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STAFF REPORT AND RECOMMENDATION

ON CONSISTENCY CERTIFICATION

Consistency Certification No.	CC-088-04
Staff:	MPD-SF
File Date:	2/1/2005
3 Months:	5/1/2005
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Commission Meeting:	2/17/2005

APPLICANT: **Pajaro Valley Water Management Agency**

DEVELOPMENT LOCATION: From the Central Valley to the coast, parallel to and crossing the Pajaro River and throughout the Pajaro Valley, City of Watsonville and unincorporated areas of Monterey and Santa Cruz Counties (Exhibits 1-2)

DEVELOPMENT DESCRIPTION: Pajaro Valley Basin Management Plan to import water to support agriculture and halt salt water intrusion into Pajaro Valley groundwater basin, including Import Pipeline, Coastal Distribution Systems, and other water supply and distribution facilities (Exhibits 2-5)

SUBSTANTIVE FILE DOCUMENTS: See page 39.

EXECUTIVE SUMMARY

The Pajaro Valley Water Management Agency (PVWMA) proposes to import Central Valley Project (CVP) water to the Pajaro Valley, for the purpose of maintaining the viability of agriculture in the region and ameliorating the serious seawater intrusion problem facing the valley. The Pajaro Valley is one of the preeminent agricultural regions in the state's coastal zone, and Coastal Act policies urge the protection and maintenance of agricultural viability and the prevention of degradation of groundwater basins. As such, the project's overall goal is consistent with several Coastal Act priorities articulated in the agricultural protection policies (Sections 30241 and 30242) and the water quality policy (Section 30231 – prevent depletion of ground water supplies).

At the same time, importing water raises significant concerns over whether the project will induce growth and urban development, which could harm agricultural viability, and whether it will induce new agricultural activities on lands now not in production, which may contain sensitive wildlife habitat and/or wetlands, or steep slopes on which future activities could increase erosion and sedimentation into the Valley's extensive wetlands complex.

PVWMA believes that these concerns are addressed through its underlying enabling legislation, which provides that "...no water shall be imported into the agency for other than agricultural purposes ...," combined with the fact that the water would not be treated to potable standards. PVWMA thus believes that, for both legal and practical purposes, the water would be limited to serving existing agricultural operations. PVWMA has also committed, in its EIR/EIS for the project, that:

> *PVWMA will not deliver water for the purpose of converting any native lands to agriculture uses unless and until the project sponsor has complied with the Endangered Species Act and has determined that such conversion will not likely affect listed species or that appropriate mitigation has been provided. PVWMA intends to provide CVP water to existing irrigated agricultural lands. PVWMA currently is not proposing to provide any CVP water for M&I purposes, nor is it proposing to provide CVP water outside of the approximately 30,200 acres of agricultural lands shown in ...* [Exhibit 6].

Essentially, PVWMA is relying on existing (and future) land use regulatory controls to assure these commitments remain effective. The issue before the Commission is not the appropriateness of the project, as without imported water agricultural viability will be seriously undermined by continuing and increasing groundwater withdrawals. The issue instead is whether additional commitments are needed to provide assurances that the water will in fact be used for the intended purposes, and that "agricultural purposes" be appropriately defined. Accordingly, the Commission staff has been working with PVWMA on an agreement that would address these Coastal Act issues and help offset concerns about currently unintended use of the water. To date, PVWMA has:

1) Reiterated that PVWMA's enabling legislation (Statues of 1984, Chapter 257) prohibits the use of imported water for other than agricultural purposes.[1]
2) Agreed that agricultural uses shall be as defined in the definition chapters of the Santa Cruz and Monterey County LCPs, "with the understanding that a number of the uses potentially allowable in areas zoned for Agriculture under these LCPs would not be

1 With the exception noted in the footnote on page 29 for the Aromas County Water District at the far eastern end of the Valley (although PVWMA is not treating that water either to potable standards).

eligible for imported water from this project (such as residential, municipal/ or industrial uses)."

3) Agreed that the water "is intended to serve areas already in agricultural production, and the project would not require nor result in direct land use changes with associated significant environmental effects, such as the conversion of environmentally constrained (i.e., by the presence of, and/or setbacks associated with, wetlands, sloughs, other sensitive habitats, steep slopes, significant trees, etc.) and/or undeveloped, 'native' lands that might affect biological resources."
4) Recognized that the entire project is subject to the federal consistency provisions under the Coastal Zone Management Act, and, further that any additions or changes to the project that would affect its consistency with the California Coastal Management Plan will be subject to the 'reopener' procedures contained in 15 CFR Part 930, Section 930.66.
5) Agreed to submit project plans to the Commission staff for review, including showing user connection points, and has agreed to submit any substantial changes to the plans.
6) Agreed to submit annual monitoring reports to the Commission staff for review, which will include available data regarding: the volume and type of water inputs in the Project, including the amount of water supplied from import (Central Valley Project or otherwise), groundwater pumping, and other sources (e.g., Harkins Slough project, Recycled Water Facility, other); any treatment applied to Project water; Project water use; significant changes in cropping; changes in saltwater intrusion and any substantial Project changes in the preceding year. The submittal shall include a report on PVWMA's conservation programs in a format consistent with USBR requirements, and the latest version of the map depicting the postulated extent of the seawater-intruded zone (based on coastal wells with elevated chloride levels).
7) Agreed that: (i) any substantial changes to Project components within or affecting the coastal zone will be subject to the above project clarifications and commitments; (ii) PVWMA will incorporate these project clarifications and commitments as legally enforceable components of the project description for any such change; and (iii) any changes to these project clarifications and commitments will not be effective without the written approval of the Commission staff. (see Exhibit 20 for the specific language of the agreement, which also includes discussion of what PVWMA considers would constitute a substantial deviation or modification.)

While these agreements go a long way towards addressing the project's Coastal Act concerns, additional language is needed to strengthen the land and water use restrictions and thereby assure the project will avoid inducing non-agricultural development and increased agricultural development on lands not currently in production and containing environmentally sensitive habitat or other sensitive coastal resources. In order to bring the project into conformance with the applicable Coastal Act policies, the following condition is necessary:

1. **Water Use Restriction**. Except as may otherwise be authorized by the Coastal Commission in future reviews of proposed project changes, and except for those lands with the Aromas County Water District outside of the coastal zone, the Pajaro Valley Water Import/Distribution Project shall be limited to the supply and distribution of non-potable water within those portions of the PVWMA District in the coastal zone, as delineated as of February 17, 2005, for the purposes of supporting agricultural land uses and groundwater management (i.e., addressing basin overdraft and seawater intrusion), except that in no case shall water be used to support expansions of the agricultural operations into areas where such expansion would result in adverse biological and other environmental effects, such as the conversion of environmentally constrained (i.e., by the presence of, and/or setbacks associated with, wetlands, sloughs, other sensitive habitats, steep slopes, significant trees, etc.) and/or undeveloped native land to agricultural production.

The Commission is therefore concurring with this consistency certification as conditioned. If this condition is accepted, when combined with: (1) the mitigation commitments made through the project EIR/EIS (Exhibit 17) and the Section 7 consultations with the U.S. Fish and Wildlife Service and NOAA Fisheries (Exhibits 18-19); (3) conditions imposed by coastal permitting agencies; (4) with the review opportunities available for further refinement and specificity available through the regulatory processes to come in the coastal zone; and (5) the potential protection retained through the federal consistency "reopener" clause, the project will improve agricultural viability, halt seawater intrusion, and avoid indirect effects of inducing growth or agricultural extensions into lands not currently in production. As conditioned, the project would therefore be consistent with the requirements of Section 30241 and 30242 (agricultural protection), 30240 and 30233 (environmentally sensitive habitat and wetlands protection), 30230 and 30231 (water quality protection, including prevent groundwater intrusion), 30222 (priority of agriculture), and 30250 and 30254 (concentration of development, public works facilities, growth inducement, and reservation of limited public services for priority uses). If PVWMA does not accept this condition, the Commission's decision is treated as an objection, and the PVWMA has the ability to appeal the objection to the Secretary of Commerce (as discussed on page 18).

Also, the Commission wishes to be clear that the reopener clause is available and will be relied on for future project changes affecting the coastal zone, including any potential use of the imported water to serve non-agricultural uses. The Project as now defined will provided water strictly for agricultural use. As such, it does not currently propose or presume that Project water might be directed to urban use. In fact, this is the crux of the agreement worked out between Commission staff and PVWMA. Despite this agreement, it is possible that there may be pressure in the future to use some of the water for urban uses. This can already be seen by the fact that the PVWMA legislation already included the rider to allow water to be delivered to the Aromas Water District. The other surrounding water districts are all struggling with the question of how they intend to meet current and projected urban demands, and it is possible that some will look to the CVP water pipeline project as an attractive supply option in this respect. While not condoning or prejudging future changes to this project to allow such urban

uses, it needs to be clear that such potential project changes would be subject to the reopener provisions and would need to be accompanied by the same level of project commitment to protect agriculture and be consistent with Coastal Act and relevant LCPs as applicable.

I. STAFF SUMMARY AND RECOMMENDATION:

A. Project Description. The Pajaro Valley Water Management Agency (PVWMA) proposes to construct a water supply system designed to alleviate saltwater intrusion into the groundwater basin in the Pajaro Valley in Monterey and Santa Cruz Counties. The project includes water importation and distribution features, as well as water recycling, water conservation, and water quality components. With agriculture as the predominant water user in the Valley, the primary project purpose is to provide coastal agricultural users with an alternative source of water supply and cease groundwater pumping in critical coastal areas. Based on currently-understood needs the project goal is to provide 17,400 AFY,[2] which would be supplied through a combination of 13,400 AFY of imported Water; and 4,000 of recycled/blended water. Added to the 1,100 AFY supplied by the already authorized and constructed Harkins Slough project (see also below), this would provide a total of 18,500 AFY, the amount PVWMA estimates is needed to serve agricultural uses and create sufficient hydrostatic pressure to keep saltwater intrusion from increasing.

The Project involves several components including: (1) the Harkins Slough Local Water Supply Project; (2) construction of an import pipeline to bring water to the PVWMA service area via Central Valley Project (CVP) facilities in San Benito County (the Import Pipeline Project); (3) construction of a recycled water facility to reclaim wastewater from the Valley (the City of Watsonville's wastewater treatment facility Recycled Water Project, and (4) construction of a coastal distribution system ("CDS") to deliver blended water to coastal agricultural facilities. Approximately 4,000 feet of the Import Pipeline, the CDS and the Recycled Water Facility are located within the coastal zone in southern Santa Cruz County and northern Monterey County. The Project will deliver water to growers in the coastal area roughly bounded by Monterey Bay to the west, Highway 1 to the east, Elkhorn Slough to the south, and Buena Vista Drive and Harkins Slough Road to the north. The project will also supply agricultural operations outside the coastal zone, and will contain a number of features, including the import line itself from the central valley, located outside the coastal zone.

Construction of the project will be implemented in phases. The Harkins Slough Local Water Supply Project and a part of the CDS have already been built.[3] Construction on the remainder of the Project will occur in phases over several years, beginning in 2005. Construction of the Recycled Water Facility is planned for 2006. More specifically:

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[2] An acre-foot of water is equal to 43,560 cu. ft., 1233.49 cu. meters, or approximately 325,850 gallons.

[3] Activities planned or already constructed within the Santa Cruz County portion of the coastal zone are addressed in Santa Cruz County Coastal Development Permit Nos. 99-0335 and 04-0258, and Coastal Commission authorization 3-99-008-W.

Phase 1 of the project has already received authorizations and is partially constructed (Exhibit 4); this phase includes the Coastal Distribution System (Harkins Slough and Accelerated Pipeline portions), a water conservation program, and the Harkins Slough Project with Harkins Slough Recharge Basin, Supplemental Wells, and Connections (1,100 AFY).

Phase 2, which is planned for the near future and which provides the primary backbone for the project, and is thus the primary focus of this consistency certification, would consist of Remaining portions of the Integrated Coastal Distribution System (ICDS), the Import Water Project with Out-of-Basin Banking (13,400 AFY) and Supplemental Wells, a Water Recycling Project (4,000 AFY), and an as-yet-to-be-developed Watershed Management Programs (e.g., nitrate management).

Phase 3, scheduled for post-2007 and not yet designed and analyzed, would consist of Wells for conjunctive use of CVP water, Inland Distribution System, an inland College Lake water storage project), a Watsonville Slough surface water diversion project, and a Murphy Crossing surface water diversion project.

The project EIR/EIS describes Phase 2 (also called "Alternative B") as including the construction and operation of the following facilities:

1. *Water Recycling Facility*
2. *Pipeline connecting the Water Recycling Facility to the Import Pipeline and the Integrated Coastal Distribution System (ICDS)*
3. *Five supplemental wells*
4. *Import Pipeline (54-inch diameter)*
5. *ICDS*
6. *Connection of the pipeline to the Santa Clara Conduit*
7. *Delivery to and use of import water in the Pajaro Valley*

The project EIR/EIS further specifies:

Under this alternative, recycled water and imported surface water would be used in lieu of groundwater, when available, allowing for natural recharge of the groundwater basin. During droughts and dry periods, when little or no surface water may be available, Pajaro Valley would then pump the groundwater that was "saved" or "banked" during wet periods.

The proposed Watsonville Area Water Recycling Project (herein referred to as the Water Recycling Project) would involve construction of tertiary treatment facilities at the WWTF [Watsonville Wastewater Treatment Facility] *and pumping, blending, storage, and distribution facilities. Recycled water would be used only during the irrigation season (generally April through October). Components include:*

- Watsonville Wastewater Treatment Facility – Water Recycling Facility. ... Construction of tertiary treatment, pumping, storage, and associated facilities (the Water Recycling Facility) would require acquisition of eight acres of land from adjacent agricultural areas.

- Pipeline Connections to Import Pipeline and the Integrated Coastal Distribution System. The Water Recycling Project includes approximately 4,200 feet of 24-inch-diameter pipeline to connect the Water Recycling Facility to the Import Pipeline and/or to the Monterey and Santa Cruz Service Areas of the ICDS.

- Supplemental Wells, Laterals. Figure 2.2 [Exhibit 5, p. 2] *indicates the area within which up to five wells to produce blending water would be sited. Wells would be spaced approximately 2,000 feet apart, within a boundary extending 1,000 feet on each side of the Import Pipeline, extending four miles east from State Route (SR) 1. These wells would be located within unincorporated areas in Santa Cruz and Monterey Counties. ...Lateral pipelines would connect the wells to the Import Pipeline.*

BLEND WATER OPTIONS

As mentioned previously, the recycled water would likely have a TDS level too high for certain crops in the Pajaro Valley. Thus, a source of lower-TDS water is necessary, which would be blended with the recycled water to achieve an overall goal of 500 mg/L TDS. The two potential sources of blending water are imported surface water and groundwater.

Operational Strategy

PVWMA's operational strategy is based on supplying 18,500 AFY of water to the coastal area via the ICDS. The quantity of water by source would vary based on rainfall, as follows:

- Average Rainfall Years. CVP deliveries (and potentially non-CVP import water) plus water from the Harkins Slough project, the Supplemental Wells, and the Water Recycling Project would provide the water required to meet ICDS demand. Harkins Slough and the Supplemental Wells would be used to meet peak delivery requirements.

- Above-Normal Rainfall Years. CVP deliveries (and potentially non-CVP import water) plus water from the Harkins Slough project and Water Recycling Project are expected to exceed ICDS demand. CVP deliveries above demand would be banked with a CVP contractor through an out-of-basin banking agreement. Inland farms with turnouts off the Import Pipeline could receive CVP supplies.

- Below-Normal Rainfall Years. PVWMA would receive minimal amounts from the CVP system. Additional import water would be received through out-of-basin agreements.

PVWMA would also withdraw water from the Supplemental Wells. These banked supplies would augment surface water and recycled water to meet ICDS demand. Inland farms may be requested to use their existing wells during peak demand conditions. During the most severe dry-weather years, the Harkins Slough project is not expected to provide any water.

Import Pipeline

The Import Pipeline would link the Pajaro Valley with the Santa Clara Conduit of the San Felipe Unit facilities. The San Felipe Unit of the CVP supplies water to Santa Clara Valley, the northern portion of San Benito County, the southern portion of Santa Cruz County, and the northern edge of Monterey County. The design capacity available to PVWMA in the Santa Clara Conduit is 67 cfs, equal to approximately 4,500 to 4,600 af per month. The pipeline would extend from the existing Watsonville turnout across portions of San Benito, Santa Clara, Santa Cruz, and Monterey Counties and would connect with the ICDS near SR 1.

Pipeline Design Characteristics

The proposed 22.2-mile-long Import Pipeline would consist of pipe segments 16 to 18 feet in length. The maximum pipe diameter would be 66 inches; however, pipe diameter may be reduced to 48 inches in areas where accessibility to the site and easement width is constrained (e.g., at Pajaro River crossings and near Chittenden Pass). The entire pipeline would be located underground beneath 5 to 10 feet of cover.

Typical Construction Methods

Along most of the alignment, the pipe would be installed in a trench with 2:1 sideslopes, with 1 foot of bedding material below the pipe and 5 feet of cover material. In general, the pipeline alignment is located in open areas where conventional excavation methods can be used for opencut (open-trench) pipeline installation.

Special Construction Methods

River and Stream Crossings. *The proposed pipeline alignment includes open-trench crossings of the Pajaro River near the Graniterock quarry property, Pescadero Creek, Sargent Creek, two unnamed tributaries to the Pajaro River near Pescadero Creek, an unnamed drainage east of Soda Lake, and a small channelized drainage west of Aromas. All river and stream crossings are proposed to occur during the dry season. If water flows persist within the channels at the time of construction, sheetpile cofferdams would be installed in a portion of the channel and the construction area would be dewatered.*

Two crossings of the Pajaro River (west of U.S. 101 and west of SR 1) and a crossing of Millers Canal would be constructed using trenchless methods. Microtunneling or directional drilling is proposed for these crossings.

UPRR and Highway Crossings. *The pipeline alignment would cross three major roadways: U.S. 101,SR 129, and SR 25. Tunneling or bore-and-jack techniques would be used at these crossings to prevent disruption of traffic flow.*

INTEGRATED COASTAL DISTRIBUTION SYSTEM

The purpose of the ICDS is to deliver water to growers in the coastal area roughly bounded by Monterey Bay to the west, SR 1 to the east, Elkhorn Slough to the south, and Buena Vista Drive and Harkins Slough Road to the north. Growers in this area would take their wells out of service, thereby reducing the groundwater pumping rate. The ICDS consists of facilities required to provide complete irrigation to approximately 10,000 acres (gross), approximately 8,960 acres (net), with imported water supplies. Facilities include:

- *Pipelines*
- *Pump stations*
- *Turnouts*
- *Crossings*

In addition to blended recycled water and imported water, the ICDS has a third supply source: the Harkins Slough diversion project. The Harkins Slough project was completed in 2001, and with it segments of the ICDS, to deliver water to nearby growers. Figure 2.11 [Exhibit 5] *indicates those pipeline segments that have already been permitted and constructed.*

Pipelines

The proposed ICDS contains a total of approximately 165,670 linear feet (lf) of pipeline and is divided into two service areas: Santa Cruz and Monterey.

Turnouts

A total of 127 turnouts are included in the ICDS. These turnouts are located at sites along the ICDS laterals and at the terminus of each sub-lateral.

Pajaro River

The ICDS would cross the Pajaro River to deliver blended water to Santa Cruz County. Crossing of the river is assumed to be accomplished using microtunneling, due to the length and depth of the crossing and diameter of the casing pipe. ...

B. Background. The Pajaro Valley Water Management Agency (PVWMA) is a State-chartered local agency established in 1984 and responsible for managing groundwater resources in the Pajaro Valley, a predominantly agricultural region in southern Santa Cruz/northern Monterey Counties. The PVWMA service area (Exhibits 1-2) encompasses approximately 79,600 acres of irrigated agricultural lands, native and non-irrigated lands, the City of Watsonville, and unincorporated rural communities. Agriculture is the most significant economic industry in the valley. High value crops include strawberries, bush berries, lettuce, apples, flowers, artichokes and a variety of other vegetables. To date the Valley is fully dependent on groundwater to supply its water needs.

In the coastal areas and throughout much of the groundwater basin of the Pajaro Valley, groundwater overdraft has caused groundwater levels to drop below sea level, creating a landward pressure gradient that causes seawater from the Pacific Ocean to move inland, where it mixes with fresh groundwater. Seawater intrusion is increasingly degrading groundwater quality, limiting the utility of groundwater for irrigation and domestic purposes (Exhibits 9-10). The region's problems due to groundwater overdraft and seawater intrusion were first documented in 1953. A later 1964 Bureau of Reclamation feasibility study also confirmed the overdraft and seawater intrusion problems, and in 1975 the U.S. Bureau of Reclamation indicated its intent to deliver CVP water to Santa Cruz and Monterey Counties to help solve seawater intrusion problems. At that time, the Bureau of Reclamation committed 19,900 acre-feet per year (AFY) of federal CVP water to the Pajaro Valley, for which PVWMA holds an entitlement.

PVWMA's stated purpose is to prevent further overdraft of the groundwater basin and halt seawater intrusion through providing quality surface water and recycled water for the long-term sustainability of agricultural irrigation and production in lieu of existing groundwater pumping. PVWMA further states the purposes of the Water Supply Project are:

- To prevent long-term seawater intrusion, groundwater overdraft, land subsidence, and water quality degradation;

- To manage existing and supplemental water supplies to control overdraft and to provide for present and future water needs;

- To create a reliable, long-term water supply, which has been identified as an important cornerstone of the long-term economic vitality of agricultural business in the Pajaro Valley;

- To develop water conservation programs; and

- To recommend a program that is cost effective and environmentally sound.

Elevated chloride concentrations in well water samples are typically relied on as an indicator of seawater intrusion. The average concentration of chloride in seawater is 19,000 mg/L. Chloride levels exceeding approximately 100 mg/L in coastal wells indicate that seawater is present, and irrigation water is likely to increase problems for agriculture when chloride levels

exceed 142 mg/L (Exhibit 11). High-quality drinking water generally contains chloride concentrations below 50 mg/L, and irrigation water quality guidelines suggest chloride concentrations should not exceed 142 mg/L. Water with over 250 mg/L of chloride is generally unsuitable for use.

Exhibit 10 (EIS Figure 1.2) presents the postulated movement of seawater intrusion based on chloride concentrations measured in well water samples (PVWMA, 2000b). Even with aggressive conservation efforts, PVWMA has established that these conditions will not improve without the elimination of groundwater pumping in areas adjacent to the coast and development and delivery of additional water supplies, or fairly drastic curtailment of agricultural operations in the valley. (Groundwater intrusion can also cause problems such as increased pumping costs and land subsidence, which in turn can cause building settlement and increased flooding.)

Exhibit 8 (EIS Figure 1.3) shows the historic groundwater pumping patterns in the Valley, overlain by the PVWMA's estimated sustainable[4] groundwater supply (24,000 AFY). [see staff note, page 13] Demand, which PVWMA estimates is currently approximately 70,000 AFY, clearly far exceeds PVWMA's estimate of sustainable yield.

Exhibit 8 (EIS Figure 1.3) shows the historic groundwater pumping patterns in the Valley, overlain by the sustainable groundwater supply (24,000 AFY). Demand, which PVWMA estimates is currently approximately 70,000 AFY, clearly far exceeds the sustainable yield, as is the case for every year depicted in Exhibit 8 (Figure 1.3). PVWMA estimates conservation measures could only realistically reduce groundwater demand by 5,000 AFY. The difference between total groundwater demand (69,000 AFY) and a basin sustainable yield of 48,000 AFY is 16,000 AFY. Groundwater modeling results indicate that PVWMA needs to supply a total of 18,500 AFY to the coastal area in order to create a hydrostatic barrier to prevent further seawater intrusion into the groundwater basin while also meeting near-term (2007) demand. The Harkins Slough project will supply approximately 1,100 AFY of the 18,500 AFY needed; PVWMA proposes to obtain the balance – 17,400 AFY – via CVP water and other imported water and recycled water.[5]

Table 1.1 below shows existing and projected future water use in the PVWMA service area (see also, Exhibit 7 – EIS Table 1.4). Total current water use is approximately 71,500 AFY. Groundwater pumping provides over 95 percent of this current demand, or an estimated 69,000 AFY. Approximately 2,100 AFY from local surface water diversions are used (Watsonville diverts approximately 1,100 AFY from Corralitos Creek, and agricultural users are projected to

[4] See staff note regarding "sustainability" on page 13.

[5] As Table 1.4 (Exhibit 7) indicates, additional supplies would need to be developed to meet long-term (2040) demand. PVWMA will evaluate the need for additional water supply projects (see Phase 3 projects in Table 1.3 (page 14) after 2007, based on future water supply and demand conditions).

divert another 1,000 AFY from local surface waters). PVWMA projects a 9,000 AFY increase in water demand by 2040. Urban demand represents about 3,900 AFY of the projected increase, while agricultural demand represents about 5,100 AFY of the increase. According to PVWMA's Water Conservation 2000 report, water conservation by PVWMA (for agricultural uses) and the City of Watsonville (for urban uses) is expected to reduce demand by approximately 5,000 AFY.

TABLE 1.1

EXISTING AND FUTURE WATER USE WITHIN PVWMA AREA

	Current (2001) Conditions (AFY)[a]	Future (2040) Conditions (AFY)[a]
Demand[b]		
Agricultural Uses	59,300	64,400
Urban Uses	12,200	16,100
Total Demand Before Additional Conservation	**71,500**	**80,500**
Conservation		
Increased Agricultural Conservation (To be achieved by 2010)	4,500	4,500
Increased Urban Conservation (To be achieved by 2010)	500	500
Total Additional Conservation	**5,000**	**5,000**
Project Total Demand with Additional Conservation	**66,500**	**75,500**

a Values rounded to the nearest hundred to represent the values' significant accuracy.
b Current demand is based on current pumping (estimated at about 69,000 AFY) and surface water diversions.

SOURCE: RMC, Inc., 2002

PVWMA also notes that:

> *... under current pumping practices, a 65 percent reduction in basinwide groundwater pumping (45,000 AFY) is necessary to eliminate seawater intrusion. Under this scenario, the sustainable yield of the groundwater basin is approximately 24,000 AFY (69,000 AFY minus 45,000 AFY), or approximately one third of the current average annual demand on groundwater supplies (refer to Table 1.2 [below]). However, the basin sustainable yield could be doubled if pumping in the areas adjacent to the coast were eliminated and replaced by an alternative supply. The basin sustainable yield estimated for this scenario is 48,000 AFY. The modeling indicates that elimination of groundwater pumping in the coastal area would allow groundwater levels in the area to increase, thereby creating a hydrostatic barrier that would prevent further seawater intrusion. This scenario requires*

a firm (100 percent reliable) supplemental water supply with very little variation in year-to-year availability and construction of a coastal distribution system to provide coastal agricultural users with water.

TABLE 1.2
SUSTAINABLE YIELD

	Assuming Basinwide Pumping Reductions (AFY)	Assuming Pumping Eliminated Along the Coast (AFY)[a]
Total Groundwater Pumping	69,000	69,000
Pumping Reduction Needed to Stop Seawater Intrusion	45,000	21,000
Sustainable Yield	24,000	**48,000**[b]

a The proposed action would eliminate pumping in areas adjacent to the coast rather than reduce pumping throughout the Basin.

b Conjunctive use of the groundwater basin, necessitated by wet year/dry year fluctuations in the supplemental supply, reduces the estimated sustainable yield to 47,000 AFY.

[CCC Staff Note: The figures presented in Table 1.2 have been supplied by PVWMA and are for the most part estimates. While the Commission may come to a different numerical conclusion about overdraft and acceptable withdrawal were it to undertake more rigorous examination of the data, assumptions, and methodology that PVWMA used, the Commission believes that the numbers do appropriately demonstrate a general magnitude of the groundwater problem in the area that needs to be addressed.]

In 1993 PVWMA adopted its first Basin Management Plan (developed in concert with the Bureau of Reclamation), identifying a preferred water supply alternative for meeting supply needs, which called for bringing out-of-basin CVP water through an import pipeline and enhancing use of local surface water supplies as key water sources. The basic concept was to manage the basin by decreasing pumping during wet years and relying on banked groundwater in dry years. Other components of the 1993 Basin Management Plan (BMP) included conservation programs, an irrigation distribution system, and, to the extent feasible, use of local recycled water.

PVWMA has initiated the first phase of the proposed water supply program, which includes the construction of facilities to use local surface water supplies available from Harkins Slough and the construction and operation of pipelines, pumping, treatment, and diversion facilities for this supply. PVWMA deferred evaluation of an important part of its Revised BMP, the importation of surface water into the valley and construction of an import pipeline, pending completion of the updated BMP (the Revised BMP). In 2000, PVWMA initiated the Revised

BMP, which built on strategies from the 1993 BMP. PVWMA then selected a preferred strategy, held a series of public workshops, published an EIR and adopted the proposed recommended alternative (Revised BMP, February 2002).

C. Procedures - Phased Review. The project is located within and outside the coastal zone. The Commission's review of this project involves both federal consistency review under the federal Coastal Zone Management Act, and coastal development permitting (and possible appeals) under the state Coastal Act. The federal consistency procedures are triggered because the project requires a federal (U.S. Army Corps of Engineers "Section 404") permit. It also involves federal Bureau of Reclamation approvals, as well as federal funding for some components. One of the features of federal consistency review is "phased review" when projects are planned and conducted in phases.

Project phases are proposed as follows:

EIS TABLE 1.3
PVWMA WATER SUPPLY PROJECT

Project	Status
Phase 1	
▪ Coastal Distribution System (Harkins Slough portion only)	In operation
▪ Coastal Distribution System (Accelerated Pipeline Project)	Currently underway; completion in 2003
▪ Conservation: (5,000 afy)	Currently underway; full implementation in 2010
▪ Harkins Slough with Harkins Slough Recharge Basin, Supplemental Wells, and Connections (1,100 afy)	In operation
Phase 2 – 2004-2007	
▪ Remaining portions of the Integrated Coastal Distribution System (ICDS)	Evaluated in this EIS
▪ Import Water Project with Out-of-Basin Banking (13,400 afy) and Supplemental Wells	Evaluated in this EIS
▪ Water Recycling Project (4,000 afy)	Evaluated in this EIS
▪ Watershed Management Programs (e.g., nitrate management)	To be developed
Phase 3 – After 2007 (Potential Future Projects)	
▪ Wells for conjunctive use of CVP water ▪ Inland Distribution System ▪ College Lake (storage project) ▪ Watsonville Slough (local surface water diversion project) ▪ Murphy Crossing (local surface water diversion project)	Need for and selection of Phase 3 projects to be implemented will be determined after 2007, based on future water supply and demand conditions. Not addressed in this EIS; additional environmental review will be required.

The portions of the project within the coastal zone, primarily the coastal distribution system, are split between Monterey and Santa Cruz Counties, where coastal development permits (which are appealable to the Commission) are required. Santa Cruz County has issued a coastal development permit (No. 04-0258) for its portion of the Harkins Slough and coastal distribution system (that County permit was not appealed). Monterey County is currently processing a coastal development permit for its portion of the project (the coastal distribution system and the import pipeline within the coastal zone). In addition, a Coastal Commission (original/retained jurisdiction) coastal development permit is needed for a short stretch of the import pipeline where it crosses the Pajaro River. That permit application has been submitted to (but not 'filed' by) the Commission staff; Commission review is likely within the next few months. Less further along in the permitting process is the recycled water facility, which would need a coastal development permit from Santa Cruz County (and which would be appealable to the Commission). The subject federal consistency review does not eliminate the need for any coastal development permits for any construction activities within the coastal zone.

Project phases are shown in the table above. Both because of the phased planning and implementation, as well as the future Commission review opportunities afforded by a Commission-issued permit and potential appeals of County-issued permits for those portions of the project within the zone, the Commission typically treats these types of situations as somewhat conceptual in nature. At the same time the broader scope of federal consistency encompasses a greater geographic scope. Typically, when the Commission has conducted a "conceptual" review at an early phase of an overall development process, it has not necessarily required all final project details; rather the Commission seeks to evaluate proposals in as much detail as is available at the time of the review. The Commission has historically conducted these types of phased reviews for public works projects (e.g., Caltrans Devil's Slide Tunnel and Hatton Canyon projects; Santa Barbara and Los Angeles Airport Improvements) where decisions to implement the activities were being made in phases.

When the Commission has reviewed these types of phased activities, the Commission has historically reviewed plans and activities at a general level, noting potential problem areas, issues that may need to be more thoroughly addressed at future implementation stages, and/or identifying future activities which would be likely to affect the coastal zone if implemented, to the degree possible given the information provided. The benefits of this type of phased review are several, including that: (1) it provides the federal permitting or funding agency (or the federal agency, when it is the applicant), in advance of specific project or plan implementation, notice of what issues are likely to arise and what alternatives or mitigation measures may need further examination in future reviews; and (2) it provides the Commission with an overall planning context within which to review specific plans or projects subsequently proposed. Thus, the Commission tends to engage in a broader planning scope of analysis, in part to provide applicants with advanced awareness of concerns likely to arise in connection with future implementation actions.

With this context, the Commission's primary concern is determining whether the fundamental concept, goals and objectives of the project, and in particular the currently-proposed Phase 2 of the project, which presents the crux of the water supply program (i.e., the water importation component), are consistent with the applicable California Coastal Management Program (CCMP)/Coastal Act policies. Further permit/appeal phases can assure, for example, whether the proposed Pajaro River crossing includes all the specific designs, alternatives, and mitigation measures needed to protect coastal zone resources, or whether the proposed water recycling project (which has not been fully designed but is likely to displace prime agricultural lands) has minimized or mitigated impacts to coastal resources. The same holds true for future phases or activities outside the coastal zone, where the opportunities will exist for conducting federal consistency reviews for activities affecting coastal resources.

Thus, for some portions of the project the consistency certification submitted contains only a conceptual plan and conceptual mitigation measures. To the extent mitigation measures have been committed to and described, as discussed in the findings below, the Commission is able to make an overall determination as to whether the project is consistent with the applicable CCMP/Coastal Act policies. Detailed design will follow and partially (i.e., within the coastal zone) be the subject of subsequent coastal development permit applications submitted by PVWMA. In addition, as discussed on page 2-3, 29-30, and in Exhibit 20, PVWMA has committed to submitting and coordinating further design plans, annual monitoring, and future project changes to the Commission staff for review, for all components which would affect the coastal zone.

Moreover, any changes to the project design or mitigation commitments raising Coastal Act policy concerns could independently trigger additional federal consistency review under the provisions of Section 930.66(b) (and/or, if any federal funding is involved, Section 930.100(b)) of the federal consistency regulations (15 CFR Part 930), which provide for reopening of consistency based on "changed circumstances" of federally permitted and federally funded activities with which the Commission has previously concurred (i.e., based on a determination that the project is having coastal zone effects that are substantially different than originally proposed and, as a result, the project is no longer consistent with the applicable CCMP/Coastal Act policies). Section 930.66(b) provides:

> ***§930.66 Supplemental coordination for proposed activities***
>
> *(a) For federal license or permit proposed activities that were previously determined by the State agency to be consistent with the management program, but which have not yet begun, applicants shall further coordinate with the State agency and prepare a supplemental consistency certification if the proposed activity will affect any coastal use or resource substantially different than originally described. Substantially different coastal effects are reasonably foreseeable if: (1) The applicant makes substantial changes in the proposed activity that are relevant to management program*

enforceable policies; or (2) There are significant new circumstances or information relevant to the proposed activity and the proposed activity's effect on any coastal use or resource.

D. Status of Local Coastal Program. The standard of review for federal consistency determinations is the policies of Chapter 3 of the Coastal Act, and not the Local Coastal Program (LCP) of the affected area. If an LCP that the Commission has certified and incorporated into the California Coastal Management Program (CCMP) provides development standards that are applicable to the project site, the LCP can provide guidance in applying Chapter 3 policies in light of local circumstances. If the Commission has not incorporated the LCP into the CCMP, it cannot guide the Commission's decision, but it can provide background information. The Commission has certified Santa Cruz County's LCP but has not incorporated it into the CCMP. The Commission has certified Monterey County's LCP and partially incorporated it into the CCMP.

