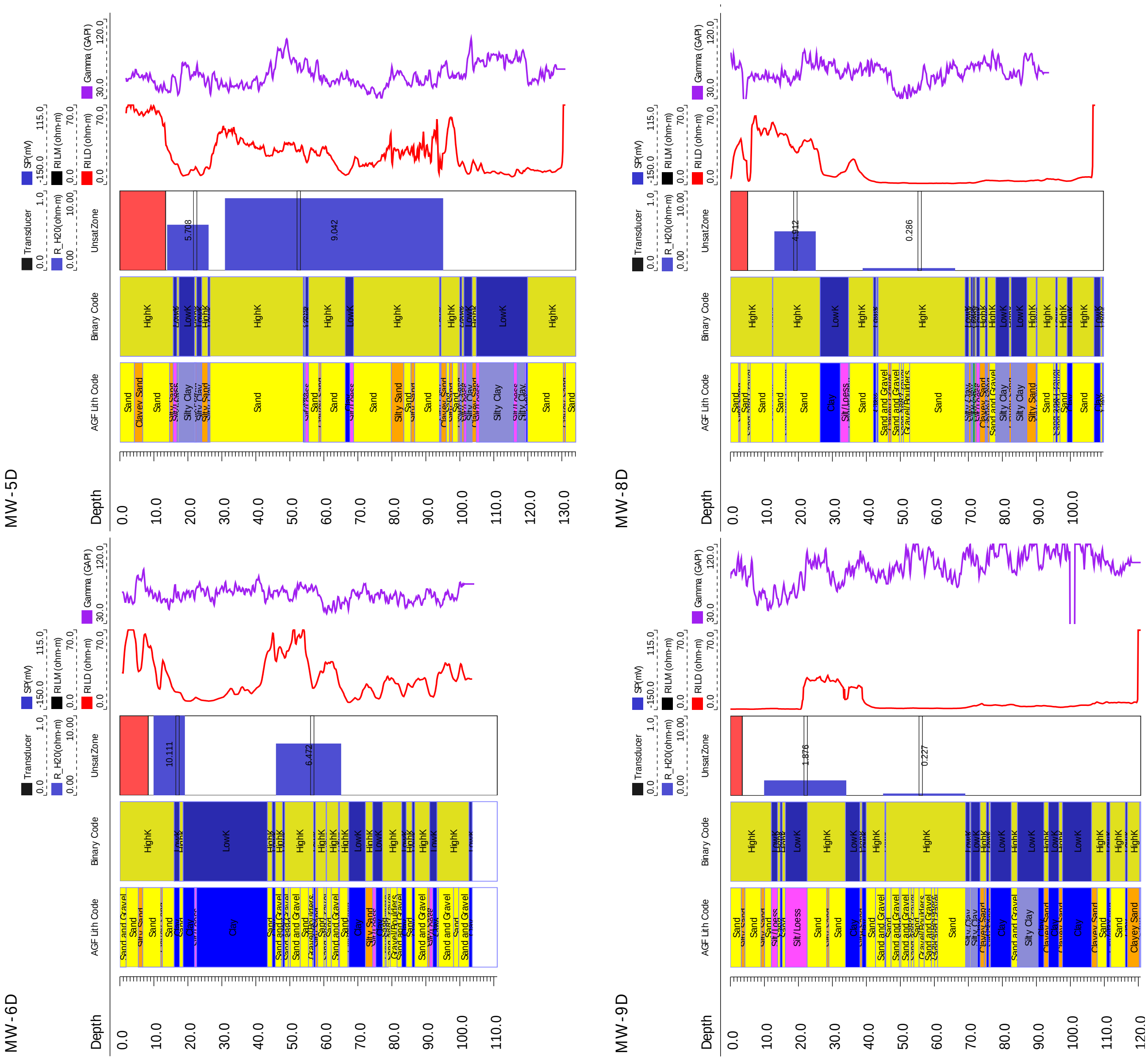
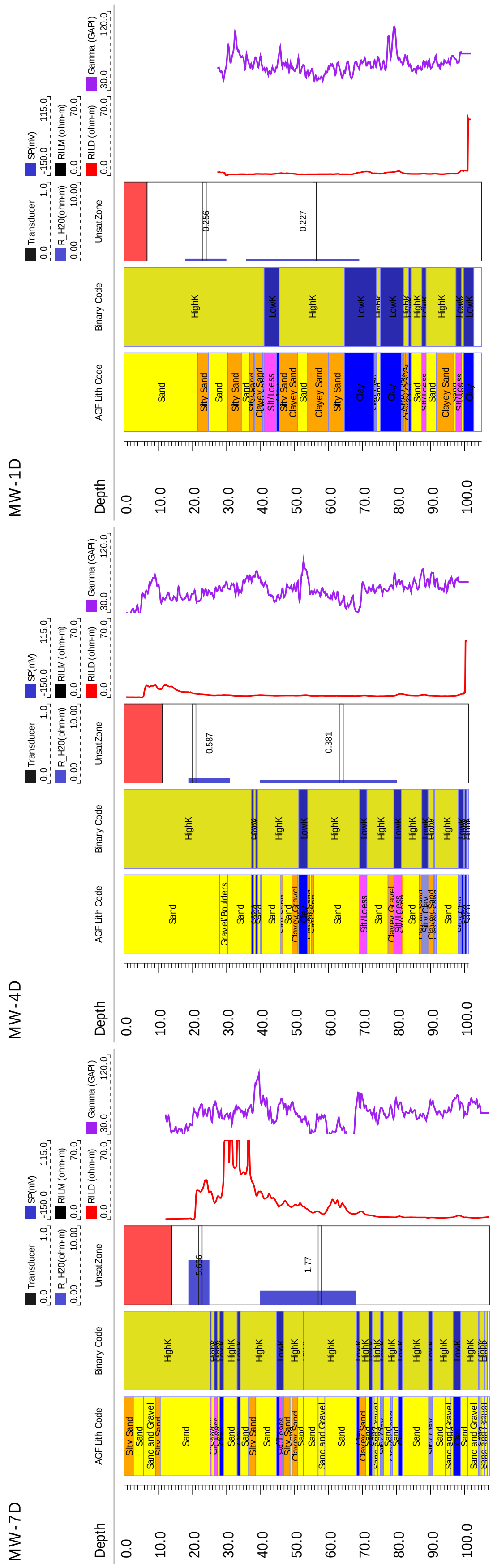


