

# Draft Environmental Assessment

## Farmington Groundwater Recharge Demonstration Project

Site #1 – SJAFCA Detention Basin #1  
San Joaquin County, California

*September, 2003*



US Army Corps  
of Engineers ®  
Sacramento District

Prepared by the Sacramento District  
U.S. Army Corps of Engineers  
Sacramento, California 95814

## **DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)**

I have reviewed and evaluated information presented in this draft Environmental Assessment (EA) and other reports concerning the Farmington Groundwater Recharge Demonstration Project in the San Joaquin Area Flood Control Agency (SJAFCA) Detention Basin #1, near Mosher Creek, San Joaquin County, California. I have also considered the views of individuals, agencies, and organizations.

The possible consequences of the proposed Project described in this draft EA have been studied with consideration given to environmental, social, economic, and engineering feasibility. Factors considered for this draft FONSI were effects of noise, traffic, and hazardous materials, and effects on water quality, air quality, soils, recreation, cultural resources, public health, and biological resources including vegetation, wildlife, and listed threatened and endangered species.

Based on my review, I have determined that the Project would have a beneficial effect on the environment. The Project will assist in restoring groundwater lost as a result of agricultural overdraft and in-seepage of salt water from the Sacramento-San Joaquin Delta. Adverse effects on noise, traffic, water quality, air quality, and recreational use are construction related and are considered to be minor. No significant adverse environmental effects would result from the Project.

I am convinced that there is no need to prepare an Environmental Impact Statement. An EA and FONSI provide adequate environmental documentation for the Project.

---

---

Date

---

Mark W. Connelly  
Lieutenant Colonel  
Corps of Engineers  
Acting District Engineer

**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE  
DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

**Responsible Agency:** The responsible agency for the Farmington Groundwater Recharge Demonstration Project, Site #1, San Joaquin Area Flood Control Agency (SJAFCA) Detention Basin #1, San Joaquin County, California (Project) is the U.S. Army Corps of Engineers, Sacramento District (Corps).

**Abstract:** This Environmental Assessment (EA) evaluates the environmental effects of the proposed October 2003 Groundwater Recharge Demonstration Project in SJAFCA Detention Basin #1, San Joaquin County, in the City of Stockton, California. The Corps will perform the Project under the authority of Section 219 of the Water Resources Development Act of 1992 (Public Law 102-580), as amended, which authorized the Secretary of the Army to provide design and construction assistance for water-related environmental infrastructure and resource protection and development projects.

The Project consists of a percolation test to be performed in the existing SJAFCA flood control Detention Basin #1, which is adjacent to and north of Mosher Creek, west of State Highway 99, in the City of Stockton, California. A 100-foot by 100-foot berm 2 feet high will be constructed in the detention basin. Water from Mosher Creek will be channeled out of the creek into this small containment basin by means of a removable weir and sandbagging. The water level will be maintained for approximately one month in order to monitor the evaporation and recharge rates. The test will be used to establish design guidelines for future sites.

The work is not a major Federal action and does not significantly affect the quality of the human or natural environment. The Corps will use best management practices (BMPs) to minimize potential adverse effects to aquatic and terrestrial resources.

This document is available online at:  
<http://www.spk.usace.army.mil/civ/farmington/index.htm>

Please send questions and requests for additional information to:

Ms. Patti P. Johnson  
Environmental Manager  
U.S. Army Corps of Engineers  
1325 J Street  
Sacramento, CA 95814  
[patti.p.johnson@usace.army.mil](mailto:patti.p.johnson@usace.army.mil)  
(916) 557-6611

Comments are due by October 2, 2003.

---

**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

**TABLE OF CONTENTS**

<b>1.0</b>	<b>PURPOSE AND NEED FOR ACTION.....</b>	<b>1</b>
1.1	Background.....	1
1.2	Proposed Action.....	1
1.3	Project Location and Environmental Setting.....	2
1.4	Need for Proposed Action.....	3
1.5	Authority.....	3
1.6	Purpose of the Environmental Assessment.....	3
1.7	Decision that Must Be Made.....	3
<b>2.0</b>	<b>ALTERNATIVES.....</b>	<b>4</b>
2.1	Alternative 1 - No Action.....	4
2.2	Alternative 2 - Site #1 – SJAFCA Detention Basin #1, San Joaquin County, California.....	4
<b>3.0</b>	<b>AFFECTED RESOURCES AND ENVIRONMENTAL CONSEQUENCES.....</b>	<b>6</b>
3.1	Resources Eliminated from Detailed Analysis.....	6
3.1.1	Climate.....	6
3.1.2	Agricultural and Prime and Unique Farmlands.....	6
3.1.3	Geology and Seismicity.....	6
3.1.4	Topography.....	7
3.1.5	Socioeconomics.....	7
3.1.6	Traffic.....	7
3.1.7	Recreation.....	7
3.1.8	Aesthetics.....	7
3.1.9	Cultural Resources.....	7
3.2	Resources Considered for Detailed Analysis.....	8
3.2.1	<b>Vegetation and Wildlife.....</b>	<b>8</b>
	Existing Conditions.....	8
	Environmental Effects.....	10
	Mitigation Measures.....	10
3.2.2	<b>Listed, Proposed, Candidate, and Other Species.....</b>	<b>10</b>
	Existing Conditions.....	10
	Environmental Effects.....	13
	Mitigation Measures.....	14
3.2.3	<b>Water Quality.....</b>	<b>14</b>
	Existing Conditions.....	14
	Environmental Effects.....	15
	Mitigation Measures.....	15
3.2.4	<b>Air Quality.....</b>	<b>16</b>
	Existing Conditions.....	16
	Environmental Effects.....	20

**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

	Mitigation Measures .....	22
<b>3.2.5 Noise</b> .....		<b>22</b>
	Existing Conditions .....	23
	Environmental Effects .....	23
	Mitigation Measures .....	24
<b>3.2.6 Hazardous Materials</b> .....		<b>24</b>
	Existing Conditions .....	24
	Environmental Effects .....	25
	Mitigation Measures .....	25
<b>3.2.7 Soils</b> .....		<b>25</b>
	Existing Conditions .....	25
	Environmental Effects .....	26
	Mitigation Measures .....	27
<b>3.2.8 Public Health</b> .....		<b>27</b>
	Existing Conditions .....	27
	Environmental Effects .....	27
	Mitigation Measures .....	28
<b>4.0 GROWTH-INDUCING AND CUMULATIVE EFFECTS</b> .....		<b>31</b>
4.1 Growth-Inducing Effects .....		31
4.2 Cumulative Effects .....		31
<b>5.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS</b> .....		<b>32</b>
<b>6.0 COORDINATION</b> .....		<b>35</b>
<b>7.0 CONCLUSIONS</b> .....		<b>36</b>
<b>8.0 LIST OF PREPARERS</b> .....		<b>37</b>
<b>9.0 REFERENCES</b> .....		<b>38</b>
9.1 Printed Sources .....		38
9.2 Personal Communications .....		40

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

**LIST OF TABLES**

Table 1.	California Natural Diversity Database Species List .....	12
Table 2.	Hazelton Air Pollutant Summary .....	17
Table 3.	Federal and State Air Quality Attainment Designations for San Joaquin County.....	18
Table 4.	Federal and State Ambient Air Quality Standards.....	21
Table 5.	Health Effects Summary of Air Pollutants of Regulatory Concern.....	22

**LIST OF FIGURES**

Figure 1.	Site Location Map
Figure 2.	Detention Basin No. 1 Site Map (aerial photo)
Figure 3.	Detention Basin No. 1 Pilot Scale Test Plot
Figure 4.	Schematic Design – Weir Detail and Cross Section
Figure 5.	Photo of Demonstration Site #1 SJAFCA Detention Basin #1 looking east toward State Highway 99
Figure 6.	Photo of Demonstration Site #1 SJAFCA Detention Basin #1 – Mosher Creek south of detention basin looking west from State Highway 99
Figure 7.	Photo of Demonstration Site #1 SJAFCA Detention Basin #1 – looking northwest across detention basin

**LIST OF ATTACHMENTS**

Attachment 1.	Letter Requesting Current FWS Species List
Attachment 2.	Letter Requesting Current NOAA Species List
Attachment 3.	Comparison of Mosher Creek Analytes to Relevant Water Quality Criteria
Attachment 4.	Letter from San Joaquin County Mosquito and Vector Control District (SJCMVCD)
Attachment 5.	State Historic Preservation Officer Compliance Letter
Attachment 6.	Draft Fish and Wildlife Coordination Act Report, September 2003
Attachment 7.	Letter to FWS Requesting Section 7 Consultation
Attachment 8.	Letter to NOAA Requesting Section 7 Consultation

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

## **1.0 PURPOSE AND NEED FOR ACTION**

### **1.1 BACKGROUND**

The study area is the eastern portion of San Joaquin County, California, roughly extending from the Sacramento County boundary on the north to Lone Tree Creek on the south, and from State Highway 99 on the west to the eastern edge of the county. The major hydrologic features include the Stanislaus River, the Calaveras River, Mormon Slough, the Mokelumne River, and the Littlejohns-Rock Creek drainages. (See Figure 1, Site Location Map.)

Long-term groundwater overdraft in the eastern portion of San Joaquin County threatens the water supply to the region, which includes the Stockton metropolitan area. The overdraft has led to the intrusion of saline water from areas below the Sacramento-San Joaquin River Delta area to the aquifer underlying portions of the City of Stockton. Planning projections show that regional water demands will continue to exceed available supplies and that continued reliance upon groundwater to meet increasing demands will further increase groundwater overdraft. As groundwater overdraft continues, the extent of the saline intrusion is expected to increase. With no development of water supply projects, the groundwater overdraft and salinity intrusion would further degrade the aquifer and could ultimately result in the loss of groundwater supplies. The loss of a groundwater supply in the water-deficient study area would result in adverse economic consequences to the region.

Local water districts and agencies have concluded that replacement water supplies must be developed in the study area to reduce the groundwater overdraft and the eastward migration of salinity. A potential approach to reducing groundwater overdraft and salinity intrusion includes recharging flood-season and excess irrigation water supplies. In addition, the opportunity exists to create seasonal habitat that is currently severely lacking in the study area.

Over the next several years, sites will be screened and tested for percolation to determine suitability for directing flood-season and excess irrigation water supplies onto these limited areas. The initial goal of the program is to obtain through purchase, lease, or other agreements 25-30 parcels totaling 1,200 acres for the purpose of direct groundwater recharge. Prior to any commitment of resources to a long-term groundwater recharge program, an initial site screening and percolation (infiltration) test must be completed for each potential recharge site. Sites would be selected to minimize environmental impact and maximize the potential for groundwater recharge. The temporary ponding would provide seasonal habitat for migratory birds and other animals.

### **1.2 PROPOSED ACTION**

The Farmington Groundwater Recharge Demonstration Project (Project), located at the existing San Joaquin Area Flood Control Agency (SJAFCA) Detention Basin #1, is a small project planned to evaluate the recharge performance, to monitor response of the aquifer to recharge, and to evaluate the movement of recharged water. This test will be conducted to gather data for the purposes of guiding the potential for design and implementation of creating a full-scale recharge facility. Figure 2, Detention Basin No. 1 Site Map is an enhanced aerial

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

photo showing the Project location within the detention basin.

The Project would consist of a percolation test to be performed in the existing SJAFCA flood control Detention Basin #1, which is used for flood control. The basin is located adjacent to and north of Mosher Creek, west of State Highway 99, in the City of Stockton, California. A 100-foot by 100-foot berm 2 feet high will be constructed in the detention basin to capture water for the test. Perimeter fencing would be constructed for protection from humans and wild animals. Figure 3 shows both plan and profile views of the Project design.

The existing removable weir in Mosher Creek would be used to divert water across the existing detention basin spillway. Sandbags would be placed to direct the diverted water through a temporary pipeline to a small weir that would be constructed adjacent to the Project berm. A meter would be placed at this location to measure the inflow. Water in the pond would be measured by a staff gauge. The water level would be maintained at a depth of 0.5 ft. See Figure 4 for Project details. The test would be performed for approximately one month in order to monitor the inflow, evaporation, and recharge rates. The test would also be used to establish design guidelines and operation protocols for future sites.

### **1.3 PROJECT LOCATION AND ENVIRONMENTAL SETTING**

The SJAFCA Detention Basin #1 is located within the City of Stockton, San Joaquin County, California. It is visible to the west of State Highway 99 and is directly adjacent to the frontage road. The site is bounded on the south by Mosher Creek, on the west by the Woodbridge Irrigation Canal, and on the north by farmland. A large subdivision is being developed immediately to the west of the Woodbridge Irrigation Canal and another subdivision is nearby to the southwest of Mosher Creek. A second irrigation canal parallels Mosher Creek on its southern border. The area in general was used for agricultural purposes for many years, but is rapidly becoming urbanized as evidenced elsewhere along the creek.

The basin, which is one of two such structures, was designed to decrease the peak 100-year surface elevation in Mosher Creek in downstream urban areas. It was built as a feature of the SJAFCA Flood Protection Restoration Project and was completed in 1998. The basin covers 15 acres and is surrounded by a levee. Overflow water enters the basin from Mosher Creek by means of a spillway. Water inflow can be controlled by a removable weir in Mosher Creek. (Draft Environmental Impact Report 1996)

Vegetation in the detention basin is controlled by discing and mowing. Oak trees, which have been planted in the upper perimeter of the basin levee, are two to three feet tall. Mature valley oaks, including those considered 'heritage trees,' as defined by the city's definition, line Mosher Creek on either side. These are suitable for Swainson's hawk nesting. Some small areas along the creek are supporting vegetation and several oak trees overhang the creek, providing shade. The creek channel provides some wetland habitat values. Rodents have become established in the basin bottom and lower area of the levee.



**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

**1.4 NEED FOR PROPOSED ACTION**

Little information exists about the potential for water to infiltrate the soils of eastern San Joaquin County. Little has been prepared on the methods and procedures best suited to accomplish the testing for groundwater recharge in this region. This small test will provide an opportunity to evaluate the means of the calculating infiltration rates and to determine if there are any issues that would eliminate this site as a permanent recharge site in the future.

**1.5 AUTHORITY**

The Water Resources Development Act (WRDA) 1999, Section 502, Environmental Infrastructure, authorized the Secretary of the army to assist in the development of groundwater recharge and conjunctive use projects in Eastern San Joaquin County, California. A cost-sharing agreement between the U.S. Army Corps of Engineers (Corps) and Stockton East Water District (SEWD) indicates that projects will be developed gradually under programmatic guidance. The Farmington Groundwater Recharge and Seasonal Habitat Study of 2001 identified a phased approach to the development of groundwater recharge sites toward meeting project objectives. It is anticipated that implementation will require several years to complete as specific projects are identified, evaluated, and implemented and funding is available.

The requirement for this EA is contained in the National Environmental Policy Act (NEPA) of 1969, as amended (Public Law 91-190). Section 102(2)(A) requires Federal agencies to: "utilize a systematic interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and decision making which may have an effect on man's environment." This Environmental Assessment (EA) has been prepared in accordance with NEPA guidelines.

**1.6 PURPOSE OF THE ENVIRONMENTAL ASSESSMENT**

The EA has been prepared by the Corps as the Federal Lead Agency, in coordination with the Stockton East Water District as the California Environmental Quality Act (CEQA) Lead Agency and non-Federal sponsor. The purpose of this EA is to disclose the environmental effects of groundwater recharge testing in Mosher Creek, San Joaquin County, California. The EA focuses on any environmental effects caused by the test Project, and identifies any mitigation measures that will reduce environmental effects to a less-than-significant level.

The CEQA Lead Agency has determined that the proposed action qualifies under a Categorical Exemption because it involves minor public alterations to existing structure or facilities, reconstruction of existing facilities, conversion of facilities, and minor alterations to land and water that do not involve the removal of mature, scenic trees.

**1.7 DECISION THAT MUST BE MADE**

Based on this EA and in accordance with NEPA requirements, the Acting District Engineer, Commander of the Sacramento District of the U.S. Army Corps of Engineers, will decide whether the proposed Project in SJAFCA Detention Basin #1, San Joaquin County, California, qualifies for a Finding of No Significant Impact (FONSI).

## **2.0 ALTERNATIVES**

### **2.1 ALTERNATIVE 1 - NO ACTION**

Under this alternative, SJAFCA Detention Basin #1 would continue to function as a catchment area for excess floodwaters flowing from Mosher Creek. A residential housing community is currently being constructed on the adjacent property west of this flood control detention basin and may contribute excess storm water runoff into the creek and basin during high flow events.

Another demonstration site would need to be selected for testing the design, procedures, and monitoring suitability of groundwater recharge efforts. No information would be collected regarding the salinity problem that exists in this specific part of San Joaquin County.

### **2.2 ALTERNATIVE 2 – SITE #1 SJAFCA DETENTION BASIN #1**

Under this alternative, water from nearby Mosher Creek would be conveyed into the 15-acre SJAFCA Detention Basin #1 during October 2003 (non-flood season) for two purposes: 1) to test the capability of water to percolate into the ground and recharge the aquifer, and 2) to assess the implementation procedures and design. The following tasks would be completed before filling the demonstration site:

- Evaluate temporal changes in the water quality of Mosher Creek, the source for the groundwater recharge.
- Review historical land use practices, lithologic data from nearby existing wells located outside the basin, topographic maps and aerial photos.
- Collect water quality samples from Mosher Creek to ensure no contaminated water is used in this process.
- Conduct several exploratory shallow boring investigations by drilling boring holes at various sample locations within the basin. Each boring would be drilled to an approximate depth of 15 feet below ground surface to determine the subsurface soil conditions.

After this preliminary work is concluded, up to 700,000 gallons of water from Mosher Creek would be diverted into the detention basin to a test plot 100 feet by 100 feet in size. To contain the water, an earthen berm two feet high would be constructed from dirt scraped off the detention basin bottom. A temporary perimeter fence would be placed around the berm to deter humans and/or local wildlife from entering the test study plot. Figures 1 through 4 show the site location, the Project location within the detention basin, and a plan view of the design. (See also Figures 5 through 7 which are photos taken of the site during a site visit on September 2, 2003.)

An existing removable weir system constructed in Mosher Creek for diverting water into the basin during high flow events would be used for the same purpose during the percolation study. An estimated 99-98% of the water would continue to flow through the creek over and around the weir during the test. A staff gauge and flow meter would be secured inside the test

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

plot to monitor water levels and flow. The use of Best Management Practices (BMP) would be implemented at all times during this Project.

If water percolates into the ground at a rate greater than 0.1 feet per day during the testing period in October 2003, a permanent long-term conveyance system to bring water from Mosher Creek into the entire detention basin during flood events could be designed and implemented. This system would include an inflow meter to quantify flow into the basin, monitoring devices to accurately measure pond height and water quality, and installation of at least two monitoring wells to determine the direct effects of recharge into the groundwater table. Environmental effects of such long-term use would need to be addressed. If the test is not successful, the site would be abandoned and another selected elsewhere.