E. Applicant's Consistency Certification. The Pajaro Valley Water Management Agency certifies the proposed activity complies with the federally approved California Coastal Management Program and will be conducted in a manner consistent with such program.

F. Staff Recommendation and Motion. The staff recommends that the Commission adopt the following motion:

MOTION. I move that the Commission conditionally concur with the Pajaro Valley Water Management Agency's consistency certification.

The staff recommends a **YES** vote on this motion. A majority vote in the affirmative will result in adoption of the following resolution:

Conditional Concurrence

The Commission hereby **conditionally concurs** with the consistency certification made by the Pajaro Valley Water Management Agency for the proposed project, finding that, as conditioned, the project is consistent with the California Coastal Management Program.

Condition

1. Water Use Restriction. Except as may otherwise be authorized by the Coastal Commission in future reviews of proposed project changes, and except for those lands with the Aromas County Water District outside of the coastal zone, the Pajaro Valley Water Import/Distribution Project shall be limited to the supply and distribution of non-potable water within those portions of the PVWMA District in the coastal zone, as delineated as of February 17, 2005, for the purposes of supporting agricultural land uses and groundwater management (i.e., addressing basin overdraft and seawater intrusion), except that in no case shall water be used to support expansions of the agricultural operations into areas where such expansion

would result in adverse biological and other environmental effects, such as the conversion of environmentally constrained (i.e., by the presence of, and/or setbacks associated with, wetlands, sloughs, other sensitive habitats, steep slopes, significant trees, etc.) and/or undeveloped native land to agricultural production.

Right of Appeal (in the event the conditional concurrence is treated as an objection):

If PVWMA does not agree to the condition, 15 CFR Section 930.4 provides that PVWMA shall treat the conditioned concurrence as an objection, and within 30 days from receipt of notice of the Commission's action, pursuant to 15 CFR Part 930, Subpart H, PVWMA may request that the Secretary of Commerce override this objection. In order to grant an override request, the Secretary must find that the activity is consistent with the objectives or purposes of the Coastal Zone Management Act, or is necessary in the interest of national security. A copy of the request and supporting information must be sent to the California Coastal Commission and the U.S. Army Corps of Engineers. The Secretary may collect fees from PVWMA for administering and processing its request.

The federal consistency regulations also require the applicant to immediately notify the State agency if the State agency's conditions are not acceptable (see 15 CFR Section 930.4(a)(2)).

II. Findings and Declarations.

The Commission finds and declares as follows:

A. Agriculture/Groundwater. Section 30241 of the Coastal Act provides for maintaining the maximum amount of prime agricultural land in production. This Section also requires that public service expansions and assessments for services avoid reducing agricultural viability. Section 30242 adds protection for non-prime agricultural lands. Section 30222 expresses the importance of agriculture as a priority use under the Coastal Act. Section 30231 provides for the protection of water quality through, among other means, protecting ground water basins. These Sections provide:

> ***Section 30241.*** *The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection of the areas, agricultural economy, and conflicts shall be minimized between agricultural and urban land uses through all of the following:*
>
> *(a) By establishing stable boundaries separating urban and rural areas, including, where necessary, clearly defined buffer areas to minimize conflicts between agricultural and urban land uses.*
>
> *(b) By limiting conversions of agricultural lands around the periphery of urban areas to the lands where the viability of existing agricultural use is already severely*

limited by conflicts with urban uses or where the conversion of the lands would complete a logical and viable neighborhood and contribute to the establishment of a stable limit to urban development.

(c) By permitting the conversion of agricultural land surrounded by urban uses where the conversion of the land would be consistent with Section 30250.

(d) By developing available lands not suited for agriculture prior to the conversion of agricultural lands.

(e) By assuring that public service and facility expansions and nonagricultural development do not impair agricultural viability, either through increased assessment costs or degraded air and water quality.

(f) By assuring that all divisions of prime agricultural lands, except those conversions approved pursuant to subdivision (b), and all development adjacent to prime agricultural lands shall not diminish the productivity of such prime agricultural lands.

Section 30242. *All other lands suitable for agricultural use shall not be converted to nonagricultural uses unless (l) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve prime agricultural land or concentrate development consistent with Section 30250. Any such permitted conversion shall be compatible with continued agricultural use on surrounding lands.*

Section 30222. *The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.*

Section 30231. *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, ... preventing depletion of ground water supplies....*

Corresponding fairly closely to topographic and hydrologic (and topographic) features, the PVWMA service area encompasses approximately 79,600 acres of irrigated agricultural lands, native and nonirrigated lands in the hillside areas, the City of Watsonville, and the unincorporated communities of Pajaro, Freedom, Corralitos, and Aromas (Exhibit 2). The geographic boundaries of the agency approximately correspond to the topographic and hydrologic boundaries of the valley. Agriculture is by far the predominant economic industry in the Valley, which contains a population of over 80,000 residents. The main urban concentration is in the City of Watsonville, the urbanized portion of which is mostly located inland of the

coastal zone boundary, which is generally along Highway 1 in the Valley (except where the boundary moves further inland, near Elkhorn Slough) (Exhibit 21, p.2).

With over 30,000 acres of productive land in cultivation (specifically, 30,349 acres within the PVWMA service area), the Pajaro Valley is a rich agricultural region, earning over half a billion dollars/year (Exhibits 12-14). Fruits and berries account for approximately half of the total production value in the Valley, with strawberries accounting for approximately 80 percent of this category. Vegetable crops (primarily mushrooms and lettuce) account for about a third of total production, while greenhouse and field ornamentals account for most of the remainder.

Almost all (over 95%) of the water users in the Valley rely on the existing groundwater basin for their water supply. Due to extensive primarily agricultural pumping since the 1940s, overdraft conditions have caused groundwater levels to drop below sea level, creating a landward pressure gradient that causes seawater to move inland, where it mixes with fresh water. Over the past 25 years, PVWMA estimates over 150,000 acre-feet (AF) of mixed fresh and seawater have migrated inland across the coast, resulting in seawater replacing freshwater in the aquifer. Seawater intrusion increasingly is degrading water quality, and limiting the utility of groundwater for agricultural and domestic purposes. PVWMA's investigations indicate that the majority of seawater intrusion in the region is occurring in two aquifers associated with alluvium formation gravels in the interval between 100 and 200 feet below sea level, and within the Aromas sands in the 300- to 600-foot interval. While the adverse effects associated with seawater intrusion are most noticeable in the coastal portion of the basin, pumping throughout the entire basin has an effect on seawater intrusion. PVWMA has studied whether more aggressive water conservation could halt this trend and has established that it could not. (Strawberry producers in Pajaro Valley (like the rest of Monterey County's berry production) already almost exclusively use drip irrigation, and conservation could only save 4000-5000 AFY.) PVWMA therefore states that groundwater overdraft "...conditions are not expected to improve without the elimination of groundwater pumping for agricultural uses in areas adjacent to the coast and development and delivery of additional water supplies to agricultural users."

The proposed project is designed to prevent further overdraft of the groundwater basin and to halt seawater intrusion by providing quality water for the long-term sustainability of agricultural irrigation and production.

According PVWMA's Basin Management Plan, current agricultural water demand in the PVWMA is 59,300 AFY. Exhibit 8 (EIS Figure 1.3) shows the historic groundwater pumping patterns in the Valley, overlain by the sustainable groundwater supply (24,000 AFY). Demand, which PVWMA estimates is currently approximately 70,000 AFY, clearly far exceeds the sustainable yield,[6] as is the case for every year depicted in Exhibit 8 (Figure 1.3). PVWMA estimates conservation measures could only realistically reduce groundwater demand by 5,000 AFY. The difference between total groundwater demand (69,000 AFY) and a basin sustainable yield of 48,000 AFY is 16,000 AFY. Groundwater modeling results indicate that PVWMA

[6] See staff note regarding "sustainability" on page 13.

needs to supply a total of 18,500 AFY to the coastal area in order to create a hydrostatic barrier to prevent further seawater intrusion into the groundwater basin while also meeting near-term (2007) demand.

Table 1.1 below shows existing and projected future water use in the PVWMA service area. Total current water use is approximately 71,500 AFY. Groundwater pumping provides over 95 percent of this current demand, or an estimated 69,000 AFY. Approximately 2,100 AFY from local surface water diversions are used (Watsonville diverts approximately 1,100 AFY from Corralitos Creek, and agricultural users are projected to divert another 1,000 AFY from local surface waters). PVWMA projects a 9,000 AFY increase in water demand by 2040. Urban demand represents about 3,900 AFY of the projected increase, while agricultural demand represents about 5,100 AFY of the increase. According to PVWMA's Water Conservation 2000 report, water conservation by PVWMA (for agricultural uses) and the City of Watsonville (for urban uses) is expected to reduce demand by approximately 5,000 AFY.

TABLE 1.1

EXISTING AND FUTURE WATER USE WITHIN PVWMA AREA

	Current (2001) Conditi (AFY)[a]	Future (2040) Conditions (AFY)[a]
Demand[b]		
Agricultural Uses	59,300	64,400
Urban Uses	12,200	16,100
Total Demand Before Additional Conservation	**71,500**	**80,500**
Conservation		
Increased Agricultural Conservation (To be achieved by 2010)	4,500	4,500
Increased Urban Conservation (To be achieved by 2010)	500	500
Total Additional Conservation	**5,000**	**5,000**
Project Total Demand with Additional Conservation	**66,500**	**75,500**

a Values rounded to the nearest hundred to represent the values' significant accuracy.
b Current demand is based on current pumping (estimated at about 69,000 AFY) and surface water diversions.

SOURCE: RMC, Inc., 2002

PVWMA also notes that:

> *,... under current pumping practices, a 65 percent reduction in basinwide groundwater pumping (45,000 AFY) is necessary to eliminate seawater intrusion. Under this scenario,*

> *the sustainable yield of the groundwater basin is approximately 24,000 AFY (69,000 AFY minus 45,000 AFY), or approximately one third of the current average annual demand on groundwater supplies (refer to Table 1.2* [see page 13]*). However, the basin sustainable yield could be doubled if pumping in the areas adjacent to the coast were eliminated and replaced by an alternative supply. The basin sustainable yield estimated for this scenario is 48,000 AFY. The modeling indicates that elimination of groundwater pumping in the coastal area would allow groundwater levels in the area to increase, thereby creating a hydrostatic barrier that would prevent further seawater intrusion. This scenario requires a firm (100 percent reliable) supplemental water supply with very little variation in year-to-year availability and construction of a coastal distribution system to provide coastal agricultural users with water.* [Emphasis added].

PVWMA has the authority to meter, restrict, and charge fees for all but the smallest wells in the Valley. PVWMA requires meters on all water extraction facilities pumping more than 10 AFY, with approximately 800 extraction facilities currently metered. PVWMA currently charges $80 per AF and estimates that growers incur an average additional utility cost of approximately $40/AF. Therefore, currently the average groundwater cost is $120/AF (not including irrigation well costs). Shutting down wells, an alternative to importing water, would take extensive lands out of production. PVWMA states:

> ***EFFECTS ON AGRICULTURAL PRODUCTION***
>
> *Basinwide groundwater pumping restrictions necessary to curtail all seawater intrusion would reduce the total annual agricultural water supply from 59,300 af to 12,200 af. It is estimated that the groundwater restrictions would result in approximately 25,660 acres of lost agricultural production with an annual value of $372 million. This would result in significant long-term adverse impacts throughout the agricultural community.*

PVWMA further estimates that approximately 2,200 acres of agricultural land would need to be fallowed if no new supplies are developed, and that additional acreage would need to be fallowed in the future.

The proposed water importation and distribution system would result in some impacts to some existing agricultural operations; however these impacts would be relatively minor, especially when compared to the severe loss that fallowing land or allowing continually increasing salt water intrusion to occur. The more minor impacts include temporary impacts from construction activities to build the water systems, increased costs to farmers of imported water, and the possible direct loss of 8.5 acres of prime agricultural land for the proposed water recycling facility. Aside from this last effect, PVWMA states:

> *The proposed Import Pipeline and Coastal Distribution System would not result in a loss of agricultural land because such facilities would be located underground and farming as currently occurs would resume within the construction corridor following pipeline construction.*

Concerning the possible removal of approximately 8.5 acres of prime agricultural land for the water recycling project, PVWMA analyzed alternatives and believe there is no feasible less damaging alternative for on-site expansion of the Watsonville Wastewater Treatment Facility. PVWMA has also committed to mitigating this loss. PVWMA states:

> *Construction of the proposed Recycled Water Facility at the Watsonville Wastewater Treatment Facility (WWTF) and booster pumping plants associated with the ICDS would result in the conversion of approximately 9 acres of Prime Farmland within the coastal zone from agricultural use to water treatment and storage facilities, thereby precluding farming on the project site. Because all surrounding lands are considered Prime Farmland, no feasible alternative site is available that would reduce or avoid the conversion of Prime Farmland. Development of the site would therefore contribute to the cumulative loss of Prime Farmland in the region, and is considered a significant impact.*

PVWMA examined on- and off-site alternatives in its EIR/EIS, including one alternative which would have taken 19 acres of prime agricultural land. PVWMA states:

> *The DEIR considered two alternative sizes for the Recycled Water Facility (RWF): the Local-Only Alternative (capable of producing 7,700 AFY of recycled water and requiring 19 acres for facility development), and the BMP 2000 Alternative (capable of producing 4,000 AFY of recycled water and requiring 8.5 acres for site development). At its meeting on December 5, 2001, the PVWMA Board of Directors rejected the version of the Recycled Water Facility requiring 19 acres of prime farmland in favor of the version requiring 8.5 acres of prime farmland (refer to Introduction for more information.*
>
> *... The proposed site is a combination of small portions of adjacent parcels, so as not to precipitate conversion of the remaining portions of the adjacent parcels. In addition, the proposed site layout was designed to use space efficiently ....*
>
> *... Project engineers (RMC Engineers, Inc.) determined that a remote location for the RWF, while technically feasible, is inconsistent with BMP objectives, substantially increasing the cost of this project, for the following reasons:*
>
> - *Any relocation of the RWF to a location not connected to the existing treatment facility will require construction of processes or facilities not originally conceived during the conceptual design. These facilities include new utilities such as power, sewer, pumping and conveyance facilities between the existing and new treatment facilities.*
> - *The amount of land required for the RWF would increase, due to the inability of the RWF to utilize existing WWTF processes, parking, office, utilities and other functions.*

- *A new pump station and associated conveyance pipelines would be required to convey secondary effluent from the WWTF to the RWF.*
- *Sludge produced at the RWF would either have to be trucked to the existing WWTF for processing, or additional sludge handling facilities would need to be constructed at the RWF.*
- *Significant upgrades of local electrical, gas, water and sewer pipelines would likely be required.*
- *No other sites were identified for the RWF without relocating existing businesses or impacting agricultural uses or significantly impacting slough or wildlife habitat. (Other sites that were investigated are listed below.)*
- *Additional employees would be required to staff the RWF, who would have to coordinate RWF operations closely with the WWTF.*

In addition, PVWMA proposes mitigation for this impact of this loss of agricultural land, in the form of improving currently unfarmed land and returning it to production. The Final EIS provides:

> *Measure 4.A.1-2: In order to compensate for the loss of prime agricultural land, PVWMA will cause up to 8.5 acres of prime agricultural land that is no longer farmed to be restored or otherwise brought back into production. This can be accomplished through contribution to a fund dedicated to the restoration of agricultural land.*
>
> *1) Identify 8.5 acres of prime agricultural land that is no longer farmed and return it to production, or alternatively, contribute to a fund dedicated to the restoration of agricultural land. Submit documentation of agricultural land restoration or appropriate contribution to the project file and the Santa Cruz County Planning Department.*

The WWTF is not as far along in the permitting process as some of the other project components. As discussed on pages 14-17 (phased review discussion), this project component will need Santa Cruz County and City of Watsonville coastal development permits, which would be appealable to the Commission. Given the information available, it appears likely that consolidating this facility with the existing treatment plant would seem logical from a resource protection perspective. However the Commission will need further details before it can assure that it has been designed to minimize impacts to the maximum extent feasible, that there is no less damaging alternative, and that the impact can be mitigated in an appropriate manner not causing additional coastal zone effects (e.g., converting sensitive habitat lands to agricultural production). The Commission therefore finds this component, but not necessarily the design or location, conceptually consistent with the agricultural protection policies, noting it will have the opportunity for future review as discussed on pages 14-17.

Concerning higher water costs to growers, PVWMA states:

REDUCTION IN NET RETURNS DUE TO HIGHER WATER COSTS

Increased water augmentation charges are required to support the costs of the project and will increase Pajaro Valley growers' crop production costs and lower the net returns per unit of production. This could result in some significant adverse economic impacts on small, economically marginal farming operations that are growing low value crops in the area. However, increased water conservation and better management practices (including crop substitution) could mitigate these impacts. If the current farming operators are unable to absorb and/or adapt to the reduction in their net returns then market forces will likely reduce land rents to offset impacts to net returns.

Although the increase to production costs for the higher value crop rotations would be relatively small (i.e., 1.8 percent to 2.1 percent for delivered water users and 0.7 percent to 0.8 percent for groundwater users), due to the narrow profit margins for agricultural production the impacts on net returns would be significant. It is estimated that the projected $510 increase in water costs for strawberry growers using delivered water could cause growers to experience as much as a 10.9 percent decrease in their net returns. For growers of lower value crops the decrease will be even greater, likely making production of crops such as broccoli no longer financially viable. However, these impacts represent conservative estimates since increased water conservation methods and better management practices (described in Appendix B) could reduce the magnitude of these impacts. Furthermore, the gradual and predictable implementation of the cost increases will also facilitate and enhance growers' abilities to adapt their production accordingly. In addition, there may be positive production benefits for delivered water users associated with longterm reliability. In any case, if growers are unable to make adequate net returns then there will be market pressure for landowners to reduce lease rates.

These impacts are all minor compared to those that would occur under the Alternative A – No Action, which would likely result in reducing agricultural production to only approximately 4,700 acres, a decrease of almost approximately 85 percent. Under Alternative B, no agricultural production would necessarily be lost since the lands agricultural long term viability would be maintained by the provision of the supplemental water supply.

Finally, PVWMA has looked at water conservation as alternative to importing water. PVWMA states:

> *AGRICULTURAL WATER CONSERVATION*
>
> *The proposed agricultural water conservation program is intended to improve irrigation efficiency in the Pajaro Valley. Data from mobile lab evaluations conducted from 1990 to 1994 and 1999 to 2001 indicate that irrigation efficiency seems to vary considerably. Properly designed, maintained, and managed irrigation systems have inherent maximum ranges of achievable irrigation efficiencies.*
>
> *In 2000, PVWMA instituted a requirement that all growers annually submit plans summarizing irrigation and conservation practices. The program will help the agency track implementation of the water conservation program. As the program gains acceptance among Pajaro Valley growers, observed irrigation efficiencies are assumed to move toward these achievable ranges, although irrigation efficiency can vary considerably among different irrigation events. Assuming all growers participate in the program, the agricultural water conservation program could result in agricultural water savings averaging approximately 4,500 afy.*

PVWMA concludes that:

> *...despite the loss of approximately 9 acres of prime farmland within the coastal zone, the project is consistent with the California Coastal Act policies to maintain the maximum amount of prime agricultural land in agricultural production by enhancing the future viability of agricultural production in the Pajaro Valley.*

In analyzing this proposal, the Commission notes that the Pajaro Valley is one of the preeminent agricultural regions in the state's coastal zone, and that Coastal Act policies urge the protection and maintenance of agricultural viability and the prevention of degradation of groundwater basins. The Commission agrees with PVWMA that the project's primary goals, promoting agricultural viability and preventing saltwater intrusion, are consistent with the Coastal Act priorities articulated in the agricultural protection policies (Sections 30241 and 30242) and the water quality policy (Section 30231 – prevent depletion of ground water supplies). The Commission's primary concern is that by attempting to protect agriculture through importing water, PVWMA could be eliminating a primary constraint to growth of lower priority, non-agricultural, urban-type uses, which could ultimately threaten agricultural viability, and, further, that even if limited to agricultural uses, the additional water could be used to expand agriculture into sensitive habitat areas not now in production (which is addressed in the final section of this report). The Commission believes that an additional condition is necessary in order to protect agricultural uses and sensitive resources, and to bring the project into conformance with the agricultural protection policies of the Coastal Act. This condition (see page 4) would clarify and require that absent further approval by the Coastal

Commission, imported water from this project will not be used to serve, within the coastal zone or in a manner affecting the coastal zone: (1) land uses other than agricultural; (2) lands other than those already in agricultural production; or (3) expansions of the agricultural operations into areas where such expansion would result in adverse environmental effects, such as the conversion of environmentally sensitive areas and/or undeveloped 'native' lands that might affect biological resources. As conditioned (see page 4), and with the EIS mitigation measures (Exhibit 17) and PVWMA's agreement (Exhibit 20), the Commission finds that sufficient protective mechanisms would be in place to assure that neither of these scenarios will occur. Thus, concerning agricultural viability, the Commission concludes that the project would, as conditioned: (1) be consistent with Sections 30222 and 30241-30242 of the Coastal Act, because it recognizes the priority for agriculture and would maintain the maximum amount of prime agricultural land in production; (2) be consistent with the test of Section 30241 which requires that public service expansions and assessments for services avoid reducing agricultural viability, because the pumping costs and water cost assessments have been carefully tailored to be realistically affordable to growers; and (3) be consistent with Section 30231, which protects ground water quality, by offering a solution to halt salt water intrusion into the basin.

B. Public Works/Concentration of Development/Growth Inducement. Section 30250(a) of the Coastal Act provides for the concentration of new development within existing developed areas, areas able to accommodate it, or where adequate public services exist and the development would not cause adverse effects on coastal resources. Section 30254 provides for the planning and design of public works projects in a manner that would protect coastal resources, as well as reservation of scarce public services to priority uses under the Coastal Act. These Sections provide:

> ***Section 30250(a).*** *New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.*
>
> ***Section 30254.*** *New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the coastal zone remain a scenic two-lane road. Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not induce new development inconsistent with this division. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal dependent land use, essential public services and basic industries vital to the economic health of the region, state, or*

nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.

The major issue raised by this project is the concern that, in importing major new water supplies to an area where water limits currently acts as a constraint to growth, the project could induce growth and urban development in a manner which could harm rather than promote agricultural viability, as well as lead to a myriad of other adverse effects on coastal resources that increased growth could bring. PVWMA acknowledges the legitimacy of the concern; however it believes such concerns are adequately addressed through its underlying enabling legislation, which provides that "...no water shall be imported into the agency for other than agricultural purposes ...," combined with the fact that the water would not be treated to potable standards. PVWMA thus believes that, for both legal and practical purposes, the water would be limited to serving existing agricultural operations. PVWMA also believes it is the role of other planning and regulatory agencies to address this concern, stating that: "It is important to note that PVWMA does not have the authority or jurisdiction to make land use and development decisions, nor to implement the measures necessary to mitigate the effects of that growth."

Addressing the growth and public services issues, the project EIS states:

SECONDARY EFFECTS OF GROWTH

Implementation of the BMP Project (either alternative) would reduce a constraint to growth: groundwater supply reliability. The project could accommodate an amount of growth that is consistent with regional growth projections, but that could indirectly result in potentially significant secondary effects of growth. Some of these secondary effects of growth could be significant and unavoidable, while others are significant but mitigable. Significant unavoidable impacts that could occur as a result of planned growth include: loss of agricultural land and open space, increase demand on groundwater resources, and changes in visual character.

PVWMA does not have the authority to make land use and development decisions. It does not approve growth but does have a responsibility to manage and protect the groundwater resources in the service area. PVWMA does have the ability and responsibility to mitigate the impacts of growth on groundwater resources by implementing management actions that keep the basin in balance and prevent/reduce salt water intrusion. Implementation of the BMP 2000 program will serve to mitigate the secondary effects of planned growth on the groundwater resources.

Authority to implement such measures rests with the land use jurisdictions – City of Watsonville, Monterey County, Santa Cruz County, and San Benito County – which enforce local, state, and federal regulations and mitigation requirements through the development approval and permit process. Through the CEQA

> *process and the development permit process, these local land use agencies impose mitigation requirements on development projects to address the secondary effects of growth and identify measures that must be implemented by other agencies, such as the Regional Water Quality Control Board, the California Department of Fish and Game, and Air Quality District, among others. PVWMA finds that mitigation of the secondary effects of growth is primarily within the authority and jurisdiction of other public agencies and looks to those agencies to implement such measures as appropriate and consistent with their authorities.*

Despite these statements, the Commission is greatly concerned that intense pressures to use the imported new water for non-priority uses will remain. PVWMA has accounted for future planned urban uses in its demand forecasts, in order to determine the amount of water necessary to address the saltwater intrusion problem; nevertheless PVMWA is not proposing to treat water to potable standards or to serve areas not currently in agricultural production. Approximately 36% of the 96,500 acre Valley is currently in agricultural production, with 13% urban/suburban and 51% native vegetation and undeveloped land (Exhibit 6). Clearly, without controls, importing major new water supplies could induce extensive new development resulting in significant adverse effects, both inside and outside the coastal zone. Also, just as clearly, future pressures will be brought to bear, as they have begun to do already, to expand the scope of the water import and supply program to non-agricultural activities. The fact that an exception to the "only-agricultural use" policy has already been carved out for the Aromas County Water District[7] only highlights this concern. Existing regulatory and planning controls, over which the Commission may have limited or no control, may or may not be able to withstand such pressures.

In essence, PVWMA is relying on existing (and future) land use regulatory controls to assure the water is used for the intended purposes, which if that remains the case, would be consistent with Coastal Act policies. The issue before the Commission is not the appropriateness of the project, as without imported water agricultural viability will be seriously undermined by continuing and increasing groundwater withdrawals. The issue instead is whether additional commitments can be provided to assure, or at least maximize, that the water will in fact be used for the intended purposes, and, further that "agricultural purposes" be appropriately defined such that it is not so open-ended to provide loopholes for non-agricultural uses.

Accordingly, the Commission staff has been working with PVWMA on an agreement that would address these Coastal Act issues and help offset concerns about non-agricultural use of the water. To date, PVWMA has:

1. Reiterated that the Agency Act (Section 124-710) prohibits the use of water for other than agricultural purposes.[8]

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7 An exception built into PVWMA's enabling legislation does not limit water delivered to the Aromas County Water District to solely agricultural purposes; however, that area is predominantly outside the coastal zone.

8 With the exception noted in the previous footnote for the Aromas County Water District (although PVWMA is not

2. Agreed that agricultural uses shall be as defined in the definition chapters of the Santa Cruz and Monterey County LCPs, "with the understanding that a number of the uses potentially allowable in areas zoned for Agriculture under these LCPs would not be eligible for imported water from this project (such as residential, municipal/ or industrial uses)."
3. Agreed that the water "is intended to serve areas already in agricultural production, and the project would not require nor result in direct land use changes with associated significant environmental effects, such as the conversion of environmentally constrained (i.e., by the presence of, and/or setbacks associated with, wetlands, sloughs, other sensitive habitats, steep slopes, significant trees, etc.) and/or undeveloped, 'native' lands that might affect biological resources."
4. Recognized that the entire project is subject to the federal consistency provisions under the Coastal Zone Management Act, and, further that any additions or changes to the project that would affect its consistency with the California Coastal Management Plan will be subject to the 'reopener' procedures contained in 15 CFR Part 930, Section 930.66.
5. Agreed to submit project plans to the Commission staff for review, including showing user connection points, and has agreed to submit any substantial changes to the plans.
6. Agreed to submit annual monitoring reports to the Commission staff for review, which will include available data regarding: the volume and type of water inputs in the Project, including the amount of water supplied from import (Central Valley Project or otherwise), groundwater pumping, and other sources (e.g., Harkins Slough project, Recycled Water Facility, other); any treatment applied to Project water; Project water use; significant changes in cropping; changes in saltwater intrusion and any substantial Project changes in the preceding year. The submittal shall include a report on PVWMA's conservation programs in a format consistent with USBR requirements, and the latest version of the map depicting the postulated extent of the seawater-intruded zone (based on coastal wells with elevated chloride levels).
7. Agreed that: (i) any substantial changes to Project components within or affecting the coastal zone will be subject to the above project clarifications and commitments; (ii) PVWMA will incorporate these project clarifications and commitments as legally enforceable components of the project description for any such change; and (iii) any changes to these project clarifications and commitments will not be effective without the written approval of the Commission staff. [see Exhibit 20 for the specific language of the agreement, which also includes discussion of what PVWMA considers would constitute a substantial deviation or modification.]

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treating that water either to potable standards).

While these agreements go a long way towards addressing the project's Coastal Act concerns, additional language is needed to strengthen the land and water use restrictions and thereby assure the project will avoid inducing non-agricultural development and increased agricultural development on lands not currently in production. In order to bring the project into conformance with the applicable Coastal Act policies, a condition is necessary (see page 4) to clarify and require that, absent further approval by the Coastal Commission, imported water from this project will not be used to serve, within the coastal zone or in a manner affecting the coastal: (1) land uses other than agricultural; (2) lands other than those already in agricultural production; or (3) expansions of the agricultural operations into areas where such expansion would result in adverse environmental effects, such as the conversion of environmentally sensitive areas and/or undeveloped 'native' lands that might affect biological resources.

The Commission is therefore concurring with this consistency certification as conditioned. If this condition is accepted, when combined with: (1) the mitigation commitments made through the project EIR/EIS (Exhibit 17) and the Section 7 consultations with the U.S. Fish and Wildlife Service and NOAA Fisheries (Exhibits 18-19); (2) conditions imposed by coastal permitting agencies; (3) with the review opportunities available for further refinement and specificity available through the regulatory processes to come in the coastal zone; and (4) the potential protection retained through the federal consistency "reopener" clause, the project will improve agricultural viability, halt seawater intrusion, and avoid indirect effects of inducing growth or agricultural extensions into lands not currently in production. As conditioned, the project would therefore be consistent with the requirements of Sections 30250 and 30254 concerning concentration of development, public works facilities, growth inducement, and reservation of limited public services for priority uses. The Commission wishes to be clear that the reopener clause is available and will be relied on for future project changes affecting the coastal zone, including use of the imported water to serve non-agricultural uses. If PVWMA does not accept this condition, the Commission's decision is treated as an objection, and the PVWMA has the ability to appeal the objection to the Secretary of Commerce (as discussed on page 18).

Also, the Commission wishes to be clear that the reopener clause is available and will be relied on for future project changes affecting the coastal zone, including use of the imported water to serve non-agricultural uses. Any subsequent coastal permit or federal consistency application to allow any of the water supplied by this project to be used for domestic use would need to be accompanied by the same level of project commitment to protect agriculture and be consistent with Coastal Act and relevant LCPs as applicable

C. <u>Environmentally Sensitive Habitat Areas, Wetlands, and Water Quality</u>.
Section 30240 of the Coastal Act provides for the protection of environmentally sensitive habitat areas. Section 30233 provides for the protection of wetlands. Sections 30230-30232 provide for the protection of water quality. These Sections provide:

Section 30240. *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Section 30233(a). *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to...: [8 types of allowable uses, including... (l) New or expanded port, energy, and coastal-dependent industrial facilities; (2) Maintenance dredging; (3) In wetland areas only, entrance channels for new or expanded boating facilities; (4) In open coastal waters, other than wetlands, new or expanded boating facilities and the placement of structural pilings for public recreational piers; (5) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines; (6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas; (7) Restoration purposes; and (8) Nature study, aquaculture, or similar resource dependent activities.]*

Section 30230. *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Section 30231. *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Section 30232. *Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

As noted previously in this report, approximately 50% of the Pajaro Valley service area is comprised of native and undeveloped land. Much is this area contains wetlands and environmentally sensitive habitat, including the extensive Watsonville Slough System wetland complex. The Commission recognized this slough system's value in its analysis of the City of Watsonville Major Local Coastal Program (LCP) Amendment Number 1-99, in which the Commission noted:

> *Watsonville Slough System*
>
> *The Watsonville Slough System extends from areas well inland of Highway One all the way to the Monterey Bay. The Slough System includes approximately 800 acres of (flat) wetland area. Although difficult to estimate with any degree of accuracy, this Slough System has been reduced in scale over time. Farming in and around the sloughs has been ongoing since the 1850s, and much of the sloughs have been channelized, graded, and used for agricultural production or grazing at one time or another. Encroaching urbanization in and around the City of Watsonville has also led to direct encroachment into slough areas over time. Best estimates are that the Watsonville Slough System once included over 1,000 acres of wetland slough habitat. It is likely that the Slough System was once even larger given that these estimates are based on sparse historical data going back approximately 120 years.*
>
> *Despite its historical reduction, the Watsonville Slough System remains a very important ecological system. It contains significant areas of fresh and salt water wetland, marsh, and open water areas, riparian and oak woodlands, as well as dune and coastal scrub communities nearer the coast. The diversity of habitat and its coastal location along the Pacific Coast Flyway combine to make the Slough System an important resting, feeding and refuge area for migratory, seasonal and resident waterfowl. In addition, the Slough System is home to many other birds, amphibians, reptiles, and other animals – some of these species protected by the Federal and State Endangered Species Acts – which likewise use this diverse habitat. The rich prey base supports a high diversity of raptor and other predators. Various plant species of concern, some of these endangered as well, are also prevalent in the Slough System. United States Fish and Wildlife Service (USFWS) and CDFG have both submitted comments on the proposed LCP amendment that indicate that the Watsonville Slough system as a whole ...is biologically sensitive habitat particularly worthy of vigilant protection....*

The project EIR/EIS also notes the extensive wetlands complexes and environmentally sensitive habitat areas (ESHAs) present and analyzes both direct effects due to construction activities (including impacts from construction of pipelines across sloughs, drainages and the Pajaro River within the coastal area, sedimentation of the channels outside of the construction area during trenching activities, loss of riparian vegetation and stream function as wildlife and fishery habitat, and loss of special status natural communities), as well as indirect effects from potential

pressures to convert wetlands and ESHAs to agriculture or other uses. First, the EIR/EIS notes the presence the following primary wetland complexes: the Pajaro River (and tributaries Salsipuedes and Corralitos Creeks) and Lagoon, Watsonville, Harkins, McCluskey, Bennett, and Hanson Sloughs. These wetlands habitats, as well as upland habitat, include the following species important and sensitive spices identified in the EIR/EIS (see Exhibit 16 for complete list of special status species, and Exhibit 15 for table of habitat losses by acreage):

California red-legged frog (*Rana aurora draytonii*);
steelhead (*Oncorhynchus mykiss*);
western pond turtle *(Clemmys marmorata)*;
Tidewater goby (*Eucyclogobius newberryi*);
California red-legged frog *(Rana aurora draytonii);*
California tiger salamander (*Ambystoma californiense*);
Several listed fairy shrimp species (in degraded vernal pools): vernal pool fairy shrimp (*Branchinecta lynchi)*, conservancy fairy shrimp (*B. conservatio)*, and longhorn fairy shrimp (*B. longiantenna*);
yellow warbler (*Dendroica petechia brewsteri*);
nesting raptors, including red-tailed hawks (*Buteo jamaicensis*);
yellow-breasted chat *(Icteria virens)*;
least Bell's vireo (*Vireo bellii pusillus*);
San Joaquin kit fox (*Vulpes macrotis mutica*);
Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*); and
Tricolored blackbird (*Agelaius tricolor).*

Next, the EIR/EIS includes extensive mitigation measures to address impacts to these sensitive species. The EIS mitigation measures are contained in full in Exhibit 17; PVWMA summarizes the habitat measures as follows:

> *Mitigation measures to offset the removal of vegetation/habitat and impacts to special-status species include, but are not limited to, employing avoidance or trenchless construction methods where applicable (including the Pajaro River crossing), replanting vegetation, protocol-level pre-construction surveys, biological monitoring during construction activities, restriction of construction periods, the employment of Best Management Practices and Erosion Control Methods, and restoring pre-construction conditions which include pre-determined restoration and monitoring success criteria.*
>
> *Formal consultation with the U.S. Fish and Wildlife Service (USFWS) and NOAA Fisheries under Section 7 of the Endangered Species Act has been completed. A Biological Opinion (BO) was issued by NOAA Fisheries in August 2003 and a BO from the USFWS was issued in 2004.*

Through that consultation, additional mitigation measures are required and incorporated into the project; the Fish and Wildlife Service Section 7 requirements are listed in Exhibit 18 and the NOAA Fisheries requirements listed in Exhibit 19. The Fish and Wildlife Service review

addresses impacts to least Bell's vireo (*Vireo bellii pusillus*), San Joaquin kit fox (*Vulpes macrotis mutica*), Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum),* Tidewater goby (*Eucyclogobius newberryi*), conservancy fairy shrimp (*B. conservatio)*, longhorn fairy shrimp (*B. longiantenna*), California red-legged frog *(Rana aurora draytonii),* threatened vernal pool fairy shrimp (*Branchinecta lynchi),* and the California tiger salamander (*Ambystoma californiense*). The NOAA Fisheries review addresses impacts to steelhead (*Oncorhynchus mykiss*).