Figure A3: Geophysical borehole logs. Columns from left-to-right: 1) depth (meters below reference point); 2) lithology code; 3) binary lithology classification; 4) top two screened intervals of the well (purple) and the water resistivity from baseline lab samples, unsaturated zone (red block), and the transducer depth (black lines); 5) deep induction resistivity (red), medium induction resistivity (black), and spontaneous potential (blue); 6) gamma radiation (purple).


MW-7D
MW-4D
MW-1D
Depth
AGF Lith Code
Binary Code
UnsatZone
Transducer
R_H20(ohm-m)
SP(mV)
RILM (ohm-m)
RILD (ohm-m)
Gamma (GAPI)

This Page Intentionally Left Blank

Attachment E

Proposition 1 Coordination Agreement

This Page Intentionally Left Blank

PROPOSITION 1 Coordination Agreement

THIS PROPOSITION 1 COORDINATION AGREEMENT (the "Agreement") is made effective as of November 9, 2017 by the Marina Coast Water District Groundwater Sustainability Agency ("MCWD") and the Salinas Valley Basin Groundwater Sustainability Agency ("SVBGSA") regarding proposals for Sustainable Groundwater Planning ("SGWP") Grant Program funds, authorized by the Water Quality, Supply, and Infrastructure Improvement Act of 2014 ("Proposition 1") within the Monterey Subbasin and the 180/400 foot Subbasin, with reference to the following facts:

A. Eligibility criteria for Category 2 proposals for SGWP Grant Program funds, authorized by Proposition 1, only accept one application per Basin/Subbasin; and

B. An eligible agency may be part of the Proposition 1 application as a project proponent, but must identify a single entity that will act as the grant applicant and submit a basin-wide application and receive the grant on behalf of the basin; and

C. If multiple applications are received within a basin for Category 2 projects, DWR will contact the applicants and request that the Parties consolidate one single application for the basin to be submitted before the close of the open filing period; and

D. The applicant must include a Proposal level "Summary" highlighting each project contained in the Proposal and must demonstrate that it encompasses the entire basin or describes why a portion of the basin is not covered in the Proposal.

E. Applicants requesting funding for Category 2 Proposition 1 application must provide documentation of any communications with beneficial users of groundwater in the basin that may potentially be affected by implementation of the project, including, but not limited to DACs, SDACs, agricultural water users, municipal water users, wildlife refuges, or other stakeholders.

F. The Filing Period Closes November 13, 2017 for proposals for SGWP Grant Program funds; and

G. Proposition 1 requires a minimum cost share of 50% of the total project cost.

THEREFORE, in consideration of the facts recited above the Parties agree to the following with regards to Proposition 1 applications:

1. The Parties agree that MCWD shall be the Party responsible for submitting a grant application/proposal to DWR for a Category 2, Tier 2 Groundwater Sustainability Plan grant for the Monterey Subbasin and MCWD shall be the grantee if the proposal is successful. MCWD shall be responsible for the cost of preparing the grant. MCWD will coordinate with SVBGSA and obtain input from SVBGSA in preparation of the grant application/proposal for the Monterey Subbasin.