The results of this percolation test would be utilized as part of a program undertaken to identify saline-affected areas in San Joaquin County that would be eventually be tested for percolation. These affected areas would also be used to recharge groundwater. The objectives of the overall Farmington Groundwater Recharge Project include:

- Decrease salinity intrusion by diverting existing water supplies and floodwater into high saline areas to recharge the local groundwater table.
- Restore seasonal habitat lost to urban development and agricultural activities by attracting migratory waterfowl to these flooded areas.
- Increase flood protection by alleviating existing local flood control facilities and diverting water to saline-affected lands.

### **3.0 AFFECTED RESOURCES AND ENVIRONMENTAL CONSEQUENCES**

This section discusses the existing environment in the study area and identifies all environmental resources. Each of the environmental resources was analyzed to determine if there would be any significant Project effects upon the resource. This section includes a discussion of the future environmental consequences, if any, of each of the resources considered for detailed analysis.

Paragraph 3.1 discusses the resources that were eliminated from further detailed analysis because no significant effects were found. Paragraph 3.2 discusses in detail each of the resources that were considered in detail to identify any significant effects.

#### **3.1 RESOURCES ELIMINATED FROM DETAILED ANALYSIS**

The subtopics below were eliminated from further detailed analysis because they are not affected by the Project.

##### **3.1.1 Climate**

The prevailing winds in the Project area are from west to northwest and result from marine breezes through the Carquinez Strait. During winter months when sea breezes diminish, southerly winds occur more frequently. Summers are hot and dry, and winters are cool. Average daily temperatures range from 44.6 degrees F in January to 76.7 degrees F in July. Maximum temperatures of 90 degrees F or greater occur about 88 days per year. Temperatures of 32 degrees F and below occur about 22 days per year. Nearly 90% of the annual precipitation falls in the six months between November and April.

The area is subject to the presence of persistent temperature inversions. Inversions may be either ground-level or elevated. Ground-level inversions occur frequently during early fall and winter (i.e., October through January). Elevated inversions act as a lid over the basin. Severe air stagnation occurs as a result of these inversions. Elevated inversions contribute to the occurrence of high levels of ozone during the summer months.

Although climate is a factor with relevance to the flood season, it was eliminated from further analysis because it is not a factor in the Project.

##### **3.1.2 Agriculture and Prime and Unique Farmlands**

Land use zoning to the west of the detention basin and west of the Woodbridge Irrigation Canal was once designated Agriculture-Urban Reserve, however, it is now being developed as a subdivision. To the southwest, low-density residential subdivisions have been built. The Project site is located adjacent to Mosher Creek and within an existing SJAFCA flood control detention basin. Agricultural resources would not be affected by the Project.

##### **3.1.3 Geology and Seismicity**

Geotechnical and seismological analysis is not required for this Project. There will be no

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

impact to soil erosion or soil productivity because the Project is taking place in an existing flood control detention basin. Analysis undertaken in the Villa Antinori Annexation Environmental Impact Report states that there are no active faults in the Project vicinity. It also recognizes that the Stockton area is subject to seismic shaking from fault features located east and west of the city. An inactive Stockton Fault is thought to extend in an east-west direction through Stockton. However, for this Project, the 2-foot high pilot test berm containing the creek water would be a temporary feature and any damage from a seismic event would be repaired immediately to allow completion of the test. Should water from the pilot test area overflow the berm, it will still be contained within the much larger flood detention basin.

#### **3.1.4 Topography**

Detailed analysis of the topography of the Project area is not required because the Project is taking place in an existing flood control detention basin that was constructed prior to this study.

#### **3.1.5 Socioeconomics**

Detailed analysis of socioeconomic impacts is not required because the Project is taking place in an existing flood control detention basin and there are no impacts to businesses, minority populations, or other interests.

#### **3.1.6 Traffic**

Detailed analysis of traffic in the Project area is not required because the Project is taking place in an existing flood control detention basin and there would be no traffic resulting from the test. A backhoe would be hauled to the detention basin bottom to construct the 2-foot high berm for the test plot, and a vehicle would be used intermittently to access the monitoring well and test plot during the test.

#### **3.1.7 Recreation**

Detailed analysis of recreation in the Project area is not required because the Project is taking place in an existing flood control detention basin. The Project would not disturb any recreational activities that could take place in Mosher Creek.

#### **3.1.8 Aesthetics**

Detailed analysis of aesthetics of the Project area is not required because the Project is taking place in an existing flood control detention basin. The basin, spillway, and the localized riprap along the creek already produce a significant visual impact. The pilot test basin would be below the top of the levee surrounding the detention basin.

#### **3.1.9 Cultural Resources**

Detailed analysis of cultural resources in the Project area is not required because the Project is taking place in an existing flood control detention basin, an area that has undergone significant disturbance prior to the Project. The Area of Potential Effect is the detention basin

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

which was constructed in 1998. The detention basin does not qualify for evaluation for the National Register of Historic Places. Under requirements of Section 106 of the National Historic Preservation Act of 1966, as amended, a letter was sent to the State Historic Preservation Officer identifying the proposed Project and concluding that there would be no effect on properties eligible for or listed on the National Register of Historic Places.

### **3.2 Resources Considered for Detailed Analysis**

The subtopics below were considered for detailed analysis because of the potential that the Project could cause adverse effects to them.

#### **3.2.1 Vegetation and Wildlife**

This section identifies and evaluates potential effects of the proposed alternatives on vegetation and wildlife.

##### **Existing Conditions**

The SJAFCA stormwater detention basin #1 is located to the east of the Villa Antinori residential development site and just west of State Highway (SR) 99. Mosher Creek runs along the southern portion of the detention basin and a rock-concrete spillway connects the two. Several aquatic wetland plants have established along the lower banks of Mosher Creek. The areas near the creek banks areas provide some quality habitat value.

The detention basin itself consists mostly of ruderal weedy plant species and patchy vegetation that has established after the site was disturbed during excavation activities in 1998. The floor of the basin is tilled to control the spread of weeds and mosquitoes. The surrounding slopes of the basin contain overgrown weeds; however, interspersed among them are oak trees that were planted as young seedlings after excavation and grading occurred. These young oak trees average about three to four feet tall. Weedy and dead vegetation within the basin and surrounding the young oak trees was observed during a field site visit on September 2, 2003.

There are five large oak heritage trees located along the southern edge of the SJAFCA detention basin site on the levee just above Mosher Creek. Within the City of Stockton, native oak trees, including valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*) and interior live oak (*Quercus wislizenii*) are subject to City protection. Native oak trees with a trunk diameter of 16 inches or greater as measured at 24 inches above actual grade are considered 'heritage oak' trees and are subject to special protection under the City's Heritage Oak Ordinance.

The proposed site is located within the City's Urban Service Boundary and is within the area covered by the San Joaquin County Multi-Species Habitat Conservation and Open space Plan (SJMSCP). The SJMSCP is a comprehensive program for assessing and mitigating the biological impacts of land development. A project that complies with the Plan can be considered to result in less than significant impacts on biological resources under CEQA. However,

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

participation is generally optional; that is, projects may use the SJSMSCP to reach compliance with the various statutes and regulations that apply to biological resource protection, or it may comply with those requirements independently, without the benefit of the Plan.

The SJSMSCP is to be locally implemented by the San Joaquin County Council of Governments (COG). The compliance process outlined in the Plan has been adopted by Federal and State agencies with jurisdiction or trusteeship over biological resources. In addition, the SJSMSCP has been adopted locally by San Joaquin County, the Council of Governments, the City of Stockton, and other incorporated cities and entities in San Joaquin County. The planned detention basin percolation test is consistent with the SJSMSCP plan and will not affect sensitive species habitat. The Corps and SEWD would comply with the plan which could potentially create waterfowl habitat within the detention basin during the non-flooding season based on the results of this groundwater recharge program.

The proposed Project site exists in an area located between new urban development and agricultural lands. A variety of wildlife species are associated with this transition zone. Urban habitats, consisting of lawn cover, tree-lined streets, and limited shrub cover, support opportunistic species such as rock doves, starlings, skunks, and raccoons. More mature urban vegetation can mimic natural habitat and support species such as song sparrows, bushtits, and squirrels. Cropland habitat, consisting of row crops and grain crops, supports rodents and birds. Characteristic species include black-tailed jackrabbits, California ground squirrels, California quail, and ring-necked pheasant, and some species of raptors. The Swainson's hawk, a special status species, uses cropland habitat for forage. Annual grasslands and ruderal grassland habitat are found in open pastures, along roads and fields, and along levee banks and flood control channels. The grassland edge of fields and roads provide cover, forage areas, and movement corridors for a variety of wildlife species including small mammals, reptiles, and birds. The burrowing owl, a special status species, is known to nest and forage in this habitat type.

Valley oak woodland habitat typically includes a mix of valley oak, live oak, and blue oak. This habitat type provides foraging areas, cover, and nest sites. Many wildlife species such as bats, squirrels, woodpeckers, and passerines use this habitat type. Oak cavities provide nest sites for kestrels, swallows, and some passerines. Large oak trees in proximity to grassland areas can provide nest sites for the special status Swainson's hawk.

The most common species that have been observed utilizing the detention basin include ground squirrels and other small mammals, lizards, ducks, herons, egrets, and songbirds. A network of underground burrows within the floor of the basin was observed during a field site visit on September 2, 2003. These burrows may harbor burrowing owl nests or rodents that fled the housing development to the west. Feral cat populations may also utilize the open space areas to hunt for rodents and birds. The overall habitat quality of this site is low and would not support most wildlife species due to the removal of vegetative cover each year and proximity to the housing development construction site and State Highway 99. In both cases, vehicular traffic and human presence dominate most of the area year round. Mosher Creek acts as a habitat corridor for wildlife moving to and from urban and agriculture environments.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

**Environmental Effects**

**Significance Criteria.** An alternative would be considered to have a significant effect on vegetation and wildlife if it would result in the substantial loss or degradation of native vegetation, or substantial loss of resident or migratory wildlife species and/or their habitat.

**Alternative 1 – No Action.** Under the No Action Alternative, the detention basin would continue to function as a flood control catchment site for Mosher Creek overflow. SJAFCA would routinely maintain the site by removing weedy vegetation prior to the rainy season. Wildlife habitat conditions would be expected to continue at their current levels of low quality and abundance.

**Alternative 2 – Demonstration Test Site No. 1, Mosher Creek.** Under this alternative, water diversion and subsequent flooding to monitor percolation would not affect vegetation or wildlife habitat within the detention basin. Sandbags would be placed on the concrete spillway. Construction equipment and vehicles would be restricted to driving on dirt access roads to and from the detention basin. No vegetation or habitat would be affected by these activities. The five oak trees will not be disturbed during testing activities. Best management practices would be implemented during the entire operation to ensure biological resources are protected.

**Mitigation Measures**

No mitigation measures would be required because no vegetation or wildlife would be disturbed by the demonstration percolation test.

**3.2.2 Listed, Proposed, Candidate and Other Species**

This section identifies and evaluates potential effects of the proposed alternatives on listed, proposed, candidate and other species.

**Existing Conditions**

A request for an updated species list was sent to the USFWS on September 2, 2003 (see Attachment 1). This species list identifies the Federal and State listed species that would most likely occur within the Project site and surrounding areas.

A request was also sent to NOAA Fisheries on September 2, 2003 (see Attachment 2). The Federally threatened Central Valley steelhead (*Oncorhynchus mykiss*) and Federally endangered winter-run Chinook salmon (*Oncorhynchus tshawytscha*) could potentially occur in Mosher Creek during the fall and winter seasons. It is highly unlikely that these two species would be present in Mosher Creek during the time of percolation ponding. Water quality during the dry season is considered poor due to the high amounts of run off and diversion of agricultural runoff water into the creek. Water levels in the creeks and sloughs around San Joaquin County



**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

are lower than normal in the late dry season and are not considered ideal habitat for salmonid species (*Madeline Martinez, Sacramento NOAA Fisheries Office, personal communication*).

A search of the California Natural Diversity Database was required to determine the presence of special status species and their habitat within the Project vicinity. Table 1, California Natural Diversity Database Species List, shows the special status species listed by the California Department of Fish and Game as most likely occurring within and around the Project site. A description for each of these species and other species that may utilize the Mosher Creek riparian zone is discussed below.

**Swainson's Hawk.** Swainson's Hawk (*Buteo swainsoni*) is a Federal species of concern and State-threatened species. These birds are migratory raptors nesting in or near valley floor riparian habitats during spring and summer months. Suitable nesting habitat for Swainson's hawks exists in large oak trees and riparian woodlands near water and open grasslands. Swainson's hawks forage over grasslands and in agricultural fields, especially after discing or harvesting. The proposed percolation test site provides suitable habitat for Swainson's hawk foraging and the oak trees in the Project vicinity may provide suitable habitat for Swainson's hawk nesting. These oak trees will not be affected by Project activities. A biologist from the Corps or SEWD would be on-site during construction operations to observe the presence for Swainson's hawk.

**Burrowing Owl.** Burrowing Owl (*Athene cunicularia*) is a Federal and State species of concern. The owls forage in open habitats for insects, mice, and small birds. They breed between March and August and frequently nest in ground squirrel burrows in berms along paved roads, dirt roads, channels, levees, and in grassland or ruderal vegetation. The detention basin may be considered suitable habitat for burrowing owls due to the presence of ground squirrel burrows on the floor of the basin. No owls were observed during a field site visit on September 2, 2003. When construction of the test facilities commence, a biologist from the Corps or SEWD would be on-site to observe the presence for burrowing owls.

**Giant Garter Snake.** Giant Garter Snake (*Thamnophis gigas*) is listed as threatened by both Federal and State Endangered Species Acts. It is among the largest and most aquatic of garter snakes. The species range extends from Butte County to Fresno County. Its habitat includes low-gradient creeks, drainage canals, irrigation ditches, and fresh emergent wetlands. The snake thrives in areas where there is an abundance of aquatic vegetation along the banks of marshes and streams. The portion of Mosher Creek that would be used to divert water into the detention basin contains very little riparian vegetation and forage habitat for the giant garter snake. This section of creek is considered low quality habitat and would not support giant garter snake.

**Sacramento splittail.** Sacramento splittail (*Pogonichthys macrolepidotus*) is listed as Federally threatened and occurs throughout the San Joaquin and Sacramento River delta zone. This fish may be present in Mosher Creek during water diversion activities, however poor water quality, high water temperatures, and minimal flows down to the delta may limit its movement to

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

---

this section of river (Randy Baxter, CDFG, personal communication). A poorly maintained weir type structure was observed in the creek outside of the southwest corner of the detention basin.

**DRAFT ENVIRONMENTAL ASSESSMENT  
 FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
 SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

**TABLE 1. CALIFORNIA NATURAL DIVERSITY DATABASE SPECIES LIST**

<b>Common Name</b>	<b>Species Name</b>	<b>Status<sup>1</sup> (Federal/State)</b>	<b>Presence of Suitable Habitat</b>	<b>Potential Effects</b>
Swainson's Hawk	<i>Buteo swainsoni</i>	SC, T	Grove of large oak trees exists on the Project site. May be suitable habitat. Project will not affect this oak tree grove.	None
Burrowing Owl	<i>Athene cunicularia</i>	SC, SSC	Several ground squirrel burrows exist within the detention basin Project site. Site may be suitable habitat for burrowing owls. Project activities will avoid areas with significant burrows.	None
Giant Garter Snake	<i>Thamnophis gigas</i>	T, T	Requires dense riparian vegetation along creeks, marshes, and sloughs. Mosher Creek may be suitable habitat for this snake; however, the portion of creek within the Project zone contains only patches of low growing riparian vegetation interspersed between several bare areas along the bank. The detention basin itself is tilled to control weedy vegetation so there is no cover for the snake.	None

<sup>1</sup> Status definitions:

**Federal**

- E = listed as endangered under the Federal Endangered Species Act.
- T = listed as threatened under the Federal Endangered Species Act.
- PT = proposed for listing as threatened
- C = species for which the Service has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.
- SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.
- = no listing.

**State**

- E = listed as endangered under the California Endangered Species Act.
- T = listed as threatened under the California Endangered Species Act.
- SSC = species of special concern in California.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

---

-- = no listing.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

This part of the creek receives fast moving water from two irrigation canals on either side. The weir itself as well as the fast moving water may impede the splittail from traveling up river at during this time of year.

Delta smelt. Delta smelt (*Hypomesus transpacificus*) is a Federally-threatened fish species that occurs throughout the San Joaquin and Sacramento River delta zone. According to Randy Baxter, CDFG Central Valley Bay Delta Office, this species will most likely be absent from this section of Mosher Creek due to poor water quality and high water temperatures.

Southwestern pond turtle. Southwestern pond turtle (*Clemmys marmorata pallida*) is a State species of concern. This turtle resides in ponds, slow moving creeks, sloughs, and irrigation canals. It prefers areas with dense riparian vegetation and woody debris exposed at the water surface for sun bathing. No suitable habitat exists for the pond turtle in this section of Mosher Creek due to the lack of abundant riparian vegetation and exposed bathing areas. It is very unlikely the turtle would be present within the Project vicinity during the testing operation.

California Red-Legged Frog. California Red-Legged Frog (*Rana aurora draytoni*) is a Federally-threatened and State species of concern. They thrive in emergent wetlands adjacent to creeks, and in ponds, sloughs, irrigation canals, and vernal pools. Their habitat consists of dense riparian vegetation and standing water. They also utilize nearby upland vegetated areas as aestivation habitat. There is no suitable red-legged frog habitat located within the Project vicinity due to the lack of emergent riparian vegetation and aestivation habitat. The detention basin is devoid of standing vegetation most of the year because it is maintained and tilled on a regular basis.

Other sensitive species may potentially utilize the detention basin and adjoining waterways, however, due to the high level of disturbance of the residential development site and busy State Highway 99, the potential for the occurrence of other threatened and endangered species is considered very low. Impact assessment and mitigation measures for sensitive species is addressed by implementation of the adopted Habitat Conservation Plan for San Joaquin County.

### **Environmental Effects**

Significance Criteria. An alternative would be considered to have a significant effect on special status species if it would result in the “take” of a Federally or State-listed threatened or endangered species, adversely affect designated critical habitat, or substantially affect any other special status species, including degradation of its habitat.

Alternative 1 - No Action. Under the No Action Alternative, the detention basin would continue to function as a flood control catchment site for Mosher Creek overflow. SJAFCA would routinely maintain the site by removing weedy vegetation prior to the rainy season. Wildlife habitat conditions would be expected to continue at their current levels of low quality and abundance. Species would continue to potentially use this site and Mosher Creek as a habitat

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

corridor between agricultural and urban environments of San Joaquin County. The existing listed, candidate, or other special species of concern, or any suitable habitat, are not likely to change.

Alternative 2 – Demonstration Site #1 SJAFCA Detention Basin #1. The percolation test study is not likely to affect any listed, candidate, or other terrestrial species of special concern. Project activities would not affect the riparian zone of Mosher Creek nor affect the oak tree grove on the levee separating the creek from the detention basin. A Corps or SEWD biologist will be on-site during the start of water diversion operations to ensure no listed species are present. Vehicles traveling to and from the detention basin would be restricted to the existing access roads on-site.