These reviews concluded that with the mitigation measures, environmentally sensitive habitat would be protected. The Fish and Wildlife Service concluded:

> *We have reviewed the current status of the least Bell's vireo, San Joaquin kit fox, Santa Cruz long-toed salamander, tidewater goby, Conservancy fairy shrimp, longhorn fairy shrimp, California red-legged frog, vernal pool fairy shrimp, and California tiger salamander, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects during the preparation of the biological and conference opinion. It is the Service's biological opinion that the revised basin management plan projects for the Pajaro Valley, as proposed, are not likely to jeopardize the continued existence of the least Bell's vireo, San Joaquin kit fox, Santa Cruz long-toed salamander, tidewater goby, Conservancy fairy shrimp, longhorn fairy shrimp, California red-legged frog, and vernal pool fairy shrimp. It is the Service's conference opinion that the revised basin management plan projects for the Pajaro Valley, as proposed, are not likely to jeopardize the continued existence of the California tiger salamander. We base these conclusions on the following:*
>
> *1. Adverse effects to the species are expected to be minimal because relatively few of these species have been observed in the project area to date;*
>
> *2. Small portions of the ranges of some of the species would be affected by the proposed action.*
>
> *a. The 17.7 acres of habitat for the San Joaquin kit fox that would be temporarily affected is of marginal quality.*
>
> *b. The proposed projects will result in no permanent loss and only 1.6 acres of temporary disturbance of riparian habitat suitable for the least Bell's vireo:*
>
> *c. Only 0.47 acre of potential aquatic and streamside habitat for the California red- legged frog will be temporarily disturbed;*
>
> *3. The vernal pool within the project area will be avoided and therefore the likelihood of adverse effects to the Conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool fairy shrimp is low;*
>
> *4. No loss of California tiger salamander habitat will occur;*

5. Underground trenching will avoid most effects to Santa Cruz long-toed salamanders and tidewater gobies;

6. If California red-legged frogs and California tiger salamanders are found in the project area and are at risk, they will be relocated to nearby, suitable habitat; and

7. Reclamation and the PVWMA have proposed measures to reduce adverse effects of the projects on the species.

NOAA Fisheries concluded:

VI. INTEGRATION AND SYNTHESIS OF EFFECTS

The construction of the pipeline to deliver CVP water into the lower Pajaro Valley will capture, harm, injure, and kill juvenile S-CCC ESU steelhead. Steelhead present in areas to be dewatered will be captured and relocated, and a small percentage may die or be injured as a result. All of these fish would be killed if they remained within areas to be dewatered, however. Steelhead present in the action area may be disturbed, displaced, injured, or killed by project activities. NOAA Fisheries expects that all S-CCC ESU present in the areas proposed for dewatering will be captured and removed, except those fish on the Pajaro River mainstem that are undetected within the area to be dewatered. Up to 1000 feet of habitat below the trenchless crossings on Millers Canal, Pajaro River west of Highway 1, and Pajaro River west of Highway 101 may have increased turbidity and sedimentation levels if an accidental release of bentonite occurs, for a total of 3,000 feet. Up to 1000 feet of habitat below each of the crossings at Pajaro River at Graniterock Property (Chittenden), Pescadero, and Sargent Creeks may have increased turbidity levels from construction activities and rewatering of the crossing location, or become contaminated by high levels of hydraulic fluid if an accidental spill occurs, for a total of 3,000 feet. As a result of these sediment and contaminant impacts, steelhead within these areas will be killed or injured. In addition, NOAA Fisheries estimates that a total of 5,100 sq. ft. or river and streambed will be impacted due to temporary loss on instream habitat from open trench pipe construction.

The proposed project minimization and conservation measures avoid and minimize short-term risks to steelhead. Additionally, the use of trenchless construction techniques for some of the stream crossings significantly minimizes adverse effects to steelhead and their habitat.

Most of the open trench pipeline construction activities will occur when the smaller creeks are dry of, on the mainstem Pajaro River (Chittenden Pass), when steelhead are not likely to be present. However, if the Sargent Creek and Pescadero Creek crossings are not dry during the time of construction, capture and relocation efforts will be necessary to minimize the possible adverse effects of work within the wetted channel.

The mainstem Pajaro River currently does not appear to provide juvenile rearing habitats during the summer and fall, primarily due to high water temperatures, sandy substrates, and limited food supplies. Surveys conducted over the past decades (Smith 1982) have failed to detect juvenile presence in the mainstem. However, the survey effort has been inconsistent (Titus et al. 1999) and no recent survey information is available. NOAA Fisheries believes that a small number of juvenile steelhead may be present in the action areas on the main stem Pajaro and Millers Canal. Fish exposed to elevated turbidity levels, sedimentation, or accidental bentonite spills are expected to experience gill abrasion, reduced feeding success, and possibly death depending on the amount and duration of the impacts.

Long-term effects from this project to steelhead may be beneficial due to potential increases in surface flows and potential reduction in urban development pressure in the lower Pajaro River. At worse, long-tem impacts associated with this project are anticipated to neither improve nor further degrade conditions for steelhead in the action area.

Temporary impacts will be localized and sufficient contingency measures are proposed to minimize adverse impacts. At the Sargent and Pescadero Creek crossings, impacts to the sub- population will be minimal and temporary, because the action occurs one time at each site and juvenile steelhead will be relocated with minimal associated death and injury. Impacts to the sub-population due to adverse habitat modification are expected to be low due to the low likelihood steelhead will be present at the mainstem Pajaro River crossings or Millers Canal during construction.

Steelhead reproductive strategy results in thousands of fertilized eggs per adult per year and, in both natural and degraded settings (i.e., the Pajaro River), most eggs do not survive to become adults. Given the naturally low survival chances per individual, the small amount of expected mortality during project construction is unlikely to have a detectable effect on population abundance or viability. The effects of the project are not expected to appreciably reduce the number, distribution, or reproduction of the Pajaro River sub-population of steelhead. This conclusion is based, in large part, on the conservation and minimization measures proposed by the PVWMA to reduce impacts from construction to S-CCC ESU steelhead. Most project- related impacts will be of limited scope and duration, and therefore are not expected to have long-term effects on the survival of the species within the action area or at the ESU level.

As discussed on pages 14-17 (phased review discussion), additional measures may also be imposed by the Commission and/or Santa Cruz or Monterey County when coastal development permits are reviewed (for example, while PVWMA proposes bore-and-jack construction or directional drilling to tunnel under the Pajaro River crossing, the Commission will want to review the specific technical details and drilling plans to assure the risks from spills and sedimentation are minimized, and to determine the construction is proposed in the least environmentally damaging manner).

Addressing indirect impacts, PVWMA acknowledges the potential for the water to be used to serve currently non-agricultural lands, which PVWMA also acknowledges could have significant environmental impacts. However, PVMWA states: "Predicting exactly what and where the impacts would occur would be speculative." As was the case for the growth-inducement issue discussed in the previous section of this report, PVWMA relies on other regulatory processes to address the issues raised. Thus, PVWMA has committed to:

> ***CEQA Compliance.*** *Delivery of CVP water for use in areas beyond the 30,200 acres of agricultural lands [shown in Figure 4.C-2 of the Revised BMP EIR] shall be permitted only in accordance with the terms for delivery to Contractor's Service Area pursuant to any contract for the delivery of CVP water between Reclamation and PVWMA, and in accordance with any and all laws, including CEQA and NEPA. The appropriate local land use agency will be the lead agency for preparation of an environmental document for any proposed land use changes; PVWMA will be the lead agency for any actions specific to water system improvements or other PVWMA actions needed to provide CVP water [to areas beyond those shown in Figure 4.C-2].*
>
> ***Endangered Species Act Compliance.*** *PVWMA will not deliver water for the purpose of converting any native lands to agriculture uses unless and until the project sponsor has complied with the Endangered Species Act and has determined that such conversion will not likely affect listed species or that appropriate mitigation has been provided. PVWMA intends to provide CVP water to existing irrigated agricultural lands. PVWMA currently is not proposing to provide any CVP water for M&I purposes, nor is it proposing to provide CVP water outside of the approximately 30,200 acres of agricultural lands [shown in Figure 4.C-2 of the Revised BMP EIR]. If PVWMA is the lead agency for development of water system improvements and construction or operation of those improvements or any other PVWMA actions that could adversely affect threatened or endangered species, PVWMA will consult with the appropriate resource agency (California Department of Fish and Game, US Fish and Wildlife Service, and/or National Marine Fisheries Service) pursuant to all applicable laws, including CEQA and NEPA. PVWMA will implement project-specific mitigation measures and permit conditions as appropriate.*

Also as the Commission expressed in the previous section of this report, the Commission is not as sanguine as PVWMA that existing regulatory mechanisms will avoid pressures to convert sensitive habitat areas. For similar reasons as discussed in previous two sections of this report, in order to assure the project's conformance with the applicable Coastal Act habitat and water quality policies, an additional condition is necessary (see page 4) which would clarify and require that require that, absent further approval by the Coastal Commission, imported water from this project will not be used to serve, within the coastal zone or in a manner affecting the coastal zone: (1) land uses other than agricultural; (2) lands other than those already in agricultural production; or (3) expansions of the agricultural operations into areas where such expansion would result in adverse environmental effects, such as the conversion of environmentally sensitive areas and/or undeveloped 'native' lands that might affect biological resources.

With this condition, combined with: (1) the mitigation commitments made through the project EIR/EIS (Exhibit 17) and the requirements of the Section 7 consultations (Exhibit 18-19); (2) conditions imposed by coastal permitting agencies; (3) with the review opportunities available for further refinement and specificity available through the regulatory processes to come in the coastal zone; and (4) the potential protection retained through the federal consistency "reopener" clause, the project would be consistent with the environmentally sensitive habitat, wetlands, and water quality policies (Sections 30240, 30233, and 30230-30232) of the Coastal Act.

Finally, as it noted in the conclusion to the previous section of this report, the Commission also wishes to be clear that the reopener clause is available and will be relied on for future project changes affecting the coastal zone, including use of the imported water to allow agricultural operations to expand to lands not currently in agricultural production, especially where it would have adverse effects on environmentally sensitive habitat and/or wetlands. Further, any subsequent coastal permit or federal consistency application to allow any of the water supplied by this project to be used for such purpose would need to be accompanied by the same level of project commitment to be consistent with Coastal Act and relevant LCPs as applicable

III. Substantive File Documents

1. The Pajaro Valley Water Management Agency Act, California Water Code Appendix Chapter 24, Sections 124-1 to 124-1108.

2. Pajaro Valley Water Management Agency Revised Basin Management Plan Project, August 2003, United States Department of the Interior Bureau of Reclamation.

3. Pajaro Valley Water Management Agency Revised Basin Management Plan, Environmental Impact Report SCH# 2000062030, Pajaro Valley Water Management Agency October 2001.

4. Monterey County, Santa Cruz County, and City of Watsonville Local Coastal Programs (including City of Watsonville Major Amendment Number 1-99).

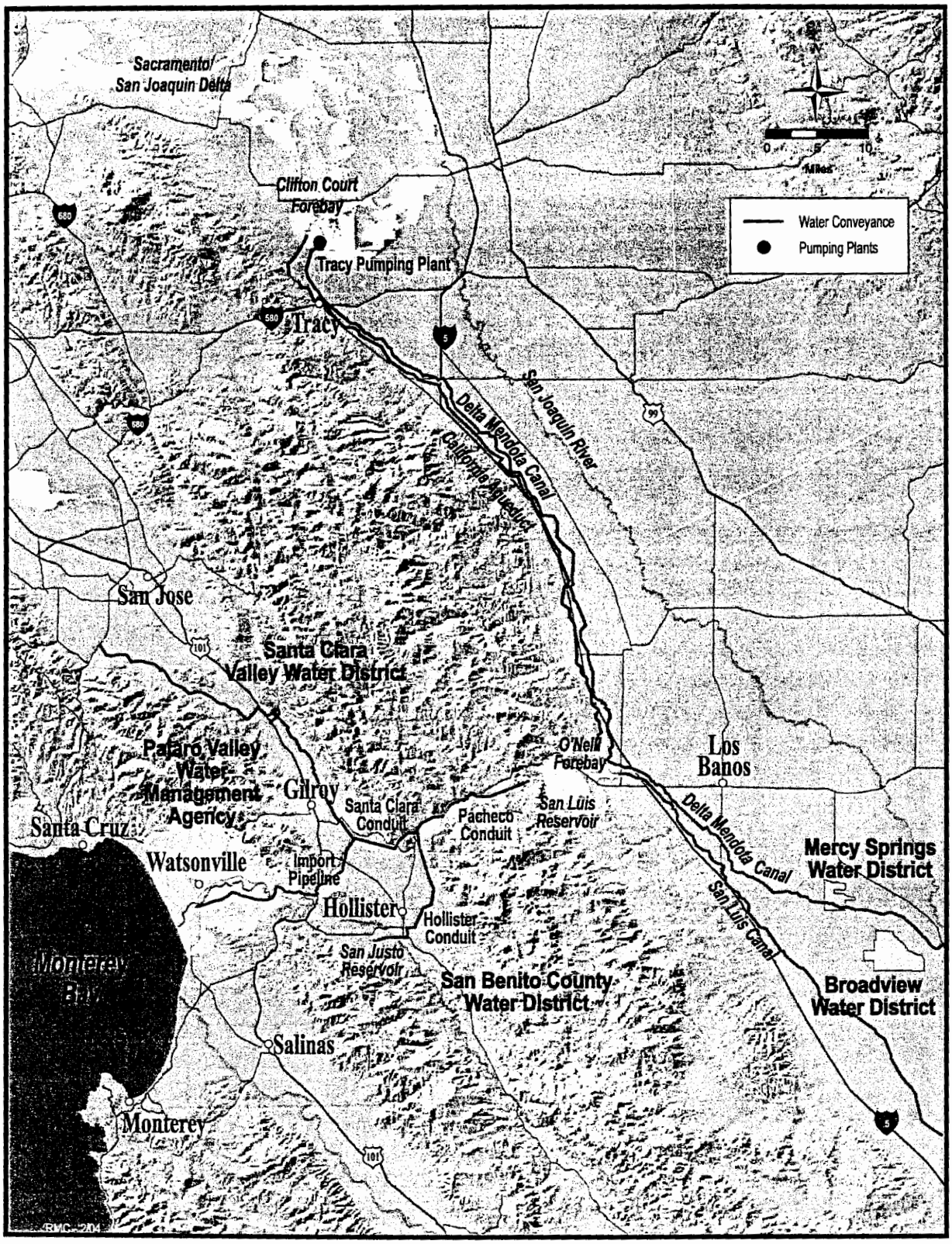
5. Appeal No. 94-81, Watsonville Sewage Treatment Plant

6. Santa Cruz County Coastal Development Permit No. 04-0258.

7. Local Water Supply and Distribution System Projects Environmental Impact Report, 1999.

8. Revised Basin Management Plan Environmental Impact Statement, US Department of the Interior Bureau of Reclamation, the Record of Decision signed in 2004.

9. "Section 7" Consultations, U.S. Fish and Wildlife Service (Biological and Conference Opinion No. 1-8-03-F-44, dated March 19, 2004) and NOAA Fisheries (National Marine Fisheries Service) (Biological and Conference Opinion No. 151422SWR01SR849, dated August 15, 2003).



SOURCE: RMC

EXHIBIT NO. 1
APPLICATION NO.
CC-088-04
PVWMA

A Revised BMP EIS / 200179 ■

Figure 1

Regional CVP System

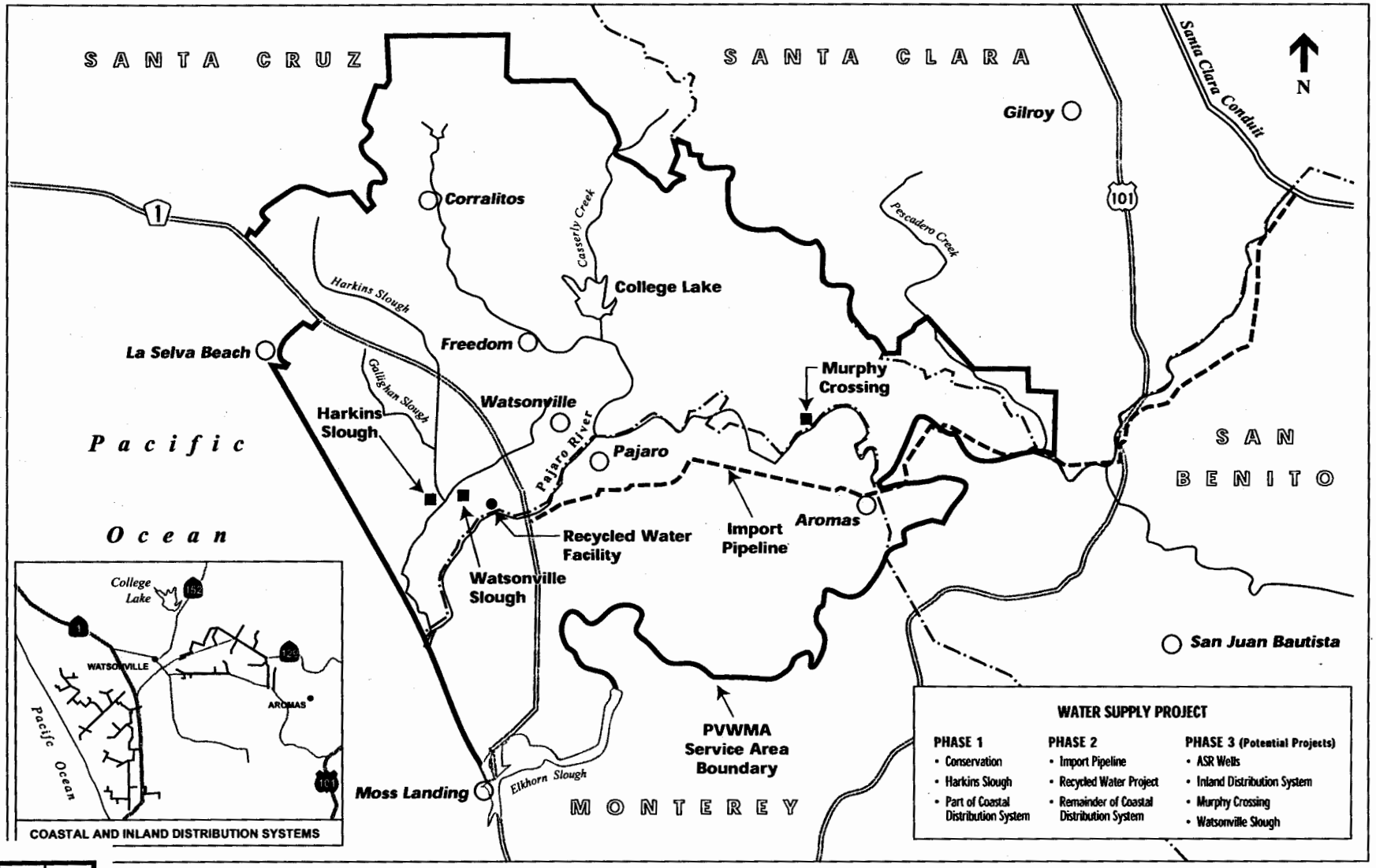


EXHIBIT NO. 2
APPLICATION NO. CC-088-04
Components

Figure A.1
Water Supply Project

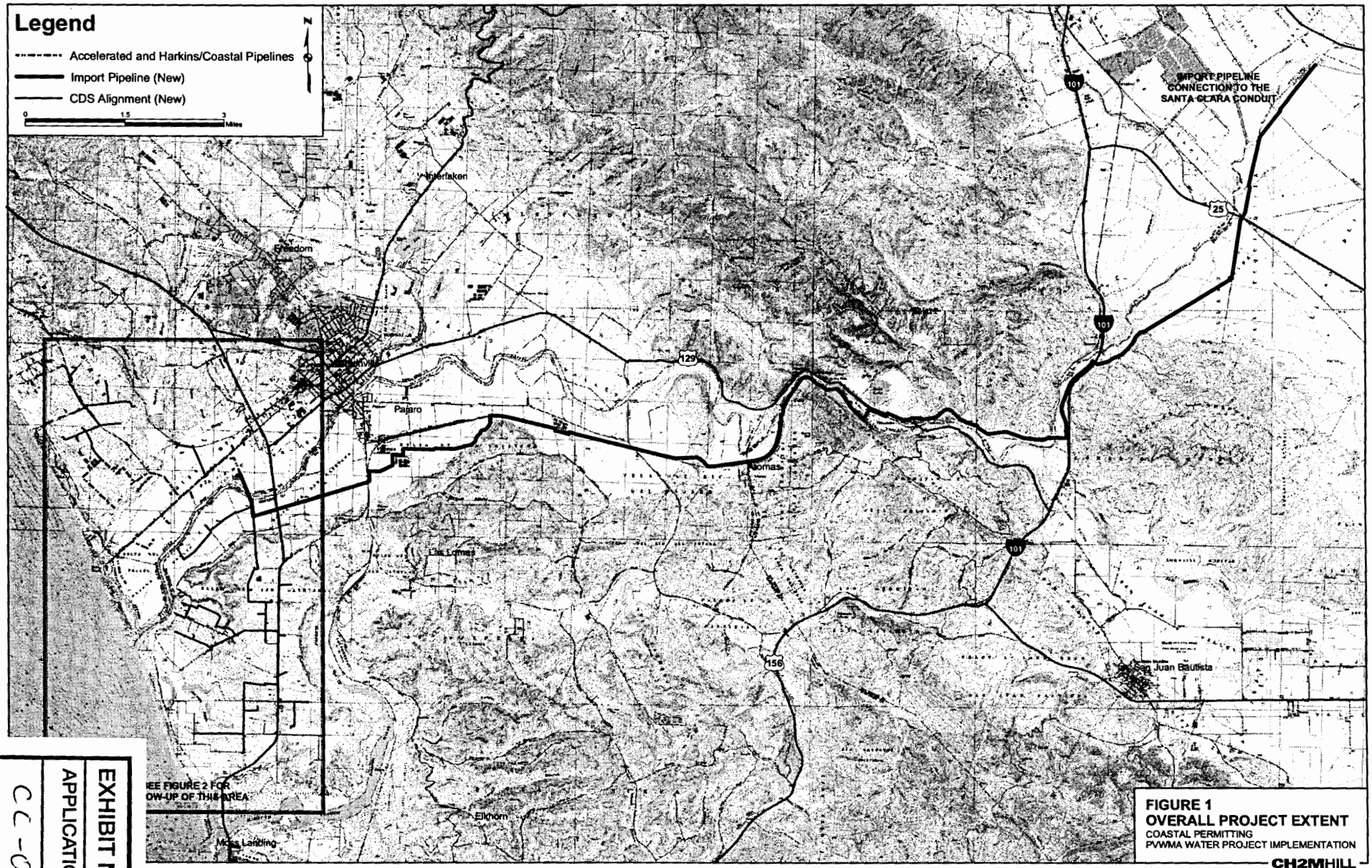


FIGURE 1
OVERALL PROJECT EXTENT
COASTAL PERMITTING
PVWMA WATER PROJECT IMPLEMENTATION

CH2MHILL

Map\315635\GIS\mxd\CoastalPermitting\FullExtent 11/08/2004

EXHIBIT NO. 3
APPLICATION NO. CC-ORP-04
comments

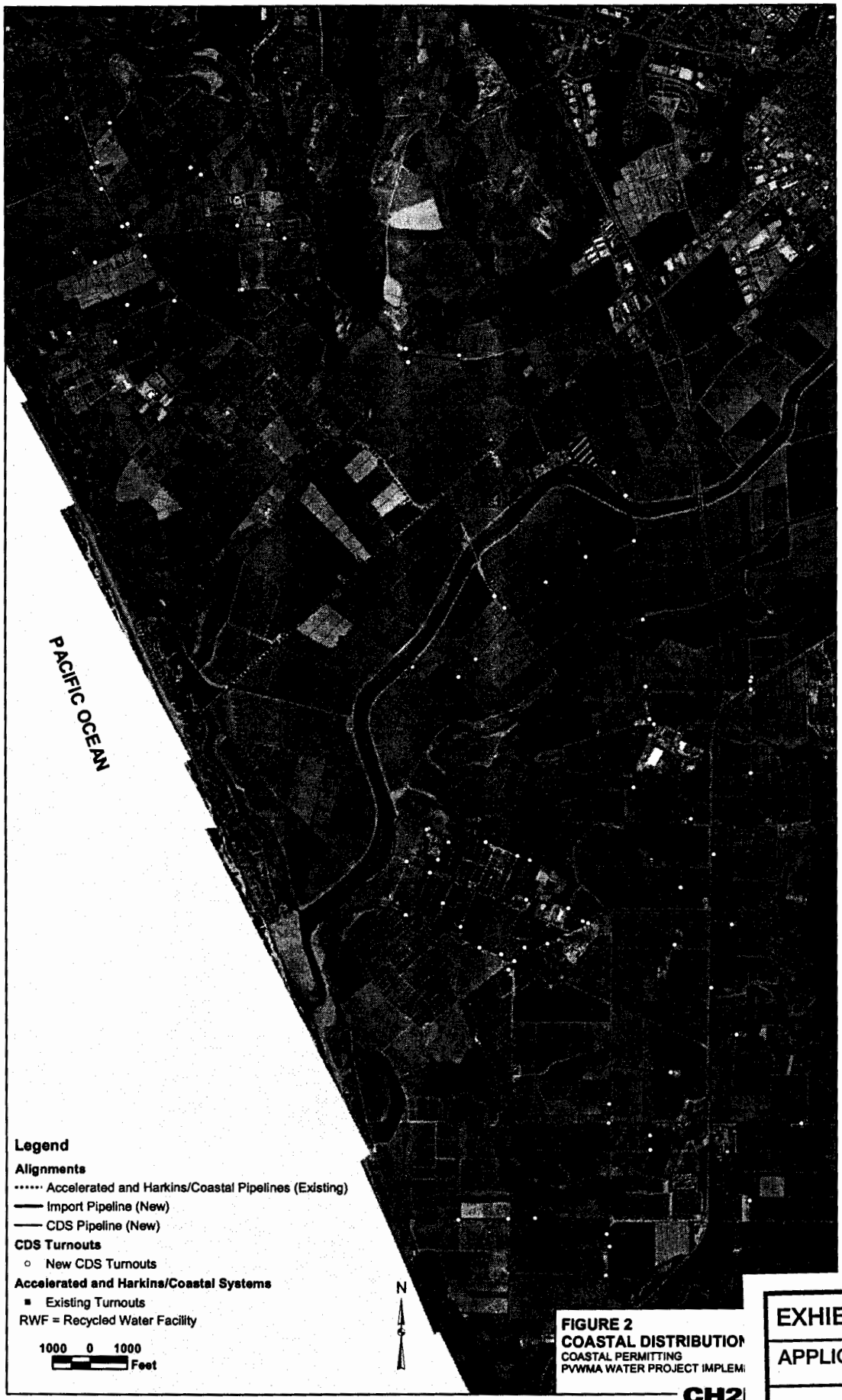
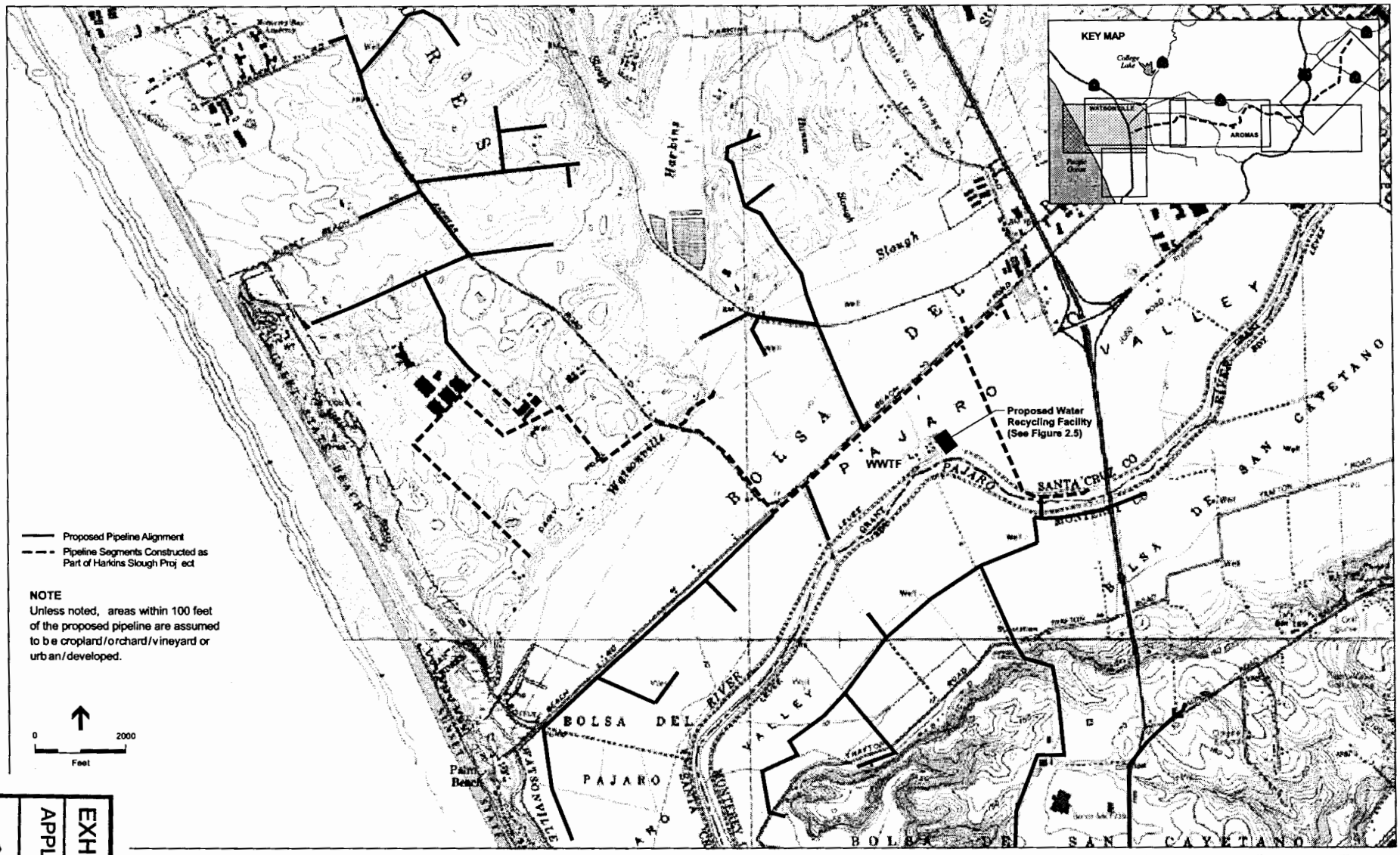


FIGURE 2
COASTAL DISTRIBUTION
COASTAL PERMITTING
PVWMA WATER PROJECT IMPLEM

CH2

EXHIBIT NO. 4
APPLICATION NO.
CC-088-04
ICDS, WWTF



Watsonville West and Moss Landing, Environmental Science Associates

PVWMA Revised BMP EIS / 200179 ■

Figure 2.11
Integrated Coastal Distribution System-
Santa Cruz Area

EXHIBIT NO. 5
APPLICATION NO.
3-CC-088-04
--- already permitted and constructed

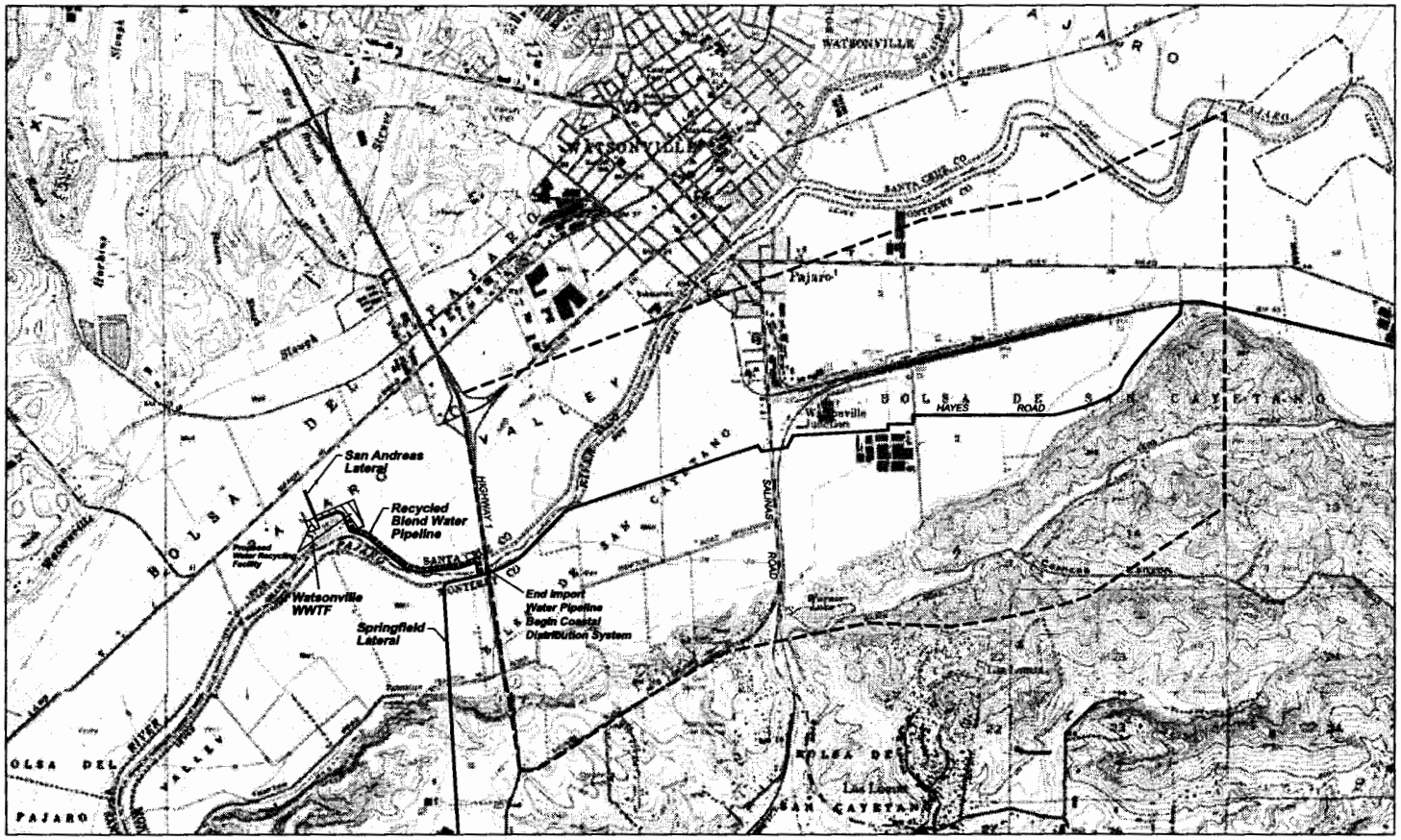


Figure 2.2
Recycled Water Facility
and Supplemental Well
Siting Area

EXHIBIT NO. 15 p.2
APPLICATION NO.
CC-088-04
Recycling & Supplemental Wells

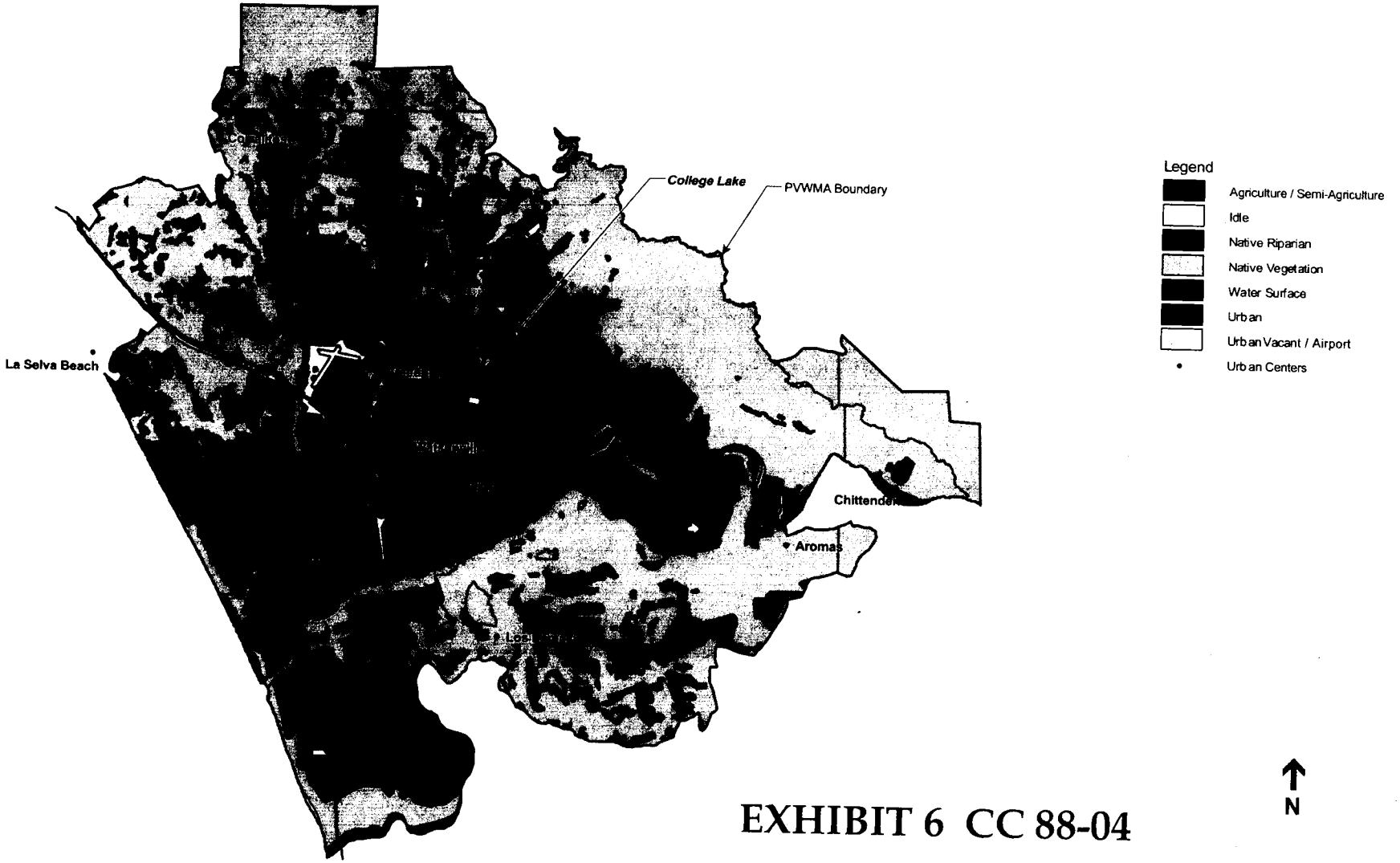


EXHIBIT 6 CC 88-04

SOURCE: Department of Water Resources, 1997; adapted by Environmental Science Associates