2. The Parties further agree that SVBGSA shall be the Party responsible for submitting a grant application/proposal to DWR for a Category 2, Tier 1 Groundwater Sustainability Plan grant for the 180/400 Foot Aquifer Subbasin and SVBGSA shall be the grantee if the proposal is successful. SVBGSA shall be responsible for the cost of preparing the grant. SVBGSA will coordinate with MCWD and obtain input from MCWD in preparation of the grant application/proposal for the 180/400 Foot Aquifer Subbasin.

3. A coordination committee including representatives from MCWD and SVBGSA shall be formed for each subbasin.

4. The parties agree that they shall share all data necessary to facilitate the completion of the Proposition 1 applications/proposals.

5. The Proposition 1 application for the Monterey Subbasin will include:

a) A project for the preparation of the GSP by MCWD for the Marina Subarea and the Ord Subarea, as shown on attached Exhibit "A;" and

b) A project for the preparation of a GSP by SVBGSA for the Corral de Tierra Subarea, also as shown on attached Exhibit "A".

6. The Marina, Ord and Corral de Tierra subareas shall be managed as follows:

a) If MCWD is allowed under the Sustainable Groundwater Management Act ("SGMA") to include the Ord Subarea within its Groundwater Sustainability Agency boundaries, MCWD shall manage the Marina and Ord Subareas as part of its GSA under the GSP described in Section 5 (a), above.

b) If MCWD is not allowed under SGMA to include the Ord Subarea within its Groundwater Sustainability Agency boundaries, the Ord Subarea may be designated by the SVBGSA as a Management Area within the boundaries of its GSA, and MCWD shall be allowed to manage the Ord Subarea under the GSP described in Section 5 (a), above.

c) SVBGSA shall manage the Corral de Tierra Subarea.

7. The GSP Project for the Monterey Subbasin will include review and potential refinement of the portion of the Salinas Valley Integrated Hydrologic Model ("SVIHM") that addresses the Monterey Subbasin and nearby subbasins. SVIHM is being developed by the USGS for the entire Salinas River Valley Basin.

8. MCWD will provide matching grant funds for development of the GSP and for SVIHM model review and refinement for the Marina Subarea and Ord Subarea of the Monterey Subbasin. Notwithstanding anything to the contrary, in the event MCWD is prevented from including the Ord Subarea within its GSP or the SVBGSA elects to include the Ord Subarea within its own GSP for the Monterey Subbasin, then SVBGSA shall reimburse

MCWD for all matching funds which MCWD has provided or expended proportionately for the Ord subarea after the effective date of this agreement, and SVBGSA shall be responsible for all matching funds applicable to the Ord Subarea for purposes of the SGWP Grant Program.

9. SVBGSA and MCWD may include additional project(s) in each other's grant applications for the Monterey and 180/400 Foot Aquifer Subbasins if they provide all required information in the appropriate format and demonstrate matching funds by an agreed upon timeframe.

10. The Parties acknowledge that the submission deadline for any Proposition 1 application is November 13, 2017. As such, the Parties agree to the following schedule for coordination of grant applications for the Monterey and 180/400 Foot Aquifer Subbasins:

- Proposition 1 Applicant to share draft Proposition 1 application with other Party (10/20/2017)
- Proposition 1 Applicant to receive feedback on Draft Proposition 1 application from other Party (by 10/27/2017)
- Proposition 1 Applicant to obtain complete information from other Party for any independent Projects (for which other Party is providing matching funds) for inclusion in in Draft Proposition I application (10/27/2017)
- Submit Prop 1 application to DWR by 11/13/2017

In the event either Party fails to provide any of the required information to the submitting Party by the identified dates, then this Agreement shall terminate and either Party may submit a Proposition 1 application on their own behalf, without regard to the other Party.

11. Assuming agreement is reached between the Parties regarding the Proposition 1 applications for the Monterey Subbasin and 180/400 Foot Aquifer Subbasin, the Parties will provide letters of support for each other's Proposition 1 grant applications for the 180/400 Foot Aquifer Subbasin and the Monterey Subbasin by November 3, 2017.

Agreed and acknowledged on November 21, 2017, by the signatures below:

SALINAS VALLEY BASIN
GROUNDWATER SUSTAINABILITY AGENCY

By: Gary Petersen

Title: General Manager

APPROVED AS TO FORM:

Leslie J. Girard
SVBGSA Agency Counsel

MARINA COAST WATER DISTRICT
GROUNDWATER SUSTAINABILITY AGENCY

By: Keith Van Der Maaten

Title: General Manager

APPROVED AS TO FORM:

Roger K. Masuda
Roger K. Masuda
MCWDGSA Agency Counsel