#### **Mitigation Measures**

No mitigation measures would be required, as no significant effects have been identified.

#### **3.2.3 Water Quality**

This section identifies and evaluates potential effects of the proposed alternatives on water quality.

#### **Existing Conditions**

The water quality of the waterways and reservoirs of the United States is protected by the Clean Water Act. The Act regulates and establishes pollution standards for the waterways of the United States. The Clean Water Enforcement and Pollution Prevention Plan Act of 1999 tasked the State Resources Control Board and Regional Water Quality Resource Boards with the responsibility of developing and enforcing water quality issues. The boards developed a Basin Plan for each region that covers a watershed area within California. The Basin Plan establishes the water pollution standards, law enforcement methods, and water quality protection programs. All State and local laws must meet the standards established by the Clean Water Act.

Water quality in Mosher Creek along the study area is too warm to permit growth or reproduction of splittail, delta smelt, or salmonids (personal communication: NOAA, U.S. Fish and Wildlife Service, and California Department of Fish and Game). Water quality in the creek adjacent to the proposed groundwater recharge site shows low levels of fecal coliform. However, no pesticides or volatile organic compounds were detected above reporting limits. Further, inorganic detections were compared to stringent drinking water standards and did not exceed the comparison criteria. (See Attachment 3, Comparison of Mosher Creek Analytes to relevant Water Quality Criteria). Therefore, the proposed source water for the recharge Project will not adversely impact groundwater quality. Groundwater would be monitored during the Project by taking samples in down-gradient wells.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

**Environmental Effects**

Significance Criteria. An alternative would be considered to have a significant effect on water quality if it would substantially degrade water quality, contaminate a public water supply, substantially degrade or deplete groundwater resources or interfere with groundwater recharge, or expose sensitive species or humans to substantial pollutant concentrations.

Alternative 1 - No Action. Under the No Action Alternative, the proposed Groundwater Recharge Project would not be conducted. There would be no change in current Mosher Creek water quality and no increase in groundwater resources would be realized.

Alternative 2 – Demonstration Site #1 SJAFCA Detention Basin #1. Alternative 2, conducting the Groundwater Recharge Project in Detention Basin #1, would not adversely affect water quality in Mosher Creek or the proposed recharge aquifer, as shown by the comparison of detected compounds to drinking water criteria shown in Attachments 5 and 6. Berm construction for the Project would also have no impact on water quality.

The Project would result in the placement of surface waters of the U.S into a detention basin. While the Corps does not permit itself, the Corps must still apply the guidelines and substantial requirements of Section 404 of the Clean Water Act to all of its activities. In addition, a waiver of water quality certification under Section 401 of the Clean Water Act would be submitted to the Central Valley Regional Water Quality Control Board (CVRWQB) prior to recharge activities. A monitoring plan acceptable to the CVRWQCB may be required prior to approval of the waiver.

**Mitigation Measures**

No mitigation is required for the proposed Project since water quality would not be significantly impacted.

Implementation of BMPs during construction, as set forth in the Project's construction specifications, would prevent any temporary, localized erosion or water quality effects. The following BMPs are recommended for inclusion in the Project's construction specifications:

- Require all construction materials and fill be stored and contained in a designated area that is located away from the creek channel areas to prevent inadvertent transport of materials into the adjacent creek.
- Prohibit fueling, cleaning, or maintenance of equipment except in designated areas located as far from the creek as possible.
- As a precaution, require contractor to maintain adequate materials on-site for containment and clean up of any spills.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

### **3.2.4 Air Quality**

This section identifies and evaluates potential effects of the proposed alternatives on air quality.

#### **Existing Conditions**

The Central Valley, within which the Project site is located, is bounded by the Sierra Nevada on the east, the Coast Ranges on the west, the Tehachapi Range on the south, and the Cascade Range to the north. These mountain ranges tend to buffer the Central Valley from the marine weather systems which originate over the Pacific and are drawn inland by the jet stream. The only breach in this barrier is the Carquinez Straits which allow marine influences to enter the midsection of the Valley. These topographic features and the meteorological conditions they contribute to (i.e., low wind speeds and strong temperature inversions) often reduce the ability of the atmosphere to disperse air pollutants thereby allowing such pollutants to attain relatively high ambient concentrations.

Climate in the San Joaquin Valley is characterized by mild and fairly humid winters, and hot, dry and nearly cloudless summers. The average mean temperature in July is 74°F in Stockton. Temperatures in excess of 100°F are common. The average mean temperature in January is 46°F. Overnight freezing temperatures occasionally occur during the months of October through April. Temperature inversions, which limit the vertical dispersion of air pollutants, are prevalent at night and the early morning hours during autumn and winter months, and occasionally persist throughout the day. The City of Stockton averages 14.11 inches of rainfall per year, 88.5 percent falling from November to April 30th. Heavier rainfall is not uncommon. In 1982 and 1983, Stockton received 31.04 and 31.37 inches, respectively.

There are three air monitoring stations in the Stockton area: the Claremont station, approximately 1.6 miles east of the convergence of the Stockton Diverting Canal and the Calaveras River; the Hazelton station, approximately two miles southwest of the Stockton Diverting Canal; and the Mariposa station, approximately 3.5 miles south of the Jack Tone Road Mormon Slough overcrossing. The most complete series of pollutant concentration measurements is taken at the Hazelton station; these data are summarized in Table 2.



**DRAFT ENVIRONMENTAL ASSESSMENT  
 FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
 SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

<b>TABLE 2. HAZELTON AIR POLLUTANT SUMMARY</b>			
<b>Pollutant</b>	<b>Monitoring Data by Year</b>		
	<b>2000</b>	<b>2001</b>	<b>2002</b>
Ozone (O <sub>3</sub> )			
Highest 1-hr. average, ppm	0.107	0.103	0.102
Number of times Federal standard exceeded	0	0	0
Number of times State standard exceeded	4	5	2
Carbon Monoxide (CO)			
Highest 8-hr. average, ppm	3.91	6.03*	3.21
Number of times Federal/State standard exceeded	1	0	0
Second Highest 8-hr. average, ppm	3.67	3.44	3.16
Particulate Matter (PM <sub>10</sub> )			
Highest 24-hr. average, µg /m <sup>3</sup>	91	140	87
Number of times State standard exceeded	36	60	60
Annual Geometric Mean, µg/m <sup>3</sup>	29.1*	30.6*	31.2*
NOTE: Shaded values are in excess of the California standard. ppm is parts per million and µg/m <sup>3</sup> is micrograms per cubic meter. NA = No data available. * = Data presented are valid, but incomplete in that an insufficient number of valid data points were collected to meet EPA and/or CARB criteria for representativeness. SOURCE: California Air Resources Board, 1991 - 1995.			

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

The Federal and State attainment or nonattainment designations for criteria pollutants for San Joaquin County are shown in Table 3. These designations are based on current levels of pollutants measured at the monitoring stations.

<b>TABLE 3. FEDERAL AND STATE AIR QUALITY ATTAINMENT DESIGNATIONS FOR SAN JOAQUIN COUNTY</b>		
<b>Criteria Pollutants</b>	<b>Federal Designation</b>	<b>State Designation</b>
Ozone	Nonattainment	Nonattainment
Carbon monoxide	Attainment	Attainment
PM <sub>10</sub>	Nonattainment	Nonattainment
Sulfate	--	Attainment
Hydrogen sulfide	--	Unclassified

**Ozone.** Ozone is a secondary pollutant that forms as a result of the photochemical interaction between ROG and NO<sub>x</sub>, which are generated in abundance by motor vehicle operation. The major effects of O<sub>3</sub> include reductions in plant growth and crop yield; chemical deterioration of various materials; and the irritation of the respiratory system and eyes. Because of the direct link between vehicular emissions and O<sub>3</sub> formation, air quality programs focus on reduction of mobile source emissions. Significant reductions in O<sub>3</sub> have been achieved through the State-mandated emission limits and a motor vehicle inspection/maintenance program.

**Carbon monoxide.** Carbon monoxide (CO) is an odorless, invisible gas usually formed as the result of incomplete combustion of organic substances. High levels of CO can impair the transport of oxygen in the bloodstream, thereby aggravating cardiovascular disease and causing fatigue, headaches and dizziness. Motor vehicles are the primary source of CO.

**Suspended particulate matter.** Suspended particulate matter has many sources, both anthropogenic (i.e., motor vehicles, agricultural burning, etc) and natural (i.e., wind erosion, forest fires, etc.). Ambient air quality standards for particulates focus on particles small enough to be inhaled into lung passages (i.e., those 10 microns or less in size, abbreviated PM<sub>10</sub>). In addition to adverse health effects, particulate matter can be responsible for visibility reduction, corrosion, and soiling.

**Sensitive Receptors.** Some receptors are considered more sensitive than others to air pollutants. The reasons for greater sensitivity are health problems, proximity to the emissions source, or duration of exposure. Land uses such as primary and secondary schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality. This is because the very young, elderly, and ill are more often susceptible to respiratory infections and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because of the amount of time people spend at home. Recreational land users are often moderately sensitive to air pollution, due to the vigorous exercise associated with recreation which places a high demand on the human respiratory function. The western part of Mosher Creek is presently surrounded by hundreds of single-family residences, three parks

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

(Sandman Park, Loch Lomond Park, and Valverde Park), some mobile homes, and a few commercial land uses. The sensitive receptors, the residents and parks, are located between Interstate 5 (I-5) and the Southern Pacific Railroad (SPRR), while agricultural areas and the Villa Antinori residential development site are located between the SPRR and State Highway 99. Across the freeway to the east of the detention basin, there are numerous residences. Agricultural land uses border this site to the west and south, while State Highway 99 borders the detention basin to the east.

Odors. The agriculture uses east of the proposed Project area and the Villa Antinori residential development site to the west are potential odor sources. No odors were noticed during site visits on September 2, 2003.

Regulatory Context. Air quality is monitored, evaluated and controlled by Federal, State, regional, and local regulatory agencies and jurisdictions. For this Project, these agencies and jurisdictions include the Environmental Protection Agency (EPA), the California Air Resources Board (CARB), the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD), San Joaquin County, and the City of Stockton. The EPA, CARB, and the SJVUAPCD develop rules and/or regulations to attain the goals or directives imposed by legislation. But the San Joaquin County and the City of Stockton General Plans also include policies that are intended to improve air quality. Both State and regional regulations may be more, but not less, stringent than Federal regulations.

Emission Limitations. Stationary sources of air pollutants are controlled through emission limitations imposed typically by regional agencies or, for certain large or unique facilities, by the EPA. Mobile sources of air pollutants, such as automobiles, aircraft, and trains, are controlled through emission limitations imposed primarily by Federal and State agencies. Upper limits on the airborne concentrations of certain pollutants are set at the Federal and State level. Such ambient air quality standards are designed to protect the segment of the public most susceptible to respiratory distress, such as the very young, the elderly, people weak from illness or disease, or persons doing heavy work or exercise. Healthy adults can tolerate periodic exposure to levels somewhat above these standards before adverse health effects are observed.

Air Quality Standards. Federal and State ambient air quality standards have been established for five major pollutants: O<sub>3</sub>, CO, nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and PM<sub>10</sub>. The Federal and State ambient air quality standards are shown in Table 4. Table 5 presents the health effects of the pollutants of most concern in the Central Valley.

Federal Regulations. The Federal Clean Air Act (CAA) of 1970 established ambient air quality standards for the major pollutants, initiated emission limitations for individual sources, and required states that did not meet the standards to submit an attainment plan, the so-called State Implementation Plan (SIP). Because many areas had trouble attaining the standards, subsequent Clean Air Act Amendments revised the schedule for attainment to 1982, then to 1987, and, most recently, to 2010 and beyond.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

Under the 1990 Clean Air Act Amendments, the EPA classified areas of the country as either "attainment," "nonattainment," or "unclassified." The Project area is one of many urban areas that failed to attain Federal standards. San Joaquin County is currently a non-attainment area for ozone and PM<sub>10</sub>. The urban portion of Stockton is in nonattainment for carbon monoxide.

**State Regulations.** The CARB establishes State ambient air quality standards and motor vehicle emission standards, conducts research, and oversees the activities of regional Air Pollution Control Districts and the Air Quality Management Districts. The California Clean Air Act (CCAA), patterned after the Federal CAA, has designated areas within the State as attainment, nonattainment, or unclassified with respect to the State ambient air quality standards. The CCAA requires non-attainment areas within the state to develop attainment plans that implement all feasible emission control measures to achieve an annual five percent reduction of nonattainment pollutants.

**Environmental Effects**

**Significance Criteria.** An alternative would be considered to have a significant effect on air quality if it would violate any ambient air quality standard, contribute on a long-term basis to an existing or projected air quality violation, expose sensitive species or humans to substantial pollutant concentrations, or not conform to applicable Federal, State, and local standards.

**Alternative 1 – No Action.** Under the No Action Alternative, the detention basin would continue to function as a flood control catchment site for Mosher Creek overflow. SJAFCA would routinely maintain the site by removing weedy vegetation prior to the rainy season. Air quality conditions would remain the same as existing conditions. There would be no short-term construction-related effects on air quality.

**Alternative 2 – Demonstration Test Site #1, Mosher Creek.** Under this alternative, an excavator or backhoe would dig up soil from the detention basin floor and create the two- to four-foot berm surrounding the 100-foot by 100-foot test plot. This would be done with minimal disturbance to the basin and have a less than significant effect on dust emissions and air quality. Field crews would use shovels and hand tools to shape the berms and compact them to hold in water. Construction of the berm and water diversion installation most likely would involve only two to three working days to complete.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

**TABLE 4. FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS<sup>1</sup>**

Pollutant	Averaging Time	California Standard <sup>2</sup>	Federal Standards <sup>3</sup>	
			Primary <sup>4</sup>	Secondary <sup>5</sup>
<b>Criteria Pollutants</b>				
Ozone (O <sub>3</sub> )	1-hour	0.09 ppm	0.12 ppm	0.12 ppm
Carbon Monoxide (CO)	1-hour	20.00 ppm	35.00 ppm	35.00 ppm
	8-hour	9.00 ppm	9.00 ppm	9.00 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour	0.25 ppm	--	--
	Annual Average	--	0.053 ppm	0.053 ppm
Sulfur Dioxide (SO <sub>2</sub> )	1-hour	0.25 ppm	--	--
	3-hour	--	--	1300 µg/m <sup>3</sup>
	24-hour	0.04 ppm	365 µg/m <sup>3</sup>	--
	Annual Average	0.25 ppm	80 µg/m <sup>3</sup>	--
Suspended Particulate Matter (PM <sub>10</sub> )	24-hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
	Annual Geometric Mean	30 µg/m <sup>3</sup>	--	--
	Annual Arithmetic Mean	--	50 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>
Lead	30 Day Average	1.5 µg/m <sup>3</sup>	--	--
	Calendar Quarter	--	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>
<b>State Only Regulated Pollutants</b>				
Sulfates	24-hour	25 µg/m <sup>3</sup>	--	--
Hydrogen Sulfide	1-hour	0.03 ppm	--	--
Vinyl Chloride	24-hour	0.10 ppm	--	--
Visibility Reducing Particles <sup>6</sup>	1 Observation	Visibility < 10 miles	--	--

**NOTES:**

1. Concentration expressed first in units in which it was promulgated. Equivalent units given in parenthesis are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. All measurement of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); parts per million in this table refers to ppm by volume, or micromoles of pollutant per mole of gas; µg/m<sup>3</sup> in this table refers to micrograms per cubic meter.

2. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter – PM<sub>10</sub>, and visibility reducing particles, are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded.

3. National standards, other than ozone and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentration above the standard is equal to or less than one.

4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the Environmental Protection Agency.

5. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the implementation plan is approved by the EPA.

6. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range when relative humidity is less than 70 percent.

SOURCE: California Air Resources Board, 1992.

**DRAFT ENVIRONMENTAL ASSESSMENT  
 FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
 SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

<b>TABLE 5. HEALTH EFFECTS SUMMARY OF AIR POLLUTANTS OF REGULATORY CONCERN</b>	
<b>Air Pollutant</b>	<b>Adverse Effects</b>
Ozone (O <sub>3</sub> )	Eye Irritation
Carbon Monoxide (CO)	Respiratory function impairment
	Impairment of oxygen transport in the bloodstream, increase of carboxyhemoglobin
	Aggravation of cardiovascular disease
	Impairment of central nervous system function
	Fatigue, headache, confusion, dizziness
	Can be fatal in the case of very high concentrations in enclosed places
Particulate Matter Less Than Ten Microns (PM <sub>10</sub> )	Increase risk of chronic respiratory disease
	Altered lung function in children
	With SO <sub>2</sub> , may produce acute illness
	Particulate matter 10 microns or less in size (PM <sub>10</sub> ), may lodge in and/or irritate the lungs
SOURCE: Bay Area Quality Management District, 1965.	

Vehicles traveling to and from the detention basin would be restricted to the existing access roads on-site. Odors could arise from exhaust fumes and evaporation from fuel systems. Residences and commercial land uses near and/or adjacent to the Project area could be exposed to these odors. However, the above-described odor sources are minor and confined relative to such typical sources of objectionable odors as landfills and wastewater treatment plants, and the odors would be quickly dissipated by wind and distance. Such emissions are well below the SJVUAPCD standards of significance.

**Mitigation Measures**

Implementation of BMPs during construction would prevent any temporary, localized generation of vehicle hydrocarbon emissions, dust and air quality effects. On-site vehicle speed on levee tops and unpaved roads would be limited to 15 miles per hour and all stationary and mobile equipment would be maintained in proper running order at all times.

**3.2.5 Noise**

This section identifies and evaluates potential effects of noise caused by the proposed alternatives.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

**Existing Conditions**

Noise levels are measured on the logarithmic decibel (dB) scale. A-weighted decibels (dBA) are the typical unit of environmental noise measurement, as this system accounts most accurately for the human response to noise. A-weighting de-emphasizes those frequencies that are less perceptible to human hearing. The term  $L_{eq}$  refers to the average noise level over a specified time. Noise levels used for planning purposes are often expressed in terms of the day-night average noise level ( $L_{dn}$ ), which incorporates a ten-decibel penalty for noise occurring during the "night time" (from 10 p.m. to 7 p.m.).

Residential development is considered a "sensitive receptor" for noise. The City of Stockton considers outdoor noise levels of up to 60 dB  $L_{dn}$  to be acceptable in residential areas, with levels of up to 65 dB  $L_{dn}$  acceptable, if best available noise reduction technology is incorporated (City of Stockton, 1990b). Indoor noise levels of no greater than 45 dB  $L_{dn}$  are acceptable in residential areas with windows and doors closed.