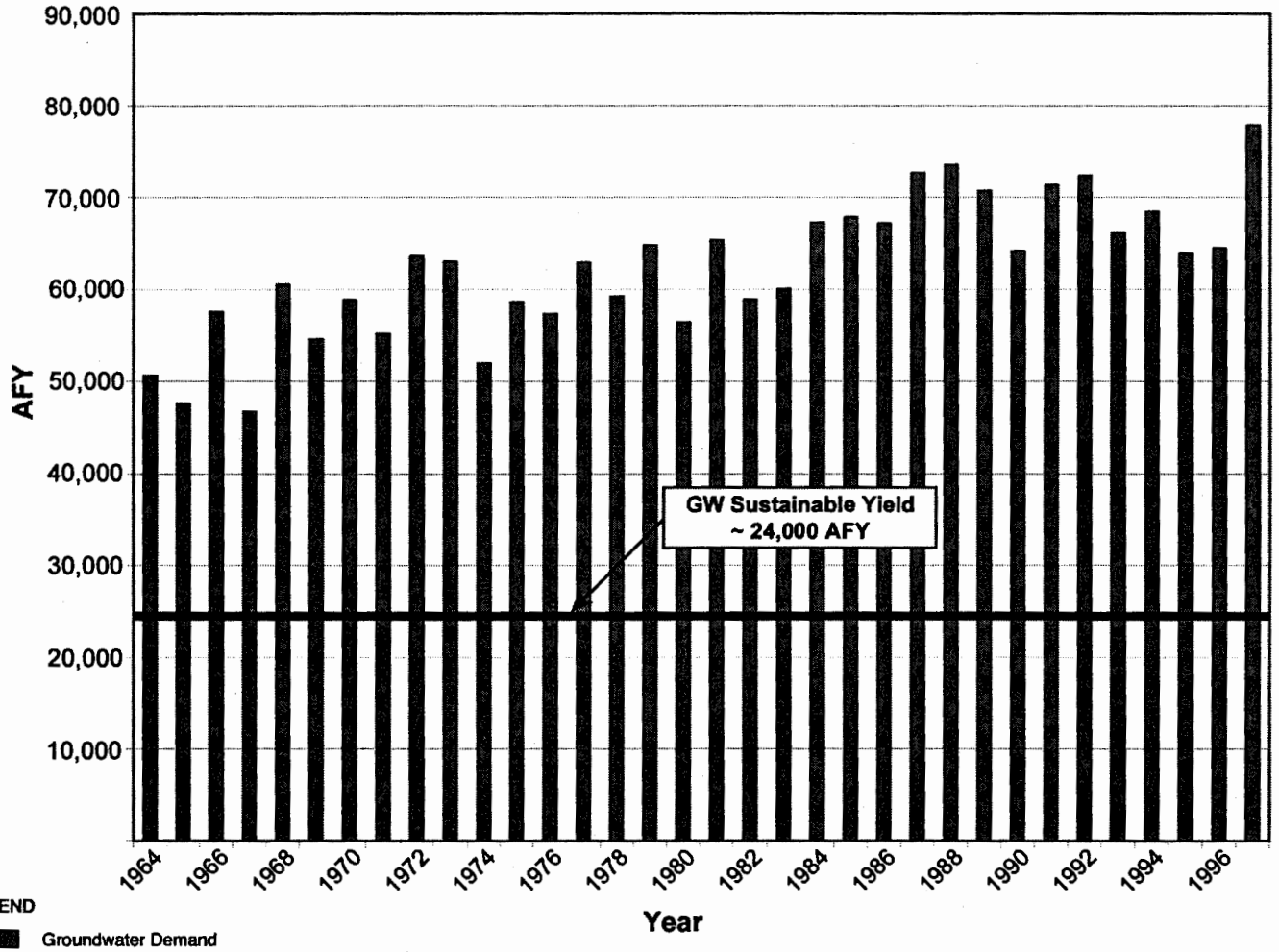
Figure 3.2-1
Existing Land Uses in the PVWMA Service Area

TABLE 1.4
REQUIRED SUPPLMENTAL SUPPLIES WITH CONSERVATION

Demand, Supply and Conservation	Balancing Current (2001) Condition (AFY)	Balancing 2040 Conditions (AFY)
Agricultural Demand	59,300	64,400
Urban Demand	12,200	16,100
Total Groundwater and Surface Water Demand	***71,500***	***80,500***
Corralitos Creek Diversion (City of Watsonville)	(1,100)	(1,100)
Other Surface Water Diversions	(1,000)	(1,000)
Total Groundwater Demand[a]	***69,000 (rounded)***	***78,000 (rounded)***
Current Basin Sustainable Yield	(24,000)	(24,000)
Future Increased Yield Due to Pumping Management at the Coast and 100% Reliable (Wet and Dry Year) Supplemental Supply[b]	(24,000)	(24,000)
Water Demand without Conservation	***21,000***	***30,000***
Increased Agricultural Conservation (Achieved by 2010)[c]	(4,500)	(4,500)
Increased Urban Conservation (Achieved by 2010)[c]	(500)	(660)
Required Additional Supply[d]	***16,000***	***25,000 (rounded)***
Adjusted to Create Hydrostatic Barrier to Mitigate Seawater Intrusion, based on PVIGSM Results [e]	***18,500***	***~~25,000~~27,500 (rounded)***

[a] Values rounded to two significant figures or to the nearest thousand to represent the values significant accuracy.
[b] The amount achieved if supply is 100 percent reliable. With less reliable supply, the amount of increased yield would be lowered.
[c] Conservation to be achieved over several years, but is included here to show impact on current levels of demand.
[d] This value represents the supplemental supplies required to meet the overall water balance in the basin assuming 100 percent supply reliability.
[e] PVIGSM results indicate that elimination of approximately 18,500 AFY (current conditions) and 27,500 AFY (2040 conditions) of pumping along the coast is required to eliminate seawater intrusion.

EXHIBIT NO. 7
APPLICATION NO.
CC-088-04
Demand



SOURCE: RMC, Inc.

PVWMA Revised BMP EIS / 200179 ■

Figure 1.3
Groundwater Demand vs. Sustainable Yield
Pajaro Valley Water Management Agency

EXHIBIT NO. 8
APPLICATION NO. CC-088-04
Demand vs. Yield

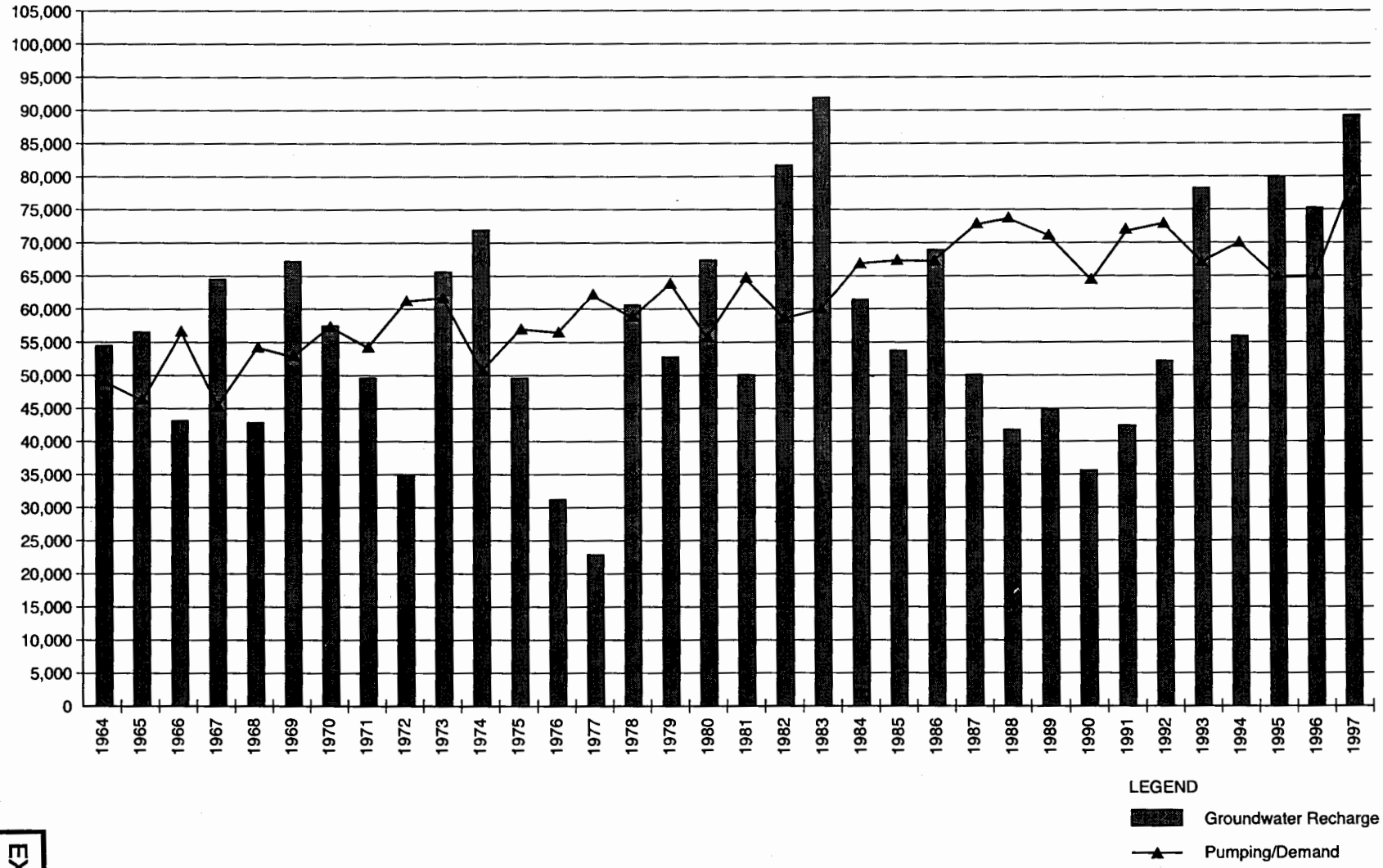
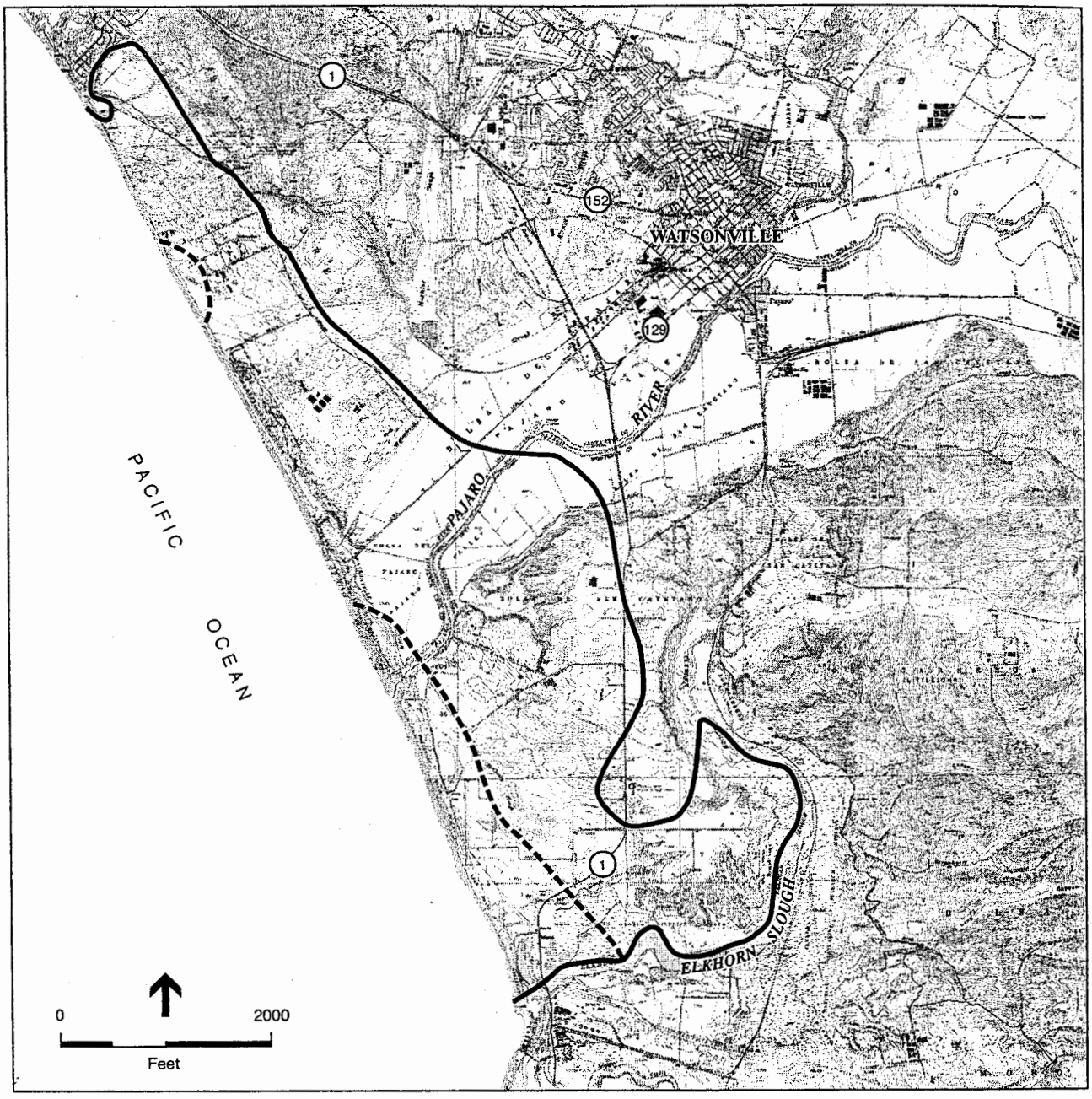


EXHIBIT NO. 9
APPLICATION NO. CC-088-04
Demand vs. Recharge

:: State of the Basin Report, 2000

Figure 2.3
Groundwater Recharge vs Pumping/Demand
Pajaro Valley Water Management Agency



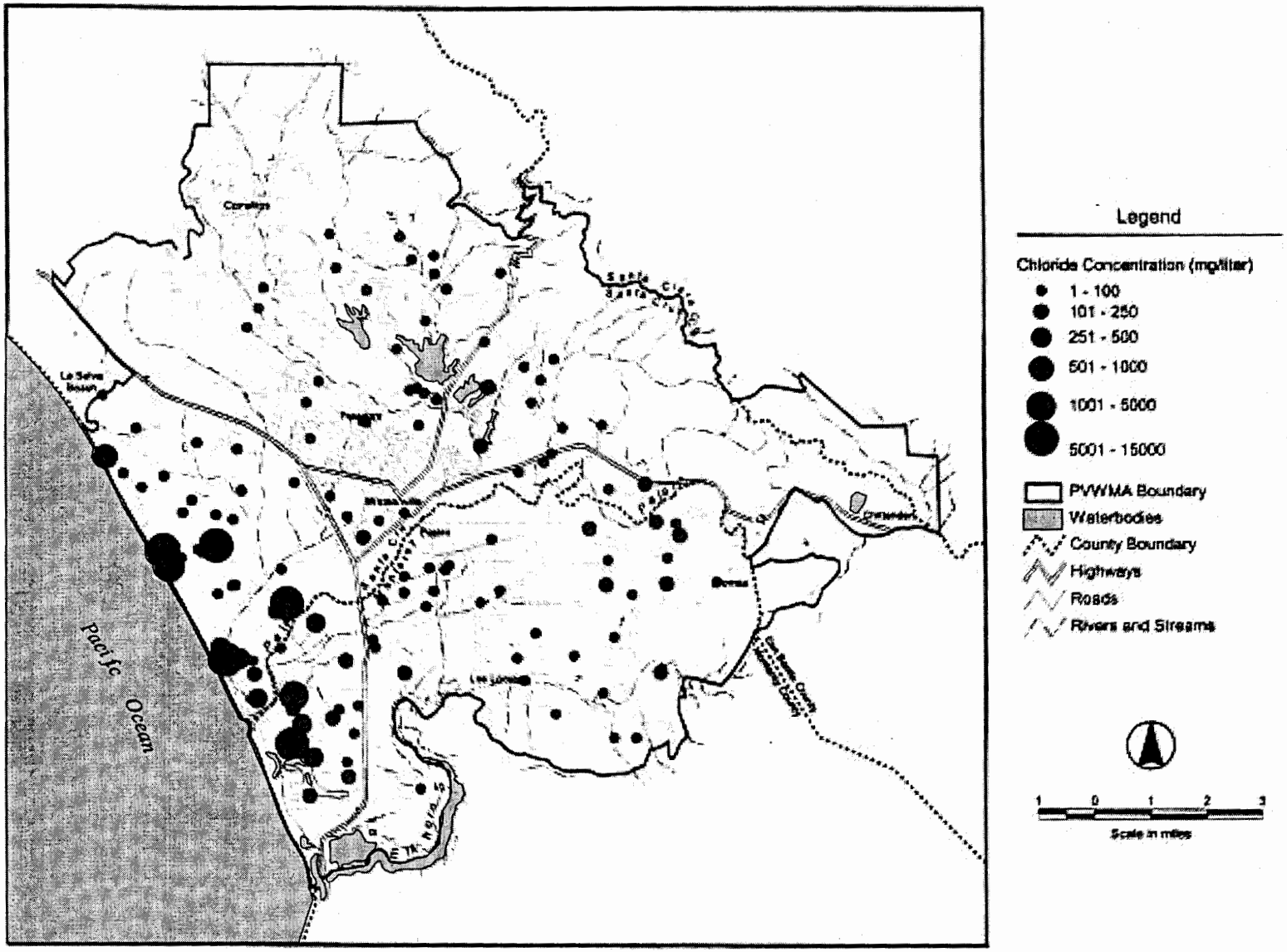
Seawater Intrusion 1951

Seawater Intrusion 2000

EXHIBIT NO. 10
APPLICATION NO.
CC-088-04
Sea Water Intrusion

SOURCES: RMC, 2002

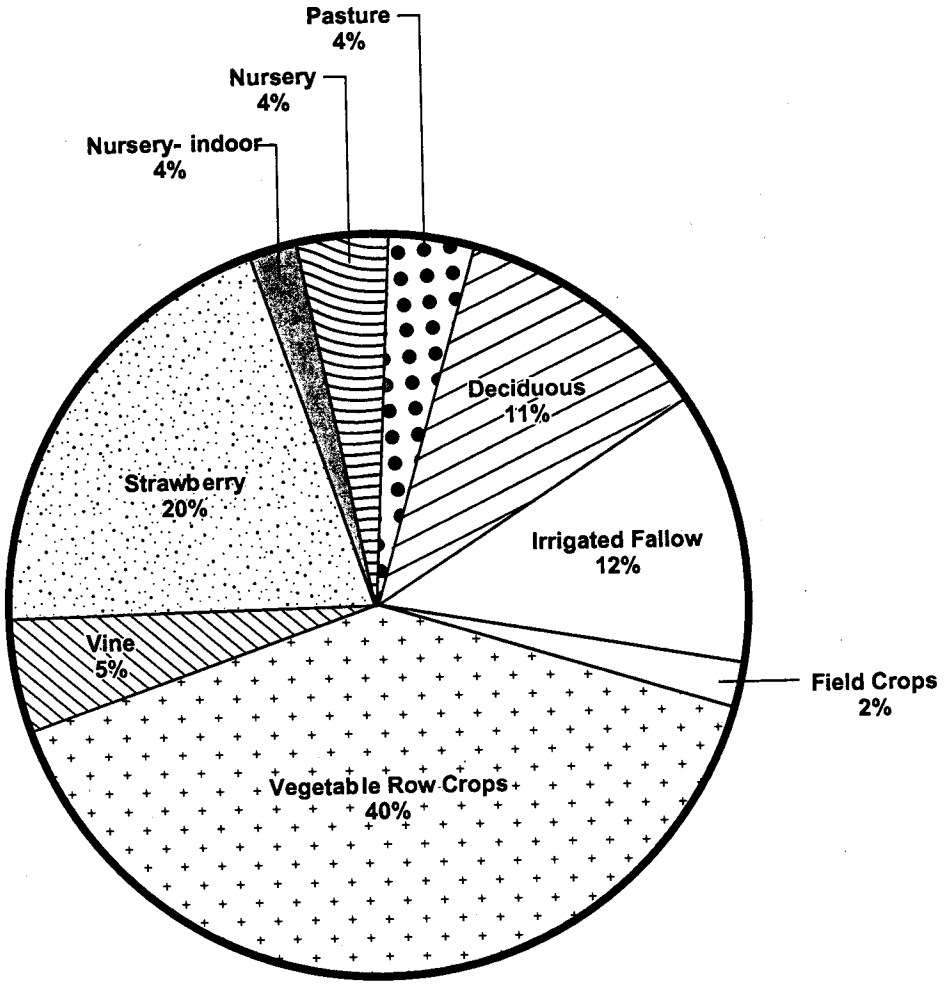
Figure 1.2
Seawater Intrusion Areas of
Elevated Chloride Levels (100 mg/L or Greater),
1951 and 2000



State of the Basin Report, 2000

Figure 3.4-3
Chloride Concentrations in the PVWMA Service Area

EXHIBIT NO. 11
APPLICATION NO. CC-088-04
Chloride Concentration



NOTE: Reflects modeled groundwater basin area, which is greater than PVWMA service area.

SOURCE: Draft Revised Basin Management Plan, 2001

Agric

EXHIBIT NO. 12
APPLICATION NO.
CC-088-04
Crop Mix

PVWMA SERVICE AREA

The PVWMA service area incorporates the majority of the Pajaro Valley. While the reported cultivated acreage in the Pajaro Valley averages approximately between 32,000 and 33,000 acres, the total agricultural area within the PVWMA service area is estimated to be 30,349 acres (including over 1,200 of pasture land). The PVWMA service area more precisely represents the agricultural production area potentially impacted by future PVWMA irrigation water management changes. **Table H.2** provides summary information on the agricultural land use within the PVWMA service area. This information represents the baseline agricultural production conditions to be used by the agricultural impact analysis. This data was also used as baseline information in the hydrologic modeling.

TABLE H.2
CURRENT AGRICULTURAL PRODUCTION IN THE PVWMA SERVICE AREA

Crop	Average Cultivated Acreage
Strawberry	6,940
Vine (primarily Raspberries)	1,640
Vegetable Row Crops	9,724
Irrigated Fallow[1]	4,174
Field Crops	645
Deciduous (primarily Apples)	3,891
Nursery (Outdoor)	1,475
Nursery (Indoor)	632
Pasture	1,228
Total Cultivated Acreage	**30,349**

[1] Irrigated Fallow acreage represents agricultural lands that were not in production (e.g. land unplanted during the transition between crop rotations) when the land use survey was performed.

SOURCE: WRIME, Draft Technical Memorandum, Hydrological Analysis and Modeling in Support of the Basin Management Plan for Pajaro Valley Water Management Agency, September 2002.

Fruits and berries account for approximately half of the total production value in the Valley, with strawberries accounting for approximately 80 percent of the value produced by this category. Vegetable crops (primarily mushrooms and lettuce) account for about a third of total production, while greenhouse and field ornamentals account for most of the remainder.

Strawberries and lettuce are the leading crops grown in the valley in terms of field crop production. Although production levels can fluctuate significantly on an annual basis, during the last ten years the strawberry crop acreage has increased steadily in Santa Cruz County. According to local agricultural specialists, strawberry production has become increasing prevalent in Pajaro Valley. In recent years, apple production has been in steady decline as many orchards have gradually been removed and converted to other crops such as strawber the acreage converted to head lettuce has declined over the last ten years, head lettuc

TABLE H.1
VALUE OF AGRICULTURAL PRODUCTION IN PAJARO VALLEY (1992-95)
(in 2001 dollars)

Crop Category	Crop	Pajaro Valley Average 1992-95 Acres	Value ($ 000)	*Acres percent*	*Value percent*
Field Ornamentals	Field Flowers	**976**	**$23,483**	*3.0%*	*4.4%*
	Landscape Plants	**176**	**$8,984**	*0.5%*	*1.7%*
Total Field Ornamentals		**1,152**	**$32,467**	*3.5%*	*6.1%*
Fruits & Berries	Strawberries	**6,005**	**$216,494**	*18.3%*	*40.6%*
	Raspberries	**1,351**	**$41,640**	*4.1%*	*7.8%*
	Apples	**3,993**	**$12,165**	*12.2%*	*2.3%*
	Bushberries	**327**	**$3,613**	*1.0%*	*0.7%*
	Other Fruit	**125**	**$329**	*0.4%*	*0.1%*
Total Fruits & Berries		**11,801**	**$274,241**	*36.0%*	*51.5%*
Greenhouse	Roses - Hybrid	**202**	**$24,546**	*0.6%*	*4.6%*
	Indoor Pots	**44**	**$7,290**	*0.1%*	*1.4%*
	Carnations - Standard	**24**	**$3,011**	*0.1%*	*0.6%*
	Roses - Sweetheart	**19**	**$2,829**	*0.1%*	*0.5%*
	Other Indoor Flowers	**30**	**$2,685**	*0.1%*	*0.5%*
	Carnations - Miniature	**22**	**$2,568**	*0.1%*	*0.5%*
Total Greenhouse		**341**	**$42,929**	*1.0%*	*8.1%*
Vegetables	Mushrooms		**$62,011**	*0.0%*	*11.6%*
	Lettuce - Head	**9,323**	**$56,248**	*28.5%*	*10.6%*
	Other Vegetables	**2,652**	**$21,782**	*8.1%*	*4.1%*
	Lettuce - Leaf	**2,447**	**$13,695**	*7.5%*	*2.6%*
	Cauliflower	**1,841**	**$9,610**	*5.6%*	*1.8%*
	Celery	**956**	**$7,353**	*2.9%*	*1.4%*
	Broccoli	**1,238**	**$6,497**	*3.8%*	*1.2%*
	Brussels Sprouts	**1,002**	**$6,061**	*3.1%*	*1.1%*
Total Vegetables		**19,459**	**$183,257**	*59.4%*	*34.4%*
Total Agricultural Production		**32,753**	**$532,894**	*100.0%*	*100.0%*

SOURCES: Draft Pajaro Valley Water Supply Augmentation Fees Report, M.Cubed, January 1998. Pajaro Valley Crop Reports, 1992-1995.

EXHIBIT NO. 14
APPLICATION NO.
CC-088-04
Agricultural Production

4.5.1 ALTERNATIVE A – NO ACTION

With respect to vegetation, fish and wildlife, the No Action Alternative essentially represents a continuation of existing conditions, as described in Section 3.5. Over the short term, there would be a reduction in intensive agriculture. The fallowing of farmland would directly benefit upland grassland species located in the Pajaro Valley, and indirectly benefit aquatic and riparian species by reducing sedimentation and nutrient loading which impair water quality in the Pajaro River and its tributaries. An increase in municipal and industrial development would, however, reverse these benefits.

4.5.2 ALTERNATIVE B – WATER RECYCLING PROJECT AND IMPORT WATER PROJECT

The acreage of habitat loss was calculated using the assumptions of temporary and permanent construction easements for the Import Pipeline under the following conditions: open country (140 feet), potential San Joaquin kit fox habitat (110 feet), irrigation ditches, smaller drainages, and riparian habitat on Graniterock property (40 feet), and large drainage crossings (30 feet at Pajaro River, Pescadero Creek, and Sargent Creek). It is assumed that surface disturbance would occur in the full width of the easement. **Table 4.5.1** presents the results of this analysis.

TABLE 4.5.1
ESTIMATED EXTENT OF HABITAT LOSS
RESULTING FROM THE IMPORT WATER PROJECT

Habitat type	Permanent habitat loss (ac)	Temporary habitat loss (ac)
Valley Foothill Riparian	1.6	--
Coastal Oak Woodland	3.3	--
Coastal Scrub	--	8.8
Annual Grassland	--	56.1
Fresh Emergent Wetland	--	0.1
Crop/Orchard/Vineyard	--	243.8
Urban/Developed	--	53.3
TOTAL	4.9	362.1

Where natural vegetation such as Valley Foothill Riparian habitat is within the study area but does not cross it, this assessment assumes that impacts to these resources would be avoided. For example, just west of U.S. 101 the alignment parallels the Pajaro River. Construction disturbance would occur within crop/orchard/vineyard habitat outside of the riparian corridor. There is sufficient width within the agricultural lands to accommodate all construction activities. The project alignment also has been designed to avoid most trees within coastal oak woodland habitat by traveling along the fringe of these woodlands. The construction corridor was assu
140 feet wide in these areas, although this is likely an overestimate of habitat remova

TABLE 3.5.2
SPECIAL-STATUS PLANT SPECIES KNOWN FROM THE REGION OF THE PAJARO VALLEY WATER MANAGEMENT AGENCY REVISED BASIN MANAGEMENT PLAN PROJECTS

Scientific and Common Name[a]	Listing Status USFWS/ CDFG/CNPS[b]	Habitat	County Distribution[c]	Flowering Period	Suitable Habitat Present in Study Area
		FEDERAL OR STATE THREATENED OR ENDANGERED SPECIES			
Chorizanthe pungens var. *pungens* Monterey spineflower	FT/--/1B	Coastal dunes and coastal scrub	MNT, SCR	Apr-Jun	Unlikely
Chorizanthe robusta var. *robusta* Robust spineflower	FE/--/1B	Coastal dunes, coastal scrub, openings in hardwood forest	ALA*, MNT, SCL*, SCR, SMT*	May-Sep	Unlikely
Gilia tenuiflora ssp. *arenaria* Sand gilia	FE/CT/1B	Coastal dunes, coastal scrub, in sand	MNT	Apr-May	No
Holocarpha macradenia Santa Cruz tarplant	FT/CE/1B	Coastal prairie, valley and foothill grassland, in clay soils with coastal influence	ALA*, CCA, MNT, MRN*, SCR	Jun-Oct	Large population exists at Watsonville Airport
Piperia yadonii Yadon's piperia (= Yadon's rein orchid)	FE/--/1B	Endemic to Monterey County; on sandstone and sandy soil in coastal bluff scrub, chaparral, and closed-cone conifer forest	MNT	May-Aug	No
		FEDERAL OR STATE CANDIDATE SPECIES, SPECIES OF CONCERN, OR OTHER PROTECTED SPECIES			
Arctostaphylos andersonii Santa Cruz manzanita	FSC/--/1B	Openings, edges, hardwood and conifer forests, chaparral	SCL, SCR, SMT	Nov-Apr	No
Arctostaphylos hookeri ssp. *hookeri* Hooker's manzanita	--/--/1B	Sandy soils, coastal scrub, chaparral, closed-cone conifer forests	MNT, SCR	Feb-Apr	No
Arctostaphylos pajaroensis Pajaro manzanita	FSC/--/1B	Sandy soils in chaparral	MNT, SCR*	Dec-Mar	No
Atriplex joaquiniana San Joaquin saltbush	FSC/--/1B	Chenopod scrub, alkali meadow, valley and foothill grassland	SBC	Apr-Oct	Unlikely
Centromadia parryi ssp. Congdon's tarplant		Alkaline places in valley foothill grasslands	ALA*, CCA*, MNT, SCL(*?), SCR*, SLO, SOL*	Jun-Nov	Unlikely; suitable habitat eliminated
Erisimum ammophilum Coast wallflower		Sandy openings in maritime chaparral, coast dunes, coastal scrub	SCR, MNT	Feb-June	No

TABLE 3.5.2 (Continued)
SPECIAL-STATUS PLANT SPECIES KNOWN FROM THE REGION OF THE PAJARO VALLEY WATER MANAGEMENT AGENCY REVISED BASIN MANAGEMENT PLAN PROJECTS

Scientific and Common Name[a]	Listing Status USFWS/ CDFG/CNPS[b]	Habitat	County Distribution[c]	Flowering Period	Suitable Habitat Present in Study Area
FEDERAL OR STATE CANDIDATE SPECIES, SPECIES OF CONCERN, OR OTHER PROTECTED SPECIES					
Horkelia cuneata ssp *sericea* Kellog's horkelia	FSC/--/1B	Coastal scrub and closed cone pine forests	SCR, MNT	Apr-Sept	Unlikely; suitable habitat largely eliminated
Pedicularis dydleyi Dudley's lousewort	FSC/--/1B	Deep, shady woods of redwood forest, although often in openings such as old skid trails; maritime chaparral and grasslands in coastal region	MNT, SLO, SMT	Apr-June	No
Penstemon rattanii var *kleei* Santa Cruz Mountains beardtongue	--/--/1B	Chaparral and lower montane conifer forest, sometimes in transition zone, sandy shale slopes	SCR, SCL	April-Sept	No
Plagiobothrys glaber Hairless popcorn flower	--/--/1A	Meadows, seeps, marshes, swamps	SBC	Mar-May	No. Presumed extinct in California.
Streptanthus albidus ssp *peramoenus* Most beautiful jewel-flower	FSC/--/1B	Chaparral, valley and foothill grassland, cismontane woodland; serpentine outcrops	SCL	Apr-Jun	Unlikely; suitable habitat largely eliminated

NOTES:

[a] Abbreviations are as follows: ssp. = subspecies; var. = variety.

[b] Listing status codes are as follows:

USFWS=U.S. Fish and Wildlife Service
FE=Listed as Endangered by the Federal Government
FT=Listed as Threatened by the Federal Government
FPE=Proposed for Listing as Endangered
FC=Candidate for Federal listing
FSS=Former Category 2 Candidate for Federal listing
FSC=Federal Species of Concern

CDFG=California Department of Fish and Game
CE=Listed as Endangered by the State of California
CT=Listed as Threatened by the State of California
SC=California species of concern

CNPS=California Native Plant Society
List 1A=Plants presumed extinct in California
List 1B=Plants rare, threatened, or endangered in California and elsewhere
List 2= Plants rare, threatened, or endangered in California but more common elsewhere
List 3= Plants about which more information is needed
List 4= Plants of limited distribution

[c] County Distribution: County codes follow California Department of Transportation three-letter abbreviations, as follows: ALA = Alameda; CCA = Contra Costa; MNT = Monterey; MRN = Marin; SCL = Santa Clara; SCR = Santa Cruz; SLO = San Luis Obispo; SMT = San Mateo; SOL = Solano; SBC = San Benito.

Asterisk after county code indicates species is presumed extirpated in that county.

SOURCE: Environmental Science Associates, 1997a,b; 2001; 2002a,b,c

TABLE 3.5.3
NAME, STATUS, HABITAT, KNOWN LOCALITIES AND LIKELIHOOD OF OCCURRENCE IN THE STUDY AREA FOR SPECIAL-STATUS WILDLIFE SPECIES

Scientific Name	Common Name	USFWS/ CDFG Status[a]	Habitat	Localities Reported by CNDDB in the Region of the Project[b]	Likelihood of Occurrence in Study Area
			FEDERAL OR STATE THREATENED OR ENDANGERED SPECIES		
Branchinecta conservatio	Conservancy fairy shrimp	FE/--	Vernal pools or other areas capable of ponding water seasonally	Not reported by CNDDB	Low due to quality of vernal pool habitat in the project area
Branchinecta longiantenna	Longhorn fairy shrimp	FE/--	Vernal pools or other areas capable of ponding water seasonally	Not reported by CNDDB	Low due to quality of vernal pool habitat in the project area
Branchinecta lynchi	Vernal pool fairy shrimp	FT/--	Vernal pools or other areas capable of ponding water seasonally	Not reported by CNDDB	Low due to quality of vernal pool habitat in the project area
Cicindela ohlone	Ohlone tiger beetle	FE/--	Coastal terraces supporting remnant patches of native grassland habitat in Santa Cruz County.	No reported occurrences in study area.	Low due to lack of suitable habitat in study area
Eucyclogobius newberryi	Tidewater goby	FE[c]/CSC	Occurs in shallow waters of bays and estuaries	Pajaro River, Salinas River, and Elkhorn Slough, all from mouth to 1 mi upstream	Present only near and downstream from State Route (SR) 1
Onchorhynchus mykiss	South-central California coast steelhead	FT/CSC	Rivers and creeks with permanent water for spawning and rearing; other habitats may serve as migration routes	Pajaro River, Salsipuedes and Corralitos Creeks watersheds.	Present in Pajaro River along the length of the project; also in Pescadero, Salsipuedes and Corralitos Creeks
Ambystoma macrodactylum croceum	Santa Cruz long-toed salamander	FE/CE	Wet meadows near sea level in a few restricted locales in Santa Cruz and Monterey counties. Aquatic larvae prefer shallow (<12 inches) freshwater, using clumps of vegetation or debris for cover. Adults use mammal burrows.	Ellicott Pond and vicinity, 4 mi W of Watsonville; Bennett Slough/Struve Slough, 1.5 mi NNE of Moss Landing; McCluskey Slough, 2 mi N of Moss Landing; 1.25 mil N of Moss Landing, Seascape Pond, Calabasas Pond, Merk Road, 0.6 miles E of White Road/Freedom Blvd., Moro Cojo Slough.	Moderately high due to appropriate habitat in various sloughs and location of reported individuals

TABLE 3.5.3 (Continued)
NAME, STATUS, HABITAT, KNOWN LOCALITIES AND LIKELIHOOD OF OCCURRENCE IN THE STUDY AREA FOR SPECIAL-STATUS WILDLIFE SPECIES

Scientific Name	Common Name	USFWS/ CDFG Status[a]	Habitat	Localities Reported by CNDDB in the Region of the Project[b]	Likelihood of Occurrence in Study Area
			FEDERAL OR STATE THREATENED OR ENDANGERED SPECIES (cont.)		
Rana aurora draytonii	California red-legged frog	FT/CSC	Mostly in lowlands and foothills in/near permanent sources of deep freshwater, but will disperse far during and after rain. Prefers shorelines with extensive vegetation. Requires 11-20 weeks of permanent water for larval development.	Just E of Zmudowski Beach State Park, 2 mi NNW of Moss Landing; Pacheco Creek, at the Hwy. 156 crossing, 0.75 mi N of Fairview Road, East branch of Hanson Slough, 2 mi W of Watsonville, McCluskey Slough, Warner Lake, Ellicott Pond, crossing of San Miguel and San Juan Road, Bennett Slough, Struve Pond, Gallighan Slough, Tequisquita Slough, Tick Creek, Pajaro River.	High due to the proximity of reported occurrences and the presence of suitable habitat within the study area
Charadrius alexandrinus nivosus	Western snowy plover	FT/CSC	Sandy beaches, shores of alkali lakes, other areas of sandy, gravelly, friable soil.	Pajaro River mouth and Palm/Sunset State Beach; Salinas River State Beach; Zmudowski State Beach; Salinas River mouth; Salinas River just S of Moss Landing; Moss Landing State Beach; Moss Landing Salt Works.	Low due to lack of suitable habitat in study area
Rallus longirostris obsoletus	California clapper rail	FE/CE	Salt water marshes traversed by tidal sloughs, associated with abundant growths of pickleweed, but feeds in open areas on molluscs obtained from mud-bottomed sloughs.	Elkhorn Slough	Moderately low due to lack of habitat within the study area

TABLE 3.5.3 (Continued)
NAME, STATUS, HABITAT, KNOWN LOCALITIES AND LIKELIHOOD OF OCCURRENCE IN THE STUDY AREA FOR SPECIAL-STATUS WILDLIFE SPECIES

Scientific Name	Common Name	USFWS/ CDFG Status[a]	Habitat	Localities Reported by CNDDB in the Region of the Project[b]	Likelihood of Occurrence in Study Area
			FEDERAL OR STATE THREATENED OR ENDANGERED SPECIES (cont.)		
Riparia riparia	Bank swallow	--/CT	Colonial nester; nests primarily in riparian and other lowland habitats. Requires vertical banks or cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Mouth of Pajaro River, near Bluff and Trafton Roads; Moss Landing; Betabel Rd., Santa Clara Co.	Low due to lack of suitable habitat within the study area
Vireo bellii pusillus	Least Bell's vireo	FE/CE	Low riparian, either near water or in dry river bottoms	LLagas Creek between Hwy 152 and its confluence with the Pajaro River east of Gilroy	Moderate – this species mostly found in S. Calif., but could be found in riparian habitats near the eastern portion of the project
Vulpes macrotis mutica	San Joaquin kit fox	FE/CT	Annual, open grasslands, sometimes with shrubby vegetation	Area surrounding Hollister north to Gilroy; south past Pacines	Moderate, especially in the grassland areas on the eastern end of the project
			FEDERAL OR STATE CANDIDATE SPECIES, SPECIES OF CONCERN, OR OTHER PROTECTED SPECIES		
Coelus globosus	Globose dune beetle	FSC/--	Inhabitant of undisturbed coastal sand dune habitat, from Bodega Head in Sonoma County south to Ensenada, Mexico. Inhabits foredunes and sand hummocks, burrowing beneath the sand surface and is most common beneath dune vegetation.	Palm Beach access, at the end of Beach Road, Sunset State Beach, 1 mile N of the mouth of the Pajaro River; Potrero Road access point to Salinas River State Beach.; Manresa State Beach	Low due to lack of suitable habitat within the study area
Tryonia imitator	Mimic tryonia (= California brackishwater snail)	FSC/--	Coastal lagoons and salt marshes from Sonoma County to Ensenada, Mexico. Inhabit variety of subtidal sediment types and are capable of withstanding wide range of salinities.	Bennett Slough, 0.1 mi NW of tide gate at Jetty Road; Parson's Slough, SE edge of Elkhorn Slough; Moro Cojo Slough at Hwy 1 crossing	Low; known to occur near project area and potentially in brackish parts of Watsonville Slough and the Pajaro River estuary

TABLE 3.5.3 (Continued)
NAME, STATUS, HABITAT, KNOWN LOCALITIES AND LIKELIHOOD OF OCCURRENCE IN THE STUDY AREA FOR SPECIAL-STATUS WILDLIFE SPECIES

Scientific Name	Common Name	USFWS/ CDFG Status[a]	Habitat	Localities Reported by CNDDB in the Region of the Project[b]	Likelihood of Occurrence in Study Area
			FEDERAL OR STATE CANDIDATE SPECIES, SPECIES OF CONCERN, OR OTHER PROTECTED SPECIES (cont.)		
Ambystoma californiense	California tiger salamander	FC/CSC	Annual grasslands and grassy understory of valley-foothill hardwood habitats in central and Northern California. Needs underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding.	Ellicott Pond and vicinity, 4 mi W of Watsonville; 1.25 mi N Moss Landing, adjacent to Elkhorn Slough; just W of Route 156, 0.25 S of the Barnheisel Road jct., 4.5 mi NNE of Hollister Municipal Airport, just E of the intersection of Bloomfield Road and HWY 152, numerous sightings NE of Pacheco Pass Road, Carlyle Hills W of SR 101	Moderate; known to occur near study area
Anniella pulchra nigra	Black legless lizard	--/CSC	Sand dunes and sandy soils in the Monterey Bay and Morro Bay regions. Inhabits sandy soil/dune areas with bush lupine and mock heather as dominant plants.	Reported on Moss Landing, Watsonville West quads; location information suppressed	Low due to lack of suitable habitat within the study area
Clemmys marmorata	Western pond turtle	FSC/CSC	Thoroughly aquatic turtle of freshwater ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Need basking sites and sandy banks or grassy open fields for egg-laying.	Pinto Lake County Park (N portion of Pinto Lake), Watsonville Slough at Pajaro Dunes, Pajaro R. downstream from McGowan Rd. bridge; Watsonville (vicinity Brewington Ave. and Crestview Dr.), Tequisquita Slough, Anzar Lake	High within freshwater emergent sloughs; the Pajaro River; and Pinto Lake

TABLE 3.5.3 (Continued)
NAME, STATUS, HABITAT, KNOWN LOCALITIES AND LIKELIHOOD OF OCCURRENCE IN THE STUDY AREA FOR SPECIAL-STATUS WILDLIFE SPECIES

Scientific Name	Common Name	USFWS/ CDFG Status[a]	Habitat	Localities Reported by CNDDB in the Region of the Project[b]	Likelihood of Occurrence in Study Area
			FEDERAL OR STATE CANDIDATE SPECIES, SPECIES OF CONCERN, OR OTHER PROTECTED SPECIES (cont.)		
Agelaius tricolor	Tricolored blackbird	FSC/CSC	Nest in tule, sedges, or willows. Thistles, large enough to provide cover from predators, have also been used in upland areas. A site large enough for a minimum number of 50 pairs is required.	Sargent Creek, 1.5 mi N and 1.5 mi N of confluence of San Benito River and Pajaro River; Sargent Creek, west bank of Struve Slough, just west of Hwy. 1, one mi south of Hwy. 152 junction; Hanson Slough, 1.1 mi NW of Hwy. 1 Jct. with Hwy. 129 west of Watsonville	Moderate due to suitable habitat present in Hanson Slough and McCluskey Slough
Asio flammeus	Short-eared owl	--/CSC 3503.5	Nests in marshes, grasslands, and irrigated pastures, particularly tall grasses and tules.	Mouth of Salinas River (0.2 mi. S of Moss Landing)	Generally low due to lack of suitable habitat within the study area, but could be found in grasslands areas, esp. in the eastern part of the study area
Athene cunicularia	Burrowing owl	--/CSC 3503.5 (burrow sites)	Low vegetation in grasslands, scrublands, and deserts. Nests in small mammal burrows, esp. those of California ground squirrel.	Dolan Road, approx. 2 mi. N of Castroville.	Moderate; habitat in study area is limited, but could be found in grasslands areas, esp. in the eastern part of the study area
Dendroica petechia brewsteri	Yellow warbler	--/CSC	Nests in riparian woodlands and forests, consisting of cottonwoods, willows, and/or alders, as well as in montane chaparral habitats with substantial amounts of brush or understory.	Not reported by CNDDB	Observed on Pajaro River near Betabel Road, and near Murphy Crossing

TABLE 3.5.3 (Continued)
NAME, STATUS, HABITAT, KNOWN LOCALITIES AND LIKELIHOOD OF OCCURRENCE IN THE STUDY AREA FOR SPECIAL-STATUS WILDLIFE SPECIES

Scientific Name	Common Name	USFWS/ CDFG Status[a]	Habitat	Localities Reported by CNDDB in the Region of the Project[b]	Likelihood of Occurrence in Study Area
			FEDERAL OR STATE CANDIDATE SPECIES, SPECIES OF CONCERN, OR OTHER PROTECTED SPECIES (cont.)		
Ictera virens	Yellow-breasted chat	--/CSC	Nests in low riparian thickets and tangled vegetation, esp. willow, blackberry and wild grape.	Not reported by CNDDB	Moderate; requires low, dense riparian habitat, habitat found in study area is generally narrow or sparse
	Nesting raptors	3503.5	Nest in oak woodland, riparian forest and isolated trees	Not reported by CNDDB	High in areas with suitable trees, including riparian areas and oak woodlands

a **STATUS CODES:**

USFWS: (U.S. Fish and Wildlife Service)
FE=Listed as Endangered by the Federal Government
FT=Listed as Threatened by the Federal Government
FPE=Proposed for Listing as Endangered
FC=Candidate for Federal listing
FSC=Former Category 2 Candidate for Federal listing

CDFG: (California Department of Fish and Game)
CE=Listed as Endangered by the State of California
CT=Listed as Threatened by the State of California
CSC=California species of concern
3503.5= Protected under Fish and Game Code 3503.5

b CNDDB: California Natural Diversity Data Base

c Currently proposed for delisting north of Orange County (Federal Register, 2001).

SOURCE: Environmental Science Associates, 1997a,b; 2001; 2002a,b,c

TABLE D.1
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Land Use and Planning			
Measure 4.B.1-1 (Recommended): Implement **Measure 4.A.1-1**. **Measure 4.A.1-1 (Recommended):** Advance notification of construction activities should be provided to all property owners, residents, and businesses in the vicinity of construction areas. See also mitigation measures in Sections 4.A.6, Traffic and Circulation, 4.A.7, Air Quality, and 4.A.8, Noise, of this EIR.	1) Send notices to all property owners, residents, and businesses in the project area vicinity at least one week in advance of construction. Publish notices in local newspapers at least one week in advance of construction. Place large signs along roads in the project vicinity at least one week in advance of construction. Submit copies of public notices to the project file to document compliance.	PVWMA	Prior to project construction
Geology and Soils			
Measure 4.B.2-1a: For pipeline segments that traverse the Sargent Hills in the foothills of the Santa Cruz Mountains or portions of the Cayetano Hills, a design-level geotechnical report that includes a slope stability evaluation shall be completed prior to construction. Pipeline installation specifications should incorporate all slope stability recommendations contained in the geotechnical evaluation. Slope stabilization measures may include drainage, slope benching, buttresses, and vegetation restoration.	1) Review construction specifications to ensure that design recommendations for pipeline installation were included.	PVWMA	Prior to project construction
	2) Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	During and immediately following project construction
Measure 4.B.2-1b: For pipeline segments at stream crossings, a detailed hydraulic and scour analysis shall be conducted to ensure that pipelines and tunnels are installed at an adequate depth to prevent scour during flood flows. Bank erosion and channel stability should also be evaluated in the vicinity of Station 590+00 (Pajaro River and UPRR crossing). Recommendations of the hydraulic and scour analysis shall be incorporated into the project design and specifications.	1) Review construction specifications to ensure that design recommendations for pipeline installation were included.	PVWMA	Prior to project construction
	2) Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	During and immediately following project construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.2-2: For pipeline segments that cross the San Andreas and Sargent faults, incorporate the following elements into the design and construction of the proposed pipeline: ▪ Use ductile-grade steel pipe in conjunction with increased pipe wall thickness throughout the fault zones as depicted in **Maps A1, A2, and A3** in the Map Appendix. These materials are more flexible and can tolerate some deformation caused by ground failure. ▪ Install welded joints at the joints through the fault zones. ▪ Where possible, install pipelines across faults in a perpendicular direction. ▪ Install water-pressure-sensitive or pipe-movement-sensitive instruments linked to the isolation valves to shut down the system in the event of failure. The isolation valves could be automatically closed during a large earthquake. ▪ Construct a contingency route for pipe flow drainage in case of failure. Drainage of pipe flows to a culvert under the railroad track to the river or a detention basin should be considered. ▪ Design the water conveyance system to facilitate rapid or emergency repair.	1) Review construction specifications to ensure that design recommendations listed in **Measure 4.B.2-2** are included. 2) Monitor project construction activities to verify compliance with construction specifications. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA or PVWMA's consulting engineer	Prior to project construction During and immediately following project construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.2-3: For pipeline segments located in low-lying areas (Stations 0+00 to about 450+00 and Stations 650+00 to 1127+00) a design-level geotechnical investigation, including collection of subsurface data shall be completed prior to construction of facilities. The geotechnical evaluation should include identification of density profiles, determination of maximum shallow groundwater levels, and characterization of the vertical and lateral extent of saturated sand/silt layers that could undergo liquefaction during strong ground shaking. When facility-specific testing indicates that conditions are present that could result in liquefaction and damage to project facilities, appropriate, feasible measures should be included in the site-specific soil analysis and incorporated into the project design. These measures could include the following, unless the site-specific soils analysis dictates otherwise: ▪ Densification or dewatering of surface or subsurface soils. ▪ Construction of concrete foundations to support pipelines or pile foundations to support buildings. ▪ Removal of material that could undergo liquefaction in the event of an earthquake and replacement with stable material.	1) Review construction specifications to ensure that design recommendations for pipeline installation are included. 2) Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA's consulting engineering geologist	Prior to project construction During and immediately following project construction
Measure 4.B.2-4: PVWMA shall develop and implement an earthquake preparedness and emergency response program. The program should be detailed and should include, at a minimum, the following elements: ▪ Identify specific pipeline locations, through site-specific geologic studies, that would be vulnerable to damage in an earthquake and define priorities for system repairs. ▪ Provide appropriate PVWMA facilities staff, sheriff and fire departments with emergency response training. ▪ Conduct practice drills, using simulated earthquake scenarios, of emergency response procedures annually.	1) Prepare contract specifications for the construction contractor that require implementation of an earthquake preparedness and emergency response program. 2) Monitor project construction activities to verify earthquake preparedness and emergency response program implementation. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA or PVWMA's consulting engineer	Prior to project construction During project construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.2-5a: A site-specific investigation shall be conducted by a geotechnical engineer to determine the presence and characteristic of potentially compressible and/or expansive soils, the depth and thickness of soil layers, and the depth to groundwater. Soils shall be sampled and laboratory tested to determine the expansion potential. The results of the investigation shall include mitigation measures that would reduce settlement to a less-than-significant level. Feasible mitigation measures could include removal and replacement of soil or deep mixing of compressible soils with stabilizing agents, as identified below: ▪ Expansive soils can be excavated and replaced with non-expansive materials. The required depth of excavation should be specified by a registered civil engineer based on actual soil conditions. ▪ Expansive soils may be treated in place by mixing them with lime. Lime-treatment alters the chemical composition of the expansive clay minerals such that the soil becomes non-expansive.	1) Review construction specifications to ensure that the geotechnical engineer's design recommendations for pipeline installation are included. 2) Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA's consulting engineering geologist	Prior to project construction During project construction
Measure 4.B.2-5b: Any native or imported backfill shall be selected, placed, compacted, and inspected in accordance with plans and specifications prepared by a licensed civil engineer.	1) Monitor project construction activities to verify compliance with the construction specifications. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	During project construction
Measure 4.B.2-6a: A site-specific soil corrosion survey shall be conducted by an engineer certified to evaluate soils conditions along the pipeline. The investigation shall define the need for, and the location of, insulating couplings, electrolysis test stations, and hot spot areas where there should be either galvanic or impressed current cathodic protection. This will assure a high degree of corrosion suppression to cement and uncoated steel or ductile iron pipes. All buried structures should be designed and constructed to withstand corrosive subsurface conditions.	1) Review construction specifications to ensure that design recommendations for pipeline installation were included. 2) Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist PVWMA's consulting engineering geologist	Prior to construction Periodically during project construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.2-6b: To maintain and extend the life of the pipeline, bonding jumpers shall be provided at all joints to facilitate periodic corrosion testing.	1) Monitor project construction activities to verify compliance with the recommendations of the soils report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	Periodically during project construction
Measure 4.B.2-7: The PVWMA shall design and implement a Temporary Erosion and Sediment Control Plan for the excavation and construction phase of the project that would, at a minimum, meet the following objectives, consistent with the Final Program EIR for the Pajaro Valley Water Basin Management Plan (PVWMA, 1993): ▪ The Temporary Erosion and Sediment Control Plan would be prepared by a registered civil engineer or a certified erosion and sediment control specialist using the concepts such as those developed by the Association of Bay Area Governments' Manual of Standards for Erosion and Sediment Control Measures (1995). ▪ The Plan would be based on the specific erosion and sediment transport control needs of each pipeline segment. ▪ The Plan would specify the means to reduce the velocity of water leaving the pipeline alignment. ▪ The elements of the Plan would be maintained in working condition during the excavation, grading, and construction phases. ▪ The Plan would be required, submitted, reviewed, implemented, and inspected as part of a general grading plan for the project.	1) Prepare contract specifications for the construction contractor that require implementation of a Temporary Erosion and Sediment Control Plan. 2) Monitor project construction activities to verify Temporary Erosion and Sediment Control Plan implementation. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA's consulting engineering geologist	Prior to construction Periodically during project construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE

Measure 4.B.2-7: (cont.)

Other erosion and sediment control measures include:

- Confine grading and excavation to the dry season (April 15 through October 15), whenever possible. If grading is scheduled for the wet season, ensure that erosion and sediment control structures are in place prior to the onset of the first major storm of the season.
- Keep disturbed areas (from grading and related activities) to the minimum necessary for demolition or construction.
- Direct runoff away from disturbed areas during grading and related activities.
- Locate staging areas and spoil sites outside major stream and drainage ways and such that they do not drain directly into the waterways. If a spoil site drains into the creek, temporary catch basins will be constructed to intercept sediment before it reaches the channels. Spoil sites will be graded to reduce the potential for erosion.
- Place sediment curtains upstream and downstream of the construction zone to prevent sediment disturbed during trenching activities from being transported and deposited outside of the construction zone.
- Prevent runoff from flowing over unprotected slopes. Place sediment traps on downhill slopes whenever construction activities such as trenching, grading, etc. occur on slopes along rivers or streams.
- Following construction, creek banks will be covered with erosion control blankets and replanted with locally indigenous species using locally collected materials (seed, plugs, willow or cottonwood wattles). These will be planted according to a revegetation plan approved by the resource agencies.

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Hydrology and Water Quality			
Measure 4.B.3-2a: Implement **Measure 4.A.3-1** (Storm Water Pollution Prevention Plan).		Construction contractor	Prior to construction
Measure 4.A.3-1a: The PVWMA shall require contractors to develop a SWPPP for construction of proposed facilities, as required by the RWQCB. The objectives of the SWPPP are to identify pollutant sources that may affect the quality of stormwater discharge and to implement BMPs to reduce pollutants in stormwater discharges. The SWPPP for this proposed action would include the implementation, at a minimum, of the following elements: ▪ Source identification; ▪ Preparation of a site map; ▪ Description of construction materials, practices, and equipment storage and maintenance; ▪ List of pollutants likely to contact stormwater; ▪ Estimate of the construction site area and percent impervious area; ▪ Erosion and sedimentation control practices, including soils stabilization, revegetation, and runoff control to limit increases in sediment in stormwater runoff, such as detention basins, straw bales, silt fences, check dams, geofabrics, drainage swales, and sandbag dikes; ▪ Proposed construction dewatering plans and ▪ List of provisions to eliminate or reduce discharge of materials to stormwater; ▪ Description of waste management practices; and ▪ Maintenance and training practices.	1) Prepare contract specifications for the construction contractor that require implementation of a Storm Water Pollution Prevention Plan. 2) Monitor project construction activities to verify Storm Water Pollution Prevention Plan implementation. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE		MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.3-2b: Implement **Measure 4.A.4-1a** (construction within potentially jurisdictional wetlands/waters of the U.S. and streambeds). **Measure 4.A.4-1a–Wetlands Avoidance:** Wetlands and riparian habitat at the Highway 1 crossing of the Pajaro River may be avoided entirely by using bore and jack construction.	1)	Prepare construction specifications that require bore and jack construction techniques be used to cross the Pajaro River.	PVWMA	Prior to project construction
	2)	Monitor project construction activities to ensure that the bore and jack construction is used at the Pajaro River crossing. If non-compliance is noted, notify the contractor of required actions and the deadline for compliance.	PVWMA or PVWMA's consulting engineer	During project construction
Measure 4.B.3-3: Obtain a National Pollutant Elimination Discharge System (NPDES) permit for construction dewatering and implement conditions of the permit. An NPDES permit will be required from the RWQCB for all discharges for construction dewatering. Discharges must meet all applicable water quality objectives. The RWQCB may require certain conditions of the permit, such as treatment of the flows prior to discharge.	1)	Prepare and submit an application for an NPDES permit to the RWQCB.	PVWMA	Prior to project construction
	2)	Monitor construction activities to verify compliance with BMP water quality objectives and any conditions of the NPDES permit. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction
Measure 4.B.3-4a: Implement measures to ensure that construction activities do not damage existing wells. Wells shall be capped in an appropriate manner to prevent soil and other contaminants from entering groundwater aquifers.	1)	Review construction plans and maps to ensure that the wells are identified.	PVWMA	Prior to project construction
	2)	Monitor construction activities to verify that wells in and near the project area are avoided. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction
Measure 4.B.3-4b: PVWMA or its contractor shall correct any damage to wells and/or reimburse well owners for any loss of use of the well during construction.	1)	Inspect wells in the construction area prior to, and immediately following, project construction. Document any damage to wells resulting from construction activities. Repair any damage to the wells.	PVWMA	Prior to and immediately following construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.3-4b: (cont.)	2) If access to existing wells in the construction area will be affected, notify well operators in writing of the loss of use of the well and the dates during which access to the well(s) will not be available. Reimburse well operators for loss of well use based on historical water use.	Construction contractor and PVWMA	Prior to and immediately following construction
Vegetation and Wildlife			
See Table 4.			
Cultural Resources			
Measure 4.B.5-1a: Final pipeline and facility plans shall locate facilities and pipeline alignments away from identified cultural resource sites. A qualified cultural resource specialist shall be retained to assist in identifying the extent of important cultural resource sites to be avoided, which may include the preparation of detailed cultural resource evaluation reports and consultation with local, state, and federal agencies as well as the local Native American community and the Native American Heritage Commission.	1) Determine the areal extent of important cultural resources sites within the project area. Review project plans to verify that project facilities would not be located within these sites.	PVWMA's consulting archaeologist	Prior to final engineering design
Measure 4.B.5-1b: If important cultural resource sites cannot be avoided, PVWMA will coordinate with local, state, and federal agencies in the development of an appropriate mitigation plan for the cultural resource. Possible mitigation measures for important cultural resources may include documentation and recordation of the resource, relocation, or stabilization of the resource.	1) Prepare contract specifications for the construction contractor that require implementation of the cultural resources mitigation plan developed under the Programmatic Agreement.	PVWMA's consulting archaeologist	Prior to requesting construction bids
	2) Monitor construction activities to ensure that the cultural resources mitigation plan is implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting archaeologist	During project construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.5-2: Implement **Measure 4.A.5-1**.			
Measure 4.A.5-1: Should any as yet undiscovered cultural resources, such as structural features, or unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work will be suspended and PVWMA staff will be contacted. A qualified cultural resource specialist shall be retained and will perform any necessary investigations to determine the significance of the find. PVWMA will then implement any mitigation deemed necessary for the recordation and/or protection of the cultural resources. In addition, pursuant to Sections 5097.97 and 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work must be halted and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.	1) Prepare a resource recovery plan for the site including findings and recommendations and submit it to PVWMA, the U.S. Army Corps of Engineers, the State Historic Preservation Officer, the Advisory Council on Historic Preservation and the project file.	PVWMA's consulting archaeologist	During project construction, if potential resources are encountered
	2) Submit a document verifying that evaluation of the materials and their recovery occurred. Prepare a report of findings and submit it to PVWMA, the State Historic Preservation Officer, the Advisory Council on Historic preservation and the project file.	PVWMA's consulting archaeologist	During project construction, if potential resources are encountered
Measure 4.B.5-3a: The resource boundaries should be marked as exclusion zones both on the ground and on construction maps.	1) Review construction maps and monitor construction sites to ensure that resource boundaries are marked as exclusion zones.	PVWMA's consulting archaeologist	Prior to, and during, project construction
Measure 4.B.5-3b: Construction supervisory personnel should be notified of the existence of these resources and be required to keep personnel and equipment away from these areas. During construction and operations, personnel and equipment will be restricted to the surveyed corridor.	1) Prepare contract specifications for the construction contractor that require all construction personnel and equipment remain within the surveyed corridor.	PVWMA	Prior to requesting construction bids
Measure 4.B.5-3c: Monthly monitoring of the cultural resources to be avoided should be completed to insure that no inadvertent damage to the resources occurs as a result of construction or construction-related activities. If damage is detected a guard will be posted to patrol the site and adjacent important resources (such as gravestones and churches).	1) Monitor cultural resources to be avoided on a monthly basis during project construction to verify that no damage occurs.	PVWMA's consulting archaeologist	Monthly during project construction
	2) If damage to a cultural resource is detected, hire a guard to patrol the site and adjacent important resources.	PVWMA	During project construction, if damage is detected

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Traffic and Circulation			
Measure 4.B.6-1 (Recommended): Implement **Measures 4.A.6-1a** and 4.A.6-1b. **Measure 4.A.6-1a (Recommended):** Schedule truck trips outside of peak commute hours. **Measure 4.A.6-1b (Recommended):** Use haul routes that minimize truck traffic on local roadways to the extent possible.	1) Prepare contract specifications for the construction contractor that require construction truck trips be scheduled during off-peak hours and that haul routes be selected to minimize truck traffic on local roadways.	PVWMA	Prior to requesting construction bids
Measure 4.B.6-2a: Limit construction hours to off-peak traffic periods on commute streets.	1) Prepare contract specifications for the construction contractor that limit construction hours to off-peak traffic periods.	PVWMA	Prior to requesting construction bids
Measure 4.B.6-2b: The contractor shall be required to prepare traffic control plans to show specific methods for maintaining traffic flows. This shall include identifying roadway locations where special trenching techniques would be used to minimize impacts to traffic flow and operations. The traffic control plan shall be reviewed for appropriateness, and approved by Caltrans and the governing Public Works Departments.	1) Prepare contract specifications for the construction contractor that require preparation of a traffic control plan.	PVWMA	Prior to requesting construction bids
	2) Review the proposed traffic control plan to ensure that measures to maintain traffic flows are included. Notify the construction contractor if any modifications are required.	PVWMA, Caltrans, Santa Cruz County Public Works Department	Prior to project construction
Measure 4.B.6-3a: To minimize disruption of emergency vehicle access and maintain access to driveways to adjacent land uses, PVWMA would require the contractors to maintain steel trench plates at the construction sites to restore access across open trenches. Construction trenches shall not be left open after work hours.	1) Monitor construction activities to ensure that steel trench plates are placed on construction trenches along driveways. If non-compliance is noted, notify construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction
Measure 4.B.6-3b: To minimize disruption of emergency vehicle access, affected jurisdictions will be asked to identify detours to be posted by contractor.	1) Place a large sign along roadways in the project vicinity at least one week in advance of construction.	PVWMA	Prior to project construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.6-3c: The contractor will notify the appropriate police, fire, and emergency services of the timing, location, and duration of construction activities and the locations of detours and lane closures prior to beginning construction in the immediate vicinity of affected roadways.	1) Send notices to police, fire, and emergency service providers at least one week in advance of construction.	PVWMA	Prior to project construction
Measure 4.B.6-4: Implement **Measure 4.A.6-2**. **Measure 4.A.6-2:** Conduct a preconstruction survey of road conditions on key access routes to the project sites (e.g., San Andreas Road). The pavement conditions of local streets judged to be in good condition for use by heavy truck traffic shall be monitored. Roads damaged by construction shall be repaired to a structural condition equal to, or better than, that which existed prior to construction activity.	1) Prepare contract specifications for the construction contractor that require that a preconstruction survey of key routes to the project site be conducted, and that roads damaged by construction be repaired. 2) Inspect access roads to the project site to ensure that roads are repaired following project construction, if necessary. If roads are not repaired, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA	Prior to project construction Following project construction
Measure 4.B.6-5: Implement **Measures 4.A.6-3a** and **4.A.6-3b**. **Measure 4.A.6-3a:** The construction contractor shall prepare traffic safety and control plans to show specific methods for maintaining traffic flows. This shall include identifying roadway locations where special trenching techniques would be used to minimize impacts to traffic flow and operations. The traffic control plans prepared by the contractor shall include recommended detours for bicyclists. The traffic control plan shall be reviewed for appropriateness, and approved by the governing Public Works Department.	1) Implement the Monitoring and Reporting Action for **Measure 4.B.6-2b**, above.	See above	See above
Measure 4.A.6-3b: The contractor shall provide advanced public notification of construction activity and roadway/access closures.	1) Implement the Monitoring and Reporting Action for **Measure 4.B.1-1**, above.	See above	See above

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Air Quality			
Measure 4.B.7-1a: Implement dust control program described in **Measure 4.A.7-1** to minimize potential public health impacts associated with exposure to contaminated soil dust.	1) Prepare contract specifications for the construction contractor that require implementation of a dust control program.	PVWMA	Prior to requesting construction bids
Measure 4.A.7-1: The construction contractor shall implement a dust control program that includes the following elements: ▪ Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard. ▪ Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. ▪ Sweep daily (with water sweepers) all paved access roads, paved parking areas and paved staging areas at construction sites. ▪ Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets. ▪ Hydroseed or apply (non-toxic) soil binders to inactive construction areas. However, do not apply these measures in operating agricultural fields under cultivation unless requested by the grower. ▪ Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.). ▪ Limit traffic on unpaved roads to 15 mph. ▪ Install sandbags or other erosion control measures to prevent silt runoff to public roadways. ▪ Replant vegetation in disturbed areas as quickly as possible.	2) Monitor construction activities to verify that the measures of the dust control program are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE		MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.7-1b: Response Plan. Prepare a project-specific Response Plan that includes a project-specific contingency plan for hazardous materials and waste operations and submit the plan to the agency with jurisdiction before site activities could proceed. The Response Plan, applicable to all excavation activities, shall establish policies and procedures to protect workers and the public from potential hazards posed by hazardous wastes. The plan shall be prepared according to federal and California OSHA regulations. The plan shall also provide for proper storage and/or disposal of any contaminated soils that meet the definition of a hazardous waste. Such a protocol could include off-site treatment of contaminated materials or disposal at an appropriate landfill.	1)	Prepare contract specifications for the construction contractor that require implementation of a Response Plan for hazardous materials and waste operations.	PVWMA	Prior to construction
	2)	Monitor project construction activities to verify Response Plan implementation. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	During project construction
Measure 4.B.7-1c: Reduction of Excavation Impacts. The contractor shall monitor for odors and analyze excavated material with a photoionization detector to determine the potential for soil contamination and the need for specialized soil-handling procedures to reduce excavation impacts in areas of suspected contamination.	1)	Prepare contract specifications for the construction contractor that require use of a photoionization detector to determine the potential for soil contamination.	Construction contractor	Prior to construction
	2)	Monitor project construction activities to determine the potential for soil contamination. If soil contamination is detected, notify PVWMA immediately and remove contaminated soils using appropriate procedures.	Construction contractor	During project construction
Measure 4.B.7-1d: Disposal Characterization. Within high-risk areas identified in Table 4.B.7-1, excavations shall be observed by a trained health and safety professional equipped with an organic vapor analyzer to screen excavated materials and ensure worker safety. If contamination is encountered, excavated soils shall be segregated and sampled relative to the profiling requirements of the accepting landfill.	1)	Monitor construction activities in high-risk areas to ensure worker safety and screen excavated materials.	PVWMA's consulting health and safety professional	During project construction
	2)	If contamination is encountered, conduct soil sampling and submit soil testing results to PVWMA and the accepting landfill.	PVWMA's consulting health and safety professional	During project construction, if necessary