Major noise sources in the vicinity of the proposed percolation test study include State Highway 99, the Villa Antinori residential development site, and the Southern Pacific Railroad. Nearby arterial streets and roads include Eight Mile Road and Morada Lane. A new arterial street, Holman Road, will be extended to the Villa Antinori residential development site in conjunction with the construction at the La Morada project site. State Highway 99 is located approximately 75 feet east of the detention basin, and the Southern Pacific Railroad is approximately 3,300 feet west of the detention basin. Eight Mile Road is approximately one mile to the north of the site, and Morada Lane is approximately 2,000 feet to the south.

Noise contributed by State Highway 99 next to the detention basin was measured as part of the preparation for the Initial Study on the Villa Antinori residential development site. Sound levels were measured between 60 and 65 dB  $L_{dn}$  700 feet from the State Highway 99 centerline. These levels were just above the acceptable range for the city of Stockton outdoor noise requirements. State Highway 99 is typically a corridor for large 18-wheel commercial trucks traveling up and down the Central Valley.

**Environmental Effects**

Significance Criteria. An alternative would be considered to have a significant effect on noise if it would substantially increase the ambient noise levels for adjoining areas. The significance of temporary noise effects is evaluated with reference to existing noise levels, the duration of the noise, and the number of sensitive receptors affected.

Alternative 1 – No Action. Under the No Action Alternative, the detention basin would continue to function as a flood control catchment site for Mosher Creek overflow. SJAFCA would routinely maintain the site by removing weedy vegetation prior to the rainy season. Noise conditions are not expected to change.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

Alternative 2 – Demonstration Test Site No. 1, Mosher Creek. The percolation test study is not likely to affect noise conditions. The backhoe used to scrape and create the soil berm would not exceed city noise standards and if necessary would be fitted with an adequate muffler to limit noise production. The installation of the other features, such as the temporary conveyance pipeline, sandbags, and weir structures/flow meter at the test site would be accomplished by hand and by use of small equipment. Vehicles traveling to and from the detention basin would be restricted to the existing access roads on-site traveling no more than 15 miles per hour. Since noise effects would be only temporary and mitigated by BMP, no significant adverse effects are expected from the Project.

**Mitigation**

Implementation of BMPs during the percolation test study would prevent any temporary, localized noise effects.

**3.2.6 Hazardous Materials**

This section identifies and evaluates potential effects of the proposed alternatives to exposure of the public to hazardous and toxic materials.

**Existing Conditions**

Relevant prior environmental studies were conducted for the San Joaquin Area Flood Control Agency Flood Protection Restoration Project and for the Villa Antinori Annexation, Rezoning, Tentative Subdivision Map and Development Agreement. A Phase I Environmental Site Assessment was completed for the Villa Antinori subdivision and reported upon in 2002 in the Environmental Impact Report (EIR) for the Project. The purpose of the assessment was to identify and evaluate conditions of environmental concern. No evidence of oil or gas wells, hazardous substances, or underground storage tanks. A visual examination of the surrounding properties was also undertaken. The Phase I assessment also included review of Federal, state and regional environmental records. No environmental conditions of concern were listed. Similar analyses had been conducted in 1996 for the general region by SJAFCA for the Flood Protection Restoration Project.

The SJAFCA Detention Basin #1 had been completed prior to the 2002 Villa Antinori subdivision EIR. The basin has been excavated and a levee constructed around it so that the depression is approximately 20 feet deep. There is no evidence of any surface trash or soil discoloration that could indicate the presence of contaminants. Although the Project area had been used for agricultural purposes, it is highly unlikely that chemical residue would be present in any significant amounts since the site has been totally excavated and the soils removed for use elsewhere.



**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

**Environmental Effects**

Significance Criteria. An effect would be considered significant if it was present on the Project site and if there could be any decrease in water quality due to its percolation as water from the test pond infiltrated the groundwater.

Alternative 1 – No Action. The no action alternative assumes that there would be no Federal participation in the SJAFCA Detention Basin #1 groundwater recharge test. Any treatment of substances of environmental concern would be the responsibility of the SJAFCA. None are reported from this site because the site was inspected for such substances prior to the construction of the detention basin.

Alternative 2 – SJAFCA Detention Basin #1. No substances of environmental concern were known to occur in the detention basin. The Project site is located in the bottom of the detention basin where a significant amount of soil was removed for the construction of the basin.

**Mitigation Measures**

Since no environmental conditions of concern occur at the Project site, no mitigation measures are required.

**3.2.7 Soils**

This section identifies and evaluates potential effects of the proposed alternatives on soils.

**Existing Conditions**

The San Joaquin Valley is filled with thick sedimentary rock sequences or strata that began deposition approximately 200 million years ago. Large alluvial fans have developed on each side of the San Joaquin Valley. The larger and more gently sloping fans are located on the east side of the San Joaquin Valley and overlie metamorphic and igneous basement rocks. This basement rock is exposed in the Sierra Nevada foothills and consists of meta-sedimentary, volcanic, and granitic rock types. The sediments that form the San Joaquin valley floor were largely derived from erosion of the Sierra Nevada. The smaller and steeper slopes on the west side of the San Joaquin Valley overlie sedimentary rocks more closely related to the Coast Ranges. The Project area is within the drainage of Mosher Creek, a tributary to Fourteen Mile Slough and the San Joaquin River.

Most of the soils located within the San Joaquin valley consist of sand, silt, loamy clay alluvium, peat and other organic sediments. These soils are the result of long-term natural soil deposition and decomposition of marshland vegetation. The Project is located in an area of topographically flat terrain, with a gentle upward slope to the east. The topography of the Project area ranges from sea level in the western portion to approximately 30 feet above mean sea level in the eastern portion.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

Soils in the detention basin are classified as predominantly the Jacktone-Galt-Stockton Series. These soils are an association of clay to clay loam soils with a clay hardpan 1.5 to 3 feet below the surface.

Jacktone clay consists of alluvium derived from mixed rock sources. This soil is somewhat poorly drained, however, drainage has been improved by levees and reclamation projects. Typically the surface layer is very dark gray and dark gray clay about 28 inches thick. The underlying material to a depth of 34 inches is a light gray clay loam. The next layer is a light gray strongly cemented to indurated hardpan about three inches thick. The upper nine inches of the substratum is a yellowish brown loam. Depth to hardpan ranges from 20 to 40 inches.

Galt clay is formed in alluvium from mixed rock sources. This soil is moderately well drained. Typically, the surface layer is grayish brown and dark grayish brown clay about 25 inches thick. Below this a buried surface layer of dark grayish brown clay about nine inches thick. Below that, and to a depth of 60 inches is variegated light yellowish brown, dark grayish brown, and white, weakly cemented hardpan. Depth to hardpan ranges from 20 to 40 inches.

Stockton clay is formed in alluvium from mixed rock sources. The soil is somewhat poorly drained. Typically the surface layer is dark gray about 29 inches thick. The underlying material to a depth of eight inches is also dark gray clay. The next layer is a light brownish gray and grayish brown clay loam to a depth of five inches. The lower part to a depth of 60 inches is a variegated dark grayish brown and dark brown, weakly cemented to strongly cemented hardpan. Depth to hardpan ranges from 40 to 60 inches.

The soil on-site has been disturbed by excavation activities. The detention basin was created in 2000 to contain overflow floodwaters from Mosher Creek. Soil was removed for borrow material for levees and other flood control projects within the SJAFCA area. Previous soil borings in the detention basin indicate that the soil consists of various mixtures of silt and clay.

### **Environmental Effects**

Significance Criteria. An alternative would be considered to have a significant effect on soils if it would result in the disturbance of soil on-site for excavation, grading, and earth-moving activities.

Alternative 1. The no-action alternative assumes that there would be no Federal participation in the SJAFCA Detention Basin #1 groundwater recharge test. The upper 15 to 20 feet of soil was removed previously to construct the detention basin. The detention basin would continue to be used for flood control purposes.

Alternative 2. Under this alternative, soil from the bottom of the detention basin would be pushed up by earthmoving equipment to form the berm for the Project. No soils would be imported from elsewhere. There would be no new impacts to the soils in the SJAFCA detention

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

basin bottom.

**Mitigation Measures**

No mitigation measures are required since the surface soil structure has been eliminated by removal of the material during construction of the detention basin.

**3.2.8 Public Health**

This section identifies and evaluates potential effects of the proposed alternatives on public health and discusses means to avoid or minimize these effects.

**Existing Conditions**

Besides Mosher Creek, there are two large irrigation canals in the immediate vicinity to the SJAFCA Detention Basin #1. All three water sources are carrying a significant flow of water at the time of this study because of the need for agricultural irrigation water. There is no standing water in the detention basin. Because of the flows, it is unlikely that mosquitoes would find the conditions suitable for breeding.

**Environmental Effects**

Significance Criteria. Adverse effects on public health were considered significant if an alternative would result in any of the following:

- Substantial increase in vector populations; or
- Interfere with current vector management methods used by the San Joaquin County Mosquito and Vector Control District.

Alternative 1 – No Action. The no-action alternative assumes that there would be no Federal participation in the SJAFCA Detention Basin #1 groundwater recharge test. It is assumed that the San Joaquin County Mosquito and Vector Control District will continue its mosquito abatement program within the area.

Alternative 2 – SJAFCA Detention Basin #1. Under this alternative, water would be contained within the 100 by 100-foot berm for a period of approximately one month. The berm would be two feet high, thus the water would be relatively shallow. Such conditions could foster a breeding area for mosquito populations. The design and intent of the test requires water ponding for a sufficient time to complete the monitoring and assess the suitability of the site for groundwater recharge.

Vegetation could germinate in the pond during the test, however, it is intended that the bottom of the test site will be scarified by earth-moving equipment to help prevent the growth of

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

as much vegetation as possible. Chemicals to control vegetation and mosquitos will not be used to avoid contaminating the water quality analysis.

The San Joaquin County Mosquito and Vector Control District (SJC MVCD) has been contacted and will be monitoring the testing to determine if any measures need to be taken to control the mosquitoes. (See Attachment 4.)

**Mitigation Measures**

Should the SJC MVCD determine that mosquito control is necessary in the test pond, this will be carried out in accordance with the guidance of the SJC MVCD. Such measures would most likely include stocking the pond with the Mosquito fish, *Gambusia affinis*.

## **4.0 GROWTH-INDUCING AND CUMULATIVE EFFECTS**

### **4.1 GROWTH-INDUCING EFFECTS**

Implementation of the proposed Project would have no growth-inducing effects. The Project would be constructed and monitored in the existing detention basin and would be undertaken to determine the success of the percolation and to refine the Project design. It would not result in new population growth.

### **4.2 CUMULATIVE EFFECTS**

Cumulative effects are those that result from incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor, but collectively significant actions that take place over a period of time.

The Project is not expected to have a cumulative adverse effect on the environment. Implementation of the proposed Project would have minor short-term construction and test-related impacts to air quality and noise. It could have short-term effects to public health should mosquitoes breed in the test pond; however, the pond would be monitored by the San Joaquin County Mosquito and Vector Control District who will advise preventive measures.

It is unlikely that there would be effects to groundwater quality, because of the relatively small quantity of Mosher Creek water that will be diverted to the test pond. If the water does infiltrate the aquifer, it would be highly diluted at that point and the contaminants in the Mosher Creek water do not exceed current Federal, state, or local standards. The Central Valley Water Quality Control Board may require a monitoring plan prior to placement of water in the test basin. This plan would address the standards necessary for the testing to be conducted.

## **5.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS**

This document was prepared in compliance with the authorities listed below.

### **California Environmental Quality Act (CEQA)**

CEQA charges public agencies with avoiding or substantially reducing significant environmental damage, where feasible. In discharging this duty, the public agency has an obligation to balance a variety of public objectives, taking into account economic, environmental, and social issues. The Stockton East Water District submitted a Notice of Exemption under Title 14 California Code of Regulations Sections 15301, 15302, and 15304, as it involves minor public alterations to existing structure or facilities, reconstruction of existing facilities, conversion of facilities, and minor alterations to land and water that do not involve the removal of mature, scenic trees.

### **Clean Air Act of 1972, as amended, 42 U.S.C. 7401, et seq.**

Section 176. Section 176 of this Act prohibits Federal action or support of activities, which do not conform to a State Implementation Plan. The proposed Project is not expected to violate any standard, increase violations in the Project area, exceed EPA's general conformity *de minimis* thresholds, or hinder the attainment of air quality objectives in vicinity of Mosher Creek, San Joaquin County, California. The Project is in compliance with this Act.

### **Clean Water Act of 1972, as amended, 33 U.S.C. 1251, et seq.**

Section 404. Although the Corps does not issue itself permits for its own Civil Works projects, Corps regulations state the Corps must apply the guidelines and substantial requirements of Section 404 to its activities. Since no fill material or water would be placed into the creek from the detention basin, the Project would not result in placement of fill material into waters of the United States. No material would be dredged from the creek. The Project is in compliance with Section 404 of the Clean Water Act.

Section 401. Section 401 of the Clean Water Act sets forth requirements and procedures for obtaining State water quality certification for activities that result in any discharge into navigable waters. Mosher Creek is not a navigable body of water and there would be no discharge into the stream. The requirement to use the appropriate stormwater pollution prevention techniques in the California Storm Water Best Management Practices Handbook - Construction Activity would be included in contract specifications (Storm Water Quality Task Force, 1993). The Project is in compliance with Section 401 of the Clean Water Act.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

**Endangered Species Act of 1973, as amended, 16 U.S.C. 1531, et seq.**

A letter and copy of the draft EA as the Corps' Biological Assessment will be sent to the USFWS, asking for their review and concurrence that the Project would have no adverse effects on the Federally-listed species under their jurisdiction. In addition, a letter and copy of the draft EA as the Corps' Biological Assessment will be sent to NOAA Fisheries requesting initiation of formal consultation on the potential adverse effects on the winter-run Chinook salmon and the central valley steelhead. NOAA Fisheries will likely issue a Biological Opinion for the two species, including measures necessary to ensure that the Project would not significantly adversely affect the species. These measures could include constructing outside the migration period and implementing specific construction specifications to protect fish and habitat. This Project is in partial compliance with this Act.

**Fish and Wildlife Coordination Act of 1958, as amended, 16 U.S.C. 661, et seq.**

The USFWS has participated as a member of the study team in assessing environmental effects of the Project. A letter and copy of the draft EA as the Corps' Biological Assessment was sent to the USFWS, asking for their review and concurrence that the Project would not be likely to adversely affect biological resources of the area. The USFWS has prepared a draft CAR, which is included in this Environmental Assessment as Attachment 6. The Project is in compliance with this Act.

**Magnuson-Stevens Fishery Conservation and Management Act.**

Essential Fish Habitat (EFH) is defined in this Act as “. . . those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” As required by the Act, NOAA Fisheries implemented regulations to provide guidance regarding EFH designation. The regulations further clarify EFH by defining “waters” to include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; “substrate” to include sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” to mean the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” to cover a species' full life cycle.

The Act requires that Federal agencies consult with NOAA Fisheries when any activity proposed to be permitted, funded, or undertaken by a Federal agency may have adverse effects on designated EFH. As part of the consultation, NOAA Fisheries recommends conservation measures for possible incorporation into the Project to conserve EFH. A letter and copy of the draft EA as the Corps' Biological Assessment will be sent to NOAA Fisheries, requesting consultation under this Act that there would be no adverse effects to the winter-run Chinook salmon and the steelhead trout, their designated critical habitat, and critical spawning ground. The Project is in partial compliance with this Act.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

**National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321, et seq.**

This draft EA, associated documents, and coordination actions reported herein are in partial compliance with this Act. The final EA will provide the responses to public comments on the draft EA. A Finding of No Significant Impact will be signed after review of public comments, if appropriate.

**National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470, et seq.**

Section 106 of this Act and its implementing regulations 36 CFR 800 state that the head of any Federal agency having direct or indirect jurisdiction over a proposed Federally-assisted undertaking must take into account the effect of the undertaking on any district, site, building, structure, or object that is included in, or eligible for inclusion in, the National Register of Historic Places.

Since no historic properties occur in the Area of Potential Effects, no effects are anticipated. A letter has been sent to the State Historic Preservation Officer (SHPO) stating that the Project, as planned, would have no effect on historic properties (Attachment 5). Upon receipt of a letter from SHPO concurring with the Corps' determination, the Project will be in full compliance with this Act.



**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

## **6.0 COORDINATION**

The draft EA and FONSI will be circulated for a period of 15 days to agencies, organizations, and individuals known to have a special interest in the Project. Some of these agencies include the USFWS (Ecological Services and Endangered Species Division), NOAA Fisheries, California Department of Fish and Game, Central Valley California Regional Water Quality Control Board, State Historic Preservation Officer, various San Joaquin County and City Officers (Watershed Manager, Director of Public Works, and Principal Planner). Copies of the draft document will also be made available for public review and comment at the Corps' Sacramento District Office and at public libraries in the City of Stockton. All comments received during the comment period will be considered and incorporated into the final EA, as appropriate.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

## **7.0 CONCLUSIONS**

The Project proposes a limited test to determine the percolation suitability of water in the area and to assess the design and implementation of the test. The Project would result in temporary effects to air quality and noise during construction of the test site. Best Management Practices will minimize the temporary effects. Ponding of water in the 100-foot by 100-foot test basin could encourage the breeding of mosquitoes; however, the San Joaquin County Mosquito and Vector Control District will be monitoring the test to recommend eradication measures should that become a problem. Mosher Creek water has been tested for contaminants and the findings are that it does not exceed Federal, State, or local standards. It is anticipated that the Central Valley Regional Water Control Board would require a monitoring plan in place prior to the testing. Special status species would not be affected; however, a biologist would be on-site during construction of the test facility to further ensure that there are no concerns. The Project would not result in significant effects on the environment.

If the test is successful, the location could be used as a permanent groundwater recharge site. At such time, effects on the environment from long-term operation of the site would need to be re-examined. If the test is not successful, the site would be eliminated from further consideration. Refinements to the design and implementation of the test would be beneficial to future selection of sites under the overall Farmington Groundwater Recharge Program.

The Corps has made a preliminary determination that a FONSI is appropriate for the Project and that preparation of an Environmental Impact Statement is unnecessary. A final determination for a FONSI would be made after the public review period and when all comments have been addressed in the Final EA.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

## **8.0 LIST OF PREPARERS**

The following team members participated in the preparation, review, and editing of this Environmental Assessment.