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.7-1e: Groundwater and Soil Testing. Conduct groundwater and soil testing for hazardous materials at identified potentially contaminated sites prior to pipeline construction. Treatment would be applied, in consultation with the Regional Water Quality Control Board, Department of Toxic Substances Control, and/or other regulatory agencies, to ensure that all discharges meet applicable regulations.	1) Conduct soil and groundwater testing and submit results to PVWMA and appropriate regulatory agencies. If hazardous materials are encountered, implement treatment measures in consultation with the regulatory agencies.	PVWMA's consulting hazardous materials specialist and PVWMA	Prior to construction
Measure 4.B.7-1f: Hazardous Materials Management/Spill Prevention Plan. A Hazardous Materials Management/Spill Prevention Plan shall be developed and given to all contractors working on the project. At least one copy shall be on-site with the construction manager at all times. The purpose of the plan is to provide on-site construction managers, environmental compliance monitors, and regulatory agencies with a detailed description of hazardous materials management, spill prevention, and spill response/cleanup measures associated with the construction of project elements. The primary objective of the plan is to prevent the spill of hazardous materials. Elements of the plan shall include, but not be limited to, the following: ▪ A discussion of hazardous materials management, including delineation of hazardous material and hazardous waste storage areas, access and egress routes, waterways, emergency assemble areas, temporary hazardous waste storage areas; ▪ Spill control and countermeasures, including employee spill prevention/response training; and ▪ Notification and documentation procedures.	1) Prepare contract specifications for the construction contractor that require implementation of a Hazardous Materials Management/Spill Prevention Plan. 2) Monitor project construction activities to verify implementation of the Hazardous Materials Management/Spill Prevention Plan. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA	Prior to construction During project construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Noise			
Measure 4.B.8-1: Implement **Measure 4.A.8-1**.	1) Prepare contract specifications for the construction contractor that require implementation of noise mitigation measures listed in **Measure 4.A.8-1**.	PVWMA	Prior to requesting construction bids
Measure 4.A.8-1: PVWMA shall incorporate into contract specifications the following measures: ▪ Comply with all local sound control and noise level rules, regulations, and ordinances. ▪ Equipment and trucks used for project construction shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) in order to minimize construction noise impacts. Impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically- or electrically-powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves would be used where feasible, and this could achieve a reduction of 5 dbA. Quieter procedures shall be used (such as drilling rather than impact equipment) whenever feasible. ▪ Stationary noise sources shall be located as far from sensitive receptors as possible. If they must be located near existing receptors, they shall be adequately muffled. ▪ Temporary walls may be erected at some locations to reduce noise impacts to residences adjacent to construction sites.	2) Monitor construction activities to verify that the measures of the noise control measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Public Services			
Measure 4.B.9-1a: A detailed study identifying utilities along the proposed alignment will be prepared during the pre-design stages of the project.	1) Conduct a detailed study of utilities along the project alignment and submit a report documenting the results of the study to PVWMA.	PVWMA's consulting engineer	Prior to final engineering design
Measure 4.B.9-1b: The following measures are required for segments identified in final design as having potential conflict with significant utilities: ▪ Utility excavation and encroachment permits would be required from the appropriate agencies, including the Public Works Departments of San Benito, Santa Clara, Santa Cruz and Monterey Counties, Pacific Bell, U.S. Sprint, PG&E, City of Watsonville, and UPRR. These permits include measures to minimize utility disruption. PVWMA and its contractors would comply with permit conditions. Permit requirements would be included in construction contract specifications. ▪ Utility locations would be verified through field survey (potholing) and use of an underground locating service. ▪ A detailed engineering and construction plan would be prepared as part of the design plans and specifications. This plan should include procedures for the excavation, support, and fill of areas around utility cables and pipes. All affected utility services would be notified of PVWMA's construction plans and schedule. Arrangements would be made with these entities regarding protection, relocation, or temporary disconnection of services. ▪ In areas where the pipeline would parallel wastewater mains, engineering and construction plans will include trench wall support measures to guard against trench wall failure and possible resulting loss of structural support for the wastewater main. ▪ Residents and businesses in the project area would be notified by the contractor in writing of planned utility service disruption two to four days in advance in conformance with County and State standards.	1) Prepare contract specifications for the construction contractor that include measures listed in **Measure 4.B.9-1b**. 2) Monitor construction activities to verify that the measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA	Prior to final engineering design Periodically during project construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.9-2: Implement **Measures 4.B.6-3a** through **4.B.6-3c** in Section 4.B.6, Traffic and Circulation.	1) Implement the Monitoring and Reporting Actions for **Measures 4.B.6-3a** through **4.B.6-3c**, above.		
Measure 4.B.9-3 (Recommended): Implement **Measures 4.B.6-2a** and **4.B.6-2b** in Section 4.B.6, Traffic and Circulation.	1) Implement the Monitoring and Reporting Actions for **Measures 4.B.6-2a** and **4.B.6-2b**, above.		
Visual/Aesthetic and Recreational Resources			
Measure 4.A.10-1a: The PVWMA shall revegetate disturbed natural areas to minimize textural contrasts with the surrounding vegetation using grasses, shrubs and trees typical of the immediately surrounding area.	1) Prepare contract specifications for the construction contractor that require revegetation of disturbed areas.	PVWMA	Prior to requesting construction bids
	2) Inspect construction areas to verify that disturbed natural areas are revegetated following construction. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA or PVWMA's consulting biologist	Following project construction
Measure 4.A.10-1b: The PVWMA shall use design elements to enhance visual integration of the proposed above-ground facilities with their surroundings. Proposed facilities shall be painted low-glare earth-tone colors that blend with the surrounding terrain.	1) Review project plans to ensure that they include design elements such as low-glare earth-tone paint to visually integrated the proposed facilities with their surroundings.	PVWMA	Prior to final engineering design
Measure 4.A.10-1c: The PVWMA shall ensure that its contractors restore disturbed areas along the pipeline alignment to their pre-project condition such that short-term construction disturbance does not result in long-term visual impacts.	1) Prepare contract specifications for the construction contractor that require revegetation of disturbed areas along the pipeline alignment.	PVWMA	Prior to requesting construction bids
	2) Inspect construction areas to verify that disturbed natural areas are revegetated following construction. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Following project construction

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.10-2 (Recommended): Implement **Measure 4.A.10-2**. **Measure 4.A.10-2 (Recommended):** The PVWMA shall ensure that all exterior lighting if used is directed downward and oriented to insure that no light source is directly visible from neighboring residential areas. If necessary, landscaping shall be provided around proposed facilities. This vegetation shall be selected, placed, and maintained to minimize off-site light and glare onto surrounding areas. In addition, highly reflective building materials and/or finishes shall not be used in the designs for proposed structures.	1) Prepare contract specifications for the construction contractor that include exterior lighting mitigation listed in **Measure 4.A.10-2**. 2) Monitor construction activities to verify that the measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA	Prior to requesting construction bids During and following construction
Measure 4.C-1: CEQA Compliance. Delivery of CVP water for use in areas beyond the 30,200 acres of agricultural lands shown in **Figure 4.C-2** shall be permitted only in accordance with the terms for delivery to Contractor's Service Area pursuant to any contract for the delivery of CVP water between Reclamation and PVWMA, and in accordance with any and all laws, including CEQA and NEPA. The appropriate local land use agency will be the lead agency for preparation of an environmental document for any proposed land use changes; PVWMA will be the lead agency for any actions specific to water system improvements or other PVWMA actions needed to provide CVP water to areas beyond those shown in **Figure 4.C-2**.	1) Complete CEQA documentation for any water system improvements to serve areas beyond the 30,200 acres.	PVWMA	Prior to delivering CVP water beyond the 30,200 acres
Measure 4.C-2: Endangered Species Act Compliance. PVWMA will not deliver water for the purpose of converting any native lands to agriculture uses unless and until the project sponsor has complied with the Endangered Species Act and has determined that such conversion will not likely affect listed species or that appropriate mitigation has been provided. PVWMA intends to provide CVP water to existing irrigated agricultural lands. PVWMA currently is not proposing to provide any CVP water for M&I purposes, nor is it proposing to provide CVP water outside of the approximately 30,200 acres of agricultural lands shown in **Figure 4.C-2**. If PVWMA is the lead agency for development of water system improvements and construction or operation of those improvements or any other PVWMA actions that could adversely affect threatened or endangered species, PVWMA will consult with the appropriate resource agency (California	1) Obtain proof of compliance with the Endangered Species Act prior to providing water to areas beyond the 30,200 acres. 2) Comply with the Endangered Species Act for any water system improvements needed to serve areas beyond the 30,200 acres.	PVWMA PVWMA	Prior to delivering CVP water beyond the 30,200 acres Prior to delivering CVP water beyond the 30,200 acres

TABLE D.1 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE IMPORT WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Department of Fish and Game, US Fish and Wildlife Service, and/or National Marine Fisheries Service) pursuant to all applicable laws, including CEQA and NEPA. PVWMA will implement project-specific mitigation measures and permit conditions as appropriate.			

TABLE D.2
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Land Use and Planning			
Measure 4.A.1-1 (Recommended): Advance notification of construction activities should be provided to all property owners, residents, and businesses in the vicinity of construction areas. See also mitigation measures in Sections 4.A.6, Traffic and Circulation, 4.A.7, Air Quality, and 4.A.8, Noise, of this EIR.	1) Send notices to all property owners residents, and businesses in the project area vicinity at least one week in advance of construction. Publish notices in local newspapers at least one week in advance of construction. Place large signs along roads in the project vicinity at least one week in advance of construction. Submit copies of public notices to the project file to document compliance.	PVWMA	Prior to project construction
Measure 4.A.1-2: In order to compensate for the loss of prime agricultural land, PVWMA will cause up to 8.5 acres of prime agricultural land that is no longer farmed to be restored or otherwise brought back into production. This can be accomplished through contribution to a fund dedicated to the restoration of agricultural land.	1) Identify 8.5 acres of prime agricultural land that is no longer farmed and return it to production, or alternatively, contribute to a fund dedicated to the restoration of agricultural land. Submit documentation of agricultural land restoration or appropriate contribution to the project file and the Santa Cruz County Planning Department.	PVWMA	
Geology and Soils			
Measure 4.A.2-1a: Implement **Measures 5.A.2-3a** through **5.A.2-3f**. **Measure 5.A.2-3a:** All grading and construction will conform to requirements of the Monterey and Santa Cruz Counties Grading Ordinances. **Measure 5.A.2-3b:** Site grading and construction work areas will expose as little new ground surface as possible. Vegetation cover should be left intact to the extent practical.	1) Review construction specifications to ensure that design recommendations for RWF construction and pipeline installation listed in **Measures 5.A.2-3a** through **5.A.2-3f** are included.	PVWMA	Prior to project construction
	2) Monitor project construction activities to verify compliance with the construction specifications. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	During and immediately following project construction

TABLE D.2 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 5.A.2-3c: To the extent possible, grading activities in noncropped areas will be limited to the period between April 15 and October 15. If dry conditions persist after October 15, one-week extensions of grading activities will be obtained from the County Public Works Department. In areas where the soil is tilled, grading activities will be coordinated with the local farmers to ensure consistency between their erosion control and farming practices and construction disturbance.			
Measure 5.A.2-3d: Implement best construction practices at all grading sites, regardless of soil erodibility hazard.			
Measure 5.A.2-3e: Upon completion of construction at all sites, loose soils shall be removed or spread and all areas shall be re-soiled and reseeded to ensure that a stable soil cover will remain.			
Measure 5.A.2-3f: PVWMA will prepare and implement an inspection and maintenance program for the right-of-way and all facility sites. The plan will include routine inspection plans and reporting, and prescriptive methods for correcting erosion or soil instability problems.			

TABLE D.2 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.A.2-1b: Implement **Measure 5.A.2-2.**			
Measure 5.A.2-2: All diversion and pipeline facilities will comply with applicable policies and appropriate engineering investigation practices necessary to reduce the potential detrimental effects of expansive soils, and corrosivity. Appropriate geotechnical studies will be conducted using generally accepted and appropriate engineering techniques for determining the susceptibility of the sites to unstable, weak or corrosive soils. A licensed geotechnical engineer will prepare recommendations applicable to foundation design, earthwork, and site preparation prior to or during the project design phase. Recommendations will address mitigation of site-specific, adverse soil and bedrock conditions that could hinder development. Project engineers will implement the recommendations. Geotechnical design and design criteria will comply with applicable codes and requirements of the 1994 or 1997 UBC with California additions (CCR Title 24), applicable City construction and grading ordinances.	1) Include geotechnical report with recommendations as an appendix to construction specifications.	PVWMA	Prior to requesting construction bids
	2) Review construction specifications to ensure that design recommendations were included.	PVWMA	Prior to project construction
	3) Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	During and immediately following project construction
Measure 4.A.2-2: Conduct geologic investigations of all project facilities and pipeline alignments prior to the final design, and implement design recommendations. The investigations will specify hazards related to ground movements and co-seismic effects, especially liquefaction. The recommendations of an engineering geologist will be incorporated into the design and specifications and shall be implemented by the construction contractor. The construction manager will conduct inspections and certify that all design criteria have been met. While these measures would not eliminate the potential for damage to the facilities, they would ensure that the hazards have been reduced to an acceptable level of risk and, therefore, the impact would be reduced to a less-than-significant level.	1) Review construction specifications to ensure that the engineering geologist's design recommendations for RWF construction and pipeline installation are included.	PVWMA	Prior to project construction
	2) Monitor project construction activities to verify compliance with the recommendations of the engineering geologist. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	During and immediately following project construction

TABLE D.2 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Hydrology and Water Quality			
Measure 4.A.3-1a: The PVWMA shall require contractors to develop a SWPPP for construction of proposed facilities, as required by the RWQCB. The objectives of the SWPPP are to identify pollutant sources that may affect the quality of stormwater discharge and to implement BMPs to reduce pollutants in stormwater discharges. The SWPPP for this proposed action would include the implementation, at a minimum, of the following elements: ▪ Source identification; ▪ Preparation of a site map; ▪ Description of construction materials, practices, and equipment storage and maintenance; ▪ List of pollutants likely to contact stormwater; ▪ Estimate of the construction site area and percent impervious area; ▪ Erosion and sedimentation control practices, including soils stabilization, revegetation, and runoff control to limit increases in sediment in stormwater runoff, such as detention basins, straw bales, silt fences, check dams, geofabrics, drainage swales, and sandbag dikes; ▪ Proposed construction dewatering plans and ▪ List of provisions to eliminate or reduce discharge of materials to stormwater; ▪ Description of waste management practices; and ▪ Maintenance and training practices.	1) Prepare contract specifications for the construction contractor that require preparation and implementation of a Storm Water Pollution Prevention Plan. 2) Monitor project construction activities to verify Temporary Erosion and Sediment Control Plan implementation. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA	Prior to construction Periodically during project construction
Measure 4.A.3-1b: Refer to **Measure 4.A.4-1a** in Section 4.A.4, Vegetation and Wildlife, regarding pipeline construction within potentially jurisdictional wetlands/waters of the U.S. and streambeds and at the Pajaro River.	1) Implement Monitoring and Reporting Actions for **Measure 4.A.4-1a**, below.		

TABLE D.2 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE		MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.A.3-2a: Above-ground irrigation systems shall be operated in accordance with the requirements of Title 22 of the California Code of Regulations and any reclamation permits issued by the RWQCB, Central Coast Region. Title 22 requires that irrigation rates match the evapotranspiration rates of the plants or crops being irrigated, and that application of reclaimed water be prohibited within 50 feet of any domestic water supply or wells.	1)	Prepare and submit an application for an NPDES permit to the RWQCB.	PVWMA	Prior to project construction
	2)	Monitor operation of irrigation systems to verify compliance with applicable regulations and permits. If non-compliance is noted, notify the operator of required actions and the deadline for compliance.	PVWMA	Periodically following project implementation
Measure 4.A.3-2b: Monitoring of crop productivity should be performed, and if adverse impacts to the yields of sensitive crops (e.g., strawberries) occurs, the blending ratio should be adjusted to decrease the fraction of recycled water in the applied irrigation water.	1)	Monitor crop productivity and submit documentation of crop yields to the project file. Adjust blending ratios if necessary.	PVWMA	Periodically following project implementation
Measure 4.A.3-3: The facilities shall be designed to comply with FEMA and County of Santa Cruz requirements to floodproof the facilities and not increase upstream or downstream flood hazards.	1)	Review project plans to ensure they comply with FEMA and County of Santa Cruz requirements concerning floodproofing. If non-compliance is noted, revise plans as necessary.	PVWMA or PVWMA's consulting engineer	Prior to final engineering design
	2)	Monitor project construction activities to verify compliance with FEMA and County of Santa Cruz requirements. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction
Measure 4.A.3-4a: Implement measures to ensure that construction activities do not damage existing wells. Wells shall be capped in an appropriate manner to prevent soil and other contaminants from entering groundwater aquifers.	1)	Review construction plans and maps to ensure that the wells are identified.	PVWMA	Prior to project construction
	2)	Monitor construction activities to verify that wells in and near the project area are avoided. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction

TABLE D.2 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.A.3-4b: PVWMA or its contractor shall correct any damage to wells and/or reimburse well owners for any loss of use of the well during construction.	1) Inspect wells in the construction area prior to, and immediately following, project construction. Document any damage to wells resulting from construction activities. Repair any damage to the wells.	PVWMA	Prior to and immediately following construction
	2) If access to existing wells in the construction area will be affected, notify well operators in writing of the loss of use of the well and the dates during which access to the well(s) will not be available. Reimburse well operators for loss of well use based on historical water use.	Construction contractor and PVWMA	Prior to and immediately following construction
Vegetation and Wildlife			
See Table 4.			
Cultural Resources			
Measure 4.A.5-1: Should any as yet undiscovered cultural resources, such as structural features, or unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work will be suspended and PVWMA staff will be contacted. A qualified cultural resource specialist shall be retained and will perform any necessary investigations to determine the significance of the find. PVWMA will then implement any mitigation deemed necessary for the recordation and/or protection of the cultural resources. In addition, pursuant to Sections 5097.97 and 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work must be halted and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.	1) Prepare a resource recovery plan for the site including findings and recommendations and submit it to PVWMA, the U.S. Army Corps of Engineers, the State Historic Preservation Officer, the Advisory Council on Historic Preservation and the project file.	PVWMA's consulting archaeologist	During project construction, if potential resources are encountered
	2) Submit a document verifying that evaluation of the materials and their recovery occurred. Prepare a report of findings and submit it to PVWMA, the State Historic Preservation Officer, the Advisory Council on Historic preservation and the project file.	PVWMA's consulting archaeologist	During project construction, if potential resources are encountered

TABLE D.2 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.A.5-2: As part of the siting study for wells, PVWMA will retain an archaeologist to conduct archival research and surface reconnaissance of potential sites. The findings of the investigations will be incorporated into the selection of specific locations for wells and connecting pipelines such that PVWMA will avoid siting wells and attendant connecting pipelines at or through any significant cultural resources.	1) Determine the areal extent of important cultural resources sites within the project area. Review project plans to verify that project facilities would not be located within these sites.	PVWMA's consulting archaeologist	Prior to final engineering design
Traffic and Circulation			
Measure 4.A.6-1a (Recommended): Schedule truck trips outside of peak commute hours. **Measure 4.A.6-1b (Recommended):** Use haul routes that minimize truck traffic on local roadways to the extent possible.	1) Prepare contract specifications for the construction contractor that require construction truck trips be scheduled during off-peak hours and that haul routes be selected to minimize truck traffic on local roadways.	PVWMA	Prior to requesting construction bids
Measure 4.A.6-2: Conduct a preconstruction survey of road conditions on key access routes to the project sites (e.g., San Andreas Road). The pavement conditions of local streets judged to be in good condition for use by heavy truck traffic shall be monitored. Roads damaged by construction shall be repaired to a structural condition equal to, or better than, that which existed prior to construction activity.	1) Prepare contract specifications for the construction contractor that require that a preconstruction survey of key routes to the project site be conducted, and that roads damaged by construction be repaired.	PVWMA	Prior to project construction
	2) Inspect access roads to the project site to ensure that roads are repaired following project construction, if necessary. If roads are not repaired, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Following project construction
Measure 4.A.6-3a: The construction contractor shall prepare traffic safety and control plans to show specific methods for maintaining traffic flows. This shall include identifying roadway locations where special trenching techniques would be used to minimize impacts to traffic flow and operations. The traffic control plans prepared by the contractor shall include recommended detours for bicyclists. The traffic control plan shall be reviewed for appropriateness, and approved by the governing Public Works Department.	1) Prepare contract specifications for the construction contractor that require preparation of a traffic control plan.	PVWMA	Prior to requesting construction bids
	2) Review the proposed traffic control plan to ensure that measures to maintain traffic flows are included. Notify the construction contractor if any modifications are required.	PVWMA, Caltrans, Santa Cruz County Public Works Department	Prior to project construction

TABLE D.2 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.A.6-3b: The contractor shall provide advanced public notification of construction activity and roadway/access closures.	1) Implement the Monitoring and Reporting Action for **Measure 4.A.1-1**, above.		
Air Quality			
Measure 4.A.7-1: The construction contractor shall implement a dust control program that includes the following elements: ▪ Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard. ▪ Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. ▪ Sweep daily (with water sweepers) all paved access roads, paved parking areas and paved staging areas at construction sites. ▪ Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets. ▪ Hydroseed or apply (non-toxic) soil binders to inactive construction areas. However, do not apply these measures in operating agricultural fields under cultivation unless requested by the grower. ▪ Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.). ▪ Limit traffic on unpaved roads to 15 mph. ▪ Install sandbags or other erosion control measures to prevent silt runoff to public roadways. ▪ Replant vegetation in disturbed areas as quickly as possible.	1) Prepare contract specifications for the construction contractor that require implementation of a dust control program. 2) Monitor construction activities to verify that the measures of the dust control program are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA	Prior to requesting construction bids Periodically during project construction

TABLE D.2 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Noise			
Measure 4.A.8-1: PVWMA shall incorporate into contract specifications the following measures: ▪ Comply with all local sound control and noise level rules, regulations, and ordinances. ▪ Equipment and trucks used for project construction shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) in order to minimize construction noise impacts. ▪ Impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically- or electrically-powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves would be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used (such as drilling rather than impact equipment) whenever feasible. ▪ Stationary noise sources shall be located as far from sensitive receptors as possible. If they must be located near existing receptors, they shall be adequately muffled. ▪ Temporary walls may be erected at some locations to reduce noise impacts to residences adjacent to construction sites.	1) Prepare contract specifications for the construction contractor that require implementation of noise mitigation measures listed in **Measure 4.A.8-1**. 2) Monitor construction activities to verify that the measures of the noise control measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA	Prior to requesting construction bids Periodically during project construction

TABLE D.2 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.A.8-2: PVWMA shall incorporate into contract specifications the following measures: ▪ The pumping facilities shall be designed with acoustical treatments (building enclosures, louvered vents, noise walls, etc.) that are adequate to maintain potential noise generation to levels at or below ambient levels. ▪ The blending facilities shall be built with enclosures that provide maximum feasible noise attenuation, to ensure that sensitive receptors would not be affected.	1) Prepare contract specifications for the construction contractor that include measures listed in **Measure 4.A.8-2.**	PVWMA	Prior to final engineering design
	2) Monitor construction activities to verify that the measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction
Public Services			
Measure 4.A.9-1: A detailed study identifying utilities along the proposed alignment will be prepared during the pre-design stages of the project. The following measures are required for segments identified in final design as having potential conflict with significant utilities: ▪ Utility excavation and encroachment permits would be required from the appropriate agencies, including the Public Works Departments of San Benito, Santa Clara, Santa Cruz and Monterey Counties, Pacific Bell, U.S. Sprint, PG&E, City of Watsonville, and UPRR. These permits include measures to minimize utility disruption. PVWMA and its contractors would comply with permit conditions. Permit requirements would be included in construction contract specifications. ▪ Utility locations would be verified through field survey (potholing) and use of an underground locating service.	1) Conduct a detailed study of utilities along the project alignment and submit a report documenting the results of the study to PVWMA.	PVWMA's consulting engineer	Prior to final engineering design
	2) Prepare contract specifications for the construction contractor that include measures listed in **Measure 4.A.9-1.**	PVWMA	Prior to final engineering design
	3) Monitor construction activities to verify that the measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction

TABLE D.2 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.A.9-1: (cont.) ▪ A detailed engineering and construction plan would be prepared as part of the design plans and specifications. This plan should include procedures for the excavation, support, and fill of areas around utility cables and pipes. All affected utility services would be notified of PVWMA's construction plans and schedule. Arrangements would be made with these entities regarding protection, relocation, or temporary disconnection of services. ▪ In areas where the pipeline would parallel wastewater mains, engineering and construction plans will include trench wall support measures to guard against trench wall failure and possible resulting loss of structural support for the wastewater main. ▪ Residents and businesses in the project area would be notified by the contractor in writing of planned utility service disruption two to four days in advance in conformance with County and State standards.			
Visual/Aesthetic and Recreational Resources			
Measure 4.A.10-1a: The PVWMA shall revegetate disturbed natural areas to minimize textural contrasts with the surrounding vegetation using grasses, shrubs and trees typical of the immediately surrounding area.	1) Prepare contract specifications for the construction contractor that require revegetation of disturbed areas.	PVWMA	Prior to requesting construction bids
	2) Inspect construction areas to verify that disturbed natural areas are revegetated following construction. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA or PVWMA's consulting biologist	Following project construction

TABLE D.2 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE RECYCLED WATER PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.A.10-1b: The PVWMA shall use design elements to enhance visual integration of the proposed above-ground facilities with their surroundings. Proposed facilities shall be painted low-glare earth-tone colors that blend with the surrounding terrain.	1) Review project plans to ensure that they include design elements such as low-glare earth-tone paint to visually integrated the proposed facilities with their surroundings.	PVWMA	Prior to final engineering design
Measure 4.A.10-1c: The PVWMA shall ensure that its contractors restore disturbed areas along the pipeline alignment to their pre-project condition such that short-term construction disturbance does not result in long-term visual impacts.	1) Prepare contract specifications for the construction contractor that require revegetation of disturbed areas along the pipeline alignment.	PVWMA	Prior to requesting construction bids
	2) Inspect construction areas to verify that disturbed natural areas are revegetated following construction. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Following project construction
Mitigation Measure 4.A.10-2 (Recommended): The PVWMA shall ensure that all exterior lighting if used is directed downward and oriented to insure that no light source is directly visible from neighboring residential areas. If necessary, landscaping shall be provided around proposed facilities. This vegetation shall be selected, placed, and maintained to minimize off-site light and glare onto surrounding areas. In addition, highly reflective building materials and/or finishes shall not be used in the designs for proposed structures.	1) Prepare contract specifications for the construction contractor that include exterior lighting mitigation listed in **Measure 4.A.10-2**.	PVWMA	Prior to requesting construction bids
	2) Monitor construction activities to verify that the measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	During and following construction

TABLE D.3
ENVIRONMENTAL COMMITMENTS FOR THE INTEGRATED COASTAL DISTRIBUTION SYSTEM

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Land Use and Planning			
Measure 8.1.3-1 (Recommended): The PVWMA will provide advance notification of construction activities to all property owners, residents, and businesses in the vicinity of construction areas.	**8.1.3-1:** Send notices to all property owners residents, and businesses in the project area vicinity at least one week in advance of construction. Publish notices in local newspapers at least one week in advance of construction. Place large signs along San Andreas Road, Beach Road, Trafton Road, and Highway 1 at least one week in advance of construction. Submit copies of public notices to the project file to document compliance.	PVWMA	Prior to project construction.
Geology and Soils			
Measure 8.2.3-1a: All grading and construction shall conform to requirements of the Santa Cruz County Grading Ordinance.	**8.2.3-1a:** Review project plans to verify that grading and construction activities comply with the Santa Cruz County Grading Ordinance and that they expose as little new ground surface as possible. Document compliance or non-compliance and remedial action(s) required and submit this documentation to the Santa Cruz County Public Works Department, the Monterey County Public Works Department, and the project file.	PVWMA	Prior to project construction.
Measure 8.2.3-1b: Site grading and construction work areas shall expose as little new ground surface as possible. Vegetation cover should be left intact to the extent practical.	**8.2.3-1b:** Conduct inspections of the construction site to verify compliance with Mitigation Measures 8.2.3-1b, 8.2.3-1c, 8.2.3-1d, and 8.2.3-1e. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA or PVWMA's consulting engineer	During and immediately following project construction.
Measure 8.2.3-1c: To the extent possible, grading activities in non-cropped areas shall be limited to the period between April 15 and October 31. If dry conditions persist after October 31, one week extensions of grading activities will be obtained from the County Public Works Department. In areas where the soil is tilled, grading activities will be coordinated with the local farmers to ensure consistency between their erosion control and farming practices and construction disturbance.			

TABLE D.3 (Continued)
ENVIRONMENTAL COMMITMENTS FOR THE INTEGRATED COASTAL DISTRIBUTION SYSTEM

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 8.2.3-1d: Implement best construction practices at all grading sites, regardless of soil erodibility hazard.			
Measure 8.2.3-1e: Upon completion of construction at all sites, loose soils shall be removed or spread and all areas shall be re-soiled and reseeded to ensure that a stable soil cover will remain.			
Measure 8.2.3-1f: PVWMA will prepare and implement an inspection and maintenance program for the right-of-way and all facility sites. The plan will include routine inspection plans and reporting, and prescriptive methods for correcting erosion or soil instability problems.	**8.2.3-1c:** Prepare a report that presents the inspection and maintenance program that includes routine inspection plans and reporting, and recommendations for correcting erosion or soil instability problems. Submit this report to the project file.	PVWMA	Prior to project construction.
Measure 8.2.3-4: Conduct geologic investigations of the proposed pipeline alignment and pumping facilities prior to the final design, and implement design recommendations. The investigations will specify hazards related to corrosion, weak soils and settlement, including differential settlement. The recommendations of an engineering geologist shall be incorporated into the design and specifications and shall be implemented by the construction contractor. The construction manager shall conduct inspections and certify that all design criteria have been met. While these measures would not ensure that some damage to the facilities would not occur, it would ensure that design standards have been met and the hazards have been reduced to an acceptable level of risk. Therefore, the impact would be reduced to a less than significant level.	**8.2.3-4a:** Prepare a report that presents the results of the geotechnical investigation and includes design recommendations for the project. Submit this report to the project file.	PVWMA's consulting engineering geologist	Prior to completion of final engineering design.
	8.2.3-4b: Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	Periodically during project construction.

TABLE D.3 (Continued)
ENVIRONMENTAL COMMITMENTS FOR THE INTEGRATED COASTAL DISTRIBUTION SYSTEM

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 8.2.3-5: Conduct geologic investigations of the proposed pipeline alignment and pumping, diversion and filtration facilities prior to the final design and implement design recommendations. The investigations will specify hazards related to ground movements and co-seismic effects, especially liquefaction. The recommendations of an engineering geologist shall be incorporated into the design and specifications and shall be implemented by the construction contractor. The construction manager shall conduct inspections and certify that all design criteria have been met. While these measures would not ensure that damage to the facilities would not occur, it would ensure that the hazards have been reduced to an acceptable level of risk and, therefore, the impact would be reduced to a less than significant level.	**8.2.3-5a:** Prepare a report that presents the results of the geotechnical investigation and includes design recommendations for the project. Submit this report to the project file.	PVWMA's consulting engineering geologist	Prior to completion of final engineering design.
	8.2.3-5b: Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	Periodically during project construction.
Hydrology and Water Quality			
Measure 8.3.3-1: Employ construction storm water quality management practices.	**8.3.3-1:** Monitor project construction activities to ensure that storm water quality management practices are implemented. If non-compliance is noted, notify the contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction.
Measure 8.3.3-2: Obtain NPDES permit for construction dewatering and implement conditions of the permit. An NPDES permit will be required from the RWQCB for all discharges for construction dewatering. Discharges must meet water quality objectives specified in the Basin Management Plan as described in Section 3.3. The RWQCB may require certain conditions of the permit, such as treatment of the flows prior to discharge.	**8.3.3-2a:** Prepare and submit an application for an NPDES permit to the RWQCB.	PVWMA	Prior to project construction.
	8.3.3-2b: Monitor construction activities to verify compliance with BMP water quality objectives and any conditions of the NPDES permit. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction.

TABLE D.3 (Continued)
ENVIRONMENTAL COMMITMENTS FOR THE INTEGRATED COASTAL DISTRIBUTION SYSTEM

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 8.3.3-4: Avoid construction impacts to the wells. The precise well locations shall be identified in preconstruction surveys. The pipeline construction trench, material stockpile areas and soil excavation stockpiles shall be designated in the construction plans and specifications to specifically avoid impacting the well and access to the wells.	**8.3.3-4a:** Review construction plans and maps to ensure that the wells are identified.	PVWMA	Prior to project construction.
	8.3.3-4b: Monitor construction activities to verify that wells in and near the project area are avoided. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction.
Vegetation and Wildlife			
See Table 4.			
Cultural Resources			
Measure 8.5.3-1a: Final pipeline and facility plans shall locate facilities and pipeline alignments away from these identified important cultural resource sites. A qualified cultural resource specialist shall be retained to assist in identifying the areal extent of important cultural resource sites to be avoided, which may include the preparation of detailed cultural resource evaluation reports and consultation with local, state, and federal agencies as well as the local Native American Commission.	**8.5.3-1a:** Determine the areal extent of important cultural resources sites within the project area. Review project plans to verify that project facilities would not be located within these sites.	PVWMA's consulting archaeologist	Prior to final engineering design.
Measure 8.5.3-1b: If important cultural resource sites cannot be avoided, the Pajaro Water Management Agency will enter into a Programmatic Agreement with the U.S. Army Corps of Engineers, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation to develop an appropriate mitigation plan for the cultural resource. Possible mitigation measures for important cultural resources may include documentation and recordation of the resource, recovery and relocation, or stabilization of the resource.	**8.5.3-1b:** Prepare contract specifications for the construction contractor that require implementation of the cultural resources mitigation plan developed under the Programmatic Agreement.	PVWMA	Prior to requesting construction bids.
	8.5.3-1c: Monitor construction activities to ensure that the cultural resources mitigation plan is implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting archaeologist	Periodically during project construction.

TABLE D.3 (Continued)
ENVIRONMENTAL COMMITMENTS FOR THE INTEGRATED COASTAL DISTRIBUTION SYSTEM

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 8.5.3-2: Should any as yet undiscovered cultural resources, such as structural features, or unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work will be suspended and PVWMA staff will be contacted. A qualified cultural resource specialist will be retained and will perform any necessary investigations to determine the significance of the find. PVWMA will then implement any mitigation deemed necessary for the recordation and/or protection of the cultural resources. In addition, pursuant to Sections 5097.107 and 5097.108 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work must be halted and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.	**8.5.3-2a:** Submit a resource recovery plan for the site including findings and recommendations and submit it to PVWMA, the U.S. Army Corps of Engineers, the State Historic Preservation Officer, the Advisory Council on Historic Preservation and the project file. **8.5.3-2b:** Submit a document verifying that evaluation of the materials and their recovery occurred. Prepare a report of findings and submit it to PVWMA, the State Historic Preservation Officer, the Advisory Council on Historic Preservation and the project file.	PVWMA's consulting archaeologist PVWMA's consulting archaeologist	During project construction, if potential resources are encountered. During project construction, if potential resources are encountered.
Measure 8.5.3-3a: The resource boundaries shall be marked as exclusion zones both on the ground and on construction maps.	**8.5.3-3a:** Review construction maps and monitor construction sites to ensure that resource boundaries are marked as exclusion zones.	PVWMA's consulting archaeologist	Prior to, and during, project construction.
Measure 8.5.3-3b: Construction supervisory personnel shall be notified of the existence of these resources and required to keep personnel and equipment away from these areas. During construction and operations, personnel and equipment will be restricted to the surveyed corridor.	**8.5.3-3b:** Prepare contract specifications for the construction contractor that require all construction personnel and equipment remain within the surveyed corridor.	PVWMA	Prior to requesting construction bids.

TABLE D.3 (Continued)
ENVIRONMENTAL COMMITMENTS FOR THE INTEGRATED COASTAL DISTRIBUTION SYSTEM

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 8.5.3-3c: Monthly monitoring of cultural resources to be avoided shall be completed to insure that no inadvertent damage to the resources occurs as a result of construction or construction-related activities. If damage is detected, a guard will be posted to patrol the site and adjacent important resources (such as gravestones and churches).	**8.5.3-3c:** Monitor cultural resources to be avoided on a monthly basis during project construction to verify that no damage occurs.	PVWMA's consulting archaeologist	Monthly during project construction.
	8.5.3-3d: If damage to a cultural resource is detected, hire a guard to patrol the site and adjacent important resources.	PVWMA	During project construction, if damage is detected.
Traffic and Circulation			
Measure 8.6.3-1a (Recommended): Schedule truck trips outside of peak commute hours. **Measure 8.6.3-1b (Recommended):** Use haul routes that minimize truck traffic on local roadways to the extent possible.	**8.6.3-1a:** Prepare contract specifications for the construction contractor that require construction truck trips be scheduled during off-peak hours and that haul routes be selected to minimize truck traffic on local roadways.	PVWMA	Prior to requesting construction bids.
Measure 8.6.3-2a: Limit construction hours to off-peak traffic periods on commute streets.	**8.6.3-2a:** Prepare contract specifications for the construction contractor that limit construction hours to off-peak traffic periods.	PVWMA	Prior to requesting construction bids.
Measure 8.6.3-2b: The construction contractor shall prepare traffic safety and control plans to show specific methods for maintaining traffic flows. This shall include identifying roadway locations where special trenching techniques would be used to minimize impacts to traffic flow and operations. The traffic control plan shall be reviewed for appropriateness, and approved by Caltrans and the governing Public Works Departments.	**8.6.3-2b:** Prepare contract specifications for the construction contractor that require preparation of a traffic control plan.	PVWMA	Prior to requesting construction bids.
	8.6.3-2c: Review the proposed traffic control plan to ensure that measures to maintain traffic flows are included. Notify the construction contractor if any modifications are required.	PVWMA, Caltrans, Santa Cruz County Public Works Department	Prior to project construction.
Measure 8.6.3-3a: Construction trenches shall be covered by steel trench plates to allow access to driveways.	**8.6.3-3a:** Monitor construction activities to ensure that steel trench plates are placed on construction trenches along driveways. If non-compliance is noted, notify construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction.

TABLE D.3 (Continued)
ENVIRONMENTAL COMMITMENTS FOR THE INTEGRATED COASTAL DISTRIBUTION SYSTEM

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 8.6.3-3b: To minimize disruption of emergency vehicle access, contractors will work with affected jurisdictions (Santa Cruz or Monterey County or City of Watsonville) to identify detours during construction.	**8.6.3-3b:** Prepare contract specifications for the construction contractor that require the contractor contact the Santa Cruz County Public Works Department to determine detours.	PVWMA	Prior to project construction.
Measure 8.6.3-3c: Police, fire, and emergency services shall be notified of the timing, location, and duration of construction activities and the locations of detours and lane closures.	**8.6.3-3c:** Send notices to police, fire, and emergency service providers at least one week in advance of construction. Publish notices in local newspapers at least one week in advance of construction. Place a large sign along San Andreas Road at least one week in advance of construction. Submit copies of public notices to the project file to document compliance.	PVWMA	Prior to project construction.
Measure 8.6.3-4: Conduct a preconstruction survey of road conditions on key access routes to the project site. The pavement conditions of local streets and designate roads judged to be in good condition for use by heavy truck traffic will be monitored. Roads damaged by construction shall be repaired to a condition equal to, or better than, that which existed prior to construction activity.	**8.6.3-4a:** Prepare contract specifications for the construction contractor that require that a preconstruction survey of key routes to the project site be conducted, and that roads damaged by construction be repaired.	PVWMA	Prior to project construction.
	8.6.3-4b: Inspect access roads to the project site to ensure that roads are repaired following project construction, if necessary. If roads are not repaired, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Following project construction.
Measure 8.6.3-5a: The traffic control plans prepared by the contractor (see Mitigation Measure 8.6.3-2b) shall include detours for bicyclists.	**8.6.3-5a:** Review the traffic control plans to ensure that detours for bicyclists are included. If they are not included, notify the construction contractor of required revisions to the traffic control plan and the deadline for submitting the revised plan.	PVWMA	Prior to project construction.
Measure 8.6.3-5b: The contractor shall provide advanced public notification of construction activity and roadway/access closures.	**8.6.3-5b:** Implement Monitoring and Reporting Action 8.1.3-1, above.	PVWMA	Prior to project construction.

TABLE D.3 (Continued)
ENVIRONMENTAL COMMITMENTS FOR THE INTEGRATED COASTAL DISTRIBUTION SYSTEM

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Air Quality			
Measure 8.7.3-1: The construction contractor shall implement a dust control program.	**8.7.3-1a:** Prepare contract specifications for the construction contractor that require implementation of a dust control program.	PVWMA	Prior to requesting construction bids.
	8.7.3-1b: Monitor construction activities to verify that the measures of the dust control program are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction.
Socioeconomics and Public Utilities			
Measure 8.8.2-1: A detailed study identifying utilities along the proposed alignment will be done during the pre-design stages of the project.	**8.8.2-1:** Conduct a detailed study of utilities along the project alignment and submit a report documenting the results of the study to PVWMA.	PVWMA's consulting engineer	Prior to final engineering design.
Measure 8.8.2-2: Refer to Mitigation Measures 8.6.3-3a, b, c.	**8.8.2-2:** See Monitoring and Reporting Actions 8.6.3-3a, b, c.		
Measure 8.8.2-5: The PVWMA will establish a procedure to compensate growers for the financial losses that they incur as a result of the impacts caused by the excavation and construction activities that occur in the easements for the placement of the local distribution system. The growers will receive compensation based upon the total amount of farmland disrupted, the amount of time of the disruption, the historical type of crop planted on the land and the current year unit market price for the unplanted crop.	**8.8.2-5:** Develop a procedure for compensating growers with financial losses resulting from project construction activities. Prepare a report outlining this procedure and submit it to the project file.	PVWMA	Prior to project construction.
Visual/Aesthetic and Recreational Resources			
Measure 8.9.3-1a: The PVWMA will revegetate disturbed natural areas to minimize textural contrasts with the surrounding vegetation using grasses, shrubs and trees typical of the immediately surrounding area.	**8.9.3-1a:** Prepare contract specifications for the construction contractor that require revegetation of disturbed areas, restoration of the topography, and repair of any damaged roads within the project area.	PVWMA	Prior to requesting construction bids.

TABLE D.3 (Continued)
ENVIRONMENTAL COMMITMENTS FOR THE INTEGRATED COASTAL DISTRIBUTION SYSTEM

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 8.9.3-1b: The PVWMA will ensure that its contractors restore the topography of disturbed areas along the pipeline alignment to their pre-project condition such that short-term construction disturbance does not result in long-term visual impacts.	**8.9.3-1b:** Inspect the project area to verify that disturbed areas are revegetated, the topography is restored, and roads are repaired, if necessary. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Following project construction.
Measure 8.9.3-2: Implementation of Measures 8.6.3-4, 8.6.3-5a and 8.6.3-5b would ensure that damaged roads would be repaired to pre-construction conditions, and that detours would be provided for bicyclists and motorists during the construction period.	**8.9.3-2:** See Monitoring and Reporting Actions 8.6.3-4, 8.6.3-5a and 8.6.3-5b, above.		

TABLE D.4
ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT

Agency to Perform Commitment	Location[1]	ED #	Brief Description of Mitigation	Deadline	Status
PVWMA	Irrigation ditch open trench crossings		Standard protection measures for California red-legged frog from programmatic Biological Opinion	15 days prior to construction During construction, After construction	
PVWMA	Millers Canal crossing: Data point 19		Construction will be underground (horizontal directional drilling, microtunneling, or bore-and-jack); no construction activity within riparian area.	During construction	
			Exclusionary construction fencing (orange netting) to be placed at around construction areas.		
			All construction will be completed between June 15 and November 1 to minimize direct impacts to SCCS (if the channel is dry, construction can occur prior to June 15).		
			A qualified biological monitor will be on site during underground stream crossing activities.		
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	
PVWMA	Construction adjacent to vernal pool: Data point 26		Construction activities will avoid vernal pool. Install exclusionary construction fencing (orange netting) and silt fencing around construction activities within 100 feet of vernal pool.	During construction	
			Preconstruction surveys for California tiger salamander according to CDFG protocol (1998) and burrow excavation and relocation (see page 6-25).	Two years prior to construction During construction	

TABLE D.4 (Continued)
ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT

Agency to Perform Commitment	Location[1]	ED #	Brief Description of Mitigation	Deadline	Status
PVWMA	Pipeline crossing of culvert within Betabel Road: Data point 7		Exclusionary fencing (orange netting) will be placed between riparian zone and construction areas. Confine construction activities to Betabel Road.	During construction	
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	
PVWMA	Pajaro River crossing west of HWY 101: Data point 14		Construction will be underground (horizontal directional drilling, microtunneling, or bore-and-jack).	During construction	
			Exclusionary fencing (orange netting) will be placed between riparian zone and construction areas.		
			All construction will be completed between June 15 and November 1 to minimize direct impacts to SCCS (if the channel is dry, construction can occur prior to June 15).		
			A qualified biological monitor will be on site during underground stream crossing activities.		
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	
PVWMA	Open trench crossing of two unnamed drainages near Pescadero Creek: Data points 25 and 27		Standard protection measures for California red-legged frog from programmatic Biological Opinion	15 days prior to construction During construction, After construction	

TABLE D.4 (Continued)
ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT

Agency to Perform Commitment	Location[1]	ED #	Brief Description of Mitigation	Deadline	Status
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	
PVWMA	Open trench crossing of two unnamed drainages near Pescadero Creek: Data points 25 and 27 (cont.)		Project disturbance corridor width will be confined to 40 feet or less in riparian areas. Corridor will be located in area of drainage with previous disturbance (i.e. tractor road) or least riparian cover. Revegetation of wetland and riparian habitat at a ratio acceptable to CDFG and USFWS and implementation of a monitoring and reporting plan.	After construction	
PVWMA	Sargent Creek open trench crossing: Data point 24		Standard protection measures for California red-legged frog from programmatic Biological Opinion	15 days prior to construction During construction, After construction	
			All construction will be completed between June 15 and November 1 to minimize direct impacts to SCCS (if the channel is dry, construction can occur prior to June 15).	During construction	
			Capture and relocation of steelhead, water diversion, screened pumping, sediment curtains, spill prevention plan, biological monitor, and site restoration.		
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	

TABLE D.4 (Continued)
ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT

Agency to Perform Commitment	Location[1]	ED #	Brief Description of Mitigation	Deadline	Status
PVWMA	Sargent Creek open trench crossing: Data point 24 (cont.)		Project disturbance corridor width will be confined to 40 feet or less in riparian areas. Corridor will be located in area of drainage with previous disturbance (i.e. tractor road) or least riparian cover. Revegetation of wetland and riparian habitat at a ratio acceptable to CDFG and USFWS and implementation of a monitoring and reporting plan.	After construction	
PVWMA	Open trench crossing of Pescadero Creek: Data point 23		Standard protection measures for California red-legged frog from programmatic Biological Opinion	15 days prior to construction During construction, After construction	
			Conduct preconstruction surveys for WPT eggs and nests.	15 days prior to construction	
			All construction will be completed between June 15 and November 1 to minimize direct impacts to SCCS (if the channel is dry, construction can occur prior to June 15).	During construction	
			Capture and relocation of steelhead, water diversion, screened pumping, sediment curtains, spill prevention plan, biological monitor, and site restoration.		
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	
PVWMA	Open trench crossing of Pescadero Creek: Data point 23 (cont.)		Project disturbance corridor width will be confined to 40 feet or less in riparian areas. Corridor will be located in area of drainage with previous disturbance (i.e. tractor road) or least riparian cover. Revegetation of wetland and riparian habitat at a ratio acceptable to CDFG and USFWS and implementation of a monitoring and reporting plan.	After construction	

TABLE D.4 (Continued)
ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT

Agency to Perform Commitment	Location[1]	ED #	Brief Description of Mitigation	Deadline	Status
PVWMA	Open trench crossing of drainage east of Soda Lake: Data point 9		Standard protection measures for California red-legged frog from programmatic Biological Opinion	15 days prior to construction During construction, After construction	
			Preconstruction surveys for California tiger salamander according to CDFG protocol (1998) and burrow excavation and relocation (see page 6-25).	Two years prior to construction During construction	
PVWMA	Open trench pipeline crossing of Pajaro River on Graniterock property: Data point 48		Standard protection measures for California red-legged frog from programmatic Biological Opinion	15 days prior to construction During construction, After construction	
			Conduct preconstruction surveys for WPT eggs and nests.	15 days prior to construction	
PVWMA	Open trench pipeline crossing of Pajaro River on Graniterock property: Data point 48 (cont.)		All construction will be completed between June 15 and November 1 to minimize direct impacts to SCCS (if the channel is dry, construction can occur prior to June 15).	During construction	
			Capture and relocation of steelhead, water diversion, screened pumping, sediment curtains, spill prevention plan, biological monitor, and site restoration.		
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	

TABLE D.4 (Continued)
ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT

Agency to Perform Commitment	Location[1]	ED #	Brief Description of Mitigation	Deadline	Status
			Project disturbance corridor width will be confined to 40 feet or less in riparian areas. Corridor will be located in area of drainage with previous disturbance (i.e. tractor road) or least riparian cover. Revegetation of wetland and riparian habitat at a ratio acceptable to CDFG and USFWS and implementation of a monitoring and reporting plan.	After construction	
PVWMA	Open trench crossing of drainage west of Aromas: Data point 22		Standard protection measures for California red-legged frog from programmatic Biological Opinion	15 days prior to construction During construction, After construction	
PVWMA	Pajaro River pipeline crossing west of HWY 1: Data point 1		Construction will be underground (horizontal directional drilling, microtunneling, or bore-and-jack); no construction activity within riparian area.	During construction	
			Exclusionary construction fencing (orange netting) to be placed at around construction areas.		
			All construction will be completed between June 15 and November 1 to minimize direct impacts to SCCS (if the channel is dry, construction can occur prior to June 15).		
			A qualified biological monitor will be on site during underground stream crossing activities.		
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	
PVWMA	Open trench pipeline crossings of Watsonville Slough: Data points 30 and 37		Standard protection measures for California red-legged frog from programmatic Biological Opinion	15 days prior to construction During construction, After construction	

TABLE D.4 (Continued)
ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT

Agency to Perform Commitment	Location[1]	ED #	Brief Description of Mitigation	Deadline	Status
PVWMA	Pipeline construction adjacent to irrigation ponds		Exclusionary fencing (silt fencing) will be placed between pond and construction areas. Confine construction activities to farm roads and agricultural fields.	During construction	
PVWMA	Pipeline construction adjacent to irrigation ponds (cont.)		If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	
PVWMA	Pipeline crossing of Hanson Slough: Data point 38		Construction will be underground (horizontal directional drilling, microtunneling, or bore-and-jack); no construction activity within riparian area.	During construction	
			Exclusionary construction fencing (orange netting) to be placed at around construction areas.		
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	
PVWMA	Pipeline construction adjacent to Harkins Slough: Data point 39		Exclusionary fencing (silt fencing) will be placed between slough and construction areas. Confine construction activities to farm roads and agricultural fields.	During construction	
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	

TABLE D.4 (Continued)
ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT

Agency to Perform Commitment	Location[1]	ED #	Brief Description of Mitigation	Deadline	Status
PVWMA	Pipeline crossing at road culvert of drainage south of Trafton Road: Data point 44		Standard protection measures for California red-legged frog from programmatic Biological Opinion	15 days prior to construction During construction, After construction	
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	
PVWMA	Pipeline construction adjacent to Bennett Slough: Data point 56		Exclusionary fencing (silt fencing) will be placed between slough and construction areas. Confine construction activities to Struve Road and agricultural fields.	During construction	
			If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	
PVWMA	Pipeline crossing of McClusky Slough: Data point 57		Construction will be underground (horizontal directional drilling, microtunneling, or bore-and-jack); no construction activity within riparian area.	During construction	
			Exclusionary fencing (silt fencing) will be placed between slough and construction areas. Confine construction activities to Struve Road and agricultural fields.		
PVWMA	Pipeline crossing of McClusky Slough: Data point 57 (cont.)		If construction activities are scheduled during the breeding season (March 1 through August 15), preconstruction surveys and no-disturbance buffer zones will be established around active bird nests until young have fledged.	15 days prior to construction, During construction	
PVWMA	Potential San Joaquin kit fox habitat		Preconstruction surveys of potential dens	15 to 30 days prior to construction	

TABLE D.4 (Continued)
ENVIRONMENTAL COMMITMENTS FOR BIOLOGICAL RESOURCES FOR THE REVISED BMP PROJECT

Agency to Perform Commitment	Location[1]	ED #	Brief Description of Mitigation	Deadline	Status
			Implement additional measures from *USFWS Standardized Recommendations for Protection of the San Joaquin Kit Fox*	During construction	
PVWMA	Potential burrowing owl habitat		Preconstruction surveys for occupied burrows	15 days prior to construction	
			Passive relocation or seasonal avoidance of occupied burrows according to the California Burrowing Owl Consortium guidelines	During construction	

[1] Data points refer to Figures B1 through B6 in the Map Appendix

TABLE D.5
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Land Use and Planning			
Measure 5.D.1-1 (Recommended): Implement **Measure 4.A.1-1**. **Measure 4.A.1-1 (Recommended):** Advance notification of construction activities should be provided to all property owners, residents, and businesses in the vicinity of construction areas. See also mitigation measures in Sections 4.A.6, Traffic and Circulation, 4.A.7, Air Quality, and 4.A.8, Noise, of this EIR.	1) Send notices to all property owners residents, and businesses in the project area vicinity at least one week in advance of construction. Publish notices in local newspapers at least one week in advance of construction. Place large signs along roads in the project vicinity at least one week in advance of construction. Submit copies of public notices to the project file to document compliance.	PVWMA	Prior to project construction
Geology and Soils			
Measure ASR-1: Implement **Measure 5.A.2-2**. **Measure 5.A.2-2:** All diversion and pipeline facilities will comply with applicable policies and appropriate engineering investigation practices necessary to reduce the potential detrimental effects of expansive soils, and corrosivity. Appropriate geotechnical studies will be conducted using generally accepted and appropriate engineering techniques for determining the susceptibility of the sites to unstable, weak or corrosive soils. A licensed geotechnical engineer will prepare recommendations applicable to foundation design, earthwork, and site preparation prior to or during the project design phase. Recommendations will address mitigation of site-specific, adverse soil and bedrock conditions that could hinder development. Project engineers will implement the recommendations. Geotechnical design and design criteria will comply with applicable codes and requirements of the 1994 or 1997 UBC with California additions (CCR Title 24), applicable City construction and grading ordinances.	1) Include geotechnical report with recommendations as an appendix to construction specifications. 2) Review construction specifications to ensure that design recommendations were included. 3) Monitor project construction activities to verify compliance with the recommendations of the geotechnical report. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA PVWMA's consulting engineering geologist	Prior to requesting construction bids Prior to project construction During and immediately following project construction

TABLE D.5 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure ASR-2: Implement **Measures 5.A.2-3a** through **5.A.2-3f**. **Measure 5.A.2-3a:** All grading and construction will conform to requirements of the Monterey and Santa Cruz Counties Grading Ordinances. **Measure 5.A.2-3b:** Site grading and construction work areas will expose as little new ground surface as possible. Vegetation cover should be left intact to the extent practical. **Measure 5.A.2-3c:** To the extent possible, grading activities in noncropped areas will be limited to the period between April 15 and October 15. If dry conditions persist after October 15, one-week extensions of grading activities will be obtained from the County Public Works Department. In areas where the soil is tilled, grading activities will be coordinated with the local farmers to ensure consistency between their erosion control and farming practices and construction disturbance. **Measure 5.A.2-3d:** Implement best construction practices at all grading sites, regardless of soil erodibility hazard. **Measure 5.A.2-3f:** PVWMA will prepare and implement an inspection and maintenance program for the right-of-way and all facility sites. The plan will include routine inspection plans and reporting, and prescriptive methods for correcting erosion or soil instability problems.	1) Obtain Monterey and Santa Cruz County Grading Permits.	PVWMA	Prior to project construction
	2) Review construction specifications to ensure that design recommendations for ASR construction and pipeline installation were included.	PVWMA	Prior to project construction
	3) Monitor project construction activities to verify compliance with the construction specifications. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting engineering geologist	During and immediately following project construction
Hydrology and Water Quality			
Measure ASR-3: All groundwater discharges associated with injection/extraction well development, initial pumping, and backwashing as well as long-term operational maintenance shall be conducted in accordance with NPDES permit issued through the RWQCB to ensure that degradation of surface water does not occur.	1) Monitor project construction activities to verify compliance with NPDES permit requirements. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	During project construction

TABLE D.5 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure ASR-4a: The PVWMA will operate the proposed project in compliance with the Surface Water Treatment Rule, Safe Drinking Water Act, where applicable, the SWRCB's Antidegradation Policy, and applicable DHS regulations regarding drinking water quality. Water injected into the groundwater aquifers from surface sources would be required to comply with federal and state water quality standards for drinking water and those set forth by SWRCB's Antidegradation Policy. The RWQCB has regulatory authority over injection and will require that groundwater degradation not occur and that injectate water meet both primary and secondary Title 22 standards. Federal and state drinking water standards, developed by EPA and DHS, dictate acceptable concentrations for many constituents, including fecal coliform, heavy metals, TDS, and nitrates.	1) Review engineering design to ensure that design meets regulations listed in **Measure 5.D.3-4a**.	PVWMA	Prior to final engineering design
	2) Monitor project operation to verify compliance with regulations listed in **Measure 5.D.3-4a**. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	During, and following, project construction
Measure ASR-4b: The PVWMA will prepare and implement a treatment and monitoring program to ensure that surface water intended for injection is monitored and adequately treated so that applicable federal and state drinking water standards are not exceeded. Proposed injectate will require treatment to meet Surface Water Treatment Rule provisions and to remove, among other potential constituents, nitrate, iron, manganese, and potentially aluminum and arsenic. Treatment of the water to meet regulatory requirements could require multiple treatment technologies. Given the variable and sometimes high levels of turbidity in the College Lake injectate, compliance with the Surface Water Treatment Rule could require conventional treatment, consisting of coagulation, flocculation, sedimentation, filtration, and disinfection. Removal of dissolved constituents, including metals that exceed primary and secondary Title 22 standards, will require additional treatment technologies, such as reverse osmosis and ion exchange. The PVWMA will prepare and implement a plan that addresses regular monitoring of surface water sources and defines adequate treatment methods to reduce concentrations of contaminant, if present, to levels below the federal and state drinking water standards.	1) Monitor surface water intended for injection to determine compliance with applicable federal and state regulations. If non-compliance is noted, notify regulatory agencies and, in consultation with the agencies, adjust water treatment methods to reduce contaminants to levels below the federal and state drinking water standards.	PVWMA or PVWMA's consulting engineer	Following project completion

TABLE D.5 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure ASR-5: PVWMA will complete a hydrogeologic feasibility study and testing for the proposed injection/extraction well field prior to design. PVWMA will develop a groundwater monitoring plan to monitor the groundwater elevations in the vicinity of the injection/extraction wells. The program will include procedures to adjust, if necessary, the injection/extraction rates to avoid adverse aquifer response such as mounding or drawdown.	1) Prepare hydrogeologic feasibility study.	PVWMA	Following conceptual well field delineation
	2) Review the groundwater monitoring plan to ensure that it includes procedures to adjust, if necessary, injection/extraction rates to avoid mounding and drawdown.	PVWMA	Prior to final engineering design
Cultural Resources			
Measure ASR-6a: As part of the siting study for wells, PVWMA will retain an archaeologist to conduct archival research and surface reconnaissance of potential sites. The findings of the investigations will be incorporated into the selection of specific locations for wells and connecting pipelines such that PVWMA will avoid siting wells and attendant connecting pipelines at or through any significant cultural resources.	1) Determine the areal extent of important cultural resources sites within the project area. Review project plans to verify that project facilities would not be located within these sites.	PVWMA's consulting archaeologist	Prior to final engineering design
Measure ASR-6b: Implement **Measures 4.B.5-1a** and **4.B.5-1b**.	**4.B.5-1a:** Determine the areal extent of important cultural resources sites within the project area. Review project plans to verify that project facilities would not be located within these sites.	PVWMA's consulting archaeologist	Prior to final engineering design
Measure 4.B.5-1a: Final pipeline and facility plans shall locate facilities and pipeline alignments away from identified cultural resource sites. A qualified cultural resource specialist shall be retained to assist in identifying the extent of important cultural resource sites to be avoided, which may include the preparation of detailed cultural resource evaluation reports and consultation with local, state, and federal agencies as well as the local Native American community and the Native American Heritage Commission.	**4.B.5-1b:** 1) Prepare contract specifications for the construction contractor that require implementation of the cultural resources mitigation plan developed under the Programmatic Agreement.	PVWMA's consulting archaeologist	Prior to requesting construction bids
Measure 4.B.5-1b: If important cultural resource sites cannot be avoided, PVWMA will coordinate with local, state, and federal agencies in the development of an appropriate mitigation plan for the cultural resource. Possible mitigation measures for important cultural resources may include documentation and recordation of the resource, relocation, or stabilization of the resource.	2) Monitor construction activities to ensure that the cultural resources mitigation plan is implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA's consulting archaeologist	During project construction

TABLE D.5 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure ASR-7: Implement **Measure 4.A.5-1**.			
Measure 4.A.5-1: Should any as yet undiscovered cultural resources, such as structural features, or unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work will be suspended and PVWMA staff will be contacted. A qualified cultural resource specialist shall be retained and will perform any necessary investigations to determine the significance of the find. PVWMA will then implement any mitigation deemed necessary for the recordation and/or protection of the cultural resources. In addition, pursuant to Sections 5097.97 and 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work must be halted and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.	1) Prepare a resource recovery plan for the site including findings and recommendations and submit it to PVWMA, the U.S. Army Corps of Engineers, the State Historic Preservation Officer, the Advisory Council on Historic Preservation and the project file.	PVWMA's consulting archaeologist	During project construction, if potential resources are encountered
	2) Submit a document verifying that evaluation of the materials and their recovery occurred. Prepare a report of findings and submit it to PVWMA, the State Historic Preservation Officer, the Advisory Council on Historic preservation and the project file.	PVWMA's consulting archaeologist	During project construction, if potential resources are encountered
Measure ASR-8: Implement **Measures 4.B.5-3a** through **4.B.5-3c**.	**4.B.5-3a:** Review construction maps and monitor construction sites to ensure that resource boundaries are marked as exclusion zones.	PVWMA's consulting archaeologist	Prior to, and during, project construction
Measure 4.B.5-3a: The resource boundaries should be marked as exclusion zones both on the ground and on construction maps.			
Measure 4.B.5-3b: Construction supervisory personnel should be notified of the existence of these resources and be required to keep personnel and equipment away from these areas. During construction and operations, personnel and equipment will be restricted to the surveyed corridor.	**4.B.5-3b:** Prepare contract specifications for the construction contractor that require all construction personnel and equipment remain within the surveyed corridor.	PVWMA	Prior to requesting construction bids

TABLE D.5 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.B.5-3c: Monthly monitoring of the cultural resources to be avoided should be completed to insure that no inadvertent damage to the resources occurs as a result of construction or construction-related activities. If damage is detected a guard will be posted to patrol the site and adjacent important resources (such as gravestones and churches).	1) Monitor cultural resources to be avoided on a monthly basis during project construction to verify that no damage occurs.	PVWMA's consulting archaeologist	Monthly during project construction
	2) If damage to a cultural resource is detected, hire a guard to patrol the site and adjacent important resources.	PVWMA	During project construction, if damage is detected
Traffic and Circulation			
Measure 5.D.6-1 (Recommended): Implement **Measures 4.A.6-1a** and **4.A.6-1b**.	1) Prepare contract specifications for the construction contractor that require construction truck trips be scheduled during off-peak hours and that haul routes be selected to minimize truck traffic on local roadways.	PVWMA	Prior to requesting construction bids
Measure 4.A.6-1a (Recommended): Schedule truck trips outside of peak commute hours.			
Measure 4.A.6-1b (Recommended): Use haul routes that minimize truck traffic on local roadways to the extent possible.			
Measure ASR-9: Implement **Measures 4.B.6-2a** and **4.B.6-2b**.			
Measure 4.B.6-2a: Limit construction hours to off-peak traffic periods on commute streets.	1) Prepare contract specifications for the construction contractor that limit construction hours to off-peak traffic periods.	PVWMA	Prior to requesting construction bids
Measure 4.B.6-2b: The contractor shall be required to prepare traffic control plans to show specific methods for maintaining traffic flows. This shall include identifying roadway locations where special trenching techniques would be used to minimize impacts to traffic flow and operations. The traffic control plan shall be reviewed for appropriateness, and approved by Caltrans and the governing Public Works Departments.	1) Prepare contract specifications for the construction contractor that require preparation of a traffic control plan.	PVWMA	Prior to requesting construction bids
	2) Review the proposed traffic control plan to ensure that measures to maintain traffic flows are included. Notify the construction contractor if any modifications are required.	PVWMA, Caltrans, Santa Cruz County Public Works Department	Prior to project construction

TABLE D.5 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure ASR-10: Implement **Measures 4.B.6-3a** through **4.B.6-3c**.			
Measure 4.B.6-3a: To minimize disruption of emergency vehicle access and maintain access to driveways to adjacent land uses, PVWMA would require the contractors to maintain steel trench plates at the construction sites to restore access across open trenches. Construction trenches shall not be left open after work hours.	1) Monitor construction activities to ensure that steel trench plates are placed on construction trenches along driveways. If non-compliance is noted, notify construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction
Measure 4.B.6-3b: To minimize disruption of emergency vehicle access, affected jurisdictions will be asked to identify detours to be posted by contractor.	1) Place a large sign along roadways in the project vicinity at least one week in advance of construction.	PVWMA	Prior to project construction
Measure 4.B.6-3c: The contractor will notify the appropriate police, fire, and emergency services of the timing, location, and duration of construction activities and the locations of detours and lane closures prior to beginning construction in the immediate vicinity of affected roadways.	1) Send notices to police, fire, and emergency service providers at least one week in advance of construction.	PVWMA	Prior to project construction
Measure ASR-11: Implement **Measure 4.A.6-2**.			
Measure 4.A.6-2: Conduct a preconstruction survey of road conditions on key access routes to the project sites (e.g., San Andreas Road). The pavement conditions of local streets judged to be in good condition for use by heavy truck traffic shall be monitored. Roads damaged by construction shall be repaired to a structural condition equal to, or better than, that which existed prior to construction activity.	1) Prepare contract specifications for the construction contractor that require that a preconstruction survey of key routes to the project site be conducted, and that roads damaged by construction be repaired.	PVWMA	Prior to project construction
	2) Inspect access roads to the project site to ensure that roads are repaired following project construction, if necessary. If roads are not repaired, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Following project construction

TABLE D.5 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

MITIGATION MEASURE		MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure ASR-12: Implement **Measures 4.A.6-3a** and **4.A.6-3b**.				
Measure 4.A.6-3a: The construction contractor shall prepare traffic safety and control plans to show specific methods for maintaining traffic flows. This shall include identifying roadway locations where special trenching techniques would be used to minimize impacts to traffic flow and operations. The traffic control plans prepared by the contractor shall include recommended detours for bicyclists. The traffic control plan shall be reviewed for appropriateness, and approved by the governing Public Works Department.	1)	Prepare contract specifications for the construction contractor that require preparation of a traffic safety and control plan.	PVWMA	Prior to requesting construction bids
	2)	Review the proposed traffic control plan to ensure that measures to maintain traffic flows are included. Notify the construction contractor if any modifications are required.	PVWMA	Prior to construction
Measure 4.A.6-3b: The contractor shall provide advanced public notification of construction activity and roadway/access closures.	1)	Send notices to all property owners, residents, and businesses in the project area vicinity at least one week in advance of construction. Publish notices in local newspapers at least one week in advance of construction. Place a large sign along each affected roadway at least one week in advance of construction. Submit copies of public notices to the project file to document compliance.	Construction contractor	Prior to project construction
Measure ASR-13: Implement **Measure 5.A.6-7**.				
Measure 5.A.6-7: The traffic control plan shall include consideration of any other planned traffic detours related to nearby and concurrent construction projects.	1)	Review the traffic control plan to ensure that it considers other planned traffic detours related to concurrent construction projects. If the plan does not consider other planned detours, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Prior to project construction
<u>Air Quality</u>				
Measure 5.D.7-1: Implement dust control program described in **Measure 4.A.7-1**.				
Measure 4.A.7-1: The construction contractor shall implement a dust control program that includes the following elements:	1)	Prepare contract specifications for the construction contractor that require implementation of a dust	PVWMA	Prior to requesting construction bids

TABLE D.5 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
▪ Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard. ▪ Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. ▪ Sweep daily (with water sweepers) all paved access roads, paved parking areas and paved staging areas at construction sites. **Measure 4.A.7-1: (cont.)** ▪ Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets. ▪ Hydroseed or apply (non-toxic) soil binders to inactive construction areas. However, do not apply these measures in operating agricultural fields under cultivation unless requested by the grower. ▪ Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.). ▪ Limit traffic on unpaved roads to 15 mph. ▪ Install sandbags or other erosion control measures to prevent silt runoff to public roadways. ▪ Replant vegetation in disturbed areas as quickly as possible.	control program. 2) Monitor construction activities to verify that the measures of the dust control program are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction

TABLE D.5 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Noise			
Measure 5.D.8-1: Implement **Measure 4.A.8-1**.			
Measure 4.A.8-1: PVWMA shall incorporate into contract specifications the following measures: ▪ Comply with all local sound control and noise level rules, regulations, and ordinances. ▪ Equipment and trucks used for project construction shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) in order to minimize construction noise impacts. **Measure 4.D.8-1: (cont.)** ▪ Impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically- or electrically-powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves would be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used (such as drilling rather than impact equipment) whenever feasible. ▪ Stationary noise sources shall be located as far from sensitive receptors as possible. If they must be located near existing receptors, they shall be adequately muffled. ▪ Temporary walls may be erected at some locations to reduce noise impacts to residences adjacent to construction sites.	1) Prepare contract specifications for the construction contractor that require implementation of noise mitigation measures listed in **Measure 4.A.8-1**. 2) Monitor construction activities to verify that the measures of the noise control measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA PVWMA	Prior to requesting construction bids Periodically during project construction

TABLE D.5 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 5.D.8-2: Implement **Measure 5.B.8-2.** **Measure 5.B.8-2:** PVWMA shall incorporate into contract specifications the following measures: The pumping facilities shall be designed with acoustical treatments (building enclosures, louvered vents, noise walls, etc.) that are adequate to maintain potential noise generation to levels at or below ambient levels.	1) Prepare contract specifications for the construction contractor that include measures listed in **Measure 5.B.8-2.**	PVWMA	Prior to final engineering design
	2) Monitor construction activities to verify that the measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Periodically during project construction
Public Services			
Measure 5.D.9-3: The design of all pump facilities with a potential to exceed the capacity of existing PG&E systems will be coordinated with PG&E to ensure adequate capacity is available.	1) Submit documentation of consultation with PG&E to the project file to ensure that adequate capacity is available.	PVWMA	Prior to final engineering design
Visual/Aesthetic and Recreational Resources			
Measure 5.D.10-1: Implement **Measure 4.A.10-1a** through **4.A.10-1c.** **Measure 4.A.10-1a:** The PVWMA shall revegetate disturbed natural areas to minimize textural contrasts with the surrounding vegetation using grasses, shrubs and trees typical of the immediately surrounding area.	1) Prepare contract specifications for the construction contractor that require revegetation of disturbed areas.	PVWMA	Prior to requesting construction bids
	2) Inspect construction areas to verify that disturbed natural areas are revegetated following construction. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA or PVWMA's consulting biologist	Following project construction

TABLE D.5 (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SUPPLEMENTAL WELLS PROJECT

MITIGATION MEASURE	MONITORING AND REPORTING ACTIONS	MONITORING / REPORTING RESPONSIBILITY	MONITORING / REPORTING SCHEDULE
Measure 4.A.10-1b: The PVWMA shall use design elements to enhance visual integration of the proposed above-ground facilities with their surroundings. Proposed facilities shall be painted low-glare earth-tone colors that blend with the surrounding terrain.	1) Review project plans to ensure that they include design elements such as low-glare earth-tone paint to visually integrated the proposed facilities with their surroundings.	PVWMA	Prior to final engineering design
Measure 4.A.10-1c: The PVWMA shall ensure that its contractors restore disturbed areas along the pipeline alignment to their pre-project condition such that short-term construction disturbance does not result in long-term visual impacts.	1) Prepare contract specifications for the construction contractor that require revegetation of disturbed areas along the pipeline alignment.	PVWMA	Prior to requesting construction bids
	2) Inspect construction areas to verify that disturbed natural areas are revegetated following construction. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	Following project construction
Mitigation Measure 5.D.10-2 (Recommended): Implement **Measure 4.A.10-2.**			
Mitigation Measure 4.A.10-2 (Recommended): The PVWMA shall ensure that all exterior lighting if used is directed downward and oriented to insure that no light source is directly visible from neighboring residential areas. If necessary, landscaping shall be provided around proposed facilities. This vegetation shall be selected, placed, and maintained to minimize off-site light and glare onto surrounding areas. In addition, highly reflective building materials and/or finishes shall not be used in the designs for proposed structures.	1) Prepare contract specifications for the construction contractor that include exterior lighting mitigation listed in **Measure 4.A.10-2.**	PVWMA	Prior to requesting construction bids
	2) Monitor construction activities to verify that the measures are implemented. If non-compliance is noted, notify the construction contractor of required actions and the deadline for compliance.	PVWMA	During and following construction

California tiger salamander will be difficult to detect because of their small body size; these species also spend large amounts of time concealed in vegetation or debris or underground. Additionally, finding a dead or injured specimen is unlikely. Consequently, we cannot accurately predict the number of California tiger salamanders, Santa Cruz tiger salamanders, and California red-legged frogs that may be taken.