Patrick Dwyer

Project Manager, U.S. Army Corps of Engineers

4 years as Civil Works Project Manager (PM)

Project Manager for San Joaquin, Calaveras, Placer, and El Dorado Counties

Patti Johnson

Environmental Manager, U.S. Army Corps of Engineers

4 years environmental planning and resources management

Report preparation and coordination

Cory Kroger

Toxicologist, U.S. Army Corps of Engineers

3 years environmental, risk assessment, toxicology, and chemistry

Assessment of impact of demonstration study on recharged aquifer

Don Lash

Biological/Environmental Science Manager, U.S. Army Corps of Engineers

6 years environmental planning and natural resources management

Report preparation and coordination

Sandra Jaenicke

Technical Editor/Writer, U.S. Army Corps of Engineers

15 years technical writing

2 years planning and environmental studies

Report preparation and editing

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

## **9.0 REFERENCES**

### **9.1 PRINTED SOURCES**

#### **San Joaquin County and City of Stockton**

City of Stockton Community Development Department/Planning Division, 345 North El Dorado Street, Stockton, California 95202. September 23, 2002. *Insite Environmental, 6653 Embarcadero Drive, Suite Q, Stockton, CA 95219. Public Review Draft Expanded Initial Study/Mitigated Negative Declaration, Villa Antinori Annexation, Rezoning Tentative Subdivision Map and Development Agreement.*

San Joaquin Area Flood Control Agency (SJAFCA), Stockton, California. February, 1996. *Draft Environmental Impact Report. San Joaquin Area Flood Control Agency Flood Protection Restoration Project, SCH #95122001. SJAFCA File No. EIR 1-95.*

San Joaquin Area Flood Control Agency (SJAFCA), Stockton, California. May, 1996. *Final Environmental Impact Report. San Joaquin Area Flood Control Agency Flood Protection Restoration Project, SCH #95122001. SJAFCA File No. EIR 1-95.*

San Joaquin Area Flood Control Agency (SJAFCA), Stockton, California. May, 1996. *Findings, Mitigation Monitoring Program and Statement of Overriding Considerations. San Joaquin Area Flood Control Agency Flood Protection Restoration Project, SCH# 95122001. SJAFCA File No. EIR 1-95.*

San Joaquin County, California. August, 2001. *Farmington Groundwater Recharge and Seasonal Habitat Study, Final Report.*

San Joaquin County, California, 20 February 1959. *Reconnaissance Report for Flood Control on Duck Creek.*

#### **U. S. Army Corps of Engineers**

U.S. Army Corps of Engineers, August 2003. *Farmington Groundwater Recharge Program. Project Management Plan, Contract No. DACW05-01-D-0013.*

U.S. Army Corps of Engineers, Revised October 1967. *Reservoir Regulation Manual, Farmington Reservoir, California.*

U.S. Army Corps of Engineers, Unpublished Office Study, June 1974. *Feasibility of Storing Conservation Water in Farmington Reservoir, Littlejohns and Rock Creeks, California.*

U.S. Army Corps of Engineers, Southeast Stream Group, June 1974. *Flood Plain Information Report, Stockton, California.*

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

U.S. Army Corps of Engineers, Southwest Stream Group, December 1975. *Flood Plain Information Report*, Stockton, California.

U.S. Army Corps of Engineers, June 1981. *Reconnaissance Report, Littlejohns Creek Stream Group Investigation*.

U.S. Army Corps of Engineers, June 1983. *Hydrology Office Report, Littlejohns Creek Stream Group, California*.

U.S. Army Corps of Engineers, April 1997. *Reconnaissance Report, Stockton Metropolitan Area, California*.

U.S. Army Corps of Engineers, December 1997. *Conjunctive Use Study, Farmington Dam and Reservoir, California, WRDA 1996 -Section 411 Conjunctive Use Study*.

**U. S. Department of the Interior - Bureau of Reclamation, Mid-Pacific Region**

*American River Water Resources Investigation Planning Report and Draft Environmental Impact Report/Environmental Impact Statement*, January 1995.

*Folsom South - Lower American River Alternatives, Central Valley Project, California*, November 1975.

**State and Local Agencies**

*Farmington Canal Project, Draft Environmental Impact Report*, prepared by EIP Associates for Stockton East Water District, December 1987.

*Mokelumne Aquifer Recharge and Storage Project*, prepared for EBMUD and the eastern San Joaquin Parties by Montgomery Watson and CH2M HILL, January 1996.

*Stockton Intermodal Facility, Final Environmental Impact Report*, August 1999. Prepared for the County of San Joaquin.

*San Joaquin County Groundwater Investigation*, California Department of Water Resources, 1967.

*Eastern San Joaquin County Groundwater Study*, San Joaquin County Flood Control and Water Conservation District, 1985.

*Final San Joaquin County Multi-Species Habitat Conservation and Open Space Plan*, November 14, 2000.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

**U. S. Geological Survey (USGS)**

*Preliminary Evaluation of the Potential for Artificial Groundwater Recharge in Eastern San Joaquin County, California.* USGS Open-File Report 82-123 (by H. T. Mitten, 1982).

*Evaluation of the Potential for Artificial Groundwater Recharge in Eastern San Joaquin County, California—Phase 2.* USGS Open File Report 83-4207 (by R. V. Ireland, 1983).

*Evaluation of the Potential for Artificial Groundwater Recharge in Eastern San Joaquin County, California—Phase 3.* Water Resources Investigations Report 87-4164 (by S. N. Hamlin, 1987).

**9.2 PERSONAL COMMUNICATIONS**

Baxter, Randy. September 2003, California Department of Fish and Game, Sacramento Office. Personal Communication.

Madeline Martinez. September 2003, National Marine Fisheries Service, NOAA, Sacramento Office. Personal Communication.

Zurener, Adam. September 2003, United States Fish and Wildlife Service, Sacramento Office. Personal Communication.

**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

---

**FIGURES**

---

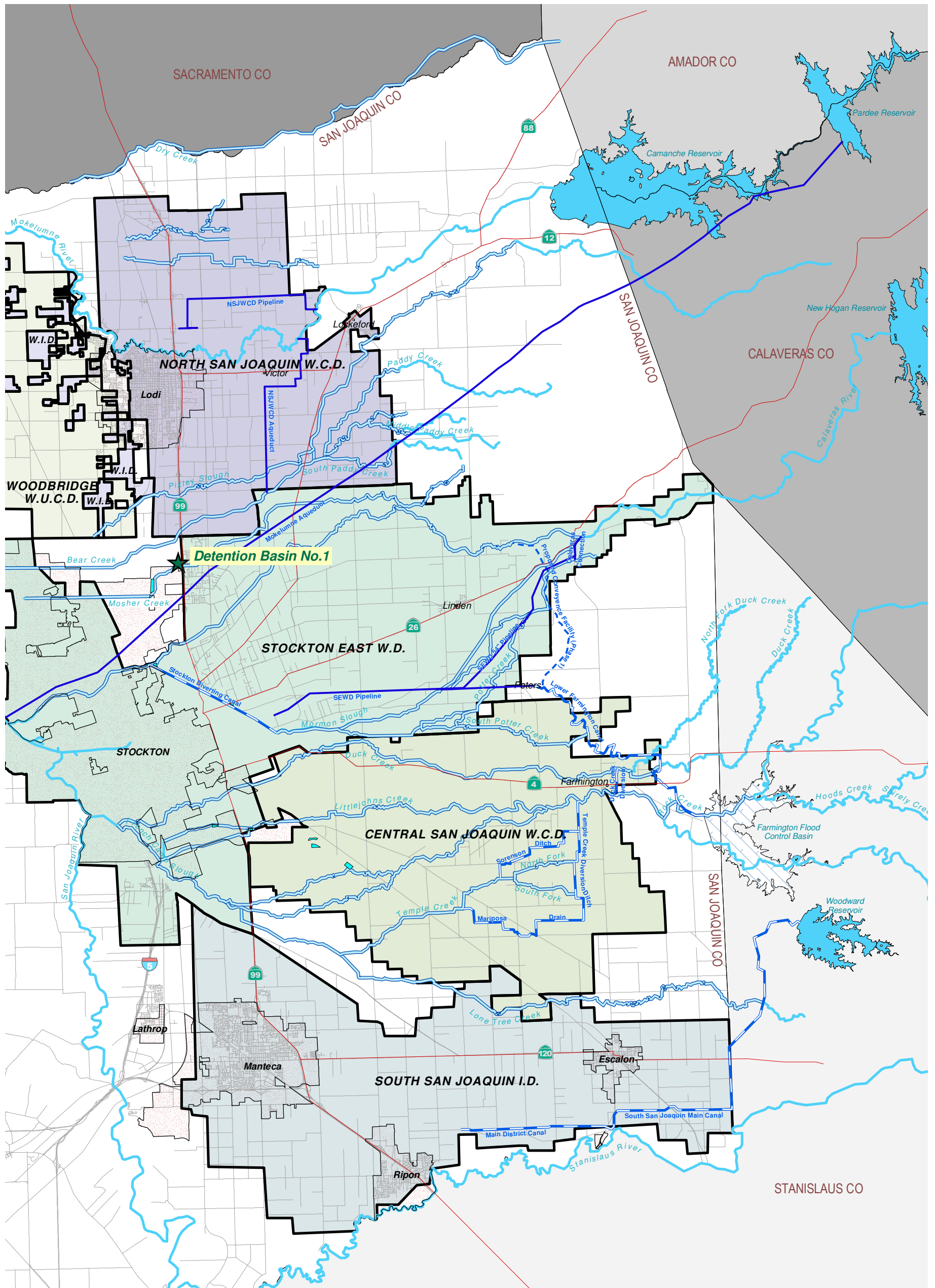
**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

---

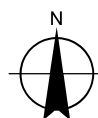
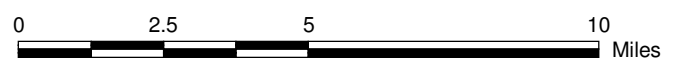
**Figure 1. Site Location Map.**





**Figure 1**  
**Farmington Groundwater Recharge Program**  
**Site Location Map**

Legend		
<b>General Features</b>	<b>Regional Conveyance Facilities</b>	<b>Points of Interest</b>
Highways	Conveyance Streams	Pilot Test Site
Streams	Canal	
	Pipeline	
	Proposed Unlined Canal	

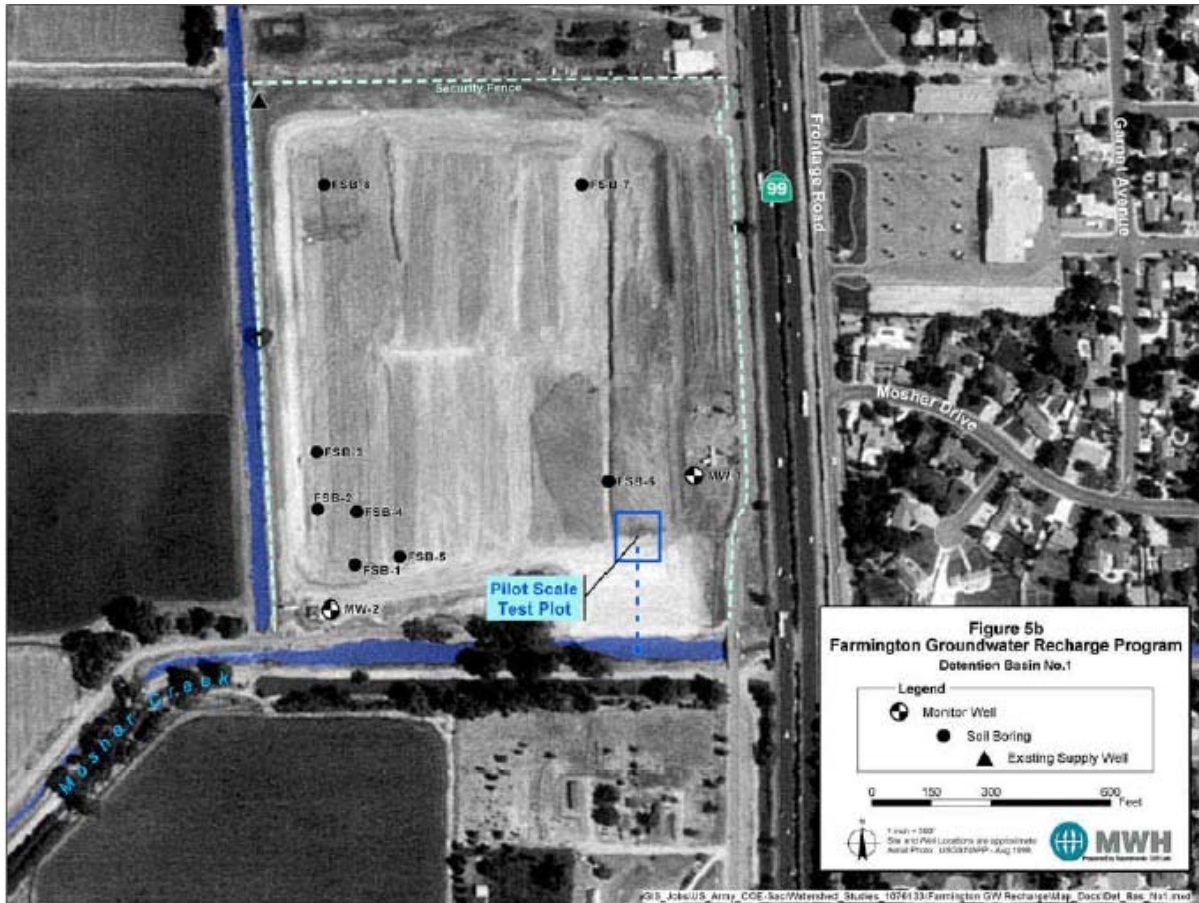


Transportation and City Boundary data  
 obtained as ArcInfo Coverages from  
 San Joaquin County,  
 August 2003



**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---



**Figure 2. Detention Basin No. 1 Site Map** (aerial photo). The 100-foot by 100-foot Test Plot is indicated by a square drawn on the photo. The dashed line marks the channel which will allow water to enter the basin. Moshier Creek runs along the southern edge of SJAFCA Detention Basin No. 1.

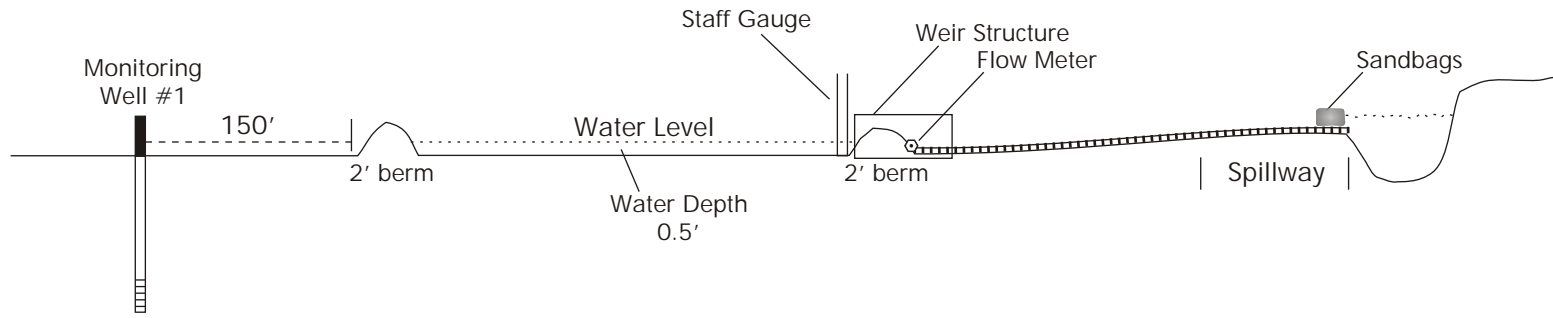
**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

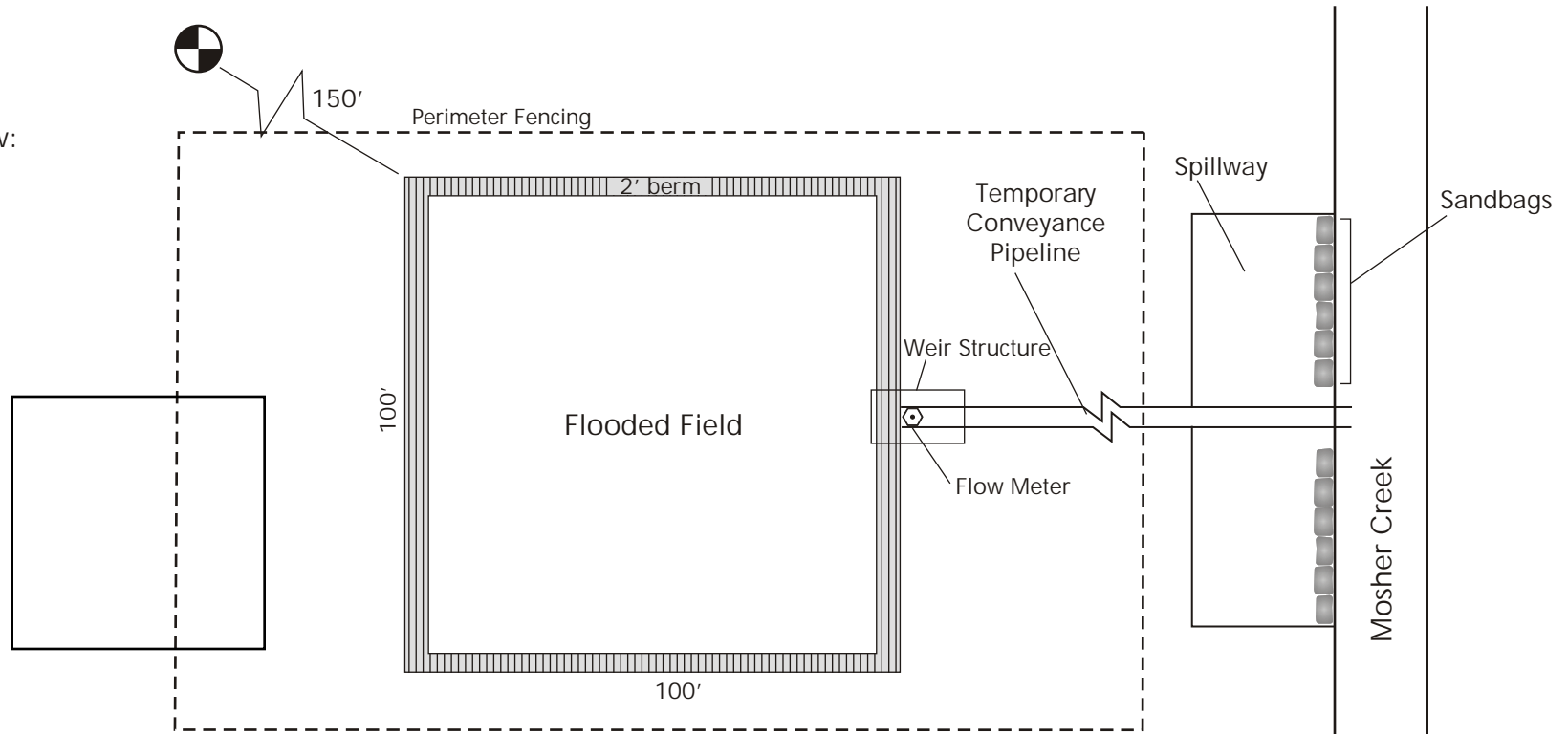
---

**Figure 3.** Detention Basin No. 1 Pilot Scale Test Plot

Profile View:



Plan View:



Notes:  
Not to scale. Draft, for discussion purposes only.