Reclamation or the PVWMA must contact the Service whenever a least Bell's vireo, San Joaquin kit fox, Santa Cruz long-toed salamander, tidewater goby, Conservancy fairy shrimp, longhorn fairy shrimp, vernal pool fairy shrimp, California red-legged frog, and California tiger salamander is killed or injured. Provided that protective measures proposed by Reclamation and the PVWMA and the terms and conditions of this biological opinion are being fully implemented, operations need not cease while the cause of mortality is being determined. The cause of death or injury must be determined by an authorized biologist and the Service. Once the cause of death or injury has been determined, the Service and Reclamation will decide whether any additional protective measures are required to address the cause of the loss of any of these species.

This biological opinion does not exempt from the prohibitions against take contained in section 9 of the Act any form of take that is not incidental to the completion of the PVWMA's revised basin management plan projects within the proposed project areas. Note that the exemption to the prohibition against take applies only to activities that are conducted within work areas as demarcated by the PVWMA.

REASONABLE AND PRUDENT MEASURES

We believe the following reasonable and prudent measures are necessary and appropriate to minimize take of the San Joaquin kit fox, least Bell's vireo, California red-legged frog, Santa Cruz long-toed salamander, California tiger salamander, tidewater goby, Conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool fairy shrimp:

1. Biologists who intend to capture, move, and survey for California red-legged frogs and California tiger salamanders in work areas must be qualified and authorized by the Service.

2. The take of California red-legged frogs and California tiger salamanders found within the proposed project area must be reduced through careful monitoring of animals located adjacent to work areas, the removal of animals in harm's way to suitable adjacent habitat prior to and during the proposed activities, and by proper handling during their capture.

3. The authorized biologist must have the ability to coordinate with the PVWMA to ensure work activities can be halted, if necessary.

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4. Biologists who intend to conduct pre-activity surveys, monitoring, and den closures for San Joaquin kit foxes in work areas must be qualified and authorized by the Service.

5. Take of the species discussed in this biological and conference opinion, through injury or death due to the straying of construction equipment, must be reduced through the establishment of clearly defined construction access roads.

Our evaluation of the effects of the proposed action includes consideration of the measures to reduce the adverse effects of the proposed action on the least Bell's vireo, San Joaquin kit fox, Santa Cruz long-toed salamander, tidewater goby, Conservancy fairy shrimp, longhorn fairy shrimp, vernal pool fairy shrimp, California red-legged frog, and California tiger salamander that were developed by Reclamation and the PVWMA and repeated in the Description of the Proposed Project portion of this biological opinion. Any subsequent changes in these measures proposed by Reclamation and the PVWMA may constitute a modification of the proposed action and may warrant reinitiation of formal consultation, as specified at 50 CFR 402.16. These reasonable and prudent measures are intended to supplement the protective measures that were proposed by Reclamation and the PVWMA as part of the proposed action.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, Reclamation must ensure that the PVWMA complies with the following terms and conditions, which implement the reasonable and prudent measures and reporting and monitoring requirements. These terms and conditions are non-discretionary.

1. The following term and condition implements reasonable and prudent measure 1:

> Reclamation or the PVWMA must submit the credentials of biologists it intends to survey for, capture, and relocate California red-legged frogs and California tiger salamanders, for our review and approval, at least 15 days prior to their participation in these activities. Reclamation or the PVWMA must not begin project activities until the Service has provided written approval that the biologist(s) is authorized to conduct the work. Only qualified biologists authorized by the Service under the auspices of this biological opinion may survey for, capture, and move California red-legged frogs and California tiger salamanders from work areas.

2. The following terms and conditions implement reasonable and prudent measure 2:

   a. Any California red-legged frogs observed outside of, but within, 100 feet of the immediate work site shall be monitored closely to ensure they do not enter the work site.

b. Prior to the onset of construction activities, the approved biologists must identify appropriate areas to receive translocated California red-legged frogs and California tiger salamander; these habitats must be suitable and appropriate for whatever life stage of the species to be moved. These areas must be in proximity to the capture site, support suitable vegetation, and be free of exotic predatory species (e.g., bullfrogs) to the best of the approved biologists' knowledge.

c. To avoid transferring disease or pathogens between aquatic habitats during the course of surveys and handling of California red-legged frogs and California tiger salamanders, Service-approved biologists must follow the Declining Amphibian Population Task Force's Code of Practice. A copy of this Code of Practice is attached. You may substitute a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water) for the ethanol solution. Care must be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.

3. The following term and condition implements reasonable and prudent measure 3:

The authorized biologist must be able to coordinate with individuals at the PVWMA or other appropriate person to halt actions that might result in impacts that exceed the levels anticipated by the Service during review of the proposed action. If work is stopped, Reclamation and the Service must be notified immediately by the authorized biologist or the PVWMA.

4. The following term and condition implements reasonable and prudent measure 4:

At least 15 days prior to the onset of project activities, the PVWMA must submit the credentials of the biologists who would conduct pre-activity surveys, monitoring, and den closures for San Joaquin kit foxes. Project activities must not begin until the project proponent has received written approval of the biologists from the Service. Only qualified biologists authorized by the Service under the auspices of this biological opinion may conduct pre-activity surveys, monitoring, and den closures for the San Joaquin kit fox.

5. The following term and condition implements reasonable and prudent measure 5:

Construction access roads must be identified before project activities commence. Vehicles must access construction sites from existing roadways and move equipment and materials within the construction easement. Construction easements must be accessed using the shortest possible route from existing roadways, taking into consideration safety and other relevant factors. Identified sensitive areas within the construction easement must be mapped in the project plans or addressed in the project specifications.

B. Effect of the Take

Within this biological opinion, NOAA Fisheries determined this level of anticipated take is not likely to result in jeopardy to the species.

This incidental take statement is based on full implementation of the proposed pipeline construction project as described in the Description of the Proposed Action section of this biological opinion, including impact minimization and conservation measures incorporated into the project design. Failure to implement the project as proposed (including relevant conservation measures) or implementation of the project in a manner that causes an effect to listed species not adequately considered in this opinion may cause coverage of section 7(o)(2) to lapse and require reinitiation of consultation to ensure compliance with section 7(a)(2) of the ESA.

C. Reasonable and Prudent Measures

Pursuant to section 7(b)(4) of the ESA, the following reasonable and prudent measures are necessary and appropriate to minimize take of S-CCC ESU steelhead:

1. Impacts to salmonids will be minimized during and after pipeline construction.

2. Implementation of proper procedures for the capture, handling, transport, and placement of juvenile salmonids will be used during fish relocation efforts.

3. The project site will be monitored during construction to prevent adverse effects to listed salmonids. Project documentation will be forwarded to NOAA Fisheries.

4. A spill prevention plan will be in place prior to construction.

D. Terms and Conditions

In order to be exempt from the take prohibitions of the ESA, Reclamation and the PVWMA must comply with the following Terms and Conditions, which implement the Reasonable and Prudent Measures described above and outline reporting/monitoring requirements. These terms and conditions are non-discretionary.

The following Terms and Conditions implement Reasonable and Prudent Measure No. 1.

1. Additional (to those described in the project description) erosion control measures and sediment detention devices shall be implemented at the time of construction. These devices shall be in place during and after construction activities for the purposes of minimizing fine sediment and sediment/water slurry input to flowing water and of detaining sediment-laden water on site. The devices shall be properly installed at all locations where the likelihood of sediment input exists.

The following procedures shall apply for erosion control measures associated with open trench pipeline construction, road construction in riparian areas, and riparian vegetation removal.

a. Revegetate all soil exposed as a result of the proposed action before 1 November of each construction year.

b. Possess 125 percent of the necessary erosion control material on site at all times during construction for all erosion and water pollution control needs.

c. Inspect and repair/maintain all erosion control practices prior to and after any rainfall event exceeding ½ inch, at 24-hour intervals during extended storm events, and a minimum of every two weeks the first winter following completion.

d. During the winter period (defined as October 15 through May 15), all inactive areas (defined as no construction for a five-day period) shall have all the necessary soil stabilization practices put in place two days after identification of inactivity or before a rain event, whichever comes first.

e. Remove all artificial erosion control devices after the project area has fully stabilized.

f. If the thalweg of the stream has been altered due to construction activities, efforts will be undertaken to reestablish it to its original configuration.

The following Terms and Condition implement Reasonable and Prudent Measure No. 2.

1. The biological monitor shall capture and relocate listed salmonids prior to construction of the streamflow diversion. The biological monitor shall note the number of salmonids observed in the affected area, the number and species of salmonids relocated, and the date and time of collection and relocation.

The following procedures shall be followed for relocating fish:

a. Notify NOAA Fisheries one week prior to capture and relocation of salmonids to provide NOAA Fisheries an opportunity to attend (call Jonathan Ambrose at 707-575-6091 or via email at jonathan.ambrose@noaa.gov).

b. Block nets shall be placed at the upper and lower extent of the areas to be electrofished. Block net mesh will be sized to ensure salmonids upstream or downstream do not enter the areas proposed for dewatering between

passes with the electrofisher. Block nets will extend across the entire wetted channel.

c. Block nets will not be removed until successful construction of the coffer dams and pipeline installations are complete.

d. The backpack electrofisher will be set as follows when capturing fish:

A) Voltage: 100V (IN) - 300V (MX)
B) Duration: 500s (IN)- 5ms (MX)
C) Frequency: 30 Hz (IN) - 70 Hz (MX)

e. A minimum of three passes with the electrofisher will be utilized to ensure maximum capture probability of steelhead within the area proposed for dewatering.

f. No electrofishing shall occur if water conductivity is greater than 350 s/cm or when instream water temperatures exceed 18° Celsius. Only direct current (DC) shall be used.

g. All captured fish will be processed and released prior to each subsequent pass with the electrofisher in the area to be dewatered.

h. All captured fish will be allowed to recover from electrofishing before being returned to the stream.

i. Captured fish shall be kept in cool, shaded, aerated water protected from noise or jostling any time they are not in the stream. Fish shall not be removed from this water except for (1) collection of genetic material and (2) upon release.

j. A minimum of one assistant will aid the biological monitor during electrofishing (and dewatering) by netting stunned fish and other aquatic vertebrates.

k. Fish shall not be overcrowded into buckets; allowing approximately six cubic inches per 0+ individual and more for larger/older fish.

l. Make every effort not to mix 0+ with larger steelhead, or other potential predators, that may consume the smaller salmonids.

m. All non-salmonid aquatic vertebrates will be collected and relocated during electrofishing activities. Sculpins (*Cottus sp.*) and Pacific-giant

salamanders (*Dicamptodon ensatus)* should not be relocated so as to concentrate them in one area. Particular emphasis shall be placed on avoiding the steelhead trout relocation pools. To minimize predation on salmonids these species should be distributed throughout the wetted portion of the stream.

n. All steelhead shall be relocated upstream of the pipeline construction project and placed in suitable habitat. Captured fish will be placed into a pool, preferably with a depth of greater than two feet with available instream cover.

2. All steelhead in areas proposed for dewatering may be captured and relocated. **If nine or more listed salmonids (> three percent mortality) are found dead or injured as a result of relocation activities, the project permitee shall contact NOAA Fisheries' biologist Jonathan Ambrose by phone ((707)-575-6091) immediately.** If Mr. Ambrose cannot be reached, the Santa Rosa NOAA Fisheries Office will be contacted at (707)-575-6050. The purpose of the contact is to review the activities resulting in take and to determine if additional protective measures are required. All Federally listed species mortalities must be retained, placed in an appropriately sized whirl-pak or zip-lock bag, labeled with the date and time of collection, fork length, location of capture, and frozen as soon as possible. Frozen samples must be retained until specific instructions are provided by NOAA Fisheries.

3. The biological monitor will possess a valid State of California Scientific Collection Permit as issued by the California Department of Fish and Game.

4. Although not expected to occur in the project area, any coho salmon collected will be photographed and immediately, upon collection of genetic material (per collection protocols outlined in #5 below), placed upstream of the dewatered area in pool habitat. Photographs will emphasize documenting physical attributes unique to this species including dorsal fins, parr marks, eyes, and anal fin. All photographs will include references for scale to allow accurate estimation of each individuals length. The biological monitor will inform Mr. Jonathan Ambrose of the NOAA Fisheries ((707) 575-6091) at the earliest possible opportunity. **Reclamation will be required to reinitiate consultation.**

5. For all salmonids captured, genetic tissue shall be collected according to the following methods:

a. Live fish: Cut a three millimeter (mm) square clip from tail fin using clean scissors and place the clip in a piece of dry blotter/filter paper (e.g.,

Whatman brand). Fold blotter paper over for temporary storage. Samples must be air-dried as soon as possible (don't wait more than eight hours). Air-drying inside takes about 24 hours; air-drying in the sun is much quicker. When tissue/paper is dry to the touch, place both into a clean envelope labeled with Sample ID Number. Seal envelope.

b. Live fish (alternate method): Cut a 3 mm square clip from tail fin using clean scissors and store the clip in a small (e.g., 2 ml) vial filled with pure ethanol. Sample must be fully immersed in ethanol. Ethanol dissolves all inks, so make sure vials are well sealed and outside is dry. Label with Sample ID Number.

c. Carcasses: Either a 1 cm square clip from the operculum or tail fin, or alternately, complete scales (20-30) should be removed and placed on a piece of dry blotter/filter paper (e.g., Whatman brand). Fold blotter paper over for temporary storage. Samples must be air-dried as soon as possible (don't wait more than eight hours). When tissue/paper is dry to the touch, place into a clean envelope labeled with Sample ID Number. Seal envelope.

Additional guidelines:

Never cut adipose fin.
Each sample must be stored in a separate tube or envelope.
Each sample must be clearly labeled with the Sample ID Number.
Samples may be sent surface mail.
Samples are for scientific research. Please take care in their collection.

d. Genetic material shall be provided to the Salmonid Genetic Repository, NOAA Fisheries Science Center, 110 Shaffer Road, Santa Cruz, California, 95060. Please contact Dr. Carlos Garza at (831) 420-3903 with questions or for additional instructions. The following information shall be part of the Genetic Tissue Collection Data:

Collection Date;
Collection Location (County, River, Exact location on river);
Collector Name;
Collector Affiliation/Phone;
Sample ID Number;
Species;
Species Tissue Type;
Condition;
Fork Length (mm);

Sex (M, F, Unk.);
Adipose Fin Clip? (Y or N);
Tag? (Y or N);
Notes/Comments.

The following Terms and Conditions implement Reasonable and Prudent Measure 3.

2. The biological monitor shall monitor work activities and instream habitat a minimum of two times per week for the purpose of identifying and reconciling any condition that could adversely affect salmonids or their habitat.

3. A written report shall be provided to NOAA Fisheries (Jonathan Ambrose) within 90 working days following the completion of the proposed action. The report shall include the number of S-CCC ESU steelhead; the number and size (in millimeters) of S-CCC ESU steelhead captured and removed; any effect of the proposed action on S-CCC ESU steelhead; and, photographs taken before, during, and after the activity from photo reference points.

4. The applicant shall provide a yearly written report to Mr. Jonathan Ambrose at 777 Sonoma Avenue, Rm. 325, Santa Rosa, California, 95404, describing results of the revegetation project for a minimum of two calender years upon completion of the proposed project.

5. If plantings do not successfully establish themselves after one calender year of project completion, additional revegetation efforts will be required. Success is determined as 70 percent survival after five years (per Project Description).

The following Terms and Condition implement Reasonable and Prudent Measure 4.

1. Oil absorbent and spill containment materials will be located on site when mechanical equipment is in operation with 100 feet of the proposed watercourse crossings. If a spill occurs, (1) no additional work will occur in-channel until the mechanical equipment is inspected by the contractor and PVWMA and the leak has been repaired, (2) the spill has been contained, and (3) the California Department of Fish and Game and NOAA Fisheries are contacted and have evaluated the impacts of the spill. Prior to construction, all mechanical equipment shall be thoroughly inspected and evaluated for the potential of fluid leakage. All questionable motor oil, coolant, transmission fluid, and hydraulic fluid hoses, fitting, and seals will be replaced. The contractor will document in writing all hoses, fittings, and seals replaced and shall keep this documentation until the completion of operations. All mechanical equipment used for the stream course crossings will be inspected on a daily basis to ensure there are no motor oil, transmission fluid, hydraulic fluid, or coolant leaks. All leaks will be repaired in

the equipment staging area or other suitable location prior to resumption of construction activity.

2. Hydraulic fluids in mechanical equipment working within the stream channel shall not contain organophosphate esters.

3. If sandbags are used for cofferdam construction, rather than sheetpiles, visqueen will be placed over the sandbags to minimize water seepage into the construction areas.

4. Monitors will be on site during trenchless stream crossings at Millers Canal, Pajaro River west of Highway 1, Pajaro River west of Highway 101, and any other wetted stream channel to monitor for potential bentonite spills.

    a. If bentonite is observed entering the water column, construction will stop immediately.

    b. Pressurized grout will be injected into the streambed through pre-drilled holes in order to seal fissures in bedrock strata.

    c. Construction will not resume until grout has cured.

NOAA Fisheries expects that approximately 300 S-CCC ESU steelhead (of which nine may be mortalities) will be taken and; 3,500 linear feet and 38,400 sq. ft. of steelhead habitat will be adversely affected as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Federal action agency must immediately provide an explanation of the causes of the taking and review with NOAA Fisheries the need for possible modification of the reasonable and prudent measures.

IX. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

CCC Staff Suggestions, Revised by PVWMA, for Pajaro Valley Water Import/Distribution Project

The Pajaro Valley Water Management Agency (PVWMA) hereby incorporates the following project clarifications and commitments into its proposed project description.

Project Clarifications and Commitments

Project. In the coastal areas and throughout much of the groundwater basin of the Pajaro Valley, overdraft conditions have caused groundwater levels to drop below sea level, creating a landward pressure gradient that causes seawater from the Pacific Ocean to move inland, where it mixes with fresh water. Seawater intrusion increasingly is degrading water quality, and limiting the utility of groundwater for agricultural purposes. These conditions are not expected to improve without the elimination of groundwater pumping for agricultural uses in areas adjacent to the coast and development and delivery of additional water supplies to agricultural users. The Pajaro Valley Water Management Agency (PVWMA) was established in 1984 for the purpose of preventing further overdraft of the groundwater basin and to halting seawater intrusion. The Revised Basin Management Plan Project is designed to meet these needs by providing quality water for the long-term sustainability of agricultural irrigation and production. With the exception of lands within the Aromas County Water District (which is entirely outside of the coastal zone), the Agency Act (Section 124-710) prohibits importing water into the agency for other than agricultural purposes. Although some water delivery to Aromas County Water District may be proposed in the future, the current project is not intended to provide potable water for human consumption purposes, or any municipal or industrial uses. Agricultural uses shall be as defined in the definition chapters of the Santa Cruz and Monterey County LCPs, with the understanding that a number of the uses potentially allowable in areas zoned for Agriculture under these LCPs would not be eligible for imported water from this project (such as residences/municipal/industrial uses). Delivered water will be as described in the Revised Basin Management Plan EIR, and includes raw (untreated) water imported into the Agency, water from the existing Harkins Slough diversion project, tertiary-treated recycled water (which, under State law cannot be used for potable purposes), well water, and may, as part of Phase 3 of the Revised BMP, include future development of additional local water supplies. As described in the project EIR, water is intended to serve areas already in agricultural production, and the project would not require nor result in direct land use changes with associated significant environmental effects, such as the conversion of environmentally constrained (i.e., by the presence of, and/or setbacks associated with, wetlands, sloughs, other sensitive habitats, steep slopes, significant trees, etc.) and/or undeveloped, "native" lands that might affect biological resources. The system has been initially designed to provide 18,500 AFY to the coastal area; however this amount may vary from year to year and could increase based on future needs. *Under* the proposed project, PVWMA will import water supplies to the PVWMA service area from the Central Valley Project (CVP) facilities (the Import Water Project); and is also developing a recycled water supply and distribution system (the Water Recycling Project). The Revised Basin Management Plan Project is characterized in the following environmental documents (on file with the Coastal Commission):

> *Revised Basin Management Plan Environmental Impact Report*. This document describes and evaluates at a project-level of detail all elements of the project except the Integrated Coastal Distribution System.
>
> *Local Water Supply and Distribution System Projects Environmental Impact Report*. This document describes and evaluates at a project-level the Integrated Coastal Distribution System

EXHIBIT NO. 20
APPLICATION NO. PVWMA AGREEMENT

(ICDS).

Revised Basin Management Plan Environmental Impact Statement. The US Department of the Interior Bureau of Reclamation was the lead agency for the EIS. This document describes and evaluates at a project-level of detail the Import Water Project and Recycled Water Project; the latter is a joint project with the City of Watsonville. The City of Watsonville owns and operates the Watsonville Wastewater Treatment Facility, and will be the applicant for a coastal development permit when the City moves forward with expanding the WWTF to accommodate proposed tertiary treatment facilities to produce recycled water for agricultural irrigation use.

Certain components of the Revised Basin Management Plan Projects described above will be carried out in the Coastal Zone, as follows:

Santa Cruz County. Activities planned or already constructed within the Santa Cruz County portion of the Coastal Zone and addressed in Permit No. 04-0258 include the portion of the ICDS north of the Pajaro River, the Harkins Slough project elements (already constructed and in operation), and portions of the Import Pipeline and Recycled Water Pipeline. Should PVWMA make any additions or changes to project components within the Santa Cruz County portion of the Coastal Zone, PVWMA will, pursuant to Permit 04-0258, apply to Santa Cruz County to have the permit amended.

Monterey County. Activities planned within the Monterey County portion of the Coastal Zone include the portion of the ICDS south of the Pajaro River, portions of the Import Pipeline and Recycled Water Pipeline, and supplemental wells. The Planning Commission is scheduled to act on PVWMA's Coastal Development Permit in February 2005. Evidence indicating approval by Monterey County will be provided to the Coastal Commission following the hearing. Subsequent to issuance of the Coastal Development Permit, should PVWMA make any additions or changes to project components within the Monterey County portion of the Coastal Zone, PVWMA will, pursuant to permit terms and conditions, apply to Monterey County (or the Coastal Commission, if the Commission is the permit-issuing agency) to have the permit amended.

County Boundary. The project includes pipeline crossings of the Pajaro River, the boundary between Santa Cruz and Monterey Counties. The California Coastal Commission has retained permitting jurisdiction over the river crossing. Subsequent to issuance of the Coastal Development Permit, should PVWMA make any additions or changes to this component of the project, PVWMA will, pursuant to permit terms and conditions, apply to the California Coastal Commission to have the permit amended.

In addition, the entire project is subject to the federal consistency provisions under the Coastal Zone Management Act. Should PVWMA make any additions or changes to the project that would affect its consistency with the California Coastal Management Plan, such changes will be subject to the "reopener" procedures contained in 15 CFR Part 930, Section 930.66.

1. **Project Plans.** Prior to use of the Project to transport water, PVWMA shall submit 60% design plans (in 11" x 17" format with a graphic scale) of the Project to the California Coastal Commission (CCC) Executive Director for review and concurrence. The Design Plans shall identify components of the Project located within the Coastal Zone and shall include user connection points. Subsequent final plans shall be in substantial conformance with the 60% design plans, and any substantial changes as described below under Item 3 shall be submitted to the Executive Director for review and

concurrence.

2. **Project Annual Reporting.** Following the first year of Project operation (i.e., one year after Project water has first been supplied to users), PVWMA shall submit to the CCC Executive Director an annual project report by May of each year. The report shall include available data regarding: the volume and type of water inputs in the Project, including the amount of water supplied from import (Central Valley Project or otherwise), groundwater pumping, and other sources (e.g., Harkins Slough project, Recycled Water Facility, other); any treatment applied to Project water; Project water use; significant changes in cropping; changes in saltwater intrusion and any substantial Project changes in the preceding year. The submittal shall include a report on PVWMA's conservation programs in a format consistent with USBR requirements, and the latest version of the map depicting the postulated extent of the seawater-intruded zone (based on coastal wells with elevated chloride levels).

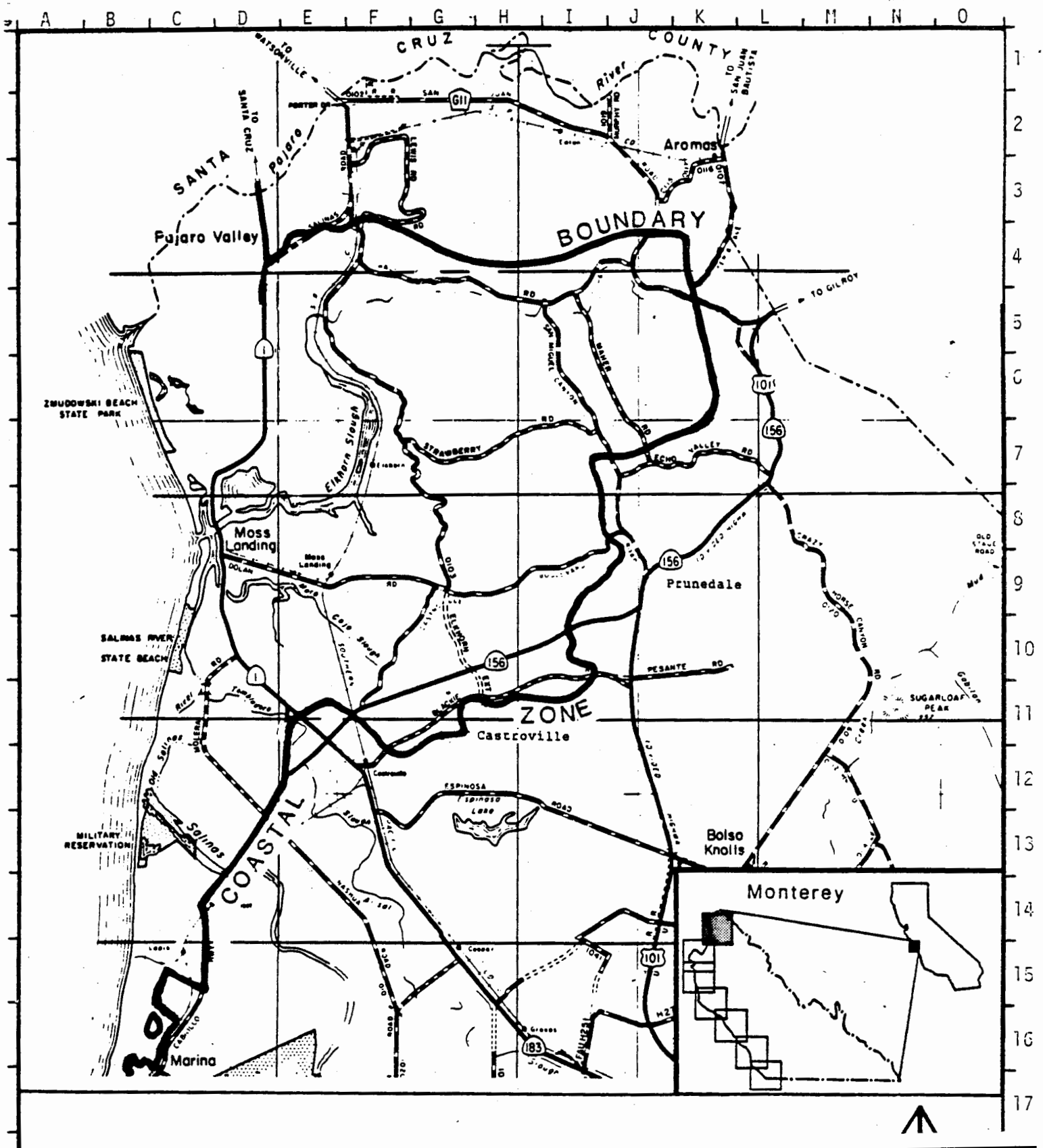
3. **Project Modifications.** Any substantial changes to Project components outside the Coastal Zone that would affect coastal zone resources, or within the Coastal Zone, and that would otherwise fall within CCC's permit jurisdiction, shall be subject to these project clarifications and commitments. Examples of potentially substantial changes include a new branch of the CDS to serve a new area or a new connection to a new parcel. Examples of changes that are not considered significant deviations or modifications include a minor shift in the location of a pipeline depicted in the 60% design drawings or a change in the location of a turnout for a connection depicted in the 60% design drawings. Any such changes within Santa Cruz or Monterey County's permitting jurisdiction, shall be coordinated with the Executive Director and shall be subject to these project clarifications and commitments. PVWMA shall incorporate these project clarifications and commitments as legally enforceable components of the project description for any such change.

4. **Changes to These Clarifications and Commitments.** Any changes to these project clarifications and commitments shall not be effective without the written approval of the CCC Executive Director.

[Note – 15 CFR Section 930.66 provides:

§930.66 Supplemental coordination for proposed activities

(a) For federal license or permit proposed activities that were previously determined by the State agency to be consistent with the management program, but which have not yet begun, applicants shall further coordinate with the State agency and prepare a supplemental consistency certification if the proposed activity will affect any coastal use or resource substantially different than originally described. Substantially different coastal effects are reasonably foreseeable if: (1) The applicant makes substantial changes in the proposed activity that are relevant to management program enforceable policies; or (2) There are significant new circumstances or information relevant to the proposed activity and the proposed activity's effect on any coastal use or resource.]



California Coastal Commission

LOCATION MAP

1 0 miles

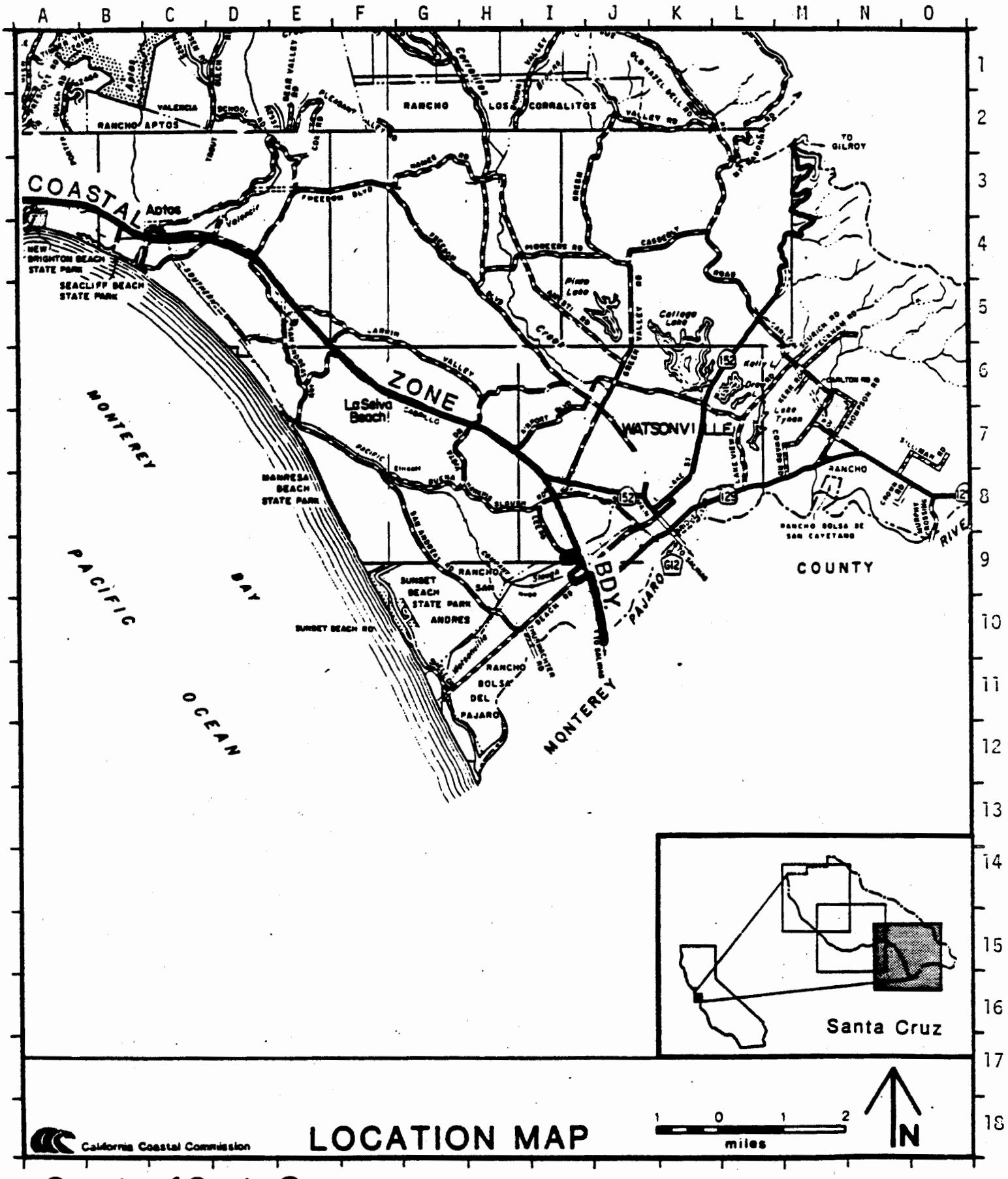
County of Monterey

EXHIBIT NO. 21

APPLICATION NO.

CC-088-04

Coastal Zone Boundary



County of Santa Cruz

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