Figure 3  
Detention Basin No. 1  
Pilot Scale Test Plot

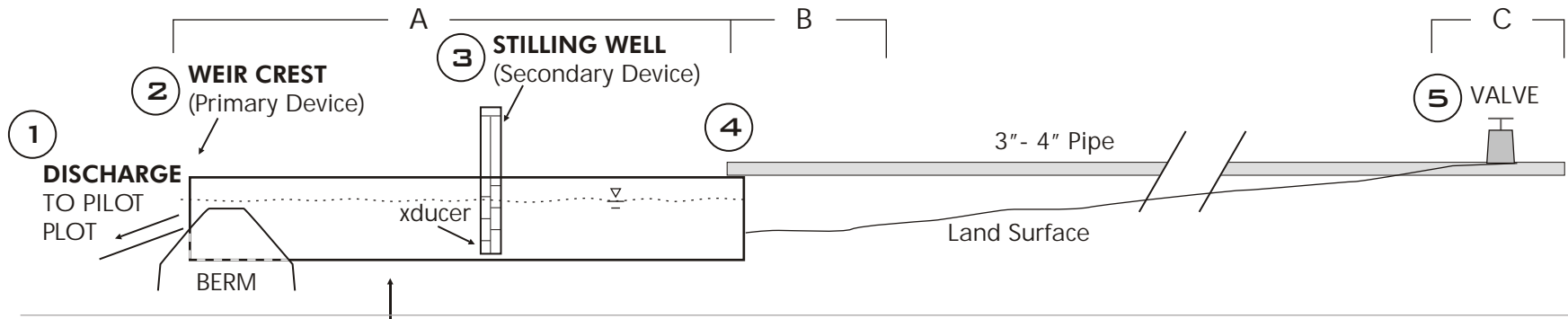
**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

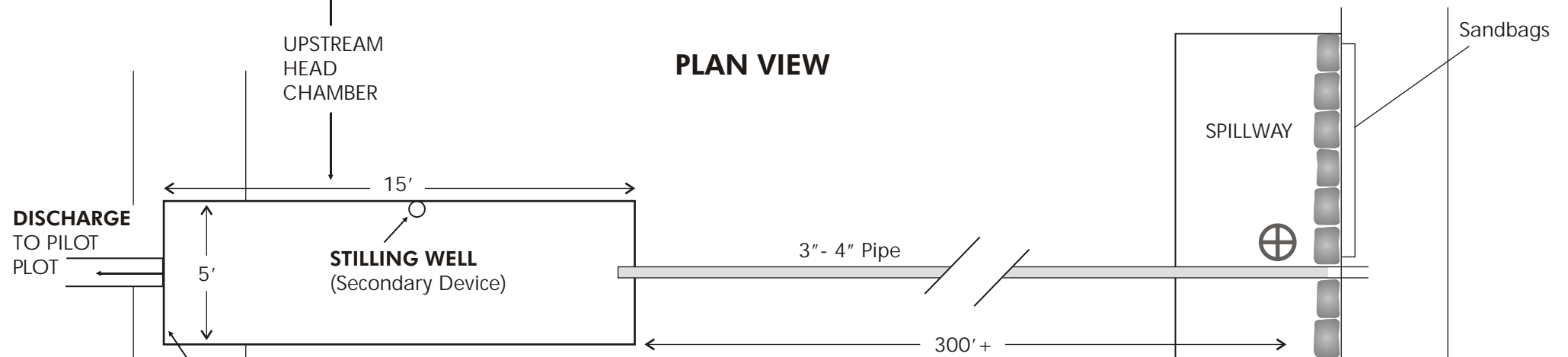
---

**Figure 4.** Schematic Design – Weir Detail and Cross Section

### CROSS SECTION



### PLAN VIEW



### WEIR DETAIL

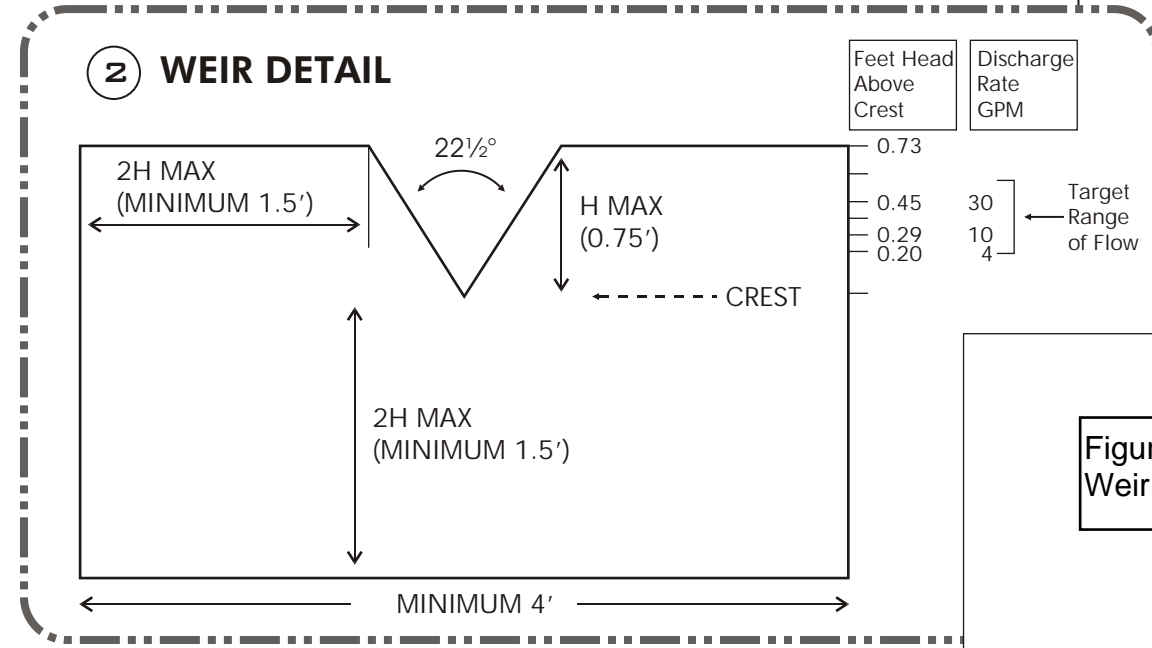


Figure 4 - Schematic Design - Weir Detail and Cross Section

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---



**Figure 5.** (Cover Photo) View of Demonstration Site #1 looking east across SJAFCA Detention Basin #1 toward State Highway 99. The photos shows the southern edge of basin where proposed 100' by 100' by 2' high berm would be constructed. Noteworthy features are foundation block spillway leading down (north) into the sloping basin and the basin. Levee on eastern perimeter is visible. Vehicles on State Highway 99 are visible in the background.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---



**Figure 6.** View of Mosher Creek and spillway into SJAFCA Detention Basin #1. This photo is looking west from State Highway 99 across southern edge of existing storm drain detention basin. Noteworthy features are existing riprap bulkhead, concrete pad, and foundation block spillway leading down (north) into the detention basin (not shown).



**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---



**Figure 7.** View of site of proposed Project showing spillway into SJAFCA Detention Basin #1. This photo is looking northwest west from State Highway 99 across southern edge of existing detention basin. Noteworthy features are existing concrete and foundation block spillway leading down (north) into the detention basin.

**DRAFT ENVIRONMENTAL ASSESSMENT**  
**FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT**  
**SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

---

**ATTACHMENTS**

---

**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

---

**ATTACHMENT 1 – Letter Requesting Current FWS Species List**

---



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO  
CORPS OF ENGINEERS  
1325 J STREET  
SACRAMENTO, CALIFORNIA 95814-2922

SEP 3 2003

Environmental Resources Branch

Mr. Wayne White, Field Supervisor  
U. S. Fish and Wildlife Service  
Attn: Species List  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825


Dear Mr. White:

We request that your office provide a list of endangered, threatened, and candidate species that may occur in the 15 acre San Joaquin Area Flood Control Agency detention basin site #1. This site is located west of Highway 99 adjacent to Morada Lane in Stockton, California. The relevant part of the Lodi South U.S. Geological Survey topographic (7 1/2' quad) is provided for your information as is an aerial photograph showing the project location (enclosures 1 and 2).

The proposed project will be a limited test to determine whether excess floodwaters from the adjacent Mosher Creek, which would be applied to the detention basin, would percolate into the groundwater. In this particular test, water will be pumped out of Mosher Creek rather than waiting for excess floodwaters. This is a pilot test related to the Farmington Groundwater Recharge Program which will be implemented in an effort to offset the rising salinity of the groundwater.

The information that you provide will be used to assist us in complying with the Endangered Species Act and in preparing an environmental assessment. We would appreciate your reply within 30 days. If you have any questions, please contact Ms. Patti Johnson at (916) 557-6611 or Mr. Donald Lash at (916) 557-5172.

Sincerely,

  
Kenneth E. Hitch, P. E.  
Chief, Planning Division

Enclosures

**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

---

**ATTACHMENT 2 – Letter Requesting Current NOAA Species List**

---



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO  
CORPS OF ENGINEERS  
1325 J STREET  
SACRAMENTO, CALIFORNIA 95814-2922

SEP 04 2003

Environmental Resources Branch

Ms. Madeline Martinez  
NOAA Fisheries  
650 Capitol Mall, Suite 8-300  
Sacramento, California 95814-4708


Dear Ms. Martinez:

We request that your office provide a list of endangered, threatened, and candidate species that may occur in Mosher Creek which is adjacent to the 15-acre San Joaquin Area Flood Control Agency detention basin site #1. This site is located west of Highway 99 adjacent to Morada Lane in Stockton, California. The relevant part of the Lodi South U.S. Geological Survey topographic map (7 ½' quad) is provided for your information as is an aerial photograph showing the project location (enclosures 1 and 2).

The proposed project will be a limited pilot test to determine whether excess floodwaters from Mosher Creek, which would be applied to the detention basin, would percolate into the groundwater. In this particular test, water will be pumped out of Mosher Creek rather than waiting for excess floodwaters. This is a pilot test related to the Farmington Groundwater Recharge Program which will be implemented in an effort to offset the rising salinity of the groundwater.

The information that you provide will be used to assist us in complying with the Endangered Species Act and in preparing an environmental assessment. We would appreciate your reply within 30 days. If you have any questions, please contact Ms. Patti Johnson at (916) 557-6611 or Mr. Donald Lash at (916) 557-5172.

Sincerely,

  
Kenneth E. Hitch, P.E.  
Chief, Planning Division

Enclosures

**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

---

**ATTACHMENT 3 – Comparison of Mosher Creek Analytes  
to Relevant Water Quality Criteria**

---

**ATTACHMENT 3: Comparison of Mosher Creek Analytes to Relevant Water Quality Criteria**

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>CVRWQCB Criteria</b>	<b>USEPA MCL</b>	<b>CDHS MCL</b>
Alkalinity (CaCO3)	98	1	>20000 (freshwater)	NA	NA
Boron	ND	0.05	0.6	NA	NA
Calcium	22	1	NA	NA	NA
Chloride	7.7	1	11	NA	NA
Carbonate	0.308	0.001	NA	NA	NA
Hexavalent Chromium	ND	0.1 µg/L	0.1	0.1	0.05
Copper	6.9 µg/L	2 µg/L	1.3	1.3	1.3
Specific Conductance	248 umho/cm	2 umho/cm	NA	NA	NA
Fluoride	0.11	0.05	2	2	2
Iron	2.1	0.1	0.3(secondary)	0.3(secondary)	0.3(secondary)
Potassium	3	1	NA	NA	NA
Magnesium	10	0.1	NA	NA	NA
Manganese	52 µg/L	2 µg/L	0.05(secondary)	0.05(secondary)	0.05(secondary)
Sodium	8.9	1	20	NA	NA
Nitrite	ND	0.1	1	1	1
Nitrate	0.34	0.1	10	10	10
Lab pH	7.6 pH units	0.001	NA	NA	NA
Sulfate	14	2	250(secondary)	500	250(secondary)
Zinc	11 ug/L	5 µg/L	2.1	2.1	2.1
<u>Herbicides</u>					
2,4,5-T	ND	0.2	0.07	NA	NA
2,4,5-TP (Silvex)	ND	0.2	0.025	0.05	0.05
2,4-D	ND	0.1	NA	0.07	0.07
2,4-DB	ND	2	NA	NA	NA
3,5-Dichlorbenzoic acid	ND	0.5	NA	NA	NA
4-Nitrophenol (qualitative)	ND	1	NA	NA	NA
Acifluorfen	ND	0.2	NA	NA	NA
Bentazon	ND	0.5	0.018	NA	0.018
Dalapon	ND	1	0.2	0.2	0.2
Total DCPA	ND	0.2	NA	NA	NA
Dicamba	ND	0.08	0.21	NA	NA
Dichlorprop	ND	0.5	NA	NA	NA
Dinoseb	ND	0.2	0.007	0.007	0.007
Pentachlorophenol	ND	0.04	0.0004	0.001	0.001
Picloram	ND	0.1	0.5	0.5	0.5
<u>Pesticides</u>					
Aroclor 1016	ND	0.07	0.0005	0.0005	0.0005
Aroclor 1221	ND	0.1	0.0005	0.0005	0.0005
Aroclor 1232	ND	0.1	0.0005	0.0005	0.0005



**ATTACHMENT 3: Comparison of Mosher Creek Analytes to Relevant Water Quality Criteria**

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>CVRWQCB Criteria</b>	<b>USEPA MCL</b>	<b>CDHS MCL</b>
Aroclor 1242	ND	0.1	0.0005	0.0005	0.0005
Aroclor 1248	ND	0.1	0.0005	0.0005	0.0005
Aroclor 1254	ND	0.1	0.0005	0.0005	0.0005
Aroclor 1260	ND	0.1	0.0005	0.0005	0.0005
Alachlor (Alanex)	ND	0.05	0.004	0.002	0.002
Aldrin	ND	0.01	0.002	NA	NA
Chlordane	ND	0.1	0.0003	0.002	0.0001
Dieldrin	ND	0.01	0.0003	NA	NA
Endrin	ND	0.01	1.8	0.002	0.002
Heptachlor	ND	0.01	0.00001	0.0004	0.00001
Heptachlor Epoxide	ND	0.01	0.00001	0.0002	0.00001
Lindane (gamma-BHC)	ND	0.01	0.000032	0.0002	0.0002
Methoxychlor	ND	0.05	0.03	0.04	0.03
Toxaphene	ND	0.5	0.00003	0.003	0.003
Pesticides, Nitrogen/Phosphorous	ND				
Alachlor	ND	0.5	0.004	0.002	0.002
Ametryn	ND	0.3	0.063	NA	NA
Atraton	ND	0.3	NA	NA	NA
Atrazine	ND	0.5	0.003	0.003	0.001
Bromacil	ND	5	0.09	NA	NA
Butachlor	ND	1..5	0.07	NA	NA
Butylate	ND	1	0.35	NA	NA
Carboxin	ND	1	0.7	NA	NA
Chlorpropham	ND	0.7	0.005	NA	NA
Cycloate	ND	0.4	NA	NA	NA
Dichlorvos	ND	0.2	0.001	NA	NA
Diazanone	ND	0.5	0.006	NA	NA
Diphenamide	ND	0.4	0.2	NA	NA
EPTC	ND	0.3	0.18	NA	NA
Ethoprop	ND	0.1	NA	NA	NA
Fenamiphos	ND	0.3	0.0018	NA	NA
Fluridone	ND	1.8	0.56	NA	NA
Fenarimol	ND	0.4	NA	NA	NA
Hexazinone	ND	0.3	0.23	NA	NA
Methyl paraoxon	ND	0.3	NA	NA	NA
Merphos	ND	0.4	0.0002	NA	NA
Metribuzin	ND	0.4	0.091	NA	NA
Mevinphos	ND	0.3	NA	NA	NA
MGK264	ND	2	0.35	NA	NA
Molinate	ND	0.5	0.014	NA	0.02

**ATTACHMENT 3: Comparison of Mosher Creek Analytes to Relevant Water Quality Criteria**

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>CVRWQCB Criteria</b>	<b>USEPA MCL</b>	<b>CDHS MCL</b>
Metolachlor (Bicep)	ND	1.5	NA	NA	NA
Napropamide	ND	0.5	0.7	NA	NA
Norflurazon	ND	0.4	0.28	NA	NA
Pebulate	ND	0.4	NA	NA	NA
Prometryn (Caparol)	ND	0.5	0.028	NA	NA
Prometon	ND	0.3	0.11	NA	NA
Propazine	ND	0.2	0.01	NA	NA
Simazine (Princep)	ND	0.5	0.004	0.004	0.004
Simetryn	ND	0.1	NA	NA	NA
Stirofos (Tetrachlorovinphos)	ND	0.4	0.21	NA	NA
Tebuthiuron	ND	0.4	0.49	NA	NA
Terbacil	ND	3.5	0.09	NA	NA
Terbutryn	ND	0.3	0.007	NA	NA
Triadimefon (Bayleton)	ND	0.3	0.21	NA	NA
Tricyclazole	ND	1.2	NA	NA	NA
Vernolate (Vernem)	ND	0.4	0.007	NA	NA
<u>VOCs</u>					
1,1,1,2-Tetrachloroethane	ND	0.5	0.021	NA	NA
1,1,1-Trichloroethane	ND	0.5	0.2	0.2	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.001	NA	0.001
1,1,2-Trichloroethane	ND	0.5	0.003	0.005	0.005
1,1-Dichloroethane	ND	0.5	0.003	NA	0.005
1,1-Dichloropropene	ND	0.5	NA	NA	NA
1,2,3-Trichlorobenzene	ND	0.5	NA	NA	NA
1,2,3-Trichloropropane	ND	0.5	0.04	NA	NA
1,2,4-Trichlorobenzene	ND	0.5	0.005	0.07	0.07
1,2,4-Trimethylbenzene	ND	0.5	0.33	NA	NA
1,2-Dichloroethane	ND	0.5	0.0004	0.005	0.0005
1,2-Dichloropropane	ND	0.5	0.0005	0.005	0.005
1,2-Dichlorobenzene	ND	0.5	0.010(secondary)	0.6	0.6
1,3-Dichlorobenzene	ND	0.5	0.6	NA	NA
1,3,5-Trimethylbenzene	ND	0.5	0.33	NA	NA
1,4-Dichlorobenzene	ND	0.5	0.005(secondary)	0.075	0.005
2,2-Dichloropropane	ND	0.5	NA	NA	NA
2-Butanone (MEK)	ND	5	4	NA	NA
o-Chlorotoluene	ND	0.5	0.1	NA	NA
p-Chlorotoluene	ND	0.5	0.1	NA	NA
4-Methyl-2-Pentanone (MIBK)	ND	5	1.3	NA	NA
Benzene	ND	0.5	0.00015	0.005	0.001
Bromobenzene	ND	0.5	4	NA	NA

**ATTACHMENT 3: Comparison of Mosher Creek Analytes to Relevant Water Quality Criteria**

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>CVRWQCB Criteria</b>	<b>USEPA MCL</b>	<b>CDHS MCL</b>
Bromomethane	ND	0.5	0.01	NA	NA
cis-1,2-Dichloroethylene	ND	0.5	0.07	0.07	0.006
Chlorobenzene	ND	0.5	0.07	0.1	0.07
Carbon Tetrachloride	ND	0.5	0.0001	0.005	0.0005
cis-1,3-Dichloropropene	ND	0.5	0.2	NA	0.0005
Bromoform	ND	0.5	0.14	0.1	0.08
Chloroform	ND	0.5	0.07	0.08	0.08
Bromochloromethane	ND	0.5	0.09	NA	NA
Chloroethane	ND	0.5	0.016	NA	NA
Chloromethane	ND	0.5	0.003	NA	NA
Chlorodibromomethane	ND	0.5	NA	NA	NA
Dibromomethane	ND	0.5	0.00005	0.00005	0.00005
Bromodichloromethane	ND	0.5	0.14	0.08	0.08
Dichloromethane	ND	0.5	0.004	0.005	0.005
Di-isoproyl ether	ND	3	NA	NA	NA
Ethyl benzene	ND	0.5	0.03(secondary)	0.7	0.3
Dichlorodifluoromethane	ND	0.5	1	NA	NA
Fluorortrichloromethane-Freon 11	ND	0.5	0.15	NA	0.15
Hexachlorobutadiene	ND	0.5	0.001	NA	NA
Isopropylbenzene	ND	0.5	NA	NA	NA
m,p-Xylenes	ND	0.5	1.4	10	1.75
Methyl Tert-butyl ether (MTBE)	ND	3	0.005(secondary)	NA	0.013
Napthalene	ND	0.5	0.014	NA	NA
n-Butylbenzene	ND	0.5	6.2	NA	NA
n-Propylbenzene	ND	0.5	0.26	NA	NA
o-Xylene	ND	0.5	1.4	10	1.7
Tetrachloroethylene (PCE)	ND	0.5	0.01	0.005	0.005
p-Isopropyltoluene	ND	0.5	NA	NA	NA
sec-Butylbenzene	ND	0.5	19	NA	NA
Styrene	ND	0.5	0.010(secondary)	0.1	0.1
trans-1,2-Dichloroethylene	ND	0.5	0.1	0.1	0.01
tert-Amyl methyl ether	ND	3	NA	NA	NA
tert-Butyl ethyl ether	ND	3	NA	NA	NA
tert-Butyl benzene	ND	0.5	0.26	NA	NA
Trichloroethylene	ND	0.5	0.0023	0.005	0.005
Trichlorotrifluoroethane	ND	0.5	4	NA	0.15
trans-1,3-Dichloropropene	ND	0.5	0.003	NA	0.5
Toluene	ND	0.5	0.040(secondary)	1	0.15
Total THM	ND	0.5	NA	NA	NA
Total xylenes	ND	0.5	1.4	10	1.75
Vinyl chloride	ND	0.3	0.021	0.002	0.0005

**ATTACHMENT 3: Comparison of Mosher Creek Analytes to Relevant Water Quality Criteria**

<b>Analyte</b>	<b>Result</b>	<b>PQL</b>	<b>CVRWQCB Criteria</b>	<b>USEPA MCL</b>	<b>CDHS MCL</b>
----------------	---------------	------------	-------------------------	------------------	-----------------

All values in milligrams per liter (mg/L) unless otherwise indicated.

CDHS MCL - California Department of Health Services Maximum Contamination Limit

CVRWQCB - Central Valley Regional Water Quality Control Board

PQL - Practical quantitation limit (reporting limit)

NA - Not available

USEPA MCL - United States Environmental Protection Agency Maximum Contamination Limit

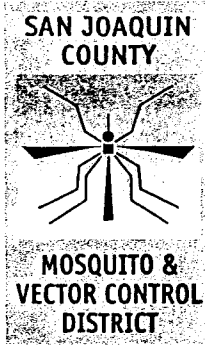
**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

---

**ATTACHMENT 4 – Letter from San Joaquin County Mosquito and Vector Control  
District (SJCMVCD)**

---



RECEIVED  
JUL 30 2003

STOCKTON EAST WATER DISTRICT

July 25, 2003

Mr. Kevin Kauffman, P.E.  
General Manager  
Stockton East Water District  
PO Box 5157  
Stockton, CA 95205

Re: Farmington Groundwater Recharge Program

Dear Kevin,

Thank you for meeting with me July 17, 2003 in your office re: the Farmington Groundwater Recharge Program. In response to our conversation about groundwater recharge and mosquitoes, I have enclosed some reference materials re: mosquito management for your information and use. Additionally, we will be monitoring the progress on the Mosher #1 project, and will advise you if we detect any need for changes in the management of the site to prevent mosquitoes.

Do not hesitate to contact me if we can be of any assistance to you during the course of your project.

John R. Stroh

Manager

Enclosures

JOHN R. STROH  
MANAGER

BOARD OF TRUSTEES

CHESTER C. MILLER  
PRESIDENT  
TRACY

FRANK DEBENEDETTI  
VICE PRESIDENT  
SAN JOAQUIN COUNTY

GERALD M. SCHILBER  
SECRETARY  
ESCALON

JACK W. CORELL  
SAN JOAQUIN COUNTY

DR. KENNETH ERWIN  
MANTECA

ALLAN R. FETTERS  
STOCKTON

JACK V. FIORI  
LODI

GERARD FONDSE  
RIPON

JEFF HIGHTOWER  
LATHROP

ALVIN C. INMAN  
SAN JOAQUIN COUNTY

MICHAEL MANNA  
SAN JOAQUIN COUNTY

CHRISTOPHER K. ELEY  
LEGAL ADVISOR

**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

---

**ATTACHMENT 5 – State Historic Preservation Officer Compliance Letter**

---



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO  
CORPS OF ENGINEERS  
1325 J STREET  
SACRAMENTO, CALIFORNIA 95814-2922

SEP 16 2003

Environmental Resources Branch

Dr. Knox Mellon  
State Historic Preservation Officer  
California State Department of Parks  
and Recreation  
P. O. Box 942896  
Sacramento, California 94296-0001

Dear Dr. Mellon:

In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, we are requesting your review and comments on the proposed Farmington Groundwater Recharge Demonstration Project, Site #1—San Joaquin Area Flood Control Agency (SJAFCA) Detention Basin #1 located within the City of Stockton, San Joaquin County, California. A vicinity map and aerial photograph of the project site location basin are enclosed (enclosures 1 and 2).

A small test facility, consisting of a basin 2 feet high and 100 by 100 feet in width and length, would be constructed within the existing 15-acre SJAFCA Detention Basin #1. The purpose of the test facility would be to assess the percolation rate of water into the ground and to refine the design of the facility and implement procedures for further application to potential groundwater recharge sites in the area east of Stockton.

The Area of Potential Effect is the SJAFCA Detention Basin #1 and the part of Mosher Creek that is adjacent to the basin. Construction is required in the basin to develop the test facility. A small backhoe would be used to push up dirt in the bottom of the basin to create the test berm. Sandbagging and a temporary conveyance pipe, which would be used to carry the water to the test berm, may be placed by hand and/or by small equipment. The water percolation monitoring well and station would be checked manually, thus necessitating a vehicle being driven on the levee to the test area. For the test itself, water would be diverted out of Mosher Creek and across the detention basin spillway to the test berm by means of an existing removable weir in the stream. The water level in the test pond would be maintained over a period of about one month, beginning in October, 2003. A plan drawing of the test facility is included for your examination (enclosure 3).

SJAFCA Detention Basin #1 was identified as a flood control structure in the Draft Environmental Impact Report for the San Joaquin Area Flood Control Agency Flood Protection Restoration Project (February 1996). The basin, which was completed in 1998, was excavated for borrow material for the flood restoration project and a levee was constructed around it. A lined spillway allows overflow water from Mosher Creek to enter the basin during flood events.

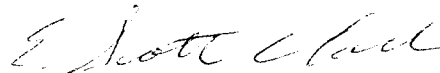



Access to the basin is by means of an existing maintenance road connecting to the frontage road west of SR 99.

Adjacent to the SJAFC A Detention Basin #1 on the west, but separated by the Woodbridge Irrigation Canal, is the Villa Antinori subdivision, currently under construction. An intensive cultural resources inventory of the subdivision project area and vicinity was completed in 2002 by Jensen & Associates, Inc. This included a literature review, Native American consultation, and a pedestrian survey. No cultural resources or sacred sites were recorded in the vicinity. A copy of the cultural resources report is enclosed here for information (enclosure 4).

Since the SJAFC A Detention Basin #1 is of recent origin, and is not unusual in any way, it does not qualify for evaluation for eligibility to the National Register of Historic Places. The test facility will take place entirely within the area of Mosher Creek and the detention basin. Therefore, we have concluded that no historic properties that are potentially eligible for, eligible for, or listed on the National Register of Historic Places would be affected by the construction and operation of the Site #1 Demonstration Project within the SJAFC A Detention Basin #1. If you have any questions, please contact Ms. Patti Johnson, Environmental Manager, at (916) 557-6611.

Sincerely,



 Kenneth E. Hitch, P. E.  
Chief, Planning Division

Enclosures

**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

---

**ATTACHMENT 6 – Draft Fish and Wildlife Coordination Act Report (CAR),  
September 2003**

---



United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846

IN REPLY REFER TO:  
HC-COE

September 15, 2003

Kenneth Hitch  
Chief, Planning Division  
Corps of Engineers, Sacramento District  
1325 J Street  
Sacramento, California 95814-2922

Dear Mr. Hitch:

Enclosed is the U.S. Fish and Wildlife Service's (Service) draft Fish and Wildlife Coordination Act (FWCA) report for the Farmington Groundwater Recharge Program, Demonstration Test Site No. 1, San Joaquin Area Flood Control Detention Basin No. 1, in San Joaquin County, California. This report assesses the fish and wildlife impacts associated with groundwater recharge demonstration project in the proposed project area.

This report is based on information obtained during a visit to the site on September 2, 2003. Attending the site visit were: Kim Turner of the Service; and Patti Johnson, Sandra Jaenicke, and Lon Lash of the Corps of Engineers (Corps). Our project description is based on excerpts from the Corps' draft Environmental Assessment, which is scheduled to be released for public review in September 2003.

By copy of this letter, this report is being circulated to the agencies and offices listed below for review and comment. We would appreciate receipt of any comments on this draft report within 30 days of receipt of this report.

If you have any questions regarding this report, please contact Kim Turner of my staff at (916) 414-6577.

Sincerely,

David L. Harlow  
Acting Field Supervisor

Enclosure

cc:

AES, Portland, OR

Stockton FWO, Stockton, CA

USACI, Sacramento, CA (Attn: Patti Johnson)

NMFS, Sacramento, CA

CDFG, Reg. Mgr., Region II, Rancho Cordova, CA

CDFG, Environmental Services, Sacramento, CA



UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

**DRAFT**  
**FISH AND WILDLIFE COORDINATION ACT REPORT**

**FOR THE**

**FARMINGTON GROUNDWATER RECHARGE PROGRAM**  
**DEMONSTRATION TEST SITE No. 1**  
**SAN JOAQUIN AREA FLOOD CONTROL DETENTION BASIN No.1**

prepared for:  
U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT  
SACRAMENTO, CALIFORNIA

prepared by:  
U.S. FISH AND WILDLIFE SERVICE  
SACRAMENTO FISH AND WILDLIFE OFFICE  
SACRAMENTO, CALIFORNIA

SEPTEMBER 2003

## PREFACE

This is the Fish and Wildlife Service's (Service) draft Fish and Wildlife Coordination Act (FWCA) report on the effects of a groundwater recharge demonstration project on fish and wildlife resources as part of the Corps of Engineers' (Corps) Farmington Groundwater Recharge Program. The project would occur at San Joaquin Area Flood Control Detention Basin No.1, Demonstration Site No.1 in San Joaquin County, California.

This report has been prepared under authority of, and in accordance with, the provisions of the FWCA (48 Stat. 401 as amended; U.S.C. *et seq.*). This report is based on a site visit conducted on September 2, 2003, a literature review, and excerpts from the Corps' draft Environmental Assessment (EA) scheduled for release in September 2003. Our analysis will not remain valid if the project, the resource base, or anticipated future conditions change significantly prior to implementing the project. Due to time constraints, we did not conduct a Habitat Evaluation Procedures (HEP) analysis to quantify project impacts.

## DESCRIPTION OF THE PROJECT

The Farmington Groundwater Recharge Program, authorized by the Water Resources Development Act of 1999, would consist of acquisition of 25-30 parcels totaling 1,200 acres through purchase, lease, or other agreement for the purposes of direct groundwater recharge. Over the next several years these sites would be screened and tested for percolation to determine their suitability for directing flood waters and excess irrigation water supplies for groundwater recharge. Long-term groundwater overdraft in the eastern portion of San Joaquin County threatens the water supply to the region, including the Stockton metropolitan area. This overdraft has led to the intrusion of saline water into the aquifer underlying portions of Stockton. As groundwater overdraft continues the saline intrusion is expected to increase, ultimately resulting in a possible loss of groundwater supplies.

The objectives of the Farmington Groundwater Recharge Program include: decreasing salinity intrusion by diverting existing water supplies and flood water into high saline areas to recharge the local groundwater table; restoring seasonal habitat for migratory birds which has been lost to urban development and agricultural activities; and increasing flood protection by alleviating pressure on existing local flood control facilities by diverting flood waters to saline-affected land.

Prior to any commitment of resources to a long-term groundwater recharge program, an initial site screening and percolation test would be completed for each potential recharge site. The demonstration site for the initial pilot test is located at the existing San Joaquin Area Flood Control Detention Basin No.1 within Stockton. The proposed site is bounded on the east by the frontage road for State Highway 99, on the south by Mosher Creek, on the west by Woodbridge Irrigation Canal, and on the north by agricultural land. A large subdivision is being developed just west of the Woodbridge Irrigation Canal and another subdivision is located southwest of Mosher Creek. A second irrigation canal parallels Mosher Creek to the south. The area in

general has been used for agricultural purposes for many years, but is rapidly becoming urbanized.

The detention basin was designed to decrease the peak 100-year water surface elevation in Mosher Creek in downstream urban areas. It was constructed in 1998 as a feature of the San Joaquin Area Flood Protection Restoration Project. The detention basin covers 15 acres and is surrounded by a levee. Overflow waters enter the basin from Mosher Creek by means of a spillway, water inflow can then be controlled by a removable weir in Mosher Creek.

This site was selected to evaluate recharge performance, monitor the response of the aquifer to recharge, and evaluate the movement of recharged water. The data gathered in this pilot test would be used for future design and implementation of a full-scale recharge facility. Prior to filling the demonstration site, the following tasks would be completed: evaluation of temporal changes in the water quality of Mosher Creek; review of historical land use practices, lithologic data from nearby wells located outside the basin, topographic maps, and aerial photos; collection of water quality samples from Mosher Creek to ensure no contaminated water is used in the process; and lastly, conduct several exploratory shallow boring investigations by drilling boring holes at various sample locations within the basin. Each boring would be drilled to a depth of about 15 feet below ground surface to determine the subsurface soil conditions.

After this preliminary work is completed, up to 700,000 gallons of water from Mosher Creek would be diverted into the detention basin test plot. The water would be diverted into a small test plot (100 feet by 100 feet in size) located in the bottom of the basin during October 2003. To contain the water, a 2-foot-high earthen berm would be constructed from dirt scraped from the detention basin floor. A temporary fence would be placed around the perimeter of the berm to deter humans and/or wildlife species from entering the test study plot. An existing removable weir system constructed in Mosher Creek for diverting water into the basin during high flow events would be used for the same purpose during the percolation study. An estimated 98-99% of the water would continue to flow through the creek over and around the weir during the test. A diesel pump would be placed on-site to insure that the inflow from the creek remains at a level sufficient to maintain a constant pool in the test basin over the test period. A staff gage and flow meter would be secured inside the test plot to monitor water level and flow.

If water percolates into the ground at a rate greater than 0.1 foot per day during the testing period (October 2003 to November 2003), a permanent long-term conveyance system to bring water from Mosher Creek into the entire detention basin during flood events would be designed and constructed. If the test is not successful, the site would be abandoned and another site would be evaluated.

## MITIGATION POLICY AND RESOURCE CATEGORY DETERMINATION

### General Policy

The recommendations provided herein for the protection of fish and wildlife resources are in accordance with the Service's Mitigation Policy as published in the Federal Register (46:15; January 23, 1981).

The Mitigation Policy provides Service personnel with guidance in making recommendations to protect or conserve fish and wildlife resources. The policy helps ensure consistent and effective Service recommendations, while allowing agencies and developers to anticipate Service recommendations and plan early for mitigation needs. The intent of the policy is to ensure protection and conservation of the most important and valuable fish and wildlife resources, while allowing reasonable and balanced use of the Nation's natural resources.

Under the Mitigation Policy, resources are assigned to one of four distinct Resource Categories, each having a mitigation planning goal which is consistent with the fish and wildlife values involved. The Resource Categories cover a range of habitat values from those considered to be unique and irreplaceable to those believed to be much more common and of relatively lesser value to fish and wildlife. The Mitigation Policy does not apply to threatened and endangered species, Service recommendations for completed Federal projects or projects permitted or licensed prior to enactment of Service authorities, or Service recommendations related to the enhancement of fish and wildlife resources.

In applying the Mitigation Policy during an impact assessment, the Service first identifies each specific habitat or cover-type that may be impacted by the project. Evaluation species which utilize each habitat or cover-type are then selected for Resource Category analysis. Selection of evaluation species can be based on several rationale, as follows: (1) species known to be sensitive to specific land- and water-use actions; (2) species that play a key role in nutrient cycling or energy flow; (3) species that utilize a common environmental resource; or (4) species that are associated with Important Resource Problems, such as anadromous fish and migratory birds, as designated by the Director or Regional Directors of the Fish and Wildlife Service. (Note: Evaluation species used for Resource Category determinations may or may not be the same evaluation species used in a Habitat Evaluation Procedures application, if one is conducted). Based on the relative importance of each specific habitat to its selected evaluation species, and the habitat's relative abundance, the appropriate Resource Category and associated mitigation planning goal are determined.

Mitigation planning goals range from "no loss of existing habitat value" (i.e., Resource Category 1) to "minimize loss of habitat value" (i.e., Resource Category 4). The planning goal of Resource Category 2 is "no net loss of in-kind habitat value;" to achieve this goal, any unavoidable losses would need to be replaced in-kind. "In-kind replacement" means providing or managing substitute resources to replace the habitat value of the resources lost, where such substitute resources are physically and biologically the same or closely approximate those lost.



In addition to mitigation planning goals based on habitat values, Region 1 of the Service, which includes California, has a mitigation planning goal of no net loss of acreage for wetland habitat. This goal is applied in all impact analyses.

### **Resource Category Determination**

Only barren/ruderal habitat would be impacted by the proposed project. Raptorial birds and small mammals were selected as the evaluation species for this habitat in the project area. Raptorial birds species were selected because they: (a) use this habitat to hunt prey species, (b) their importance for nonconsumptive human uses (i.e., bird watching), and (c) the Service's responsibilities for their management, under the Migratory Bird Treaty Act. Small mammals were selected because of their important role in the food chain as prey species for raptors and larger mammals which forage on these lands. This habitat is generally mostly barren interspersed with patches of primarily herbaceous and weedy vegetation. Generally this habitat has a low value for the evaluation species. Therefore, the Service designates the barren/ruderal habitat in the project area potentially impacted by the demonstration project as Resource Category 4. Our associated mitigation planning goal is to "minimize any loss of habitat value."

## **EXISTING BIOLOGICAL RESOURCES**

### **Vegetation**

There are five large heritage oak trees located along the southern edge of the detention basin on the levee just upstream of Mosher Creek. Vegetation in the detention basin consists mostly of ruderal nonnative plant species that have established after the site was disturbed during excavation activities. The floor of the basin is sprayed with herbicides and pesticides to control the spread of weeds and mosquitos and therefore is generally barren with remnant patches of dead nonnative plant species. The slopes of the basin contain overgrown herbaceous plants and young oaks, planted as seedlings after excavation and grading occurred in the developing of the detention basin in 1998.

Riparian vegetation occurs along Mosher Creek, upstream of the concrete weir and detention basin. Several aquatic wetland plants have established along the banks of Mosher Creek that supply some cover for fish species. Emergent vegetation and ruderal nonnative plant species occur along the concrete weir section and downstream of Mosher Creek.

### **Wildlife**

The riparian habitat along Mosher Creek supports raptor, passerine, and other bird species. Common species include mourning dove, red-tailed hawk, Swainson's hawk, great horned owl, great blue heron, great egret, mallard, yellow-billed magpie, and various sparrows, and swallows. During the September 2, 2003, site visit, two raptor nests were observed in one of the large oak trees. The detention basin and areas along Mosher Creek also support smaller mammals including: California ground squirrel, cottontail, black-tailed jackrabbit, California vole, deer mouse, and house mouse. The detention basin attracts raptorial birds that prey on these small mammals. Other mammals, such as raccoon and striped skunk, may also be found in the project area.

### Fish

Mosher Creek generally supports a resident warmwater fishery composed mostly of introduced fishes such as largemouth bass, carp, perch, green sunfish, bluegill, and catfish. Mosher Creek is hydrologically connected to the Sacramento-San Joaquin Delta so it is possible that coldwater fishes may be in the creek at certain times of the year. However, due to higher water temperatures, only warmwater species are supported year-round.

### Endangered Species

Appendix A provides a list of the federally listed and proposed species, dated September 11, 2003, and a summary of a Federal agency's responsibilities under section 7(a) and (c) of the Endangered Species Act (Act) of 1973, as amended. According to this list, there are 13 threatened and endangered species and 2 proposed threatened species in the area covered by the Stockton East, California U.S.G.S. 7½ minute quadrangle.

The National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) has responsibility for most marine fish and wildlife, and should be consulted on activities which may affect any such listed or proposed species in the project area.

A list of State listed species, under the California Endangered Species Act, was retrieved from the California Department of Fish and Game's (Department) Rarefind Natural Diversity Database (using information updated as of May 2003), for the Stockton East quadrangle (Appendix B). According to this list, there are two threatened species found within or near the project area. The Department should be contacted if any State listed species may be affected by the proposed project.

## FUTURE WITHOUT THE PROJECT CONDITIONS

### Vegetation

No significant change in woody or herbaceous vegetation is expected in the immediate project area in the future. The detention basin would continue to function as a flood control basin site for Mosher Creek overflow and would be routinely maintained by removal of nonnative herbaceous vegetation prior to the rainy season.

### Wildlife

Since only minimal or no changes are expected in vegetation, wildlife populations in the study area are expected to continue as now, with normal year-to-year fluctuations of individual species.

### Fish

Future conditions are expected to remain about the same for fish species. As with current conditions, populations would fluctuate, depending on the extent of water diversions, water temperature variations, rainfall, pesticide use, and natural population cycles.

## FUTURE WITH THE PROJECT CONDITIONS

### Vegetation

Implementation of the project is expected to have little or no impact on the vegetation in the project area.

### Wildlife

The project is expected to improve overall habitat conditions for waterfowl, shorebird, and wading bird species in the project area by providing additional loafing and feeding area.

### Fish

Implementation of the project is expected to have little or no impact on the fish resources of Mosher Creek.

### Endangered Species

(to be added upon completion of section 7 consultation with the Service, NOAA Fisheries, and the Department, as appropriate).

## DISCUSSION

Due to the small size (1,000 ft<sup>2</sup>) of the test plot and since it is being constructed within an existing flood detention basin which is routinely maintained, little or no impacts to fish and wildlife resources are expected.

Depending on the sites chosen for groundwater recharge as part of the overall project there could be some long-term benefits for waterfowl and shorebirds, and other water birds such as egrets and herons with the project. One concern which should be addressed by the Corps and the non-Federal sponsor during site evaluations is the need to screen the water diversions into the recharge basins. The need for individual screening of sites could be determined by conducting tests to monitor the numbers and species of fish which are diverted into the recharge basins. The Service would be willing to assist in design of these tests.

## RECOMMENDATIONS

The Service recommends that the Corps implement the following:

1. Evaluate the use of fish screens on any pumps used to divert water onto the detention basin.
2. Monitor the use of the site by wildlife in order to document possible benefits to wildlife, particularly birds.
2. Complete coordination with the Department concerning any State listed species that occur, or may occur, in the project area prior to implementing the project.
3. Complete section 7 consultation with the Service and/or NOAA Fisheries, as appropriate, prior to implementing the project.

**APPENDIX A**  
**FEDERALLY LISTED AND PROPOSED SPECIES**

**Federal Endangered and Threatened Species that  
may be Affected by Projects in the  
STOCKTON EAST 7 1/2 Minute Quad**

Database Last Updated: August 20, 2003

Today's Date is: September 11, 2003

**Listed Species**

**Invertebrates**

*Brachinecta lynchi* - vernal pool fairy shrimp (T)

*Desmocerus californicus dimorphus* - valley elderberry longhorn beetle (T)

*Leptodurus packardii* - vernal pool tadpole shrimp (E)

**Fish**

*Hypomesus transpacificus* - delta smelt (T)

*Oncorhynchus mykiss* - Central Valley steelhead (T) (NMFS)

*Oncorhynchus tshawytscha* - winter-run chinook salmon (E) (NMFS)

*Pogonichthys macrolepidotus* - Sacramento splittail (T)

**Amphibians**

*Rana aurora draytonii* - California red-legged frog (T)

**Reptiles**

*Thamnophis gigas* - giant garter snake (T)

**Birds**

*Haliaeetus leucocephalus* - bald eagle (T)

**Mammals**

*Neotoma fuscipes riparia* - riparian (San Joaquin Valley) woodrat (E)

*Sylvilagus bachmani riparius* - riparian brush rabbit (E)

*Vulpes macrotis mutica* - San Joaquin kit fox (E)

## Proposed Species

### Amphibians

*Ambystoma californiense* - California tiger salamander (PT)

### Birds

*Charadrius montanus* - mountain plover (PT)

## Candidate Species

### Fish

*Acipenser medirostris* - green sturgeon (C)

*Oncorhynchus tshawytscha* - Central Valley fall/late fall-run chinook salmon (C) (NMFS)

## Species of Concern

### Invertebrates

*Branchinecta mesoamericana* - Midvalley fairy shrimp (SC)

*Linderiella occidentalis* - California linderiella fairy shrimp (SC)

*Lytta molesta* - molestan blister beetle (SC)

### Fish

*Lampetra ayresi* - river lamprey (SC)

*Lampetra hubbsi* - Kern brook lamprey (SC)

*Lampetra tridentata* - Pacific lamprey (SC)

*Spirinchus thaleichthys* - longfin smelt (SC)

### Reptiles

*Anniella pulchra pulchra* - silvery legless lizard (SC)

*Emmys marmorata marmorata* - northwestern pond turtle (SC)

*Emmys marmorata pallida* - southwestern pond turtle (SC)

*Phrynosoma coronatum frontale* - California horned lizard (SC)

## Birds

- Agelaius tricolor* - tricolored blackbird (SC)
- Athene cunicularia hypugaea* - western burrowing owl (SC)
- Branta canadensis leucopareia* - Aleutian Canada goose (D)
- Buteo regalis* - ferruginous hawk (SC)
- Buteo Swainsoni* - Swainson's hawk (CA)
- Carduelis lawrencei* - Lawrence's goldfinch (SC)
- Chaetura vauxi* - Vaux's swift (SC)
- Elaeanus leucurus* - white-tailed (=black shouldered) kite (SC)
- Empidonax traillii brewsteri* - little willow flycatcher (CA)
- Falco peregrinus anatum* - American peregrine falcon (D)
- Grus canadensis tabida* - greater sandhill crane (CA)
- Lanius ludovicianus* - loggerhead shrike (SC)
- Melanerpes lewis* - Lewis' woodpecker (SC)
- Numenius americanus* - long-billed curlew (SC)
- Picoides nuttallii* - Nuttall's woodpecker (SLC)
- Plegadis chihi* - white-faced ibis (SC)
- Selasphorus rufus* - rufous hummingbird (SC)

## Mammals

- Corynorhinus (=Plecotus) townsendii townsendii* - Pacific western big-eared bat (SC)
- Eumops perotis californicus* - greater western mastiff-bat (SC)
- Myotis ciliolabrum* - small-footed myotis bat (SC)
- Myotis volans* - long-legged myotis bat (SC)
- Myotis yumanensis* - Yuma myotis bat (SC)
- Perognathus inornatus* - San Joaquin pocket mouse (SC)

## Species with Critical Habitat Proposed or Designated in this Quad

delta smelt (T)

---

### Key:

(E) Endangered - Listed (in the Federal Register) as being in danger of extinction.

(T) Threatened - Listed as likely to become endangered within the foreseeable future.

(P) Proposed - Officially proposed (in the Federal Register) for listing as endangered or threatened.

(NMF S) Species under the Jurisdiction of the National Marine Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.

(C) Candidate - Candidate to become a proposed species.

(CA) Listed by the State of California but not by the Fish & Wildlife Service.

(D) Delisted - Species will be monitored for 5 years.

(SC) Species of Concern/(SLC) Species of Local Concern - Other species of concern to the Sacramento Fish Wildlife Office.

---

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our list include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from the quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

This is *not* an official list for formal consultation under the Endangered Species Act. *However, it may be used to update official lists.*

If you have a project that may affect endangered species, please contact the Endangered Species Division, Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service.



**APPENDIX B**

**STATE LISTED ENDANGERED AND THREATENED SPECIES**

State Listed Species  
for the Farmington Groundwater Recharge Pilot Test Site No. 1  
Mosher Creek

<u>Common/Scientific Name</u>	<u>Federal/ State Status</u>	<u>Global/ State Rank</u>	<u>CNPS/ R-E-D</u>	<u>CDFG Status</u>
Swainson's hawk <i>Buteo swainsoni</i>	Species of Concern/ Threatened	G4/ S2		
giant garter snake <i>Thamnophis gigas</i>	Threatened/ Threatened	G2G3/ S2S3		

**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

---

**ATTACHMENT 7 – Letter to FWS Requesting Section 7 Consultation**

---



DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO  
CORPS OF ENGINEERS  
1325 J STREET  
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO  
ATTENTION OF

Environmental Resources Branch

SEP 16 2003

Mr. Wayne White, Field Supervisor  
U. S. Fish and Wildlife Service  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825

Dear Mr. White:

This letter and the enclosed draft Environmental Assessment (EA) comprise our biological assessment for the proposed Farmington Groundwater Recharge Demonstration Project, Site #1—San Joaquin Area Flood Control Agency (SJAFC) Detention Basin #1 (enclosure 1), as required under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)). The site is located in the City of Stockton, San Joaquin County, California. Enclosed is a USGS 7.5' topographic quadrangle (enclosure 2).

The Corps, in partnership with its non-Federal sponsor, the Stockton East Water District, proposes to construct a small test facility (project), consisting of a basin 2 feet high and 100 by 100 feet in width and length, within the existing 15-acre SJAFC Detention Basin #1. The detention basin was constructed in 1998 as part of the SJAFC Flood Protection Restoration Project. Features associated with the basin include a removable weir in the adjacent Mosher Creek, which can be activated in flood events to divert water into the basin, a concrete spillway and riprap (on the waterside), and a levee around the basin.

The purpose of the project would be to access the percolation rate of water into the ground, to refine the design of the percolation test site and to develop protocols for monitoring groundwater recharge. Information from this demonstration site would be used to assess and develop groundwater recharge areas in the San Joaquin Valley east of Stockton as part of the Farmington Groundwater Recharge Program.

In order to implement the project, it is necessary to divert some water out of Mosher Creek through use of a removable weir. Water would then be channeled over the concrete spillway through a temporary pipeline into the test basin. The amount of water that needs to be removed would be minor compared to the overall flow, leaving 95% to 98% of the water to continue downstream. The water level in the test basin would be maintained over a period of about one month in the fall (non-flood) season. The draft EA contains a plan drawing showing the features of the project.

The draft EA includes information and a detailed description of the effects of the construction and operation of the project on Federally-listed endangered, threatened, or candidate species in the project area. An updated species list has been formally requested (letter dated

September 2, 2003), however, pending a response from the FWS, we have reviewed the California Natural Diversity Database and have identified the Federally-threatened central valley steelhead (*Oncorhynchus mykiss*) and Federally-endangered winter-run Chinook salmon (*Oncorhynchus tshawytscha*) as potentially occurring in Mosher Creek during the fall and winter seasons. The following special status species may also occur in the project area: Swainson's hawk (*Buteo swainsoni*), a Federal species of concern; the burrowing owl (*Athene cunicularia*) a Federal and State species of special concern; the giant garter snake (*Thamnophis gigas*), both a Federal and State-threatened species; the Sacramento splittail (*Pogonichthys macrolepidotus*), a Federally-threatened species; the delta smelt (*Hypomesus transpacificus*) a Federally-threatened species; the southwestern pond turtle (*Clemmys marmorata pallida*), a State species of special concern; and the California red-legged frog (*Rana aurora draytoni*), a Federally-threatened and State species of special concern. A detailed description of each is included in the draft EA

It is our biological assessment, as presented in the draft EA, that the proposed project is not likely to adversely affect any listed, candidate, or terrestrial species of concern because the detention basin and its perimeter afford minimal habitat for breeding and foraging, the test would occur at a time (in early fall) when none of the listed species are likely to be present, and the project is of short duration.

We request your concurrence with our finding of not likely to adversely affect any special status species or their habitat. If you have any questions, please contact Mr. Donald Lash, Environmental Manager, at (916) 557-5172, or by e-mail: [Donald.w.lash@usace.army.mil](mailto:Donald.w.lash@usace.army.mil). A similar letter has been sent to NOAA Fisheries. Thank you for your cooperation.

Sincerely,



 Kenneth E. Hitch, P.E.  
Chief, Planning Division

Enclosure

**DRAFT ENVIRONMENTAL ASSESSMENT  
FARMINGTON GROUNDWATER RECHARGE DEMONSTRATION PROJECT  
SITE #1, SJAFCA DETENTION BASIN #1, SAN JOAQUIN COUNTY, CA**

---

---

**ATTACHMENT 8 – Letter to NOAA Requesting Section 7 Consultation**

---



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO  
CORPS OF ENGINEERS  
1325 J STREET  
SACRAMENTO, CALIFORNIA 95814-2922

SEP 16 2003

Environmental Resources Branch

Mr. Michael E. Aceituno  
Supervisor, Sacramento Area Office  
NOAA Fisheries  
650 Capitol Mall, Suite 8-300  
Sacramento, California 95814-4706

Dear Mr. Aceituno:

This letter and the enclosed draft Environmental Assessment (EA) comprise our biological assessment for the proposed Farmington Groundwater Recharge Demonstration Project, Site #1—San Joaquin Area Flood Control Agency (SJAFC) Detention Basin #1 (enclosure 1), as required under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)). The site is located in the City of Stockton, San Joaquin County, California. Enclosed is a USGS 7.5' topographic quadrangle (enclosure 2).

The Corps, in partnership with its non-Federal sponsor, the Stockton East Water District, proposes to construct a small test facility (project), consisting of a basin 2 feet high and 100 by 100 feet in width and length, within the existing 15-acre SJAFC Detention Basin #1. The detention basin was constructed in 1998 as part of the SJAFC Flood Protection Restoration Project. Features associated with the basin include a removable weir in the adjacent Mosher Creek, which can be activated in flood events to divert water into the basin, a concrete spillway, riprap (on the waterside), and a levee around the basin.

The purpose of the project would be to access the percolation rate of water into the ground, to refine the design of the percolation test site, and to develop protocols for monitoring groundwater recharge. Information from this demonstration site would be used to assess and develop groundwater recharge areas in the San Joaquin Valley east of Stockton as part of the Farmington Groundwater Recharge Program.

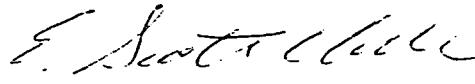
In order to implement the project, it would be necessary to divert some water out of Mosher Creek through use of a removable weir. Water would then be channeled over the concrete spillway through a temporary pipeline into the test basin. The amount of water that needs to be removed would be minor compared to the overall flow, leaving 95% to 98% of the water to continue downstream. The water level in the test basin would be maintained over a period of about one month in the fall (non-flood) season. The draft EA contains a plan drawing showing the features of the project.

The draft EA includes information and a detailed description of the effects of the construction and operation of the project on Federally-listed endangered, threatened, or candidate species in the project area. An updated species list has been formally requested (letter dated September 2, 2003), however, pending a response from the FWS, we have reviewed the California Natural Diversity Database and have identified the Federally-threatened central valley steelhead (*Oncorhynchus mykiss*) and Federally-endangered winter-run Chinook salmon (*Oncorhynchus tshawytscha*) as potentially occurring in Mosher Creek during the fall and winter seasons. A detailed description of each is included in the draft EA.

It is our biological assessment, as presented in the draft EA, that the proposed project is not likely to adversely affect any listed, candidate, or species of concern because the detention basin and its perimeter afford minimal habitat for spawning and foraging, the test would occur at a time (in early fall) when none of the listed species are likely to be present, and the project is of short duration. Informal consultation with biologists at NOAA Fisheries and the U. S. Fish and Wildlife Service, and the California Department of Fish and Game, indicate that no salmonids or other listed anadromous species are likely to be present in Mosher Creek during the water percolation test. Low water quality, high water temperatures, and insufficient flow to the delta would prevent salmonids from reaching the project area.

We request your concurrence with our finding of not likely to adversely affect any special status fish species or their habitat. If you have any questions, please contact Mr. Donald Lash, Environmental Manager, at (916) 557-5172, or by e-mail: [Donald.w.lash@usace.army.mil](mailto:Donald.w.lash@usace.army.mil). A similar letter has been sent to the U. S. Fish and Wildlife Service. Thank you for your cooperation.

Sincerely,

  
Kenneth E. Hitch, P.E.  
Chief, Planning Division

Enclosure